

# WINDEV

POWERFUL INTEGRATED  
DEVELOPMENT ENVIRONMENT  
ALM - DEVOPS

Kanban control

WEBDEV site in a WINDEV window

Markdown

Flexbox in WEBDEV  
layout of items in a container

AI: contour detection

8 New Smart controls

New Polar Area chart

Performance profiler  
Real-time and log-based debugging

Native Kotlin

iOS: iPhone 14

Image Editor control for mobile apps

Customizable keyboard shortcuts

Create your own WLanguage functions

300 New WLanguage elements  
for Windows, iOS, Android, Linux,  
Web, Java, PHP, and more

928  
NEW FEATURES

NEW VERSION

DEVELOP 10 TIMES FASTER

PCSOFT

DEVELOP 10 TIMES FASTER

The new version 28

brings you an incredible amount of useful new features.

The new Kanban control, new WLanguage functions, the new flex-box mode for web pages, Markdown, contour detection AI, WEBDEV pages in WINDEV applications.



Version 28 brings your teams 928 essential new features.

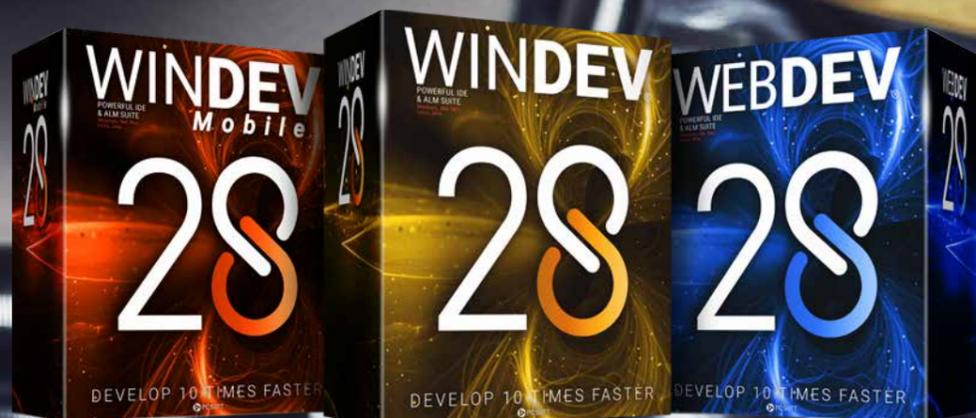
Capitalize on your experience while taking advantage of new technologies and new tools: this is one of the main advantages of version 28.

These new features meet your needs, and are compatible with the elements you already have.

WINDEV 28, WEBDEV 28 and WINDEV Mobile 28 are your working tools. Our main goal is to help you succeed, regardless of the environment and devices your projects are aimed at.

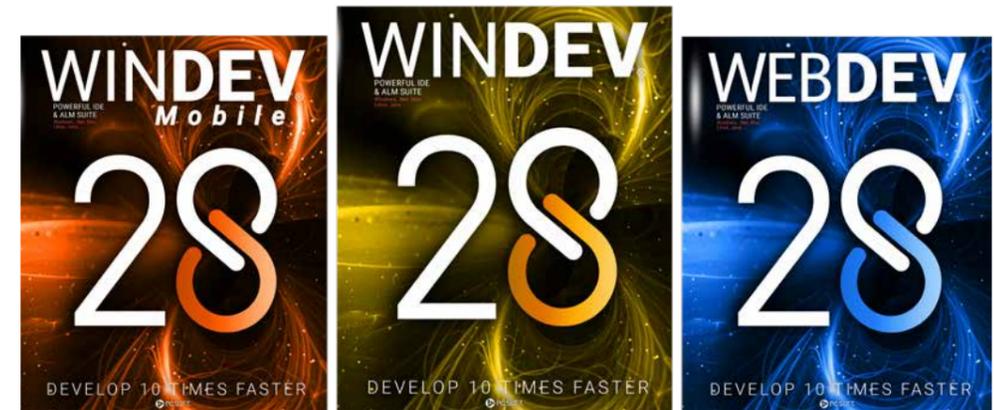
Version 28 will instantly become your favorite version.

ORDER VERSION 28 TODAY!



**Legend**  
WD WB WM: the legend indicates the IDE in which the new feature is available.

This documentation only presents the new features of version 28. To discover the thousands of features of each product, refer to their respective documentation (at WINDEV.COM, or printed brochure on demand).



## NEW KANBAN CONTROL

### KANBAN BOARD WITH CARDS

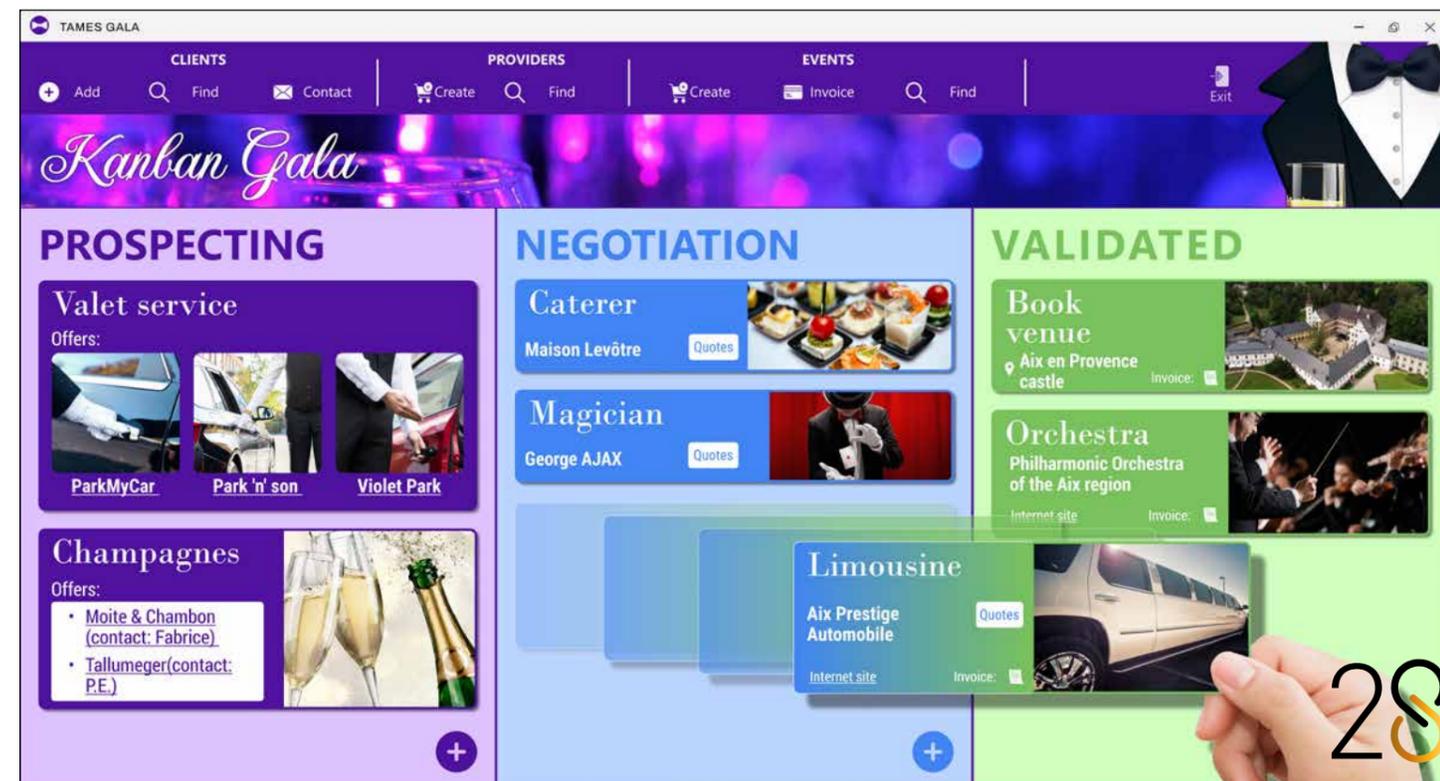
#### 001 New feature WD WB WM NEW KANBAN CONTROL

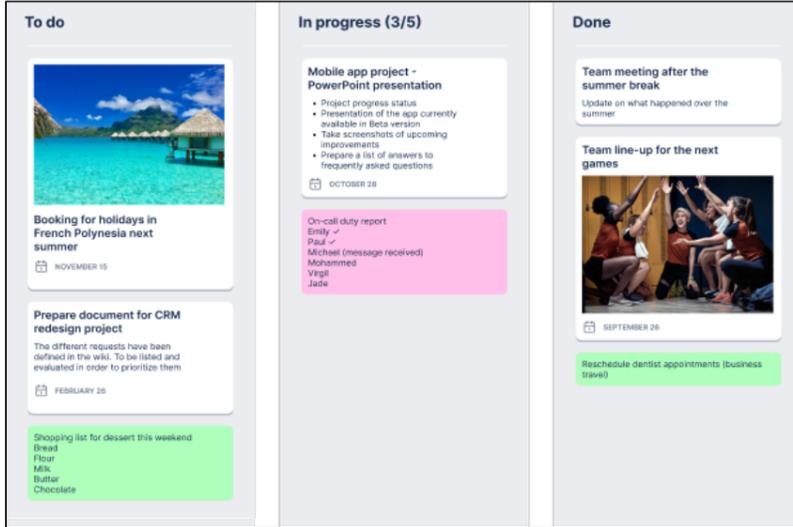
The new Kanban control stands out as one of the most versatile new features in version 28. Enjoy all the features of a Kanban board by simply dropping the control onto a window or page.

**Benefit of this new feature in version 28:**  
A very powerful control

#### 002 New feature WD WB WM WHAT IS KANBAN?

Originally, Kanban is a Japanese method aimed at improving processes for a better, more efficient production cycle. Today, Kanban also refers to a method in which tasks are visually classified, allowing for better task management. Each task is written on a "card" that will move to a different list (column) according to its progress status. In addition to tasks, these cards can represent any other type





Classic Kanban control

of resource: user story, requirement, suggestion, manufacturing stage, delivery, troubleshooting, etc. A Kanban board is commonly shared between several users. Each member of the team knows the progress status of the project, and knows what both themselves and the other members have to do. In addition to better communication, this card-based method provides a clear overview of the production chain and the progress of the tasks, thus allowing members to easily identify bottlenecks and prioritize certain tasks.

**Benefit of this new feature in version 28:**  
A simple and powerful method

### 003 New feature WD WB WM KANBAN CONTROL: MAIN FEATURES

The Kanban control in version 28 includes all the features that users might expect:

- define lists (columns)
- create and edit cards
- remove cards
- move cards: vertically to change priority, horizontally to move to another list
- manage user rights

All these features, included directly in the control, are available to the end users of your applications and sites. You can also handle these features programmatically.

**Benefit of this new feature in version 28:**  
Everything is managed by default

### 004 New feature WD WB WM KANBAN CONTROL: LISTS (COLUMNS)

The number of lists (columns) can be defined programmatically or via the 7-tab window.

There are many options for each list:

- title
- appearance: background color, separation color, etc.
- background image
- width: fixed or proportional

- number of cards in the column
- maximum number of cards per column
- "+" button to add cards

These options allow you to fully customize the Kanban board.

Note: you can write Markdown text (see new feature 027).

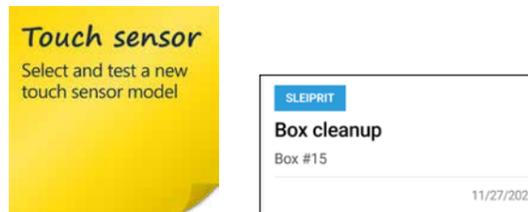
**Benefit of this new feature in version 28:**  
Manage Kanban lists

### 005 New feature WD WB WM KANBAN CONTROL: CARDS

You can customize the appearance of cards. A default card template is provided.

A major advantage of these cards is that they can contain Internal Windows or Internal Pages, and thus contain any kind of control.

You can customize all cards at once, one by one, or even customize groups of cards. The height of a card can vary. The width of a card depends on the width of the column, but can also be set manually.



Kanban cards are fully customizable. They contain Internal Windows or Internal Pages

**Benefit of this new feature in version 28:**  
Now you hold all the cards

### 006 New feature WD WB WM KANBAN CONTROL: SAVE THE DETAILS OF YOUR CARDS

By default, the characteristics of a Kanban board are stored in a data file.

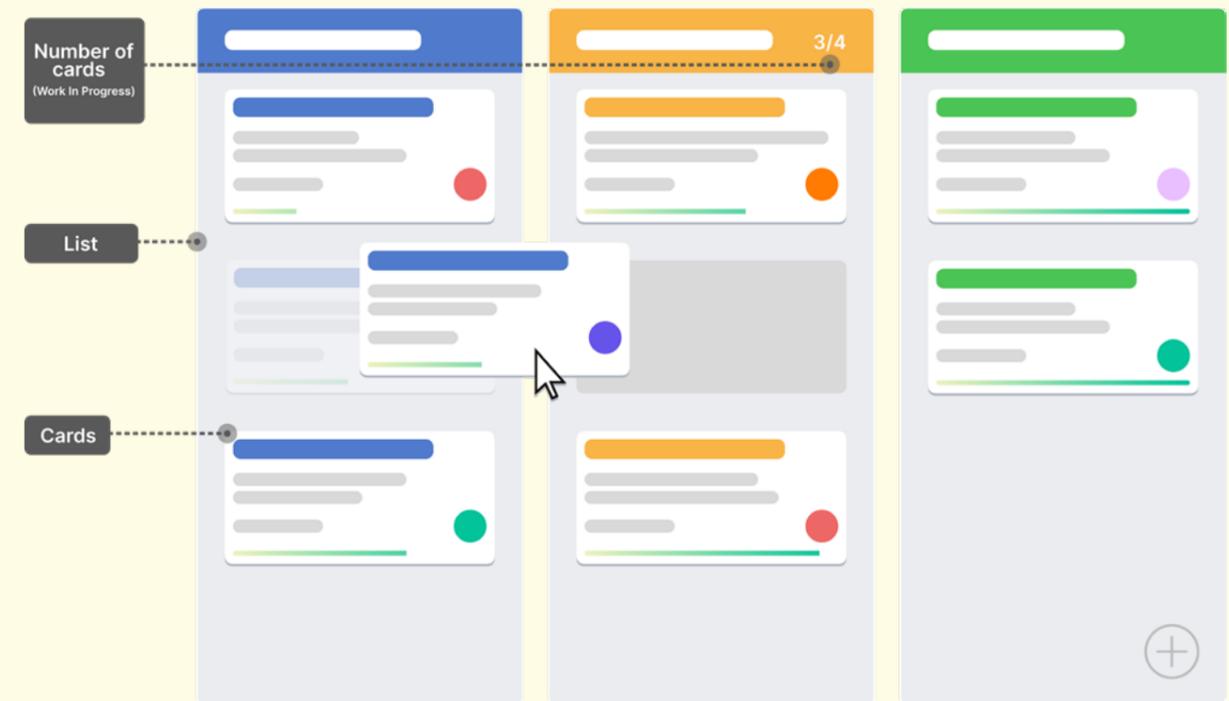
You can manipulate the data format as required.

As for the structure of the data file, simply define the items that will contain the details of the Kanban board:

- list
- priority
- card text
- card owner
- label
- date

A full example based on an HFSQL data file is provided.

## Cards are movable by default



The control already allows users to move cards between lists: no programming required

Databinding (automatic link between the card and the data) is available for even easier programming. Please note that bi-directional data binding is enabled by default.

Of course, you can also populate and save the Kanban board programmatically.

**Benefit of this new feature in version 28:**  
The default behavior of the control saves a lot of code

- the appearance of the Kanban control
- the content of the Kanban control
- the management of rights

The Kanban control, as well as the lists and cards have properties that allow you to configure all these elements.

You can add and remove lists and cards programmatically. **kbCard**, a new native WLanguage type, allows you to handle the content of a Kanban control.

### 007 New feature WD WB WM KANBAN CONTROL: MANAGE USER RIGHTS

The Kanban control allows you to manage user rights:

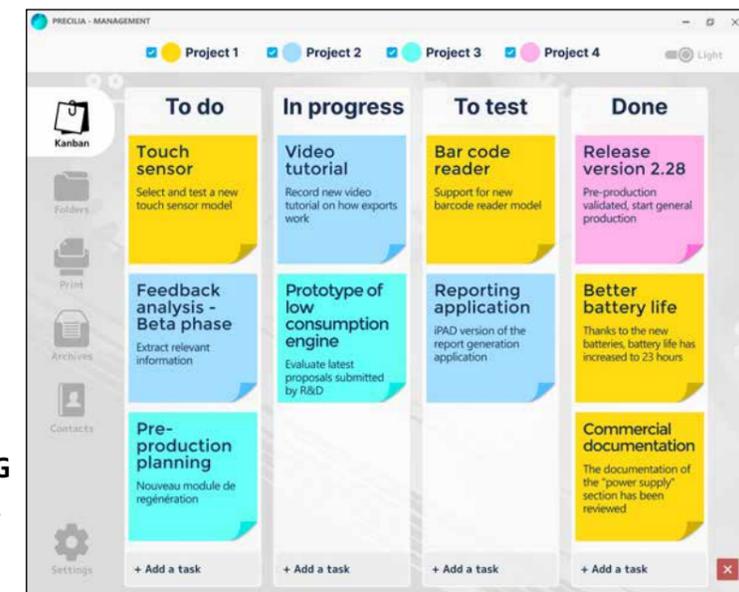
- move cards vertically (change priority)
- move cards horizontally (change list)
- create cards
- edit cards
- remove cards

You can manage rights programmatically.

**Benefit of this new feature in version 28:**  
Integrated security

### 008 New feature WD WB WM KANBAN CONTROL: PROGRAMMING

You can manage various features of the Kanban control programmatically:



Kanban cards are fully customizable

Monday	Tuesday	Wednesday	Thursday	Friday
<b>Peter Campbell</b> Confirmed Available on premises	<b>Abigail Brooks</b> Scheduled Available on premises	<b>Steven Kennedy</b> Scheduled Available remotely	<b>Aaron Bennett</b> Confirmed Available on premises	<b>Jade Taylor</b> Not confirmed Available remotely

Alternative use of a Kanban control: an interactive schedule (the Kanban control allows moving cards between lists)

The `kbCard` type contains the following properties:

- title
- priority
- text
- contributor
- date
- optional internal window or page to customize a given card

You can handle lists programmatically, just like you handle columns in a table: it's a skill you already master!

Code example:

```
// Iterates over pending tasks for the contributor "JohnDoe"
FOR EACH Card OF KB_Sprint.TaskToDo.Cards
  IF Card.Contributor = "JohnDoe" THEN
    ...
  END
END
```

**Benefit of this new feature in version 28:**

Simple and powerful programming

## 009 New feature WD WB WM KANBAN CONTROL: NEW PROGRAMMING EVENTS

New programming events have been introduced to allow you to easily handle Kanban controls:

- select a card
- double-click or long press on a card
- move card vertically
- move card horizontally
- add a card
- remove (archive) card

All the events you need to use the Kanban control in your application or site are at your disposal.

**Benefit of this new feature in version 28:**

Adjust the fine details programmatically

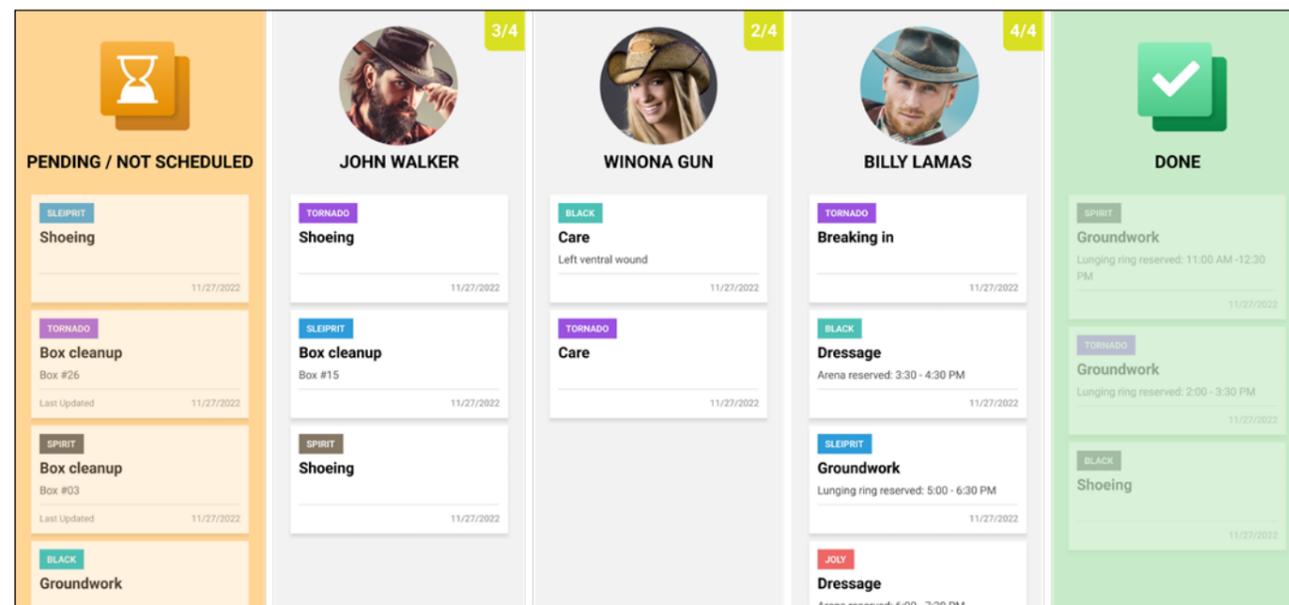
## 010 New feature WD WB WM KANBAN CONTROL: NEW WLANGUAGE FUNCTIONS

To allow searching and filtering elements in Kanban controls, the new WLanguage `KanbanSearch` and `KanbanFilter` functions have been introduced in version 28.

**Benefit of this new feature in version 28:**

The functions you need !

Continues page 8...



A custom Kanban board

# CROSS-PLATFORM KANBAN CONTROL: PC + MOBILE + WEB

## 011 New feature WD WB WM KANBAN CONTROL: CROSS-PLATFORM

You can use the same Kanban control in WINDEV, WEBDEV and WINDEV Mobile 28.

All the main features are the same, with some adjustments for

mobile and web to better take advantage of each platform. For example, the control adapts to portrait mode on mobile devices.

See new feature 463 for mobile and new feature 724 for web.

**Benefit of this new feature in version 28:**

Total interoperability!

WEBDEV  
Kanban control

WINDEV  
Kanban control

WINDEV Mobile  
Kanban control



## 012 New feature WD WB WM KANBAN CONTROL: EXPORT TO PNG

You can export a Kanban board as a PNG image using a new WLanguage function: `KanbanToImage`.

**Benefit of this new feature in version 28:**  
*Export your Kanban board*

## 013 New feature WD WB WM KANBAN CONTROL: PRINT

You can print a Kanban board as an image at any time. This opens a wide range of possibilities.

**Benefit of this new feature in version 28:**  
*Print your Kanban board*

## 014 New feature WD WB WM KANBAN CONTROL: MISCELLANEOUS

- Margins: around lists, between lists, between a card and a list, between cards
- The "+" button used to add cards can be customized using an Internal Window or an Internal Page.

**Benefit of this new feature in version 28:**  
*More and more features*

# 8 NEW SMART CONTROLS

## 015 New feature WD WB WM 8 NEW SMART CONTROLS

Version 28 features 8 new Smart controls:

- Multi-selection with tokens
- Badge
- Address autocomplete
- Show more
- Looper with image and filter
- Advanced tables for the web (3 Smart controls).

Find these Smart controls in their corresponding sections: new features 199 to 202 for WINDEV 28, 470 to 475 for WINDEV Mobile 28, and 721 to 729 for WEBDEV 28.

**Benefit of this new feature in version 28:**  
*Massive time savings*

# NEW FEATURES OF WORD PROCESSING AND SPREADSHEET CONTROLS

## 016 New feature WD WB WM SPREADSHEET: INSERT A FORMULA IN A CELL PROGRAMMATICALLY

Now the Spreadsheet control allows you to programmatically insert a formula. In version 28, you can create spreadsheets with calculations without using the Spreadsheet control.

**Benefit of this new feature in version 28:**  
*Edit or create calculations programmatically*



## 017 New feature WD WB WM SPREADSHEET: MERGE CELLS PROGRAMMATICALLY

In version 28, you can merge cells of a Spreadsheet control programmatically.

**Benefit of this new feature in version 28:**  
*Perform actions directly from the code*

## 018 New feature WD WB WM SPREADSHEET CONTROL: SCIENTIFIC NOTATION SUPPORT

Now you can enter numbers in scientific notation in the cells of Spreadsheet controls. Example: 1,23E+10.

**Benefit of this new feature in version 28:**  
*An advanced, yet essential feature*

## 019 New feature WD WB WM SPREADSHEET CONTROL: MISCELLANEOUS

- Rich layout properties for printing: page size, orientation, margins, etc.

**Benefit of this new feature in version 28:**  
*More and more features*

## 020 New feature WD WB WM WORD PROCESSING CONTROL: AS- YOU-TYPE SPELLING CHECKER / GLOSSARY

The Word Processing control now lets you implement an automatic spelling checker. This feature also allows the creation of an automatic glossary.

**Benefit of this new feature in version 28:**  
*Easily correct and replace text*



## 021 New feature WD WB WM WORD PROCESSING CONTROL: OTHER IMPROVEMENTS

- Ability to search for an element using its internal name
- Pressing Shift+F3 converts the selected text to uppercase.

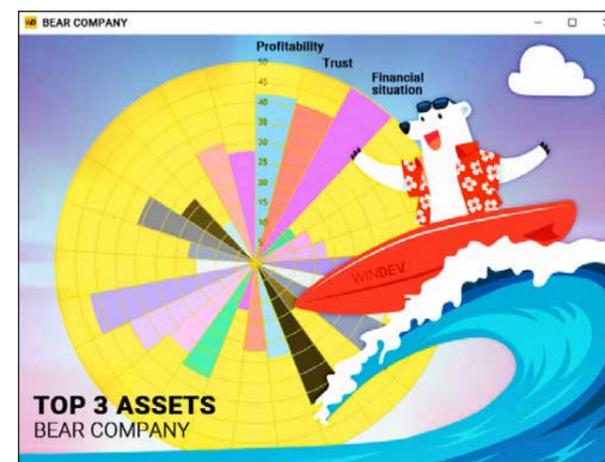
**Benefit of this new feature in version 28:**  
*More and more features*

# NEW CHART CONTROL

## 022 New feature WD WB WM NEW CHART CONTROL: POLAR AREA

A new type of chart is introduced in version 28: the Polar Area chart.

This type of chart is mainly used to compare target values or market shares, or to illustrate a progress percentage. The value is not represented by the angle of the segment, but by the radius.



*Polar Area chart*

**Benefit of this new feature in version 28**  
*A new type of chart*

## 023 New feature WD WB WM NEW POLAR AREA CHART: PROGRAMMING

The Polar Area chart control can be populated programmatically, just like any other chart control. You can manipulate this type of chart using `gx` functions.

**Benefit of this new feature in version 28:**  
*Familiar coding*

# EDIT SITES AND MOBILE APPS IN WINDEV

## 024 WD WB WM NO NEED TO DUPLICATE YOUR PROJECTS: ONE SINGLE ENVIRONMENT

As you know, it is possible to use WINDEV, WEBDEV and WINDEV Mobile in the same environment.

Project elements are immediately shared between all 3 platforms: analyses, queries, reports, procedures, classes, code, etc.

**Windows, pages and mobile windows** are in the same project.

These elements **are opened directly in the WINDEV environment**.

This allows for easy maintenance and portability of a WINDEV application to mobile and Web, without having to import or duplicate elements of the project.

*Reminder: you need a license of the corresponding software products.*

**Benefit of this new feature in version 28:**  
*One for all, all for WINDEV*

# TRANSFORM WINDEV APPLICATIONS INTO SAAS



## 025 New feature WD WB WM TRANSFORM EXISTING WINDEV ELEMENTS INTO A SAAS APPLICATION

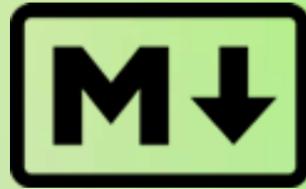
Developers often need to transform Windows applications (or parts of applications) into dynamic websites or SaaS applications. WEBDEV 28 allows developers to use their existing WINDEV projects and take advantage of the SaaS features that come as standard.

**Benefit of this new feature in version 28:**  
*Improve your SaaS solutions*

*Continues page 12...*

# MARKDOWN EVERYWHERE: CONTROLS, LABELS, MENUS, TOOLTIPS AND MORE!

FORMAT ALL  
TYPES OF TEXT.  
CROSS-PLATFORM



Number of *sushi rolls*  included:

*Delicious-looking text  
in an Edit control*

## 026 New feature WD WB WM WHAT IS MARKDOWN?

Markdown is a lightweight markup language that allows you to apply formatting to text. It works on all platforms: PC, Web, Mobile.

Because of its simplicity and practicality, Markdown is easy to read, learn and remember.

For example: wrap text in double asterisks (\*\*) to apply bold formatting, use # at the start of a line to create a title, ## to create a subtitle, etc.

**Benefit of this new feature in version 28:**

*Easy, universal formatting language*

## 027 New feature WD WB WM MARKDOWN IN ALL TYPES OF TEXT: CONTROL CAPTIONS, COLUMN HEADERS, MENU OPTIONS, TOOLTIPS...

In version 28, you can easily write and format text in many UI elements using Markdown (without **gPen**, **gImage** etc.).

This may include, for example:

- static text in an Edit control
- static text in a menu option
- a table column header
- a tooltip
- information text
- ...

**Benefit of this new feature in version 28:**

*Easy text formatting!*

## 028 New feature WD WB WM CONVERT MARKDOWN TEXT TO PDF, DOCX OR HTML

Use the new **MarkdownToDocx**, **MarkdownToPDF** and **MarkdownToHTML** functions to convert Markdown text to those formats.

