

WINDEV®

NEW VERSION

921

NEW FEATURES

- 150 COMMON NEW FEATURES
- TELEMETRY
- NEW NOTE CONTROL
- WORKFLOW
- USER MOVABLE CONTROLS
- NEW RIBBON RAD
- WINDOWS 10
- BIG DATA
- HFSQL: CALCULATED ITEMS
- CROSS-PLATFORM VISUALIZATION PANEL
- FACEBOOK IDENTIFICATION
- LOW BATTERY GPS
- BLUETOOTH LOW ENERGY IOT
- ICALNDAR
- RESPONSIVE WEB DESIGN
- NEW WLANGUAGE FUNCTIONS, LINUX, ANDROID, IOS, PHP, JAVA
- ...



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21

ORDER YOUR COPY
OF VERSION 21
TODAY!

21

NEW FEATURES

Version 21 brings you the innovations you've been expecting.

Since they enjoy developing a lot more, your teams are more productive!

This new version, #21, brings your teams useful **new features**

New controls, telemetry, visual panel, Responsive Web Design, increased interoperability are all part of the new features in version 21.

Build on your existing experience while taking advantage of new technologies: this is the benefit provided by version 21.

By recompiling your applications in version 21, your applications **automatically gain** new features, speed and quality, and support recent technology evolutions.

WINDEV 21, **WEBDEV** 21 and **WINDEV Mobile** 21 are your work tools. The overriding objective for our teams is **your satisfaction** and **your success**, on all the environments and hardware platforms.

This version 21 will soon become your favorite one!



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

WINDEV®

WEBDEV®

WINDEV® Mobile



NEW CONTROLS

001 new feature WD WB WM

NEW CONTROL: REPOSITIONABLE NOTE. END USERS CAN STICK THEM THEMSELVES!

The «repositionable note» control (which looks like a familiar yellow sticky note ...) is being introduced in version 21. It is very useful to an end user who wants to add sticky notes to a window.

A «repositionable note» control can be implemented by the application's developer, of course, but also by end users themselves!

With this control, the end user can enter instructions, operations to perform or information: operating mode, instruction for a substitute during vacation, ...

With this control, information flows better, and productivity increases automatically.

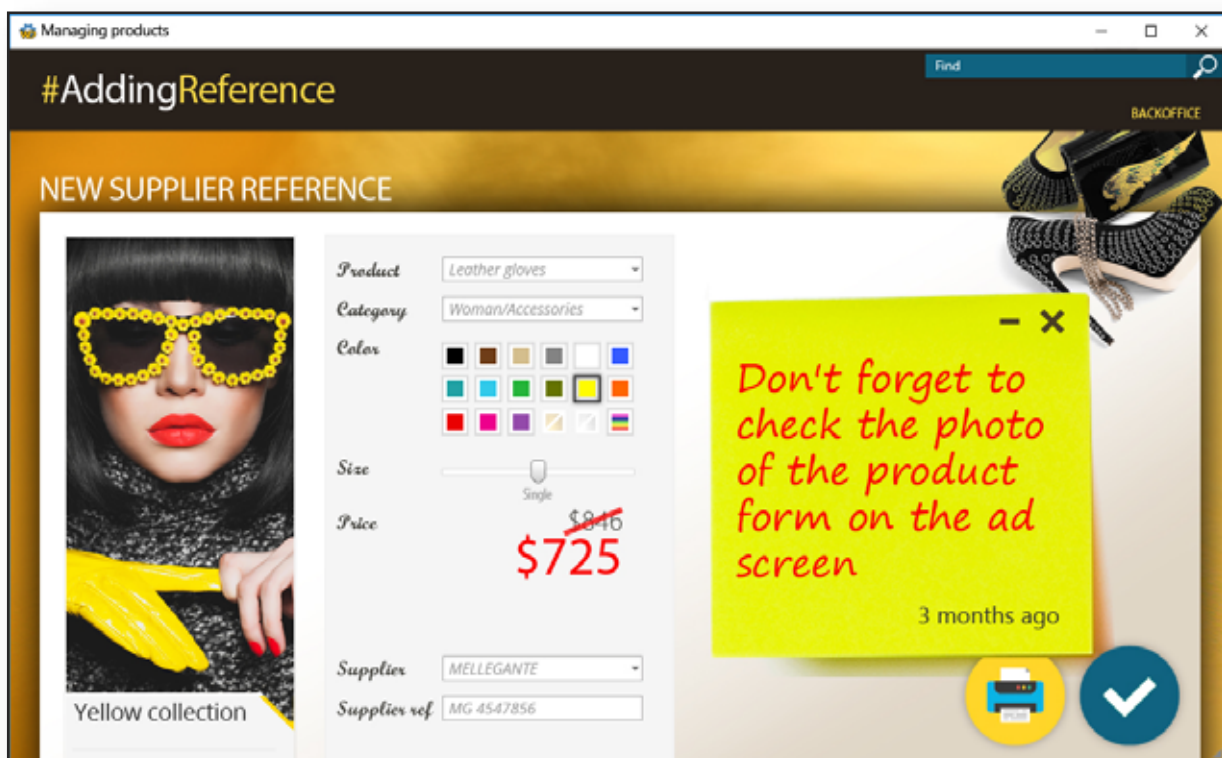
For instance a user can leave a reminder on a window that starts a print job to make sure letterhead paper is loaded in the printer tray!

Of course the application's creator can forbid the use of notes on the application's windows.

Note that end users can also add their own tooltips to controls to refine the information (see new feature 002).

Benefit provided by this new feature:

The end user can directly enter information.

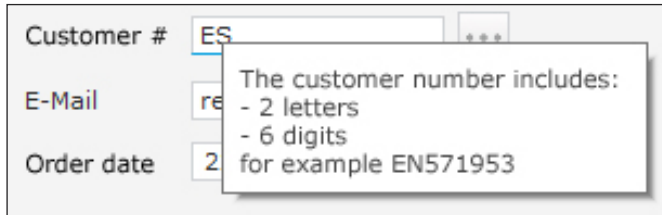


CONTROL TOOLTIPS: THE END USER CAN CREATE THEM

In applications created or recompiled with version 21, end users can add tooltips on the controls of their choice.

This new feature allows an end user to store information specific to a control, and this information will display when the cursor hovers the control or enters the control.

This new feature is a great complement to the new «Repositionable note» control and improves the flow of information. If the control already has a tooltip, the content from both tooltips is displayed.



A very useful tooltip entered directly by the application's end user

Benefit provided by this new feature:

The end user is more efficient.

A NEW CONTROL FOR CREATING WORKFLOWS



Version 21 of WINDEV offers a new «Wire» control that lets you visually link 2 controls.

This control enables you to easily create workflow diagrams. Links are automatically managed, and automatically keep track of the modifications on the linked controls: moving, resizing, visibility...

Links can be created:

- in the window editor
- by programming
- and even directly in the application, by the end user! (see below)

The new «Wire» control found in version 21 offers surprising capabilities.

Benefit provided by this version 21 new feature:

Wired up!

WIRE CONTROL: LINK THE CONTROLS ON THE SCREEN

The wire control is very easy to create and use.

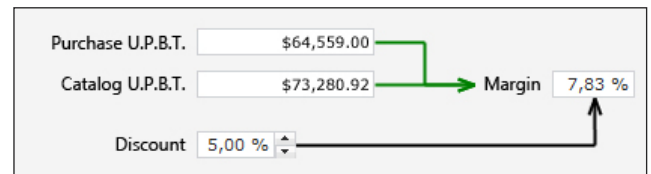
A wire connects 2 controls.

A wire can be made of one or more segments.

A wire can be straight, with a right angle or free form.

When a control is moved, the wire automatically follows the position of the connected controls.

This is an important feature because in version 21 the end user can move controls on the screen (see new feature 015).



One of the many uses of the wire control: it can also be used to draw an interface

Benefit provided by this version 21 new feature:

Diagrams are always coherent, the lines connect.

WIRE CONTROL: HOW TO CREATE IT

A wire control is created like any other control, in the window editor.

Simply select the control from the ribbon, then connect 2 controls...

A wire control can also be created by programming using the usual `ControlCreate` or `ControlClone` function.

The `..StartControl` and `..EndControl` properties let you define controls to link together.

The end user can also create wires (if you authorize it) (see new feature 015).

Benefit provided by this version 21 new feature:

Easily create links between controls

WIRE: IT CONNECTS IN THE RIGHT SPOT

The wire is connected to a control via an «attach point».