**Benefit of this new feature in version 28:**

*Interoperability*

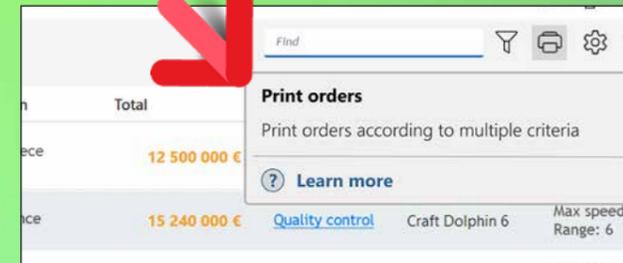
### MARKDOWN IS AVAILABLE FOR ALL CONTROLS

Edit control	Main caption	Main caption	Map
Main caption	Camera	Input area text	Main caption
Hint text	Main caption	Caption of rows	Action Bar zone
Invalid input: Explanation & icon	Conference	Selected row	Main caption
Required input (error): Explanation & icon	Main caption	Hint text	Multiline Zone
Required input (hint): Explanation & icon	Bar code	Invalid input: Explanation & icon	Main caption
Static	Main caption	Required input (error): Explanation & icon	TimeLine
Main caption	ListView	Required input (hint): Explanation & icon	Main caption
Button	Main caption	TreeMap	Default style
Normal button	Element border and caption	Main caption	Odd row
Button on hover	Border and caption of selected element	Caption of rows	Selected row
Button down	Selected row	Selected row	Caption of tracks
Button with focus	Border and caption of hovered element	Group border and caption	Event
Button grayed out	Caption of rows	Border and caption of selection group	Selected event
Check Box	SideBar	Organizer	Time bar
Main caption	Active tab	Main caption	Pivot Table
Text of options	Inactive tab	Default style	Main caption
Sub-caption	Looper	Odd row	Column title
Required input (error): Explanation & icon	Main caption	Even row	Caption of rows
Radio Button	Selected row	Saturday	Working schedule
Main caption	Internal window	Sunday	Off bounds days
Text of options	Main caption	Public holidays	Today
Sub-caption	Chart	Off bounds days	Selected schedule
Required input (error): Explanation & icon	Main caption	Off-month days	Caption for days of the week
List Box	Title font	Today	Header of months
Main caption	Font of axis titles	Selected row	Header of week number
Caption of rows	Legend font	Caption for days of the week	Appointment
Selected row	Label font	Header for the week	Selected appointment
Image	Value font	Appointment	Time period (days/week)
Main caption	TreeView Table	Selected appointment	Dashboard
Table	Main caption	Time period (days/week)	Main caption
Main caption	Column title	Scheduler	Caption of rows
Column title	Caption of rows	Main caption	Selected row
Caption of rows	Linear progress bar	Default style	infinite Progress Bar
Selected row	XAML	Odd row	Main caption
Linear progress bar	Main caption	Saturday	Spreadsheet
ProgressBar	Carousel	Sunday	Main caption
Main caption	Main caption	Public holidays	Column title
Linear progress bar	Cube	Off bounds days	Selected header
Mark	Media	Today	Hovered header
Slider	Main caption	Selected row	Caption of rows
Main caption	Calendar	Caption for days of the week	Repositionable note
Round Slider	Main caption	Header of months	Main caption
Main caption	Default style	Appointment	Today
Combo Box	Odd row	Selected appointment	Dockable Panel
Main caption	Even row	Time period (days/week)	Title
Caption of rows	Saturday	.NET 2.0 control (WinForm)	Active tab
Selected row	Sunday	Main caption	Inactive tab
Hint text	Public holidays	Rating	Switch
Invalid input: Explanation & icon	Off bounds days	Main caption	Caption inside track (OFF value)
Required input (error): Explanation & icon	Off-month days	Required input (error): Explanation & icon	Caption inside track (ON value)
Explanation & icon	Today	Explanation & icon	Caption outside track (OFF value)
Required input (hint): Explanation & icon	Selected row	Organization Chart	Caption outside track (ON value)
Button	Button	Main caption	Tooltip
Caption for days of the week	Caption for days of the week	Caption of rows	Main caption
Month caption	Month caption	Selected row	
Week number	Week number	Content text	
Menu option	Menu option	Ribbon	
Menu bar	Menu bar	Active tab	
Menu bar (selection)	Menu bar (selection)	Inactive tab	
Caption of rows	Caption of rows	Caption of groupings	
Selected row	Selected row		
Shape	Break		
Main caption	Combo Box + Table		
HTML Display			

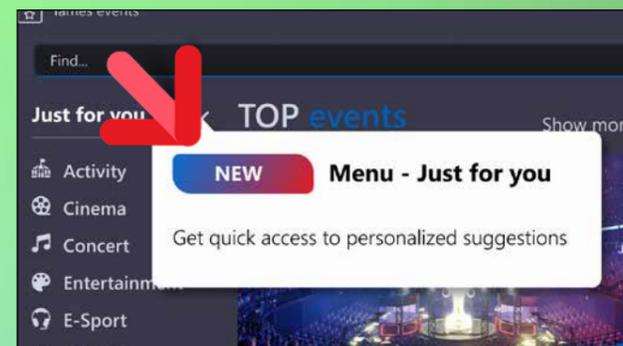


Send **confirmation** by **SMS**

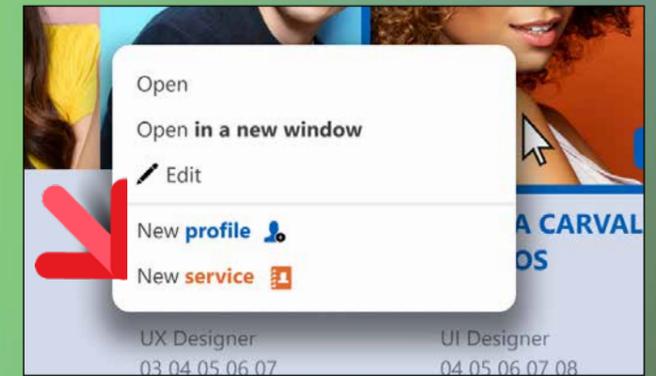
*Text written in the 7-tab window...  
... and the result displayed in the window*



*Formatted tooltip text*



*Tooltip with an image*



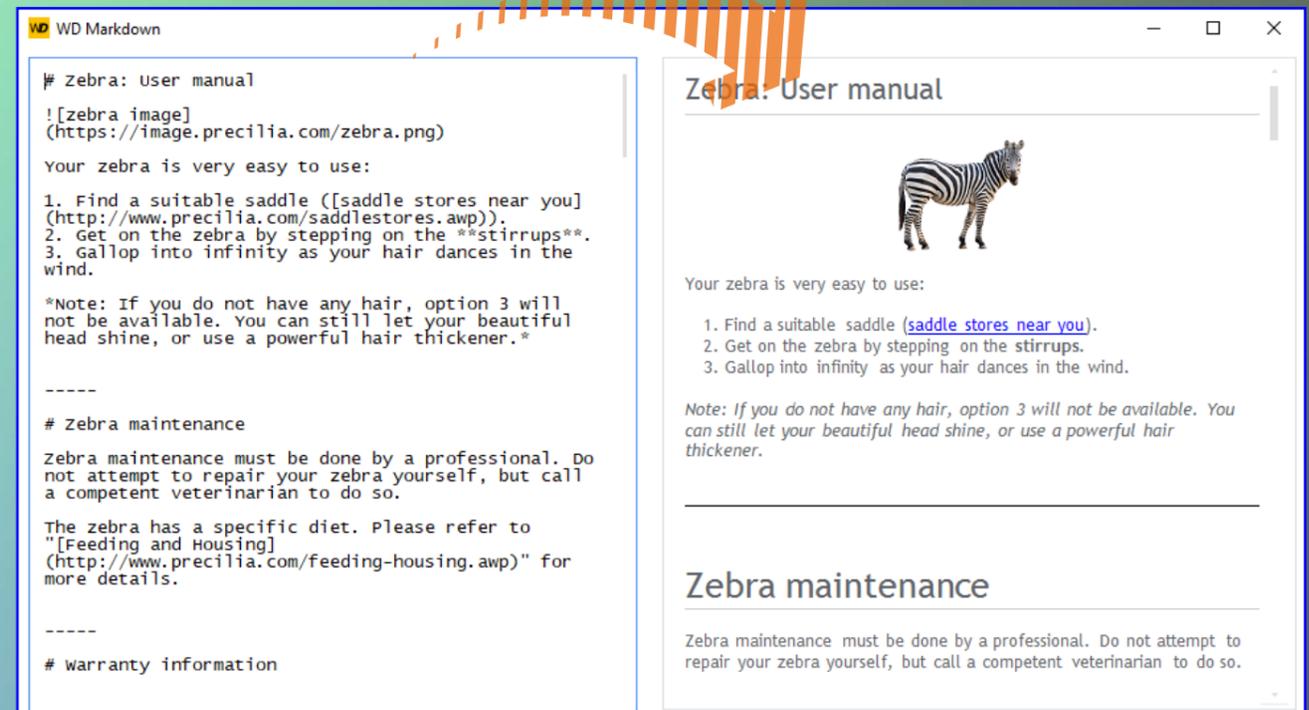
*Context menu*

Name of the *actress* ☆ :

*Formatted static text in an Edit control*

Travel *destination* ✈️ :  Bora-Bora, POLYNESIA ... ▾

*Rich formatting in a Combo Box*



*Document in raw Markdown, and the final result*



## NEW FEATURES FOR CONTROLS

### 029 New feature WD WB WM DIAGRAM EDITOR CONTROL: FREEHAND DRAWING

With the Diagram Editor control, you can now allow end users to draw freehand.

Each drawing can then be manipulated like any other object, in the editor or programmatically.

**Benefit of this new feature in version 28:**

*More freedom for the end user*

### 030 New feature WD WB WM DIAGRAM EDITOR CONTROL: NEW PROPERTY ON SHAPES TO AUTHORIZE SPECIFIC ACTIONS

With the new `ActionAllowed` property, you can allow or prevent the user from performing specific actions on any shape in a diagram:

- move
- resize
- select
- edit text
- delete
- copy

By default, all actions are available to the end user.

**Benefit of this new feature in version 28:**

*You decide how far users can go*

### 031 New feature WD WB WM ALL CONTROLS: THE ..EXTRA PROPERTY, EVEN BETTER THAN ..NOTE

You can assign additional content to a control programmatically, and get it later.

This is the purpose of the `..Note` property, which stores strings.

In version 28, the new `..Extra` property allows you to store "key/value" pairs of any type. This allows for more structured information compared to simple strings: objects, records, queries, etc.

**Benefit of this new feature in version 28:**

*A richer, more powerful property*

### 032 New feature WD WB WM INTERNAL WINDOW CONTROL: IT CAN BE CLEARED

Now, you can "clear" the contents of an Internal Window control.

The `ChangeSourceWindow` function accepts "empty string" as a parameter.

**Benefit of this new feature in version 28:**

*Cleanup done in a single line of code*

### 034 New feature WD WB WM APPLY CHANGES TO A SET OF TABLES (DATA FILES)

In version 28, the data model editor allows you to select a set of tables and apply changes to this set in a single operation. You no longer need to make these changes on each description.

**Benefit of this new feature in version 28:**

*Less actions*

### 035 New feature WD WB WM DUPLICATE ITEM DESCRIPTIONS: IN THE SAME TABLE OR IN ANOTHER TABLE (DATA FILE)

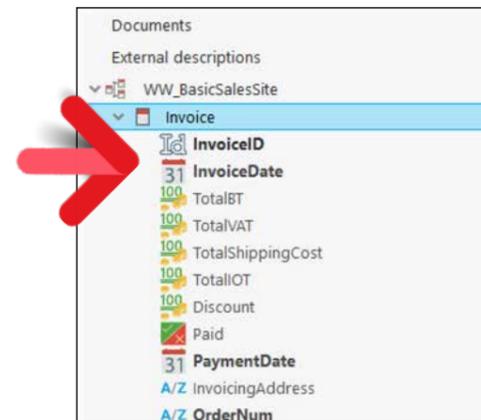
You can now duplicate an item description, both within the same table and between different tables (data files).

**Benefit of this new feature in version 28:**

*Less and less actions*

### 036 New feature WD WB WM REPRESENTATIVE ICONS

In the data model editor, an icon now appears next to the name of the item, and the font weight indicates the type of item: unique key, primary key, etc.



*Find what you need at a glance*

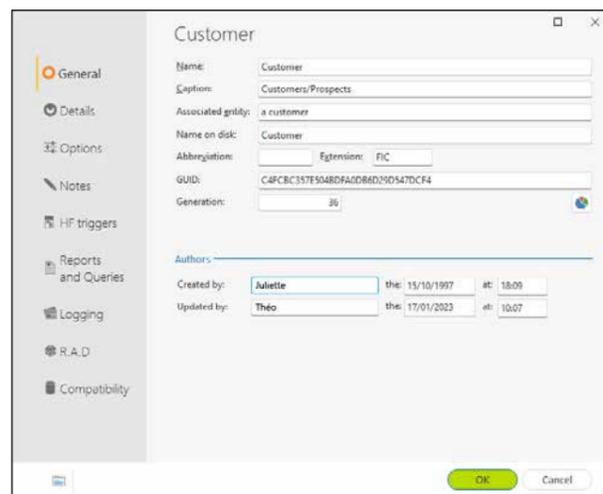
**Benefit of this new feature in version 28:**

*Clearer, easier*

## DATA MODEL EDITOR DATA SCHEMA

### 033 New feature WD WB WM EASILY EDIT DATA FILES (TABLES): NEW, RICHER 7-TAB WINDOW

The description of the data file properties has been simplified in the data model editor: this description now provides a better UX in the 7 tab-window.



*Data file description tab*

**Benefit of this new feature in version 28:**

*Improved data file description*

## ENVIRONMENT

### 037 New feature WD WB WM NEW, WELL-SPACED UI

The development environment in version 28 remains at the forefront of UI design and features a more streamlined interface.

Font size is slightly increased, for a more modern feel.

**Benefit of this new feature in version 28:**

*Easy on the eyes*

### 038 New feature WD WB WM AUTOMATIC PROJECT MIGRATION: 2X FASTER

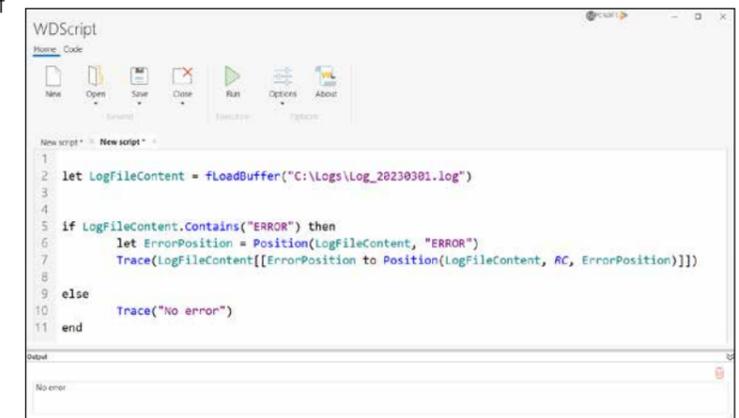
You can migrate a project by simply recompiling it in version 28.

In this version, this operation is twice as fast.

**Benefit of this new feature in version 28:**

*Easily migrate your projects to version 28*

### 039 New feature WD WB WM WLANGUAGE SCRIPT EDITOR



*Write, run and save WLanguage code in WDScript, the new built-in script editor*

Version 28 includes a WLanguage script editor. It runs as a stand-alone application, for greater flexibility. This editor features syntax highlighting.

**Benefit of this new feature in version 28:**

*Easily test code*

*Continues page 16...*

# PDF CONTROL PDF PROGRAMMING

## NEW FEATURES IN PDF CONTROLS

### 040 New feature WD WB WM GENERATE PDF FORMS

In version 28, you can create PDF forms using the report editor.

In addition to the controls available in the report editor, you can include the following types of controls in PDF reports:

- Edit control
- Check box
- Combo Box.

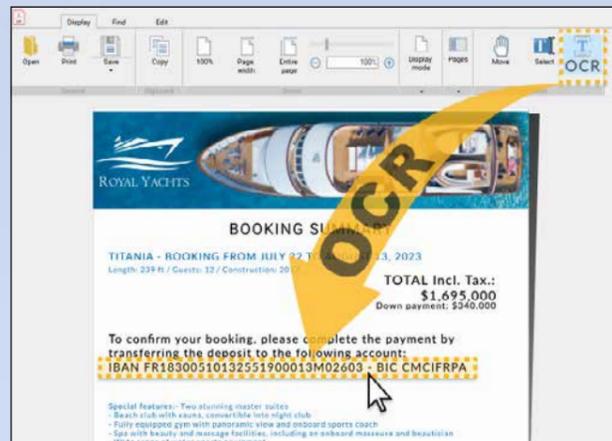
In version 28, you can create reports and include these controls to automatically generate interactive PDF forms. End users will be able to enter data, print or save the form.

PDF form to fill out

**Benefit of this new feature in version 28:**  
Easily create interactive forms

### 041 New feature WD WB WM PDF READER CONTROL: INTEGRATED OCR

Generally, users can select text in standard PDF documents. However, some PDF documents may prevent the user from copying text, for example, if the text has been scanned. Now, this text can be retrieved using the native OCR integrated into WINDEV's PDF Reader control. OCR is run on an area defined by the end user.



The automatic OCR can be used to get an IBAN present in an image, and allow users to copy/paste it afterwards.

**Benefit of this new feature in version 28:**  
Easily extract text from images

### 042 New feature WD WB WM REDUCE THE WEIGHT OF PDF DOCUMENTS GENERATED VIA A REPORT: 2 TO 10 TIMES SMALLER

A document can be composed of a series of reports and PDF pages. Generating a single PDF document from this series of elements drastically reduces the size of the resulting file.

**Benefit of this new feature in version 28:**  
Lighter, more practical files

### 043 New feature WD WB WM PDF IN THE BACKGROUND OF A REPORT: THE RESULTING PDF FILE IS 2 TO 10 TIMES SMALLER

A report can use a PDF document as background. The report itself can then be generated as a PDF document. The weight of the resulting PDF file (that already uses a PDF background) is reduced by at least 50%.

**Benefit of this new feature in version 28:**  
PDF files are really going on a diet here

### 044 New feature WD WB WM PDF FILE GENERATION: 2 TO 25 TIMES FASTER

In version 28, the PDF generation process is dramatically faster. 2 to 25 times faster, depending on the size of the documents.

**Benefit of this new feature in version 28:**  
Save time by simply recompiling your project

### 045 New feature WD WB WM SET THE COMPRESSION RATIO AND QUALITY



The size of the PDF file varies depending on the quality level chosen

In version 28, you can define the quality and weight of the resulting document by setting a compression ratio. This allows you to adapt the size of the document: the lower the quality, the lighter the document.

## PDF: ESSENTIAL NEW FEATURES

You can set this compression ratio with the new **Quality** parameter of the **PDFSave** function: **Automatic**, **High**, **Average** and **Low**.

**Benefit of this new feature in version 28:**  
You choose

### 046 New feature WD WB WM PDF SIGNATURE: LET THE END USER KNOW IF A CERTIFICATE IS VALID

The PDF Reader control shows a notification when a document is signed.

The user can see the details of the signature in the document reader.

In version 28, these notifications have been rewritten using non-technical terms. They are now clearer for the end user, thus providing better security:

- invalid certificate
- document modified after being signed
- ...



PDF signature details shown to the end user

**Benefit of this new feature in version 28:**  
Clear information for better security

### 047 New feature WD WB WM GO TO A BOOKMARK PROGRAMMATICALLY

In version 28, you can set the position directly on a given bookmark.

To do so, you can use the new **pdfBookmark** type and its **Title** and **PageNumber** properties, the new **Bookmark** property, and the new **PDFReaderGoToBookmark** function.

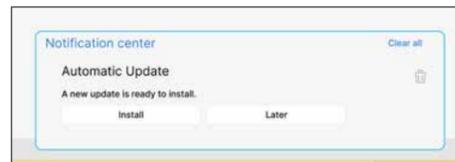
**Benefit of this new feature in version 28:**  
Go exactly where you want

## 048 New feature WD WB WM RUN WLANGUAGE SCRIPTS

In version 28, you can create WLanguage scripts. A script is a text file that contains WLanguage code. This code is executed with WDScript, the new script editor. Scripts allow you to easily create batch processes.

**Benefit of this new feature in version 28:**  
Easy batch operations

## 049 New feature WD WB WM GET A NOTIFICATION WHEN THERE IS A NEW VERSION OF THE ENVIRONMENT

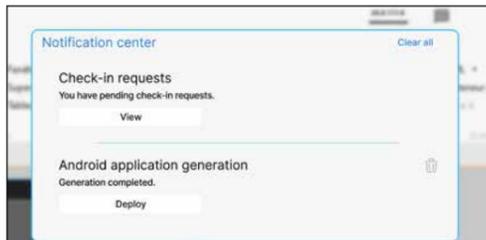


New toast messages

When there is a new version of the environment on PCSOFT's website, a notification appears and prompts you to install the update: the message appears as a toast message.

**Benefit of this new feature in version 28:**  
Don't stay in an old version

## 050 New feature WD WB WM NOTIFICATIONS IN THE ENVIRONMENT: NOW EASIER TO READ



The notifications displayed in the environment become much easier to read. You cannot miss them!

**Benefit of this new feature in version 28:**  
Clearer, easier

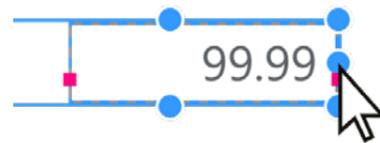
## 051 New feature WD WB WM CONTROLS: SNAP-ON FEATURE WITH THE KEYBOARD

In all the editors, you can move controls using the keyboard. The snap-on mechanism is active while the control is moved: the control briefly stops at each location it can snap to. In version 28, you can press 0 on the numeric keypad to see the gridlines.

## Benefit of this new feature in version 28:

Less mouse-dependent actions

## 052 New feature WD WB WM MORE USER-FRIENDLY HANDLES



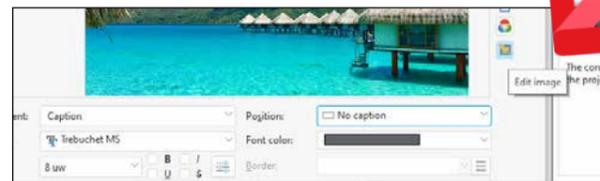
Easy-to-select handles

In version 28, controls feature easy-to-select handles. When the control is moved, these handles disappear and allow for precise positioning.

**Benefit of this new feature in version 28:**  
Solid handles

## 053 New feature WD WB WM 7 TABS: EDIT THE IMAGE ASSOCIATED WITH THE CONTROL DIRECTLY FROM THE STYLE TAB

Controls of type Cell, Button, Image, etc. can contain an image. In version 28, you can easily edit this image from the Style tab, using a new edit button.



Edit the image directly

**Benefit of this new feature in version 28:**  
Edit images with one click

## 054 New feature WD WB WM UNABLE TO EDIT A CONTROL IN THE 7-TAB WINDOW? THE ENVIRONMENT EXPLAINS WHY

Sometimes a control cannot be edited in the 7-tab window: the content of the tabs is grayed out. There are many possible reasons: file in read-only mode, window not checked out from the SCM, control from a model without overrides, etc. In version 28, the environment shows a message explaining why the options are disabled.



**Benefit of this new feature in version 28:**  
Get to the core of the issue

## 055 New feature WD WB WM IMAGE CONTROL: LIVE DATA, IMAGES ARE SHOWN IN THE 7-TAB WINDOW

In version 28, the 7-tab window uses live data for images. Whenever possible, an image of the database is used.

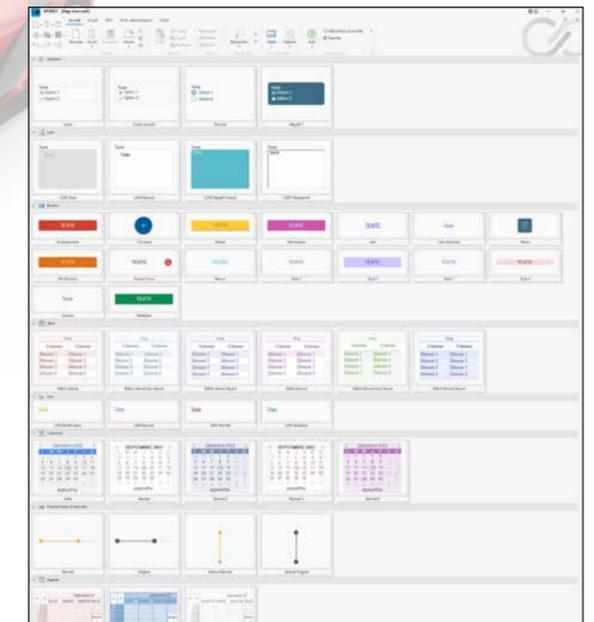


Actual representation of the image in the 7-tab window

**Benefit of this new feature in version 28:**  
See the results immediately

## 056 New feature WD WB WM MORE INTUITIVE STYLE SELECTION (7-TAB WINDOW)

The style selection window is now more user-friendly. Styles are sorted by relevance.



Style selection is now faster

**Benefit of this new feature in version 28:**  
Clear and easy style selection

## 057 New feature WD WB WM IMAGE CATALOG: IMAGE EDITING

In version 28, the image catalog allows you to directly edit a selected image: crop, change colors, add text, etc.

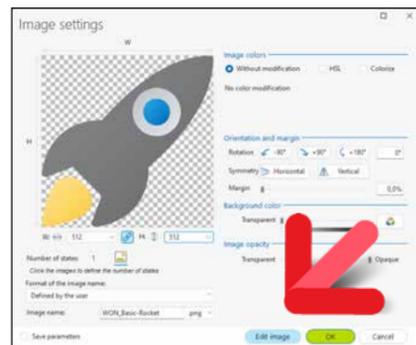


**COMPATIBLE WITH PREVIOUS VERSIONS**

Your existing projects are compatible with WINDEV 28: a recompilation is all it takes.

You don't need to migrate projects from previous versions to WINDEV 28: Simply recompile the application and it will run in version 28. The same applies to WEBDEV and WINDEV Mobile. Components in previous versions work with applications in version 28. IDEs in version 28 directly open projects in previous versions. You can have different versions of your environments on your PC. With a license for version 28, you can also launch previous versions.

# the future is written in 28



You can edit the selected image directly

**Benefit of this new feature in version 28:**  
Less actions

New feature WD WB WM

## 058 to 061 MISCELLANEOUS

- Project explorer: the context menu includes an option to duplicate a configuration
- The help for built-in tools is now a PDF document
- The multi-criteria search also searches the action bars, menus and status bar
- UI audit improvements: disable an error temporarily, etc.

**Benefit of this new feature in version 28:**  
Practicality

## STATIC AUDIT OF YOUR CODE

### 062 New feature WD WB WM FORGOT TO ENABLE ANTI-ALIASING IN YOUR CHARTS?

Charts may show jagged graphics if the anti-aliasing option is not enabled.

The audit scans the entire project and identifies these charts.

**Benefit of this new feature in version 28:**  
Smoother graphics, better charts

## DYNAMIC AUDIT OF YOUR CODE

### 063 New feature WD WB WM ACCESS PAGE CONTROLS FROM A DELAYED TASK

As you know, it is not possible to determine exactly when a thread or a deferred task will execute a particular statement. In the server code of a WEBDEV page, execution can take place when the page has already been returned, which poses a problem if you assign content to a control. A runtime warning notifies you if this happens.

**Benefit of this new feature in version 28:**  
You know in advance

## PROJECT MONITORING CENTER

### 064 New feature WD WB WM ADDITIONAL LOCATION FOR CONTRIBUTORS: REMOTE WORK

The Project Monitoring Center includes a new type of location for contributors: remote work. This allows you to specify when contributors are working remotely.

**Benefit of this new feature in version 28:**  
Shared information

Continues page 20...

REASSIGN OR CREATE YOUR OWN SHORTCUTS

## DEFINE YOUR OWN SHORTCUTS IN ALL THE EDITORS

### 065 New feature WD WB WM IMPROVE WORKFLOW WITH YOUR FAVORITE SHORTCUTS

In version 28, you can define your own shortcuts in all the editors of the WINDEV, WEBDEV and WINDEV Mobile environment:

- Project editor
- Data model editor
- UML editor
- Window editor
- Page editor
- Query editor
- Report editor
- Help editor
- Image editor
- Code editor
- Test editor
- Flexible modeling editor
- Setup editor
- Software Factory action plan editor
- Webservice editor
- Telemetry widget editor
- ...

**Benefit of this new feature in version 28:**  
Nothing like a well-known shortcut

### 066 New feature WD WB WM REDEFINE EXISTING SHORTCUTS

You want to change a shortcut key combination? Go to the ribbon and open the list with all the shortcuts available in each editor. Then, simply enter the new key combination.

**Benefit of this new feature in version 28:**  
You decide

### 067 New feature WD WB WM CREATE NEW SHORTCUTS

In version 28, you can create shortcuts for any action, even for actions that do not have a preset shortcut. In the ribbon, go to the "Home" tab, select "Options", and then select "Keyboard shortcuts" to open the list with all the shortcuts available in each editor. Then, simply enter the new key combination.

**Benefit of this new feature in version 28:**  
Customize the editors

### 068 New feature WD WB WM SHARE YOUR SHORTCUTS

Key point: you will be able to use your custom shortcuts in future versions. Additionally, you can export your shortcuts to another computer.

**Benefit of this new feature in version 28:**  
Share



## 069 New feature WD WB WM LEAVE DATES OF A CONTRIBUTOR

In version 28, administrators can view the days of leave of contributors. This allows for better organization.

**Benefit of this new feature in version 28:**  
Practicality

## 070 New feature WD WB WM SPRINT MANAGEMENT

The sprint management in the Control Center benefits from many improvements in version 28:

- Sprint dashboard: New incident distribution and task duration charts
- Sprint items: ability to assign a color, then filter and sort items by color
- Filtering task and incident backlog by contributor
- Filtering incident backlog by type
- Numerous sorting and filtering options
- New chart to view the number of issues created and fixed by a given contributor
- Ability to associate multiple images and attachments with the same incident

**Benefit of this new feature in version 28:**  
Even better sprint management

## TECHNICAL AND FUNCTIONAL DOCUMENTATION

## 071 New feature WD WB WM AUTOMATIC GENERATION

Continuous Integration now allows you to automatically generate the technical documentation of the project. To do so, a specific action is now available in the Software Factory.

**Benefit of this new feature in version 28:**  
Automatic, comprehensive documentation

## CONTINUOUS INTEGRATION SOFTWARE FACTORY

## 072 New feature WD WB WM AUTOMATIC TECHNICAL DOCUMENTATION

The new "Print. documentation" action is introduced in version 28 to generate the technical documentation from the Software Factory.

**Benefit of this new feature in version 28:**  
Just like in the previous new feature, full documentation without effort!

## 073 New feature WD WB WM NEW ACTION TO MIGRATE A PROJECT

Continuous Integration now includes the "Migrate a project" action to recompile a project coming from an earlier version.

**Benefit of this new feature in version 28:**  
Seamless migration to newer versions

## 074 New feature WD WB WM NEW ACTION TO DEPLOY AN APP TO A PRIVATE STORE

Continuous Integration now includes the "Deploy to a Private Store" action to automatically deploy an application to a Private Store.

**Benefit of this new feature in version 28:**  
Easily add new apps to your Private Store

## PASSWORD SECURITY. USER GROUPWARE

## 075 New feature WD WB WM LOGIN WINDOW: SLEEK WINDOWS 11 STYLE

The new default login window

In version 28, the User Groupware login window has been revamped. Now, this window uses a modern Windows 11 design language. Reminder: this window is fully customizable.

**Benefit of this new feature in version 28:**  
Always in style

## 076 New feature WD WB WM OAUTH: ORGANIZATIONS NOW SUPPORTED

The User Groupware supports OAuth authentication. In version 28, the User Groupware allows you to log in as part of an organization.

**Benefit of this new feature in version 28:**  
Less code

## GIT / GITHUB / GITLAB



## 077 New feature WD WB WM GIT CLONE: PROGRESS BAR

A progress bar is now displayed when cloning a project.

**Benefit of this new feature in version 28:**  
Monitor the task

## 078 New feature WD WB WM GIT: SSH AUTHENTICATION

SSH is a secure communication protocol. You can now connect to a Git server using SSH, without having to re-enter your username and password.

**Benefit of this new feature in version 28:**  
Faster connection

## 079 New feature WD WB WM GIT: OPEN A GIT PROJECT FROM THE SOFTWARE FACTORY

The Software Factory (Continuous Integration) includes a new action to open (clone) a Git project automatically.

**Benefit of this new feature in version 28:**  
Less actions

## 080 New feature WD WB WM GIT: BRANCH: CREATE, SWITCH, MERGE

You can now create, switch and merge branches of a project in Git directly from the editor.

**Benefit of this new feature in version 28:**  
No need for third-party tools

## 081 New feature WD WB WM GIT: MISCELLANEOUS

- The name of the Git branch is displayed in the title bar of the editor

**Benefit of this new feature in version 28:**  
Clear information

## IMAGE EDITOR

## 082 New feature WD WB WM INTEGRATED IMAGE EDITOR: TAKE ADVANTAGE OF ALL THE NEW FEATURES OF THE IMAGE EDITOR CONTROL

The image editor available in the environment benefits from all the new features of the Image Editor control introduced in version 28: animated GIFs, scan, etc. See new feature 209.

**Benefit of this new feature in version 28:**  
A more powerful image editor for developers

## WDMMSG AUTOMATIC TRANSLATION



## 083 New feature WD WB WM INCLUDE NEW LANGUAGES DURING REINTEGRATION

A report may use languages other than those defined in the project.

By default, when reintegrating translations, WDMMSG only includes the languages defined in the project.

Now, you can use additional languages when reintegrating translations.

**Benefit of this new feature in version 28:**  
Additional options

## 084 New feature WD WB WM SUPPORT FOR VERY LARGE PROJECTS

WDTRAD and WDDIXIO, the two modules included in WDMMSG now support an unlimited number of messages to be translated.

**Benefit of this new feature in version 28:**  
To infinity and beyond

## SCM-COLLABORATIVE SOURCE CODE MANAGER

## 085 New feature WD WB WM DIFF AND MERGE OPERATIONS OPTIMIZED FOR THE ANALYSIS (DATA MODEL)

In version 28, the SCM environment allows you to better manage branches for versions of the analysis.  
Many new cases are automatically managed.

**Benefit of this new feature in version 28:**  
Better workflow

## 086 New feature WD WB WM ACTION BAR: AUTOMATICALLY INCLUDED IN DIFF AND MERGE OPERATIONS

In version 28, both diff and merge operations take Action bars into account.

**Benefit of this new feature in version 28:**  
Additional automation

## 087 New feature WD WB WM MERGE: HIDE IDENTICAL CHANGES IN TWO BRANCHES



Sometimes, identical modifications are manually copied to two different branches.  
For a clearer merge, it may be better to hide such changes.

This option is now available in version 28.

**Benefit of this new feature in version 28:**  
Clearer view

## 088 New feature WD WB WM SCM: MISCELLANEOUS

- Better management of shared elements (internal components, windows, etc.) when switching to a newer version of the environment
- Stored queries and stored procedures: taken into account in diff and merge operations.

**Benefit of this new feature in version 28:**  
Additional features

## CODE EDITOR

## 089 New feature WD WB WM 2X, 3X OR 4X FASTER WORKFLOW IN THE EDITOR

**2X 3X 4X**

The code editor is much more responsive in version 28. In most cases, it is twice as fast, and up to four times faster when working on large sections of code!  
This makes for a much smoother workflow.

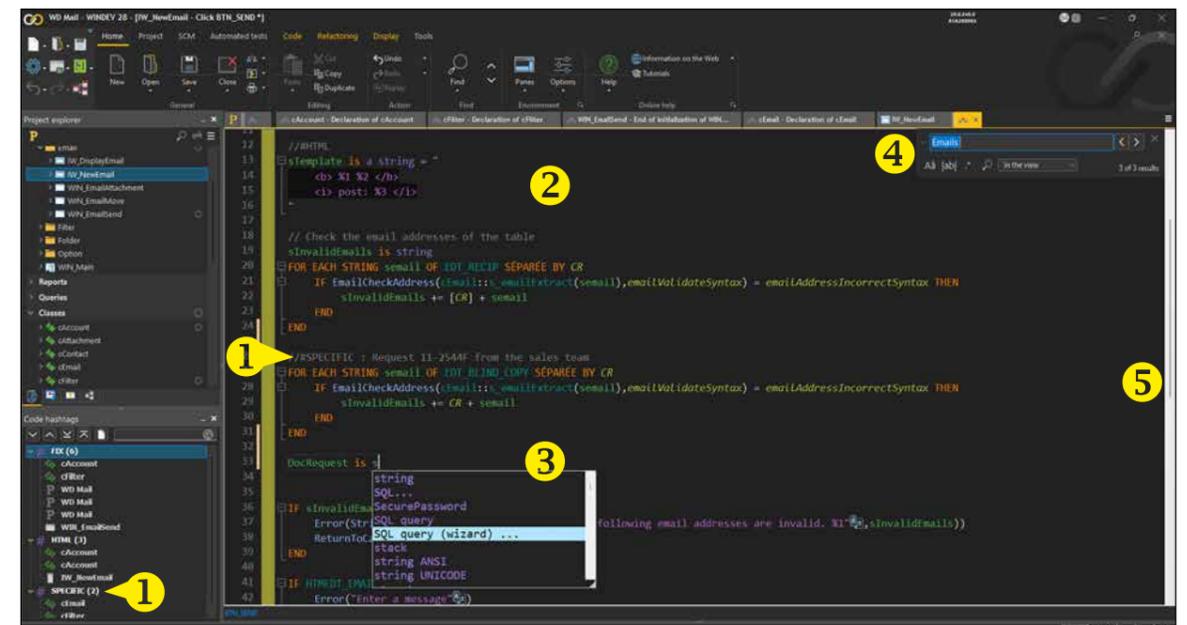
**Benefit of this new feature in version 28:**  
Ease of use

## 090 New feature WD WB WM 7 NEW SHORTCUTS IN THE CODE EDITOR

7 new handy shortcuts have been added to the code editor in version 28.

of course, they add to the list of existing shortcuts!

- Right Arrow** at the end of a line  
Moves to the next line
  - Alt+Shift+Arrows**  
Allows you make a rectangular selection (just like Alt+mouse cursor).
  - Ctrl+Shift+Backspace**  
Deletes all the content of a line to the left of the cursor
  - Ctrl+Shift+Del**  
Deletes all the content of a line to the right of the cursor
  - Addition to **Ctrl+/**  
Comment out a selection using `/*` and `*/`
  - Ctrl+Shift+E** (Element)  
Selects the whole word at the cursor location
  - TAB** validates autocomplete suggestions
- Reminder: in version 28, you can also create your own short-



1 Custom hashtag (in the list and in the code) 2 Tabs in multi-line strings  
3 SQL query wizard 4 Quick search in the code editor 5 Smoother scrolling

cuts in the editor. See new features 065 to 068.

**Benefit of this new feature in version 28:**  
Useful, powerful shortcuts

## 091 New feature WD WB WM MANAGE YOUR OWN HASHTAGS

Now you can use hashtags (with the # character) in your code comments (e.g., #TODO)  
You can use any word as a hashtag.