By default a control has 4 attach points: the middle of each of its 4 sides.

The application's developer can add or remove attach points. For example, only 2 attach points in the middle at the top and the bottom guarantee vertical lines ...

Benefit provided by this version 21 new feature:

Attach your wires wherever you want!



007 new feature WD WB WM

CUSTOMIZABLE WIRE

A wire can be customized, like any control, using the 7-tab technology, or via programming.

Here are some of the customizable elements:

- the thickness
- the color
- the opacity
- the type of line: solid, dash...
- the shape, size and color of each end point: square, round, diamond, arrow...

Like all the controls, the wire control can be customized using styles.

Benefit provided by this version 21 new feature:

Keep your wires in check, use the right style!

008 new feature WD WB WM

THE SHAPE CONTROL GETS IN SHAPE!

With version 21, the WINDEV «Shape» control evolves and offers even more shapes.

These new shapes are useful for creating diagrams.

In addition to the existing shapes:

- rectangle,
 - rounded rectangle,
 - circles and ovals,
 - simple arrows,
- new shapes are being introduced:
- sophisticated borders,
 - diamond,
 - free shape (polygon).



Other new feature in version 21, a shape can contain an image.

Benefit provided by this version 21 new feature:

Pleasing shapes.

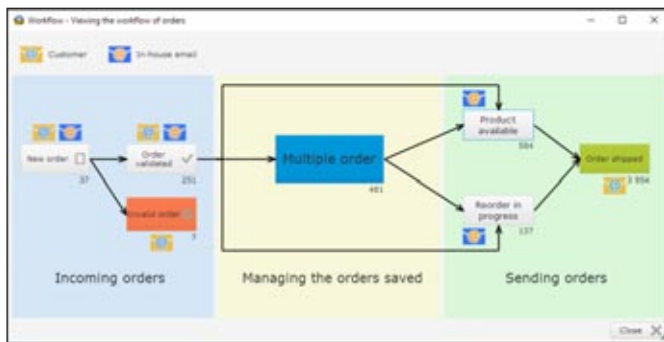
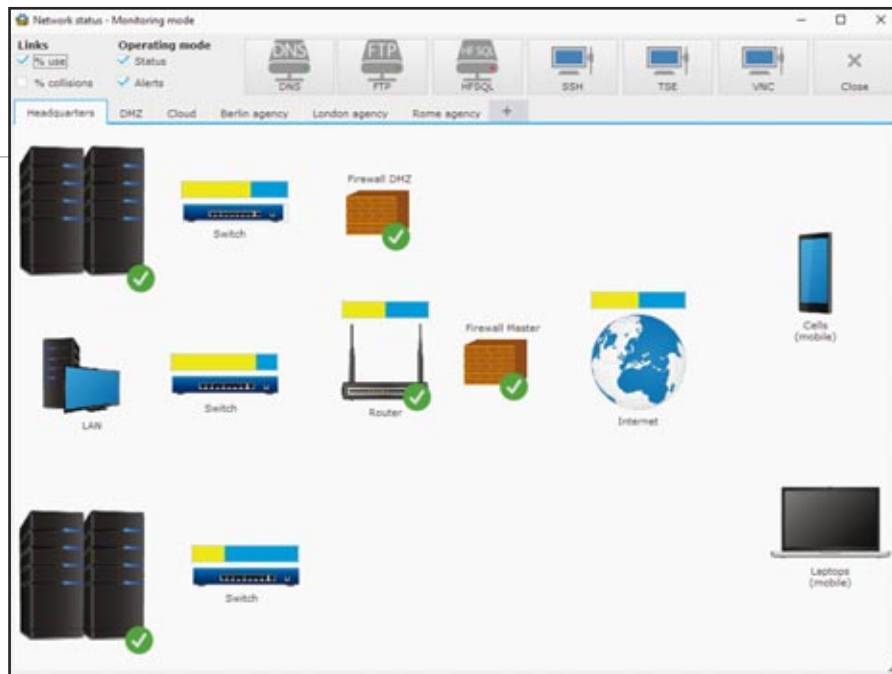
HOW TO CREATE A WORKFLOW DIAGRAM?

Thanks to both the new wire and shape controls, and thanks to the richness of the usual controls, WINDEV 21 makes it easy to create workflow diagrams.

A workflow diagram is created directly in the window editor, by programming, or by a combination of both methods.

The end user can even create and modify workflow diagrams (see below).

Since all the elements are controls, you can interact or modify a diagram anytime via programming.



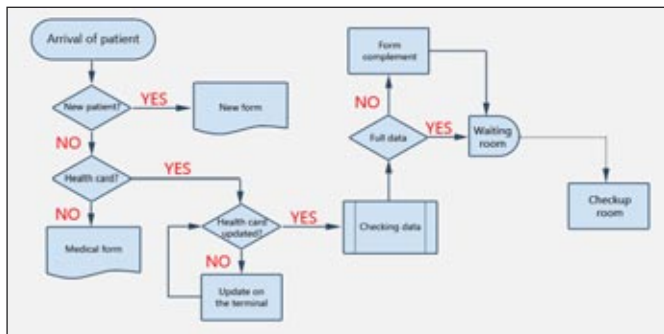
Order processing workflow diagram

Benefit provided by this version 21 new feature:
Match your needs

END USERS CAN EDIT WORKFLOWS

WINDEV 21 also lets you easily build a custom workflow editor for your end users.

The end user can move controls in the windows you've created. (see the details about the new feature on moving/resizing ... controls for the end user at #14).



Creating and updating workflows is easy with version 21

Benefit provided by this version 21 new feature:
End users can edit workflows.

MUCH MORE THAN JUST WORKFLOWS: MAP, DIAGRAM,

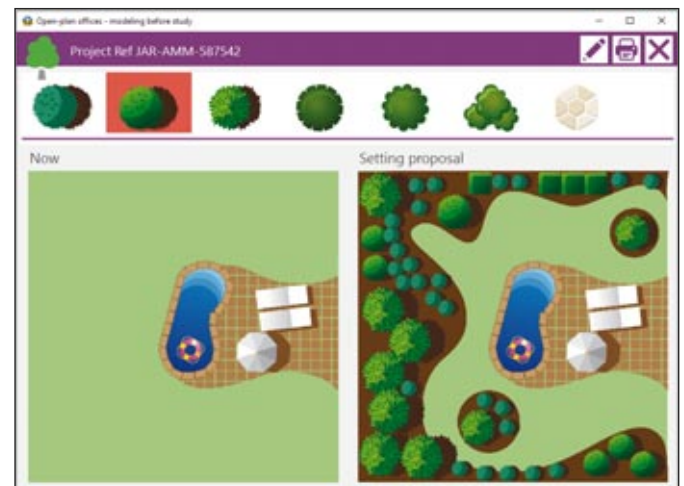
...

These new features in version 21 let you create much more than just workflows.

All the WINDEV features are available to the application developer.

It becomes easy to create:

- architectural drawings
- parking maps
- office maps
- an assembly chain layout
- a circuit board design
- a manufacturing process
- ...



Here a landscaper creates the layout for a garden. Connected captors send information about the plants in real time, and display alerts when needed

The positioning of the elements can be accomplished automatically via programming, or by the end user. Reminder: links automatically follow!

Benefit provided by this version 21 new feature:
Much more than workflows.

ICING ON THE CAKE: THE DIAGRAM IS INTERACTIVE: IT'S A WINDEV 21 WINDOW!

Once the diagram has been created by the developer, the application can interact with the diagram: a diagram is a WINDEV 21 window!

All the WINDEV features are available.

The application can update each control in real time:

For example:

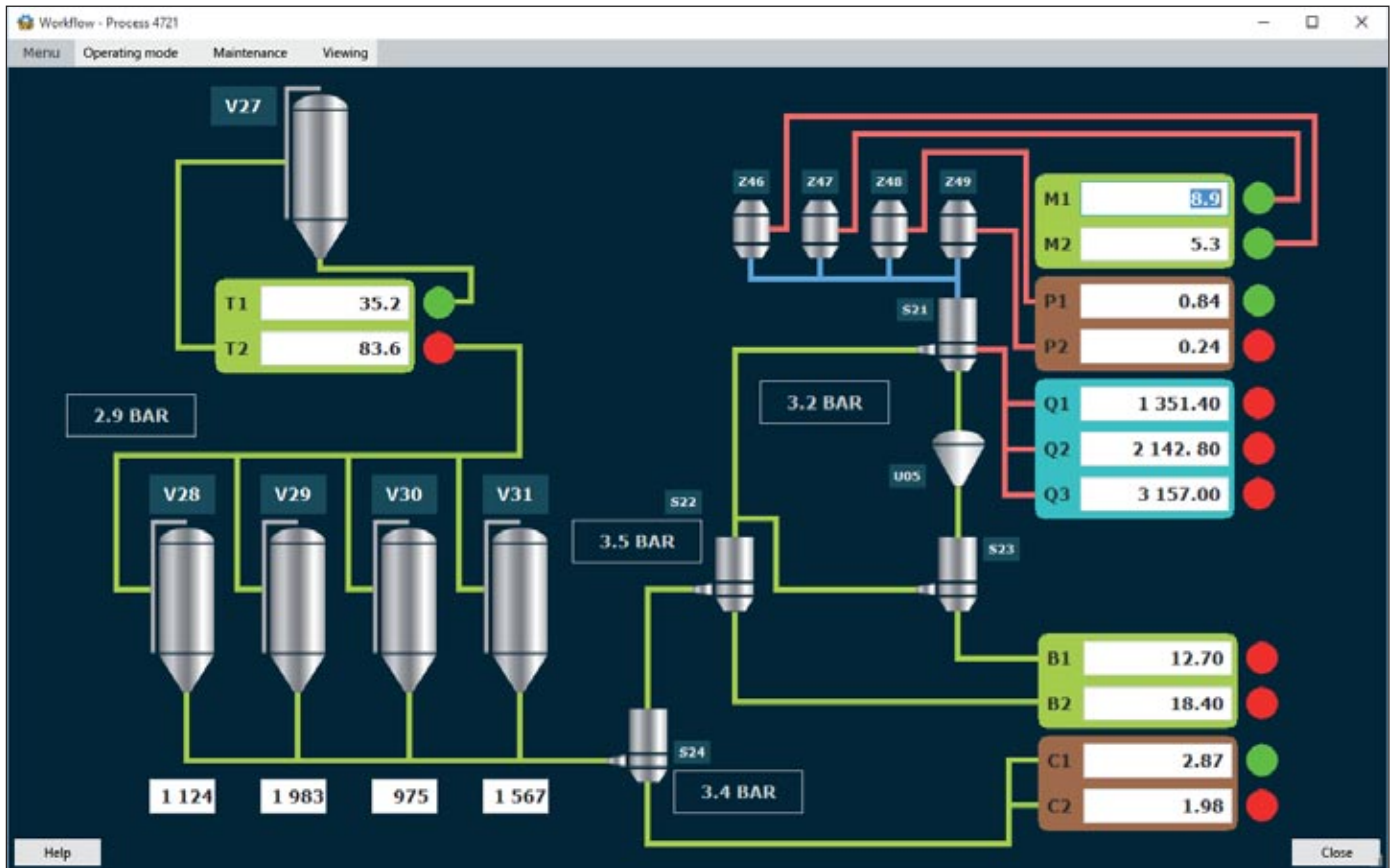
- Change the state of a control to indicate whether a machine is on or off
- Display the productivity of a machine or robot
- Display the consumption of a machine
- Indicate whether a parking spot is available or not
- Indicate the presence of a co-worker at his or her station (out of office, vacation, travel) ...
- Display the hygrometry rate of plants in a garden (via a connected captor)
- ...

The end user can also interact with the diagram (if the developer has planned for this interaction).

For example:

- click a button to stop a machine
- slow down a machine
- send information by email
- print production statistics
- ...

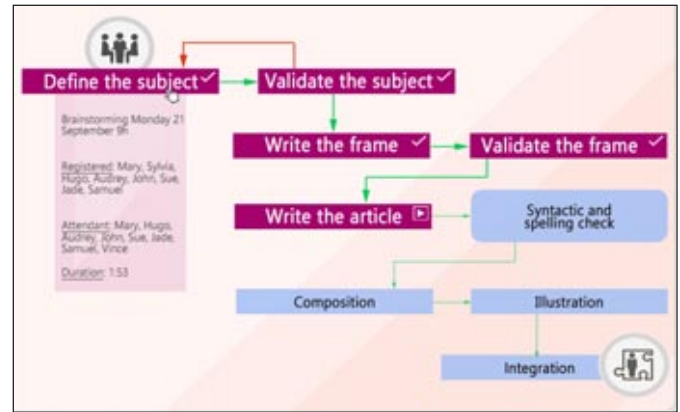
An interactive diagram example: you can add and remove elements. The color of the buttons indicates the machines' state, and clicking a machine can change its state (a combo box comes up to enter the parameters).