A new window in the code editor allows you to view all the hashtags.  
This window lets you navigate between instances of a hashtag in the code.

**Benefit of this new feature in version 28:**  
#ModernizingCode

## 092 New feature WD WB WM SEARCH THE CURRENT CODE WITHOUT USING THE MOUSE

When coding, developers often need to do a quick search in the current code.  
The environment already includes a search functionality (Ctrl + Shift + F).  
However, this requires using the mouse and setting the search options.  
A new simple search mode in the current code is introduced in version 28.  
The Ctrl + F keyboard shortcut opens this search box.  
Instances are highlighted in the code as you type.  
The number of occurrences is displayed.  
Navigate between instances using F3 and Shift + F3.

You can replace instances with Ctrl + H.

**Benefit of this new feature in version 28:**  
Look ma, no mouse!

## 093 New feature WD WB WM SEARCH IN THE CODE EDITOR

The search in the entire project now starts at the current element.

**Benefit of this new feature in version 28:**  
Search behaves exactly as you expect

## 094 New feature WD WB WM TAKE TABS INTO ACCOUNT IN MULTILINE STRINGS

Multiline strings are defined either with square brackets or with double quotes.  
When a multiline string is defined with double quotes, the tabs contained in the string are preserved.

**Benefit of this new feature in version 28:**  
Your layout is preserved

## 095 New feature WD WB WM SQL QUERY WIZARD AVAILABLE IN THE CODE EDITOR

The powerful SQL query wizard, which allows you to generate SQL code without prior knowledge of SQL, is now available directly in the code editor.

**Benefit of this new feature in version 28:**  
No need to copy/paste

## 096 New feature WD WB WM CASE-INSENSITIVE REGULAR EXPRESSION

You can use (?i) to make the regular expression case-insensitive.

**Benefit of this new feature in version 28:**  
More possibilities...

New feature WD WB WM

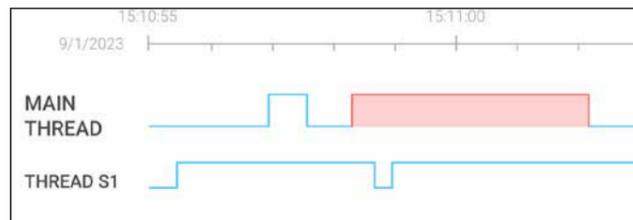
## 097 to 099 MISCELLANEOUS

- The code editor offers code completion for all the arrays in advanced types.
- List of sets of procedures: now sorted in alphabetical order
- Details of the current selection in the status bar of the editor: number of lines and characters selected

**Benefit of this new feature in version 28:**  
Every bit counts

## DEBUGGER

### 100 New feature WD WB WM REAL-TIME AND LOG-BASED ANALYSIS OF PROCESSING TIMES



The red bar indicates where a bottleneck occurs

This new feature makes it easy to find bugs and causes of slowdowns in your applications. Whether in real time, or later using a log file, you can analyze the execution time of each process, thread or application. Quickly detect the source of slowdowns: CPU-intensive threads, blocking transactions, callbacks to a long process, long loops, etc. Optimize your code straight away. Learn more in new features 110 to 113.

**Benefit of this new feature in version 28:**  
Find the culprit in no time

## 101 New feature WD WB WM IMPROVED RUNTIME LOG (DBGENABLELOG)

Analyzing runtime logs is easier in version 28:

- The log file loads instantaneously
- The content of the log file is refreshed to limit the file size. Old content is automatically replaced
- An interactive log analysis mode is introduced: usage graph, etc.

**Benefit of this new feature in version 28:**  
Extremely useful new features

## DEVOPS

### 102 WD WB WM INTEGRATED DEVOPS ENVIRONMENT

WINDEV, WEBDEV and WINDEV Mobile version 28 form an increasingly cohesive DevOps environment. You benefit from all the necessary functionalities to implement the DevOps approach: no more scattered, barely-compatible tools. You have all the integrated tools to manage the DevOps methodology: lifecycle management, sprints, testing, continuous integration, deployment, continuous delivery, production, user feedback, etc.

**Benefit of this new feature in version 28:**  
Integrated and open to all methodologies

## REPORT EDITOR

### 103 New feature WD WB WM REPORT CREATION: MORE EFFICIENT WIZARD

The report creation wizard in the report editor has been revamped. It is now much more intuitive.

**Benefit of this new feature in version 28:**  
A better wizard

### 104 New feature WD WB WM FORM REPORT: EVEN MORE POWERFUL

In a form report, in addition to the usual Edit controls, you can insert Check Box and Combo Box controls.

**Benefit of this new feature in version 28:**  
Additional options

## 105 New feature WD WB WM ABILITY TO CHANGE THE ORDER OF ITERATION BLOCKS

By default, iteration blocks are displayed in a report in the order in which they were created. In version 28, you can change this order in the editor, so that the blocks are displayed in the logical order.

**Benefit of this new feature in version 28:**  
A logical layout

### 106 New feature WD WB WM ALL ABOUT PRINT REQUESTS

The report viewer allows multiple export requests. The `iDocumentPrinted` function now returns a list of all the print jobs and exports requested by the end user, as well as their settings: destination, paper size, orientation, file name, etc.

**Benefit of this new feature in version 28:**  
Find out what the end user requested

### 107 New feature WD WB WM GET THE LIST AND TYPE OF PARAMETERS EXPECTED BY A REPORT

Reports & Queries allows the end user to create reports. When the user prints these reports, the application must pass the expected parameters. The new `GetDefinition` function in WLanguage gets the prototype of a report: list of parameters and their type. (see new feature 126)

**Benefit of this new feature in version 28:**  
Easily integrate reports created by end users

## 108 New feature WD WB WM REPORT EDITOR: MISCELLANEOUS

- Splitter to resize the width of the minimap
- Markdown text formatting is now supported in reports

**Benefit of this new feature in version 28:**  
Useful additions



## ARTIFICIAL INTELLIGENCE

### 109 New feature WD WB WM CONTOUR DETECTION



AI detects contours

The new `aiDetectContour` function detects contours in an image. The function returns an array of polygons of all the shapes that have been detected in the image.

**Benefit of this new feature in version 28:**  
A powerful feature at your fingertips

### PCSCLOUD.NET: A CLOUD TO DEVELOP AND DEPLOY YOUR PROJECTS

#### Applications

- WEBDEV Application Server to host WEBDEV sites
- Cluster of WEBDEV Application Servers
- WEBDEV Application Server to provide web services
- SaaS platform
- Private Store for WINDEV and WINDEV Mobile applications

### PCSCLOUD.NET A DEDICATED CLOUD SOLUTION

#### Telemetry

- Telemetry platform

#### Data

- HFSQL server to access databases.
- HFSQL Spare, to set up HFSQL backup servers

- Universal data replication server
- Mobile User Groupware

#### Development environment

Project Virtualization Platform: Private SCM, Control Centers, Dictionaries.

SCMDRIVE and HFSQLDRIVE are purpose-built clouds:

- for SCM data sharing
- for hosting HFSQL databases.



# ANALYZE APPLICATION PERFORMANCE ISSUES

## IN REAL TIME OR USING A LOG FILE

### 110 New feature WD WB WM UNUSUALLY SLOW APPLICATION? SEE WHAT'S GOING ON

We've all been there: An application randomly slows down, without explanation. WINDEV 28 helps you determine and fix the cause of the problem. The Real Time Performance Profiler (RTPP) displays an application activity chart. The data can be shown in real time, but also come from a log file. This chart allows you to identify bottlenecks and causes of low performance.

**Benefit of this new feature in version 28:**  
*Understand unexplained performance issues*

### 111 New feature WD WB WM DYNAMIC CHART...



The chart represents the application activity. The chart scrolls in real time. The chart uses two levels:

- The low level indicates that the application is in idle state. This means it is waiting for a user action (click, etc.)
- The high level indicates that the application is in use. This means it no longer responds to end-user actions.

You can scroll forward or backward through the chart, zoom in,... High levels that take too long appear in red.

Click a high level section to see all the function calls, execution time of each function and even the code of these functions. By analyzing the code, you can identify the cause of slow-downs.

**Benefit of this new feature in version 28:**  
*Intuitive UX*

### 112 New feature WD WB WM REAL-TIME OR LOG-BASED ANALYSIS

There are three analysis modes:

- real time on the development computer (during tests)
- real time on a production computer
- later on, using a log file.

Use `dbgEnableLog` to write to the log file.

**Benefit of this new feature in version 28:**  
*Several methods available*

### 113 New feature WD WB WM RTPP: MULTITHREADED APPS AS WELL

The RTPP also supports multithreaded applications. The chart shows the activity of the different threads, and allows you to analyze possible cases in which threads block each other: thread waiting for synchronization, multiple threads waiting for tasks...

**Benefit of this new feature in version 28:**  
*An essential tool for multithreading*

Date/Time	Duration	Process
9/13/2022 10:38:51:862		CloudManagement
9/13/2022 10:38:51:862		CloudManagement
9/13/2022 10:38:51:865	33 x 994 ms	Open
9/13/2022 10:38:51:861	33 x 929 ms	WB_Main
9/13/2022 10:38:59:421	1 x 222 ms	UpdateWidget local procedure
9/13/2022 10:38:59:421		List method
9/13/2022 10:38:59:421		LoadDatacenters method
9/13/2022 10:38:59:421		Get TypeCreation property

The chart scrolls, showing possible performance issues. Clicking on a high level allows you to see all the function calls and their duration, and even the code of the function.



## 123 New feature WD WB WM STRAIGHTEN SKEWED IMAGES

The new `dStraighten` function in version 28 allows you to apply perspective correction to an image. This function is based on a homeomorphic algorithm.



The image is straightened

**Benefit of this new feature in version 28:**  
Let me get this straight

## 124 New feature WD WB WM DYNAMIC EXTERNAL COMPONENT: LOADED AT RUNTIME

In version 28, external components can be loaded dynamically, which means you don't need to include the component in the project.

The new `ComponentLoad` and `ComponentExecute` functions will prove extremely useful. Combined with OOP interfaces, this new feature allows for a more cohesive architecture.

**Benefit of this new feature in version 28:**  
Easily substitute custom components

## 125 New feature WD WB WM EAN BAR CODES

EAN bar codes allow you to align the text generated with the bar code.

**Benefit of this new feature in version 28:**  
Free alignment

## 126 New feature WD WB WM IMPROVED INTROSPECTION

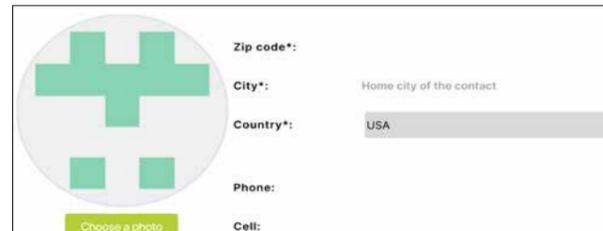
The `GetDefinition` function now also gets the complete prototype of window, page and report initialization processes.

**Benefit of this new feature in version 28:**  
Allows for generic programming

## 127 New feature WD WB WM GENERATE PLACEHOLDER IMAGES WITH GEOMETRIC PATTERNS

The new `GenerateGeometricImage` function creates a ran-

dom image containing simple geometric shapes. This image can then be used to fill the "photo" field on a user profile until the user provides their actual photo, for example.



Rather than leaving an empty, undefined image, you can fill that space with a geometric pattern

**Benefit of this new feature in version 28:**  
Just like Lorem ipsum, but for images.

## 128 New feature WD WB WM CHECK THE FORMAT OF ADMINISTRATIVE NUMBERS

Version 28 includes new functions to check the validity of administrative numbers: SIREN, SIRET and INSEE.

This ensures you start searches using valid number formats.

France: SIREN, SIRET and INSEE

Belgium: NISS, CBE and EU

Switzerland: OASI, UID and BER

Canada: SIN, BN9 and BN15

United States of America: EIN, FEI, SSN

Germany: IdNr, UStIdNr

Italy: CF, IVA

Spain: DNI, NIF

Brazil: CNPJ, CPF

**Benefit of this new feature in version 28:**  
Never search using an invalid number again

## 129 New feature WD WB WM VALID IBAN SYNTAX

The new `IBANValid` function checks if an IBAN passed as parameter is valid.

This ensures you start searches using valid number formats.

Caution: this does not mean the account exists.

**Benefit of this new feature in version 28:**  
Never search using an invalid IBAN again

## 130 New feature WD WB WM ONE SINGLE FUNCTION TO RUN OCR ON A RECTANGULAR AREA

The new `PicRectangularSnipOCR` function opens the rectangular snip tool, gets the result of the selection, runs OCR and returns the resulting text.



Run OCR on an area

**Benefit of this new feature in version 28:**  
Saves a lot of code

## 131 New feature WD WB WM CERTIFICATE INTEGRATED IN THE EXECUTABLE

Signing or encryption functions can use certificates.

In version 28, you can use certificates coming from a buffer in memory, and not only from a file on disk.

**Benefit of this new feature in version 28:**  
No files outside the application

## 132 New feature WD WB WM ENCRYPTION AND SIGNING: PEM AND DER FORMATS

Signing or encryption functions can use different certificate formats.

In version 28, in addition to P12 certificates, the PEM and DER formats are also supported.

**Benefit of this new feature in version 28:**  
Format matters

## 133 New feature WD WB WM SERIAL PORTS: TIMEOUT

In version 28, you can pass the timeout as a parameter.

**Benefit of this new feature in version 28:**  
A feature you'll be glad to have

## 134 New feature WD WB WM INVALID EXTERNAL DESCRIPTIONS (JSON, XML, ETC.) NOW APPEAR IN COMPILATION ERRORS

A project can include external descriptions, for example for JSON or XML data.

WLanguage natively recognizes the associated contents.

In version 28, a compilation error is shown if an external description is invalid.

**Benefit of this new feature in version 28:**  
You will now quickly discover why a description is not available

## 135 New feature WD WB WM ASSOCIATIVE ARRAY WITH KEY OF TYPE VARIANT

You can create associative arrays with a key of type `Variant`.

**Benefit of this new feature in version 28:**  
More possibilities for arrays

## 136 New feature WD WB WM DYNAMIC COMPILATION: STRUCTURES

The dynamic compilation now allows you to create structures.

**Benefit of this new feature in version 28:**  
Manage special cases

## 137 New feature WD WB WM REQUEST UI REFRESH

The `RequestRefreshUI` function triggers the "refresh" event of a window.

This function allows you to easily group UI modification processes.

In version 28, this function has been improved:

- it can be used on Internal Windows
- it takes parameters that it will pass to the Internal Window
- it supports prefix syntax.

**Benefit of this new feature in version 28:**  
More power

## 138 New feature WD WB WM THREAD THAT CALLS THE MAIN THREAD: NO LONGER BLOCKED

The new `ExecuteMainThreadAsynchronous` function is used to call the main thread without waiting for the response.

Procedure automations in the code editor also support this new option.

**Benefit of this new feature in version 28:**  
Stop waiting

New feature WD WB WM

## 139 to 147 MISCELLANEOUS

- The new `CapitalizeEachWord` function changes the first letter of each word to uppercase
- The new `RoundToMultiple` function, as its name suggests, rounds a value to the nearest multiple of a value passed as parameter
- The `RoundFloor` and `RoundCeil` functions can now be used on variables of type `Duration`, `Time` and `DateTime`
- The `Abs` (absolute value) function can now be used on variables of type `Duration`
- The new `fBuildRelativePath` function allows you to build a relative path
- Reset JSON variables: the `MyJsonVariable = {}` syntax

- assigns an empty object to the variable
- Reset YAML variables: the `MyYamlVariable = {}` syntax assigns an empty object to the variable
- Prefix syntax is now available for:
  - connecting to the analysis
  - properties of WLanguage types, for example: `StartDate, Date, ToString`
- `StringToNum`: binary format supported.

**Benefit of this new feature in version 28:**  
*Useful improvements*

## WEBSERVICES

### 148 New feature WD WB WM RUNTIME LOG

SOAP and REST webservices created with WINDEV can generate execution logs on demand with the `dbgEnableLog` function.

These logs can be viewed later in the environment using the new Real-Time Performance Profiler. (see new feature 110)

**Benefit of this new feature in version 28:**  
*Runtime analysis*

### 149 New feature WD WB WM 64-BIT TEST MODE

You can test web services (via the GO icon) in 32 or 64-bit mode.

**Benefit of this new feature in version 28:**  
*Test in production*

### 150 New feature WD WB WM REST WEB SERVICE: NATIVELY CALL REST APIS IN WLANGUAGE (OPENAPI DOCUMENTATION)

You can document REST web service APIs using an OpenAPI file. This documentation file can be imported into the project: the code editor recognizes the APIs described in the file. These APIs will be called "natively".

Named, optional and mandatory parameters are supported. The response is returned in an `HttpRequestResponse` type that contains the return code and the body of the response.

You can handle particular cases with the `HttpRequest` type. Sample code for the Swagger Petstore web service:

```
Dog is Pet
Dog.id = 745513
Dog.name = "Noopy"

// Add animal
'Swagger Petstore - OpenAPI 3.0'.addPet( Dog )
```

**Benefit of this new feature in version 28:**  
*Calling APIs is easier than ever*

### 151 New feature WD WB WM SOAP: ADDITIONAL VERIFICATIONS WHEN GENERATING THE WEB SERVICE

- Web services can return classes. In this case, the developer must check the "Export class" option in the web service generation wizard. If this option is left unchecked, the wizard highlights the error.
- If the type of the return value of a web service procedure is not specified, the compiler tries to determine this type. If the compiler cannot determine the type, the new "Strict mode" generates an error to encourage the developer to specify the type of this value.

**Benefit of this new feature in version 28:**  
*Rigorous coding, more security*

### 152 New feature WD WB WM MISCELLANEOUS

- When using SOAP web services, you can directly handle the array of structures returned by the web service procedure: no need to copy the arrays!
- HTTP Get requests can send data (contain a payload)

**Benefit of this new feature in version 28:**  
*Simpler code*

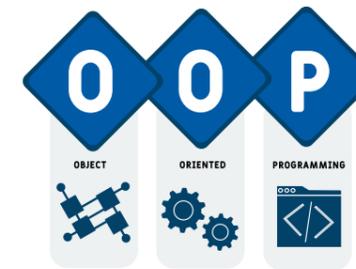
## XML

### 153 New feature WD WB WM XML IMPORT: COMPILATION ERROR IF INVALID SYNTAX

The code editor allows you to import XML files and use them natively in WLanguage. When importing an XML file into a project, a compilation error appears if the file format is not correct: missing closing tag. (See new feature 134).

**Benefit of this new feature in version 28:**  
*Precision*

## OOP



### 154 New feature WD WB WM MAPPING ATTRIBUTE: GET IT PROGRAMMATICALLY

In version 28, you can get the `..Mapping` attribute of a class member programmatically.

**Benefit of this new feature in version 28:**  
*A highly anticipated feature*

### 155 New feature WD WB WM NEW "NOTE" ATTRIBUTE

The new `..Note` attribute allows you to specify details at class members level, and to access these details at runtime.

**Benefit of this new feature in version 28:**  
*Information to be used in generic processes*

### 156 New feature WD WB WM CONTROLS, WINDOWS AND PAGES CAN IMPLEMENT INTERFACES (AS IN OOP)

In OOP, an interface is a set of virtual methods to be implemented.

In version 28, all types of controls, windows, internal windows, pages and internal pages can implement interfaces.

**Benefit of this new feature in version 28:**  
*Generic programming with controls*

### 157 New feature WD WB WM SCOPE OF PROCEDURES: BETWEEN "PUBLIC" AND "PRIVATE", THERE IS "RESTRICTED" (INTERNAL)

In version 28, a new type of scope is available for procedures in WLanguage: the `Restricted` level (known as "Internal" in other programming languages).

In Restricted mode, the procedure is visible only to the other elements within the same element: same web service, same component, etc.

**Benefit of this new feature in version 28:**  
*Now, that was highly anticipated!*

### 158 New feature WD WB WM MISCELLANEOUS

- The `Ancestor` keyword can be called in global methods.
- Benefit of this new feature in version 28:**  
*Honor your Ancestor*

## COMPATIBILITY WITH THIRD-PARTY LANGUAGES

### 159 New feature WD WB WM PYTHON: PROTECT YOUR SOURCE CODE; EXECUTE PRECOMPILED SCRIPTS

In version 28, you can execute precompiled Python scripts: this means you no longer need to provide the source Python code. Therefore, your source code remains inaccessible to other users.

**Benefit of this new feature in version 28:**  
*Protect your Python code*

### 160 New feature WD WB WM KOTLIN

Kotlin is a programming language that can be used for Android development.

In version 28, Kotlin is natively supported in WINDEV Mobile. See new feature 602

**Benefit of this new feature in version 28:**  
*Compatibility with third-party languages*

## IOT



### 161 New feature WD WB WM MODBUS

The new `ModbusSendRawFrame` function sends a raw buffer to a Modbus device.

This enables communication with devices that do not strictly comply with the Modbus standard.

**Benefit of this new feature in version 28:**  
*Don't miss the Modbus*

# HFSQL DATABASE

## HFSQL®

### 162 New feature WD WB WM NULLABLE KEY

In version 28, you can indicate that a key is "nullable", i.e., that it can contain the `Null` value. `Null` is different from zero, or from an empty string. Now, sorting operations differentiate zero from Null values.

**Benefit of this new feature in version 28:**  
*More precision*

### 163 New feature WD WB WM PRIMARY KEY

A primary key is a unique key that cannot be Null. In version 28, you can define primary keys. For example, automatic identifiers are usually primary keys.

**Benefit of this new feature in version 28:**  
*More possibilities*

### 164 New feature WD WB WM HEXECUTEQUERYASYNCHRONOUS IS NOW FASTER

The performance of the `HExecuteQueryAsynchronous` function has been significantly improved. Processing is now faster!

**Benefit of this new feature in version 28:**  
*Significant performance gains*

### 165 New feature WD WB WM HTRACK: DON'T BLOCK THE APPLICATION

The `HTrack` function notifies an application when another application makes changes on a given data file. A callback procedure is then called.

The UI is blocked while this procedure is executed. If this process takes a long time, it will have a negative impact on the UX.

In version 28, you can specify that the callback procedure must be executed in a secondary thread. Thus, the user won't be blocked.

**Benefit of this new feature in version 28:**  
*Tracking without disturbing the end user*

### 166 New feature WD WB WM DOCKER AND HFSQL: DEFAULT PASSWORD

To securely set up a database using a Docker container, the password of the administrator must be specified. You can still use an administrator account without a password. Simply specify this option in the Docker recipe.

**Benefit of this new feature in version 28:**  
*Security*

### 167 New feature WD WB WM SIMULATE NETWORK SPEED

The `HSimulateNetwork` function simulates the speed of a network when testing an application. Version 28 includes modern types of networks: 3G, 4G, 5G, DSL, Fiber, Cloud, custom speed. This allows the developer to test the speed of the application according to the type of connection available to the end user.

**Benefit of this new feature in version 28:**  
*Easy, yet realistic performance tests*

### 168 New feature WD WB WM CONNECTION ENCRYPTION: AES-256, AES-128, AES-192

In version 28, the connections between client computers and the database server can be encrypted using the Advanced Encryption Standard (AES). These standards are added to the already available encryption standards.

**Benefit of this new feature in version 28:**  
*Even more secure connections*

New feature WD WB WM

### 169 to 171 MISCELLANEOUS

- The `HDropView` function is introduced in `WLanguage`
- The `HDescribeServerTrigger` function takes a trigger described in the analysis
- The HFSQL server automatically performs performance optimization tasks at regular intervals. When an automatic optimization task fails, a notification is generated.

**Benefit of this new feature in version 28:**  
*Always more*

## SQL FUNCTIONS

### 172 New feature WD WB WM ADD A PRIMARY KEY

The new SQL `ADD PRIMARY KEY INDEX` function allows you to indicate that an item is primary key.

**Benefit of this new feature in version 28:**  
*Ability to programmatically add a key*

### 173 New feature WD WB WM IMPROVED TOP, BOTTOM AND LIMIT FUNCTIONS: UP TO 12 TIMES FASTER

The SQL `TOP`, `BOTTOM` and `LIMIT` functions have been optimized in version 28: They can be up to 12 times faster!

**Benefit of this new feature in version 28:**  
*Faster is always better*

### 174 New feature WD WB WM QUERY WITH PARAMETERS: SEE THE EXECUTED CODE

A block of SQL code can contain parameters passed programmatically. The new `SQLCodeExecuted` property gets the complete SQL code that was executed. This allows you to copy/paste the code to check how it was executed, for example.

**Benefit of this new feature in version 28:**  
*Total visibility*

New feature WD WB WM

### 175 to 177 3 NEW SQL FUNCTIONS

3 new SQL functions are introduced in version 28.

ADD PRIMARY KEY INDEX	Adds a primary key in an existing file.
Optimize	Reindexes a file with the default parameters ( <code>hNdxNormal + hFTX + hBackgroundTask</code> , 80% density).
GROUP_CONCAT	Concatenates non-NULL strings from a list of values (MySQL statement).

**Benefit of this new feature in version 28:**  
*Enriched SQL*

## HFSQLDRIVE: YOUR HFSQL DATABASES IN THE CLOUD WITH 3 CLICKS

HFSQLDrive allows you to easily and immediately host your databases (tables) in the Cloud. A mobile app that stores data in the cloud is also at your disposal. Attractive flat rate subscription. Get it now!

## HFSQL CLUSTER

### 178 New feature WD WB WM BETTER UI FOR THE CLUSTER-SPECIFIC HFSQL CONTROL CENTER

The HFSQL Control Center has a specific interface for HFSQL Clusters. This UI has been simplified in version 28 and is now more user-friendly.

**Benefit of this new feature in version 28:**  
*Improved clarity*



## HFSQL SPARE

### 179 New feature WD WB WM SELECT RELEVANT FOLDERS

HFSQL Spare is a near real-time server backup solution. In version 28, you can select which subfolders of a database will be included in the backup. This allows you to exclude folders whose content does not change (archives, log files, etc.) and thus reduce the amount of data to be transferred and stored.

**Benefit of this new feature in version 28:**  
*Save energy, save space*

## HFSQL CONTROL CENTER

### 180 New feature WD WB WM IMPROVE QUERY PERFORMANCE: MAKE SURE THE NECESSARY KEYS HAVE BEEN DEFINED

The HFSQL Control Center now allows you to check the presence of the keys needed for optimal performance, according to the actual data on the server. This process analyzes the queries and highlights any missing keys, to get the best possible performance.

Adding a missing key can make a query execute immediately.  
**Benefit of this new feature in version 28:**  
*Faster applications and sites*

### 181 New feature WD WB WM AUTOMATIC OPTIMIZATION TASK

Now, the error notification for automatic database optimization tasks also appears in the HFSQL Control Center. See new feature 169.

**Benefit of this new feature in version 28:**  
*Information where you need it*

## DATABASE NATIVE CONNECTORS

Many Native Connectors are available for third-party databases: Oracle, SQL Server, AS/400, DB2, MySQL, PostgreSQL, SQLite, xBase, MariaDB, Informix, Progress, Sybase, etc. These Native Connectors facilitate programming (binding, etc.). They keep evolving in version 28.

### 182 New feature WD WB WM CONTEXT COPY

With Native Connectors, when copying contexts, now you have the option to set a separate connection between each context and the third-party database server.

This new feature is available for the following databases: MS SQL Server, Oracle, MySQL, Sybase, Progress, Informix, DB2, SQLite, MariaDB.

**Benefit of this new feature in version 28:**  
*Never out of context*

### 183 New feature WD WB WM MULTILINGUAL

The Native Connector setup application now supports multiple languages: No need to manage one DLL per language!

**Benefit of this new feature in version 28:**  
*Less files to handle*

### 184 New feature WD WB WM NATIVE SQL SERVER CONNECTOR

The Native SQL Server Connector supports two new Microsoft drivers for SQL Server: MSOLEDBSQL19 and MSODBCSQL19.

**Benefit of this new feature in version 28:**  
*More possibilities*

### 185 New feature WD WB WM MISCELLANEOUS

You can now directly import multiple tables into the database schema (Analysis) without going through a wizard.

**Benefit of this new feature in version 28:**  
*Clearer, easier*

## VISUAL QUERY EDITOR

### 186 New feature WD WB WM AVAILABLE IN THE CODE EDITOR

The visual SQL query editor is now available in the code editor.  
**Benefit of this new feature in version 28:**  
*No more copy/paste*

### 187 New feature WD WB WM SQL CODE GENERATED FOR JOINS

The visual query editor generates SQL code. Until now, the code generated for a join was =. In version 28, an **INNER JOIN** code is generated instead.

**Benefit of this new feature in version 28:**  
*This is how it should be*

## ELECTRONIC INVOICING

### 188 New feature WD WB WM ELECTRONIC INVOICING: A GLOBAL CHALLENGE



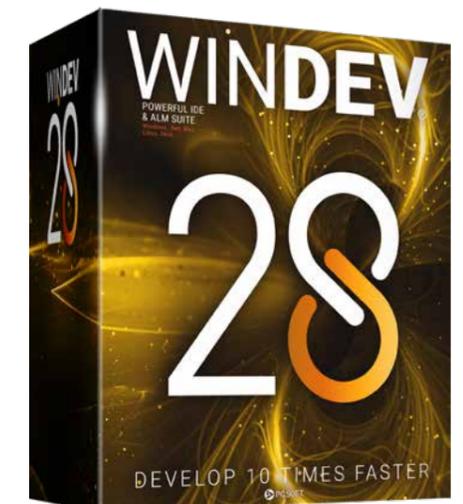
The European Union has chosen to generalize electronic invoicing. Many other countries around the world also use this invoicing method. Version 28 brings essential new features that make this process easier.

**Benefit of this new feature in version 28:**  
*More tools for electronic invoicing*

### 189 New feature WD WB WM SMALLER INVOICES

Invoices are usually sent as PDF files. In version 28, PDF files are 2 to 10 times smaller, depending on their content (see new feature 042). This makes it easier to generate and send invoices.

**Benefit of this new feature in version 28:**  
*Smaller documents*



Got everything  
under control  
with version 28

## 190 New feature WD WB WM SIMPLIFIED DIGITAL CERTIFICATES

Digital signatures are widely used in electronic invoicing. In version 28 using these signatures is easier than ever. PEM and DER certificates are supported (see new feature 132). Moreover, certificates can now be integrated into the executable or saved in a data file (see new feature 131). This makes it easier to install certificates, since end users no longer have to handle them.

**Benefit of this new feature in version 28:**  
*Easily sign invoices*



## BLOCKCHAIN

## 191 New feature WD WB WM NEW FUNCTION: BITCOINVALIDADDRESS

The new `BitcoinValidAddress` function determines if a bitcoin address (BTC address that indicates the destination of a Bitcoin payment) is valid.

**Benefit of this new feature in version 28:**  
*Verification*

## TELEMETRY

Telemetry allows you to collect and aggregate anonymous or non-anonymous information on how your applications are used: selected menus, functionalities used, duration of processes and queries, possible bugs, use time ranges, etc. Telemetry also allows you to determine the hardware configuration and OS version of end users. PCSLOUD.NET allows you to immediately install a telemetry server.

## 192 New feature WD WB WM END USER AFFECTED BY AN ERROR

The telemetry system gets the details of errors encountered in the application. End users can agree to sending non-anonymous telemetry information. In this case, you can see the list of users who have encountered the error.

This makes it possible to send patches, identify particular cases, identify reproduction steps, etc.

**Benefit of this new feature in version 28:**  
*Better interaction with users*

## AUTOMATED TESTS

## 193 New feature WD WB WM DRAG & DROP SUPPORT: NEW EMULATEDND FUNCTION

The UI automated test editor now supports drag & drop operations. The editor allows you to record and replay them.

**Benefit of this new feature in version 28:**  
*New, easy-to-reproduce action for automated tests*

## MONITORING BOT (WATCHDOG)

## 194 New feature WD WB WM GROUP OF RECIPIENTS

In version 28, you can send error reports to groups of recipients.

**Benefit of this new feature in version 28:**  
*Easier than ever*

## 195 New feature WD WB WM REST WEB SERVICE: GET, POST, PUT, DELETE

The robot allows you to send HTTP requests to check that the server responds. Now, you can use GET, POST, PUT and DELETE methods to send HTTP requests. This new feature comes in very handy when testing some web services.

**Benefit of this new feature in version 28:**  
*Better web service monitoring*

## BIG DATA

## 196 New feature WD WB WM MONGO DB: BATCH OPERATIONS

It is now possible to send a set of operations to the database in a single call: insert, modify, add, etc.

The new `MongoExecuteOperations` function and the `MongoOperation` types allow you to manage these batch operations.

**Benefit of this new feature in version 28:**  
*Powerful WLanguage elements*

# WINDEV®



# my strength

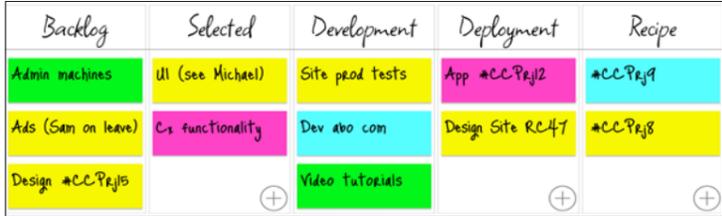
## 197 New feature WD WB WM BENEFIT FROM THE 196 COMMON NEW FEATURES OF VERSION 28 IN WINDEV

WINDEV benefits from the 196 common new features in version 28, particularly: improved editors, custom shortcuts, higher speeds, new controls, improved PDF control, Markdown support, the new Polar Area chart, new features in the SCM, report editor, WLanguage and OOP, and more.

**Benefit of this new feature in version 28:**  
*Hundreds of new features for WINDEV in version 28*

# NEW: KANBAN CONTROL

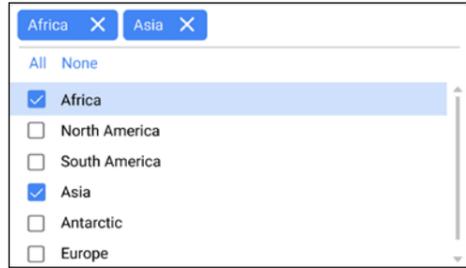
198 New feature WD WB WM THE KANBAN CONTROL: ESSENTIAL IN WINDEV



The new Kanban control is a great addition to your WINDEV applications. Kanban controls can be used to organize a process, monitor a project, distribute tasks, etc. This native control handles all user actions. Create a Kanban board in a few minutes with this new control! See new features 001 to 014. **Benefit of this new feature in version 28:** A truly powerful control

200 New feature WD WB WM MULTI-SELECTION WITH TOKENS

The "Multi-selection with tokens" Smart control allows you to select one or more tokens from the list.



Multiple selection with tokens

**Benefit of this new feature in version 28:** Everything is automatically managed

201 New feature WD WB WM NEW SMART CONTROL: BADGE

The "Badge" Smart control shows a badge (small circle with a number) on a given control. A badge can be used to draw the user's attention: number of pending orders, etc. The small icon that displays the number can be positioned on any type of control: Button, Static, Image, etc.



Here, the badge (red circle with the number) appears on a Button control

**Benefit of this new feature in version 28:** Let the user know

202 New feature WD WB WM NEW SMART CONTROL: ADDRESS AUTOCOMPLETE

The "Address autocomplete" Smart control suggests addresses as you type. A list of addresses is displayed. Please bear in mind that this control is based on a Google API. Google may require you to pay a subscription fee, depending on the number of requests.



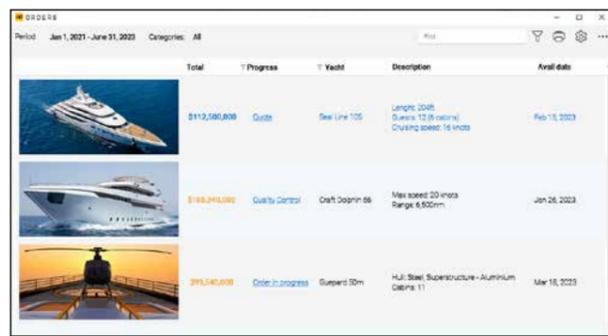
Several address suggestions appear when the end user starts typing

**Benefit of this new feature in version 28:** Prevents typing errors

# TABLE CONTROL NEW FEATURES

203 New feature WD WB WM IMAGE COLUMNS: IMPROVED LAYOUT

In version 28, Image columns look better than ever: by default, a margin appears around the image, which improves the overall layout of the table.



**Benefit of this new feature in version 28:** Better spacing

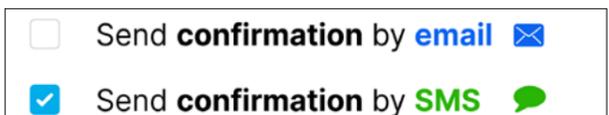
204 New feature WD WB WM WLANGUAGE FOR TABLE CONTROL: MISCELLANEOUS

- The `BuildBrowsingTable` function now allows you to dynamically create columns to view data from a data file. Now, columns of type `Memo` show the size of the Memo file.
- A new syntax of the `TableSort` function takes parameters of type `String`. This syntax allows you to easily restore the sort order retrieved with the `TableSorted-Column` function.

**Benefit of this new feature in version 28:** Less code

# NEW FEATURES FOR CONTROLS

205 New feature WD WB WM MARKDOWN: CONTROL LABEL, COLUMN HEADER, MENU OPTION, TOOL TIP, ETC.



You can now format all the text in your applications

With Markdown support in version 28, you can customize the format of all the text in a control. This allows you to easily enrich the UI in your applications. See new feature 026



# 3 NEW SMART CONTROLS IN WINDEV 28

199 New feature WD WB WM 3 NEW SMART CONTROLS PROVIDED IN WINDEV 28

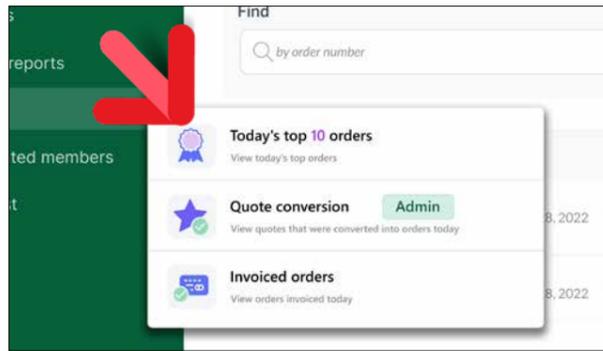
Smart controls save valuable time during the UI creation process, and immediately make your applications more sophisticated. 3 new Smart controls (common to WINDEV, WEBDEV and WINDEV Mobile) are introduced in version 28:

- Multi-selection with tokens
- Badge
- Address autocomplete

Reminder: Smart controls are provided with their source code, and are therefore completely modifiable and customizable. **Benefit of this new feature in version 28:** Extremely useful controls

# ENVIRONMENTAL POLICY

Preserving our environment is essential. When PC SOFT prints physical 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 the ones that were used to print. The FSC label was created by the FSC, an NGO that includes, among others, Greenpeace, Friends of the Earth and the WWF. For example, it takes 50 trees with a trunk diameter of 6 inches to print 100,000 copies of a 92-page document on glossy paper: PC SOFT or the printer has 50 trees replanted immediately. In addition, we mainly use paper pulp coming from wood waste (e.g. sawmills) and forest thinning. As for our software products, they are available via download. This eliminates the need for packaging and printed documentation. As an example, a license for 10 developers can be supplied with only 2 sets of tutorials, on request.



Easy formatting with Markdown

Because of its simplicity, Markdown text is easy to translate. Markdown text automatically adapts to the style of the control, most notably to the dark theme.

**Benefit of this new feature in version 28:**  
Rich text made easy

## 206 New feature WD WB WM FLOATING PANES: OPTIMIZATIONS

Floating panes allow end users to freely position panes and customize their UI. In version 28, a much smoother animation appears when moving these panes.

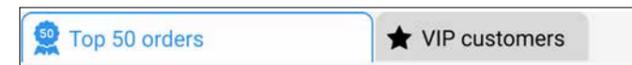
**Benefit of this new feature in version 28:**  
Better user experience

## 207 New feature WD WB WM TAB ICONS AND TEXT: BETTER SPACING

Now you can set margins for tab icons and texts. The layout improves automatically.



In edit mode, you can see the margins that have been applied around the icons

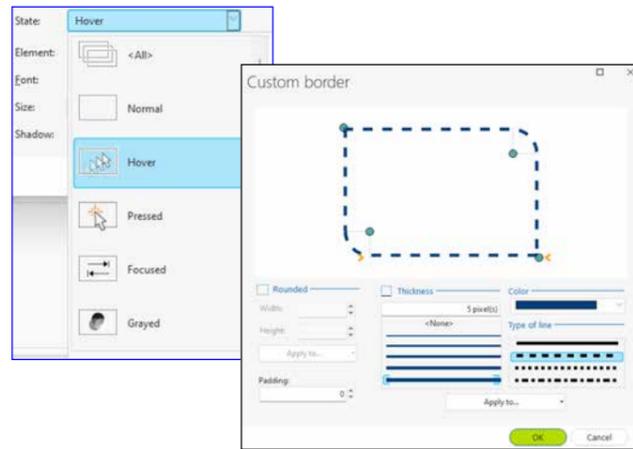


A clean layout at runtime: no more icons touching the borders!

**Benefit of this new feature in version 28:**  
One step closer to the perfect UI

## 208 New feature WD WB WM BUTTON CONTROL: CUSTOM BORDERS

A Button control can have borders that change depending on the state of the button: pressed, hover, etc. In version 28, you can define the border settings for each state in the "Style" tab of the 7-tab window.



Easily select the type of border for each state

**Benefit of this new feature in version 28:**  
Customize buttons with ease

## 209 New feature WD WB WM IMAGE EDITOR CONTROL

With the Image Editor control, you can include a full-blown image editor in your applications without writing a single line of code.

In version 28, this control benefits from new features:

- Animated GIFs are actually animated
- A new event is available in the code editor: "After running OCR", which allows you to retrieve and process the text
- A new button allows you to scan and automatically retrieve the image
- All transforms freehand drawings into the corresponding object: line, rectangle, circle, etc.

**Benefit of this new feature in version 28:**  
An image editor in your applications with zero lines of code

## 210 New feature WD WB WM BUTTONS WITH FREE ICON POSITIONING

If a button contains an icon with free positioning, you have the ability to specify the coordinates. You can choose how the content of the icon will be displayed: aligned, homothetic, etc.

**Benefit of this new feature in version 28:**  
There's nothing like freedom

## 211 New feature WD WB WM SCIENTIFIC INPUT MASK

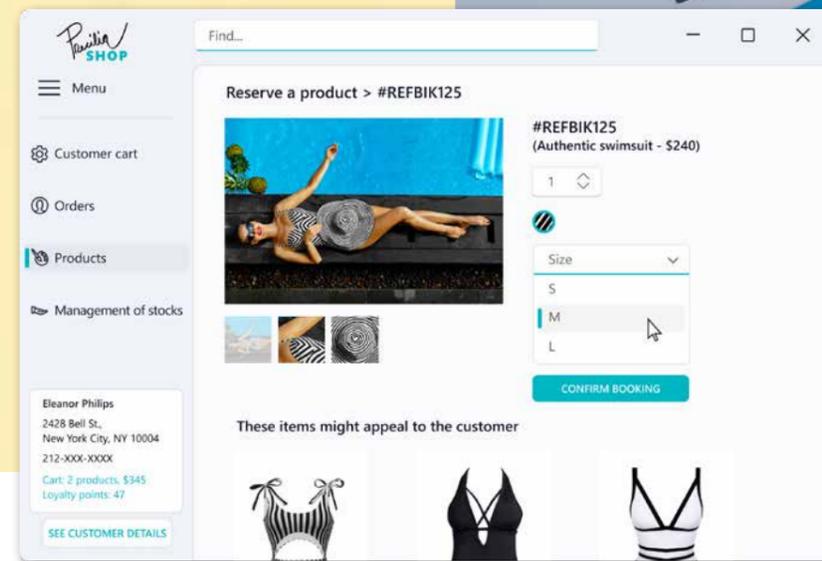
A new input mask is available for numeric Edit controls: scientific notation. For example, you can get the following syntax without third-party tools: 1,23E+10.

**Benefit of this new feature in version 28:**  
An advanced, yet essential feature

## 212 New feature WD WB WM 2 NEW SKIN TEMPLATES FOR WINDEV

Two new skin templates are introduced in version 28: Eleven and Touch. This allows for new customization possibilities.

**Benefit of this new feature in version 28:**  
Instant new look!



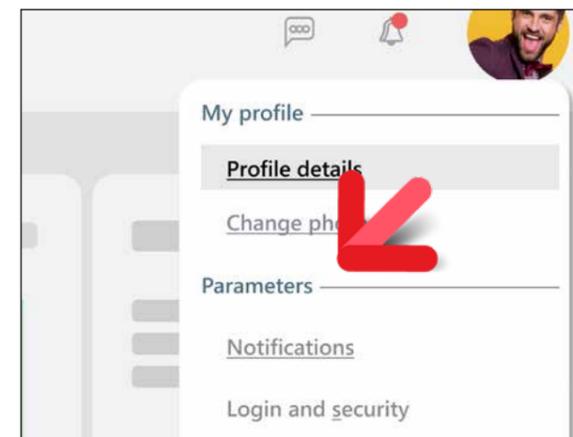
Use these templates in your applications and software packages, as well as all the skin templates provided with WINDEV.

And remember: you can also create your own skin templates.

WINDEV includes everything you need to create superb UIs.

## 213 New feature WD WB WM MENU CONTROL: NEW SEPARATOR WITH TEXT

A menu can contain one or more separators. In version 28, this separator can contain a text.

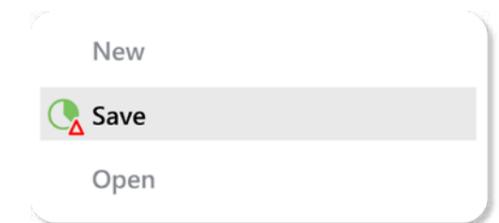


The menu separator can now include text

**Benefit of this new feature in version 28:**  
Clearer separators

## 214 New feature WD WB WM MENU CONTROL: VISUAL OPTIONS

You can define "5-state" icons (e.g. buttons) in the menu options via the 7-tab window or programmatically.



5-state icon

**Benefit of this new feature in version 28:**  
The icon of the menu option changes when hovered over

Continues page 46...

# A WEBDEV SITE IN A WINDEV WINDOW

## INTEGRATE A WEBDEV SITE INTO A WINDEV WINDOW WITH BI-DIRECTIONAL COMMUNICATION USING WLANGUAGE

### 215 New feature WD WB WM COMBINE 2 EXISTING SETS OF ELEMENTS: DESKTOP APPLICATION AND WEBSITE

By integrating a website into a window in a desktop application, you can share existing elements and boost productivity.

**Benefit of this new feature in version 28:**  
*Reuse existing elements*

### 216 New feature WD WB WM INTEGRATE A WEBDEV PAGE INTO A WINDEV WINDOW

WINDEV's new "WEBDEV Page" control allows you to integrate a website into a WINDEV application, and to interact with this site programmatically. Simply specify the URL of the page to insert. The window that contains the control interacts with the page via browser procedures. These procedures are accessible in the WINDEV code editor and benefit from code completion.

**Benefit of this new feature in version 28:**  
*No need to write code twice*

### 217 New feature WD WB WM INTERACTION: CALL PAGE PROCEDURES FROM THE WINDOW

The WEBDEV page procedures that can be called from a WINDEV window must be declared in a shared interface. These procedures can make AJAX calls to the server.

Code example:

**Code in the WEBDEV page**

```
// Declarations
implements Interface_containing_accessible_methods_of_the_page
uses Interface_containing_the_available_callbacks_from_page_to_window
// Use
MyUserHostControl.ACallback()
```

**Code in the WINDEV window**

```
// Declaration
uses Interface_containing_accessible_methods_of_the_page
implements Interface_containing_the_available_callbacks_from_page_to_window
// Use
MyPage.APageProcedure()
```

**Benefit of this new feature in version 28:**  
*Page and window interact using WLanguage*

### 218 New feature WD WB WM INTERACTION: CALL WINDOW PROCEDURES FROM THE PAGE

The WINDEV procedures that can be called from the WEBDEV page must be declared in a shared interface. This interface generates a configuration file. This configuration file must be provided to the WEBDEV environment, which will then allow you to natively call the procedures.

You will be able to call the window procedures directly from the code of the Browser procedures of the page.

**Benefit of this new feature in version 28:**  
*Call the window from the page*

### 219 New feature WD WB WM NEW LAYOUT AVAILABLE FOR THE WEBDEV PAGE

A web page can contain menus, an ad banner, style controls, a footer with the legal notice...

This information may no longer be useful when the page is integrated into a WINDEV application.

To solve this, a new type of layout specific to the WINDEV and WINDEV Mobile integration is now available in WEBDEV. This layout allows you to avoid displaying certain information.

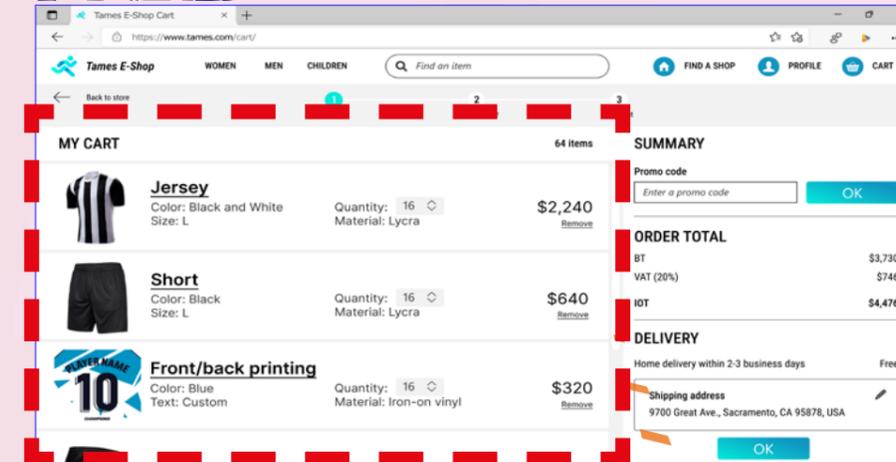
**Benefit of this new feature in version 28:**  
*Easily adapt the web page layout to the app*

### 220 New feature WD WB WM FIRST-LEVEL SECURITY

The page and the window must exchange data in a secure way. To start with, navigation in the WEBDEV page is limited to the domain of the URL provided in the application: this eliminates the risk of cross-site scripting attacks (XSS). If the WEBDEV page contains sensitive data, there are several methods to secure access to the page:

- Setting up an authentication method with Windows session login credentials (Single sign-on (SSO))
- Requesting site login credentials at the start of the session and storing the encrypted login information in memory
- Requesting site login credentials every time the user tries to access the page,...

## WEB Website to be integrated into the application



This information is then sent through a secure HTTPS URL.

**Benefit of this new feature in version 28:**  
*Security*

### 221 New feature WD WB WM SECOND-LEVEL SECURITY

You can implement additional security features. Two-factor authentication, with a code sent via email, for example. IP address-based restriction can also be easily implemented.

**Benefit of this new feature in version 28:**  
*Higher security*

### 222 New feature WD WB WM SEAMLESSLY WEBIFY EXISTING RESOURCES

Many new development projects are intended for the Web.

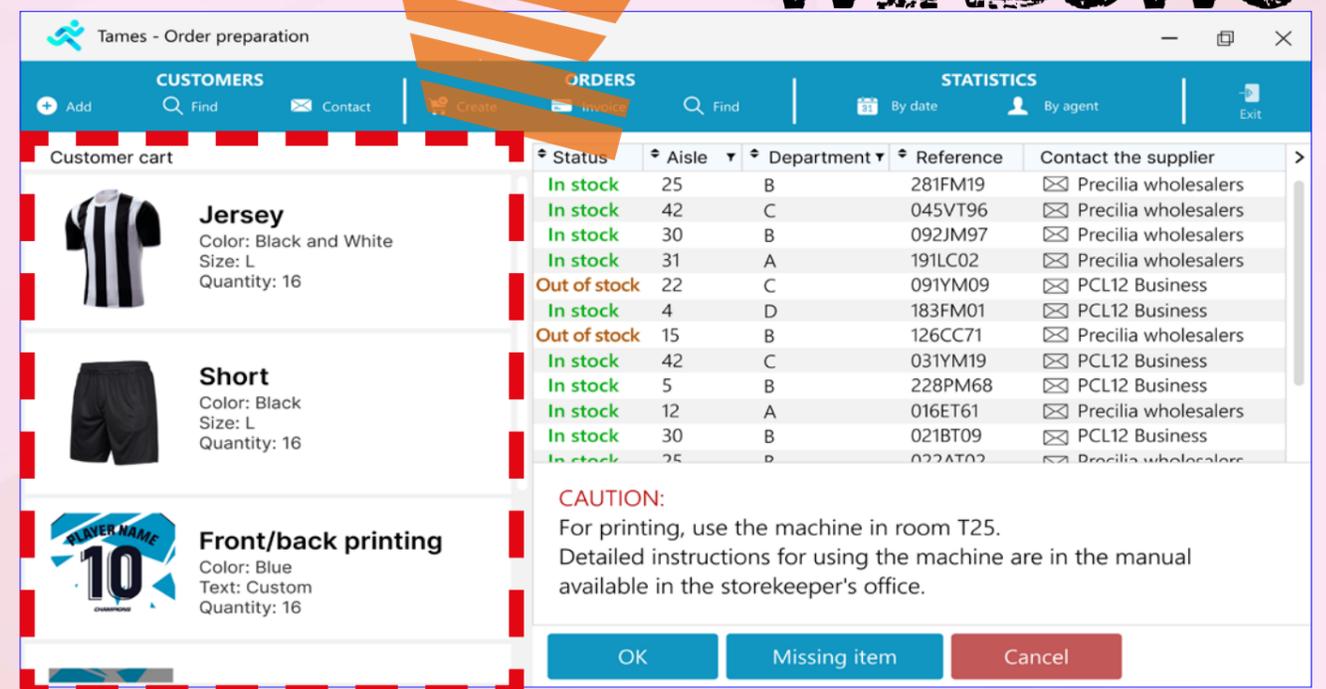
However, most existing projects consist of Windows applications.

Integrating a website into a WINDEV window is a major step to preserve and webify a company's software assets without sacrificing functionality.

This allows for rapid, agile, risk-free, step-by-step progress.

**Benefit of this new feature in version 28:**  
*Combine web and Windows resources*

## WINDOWS



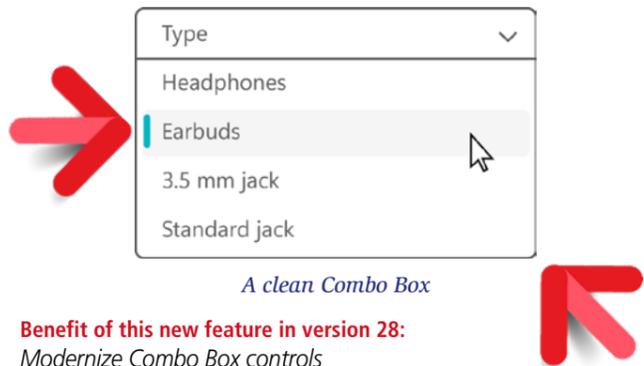
*Website integrated into the WINDEV back-office application. It exchanges data with the app using WLanguage. A layout has been defined for this web page.*

## 223 New feature WD WB WM COMBO BOX CONTROL: ROUNDED CORNERS, BORDERS WITH RULES, CUSTOM HOVER BAR

In version 28, the expanded area of a Combo Box can be customized:

- border
- hover bar
- row height

This allows you to create modern, sleek Combo Box controls.



A clean Combo Box

**Benefit of this new feature in version 28:**  
Modernize Combo Box controls

## 224 New feature WD WB WM STATIC CONTROL: ROTATION EFFECT

Static controls can now be rotated. This rotation is specified in the "Style" tab of the 7-tab window.



Rotated text (in red)

**Benefit of this new feature in version 28:**  
Use it, if you feel so inclined

## 225 New feature WD WB WM EDIT CONTROL: NEW AUTOCOMPLETE EVENT

The Edit control has an autocomplete feature available to the end user.

In version 28, the "Select a value in the list of input suggestions" event allows the application to determine which suggestion was selected by the end user. With this new feature, you can assign a value different from the one shown in the suggestions to the Edit control: an acronym, for example.

**Benefit of this new feature in version 28:**  
Highly customized code

## 226 to 229 New feature WD WB WM CONTROL: MISCELLANEOUS

- Manage autocomplete suggestions programmatically: a value can be stored for each autocomplete suggestion
- The `..StoredValue` property is available for the `AssistedInput` type
- The `..TitleHeight` property allows you to change the height of the custom title bar of a window
- The `..FontName` and `..FontSize` properties can now be used in HTML Edit controls

**Benefit of this new feature in version 28:**  
More customization possibilities

## HELP IN YOUR APPLICATIONS

### 230 New feature WD WB WM EXPORT HELP TO PDF

As you know, in WINDEV you can generate a help file for the end user.

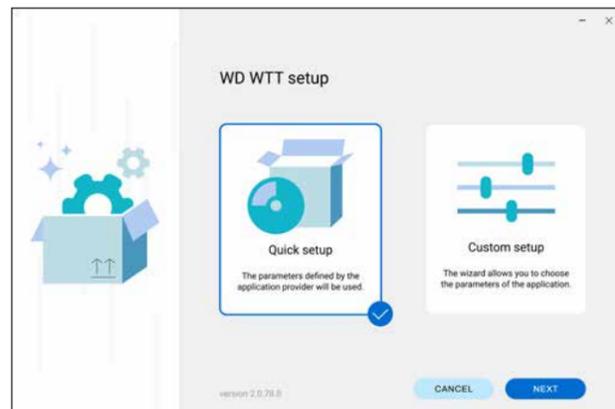
It can be an HTML or PDF file.

The PDF version now allows navigation through automatically generated links.

**Benefit of this new feature in version 28:**  
Easier navigation, more efficient help

## SETUP PROGRAMS CREATED WITH WINDEV

### 231 New feature WD WB WM REVAMPED SETUP PROGRAM



The auto-generated setup program of your WINDEV applications looks better than ever!

The interface has been revised, and a modern style has been applied for a more user-friendly feel.

**Benefit of this new feature in version 28:**

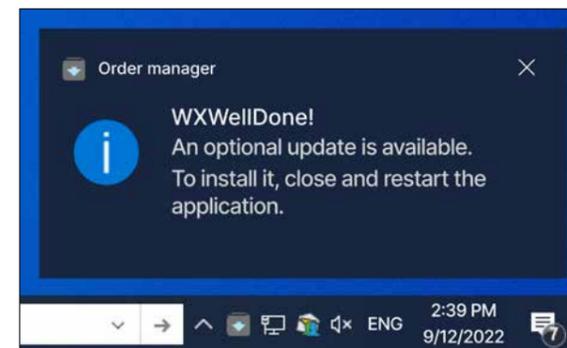
Your application makes a good impression from the start

### 232 New feature WD WB WM INSTALL: AVAILABLE UPDATE NOTIFICATION WHILE USING THE APPLICATION

You can set an automatic toast message to let the user know that an update is available, if the application is in use.

The toast message gives the user two options:

- perform the update immediately,
- get a reminder next time they start the application.



This toast message appears at the bottom right of the screen

**Benefit of this new feature in version 28:**  
Keep users up to date

### 233 New feature WD WB WM INSTALL: MISCELLANEOUS

- Active filters are preserved in the Push installation administrator when the list of computers is refreshed.

**Benefit of this new feature in version 28:**  
Practicality

## WINDEV ENVIRONMENT

### 234 New feature WD WB WM COMMON NEW FEATURES

WINDEV's environment benefits from the common new features in version 28 (see new features 037 to 061).

In particular: Modern UI, live data for images in the 7-tab window, new control sizing handles, snap-on feature using the keyboard, new style selection window, etc.

**Benefit of this new feature in version 28:**  
An ever richer environment

### 235 New feature WD WB WM MISCELLANEOUS

- When creating a project, the 64-bit mode and the use of Unicode strings are enabled by default
- The "buffer security check" mode is enabled for 64 bit-executables.

**Benefit of this new feature in version 28:**  
Modern settings by default



# MODERN UI: CLEANER, BIGGER. IT'S AUTOMATIC!

## BIGGER FONTS, WELL-SPACED SPACED CONTROLS

### 236 New feature WD WB WM MOVE TOWARDS A MODERN, WELL-SPACED UI DESIGN LANGUAGE

New features in the editor in version 28 allow you to automatically modify existing UIs and meet current expectations: spacing and resizing.

**Benefit of this new feature in version 28:**  
A general trend

### 237 New feature WD WB WM ENLARGE THE FONT AND THE HOST CONTROL

Current UIs tend to use larger fonts in the different controls. In version 28, the font size of all the controls in a window can be automatically increased. This avoids having to change the skin template and resize controls one by one.

When the font is resized, all the controls are automatically enlarged and moved to preserve the current layout. The window itself is also enlarged.



Initial size and position of controls



New size and position of controls, after resizing the font

**Benefit of this new feature in version 28:**  
Automatic enlargement

### 238 New feature WD WB WM SPACING OF CONTROLS

Another current design trend is to increase spacing between the controls in a window.

A new feature analyzes the spacing between controls in an existing window, and shifts the coordinates of each control using a given factor, expressed as a percentage. For example, 20% spacing shifts the controls by... 20%. The window will also be resized using the same factor.



Initial size and position of controls



New position of controls, after applying spacing

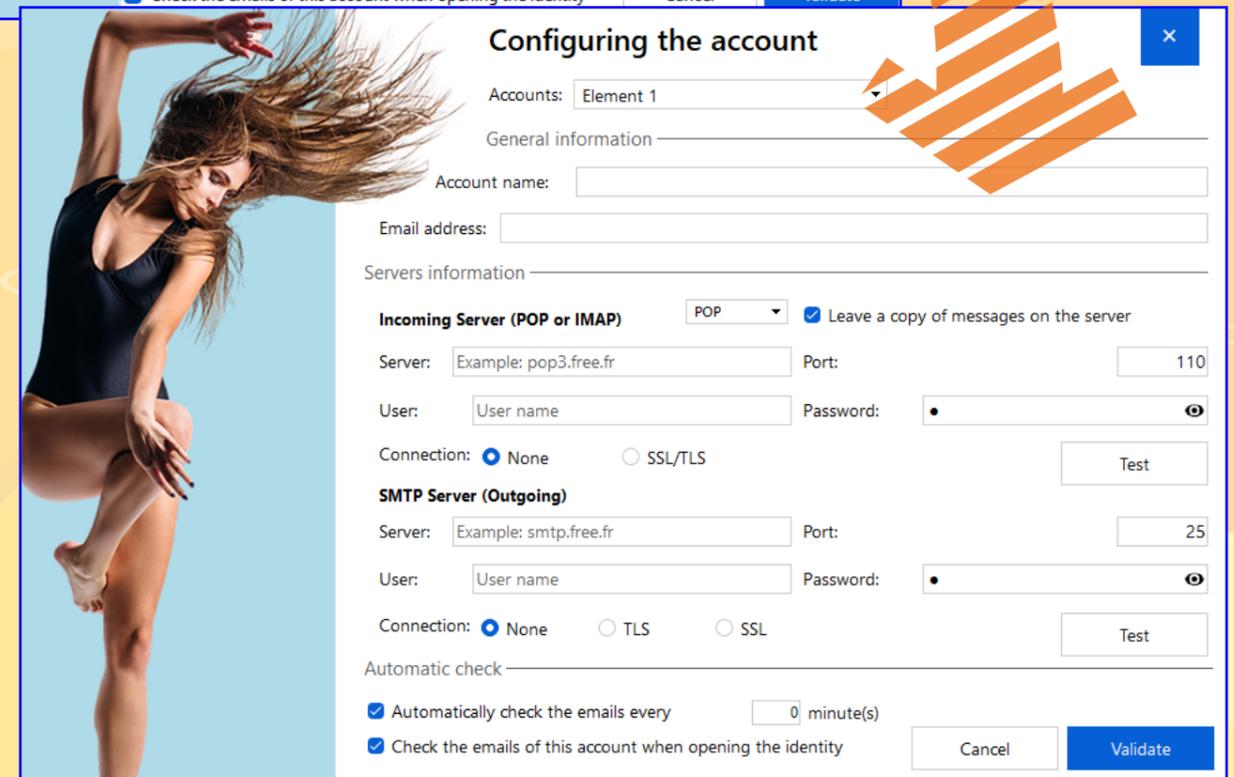
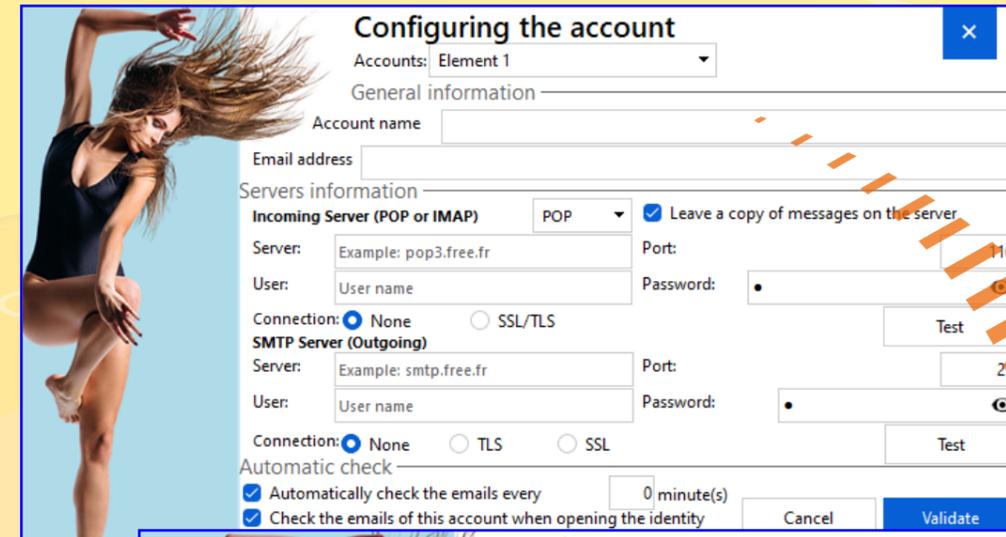
**Benefit of this new feature in version 28:**  
Automatic spacing

### 239 New feature WD WB WM WINDOWS 11 SKIN TEMPLATE

WINDEV 28 includes a skin template that follows the main Windows 11 UI design guidelines. Use this skin template to obtain a Windows 11 layout immediately.

See new feature 212.

**Benefit of this new feature in version 28:**  
Ready to use



### 240 New feature WD WB WM TOUCH-FRIENDLY SKIN TEMPLATE

WINDEV 28 includes a specific skin template for touch-friendly UIs.

This skin template adapts all clickable areas: bigger buttons, combo box arrows, check boxes, radio buttons, input areas...

For example, this skin template can be used to easily create interactive kiosks, restaurant kiosks, interactive screens for the real estate industry...

See new feature 212.

**Benefit of this new feature in version 28:**  
Ready to use



Always ready  
to develop 10 times faster!

## WINDOW EDITOR

### 241 New feature WD WB WM A HOST OF NEW FEATURES

The WINDEV window editor benefits from the following new features: snap-on feature with the keyboard, more user-friendly control handles, new style editing window, custom shortcuts, See new features 037 to 061, and 065 to 068.

**Benefit of this new feature in version 28:**  
*Powerful new features*

### 242 New feature WD WB WM FORMAT PAINTER

In version 28, you can easily copy and apply formatting to controls: the format painter is available in the style sheet editor.

**Benefit of this new feature in version 28:**  
*Copy & paste formatting in a snap*

### 243 New feature WD WB WM CONTEXT MENU OF CONTROLS: BETTER, MORE EFFICIENT

The context menus of the window and page editors have been completely revised for a better experience.

**Benefit of this new feature in version 28:**  
*More modern menus*

### 244 New feature WD WB WM UI ERROR: NEW ERRORS DETECTED

- If a table does not support per-pixel scrolling, the editor shows an error and prompts you to fix it with one click.
- Context menu: if two menu options have the same value (defined in the 7-tab window), a UI error is generated
- If a window opened with **Info**, **YesNo** or similar functions is not customized, a UI error appears. A custom window provides a better user experiences because it allows the use of AAFs: timer.

**Benefit of this new feature in version 28:**  
*Easily improve the UI of your applications*

## RAD

### 245 New feature WD WB WM RAD: RAD DETAILS OF THE ANALYSIS

For each item, the data model editor allows you to specify information that can be used in the RAD methodology: type of control to be generated, content of the control, general properties, etc.

The RAD will use this information to generate windows and pages.

In version 28, you can differentiate this information by platform: PC, Web, Mobile.

**Benefit of this new feature in version 28:**  
*Precise generation*

## WINDEV PRIVATE STORE

### 246 New feature WD WB WM GRANT RIGHTS TO UPLOAD APPLICATIONS

In version 28, the Supervisor can authorize one or more users to upload applications to the Store

**Benefit of this new feature in version 28:**  
*No need to ask the Supervisor every time*

### 247 New feature WD WB WM END USER: SEAMLESS TRANSITION FROM SETUP ON THE NETWORK TO SETUP ON THE STORE

Today, in many organizations, applications are installed via a setup file on the network.