Of course any modification can be saved and will be restored automatically or by programming.

Benefit provided by this new feature:

No limit!



A clickable workflow

LIMITLESS WORKFLOWS (AND MUCH MORE)!

There is no limit to the processes you can program!

Benefit provided by this version 21 new feature:

No limit.

END USERS CAN MOVE AND MODIFY THE CONTROLS IN THE SCREEN

014 new feature W D W B W M

REORGANIZING THE WINDOW

Version 21 offers a highly anticipated feature: the ability for the end user to reorganize the layout of the controls inside a window, and to modify some of the controls' properties.

Today end users chose a large number of parameters associated with their personal and professional life: on a mobile phone for instance they pick wallpaper pictures, ring tones, elements to keep or discard ... The decide which information to publish or not on social media.

End users can decide which applications to install, the files to backup or delete ...

In version 21, the end user controls some of the presentation elements and usage for his windows!

This improves user friendliness.

Of course this feature can be turned off by the application's developer, for the entire application or for select windows and controls.

Benefit provided by this new feature:

The end user takes control.

015 new feature W D W B W M

MANAGING THE ADDITION AND VISIBILITY OF THE CONTROLS

In a window, the end user switches into «edit mode» in order to reorganize the window (if the developer has authorized the reorganization).

In this mode the end user can:

- move one or more controls
- resize the controls

- hide controls
- add notes (see new feature 001)
- add tooltips to controls (see new feature 002)
- connect controls using wires.

In order to secure operations, you can:

- cancel one or more modifications (Undo/Redo)
- revert to the initial state of the window at anytime (even 2 days later).

The modifications performed are automatically stored.

Each possibility can be turned off by programming, granularly:

for the entire application, per window and per control. You can also specify for each control whether it can be edited or not.

Benefit provided by this version 21 new feature:

Sharp features.

016 new feature W D W B W M

THE DEVELOPER CAN MODIFY HIS OR HER WINDOWS DIRECTLY DURING A «GO» OPERATION

During the testing phase of this feature with a panel of developers, we found out that many developers were using this ability to perform modifications during a «GO» operation to refine their windows!

Indeed, modification ideas often come up when the window is being used with real data.

This use case is one of the benefits of this new feature.

When back from the GO mode, if modifications were performed on the interface, the window editor asks whether to apply these modifications!

Benefit provided by this version 21 new feature:

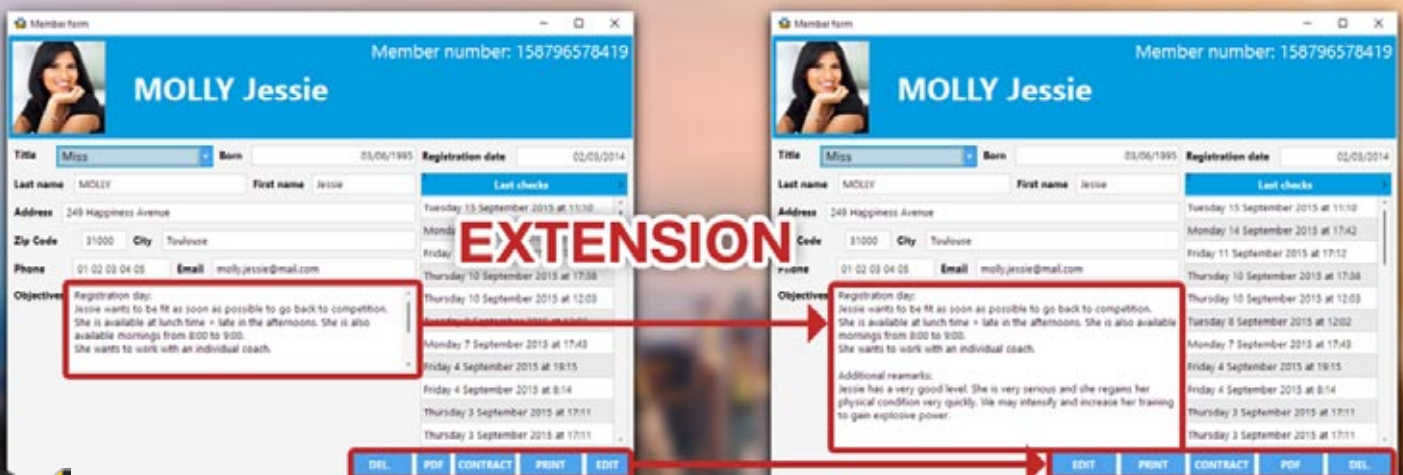
Modify your window on the GO!