When an application already deployed via the network becomes available on the Private Store, end users do not need to download the application again. The application will automatically switch to the Store's Live Update system for future updates.

**Benefit of this new feature in version 28:**  
*Less actions*

### 248 New feature WD WB WM NAME SETUP FILES

In version 28, you can rename the setup files of applications available on the Private Store.

**Benefit of this new feature in version 28:**  
*Organization*

### 249 New feature WD WB WM END USER: SETUP MODE

For security reasons, Internet browsers prevent executables from automatically running on the PC.

The steps to run an executable may be different depending on the browser.

The Private Store download page now shows a step-by-step guide for the corresponding browser.

**Benefit of this new feature in version 28:**  
*Less calls to the helpdesk*

New feature WD WB WM

### 250 to 253 MISCELLANEOUS

- Deployment wizard: Option to save the authentication parameters needed to deploy applications to the Store
- Store login site: "Remember me" option
- Supervisors can reset their password if necessary.
- Software Factory: action to deploy to the Store.

**Benefit of this new feature in version 28:**  
*A more practical Store*

## AAF: AUTOMATIC APPLICATION FEATURES

### 254 New feature WD WB WM "ALL/NONE" OPTION FOR CHECK BOX COLUMNS: NOW AUTOMATIC

<input type="checkbox"/>	Ref	Date	Custom
<input checked="" type="checkbox"/>	RF21D15	May 2, 2021	AMPELAS julia.amp
<input checked="" type="checkbox"/>	RF21D17	Nov 20, 2021	LUXOUD daluxoud
<input type="checkbox"/>			JAMMY

*Click: to select all the elements, click again to deselect all*

In tables with check box columns, an option appears automatically in the table header.

End users can use this check box to select or clear all the check boxes in the column.

**Benefit of this new feature in version 28:**  
*No need to handle "All/None" buttons programmatically*

## JAVA



### 255 New feature WD WB WM HOMONYMIC COPY

In version 28, you can perform homonymic copies (<=) in Java with advanced types. This operation allows you to copy data between elements with the same name, even if they belong to objects of different type: Chrono, DiskFile, Color, etc.

**Benefit of this new feature in version 28:**  
Standardization

New feature WD WB WM

### 256 to 262 MISCELLANEOUS

- The `..Directory` property can now be used on data files
- `fOpen` function: the `foUnicode` and `foAnsi` constants are now supported
- `NoSpace` function: new syntax options available
- The `Chrono` type is available
- The `File` type is available
- `HTrack` function: the function can execute the callback in a thread
- You can now use indirections on class members

**Benefit of this new feature in version 28:**  
Useful improvements

New feature WD WB WM

### 263 to 271 9 NEW JAVA FUNCTIONS

WLanguage offers 9 new functions for Java.

RoundToMultiple	ErrorWithTimeout	ExecuteFunction	InfoWithTimeout
CapitalizeEachWord	TableDeleteSelect	ThreadStopRequested	ThreadRequestStop
LooperDeleteSelect			

## LINUX

### 272 New feature WD WB WM LINUX: EXECUTEPRESETACTION

You can programmatically define preset actions on buttons: open a window, send an email, cut, copy, paste, etc. In version 28, the `ExecutePresetAction` function becomes available.

**Benefit of this new feature in version 28:**  
Better cross-platform

### 273 New feature WD WB WM LINUX: MISCELLANEOUS

The 64-bit execution mode becomes the standard. The 32-bit mode is not supported in version 28. To use this mode, compile your application in version 27 (accessible from version 28).

**Benefit of this new feature in version 28:**  
Better cross-platform

New feature WD WB WM

### 274 to 331 58 NEW FUNCTIONS 30 NEW LINUX CONSTANTS FOR WINDEV

WLanguage offers 58 new functions and 30 new constants (seen online help) for Linux.

RoundToMultiple	CheckCBE	BitcoinValidAddress	CheckCF
CheckCNPJ	ComponentExecute	CheckCPF	DiagramSearch
dModifyContrast	CheckDNI	dStraighten	dTextMarkdown
CheckEIN	ExecutePresetAction	ExecuteFunction	ExecuteMainThreadAsynchronous
fChangeExtension	CheckFEI	fBuildRelativePath	FTPProxy
fMimeType	GenerateGeometricalImage	HDropView	AIDetectContour
AIDetectDrawing	IBANValid	CheckUID	CheckIdNr
iPrintAreaMarkdown	CheckINSEE	CheckIVA	JSONValid
MarkdownToDOCX	MarkdownToHTML	MarkdownToPDF	MarkdownToText
ModbusSendRawFrame	MongoExecuteOperations	CheckSIN	CheckOASI
CheckBN15	CheckBN9	CheckNIF	CheckNISS
OpenAPIToHTTP	CapitalizeEachWord	CheckBER	SCPSendFile
SCPGetFile	CheckSIREN	CheckSIRET	SocketProxy
CheckSSN	SpreadsheetUnmerge	SpreadsheetMerge	CheckEU
CheckUSTidNr	UTFConvert		

## .NET

### 332 New feature WD WB WM .NET 6 SUPPORT

Good news for developers who use assemblies: .NET6 is now supported.

**Benefit of this new feature in version 28:**  
Everything is in the title. And in the text body.

### 333 New feature WD WB WM ASSEMBLIES: ABILITY TO CHOOSE THE .NET FRAMEWORK VERSION TO USE

There are more and more versions of the .NET framework. Now you can specify the framework version to be used in a WINDEV project that uses .NET assemblies. If this version is not available on the user's computer, an error is displayed.

**Benefit of this new feature in version 28:**  
Precision

### 334 New feature WD WB WM ASSEMBLY GENERATION: CHOOSE THE TARGET .NET FRAMEWORK

In a WINDEV project that generates .NET assemblies, you can specify the target framework version: version 5 or 6.

**Benefit of this new feature in version 28:**  
Precision

## WLANGUAGE

### 335 New feature WD WB WM COMMON NEW FEATURES

Language remains the cornerstone of development.

In version 28, WLanguage in WINDEV is further enriched. It benefits from common new features and many useful improvements: AI contour detection, new undetectable type for strings, ability to add appointments, image straightening, improved introspection, automatic OCR on an area, etc. See new features 114 to 147.

**Benefit of this new feature in version 28:**  
Ever-increasing power in WLanguage

New feature WD WB WM

### 336 33 NEW CONSTANTS

33 new WLanguage constants are available in version 28:

orgDateTimeFirstVisible	charsetUnicode	charsetUTF16BE	charsetUTF16LE
charsetUTF32	diagActionNone	diagActionAll	diagModeFreehandDrawing
diagModeSelection	aafPrintDiagram	aafPvtCollapseAll	dfMarkdown
dfRTF	dPlainText	freSubdirectoryOnly	ftpProxySOCKS5
grPolarArea	h4G	h5G	hPrimaryKey
hCloud	iListOutput	iMarkdown	maskBitcoin
maskScientific	useModeOCR	socketConfigureMode	tsWaiting
typKanban	typKanbanList	wlProjectElement	wlDataFile
wlUntyped			

**Benefit of this new feature in version 28:**  
More and more possibilities for WLanguage

New feature WD WB WM

### 337 to 355 19 NEW TYPES

19 new types of variables are available in WLanguage:

apiClient	apiRequest	Component	diagActionAllowed
docAutoReplace	DiskFileaiConfigureContourDetection		iOutputInfo
kbCard	MongoOperation	MongoOperationAdd	MongoOperationUpdateAll
MongoOperationUpdateOne	MongoOperationReplaceOne	MongoOperationDeleteAll	MongoOperationDeleteOne
pdfBookmark	AssistedInput	xlsLayout	

**Benefit of this new feature in version 28:**  
More and more power in WLanguage

New feature WD WB WM

### 356 to 363 8 NEW PROPERTIES

8 new WLanguage properties are available for WINDEV.

Map	AutomaticCorrection	Extra	DisplayFormat
IgnoreError	Markdown	EditMode	NullableIndex

**Benefit of this new feature in version 28:**  
And even more power in WLanguage!

Each update to version 28 entitles you to 15 free technical support requests at PC SOFT. In version 28, your teams benefit from Free Technical Support\*!

# FREE TECHNICAL SUPPORT

UNIQUE SERVICE

NO WORRIES...

New feature WD WB WM

## 364 to 376 13 NEW FUNCTIONS FOR THE DISKFILE TYPE

WLanguage offers 13 new functions for the **DiskFile** type.

fLock	fChangeSize	fFind	fUnlock
fWrite	fWriteLine	fClose	fRead
fReadLine	fReadLineRegularExpression	fFileName	fSeek
fSize			

New feature WD WB WM

## 377 to 456 80 NEW WLANGUAGE FUNCTIONS FOR WINDEV

80 new WLanguage functions are available for WINDEV in version 28:

RoundToMultiple	Returns a numeric value rounded to the nearest multiple of another numeric value.
CheckCBE	Checks the validity of a CBE number (identifier from the Crossroads Bank for Belgian Enterprises).
BitcoinValidAddress	Checks whether a Bitcoin wallet address is valid.
CheckCF	Checks the validity of a CF number (personal identification number in Italy).
CheckCNPJ	Checks the validity of a CNPJ number (company identification number in Brazil).
ComponentExecute	Executes a function in a plug-in component.
CheckCPF	Checks the validity of a CPF number (personal identification number in Brazil).
dDrawControl	Draws a control in an image.
DiagramSearch	Searches for shapes containing a specific text in a diagram.
dModifyContrast	Changes the contrast of an image.
CheckDNI	Checks the validity of a DNI number (personal identification number in Spain).
DocPositionTopPage	Returns the position of the first character in a given page in a Text Processing control.
DocFindElementByName	Searches for an element by its name in a Word Processing document.
dStraighten	Transforms an image by applying perspective correction.
dTextMarkdown	Draws Markdown text in an image.
CheckEIN	Determines if a variable or control is a valid EIN (Employer Identification Number in the USA).
ExecuteFunction	Executes a WLanguage function identified by its name.
ExecuteMainThreadAsynchronous	Executes a procedure in the main thread of the application without waiting for the end of its execution.
fChangeExtension	Changes the extension of a file on disk
CheckFEI	Checks the validity of a FEI number (Firm Establishment Identifier in the USA).
fBuildRelativePath	Returns the path to a file relative to a reference directory.
fMIMEType	Returns the type of file according to the MIME standard (Multipurpose Internet Mail Extensions).
GenerateGeometricImage	Randomly generates an image with geometric shapes.
HDropView	Removes a materialized view from the HFSQL server.
HTMLToPDF	Converts an HTML string or buffer to a buffer containing a PDF document.
AIDetectContour	Detects the contours of shapes in an image.
AIDetectDrawing	Detects freehand drawings (circle, rectangle, etc.) in an image.
IBANValid	Checks the validity of an International Bank Account Number (IBAN).
CheckUID	Checks the validity of a UID number (Swiss business identification number).
CheckIdNr	Checks the validity of an IdNr (personal identification number in Germany).
iPrintAreaMarkdown	Prints Markdown text in a rectangular area.
CheckINSEE	Tests the validity of an INSEE number (identification number

CheckIVA	Checks the validity of an IVA number (company identification number in Italy).
JSONValid	Checks the validity of a JSON string.
KanbanAddCard	Adds a card in a Kanban control.
KanbanSearchCard	Searches for a card in a Kanban control.
KanbanMoveCard	Moves a card to another list in a Kanban control.
KanbanDeleteCard	Deletes a card in a Kanban control.
KanbanDeleteAllCard	Deletes all cards in a Kanban control.
KanbanEnumCard	Enumerates all the cards in a Kanban control
KanbanInfoXY	Indicates which element of a Kanban control is at a given position.
KanbanListAdd	Adds a list in a Kanban control.
KanbanListPosition	Gets or sets the scroll position in a list in a Kanban control
KanbanListDelete	Deletes a list in a Kanban control
KanbanListDeleteAll	Deletes all the lists in a Kanban control.
KanbanCount	Returns the number of lists or cards in a Kanban control
KanbanSelect	Returns the selected card in a Kanban control
KanbanSelectPlus	Selects a card in a Kanban control
KanbanToImage	Export a Kanban control to a variable of type Image.
PDFReaderGoToBookmark	Sets the position on a specific bookmark in the PDF Reader control.
MarkdownToDOCX	Converts a Markdown string to a docx file.
MarkdownToHTML	Converts a Markdown string to HTML.
MarkdownToPDF	Converts a Markdown string or buffer to a buffer containing a PDF document.
MarkdownToText	Converts a Markdown string to plain text (without tags).
ModbusSendRawFrame	Writes one or more floats to the Modbus session
MongoExecuteOperations	Executes a batch of operations on a MongoDB database.
CheckSIN	Checks the validity of a Canadian Social Insurance Number (SIN).
CheckOASI	Checks the validity of a Swiss Old-Age and Survivors' Insurance Number (OASI).
CheckBN15	Checks the validity of a Canadian 15-digit Business Number (BN15).
CheckBN9	Checks the validity of a Canadian 9-digit Business Number (BN9).
CheckNIF	Checks the validity of a NIF number (company identification number in Spain).
CheckNISS	Checks the validity of a NISS number (Belgian social security identification number).
OpenAPIToHTTP	Builds the HTTP request to call a function of an API.
PicRectangularSnip	Captures a rectangular area defined with the cursor and retrieves the image in a variable of type Image.
PicRectangularSnipOCR	Runs OCR and extracts the text from a rectangular area defined with the mouse.
EmulateDnD	Emulates a "Drag & Drop" gesture in automated tests.
CapitalizeEachWord	Capitalizes each word in a specified string.
CheckBER	Checks the validity of a BER number (company identifier in the Swiss Business and Enterprise Register).
SCPSendFile	Sends a file using Secure Copy Protocol (SCP)
SCPGetFile	Gets a file using Secure Copy Protocol (SCP)
CheckSIREN	Checks the validity of a SIREN number (Système d'Identification du Répertoire des Entreprises).
CheckSIRET	Checks the validity of a SIRET number (Système d'Identification du Répertoire des Etablissements).
SocketConfigure	Configures the use of Socket functions.
SocketProxy	Specifies whether TCP sockets and WebSockets must go through a SOCKS5 proxy to execute requests.
CheckSSN	Determines if a variable or control is a valid SSN (Social Security Number in the USA).
SpreadsheetUnmerge	Unmerges cells in a Spreadsheet control.
SpreadsheetMerge	Merges cells in a Spreadsheet control.
CheckEU	Checks the validity of a EU number (Belgian Establishment Unit number used to identify companies).
CheckUStIdNr	Checks the validity of a UStIdNr (company identification number in Germany).
UTFConvert	Converts a string or buffer to the specified format: UTF, ANSI, Unicode.

# WINDEV Mobile



My source

## 457 New feature WD WB WM WINDEV MOBILE 28: MAKE THE MOST OF THE 196 COMMON NEW FEATURES IN VERSION 28



WINDEV Mobile benefits from most of the 196 common new features in version 28, and in particular: new Smart controls, higher speeds, new controls, improved PDF control, improved code editor, new features for web services, new features in WLanguage, etc.

Of course, WINDEV Mobile 28 also benefits from many new features specific to the mobile world. Learn more in the following pages.

# NEW IMAGE EDITOR CONTROL

INCLUDE AN IMAGE EDITOR IN YOUR APPS WITH ZERO LINES OF CODE

## 458 New feature WD WB WM NEW IMAGE EDITOR CONTROL

WINDEV Mobile 28 includes a new control that end users will love: the "Image Editor" control. Give users the ability to edit photos and images, with zero lines of code.

**Benefit of this new feature in version 28:**  
A true, full-fledged editor

## 459 New feature WD WB WM NEW IMAGE EDITOR CONTROL: FEATURES

This control includes all the standard image editing features for mobile devices:

- crop
- rotate
- fix perspective distortion
- brightness, contrast, saturation
- annotate: freehand drawing, highlighter, text
- symmetry
- blur
- OCR suggested on detected text areas
- ...

**Benefit of this new feature in version 28:**  
Powerful functionalities

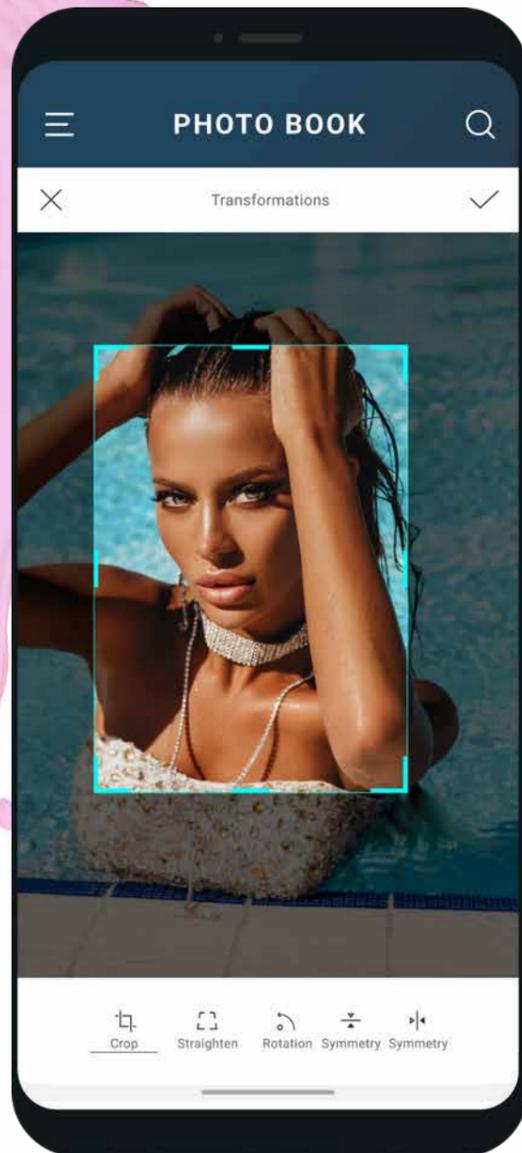
## 460 New feature WD WB WM NEW IMAGE EDITOR CONTROL: SOURCE

The image to be edited can come from different sources:

- image selected by the end user in the device's gallery: screenshot, photo,...
- image selected by the end user in the device's file manager
- image opened or taken using the device's camera app
- ...

For privacy reasons, you can disable some of these modes.

**Benefit of this new feature in version 28:**  
Load images from anywhere



Menu of the mobile Image Editor control

# NEW TOP BARS: ACTION BAR / NAVIGATION BAR

BETTER THAN EVER IN VERSION 28

## 461 New feature WD WB WM TOP BAR: STANDARD BEHAVIOR

The top bar is known as "Action Bar" in Android and "Navigation Bar" in iOS. However, for the purpose of simplicity, the term "Action bar" will be used often in the rest of this document.

This bar can be defined by the system, or be customized.

A system bar can have the following characteristics:

- Optional button on the left of the bar. This button can be used to go back, open a window or perform a custom process
- Optional button on the right of the bar. This button should open a menu
- The bar can be hidden automatically when scrolling
- The bar can use a system color or a custom color
- Ability to apply the title font color to icons
- The bar can use a background image (9-slice scaling mode supported).

**Benefit of this new feature in version 28:**  
Standard layout and behavior

## 462 New feature WD WB WM TOP BAR: ADVANCED CUSTOMIZATION

In version 28, bar customization has been drastically improved.

You can now fine-tune different aspects of the bars:

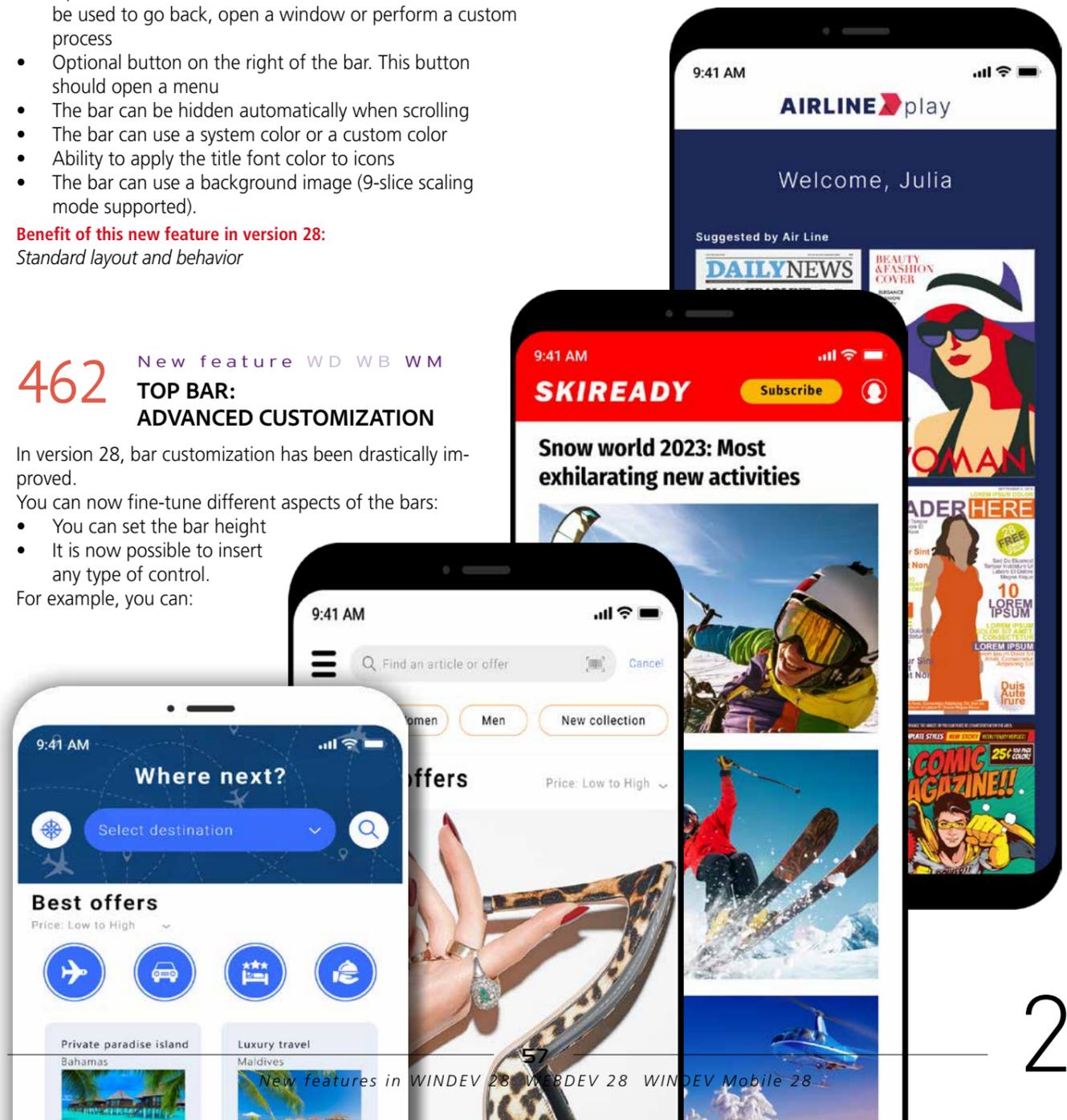
- You can set the bar height
- It is now possible to insert any type of control.

For example, you can:

- insert a logo or an image
- insert a search field
- center a title
- show options as tokens
- dynamically change the content of the bar
- pin a subscription button
- ...

Everything can be easily customized!

**Benefit of this new feature in version 28:**  
Powerful Action Bars



## NEW CONTROLS

WINDEV Mobile 28 includes new types of controls, to create even richer UIs.

### 463 New feature WD WB WM NEW KANBAN CONTROL FOR MOBILE

The new Kanban control is available for mobile app development.

Its behavior and its code are the same in WINDEV Mobile, WINDEV and WEBDEV.

See new features 001 to 014.

**Benefit of this new feature in version 28:**  
A full-fledged, cross-platform control

### 464 New feature WD WB WM NEW IMAGE EDITOR CONTROL FOR MOBILE

In version 28, the new Image Editor control is available for mobile applications.

Integrate a powerful image editor into your apps, without writing a single line of code: crop, rotate, annotate, insert text, etc.

See new features 458 to 460.

**Benefit of this new feature in version 28:**  
Image editor with zero code

### 465 New feature WD WB WM NON-EMBEDDED FONTS: HIGHLIGHTED BY A UI ERROR

You can include custom fonts in a project.

These fonts are not installed on the end user's phone by default.

These fonts must be specified in the application generation wizard.

If one or more fonts have been left out, a UI error is generated.

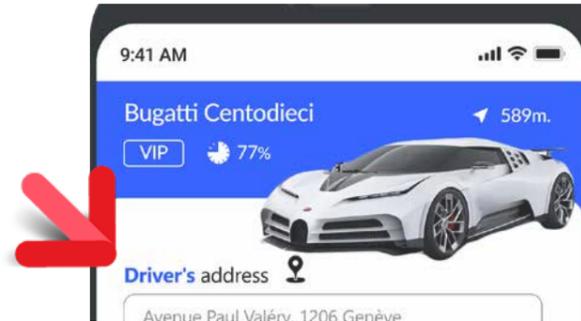
**Benefit of this new feature in version 28:**  
Don't leave your custom fonts out!

*Markdown is available on mobile devices as well, which allows for easy cross-platform formatting*

### 466 New feature WD WB WM TEXT FORMATTING IN CONTROLS: MARKDOWN

Find a video

*The Search field now supports rich formatting*



*Indication text with rich formatting*

Now you can format text in all mobile controls using Markdown.

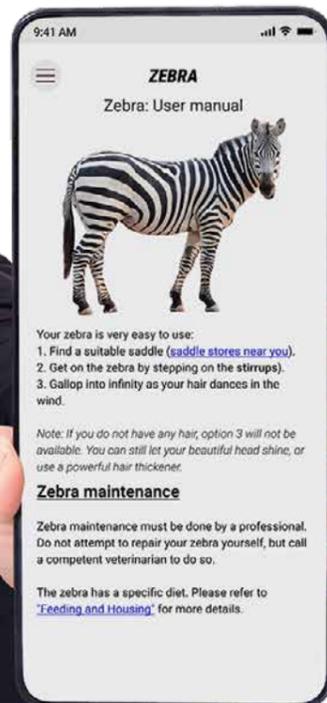
See new features 026 to 028.

**Benefit of this new feature in version 28:**  
Easily format any text

### 467 New feature WD WB WM MISCELLANEOUS

- Image control: The horizontal and vertical symmetry options are now available in "General" tab of the 7-tab window. Reminder: images can also be edited using the Image Editor included in the environment
- Shadows for Supercontrols

**Benefit of this new feature in version 28:**  
Less actions



## KANBAN FOR MOBILE DEVICES

### FULL INTEROPERABILITY

### 468 New feature WD WB WM KANBAN CONTROL ON MOBILE DEVICES

In version 28, the Kanban control is also available for mobile devices.

The Kanban methodology is often used to manage tasks on mobile devices, since users carry their mobile devices with them most of the time.

**Benefit of this new feature in version 28:**  
Interoperability

### 469 New feature WD WB WM KANBAN CONTROL ON MOBILE DEVICES: SPECIFIC FEATURES

For better readability, only one column is displayed in portrait mode.

Contiguous columns are partially displayed on each side of the current column.

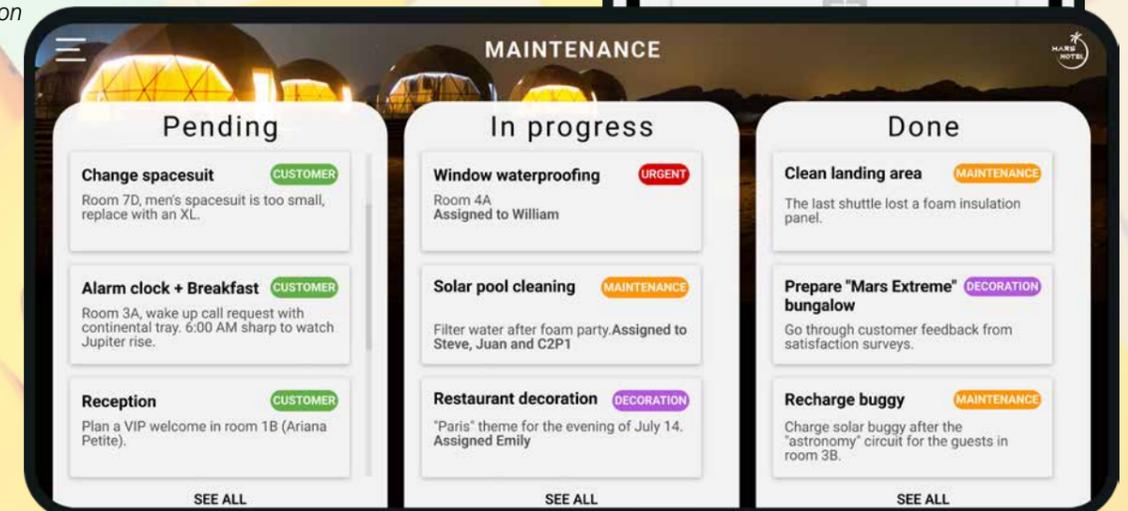
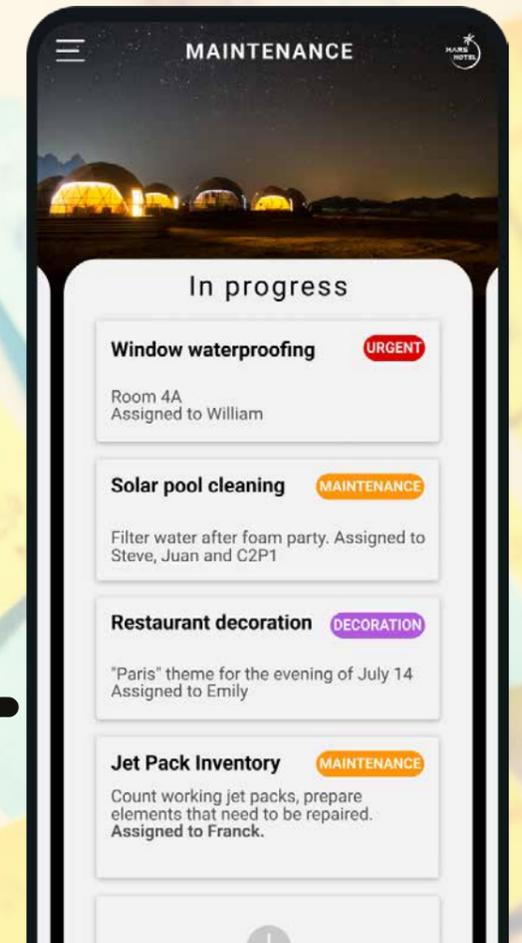
Users can navigate between lists (columns) by swiping left or right.

Users can also tap and hold a card to move it horizontally or vertically.

If necessary, the Kanban control changes to the target list (column) to complete the operation.

In landscape mode, multiple lists (columns) are displayed.

**Benefit of this new feature in version 28:**  
Intuitive behavior on mobile devices





## 4 NEW SMART CONTROLS IN WINDEV MOBILE 28

### 470 New feature WD WB WM 4 NEW SMART CONTROLS IN WINDEV MOBILE 28

4 new Smart controls are available in WINDEV Mobile 28:

- "Show more"
- Form with non-blocking required input
- Tokens as filters, with horizontal scrolling
- Floating action button

**Benefit of this new feature in version 28:**

Create windows in less time

### 471 New feature WD WB WM NEW SMART CONTROL: "SHOW MORE"

The "Show more" Smart control allows you to show only the beginning of a text, thus making the UI lighter. If a user wants to read the rest of the text, they can simply tap the "Show more" button.

The full text is then displayed.



Our company offers private flights between airports worldwide. Discover the nearest airports accessible by business jet, as well as examples of fares, destinations...

Show more...



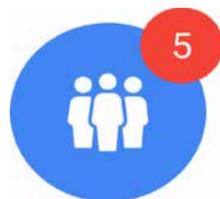
The text is truncated, but the user can tap "Show more" to see the full text

**Benefit of this new feature in version 28:**

Simplifies window layouts

### 472 New feature WD WB WM NEW SMART CONTROL: BADGE

The "Badge" Smart control shows a badge containing a value over a control: image, button, etc.



Standard UI behavior

**Benefit of this new feature in version 28:**

A modern, widely used button

## TRANSFORM YOUR WINDEV APPLICATIONS INTO IOS & ANDROID APPS: EASIER AND EASIER

### WINDEV APPLICATION



### WINDEV MOBILE APPLICATION

### 473 New feature WD WB WM TRANSITION TO MOBILE DEVICES MADE EASIER

Transforming your existing WINDEV applications (or parts of applications) into iOS and Android applications is easier than ever before.

The integration of the WINDEV and WINDEV Mobile environments allows developers to easily share project elements.

The conversion wizard has been improved and is even more precise.

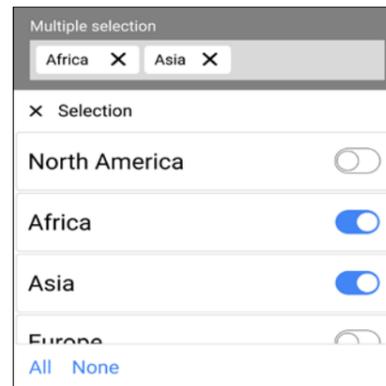
**Benefit of this new feature in version 28:**

Easily transform your WINDEV applications into mobile applications

### 474 New feature WD WB WM NEW SMART CONTROL: MULTI-SELECTION WITH TOKENS

The "Multi-selection with tokens" Smart control (see new feature 200) is also available for mobile applications.

The layout has been adapted for easy use on mobile devices.



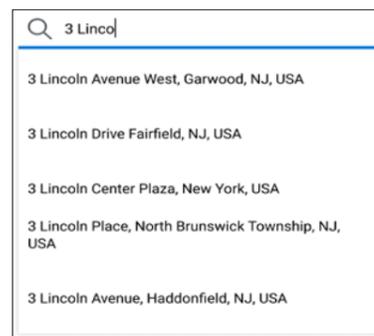
Once selected, each destination is added as a token

**Benefit of this new feature in version 28:**

Modern UI

### 475 New feature WD WB WM NEW SMART CONTROL: ADDRESS AUTOCOMPLETE

The "Address autocomplete" Smart control (see new feature 202) is also available for mobile devices: The layout has been adapted to be touch-friendly.



A list of address suggestions is displayed

**Benefit of this new feature in version 28:**

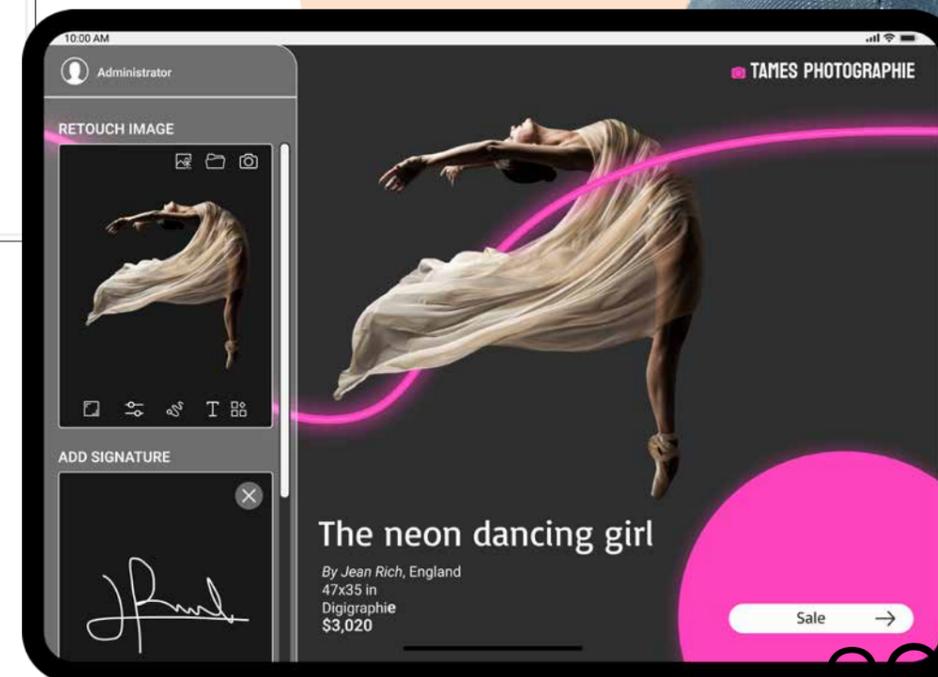
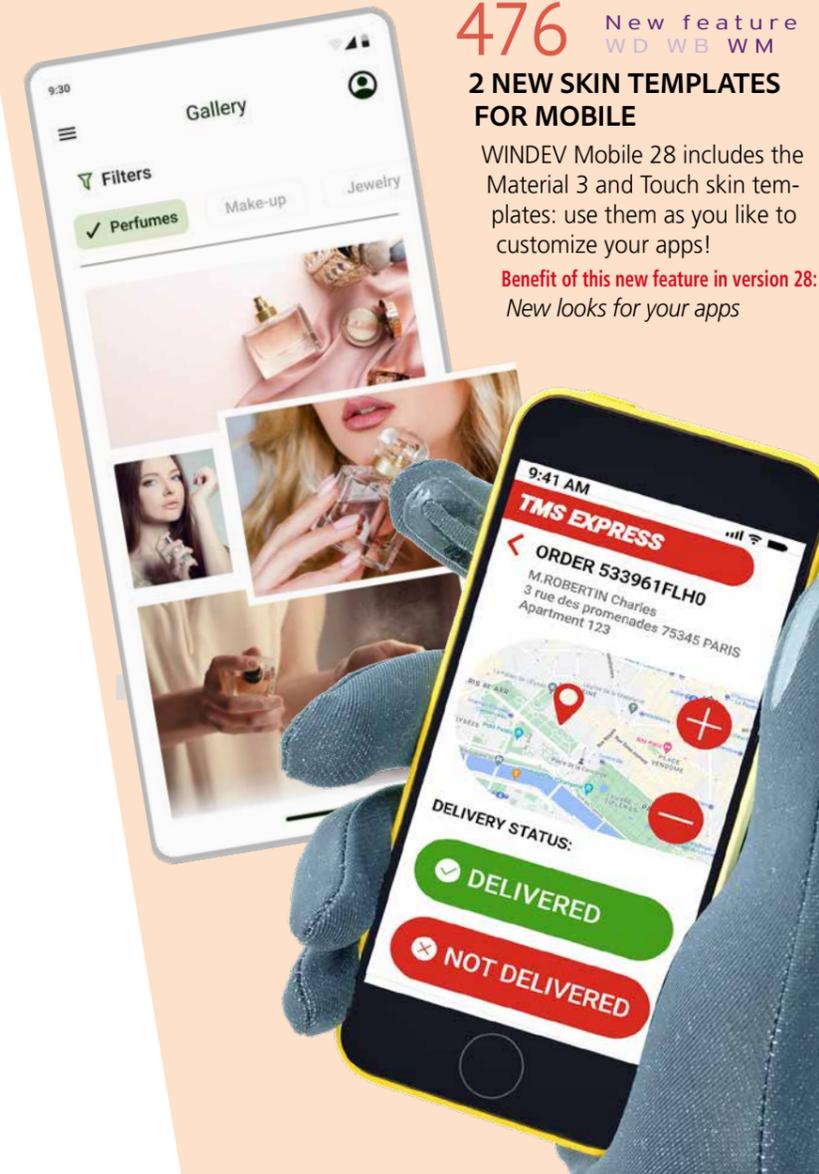
Prevents typing errors

### 476 New feature WD WB WM 2 NEW SKIN TEMPLATES FOR MOBILE

WINDEV Mobile 28 includes the Material 3 and Touch skin templates: use them as you like to customize your apps!

**Benefit of this new feature in version 28:**

New looks for your apps



## WINDEV MOBILE IN THE WINDEV EDITOR

### 477 WD WB WM REMINDER: OPEN AND HANDLE WINDEV MOBILE PROJECTS IN WINDEV

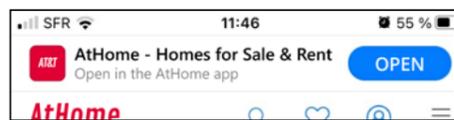
To make cross-platform development easier, WINDEV can open WINDEV Mobile projects (and WEBDEV projects as well). This avoids duplicating code and objects and performing unnecessary operations. Objects are shared immediately. The same project in WINDEV can contain WINDEV, iOS and Android configurations (and even WEBDEV configurations).  
*Note: a WINDEV Mobile (and/or WEBDEV) license is required.*

## OTHER COMMON NEW FEATURES FOR IOS/ANDROID

### 478 New feature WD WB WM OPEN AN APPLICATION FROM A LINK ON THE WEB OR IN AN EMAIL (DEEP LINK / UNIVERSAL LINK)

In version 28, you can allow users to open an application from a link in a website or in an email. This link can contain parameters that will be passed to the application. This method is known as Deep Link in Android, and Universal Link in iOS. If the application is not yet installed on the device, the page specified in the link opens and generally prompts the user to download the application from a store. Example of code embedded in a link:

[https://precilia.com/ad?ad\\_id=254z7846](https://precilia.com/ad?ad_id=254z7846)



The OPEN button on the site or email launches the app and opens the selected ad

Security: the web server used must allow the application to be launched: a settings file must be present on the server.

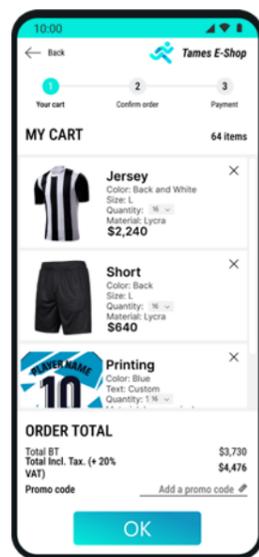
**Benefit of this new feature in version 28:**  
 Open an app directly on specific content!

### 479 New feature WD WB WM DEEP LINK, UNIVERSAL LINK: CALLBACK

A callback mechanism allows you to pass parameters, or to indicate to the application that it has been launched via a link. Simply pass the callback to the new `DeepLinkProcedure` function.

**Benefit of this new feature in version 28:**  
 Run a process when the app is launched via a link

### 480 New feature WD WB WM INTERACTIVE WEBDEV PAGE IN A MOBILE WINDOW



In version 28, a page or a site can be inserted into a window in a WINDEV Mobile application. The app and the page exchange data using `WLanguage`. This new feature allows you to maximize the use of your existing elements. To learn more, go to new feature 215.

**Benefit of this new feature in version 28:**  
 Reuse your existing elements

### 481 New feature WD WB WM TEXT FORMATTING VARIANTS

In version 28, you can quickly see how changes in character and line spacing affect text layout. See new feature 483 on the opposite page

**Benefit of this new feature in version 28:**  
 One click is all it takes

### 482 New feature WD WB WM "GLOVE-FRIENDLY" SKIN TEMPLATE

A new skin template is introduced in version 28. It is intended to make a touchscreen easier to use with gloves in very cold temperatures, for example: With larger controls and buttons, the "glove-friendly" skin template allows users to easily select elements.

See new feature 476.

**Benefit of this new feature in version 28:**  
 User-friendly interface all year round

## FORMATTING VARIANTS CHOOSE THE BEST TEXT LAYOUT

### 9 LAYOUTS: COMPARE AND CHOOSE

The same text displayed using different layout combinations: Simply choose the best one! Use the arrow keys to navigate between layouts

### 483 New feature WD WB WM EASILY CUSTOMIZE TEXT IN WINDOWS AND PAGES

You can customize text attributes such as character spacing, line spacing and font size in a window or page. You can manually adjust these settings in the 7-tab window. A new preview window in version 28 shows and suggests pre-set combinations of these attributes.

**Benefit of this new feature in version 28:**  
 Display text exactly the way you want

### 484 New feature WD WB WM VIEW DIFFERENT COMBINATIONS AT A GLANCE

In version 28, a new window shows you different formatting combinations applied to your UI. This way, you can select the right layout for each text without

having to try different settings one by one. This window supports multiple selection.

**Benefit of this new feature in version 28:**  
 Instant preview, one-click selection

### 485 New feature WD WB WM KEEP THE SETTINGS THAT WORK FOR YOU

Once applied, you can change specific settings in a given combination, (e.g., increase font size). To keep and reuse your custom combinations, simply create a style based on the custom control.

**Benefit of this new feature in version 28:**  
 Your text, your style

# AND FOR IOS

## 486 New feature WD WB WM ALL THE COMMON NEW FEATURES FOR MOBILE APPS



iOS development has never been as powerful as with WINDEV Mobile 28. The amount of powerful features at your disposal keeps growing.

iOS evolves, and so does WINDEV Mobile 28.

WINDEV Mobile 28 for iOS benefits from:

- the common new features in version 28
- **plus** the common new features for mobile devices
- **plus** new features specific to iOS.

## 487 New feature WD WB WM IOS 16, NEW IPHONE 14



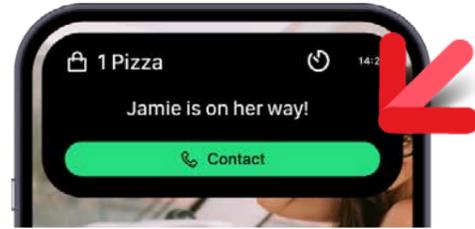
iPhone 14 and Apple Watch Series 8

WINDEV Mobile 28 supports both iOS 16 and WatchOS 9. All iPhone 14 and AppleWatch Series 8 models are supported.



**Benefit of this new feature in version 28:**  
Enjoy all the features of iOS 16

## 488 New feature WD WB WM IPHONE 14: DYNAMIC ISLAND



Expanded Dynamic Island, with an available action

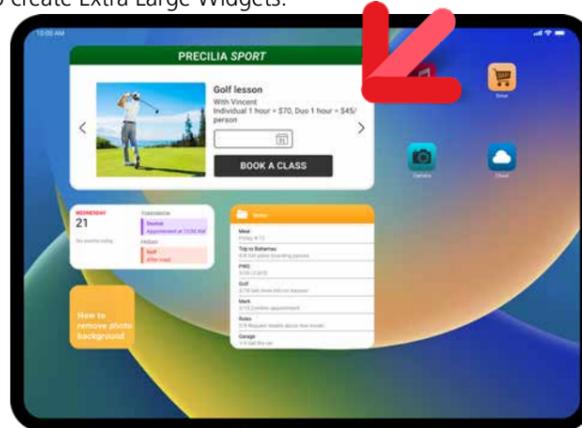
One major feature of the latest iPhone is the Dynamic Island, which transforms the black notch into a widget. WINDEV Mobile 28 supports this new behavior. Simply define the UI of the Widgets with Swift UI, then use WLanguage to automatically generate the widgets in the project and specify the callback procedure that will be called when the user interacts with the widget.

**Benefit of this new feature in version 28:**  
Who has never dreamed of having their own island?

## 489 New feature WD WB WM IPADOS 16

The new iPadOS 16 is supported. Stage Manager is supported in version 28: it is now possible to create resizable windows. You can also create Extra Large Widgets.

**Benefit of this new feature in version 28:**  
Make the most of all the new features in iPadOS 16



Large widget on iPad

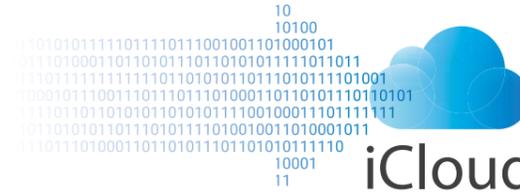
## 490 New feature WD WB WM ALWAYS-ON DISPLAY AND LOCK SCREEN

iOS 16 allows you to create Widgets that will be displayed on the lock screen, whether or not the Always-On display is enabled.

In WINDEV Mobile 28, you can create this type of widget.

**Benefit of this new feature in version 28:**  
Enjoy all the features of iOS 16

## 491 New feature WD WB WM SHARE DATA BETWEEN APPLE DEVICES THROUGH ICLOUD



How to share data between Apple devices using iCloud? The new **iCloud** family of WLanguage functions allows you to store data or "key/value" pairs in iCloud, and thus to access that data from all devices: iPhone, Apple Watch, iPad, Mac-Book, etc. Reminder: depending on the volume of data, an HFSQL database in the cloud (HFSQLDrive, PCSCloud.net, etc.) is a simple and powerful data sharing solution.

**Benefit of this new feature in version 28:**  
Seamless synchronization between Apple devices

## 492 New feature WD WB WM DATA SHARING BETWEEN WIDGET AND APP, AND BETWEEN APPS ON THE SAME DEVICE

In version 28, you can make a directory accessible from different applications and Widgets. This will allow easy data sharing. The new **iOSAppGroupDirectory** function has been introduced with this purpose in mind.

**Benefit of this new feature in version 28:**  
Data sharing between applications.

## 493 New feature WD WB WM RTPP - REAL-TIME OR LOG-BASED DEBUGGING IN WINDEV MOBILE

The powerful Real-Time Performance Profiler, which allows debugging and analyzing app performance in real time and based on log files, is available for iOS. See new feature 110.

**Benefit of this new feature in version 28:**  
A powerful optimization tool

New feature WD WB WM

## 494 to 496 IOS: MISCELLANEOUS

- Mac Catalyst now supports the Webcam control
- Mac Catalyst: ability to specify the Provisioning Profile directly in the generation wizard
- WMDEV: view custom fonts.

**Benefit of this new feature in version 28:**  
Useful features

## New feature WD WB WM 497 to 499 3 NEW TYPES

3 new types of variables are available for iOS:

Component	DiskFile	pdfBookmark
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**Benefit of this new feature in version 28:**  
More and more power in WLanguage

## New feature WD WB WM 500 to 571 72 NEW WLANGUAGE FUNCTIONS FOR IOS, 31 CONSTANTS

WLanguage is enriched with 72 new functions for iOS, as well as 31 new constants, 1 property and 41 functions for iOS wid-gets (see full list on windev.com).

RoundToMultiple	CheckCBE	BitcoinValidAddress	CheckCF
CheckCNPJ	ComponentExecute	CheckCPF	DeepLinkProcedure
dModifyContrast	CheckDNI	dStraighten	dTextMarkdown
CheckEIN	ExecuteFunction	ExecuteMainThreadAsynchronous	fChangeExtension
CheckFEI	fBuildRelativePath	FTPProxy	fMimeType
GenerateGeometricImage	HDropView	IBANValid	iCloudKeyValueWrite
iCloudKeyValueExist	iCloudKeyValueListKey	iCloudKeyValueRead	iCloudKeyValueRemove
iCloudKeyValueWatch	CheckUID	CheckIdNr	iPrintAreaMarkdown
iPrintingNation	CheckINSEE	iOSAppGroupDirectory	CheckIVA
JSONValid	KanbanAddCard	KanbanSearchCard	KanbanDeleteCard
KanbanDeleteAllCard	KanbanEnumCard	KanbanInfoXY	KanbanListAdd
KanbanListPosition	KanbanListDelete	KanbanListDeleteAll	KanbanCount
KanbanSelect	KanbanSelectPlus	KanbanToImage	PDFReaderGoToBookmark
MarkdownToHTML	MarkdownToPDF	MarkdownToText	CheckSIN
CheckOASI	CheckBN15	CheckBN9	CheckNIF
CheckNISS	CapitalizeEachWord	CheckBER	SCPSendFile
SCPGetFile	CheckSIREN	CheckSIRET	SocketProxy
CheckSSN	CheckEU	CheckUSStdNr	UTFConvert

## New feature WD WB WM 572 to 599 28 NEW WLANGUAGE FUNCTIONS FOR APPLE WATCH

28 new WLanguage functions are available for Apple Watch.

CheckCBE	CheckCF	CheckCNPJ	CheckCPF
CheckDNI	CheckEIN	ExecuteFunction	ExecuteMainThreadAsynchronous
CheckFEI	IBANValid	CheckUID	CheckIdNr
CheckINSEE	CheckIVA	CheckSIN	CheckOASI
CheckBN15	CheckBN9	CheckNIF	CheckNISS
CapitalizeEachWord	CheckBER	CheckSIREN	CheckSIRET
CheckSSN	CheckEU	CheckUSStdNr	UTFConvert



## 600 New feature WD WB WM ALL THE COMMON NEW FEATURES FOR MOBILE APPS



Development for Android has never been as powerful as with WINDEV Mobile 28.

The amount of powerful features at your disposal keeps growing.

Android evolves, and so does WINDEV Mobile 28, most notably with its support for **Android 13**.

WINDEV Mobile 28 for Android benefits from:

- the common new features in version 28
- **plus** the common new features for mobile devices
- **plus** new features specific to Android.

## 601 New feature WD WB WM ANDROID 13 SUPPORT

WINDEV Mobile 28 supports the latest version of Android.

**Benefit of this new feature in version 28:**

*Stay up to date*

## 602 New feature WD WB WM NATIVE KOTLIN



WINDEV Mobile is open to third-party languages.

Kotlin is a programming language mainly used for Android development.

In version 28, you can write Kotlin code in the code editor directly.

Syntax highlighting makes it easier to write and read code in this language.

Note: Java is still supported, of course.

```
// saves a video preview image at a given position
fun getVideoFramePreview(videoPath: String, position: Long,
saveToPath: String) {
    var bitmap: Bitmap? = null
    val retriever = MediaMetadataRetriever()
    // loads the video
    retriever.setDataSource(videoPath)
```



**Benefit of this new feature in version 28:**

*Interoperability*

## 603 New feature WD WB WM RETRIEVE THE RESULT OF AN ACTIVITY FROM THIRD-PARTY LIBRARIES AND ANDROID APIS



*Most payment apps use clear implementations of Activities*

In a WINDEV Mobile application, you can use external libraries and APIs.

In Android, some libraries and APIs open specific windows, known as "Activities", which perform specific processes:

- mobile payment
- Bluetooth visibility
- OAuth login request

WINDEV Mobile 28 allows you to easily retrieve the results of these Activities.

The new `AndroidActivityResultProcedure` function allows you to specify the WLanguage procedure that will be called when the Activity is closed.

This WLanguage procedure will receive the result as a parameter.

**Benefit of this new feature in version 28:**

*Interoperability*

## 604 New feature WD WB WM PER-PIXEL POSITIONING FOR BUTTON ICONS

You can now position icons with pixel precision inside buttons.

**Benefit of this new feature in version 28:**

*Higher precision, more possibilities*

## 605 New feature WD WB WM CHRONO TYPE SUPPORT

The `Chrono` type is now supported in Android.

**Benefit of this new feature in version 28:**

*It's about time...*

## 606 New feature WD WB WM DATA SOURCE PARAMETERS

A query based on a data source can contain parameters.

**Benefit of this new feature in version 28:**

*Flexibility*

## 607 New feature WD WB WM ACCESS BITS IN INTEGERS

In the industrial field, it is often necessary to read the bits in a byte.

In version 28, the `[ ]` (square brackets) syntax is available for variables of type `Integer`.

**Benefit of this new feature in version 28:**

*Useful*

## 608 New feature WD WB WM WLANGUAGE FUNCTIONS TO MANAGE ZOOMED IMAGES

When an image is zoomed in an Image control, the coordinates of a point in the control no longer match the coordinates of that point in the original image.

The `CoordinateImageControlToImage` and `CoordinateImageToImageControl` functions allow you to find the coordinates in the original image (and vice versa).

See the list of new WLanguage functions in the new feature 622.

**Benefit of this new feature in version 28:**

*Save countless lines of code*

## 609 New feature WD WB WM WLANGUAGE: ..STATE PROPERTY ON CONTAINERS

The `..State` property is available for container controls: Supercontrol, Internal Window, Tab control, etc.

For example, this allows you to gray out all the controls inside a container with one line of code.

**Benefit of this new feature in version 28:**

*Save code*

New feature WD WB WM

## 610 to 616 MISCELLANEOUS

- The new `BCToImage` function generates a bar code image based on a value
- Homonymic copy is available for advanced types and classes
- **fOpen** functions: the `foUnicode` and `foAnsi` constants are now supported
- The `growth` attribute can now be used on variables of type `Array`
- The `..Directory` property can now be used on data files



- OOP: ability to use indirections on class members
- The `..ZOrder` property is now supported
- Applications developed with WINDEV Mobile 28 support Android 6.0 (Marshmallow, 2015) and later

**Benefit of this new feature in version 28:**

*Easy programming*

New feature WD WB WM

## 617 to 621 WLANGUAGE 5 NEW TYPES

5 new types of variables are available for Android:

Chrono	DiskFile	pdfBookmark	kbCard
AssistedInput			

**Benefit of this new feature in version 28:**

*Useful types*

New feature WD WB WM

## 622 to 677 56 NEW WLANGUAGE FUNCTIONS FOR ANDROID

In version 28, WLanguage is enriched with 56 new functions for Android, as well as 27 new functions for Android widgets and 12 new constants (see full list on windev.com).

ActivityResultProcedure	RoundToMultiple	CheckCBE	BitcoinValidAddress
BCToImage	CoordinateImageControlToImage	CoordinateImageToImageControl	DeepLinkProcedure
DelayBeforeClosing	RequestRefreshUIElement	RequestRefreshUIParent	dBlur
dModifyContrast	dStraighten	dTextMarkdown	ErrorWithTimeout
ErrorWithTimeoutAsynchronous	ExecuteFunction	ExecuteRefreshUIParent	ExecuteMainThreadAsynchronous
ExtractStringBetween	fLoadResource	fBuildRelativePath	FTPProxy
IBANValid	CheckUID	iPrintAreaMarkdown	InfoWithTimeout
InfoWithTimeoutAsynchronous	CheckINSEE	KanbanAddCard	KanbanSearchCard
KanbanMoveCard	KanbanDeleteCard	KanbanDeleteAllCard	KanbanListAdd
KanbanListDeleteAll	KanbanToImage	MarkdownToHTML	MarkdownToPDF
MarkdownToText	CheckSIN	CheckOASI	CheckBN15
CheckBN9	CheckNISS	CapitalizeEachWord	CheckBER
CheckSIREN	SocketProxy	TableSearchEverywhere	TableDeleteSelect
ThreadStopRequested	ThreadRequestStop	CheckEU	LooperDeleteSelect

## WINDOWS MOBILE, EMBEDDED & CE

Windows Mobile, Windows CE and Windows Embedded applications are still used in the industrial field. Applications for Windows Mobile, Windows CE and Windows Embedded can be developed with WINDEV Mobile 26. If you need to use these features, you can access version 26 from WINDEV Mobile 28.

## UWP

### 678 New feature WD WB WM COMMON NEW FEATURES

UWP development benefits from most of the common new features of version 28.

**Benefit of this new feature in version 28:**  
*UWP evolves*

### 679 New feature WD WB WM NEW ENVIRONMENT

UWP development also benefits from the improvements of

the development environment in version 28.

**Benefit of this new feature in version 28:**  
*Increased ease of use*

### 680 New feature WD WB WM MISCELLANEOUS

- The advanced `ZipArchive` type is now available
- The `ZipArchive` type now supports prefix syntax.

**Benefit of this new feature in version 28:**  
*Useful*

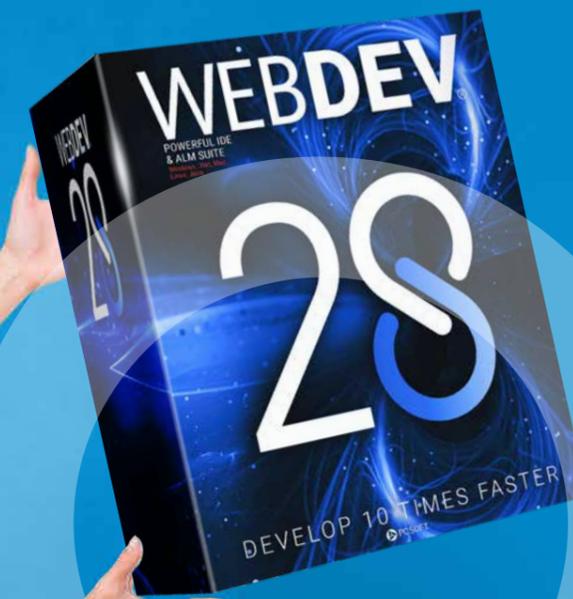
New feature WD WB WM

### 681 to 719 39 NEW WLANGUAGE FUNCTIONS FOR UWP

39 new WLanguage functions are introduced for UWP.

RoundToMultiple	CheckCBE	BitcoinValidAddress	CheckCF
CheckCNPJ	ComponentExecute	CheckCPF	dModifyContrast
CheckDNI	dStraighten	dTextMarkdown	CheckEIN
ExecuteFunction	ExecuteMainThreadAsynchronous	CheckFEI	fBuildRelativePath
fCopyDir	fMIMEType	GenerateGeometricImage	IBANValid
CheckUID	CheckIdNr	CheckINSEE	CheckIVA
JSONValid	CheckSIN	CheckOASI	CheckBN15
CheckBN9	CheckNIF	CheckNISS	CapitalizeEachWord
CheckBER	CheckSIREN	CheckSIRET	CheckSSN
CheckEU	CheckUSTIdNr	UTFConvert	

# WEBDEV®



## la vie en bleu

### 720 New feature WD WB WM WEBDEV 28: MAKE THE MOST OF THE 196 COMMON NEW FEATURES IN VERSION 28

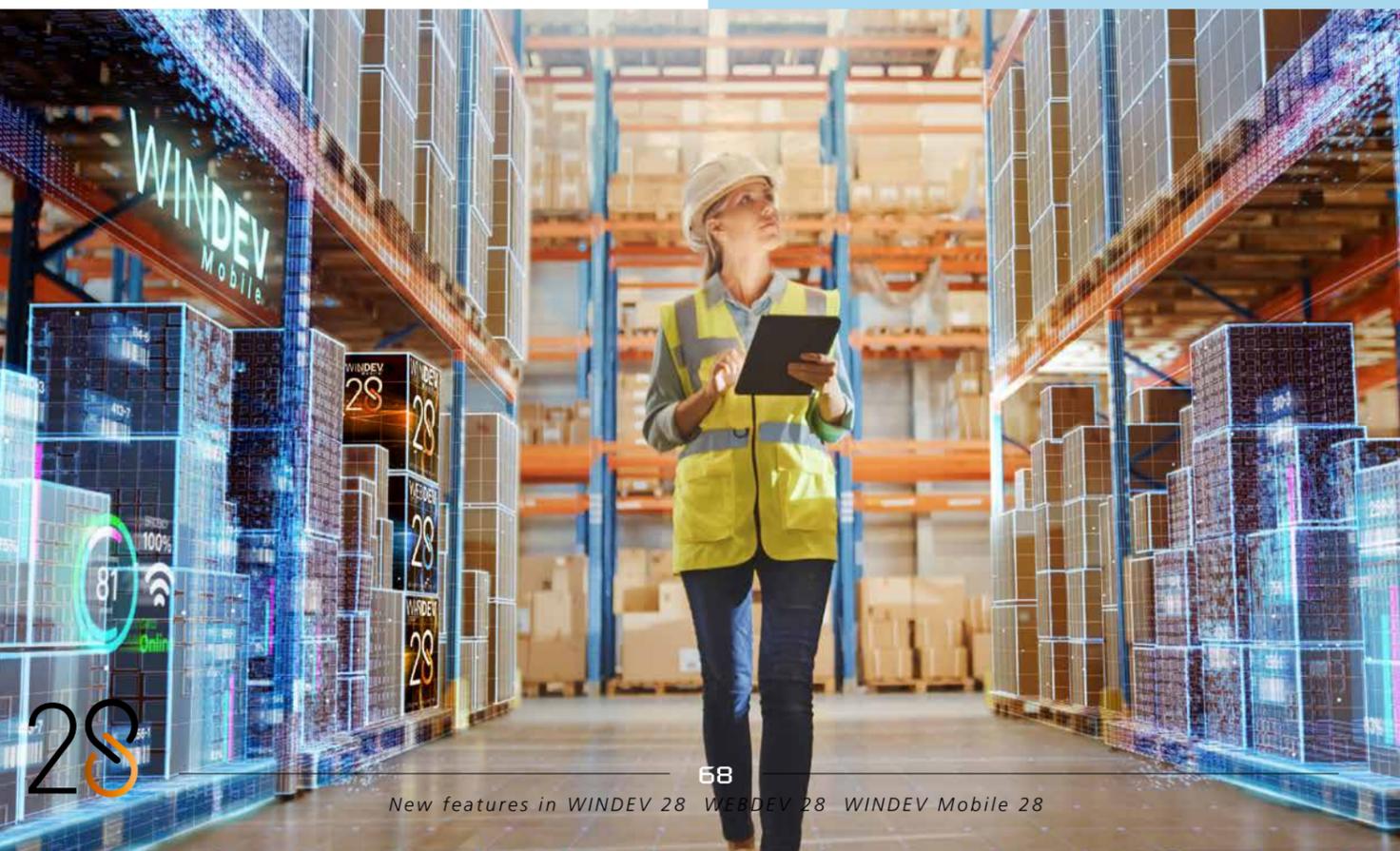


WEBDEV 28 benefits from most of the 196 common new features in version 28.

The main new features in WEBDEV 28 include: new controls, new Polar Area chart, new Smart controls, improved Monitoring Robot, custom keyboard shortcuts, runtime logs for web services, new WLanguage elements, etc.

And in addition to all these new features, WEBDEV 28 benefits from amazing new features specific to the Web. See the following pages to learn more.

**Benefit of this new feature in version 28:**  
*An incredible amount of new features*





## NEW SMART CONTROLS

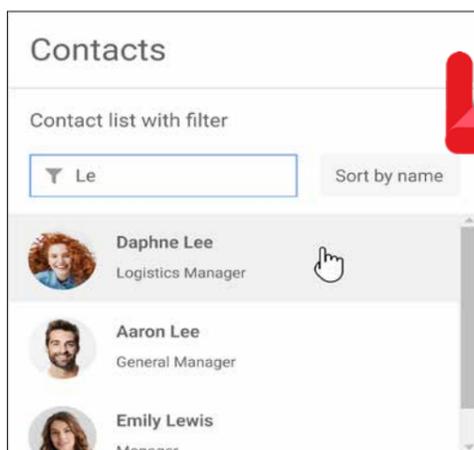
### 721 New feature WD WB WM 7 NEW SMART CONTROLS FOR WEBDEV

7 new Smart controls are available in WEBDEV 28:

- Looper with image and filter
- Advanced tables: 3 different Smart controls
- Multi-selection with tokens
- Badge
- Address autocomplete.

**Benefit of this new feature in version 28:**  
Massive time savings

### 722 New feature WD WB WM NEW SMART CONTROL: LOOPER WITH IMAGE AND FILTER



Standard UI

The "Looper with image and filter" Smart control allows you to easily create Looper controls with:

- images
- titles and subtitles
- ability to filter elements
- search capabilities
- sorting options

Like all the other Smart controls, this Looper is provided with its source code and can be edited.

It gives you a great starting point to develop sophisticated Looper controls for the web.

**Benefit of this new feature in version 28:**  
Create a powerful Looper control without effort

### 723 New feature WD WB WM NEW SMART CONTROL: ADVANCED TABLES

3 new Table-specific Smart controls are introduced in version 28.

These Smart controls allow you to easily create modern-looking, feature-rich tables in WEBDEV.

Each Smart control is fully customizable, and can therefore be used to create tables for any professional field.

#### Template: Orders

Order	Customer	Date	Price	Status	Action
#REF2110	Camille Onk	March 28	\$4,521.00	Confirmed	Details >
#REF2109	Katy Liravel	February 12	\$7,546.00	In progress	Details >
#REF2108	Sandra Simmons	February 10	\$1,350.00	Error	Details >

This Smart control contains:

- Container column with order IDs presented as links
- Text, date and currency columns
- Container column with colored badges indicating the order status
- Container column with links to a Details page

#### Template: Deliveries

Customer	Product	Address	Status	Action
Timothy Lee timlee@precilia.com	VIP package	57 Quiet Hill Rd., Wilmington DE 19802, 123 mi	Delivered	
Sandra Diaz sdiaz@tames.com	Welcome package	College Plaza, Brookside DE 19713 136 mi	Canceled	
Brooke Garland garland.brooke@tames.com	VIP package	2432, Main Avenue, Wilson NC 27983 471 mi	Preparation	

This Smart control contains:

- Container column with a circular image, a title and a description
- Container column with colored badges indicating the order status, for example
- Popup button with menu options.

Continues page 72...

# KANBAN CONTROL FOR THE WEB

## NEW KANBAN CONTROL FOR THE WEB

### 724 New feature WD WB WM NEW KANBAN CONTROL: ALSO FOR WEBSITES

The new Kanban control is also available for your websites in WEBDEV 28.

With this control, you can implement powerful features of the Kanban methodology in your websites.

Both developers and end users have the ability to create and manage Kanban controls in websites.

**Benefit of this new feature in version 28:**  
One control, endless applications

### 725 New feature WD WB WM NEW KANBAN: POWERFUL FUNCTIONALITIES WITHOUT LEAVING THE BROWSER

The features of the new Kanban control respond to the

needs of web users.

Additional programming events are available in Browser code. The Kanban controls supports both touch and mouse interactions.

**Benefit of this new feature in version 28:**  
Intuitive behavior on websites

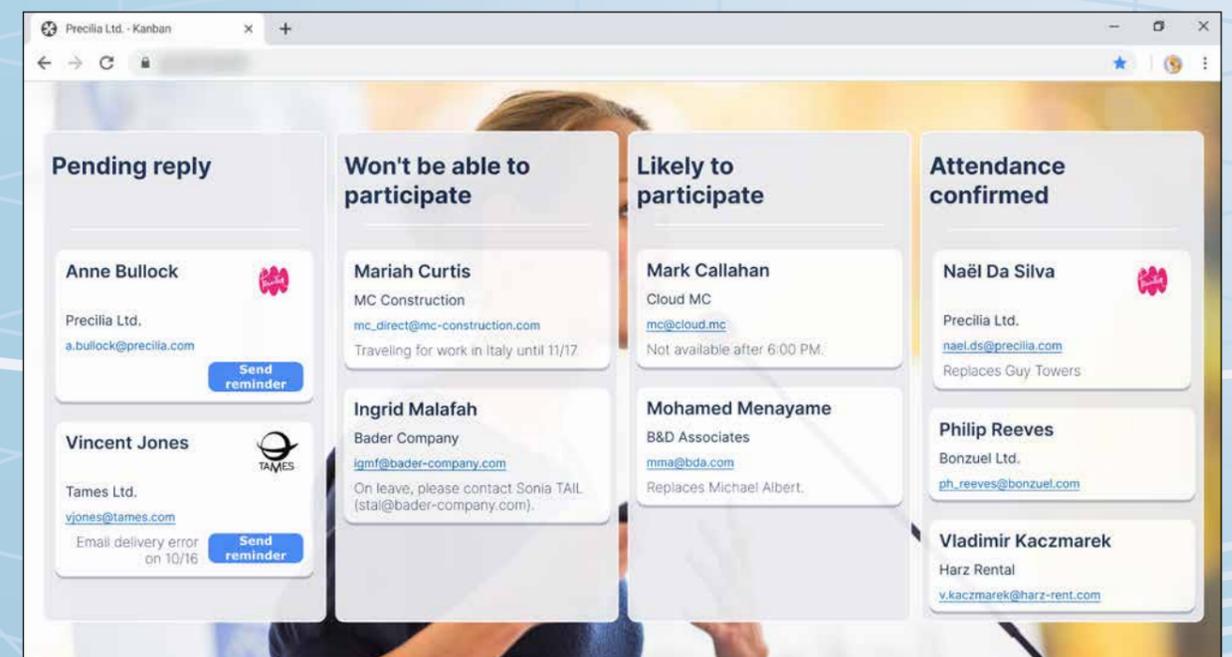
### 726 New feature WD WB WM NEW KANBAN: FEATURES AND PROGRAMMING

The features and programming possibilities of the Kanban control are the same as in WINDEV (see new features 001 to 014).

All the WLanguage functions and types are available for you web development projects.

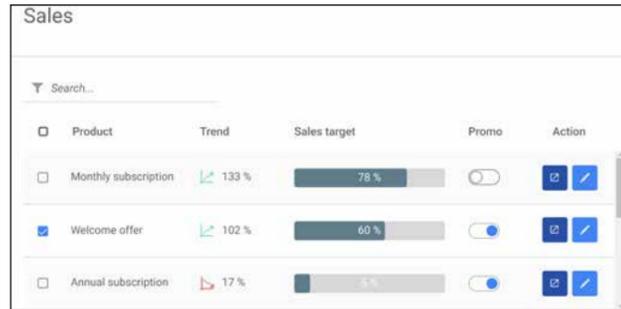
Writing cross-platform code is easier than ever!

**Benefit of this new feature in version 28:**  
Easy programming



Kanban control for managing meetings, used in a browser

**Template: Sales**



This Smart control contains:

- Check box column to select multiple rows
- Text column with the product name
- Container column with an image
- Container column with a progress bar
- Container column with a Switch control to enable or disable an option
- Container column with 2 Button controls for specific actions: Edit and Delete.

**Benefit of this new feature in version 28:**  
Ready-to-use, feature-packed tables? Now that's Smart!

**727** New feature WD WB WM  
**NEW SMART CONTROL: BADGE**

The "Badge" Smart control is also available in WEBDEV. See new feature 201

**Benefit of this new feature in version 28:**  
Modern UI

**728** New feature WD WB WM  
**NEW SMART CONTROL: MULTI-SELECTION WITH TOKENS**

The "Multi-selection with tokens" Smart control is also available in WEBDEV. See new feature 200.

**Benefit of this new feature in version 28:**  
Modern UI

**729** New feature WD WB WM  
**NEW SMART CONTROL: ADDRESS AUTOCOMPLETE**

The "Address autocomplete" Smart control is also available in WEBDEV and has been adapted for the web. See new feature 202.

**Benefit of this new feature in version 28:**  
Prevents typing errors

**NEW FEATURES FOR CONTROLS**

**730** New feature WD WB WM  
**WEBDEV KANBAN CONTROL**

The Kanban control is available in WEBDEV. See the full details in new feature 724.

**Benefit of this new feature in version 28:**  
A very powerful control

**731** New feature WD WB WM  
**MENU: NEW CONTEXT MENU CONTROL**

Context menus are widely used in the web. WEBDEV 28 allows you to easily create context menus for sites.

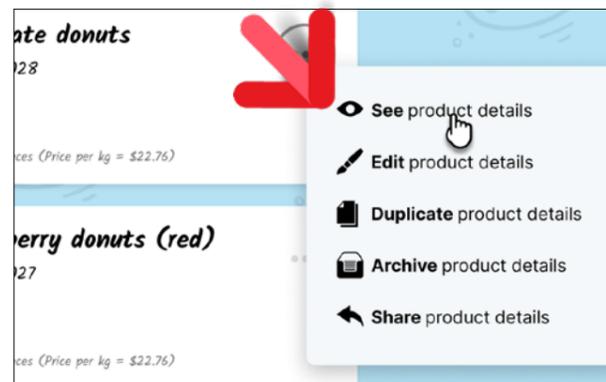
A context menu can be associated with a control, a control template or an entire page.

To create a context menu, simply select the option in the ribbon, or open the 7-tab window of the control or window. Edit the options without effort in the WYSIWYG editor.

You can apply styles to context menus.

A context menu can contain sub-menus.

The new `OpenContextMenu` function in WLanguage allows you to open a menu programmatically.

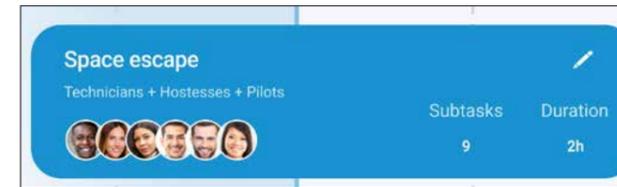


Context menu in WEBDEV 28

**Benefit of this new feature in version 28:**  
It's a matter of context

**732** New feature WD WB WM  
**SCHEDULER CONTROL: CUSTOMIZE APPOINTMENTS**

In WEBDEV 28, you can customize the thumbnails of appointments in the Scheduler control: title, image, button, background color, borders, etc.

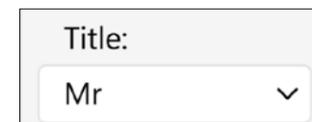


**Benefit of this new feature in version 28:**  
Customize

**733** New feature WD WB WM  
**COMBO BOX: LABEL ABOVE THE DROP-DOWN LIST**

The label of a Combo Box control can now be positioned above the drop-down list.

This allows you to create narrower controls.



Label above the drop-down list

**Benefit of this new feature in version 28:**  
A real space saver

**734** New feature WD WB WM  
**EDIT CONTROL: TEXT OVERLAPPING TOP BORDER**

In addition to the other modes (label on the left, hint text in the control, etc.), the Edit control now allows you to display the label above or directly on the border of the control.

This reduces the width of the control.



Edit control with a label directly on the border

**Benefit of this new feature in version 28:**  
Save space and modernize your controls at the same time

**735** New feature WD WB WM  
**ADD CUSTOM HTML ATTRIBUTES**

In the 7-tab window in WEBDEV 28 you can now specify the additional HTML attributes that will be generated with the control.

A major advantage of this feature is the ability to improve accessibility (see new feature 756).

These attributes also allow you to manage other features available in HTML:

- autocomplete
- itemprop
- aria-xxx (accessibility)

**Benefit of this new feature in version 28:**  
Endless possibilities

**736** New feature WD WB WM  
**5,000 NEW CLIPART IMAGES TO USE WITH TEXT**

A common technique to include an image in a text in web pages is to use an icon font.

As its name suggests, this type of font only contains icons. In version 28, the icon font provided with WEBDEV includes 5,000 new clipart images.



**Benefit of this new feature in version 28:**  
Images and words

New feature WD WB WM  
**737 to 740 MISCELLANEOUS**

- The `PopupDisplayPage` function can now call a callback procedure when the Popup is closed
- The `..StoredValue` property is available for token controls
- Cell control: ability to assign an HTML tag (div, section, aside, header, etc.) from the Details tab in the 7-tab window
- Thumbnail control: the end user can zoom or rotate the thumbnail image

**Benefit of this new feature in version 28:**  
Useful additions for controls

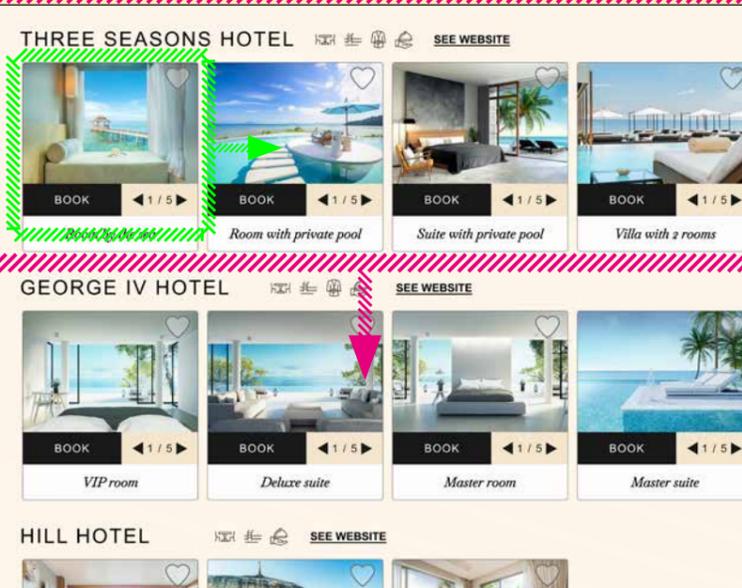
# LOOPERS WITHIN LOOPERS

## USING INTERNAL PAGES WITHIN LOOPERS OPENS ENDLESS POSSIBILITIES

### 741 New feature WD WB WM USE CHART, PROGRESS BAR AND COMBO BOX CONTROLS WITHIN LOOPER CONTROLS

The Looper control is one of the most widely used controls in WEBDEV. This control allows you to define an area with data and controls, and use it as many times as necessary. In version 28, you can include new types of controls: the Looper control now supports Internal Pages, which allows for endless possibilities.

A vertical Looper containing a horizontal Looper



You can easily include Chart, Progress Bar and Combo Box controls within Loopers. These controls can be automatically updated.

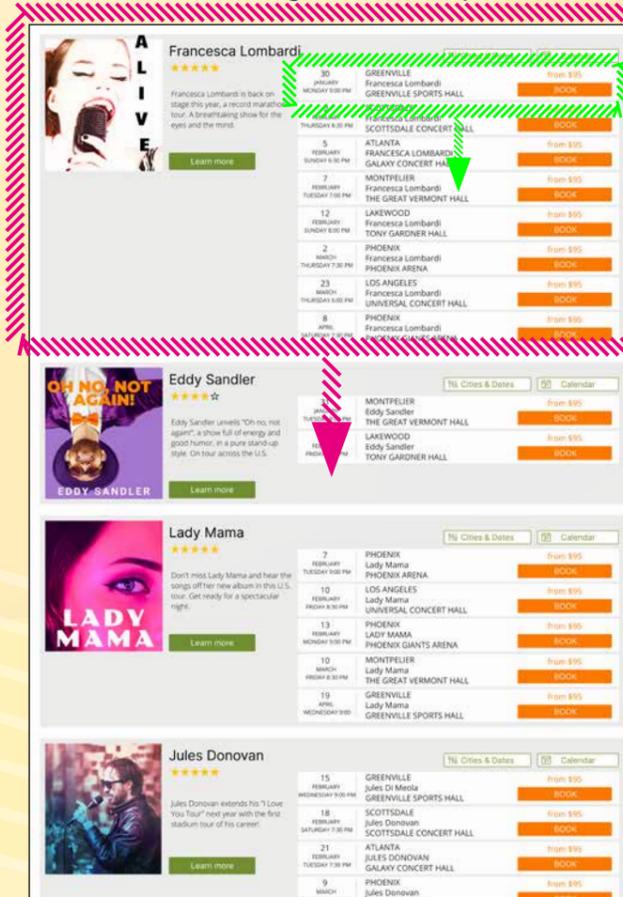
**Benefit of this new feature in version 28:**  
Internal Pages open up a whole new dimension

### 742 New feature WD WB WM HORIZONTAL LOOPER WITHIN A VERTICAL LOOPER: IT'S POSSIBLE!

In version 28, you can insert a horizontal Looper in a vertical Looper, and vice versa: let your creativity fly!

**Benefit of this new feature in version 28:**  
To infinity and beyond!

A vertical Looper containing a vertical Looper



# DIFFERENT CONTENT IN EACH ROW OF THE LOOPER CONTROL: INTERNAL PAGE, CHART, COMBO BOX, PROGRESS BAR...

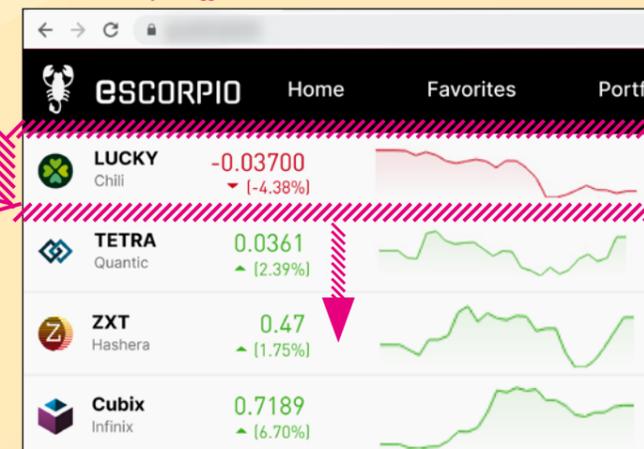
Loopers within a Looper

### 743 New feature WD WB WM USE A LOOPER TO DISPLAY WHAT YOU WANT, THE WAY YOU WANT

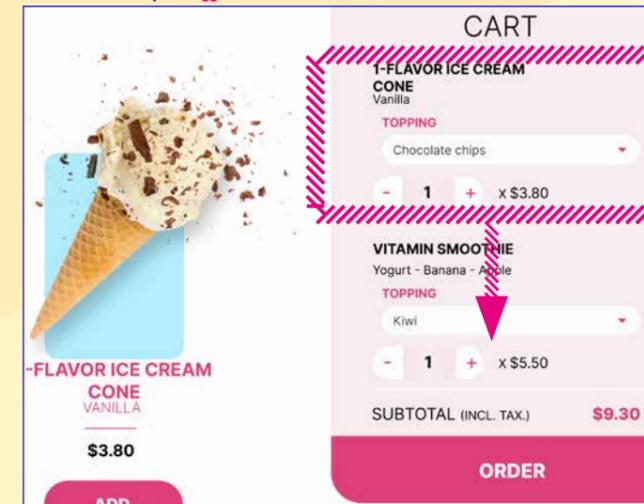
You can include Internal Pages (the same or different) in each iteration. And each one of these Internal Pages can itself contain a Looper. Etc. This new feature makes it easy to display different data in each iteration of the Looper control.

**Benefit of this new feature in version 28:**  
The power of Looper controls with the added freedom

Charts within Loopers now automatically accept different content in each iteration



Combo Boxes within Loopers now automatically accept different content in each iteration

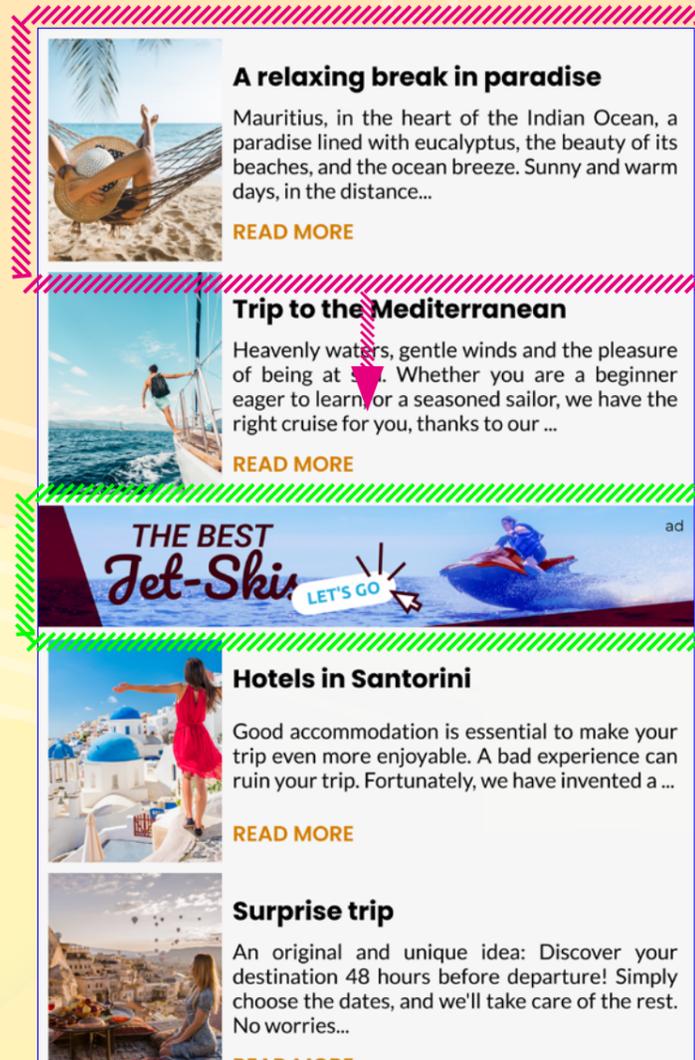


### 744 New feature WD WB WM PROGRAMMING

Programming is easier than ever, thanks to the new `LooperAddIP`, `LooperInsertIP` and `LooperModifyIP` functions. These functions expect the Internal Pages and the parameters to be passed to these pages. The same Looper can use different Internal Pages.

**Benefit of this new feature in version 28:**  
Programming is child's play

This vertical Looper includes a different iteration: an ad

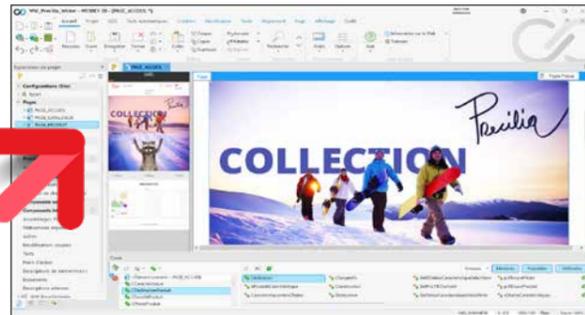


## PAGE EDITOR

### 745 New feature WD WB WM MINIMAP

A new automatic minimap mode has been added to the WEBDEV 28 editor.

When the page is higher than the viewing area, you can now see a small preview and scroll through the page: a thumbnail of the entire page appears on the left (or right) and allows you to navigate with ease in edit mode.



The minimap allows you to easily scroll through the page in edit mode

**Benefit of this new feature in version 28:**  
Scroll with precision

### 746 New feature WD WB WM NEW TABLE STYLES: GREAT-LOOKING TABLES

In version 28, the Table control is enriched with new styles. These modern styles provide a cleaner, easier-to-use interface.

ID	Customer	Date	Total	Status	Action
#21110	Sheev Palpatine	Sep 28, 2022	\$6,899	med	Show more
#21111	Padme Amidala	Sep 28, 2022	\$28,299	Waiting for payment	Show more
#21112	Jinn Qui-Gon	Sep 28, 2022	\$9,899	Confirmed	Show more
#21113	Han Solo	Sep 28, 2022	\$15,199	Preparation	Show more
#21114	Jango Fett	Sep 28, 2022	\$8,699	Waiting for payment	Show more
#21115	Luke Skywalker	Sep 27, 2022	\$12,399	Preparation	Show more
#21116	Leia Organa	Sep 27, 2022	\$5,199	Delivery in progress	Show more
#21117	Jabba Lehutt	Sep 26, 2022	\$31,699	Delivery in progress	Show more

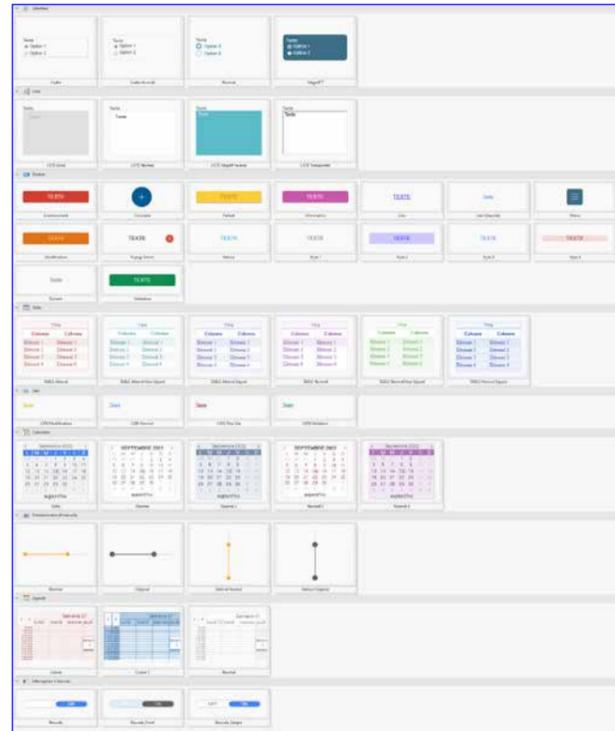
New style of the Table control in version 28

**Benefit of this new feature in version 28:**  
Your tables look better than ever before

### 747 New feature WD WB WM STYLE SHEET EDITOR

In previous versions of WEBDEV, styles had to be edited one by one.

In version 28, all the styles of the project are presented in one editor. This gives you an overview of all the styles used in the project.



All the styles used in the project

Now you can make changes to a group of styles, or to multiple styles in a row. The CSS styles used are listed.

**Benefit of this new feature in version 28:**  
Less actions!

### 748 New feature WD WB WM RICH TEXT AREA (RTA): PRESERVATION OF HTML LAYOUT

A Rich Text Area allows you to enter your own HTML code. The HTML code is preserved after using the formatting options of the ribbon.

**Benefit of this new feature in version 28:**  
Don't lose your layout

### 749 New feature WD WB WM CSS STYLE SELECTION: BETTER, CLEARER

You can apply a CSS style to the elements of a control. In version 28, the style selection has been simplified and is now more efficient.

**Benefit of this new feature in version 28:**  
Easy selection

Continues page 78...

# HTML EDIT CONTROL: NEW, RICH FEATURES

## HTML EDIT CONTROL

WEBDEV 28 includes an HTML Edit control with enhanced features.

### 750 New feature WD WB WM ENHANCED FEATURES

The HTML Edit control in WEBDEV is intended to be used in a page, and to allow users to enter text with HTML formatting: comment, description of an article in a CMS, ...

In version 28, this Edit control includes new useful features:

- support for all HTML tags
- ability to display and edit HTML source code
- syntax highlighting
- visual table creation
- visual table editing
- ability to specify the font size and name
- "email" mode (see next features)
- ability to dissociate elements from the CSS styles of the page
- ...

**Benefit of this new feature in version 28:**  
A welcome update

### 751 New feature WD WB WM HTML EDIT CONTROL: NEW EVENT

In version 28, the HTML Edit control includes a new and very useful WLanguage event. The "Key pushed" WLanguage event is available in Browser code.

This event allows you to create a set of autocomplete suggestions, or set shortcuts on function keys, for example,...

**Benefit of this new feature in version 28:**  
Easy programming

### 752 New feature WD WB WM USER-FRIENDLY TOOLBAR

In version 28, the toolbar of the WEBDEV HTML control includes new options to:

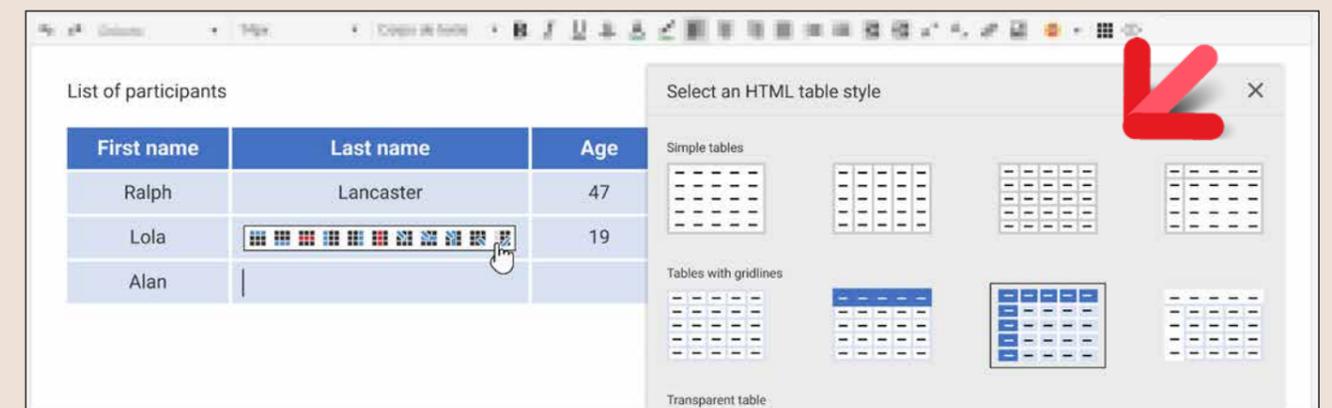
- specify the font name
- specify the font size
- insert tables
- select the style of a table with a preview
- ...

**Benefit of this new feature in version 28:**  
Essential tools

### 753 New feature WD WB WM HTML EMAIL INPUT MODE

The HTML Edit control features an "email" input mode that limits the HTML functionalities to those recognized by most email clients.

**Benefit of this new feature in version 28:**  
Compatibility with all email clients



## 754 New feature WD WB WM MARGINS AND SNAP-TO BEHAVIOR OF PARENT CONTROL

When a control is selected in the editor, the margins of the parent control (if any) are highlighted and the snap-to behavior is automatically enabled.

This makes it easier to align controls.

**Benefit of this new feature in version 28:**

*Easy positioning*

## 755 New feature WD WB WM MISCELLANEOUS

- Page mode: Zoning, Layouts, Responsive, etc. These modes support inheritance but also support overrides. The diff viewer shows any changes in these modes
- Style editing: The "Border/Background" and "Background image" options are kept for compatibility

**Benefit of this new feature in version 28:**

*Practicality*

# ACCESSIBILITY FOR USERS WITH DISABILITIES

## 756 New feature WD WB WM INSERT YOUR OWN ACCESSIBILITY TAGS (ARIA, ETC.): DEFINE ATTRIBUTES IN THE HTML CODE OF WEBDEV CONTROLS



There are accessibility standards that have been defined to help users with disabilities (visual or cognitive impairment, color blindness, physical disabilities, dyslexia, etc.). These standards are implemented, among other methods, by using tags in the HTML code of the page. These tags will be interpreted by the browser, browser plugins or even assistive devices.

In WEBDEV 28, you can easily insert your own attributes programmatically, or via the 7-tab window:

- text that will be read aloud to provide additional information about the button, control... that has the focus
- text that will be read aloud when a progress bar is displayed
- text alternative to a sound or audio file

## 757 New feature WD WB WM ACCESSIBILITY ATTRIBUTES: 7-TAB WINDOW OR PROGRAMMATICALLY

These accessibility attributes can be defined and edited

- in the 7-tab window
- programmatically.

To do so, the new `..HTMLAttribute` property has been introduced.

Code example:

```
// Autocomplete suggestions in a list
SEARCH..HTMLAttribute[ "aria-autocomplete" ] = "list"
// Other accessibility attributes
SEARCH..HTMLAttribute["aria-required"] = True
Login..HTMLAttribute["aria-label"] = "Log in to your client account"
```

**Benefit of this new feature in version 28:**

*More possibilities*

## 758 New feature WD WB WM ACCESSIBILITY: "LABEL FOR" ATTRIBUTE FOR EDIT CONTROLS

The "Label for" attribute tells the browser that a label is associated with an Edit control.

In version 28, this attribute is generated by default for all Edit controls.

The browser, plug-in or device will use the label, if necessary.

**Benefit of this new feature in version 28:**

*Better accessibility for Edit controls*

## 759 New feature WD WB WM ACCESSIBILITY: "FIELDSET" ATTRIBUTE FOR CONTROLS IN A CELL

The Fieldset attribute tells the browser that a control is part of a logical group of controls: address, etc.

In version 28, this attribute is generated by default for all controls present in a Cell control.

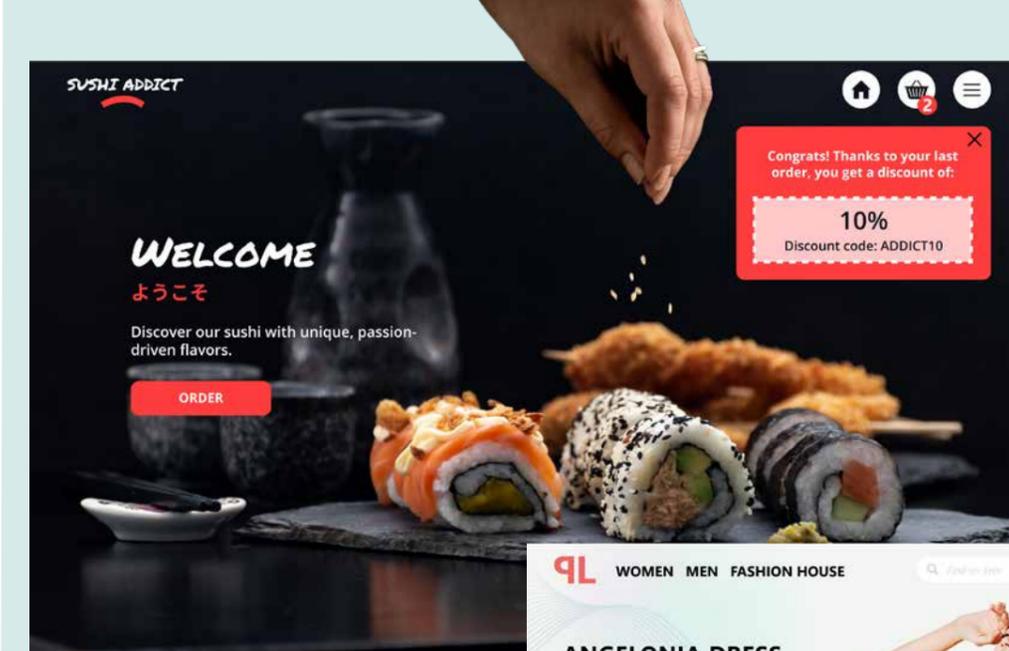
**Benefit of this new feature in version 28:**

*Identify cells automatically*

# LAYOUTS

## 760 New feature WD WB WM USE LAYOUTS TO EDIT, HIDE AND DO MORE WITH AREAS OF A PAGE IN ZONING MODE

WEBDEV 28 allows you to do more with the layouts defined on pages in Zoning mode.

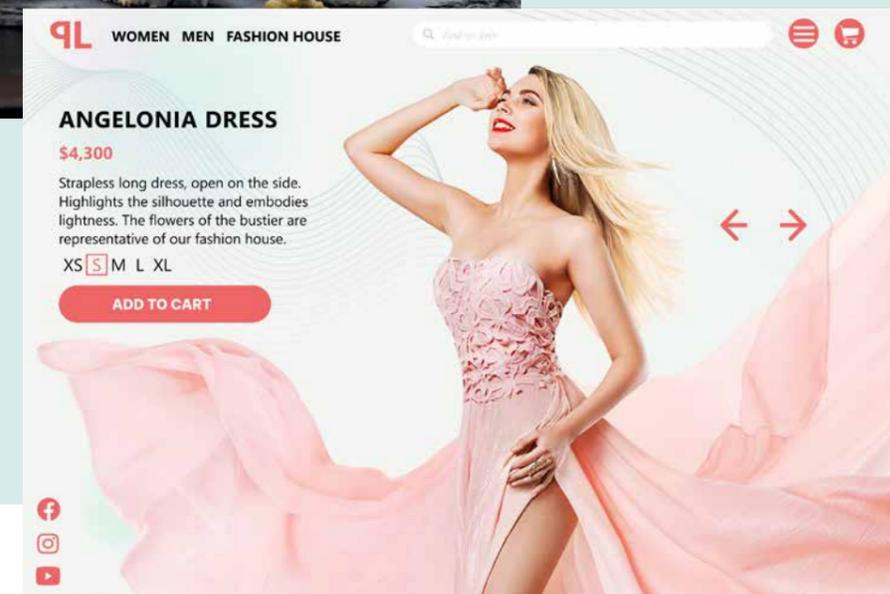


## 763 New WD WB WM 2 NEW SKINS

2 new skins are provided in version 28: Maki and Velvet. Use these skins for your sites as you like!

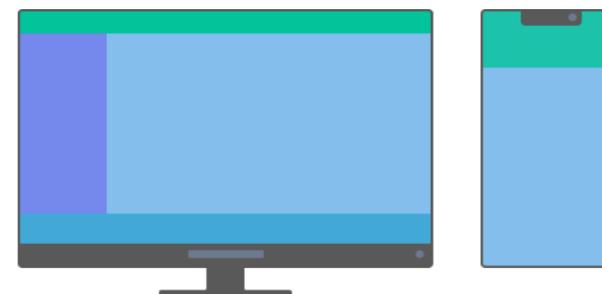
**Benefit of this new feature in version 28:**

*More and more choices*



In version 28, you can change the behavior of the zones for each layout:

- delete (hide) a zone
- change the size
- enable inheritance and overriding by layout



*Here, in the Mobile layout, the left menu and the footer have been removed to improve readability*

**Benefit of this new feature in version 28:**

*A more powerful responsive mode*

## 761 New feature WD WB WM CONTROL TEMPLATE: LAYOUT SUPPORT

In version 28, you can define layouts directly in a control template.

When this control template is used in a page, you must simply select the desired layout.

**Benefit of this new feature in version 28:**

*More power*

## 762 New feature WD WB WM RTA: CONTENT PER LAYOUT

A Rich Text Area (RTA) can have different content in each layout.

For example, you can show the detailed version of a text in the Desktop layout, and a shorter version in the Mobile layout.

**Benefit of this new feature in version 28:**

*More power*

# NEW POSITIONING METHOD: FLEXBOX CONTROL

POSITIONING MADE EASY

## 764 New feature WD WB WM A STANDARD METHOD TO POSITION CONTROLS: FLEXBOX

The Flexbox layout mode works by repositioning controls within "boxes", setting a vertical or horizontal alignment, setting relative sizes and nesting boxes. Each box corresponds to a Flexbox control.

The advantage of this mode is the automatic repositioning of boxes and the controls they contain, in order to fit the browser and/or the content.

A page in Zoning mode (with or without layouts) or in legacy Responsive mode can contain one or more Flexbox controls.

**Benefit of this new feature in version 28:**

*A layout that adapts to your rules*

## 765 New feature WD WB WM FLEXBOX: HOW IT WORKS

Controls are positioned one after another, within a box (Flexbox control).

Key point: one or more of these controls can themselves be Flexbox controls.

First, indicate how controls should be positioned within each box: in rows or columns.

Then, indicate how the controls should react when the box or the other controls are resized: wrap, enlarge, reduce...

Apply this method to as many controls as necessary to define their positioning and resizing behavior.

*These are some of the properties you can define*

**Direction in which items will be laid out:** rows or columns.



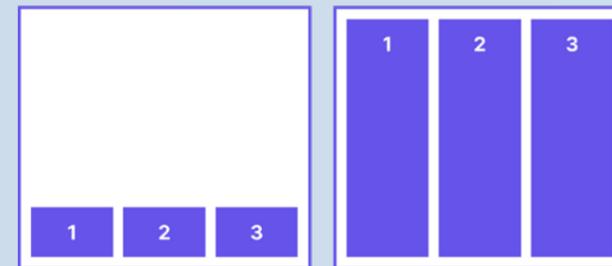
**Justification:** Left, right, justified with or without margins, centered, etc.



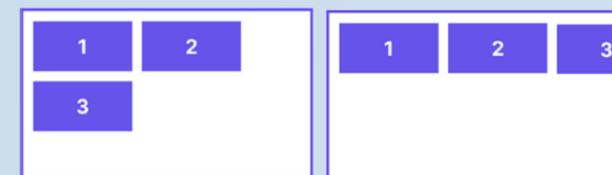
**Enlargement** of items in a given area



**Alignment:** Top, bottom, vertically justified, centered, etc.



**Wrapping:** If no wrapping is specified, either the flexbox container grows, or the content is truncated



Etc, Etc: You can easily define these parameters in the UI tab of the 7-tab window (see next features).

You will also find options for the cross axis in the 7-tab window.

In Flexbox mode, items can be laid out in any order.

For example:

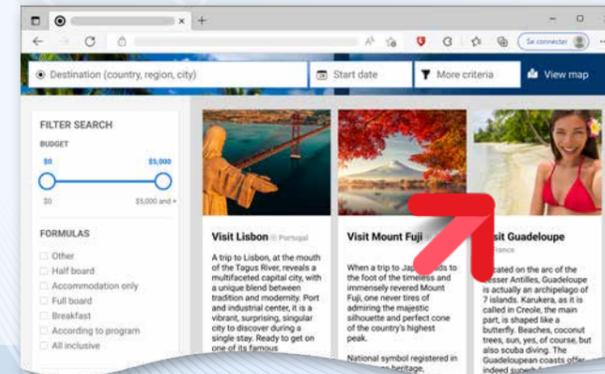
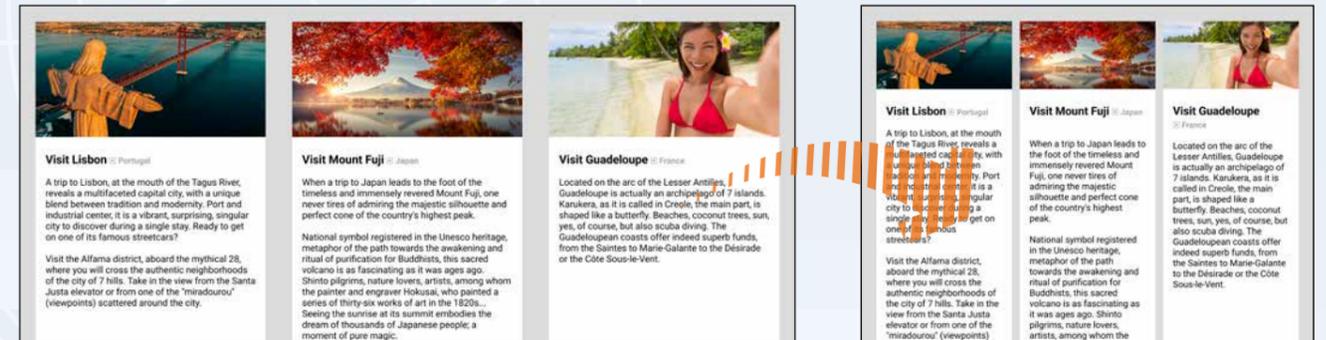


**Benefit of this new feature in version 28:**

*Endless possibilities*

## CONTROLS ARE AUTOMATICALLY MOVED AND RESIZED ACCORDING TO YOUR RULES

*Define the layout rules of the Flexbox control according to the size of the browser.*



*In this case, images do not shrink proportionally, but according to a different rule: reduced horizontally*

*Note that the Flexbox control allows you to define specific behaviors: alignment, margins, images (proportionally resized, stretched, etc.), ...*

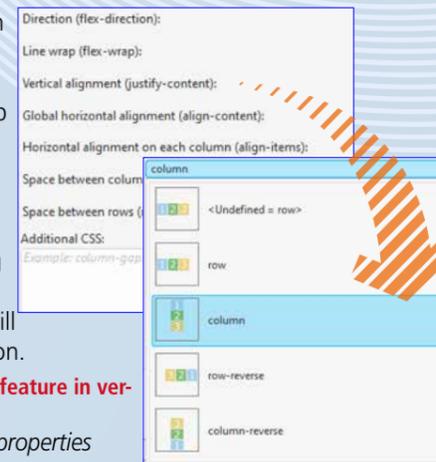
## 766 New feature WD WB WM FLEXBOX: DEFINE THE DESIRED BEHAVIOR

The most common flexbox properties are clearly represented in the 7-tab window.

More specific properties can be defined by writing or copying/pasting the corresponding CSS code: there will always be a solution.

**Benefit of this new feature in version 28:**

*Define the desired properties*



- control that fills the remaining space
- control that grows or shrinks relative to other controls according to a given factor
- ...

As with the flexbox container, you can also define the behavior of each control by writing the CSS code directly.

**Benefit of this new feature in version 28:**

*Sometimes it's OK to think inside the box*

## 768 New feature WD WB WM PRESET MODES AVAILABLE

Several preset modes that correspond to standard properties are available by default. This helps you save time: no need to configure every single option.

These preset modes can be customized.

**Benefit of this new feature in version 28:**

*Save time*

## 767 New feature WD WB WM BEHAVIOR OF A CONTROL: FLEX ANCHORS

To change the default behavior, you can configure each control individually.

For example:

- fixed-width control
- control that fits to content horizontally

## 769 New feature WD WB WM ADD FLEXBOX CONTROLS IN ALL TYPES OF PAGES

Flexbox controls can be used in all types of pages: Zoning, Zoning with layouts, legacy Responsive,... A Flexbox control can be placed among other controls, but also in a Looper, cell...

**Benefit of this new feature in version 28:**

*The best of both worlds*

## RESPONSIVE WEB DESIGN

### 770 New feature WD WB WM AUTOMATICALLY TRANSFORM A RESPONSIVE PAGE IN LEGACY MODE INTO A PAGE WITH LAYOUTS

The legacy Responsive Web Design mode is based on resolution ranges. On the other hand, the layout-based responsive mode works by editing the page for each display mode: Desktop, Smartphone, etc.

The layout-based responsive mode allows for greater flexibility. In version 28, you can automatically transform a page from the legacy responsive mode to the layout-based responsive mode.

Each resolution range will be automatically transformed into a layout.

**Benefit of this new feature in version 28:**

*Less actions!*

## POPUP

### 771 New feature WD WB WM POPUP: LAYOUT

You can use a page layout to define a layout for a popup. For example, you can define a small layout for smartphones, and a large layout for desktop.

**Benefit of this new feature in version 28:**  
*Responsive*

## CHART

### 772 New feature WD WB WM NEW POLAR AREA CHART

The new Polar Area chart is available in WEBDEV. See new feature 022.



*Polar Area chart*

**Benefit of this new feature in version 28:**  
*A great addition to the existing charts!*

## SAAS



### 774 New feature WD WB WM SAAS: MISCELLANEOUS

- The SaaS administrator uses charts to show statistics. You can now right-click to see the data that was used to build the chart.
- The `SaaSAdminListService` WLanguage function accepts a new parameter to avoid listing duplicate services.

**Benefit of this new feature in version 28:**

*Useful additions*

## SINGLE-PAGE APPLICATION (SPA)

### 775 New feature WD WB WM SPA: NEW WLANGUAGE FUNCTIONS AND FEATURES IN BROWSER CODE

Single Page Applications require a significant amount of code on the browser side.

WEBDEV 28 includes new features for creating Single Page Applications.

- New WLanguage functions in Browser code (see new features 865 to 878).
- Context menus
- Flexbox mode.

**Benefit of this new feature in version 28:**  
*WEBDEV 28 is open to all architectures*

## SOCIAL NETWORKS, COMMUNICATION TOOLS

### 776 New feature WD WB WM WHATSAPP: SEND MESSAGES OR IMAGES



In version 28, a ready-to-use button allows you to send messages and/or images to a phone number through WhatsApp. Thus, you can easily share information using this widely-used messaging service, ...

**Benefit of this new feature in version 28:**

*WhatsApp without a phone*

## TRANSFORM YOUR WINDEV APPLICATIONS INTO WEBDEV SITES: EASIER AND EASIER

### 773 New feature WD WB WM WEBIFICATION MADE EASIER

Transforming your existing WINDEV applications (or parts of applications) into websites is easier than ever before. The split view in the environment allows you to edit windows and pages at the same time, which makes everything easier. The migration wizard simplifies the webification process.

**Benefit of this new feature in version 28:**

*Transform WINDEV applications into websites or SaaS*



**Version 28 is out!**

## SERVER WLANGUAGE

### 777 New feature WD WB WM ALL THE NEW WLANGUAGE FUNCTIONS IN VERSION 28 ARE AVAILABLE IN WEBDEV

WEBDEV Server code benefits from all the new WLanguage functions and features in version 28. See new features 114 to 147.

**Benefit of this new feature in version 28:**

*Cross-platform code*

## 778 New feature WD WB WM ENTER A SITE THROUGH A SPECIFIC PAGE: WHICH PAGE TRIGGERED THE PROJECT INITIALIZATION?

A project can contain SEO-ready pages. When a user accesses the site for the first time, the project initialization event is executed, whether the user went through the home page or a specific page address. The new `SessionRequestedPage` function can be used to get the name of the page used to access the site. This allows you to adapt the initialization processes accordingly: do not ask the user to log in, set the position directly on a record...

**Benefit of this new feature in version 28:**  
*Simplified programming*

## 779 New feature WD WB WM NEW FUNCTIONS FOR SCHEDULED TASKS

In version 28, the new `Scheduler` functions allow you to:

- create
- modify
- add
- delete

scheduled tasks programmatically on the Application Server.

**Benefit of this new feature in version 28:**  
*More powerful programming*

New feature WD WB WM

## 780 to 861 SERVER CODE: 82 NEW WLANGUAGE FUNCTIONS

WLanguage is enriched with 82 new in Server code, as well as 34 new constants (see full list on [windev.com](http://windev.com)).

RoundToMultiple	CheckCBE	BitcoinValidAddress	CheckCF
CheckCNPJ	ComponentExecute	CheckCPF	DiagramSearch
dModifyContrast	CheckDNI	DocFindElementByName	dStraighten
dTextMarkdown	CheckEIN	ExecuteFunction	fChangeExtension
CheckFEI	fBuildRelativePath	fMimeType	GenerateGeometricImage
HDropView	HTMLToPDF	AIDetectContour	AIDetectDrawing
IBANValid	CheckUID	CheckIdNr	iPrintAreaMarkdown
CheckINSEE	CheckIVA	JSONValid	KanbanAddCard
KanbanSearchCard	KanbanMoveCard	KanbanDeleteCard	KanbanDeleteAllCard
KanbanEnumCard	KanbanListAdd	KanbanListDelete	KanbanListDeleteAll
KanbanCount	KanbanSelect	KanbanSelectPlus	KanbanToImage
MarkdownToDOCX	MarkdownToHTML	MarkdownToPDF	CheckSIN
CheckOASI	CheckBN15	CheckBN9	CheckNIF
CheckNISS	OpenAPIToHTTP	PageExist	SchedulerAddTrigger
SchedulerAddTask	SchedulerTaskStatus	SchedulerTaskList	SchedulerModifyTrigger
SchedulerModifyTask	SchedulerTriggerProperties	SchedulerTaskProperties	SchedulerReset

SchedulerDeleteTrigger	SchedulerDeleteTask	CapitalizeEachWord	CheckBER
SCPSendFile	SCPGetFile	SessionRequestedPage	CheckSIREN
CheckSIRET	SocketConfigure	SocketProxy	CheckSSN
CheckEU	CheckUStidNr	UTFConvert	LooperAddIP
LooperInsertIP	LooperModifyIP		

## AJAX



## 862 New feature WD WB WM SEND VALUES OF CONTROLS IN AJAX CALLS

In version 28, you can easily send the values of all the controls in the page in the AJAX call. See new feature 865 on the opposite page.

**Benefit of this new feature in version 28:**  
*More powerful programming*

## AWP

## 863 New feature WD WB WM NEW EVENT: AFTER UPDATING CONTROLS

In AWP mode, a new page event is available in the code editor. The new "After updating controls" event allows you to make sure that the value of the controls on the server is the same as the value of these controls in the browser when the AJAX call is made.

**Benefit of this new feature in version 28:**  
*Reminder: The SEO-ready Session mode lets you get rid of context-related issues*

## 864 New feature WD WB WM MISCELLANEOUS

- In AWP mode, you can use enumerations and combinations in the `DeclareAWPContext` function.

**Benefit of this new feature in version 28:**  
*Practicality*

# NEW WLANGUAGE FEATURES IN BROWSER CODE

## BROWSER WLANGUAGE

## 865 New feature WD WB WM SEND VALUES OF CONTROLS IN AJAX CALLS

In version 28, the value of controls can be sent automatically when the AJAX call is made. The new `ajaxPostValueOfControls` constant tells the `AJAX-Execute` function that the values of all the controls in the page must be sent to the server. The Server procedure called will use the value of the controls that contain data entered by the user.

**Benefit of this new feature in version 28:**  
*No need to use a hidden Submit button*

## 866 New feature WD WB WM COMBO BOX CONTROL: THE VALUE STORED IN SERVER CODE IS ACCESSIBLE IN BROWSER CODE

In version 28, the stored value of a Combo Box control can be accessed directly in Browser code. For security reasons, this feature is only available if the corresponding option has been checked in the 7-tab window of the Combo Box control.

**Benefit of this new feature in version 28:**  
*One less call to write*

## 867 New feature WD WB WM GLOBAL VARIABLES AND CONTROL PROCEDURES

Globals (variables global to a control) and procedures of controls are now available in Browser code.

**Benefit of this new feature in version 28:**  
*Structure code directly in the control*

## 868 New feature WD WB WM "CLASS" ATTRIBUTE OF HTML TAGS GENERATED BY WEBDEV: MODIFIABLE IN THE CODE

The HTML code of WEBDEV controls contains "class" attributes that are used to implement the desired functionalities. In version 28, these "class" attributes of the controls in a page can be modified or deleted programmatically. Please note that you can add your own classes.

**Benefit of this new feature in version 28:**  
*Stay classy*

## 869 New feature WD WB WM PROCEDURE AUTOMATIONS

Procedures support automated actions: call at regular intervals... In version 28, these automations are also available for Browser procedures.

**Benefit of this new feature in version 28:**  
*Automations in Browser code*

New feature WD WB WM

## 870 to 878 9 NEW BROWSER WLANGUAGE FUNCTIONS

HTMLToRGB	Converts the HTML color into RGB color.
KanbanAddCard	Adds a card in a Kanban control.
KanbanSearchCard	Searches for a card in a Kanban control.
KanbanMoveCard	Moves a card to another list in a Kanban control.
KanbanDeleteCard	Deletes a card in a Kanban control.
KanbanDeleteAllCard	Deletes all cards in a Kanban control.
OpenContextMenu	Automatically opens a context menu for the current control or page.
TablePosition	Displays a Table or TreeView Table control from a specified row or returns the index of the first row displayed in a Table or TreeView Table control.
LooperPosition	Moves the scrollbar to display a specific row or returns the index of the first row displayed in a Looper control populated programmatically.

**Benefit provided by this new feature of version 28:**  
*Enriched browser code*

# JSON

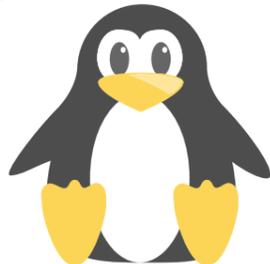


## 879 New feature WD WB WM JSONVALID

The new `JSONValid` function in WLanguage allows you to check that a string respects the JSON format: missing braces, key without a value,...

**Benefit of this new feature in version 28:**  
Interoperability

# LINUX



## 880 New feature WD WB WM POWERFUL NEW FEATURES

Some of the main new features available in Linux are: the Flexbox mode, the Kanban control, Looper controls within Looper controls...

**Benefit of this new feature in version 28:**  
Power

New feature WD WB WM

## 881 to 942 62 NEW WLANGUAGE FUNCTIONS ON LINUX

62 new functions are available on Linux:

RoundToMultiple	CheckCBE	BitcoinValidAddress	CheckCF
CheckCNPJ	ComponentExecute	CheckCPF	DiagramSearch
dModifyContrast	CheckDNI	dStraighten	dTextMarkdown
CheckEIN	ExecuteFunction	fChangeExtension	CheckFEI
fBuildRelativePath	FTPProxy	fMIMEType	GenerateGeometricImage
HDropView	AlDetectContour	AlDetectDrawing	IBANValid
CheckUID	CheckIdNr	iPrintAreaMarkdown	CheckINSEE
CheckIVA	JSONValid	KanbanAddCard	KanbanSearchCard
KanbanMoveCard	KanbanDeleteCard	KanbanDeleteAllCard	KanbanListAdd
KanbanListDeleteAll	MarkdownToDOCX	MarkdownToHTML	MarkdownToPDF
CheckSIN	CheckOASI	CheckBN15	CheckBN9
CheckNIF	CheckNISS	PageExist	CapitalizeEachWord
CheckBER	SCPSendFile	SCPGetFile	SessionRequestedPage
CheckSIREN	CheckSIRET	SocketProxy	CheckSSN
CheckEU	CheckUStidNr	UTFConvert	LooperAddIP
LooperInsertIP	LooperModifyIP		

# PHP



## 943 New feature WD WB WM ADDITIONAL DATE FUNCTIONS

Several functions to convert dates to different formats are now available in PHP: `EpochToDateTime`, `DateTimeTimeZoneToLocal`, `DateTimeLocalToTimeZone`, `DateTimeToString`, `DateTimeToEpoch`, `DateTimeToReal`...

**Benefit of this new feature in version 28:**  
Greater interoperability

New feature WD WB WM

## 944 to 950 7 NEW WLANGUAGE FUNCTIONS FOR PHP

7 new functions are available in PHP:

<code>DateTimeTimeZoneToLocal</code>	Converts a date and time from a particular time zone to a local date and time.
<code>DateTimeLocalToTimeZone</code>	Converts a local date and time to the date and time in a particular time zone.
<code>DateTimeToString</code>	Converts a DateTime to string in the specified format.
<code>DateTimeToEpoch</code>	Converts a local datetime to Epoch format (number of time units since 01/01/1970 at 0000 UTC).
<code>DateTimeToReal</code>	Converts a date and a time to an 8-byte real.
<code>EpochToDateTime</code>	Converts a date and a time in Epoch format (number of time units since 01/01/1970 at 0000 UTC) to a local datetime.
<code>RealToDateTime</code>	Converts an 8-byte real to a date and time.

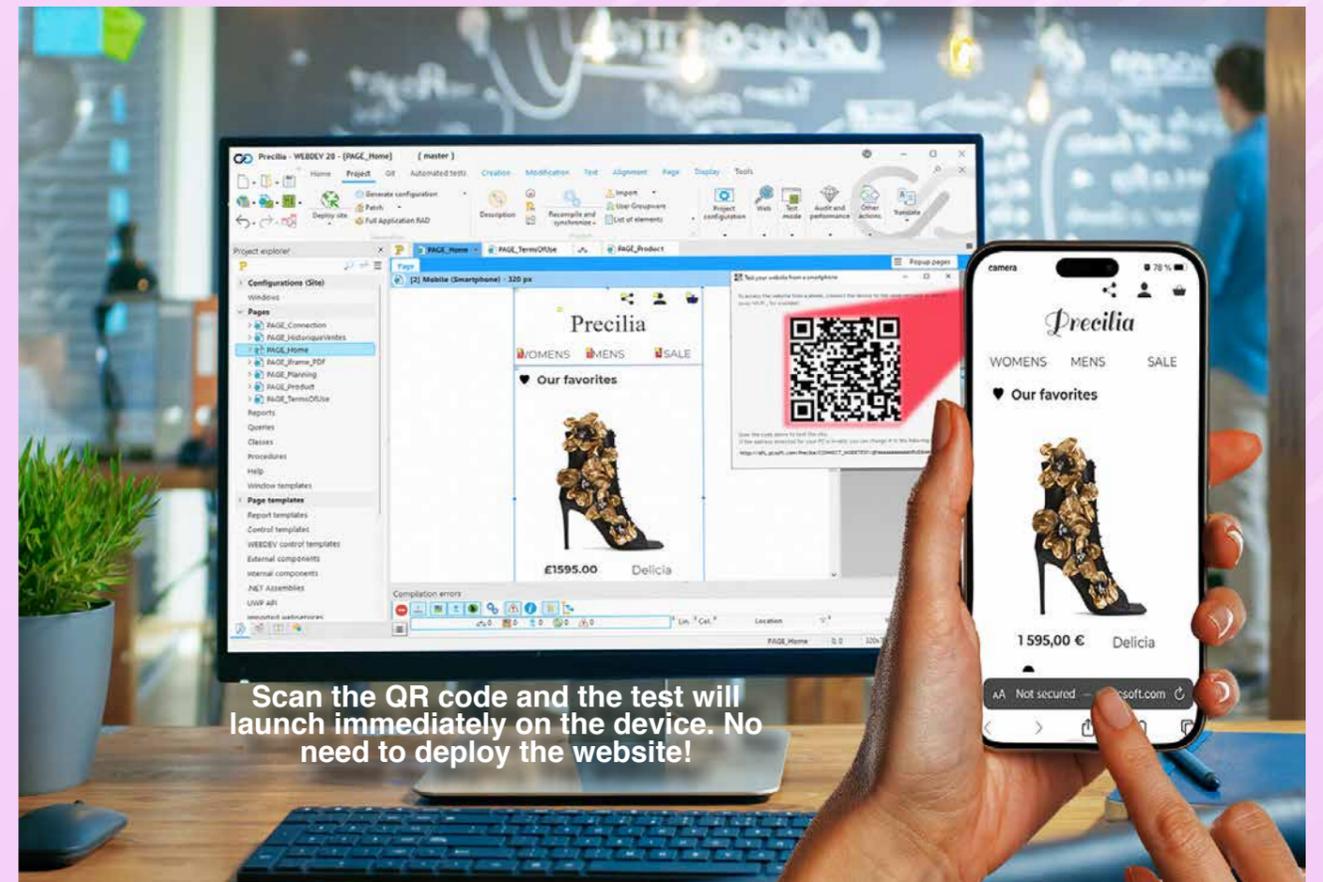
**Benefit of this new feature in version 28:**  
WLanguage improvements

# MANAGEMENT

## 951 New feature WD WB WM ACTIVATE OR DEACTIVATE ADMINISTRATION SITES AT ANY TIME

In version 28, you can activate and deactivate the administration sites that are integrated into the Application Server at any time:

Continues page 88...



Scan the QR code and the test will launch immediately on the device. No need to deploy the website!

# TEST AND DEBUG WEBSITES DIRECTLY ON THE DEVICE, NO DEPLOYMENT REQUIRED

## 952 New feature WD WB WM TEST WEBDEV PAGES ON A MOBILE DEVICE WITHOUT DEPLOYING THE SITE

A new option in the editor allows you to run a test directly on a mobile device.

It's very simple: scan the QR code that appears on the screen. Simply make sure the mobile device is connected to the same network as the PC (generally, the Wi-Fi network of your organization).

**Benefit of this new feature in version 28:**  
Can't be any easier than that

## 953 New feature WD WB WM DEBUGGING ON MOBILE DEVICES

In version 28, breakpoints (server code) are active on the mobile device.

You can set breakpoints after starting the test. The standard debug mode is still available: step-by-step execution, ability to view and modify the content of variables,...

**Benefit of this new feature in version 28:**  
Debug on the mobile device

## 954 New feature WD WB WM NOTHING BEATS AN ACTUAL TEST ON THE DEVICE

When you want to test a website intended for mobile devices, the best method is to use an actual device. The browser's built-in emulator is useful, but it does not allow you to test touch features and actual font sizes. WEBDEV 28 now includes this essential test/debug mode.

**Benefit of this new feature in version 28:**  
Can't do without it

- SaaS administrator
- Web HFSQL administrator
- Telemetry server
- User Groupware administrator
- Private Store website
- Web service to access third-party databases from a mobile device.

Before, administration sites remained activated by default. Now, you don't need to think which sites must be activated when installing the Application Server.

**Benefit of this new feature in version 28:**

*No need to reinstall any tools*

## REST WEBSERVICES

### 955 New feature WD WB WM 64-BIT TEST MODE

REST web services can be tested in 32 or 64-bit mode on demand.

This allows you to test a web service according to a given version of the Application Server.

**Benefit of this new feature in version 28:**

*Freedom to choose between 32 and 64-bit mode*

## APPLICATION SERVER

### 956 New feature WD WB WM AUTOMATION: REMOTELY CONTROL THE APPLICATION SERVER



This is a highly anticipated feature in the Application Server: ability to remotely control the Application Server.

This new feature makes it possible to automate actions, make these actions available using a custom UI, and create custom monitoring and statistics tools.

This can be done from a WINDEV or WINDEV Mobile application, or from a WEBDEV website.

These are some of the actions that can be automated:

- Manage a WEBDEV account: create, delete, list accounts...
- Manage connections: list connections, disconnect users, get the number of connected users...
- Manage the nodes of a WEBDEV cluster: start a synchronization, view the status of nodes...
- Get the errors encountered by the Application Server

**Benefit of this new feature in version 28:**

*Task automation*

### 957 New feature WD WB WM SCHEDULED TASKS: RESTART AUTOMATICALLY AFTER A REBOOT

In version 28, it is no longer necessary to log in each time the server is rebooted or the site is redeployed in order to execute scheduled tasks.

The restart is automatically completed.

**Benefit of this new feature in version 28:**

*Less actions required*



### 959 New feature WD WB WM DEBIAN 11

The process for creating Docker images is now based on Debian 11. This version of Debian includes additional security features.

**Benefit of this new feature in version 28:**

*Security*

## DEPLOYMENT OF YOUR SITES

### 960 New feature WD WB WM REACTIVATE A PREVIOUS VERSION OF A SITE

In WEBDEV 28, you can reactivate a previously archived version of a site.

You can access a list with the archived versions.

**Benefit of this new feature in version 28:**

*Improved security*

## WEBDEV CLUSTER

### 958 New feature WD WB WM SYNCHRONIZATION UPON INSTALLATION OF A NEW SITE

The WEBDEV cluster automatically synchronizes nodes at regular intervals.

Now, a synchronization is automatically and immediately started when a new site or update is deployed.

This allows for instant availability, regardless of which cluster node is being accessed.

No need to wait for the regular synchronization.

**Benefit of this new feature in version 28:**

*Zero wait after deployment*

## DOCKER DEPLOYMENT



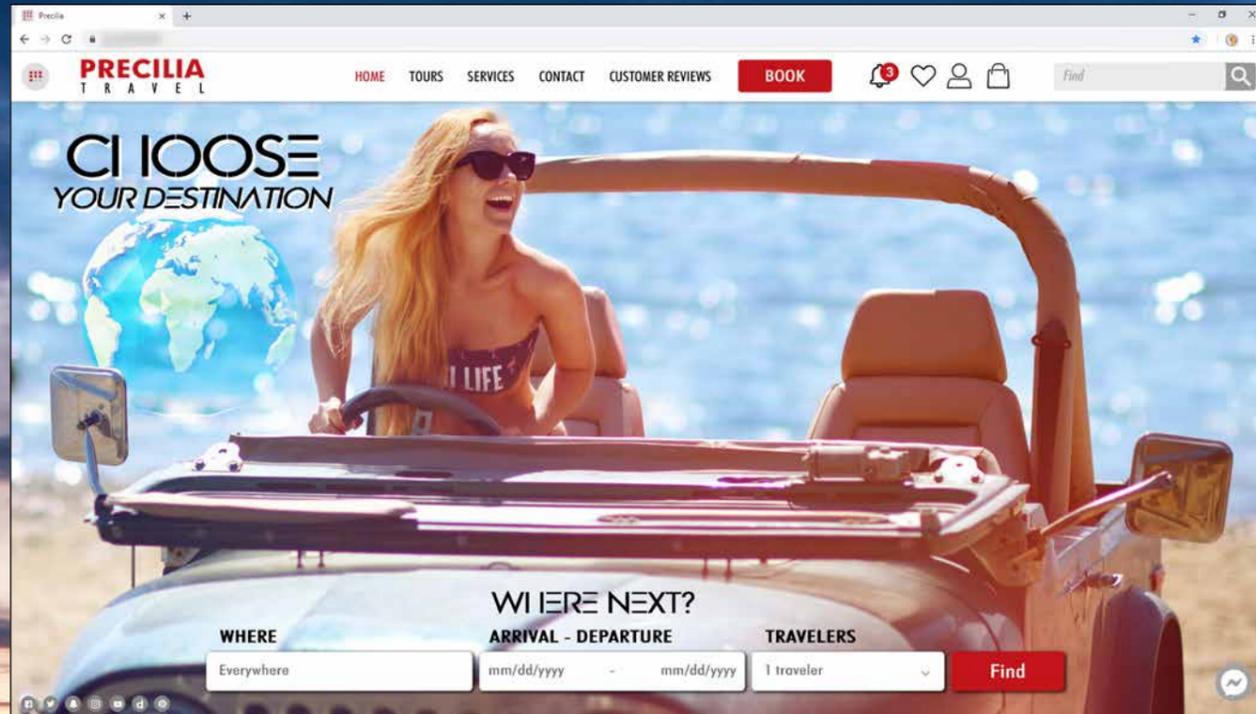
## AND MUCH MORE...

### 961 New feature WD WB WM AND MANY OTHER NEW FEATURES

Version 28 offers many other new features that you will discover once you order and receive your software...



# VERSION 28, A SEA OF NEW FEATURES



YOUR  
APPLICATIONS  
ARE FASTER  
AND MORE  
BEAUTIFUL  
IN VERSION

# 28

Your code is unique: Windows, Internet, HTML5,  
Linux, Java, .Net, PHP, Mac, Webservice,  
Android, iOS, Cloud, SaaS...

**TECHNOLOGY DOES NOT WAIT:  
ORDER VERSION 28  
TODAY**

*Order today! Before the release date, any purchase of WINDEV, WEBDEV or WINDEV Mobile 27 (excluding upgrades) from 9/1/2022 entitles you to a free upgrade (package and tutorials) to the corresponding new version, as soon as available. Buying an update to version 28 before its release date and after 1/9/2022 enables you to get version 28 (package and manuals) for the difference in update price (excluding shipping costs). 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 as soon as the version is shipped, 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. The amount of new features adds up to more than 928 since certain new features are related to multiple subjects and are presented more than once. Despite the care taken in creating this document, it is not contractual. Screenshots and lists are for illustration purposes only. Don't hesitate to contact us for any additional information or to learn more about a new feature. All the trademarks mentioned in this publication are registered trademarks of their respective owners.  
Documentation version: 1.05*

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Mobile

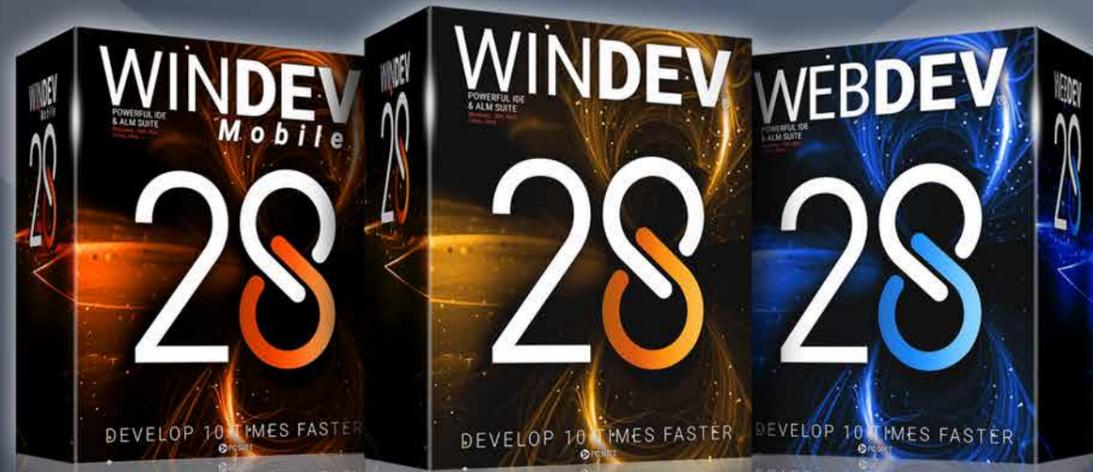


# 928

NEW FEATURES

TECHNOLOGY NEVER STOPS  
ORDER VERSION 28  
TODAY

Your code is unique: Windows, Internet,  
HTML5, CSS, Linux, Mobile, Java, .Net, PHP,  
Mac, Webservice, Android, iOS, Cloud, SaaS...



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