017 new feature W D W B W M

THE DEVELOPER CAN RETRIEVE USER CONFIGURATIONS

Developers can retrieve the layout changes performed by the end users.

Some user are really expert in their field, and their experience



POSITIONING and EXPANSION

THE USERS MODIFY AND MOVE THE CONTROLS THEMSELVES



The users will be more efficient and will enjoy using your applications more when they've adapted them to their needs.

Today, everybody customizes his or her smart-phone screen, why couldn't you do the same for your applications?

018 new feature W D W B W M

POWER TO THE USERS

Users can modify and adapt their windows. The modifiable control elements are:

- position
- size
- font size
- font color

Benefit provided by this version 21 new feature:
Trust the users!



can be beneficial.

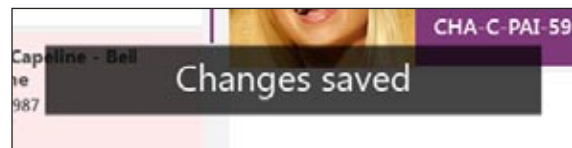
Similarly, a generic program can be used in a specific field, and reorganizing the controls allows for better efficiency. Another use of the modification feature is when the same window is used by 2 different departments (with different user profiles): sales department and accounting for instance. Some buttons will be moved to the foreground and grouped based on use cases.

Benefit provided by this version 21 new feature:
Take advantage of your users knowledge for better efficiency!

CONTROL CHANGES



In version 21 toasts have been redesigned. They really needed it! Their new look is much more modern.



Benefit provided by this version 21 new feature:
Good looking toasts in your applications.

019 new feature W D W B W M

TASTIER TOASTS

020 new feature W D W B W M

SVG IMAGE CONTROL

The image control in version 21 supports clipping masks in SVG format. Progressive contours and opacity masks are also supported.

Benefit provided by this version 21 new feature:
Impactful SVG

021 new feature WD WB WM

CONSTANTLY INNOVATING CONTROLS

To discover the evolutions for the WINDEV 21, WEBDEV 21 and WINDEV Mobile 21 controls, see the following new features:

- 205 to 226 for WINDEV 21
- 741 to 770 for WEBDEV 21
- 454 to 464 for WINDEV Mobile 21

Benefit provided by this version 21 new feature:
A lot of new features for the controls.

CHARTS

022 new feature WD WB WM

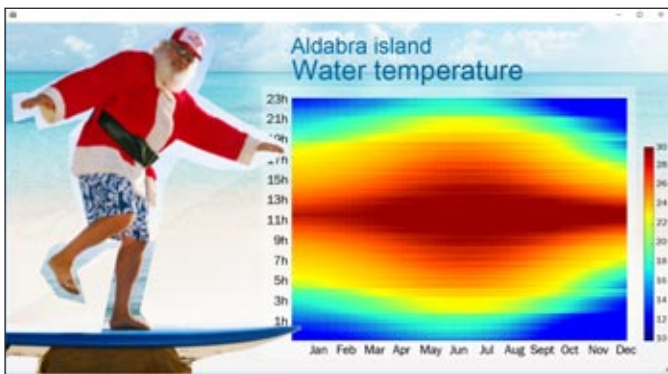
NEW TYPE OF CHART: HEATMAP

WINDEV already offers a very large number of charts. A new type of chart is being introduced in WINDEV 21. It is the Heatmap chart.

This type of chart lets you represent in 2 dimensions data that have 3 value axes.

For example:

- revenue based on date and location
- temperature based on date and location
- number of sales per size and type of clothes
- ...



The new Heatmap chart control

Benefit provided by this version 21 new feature:
Visually represent complex data

023 new feature WD WB WM

NEW HEATMAP CHART TYPE: HOW TO FILL IT?

The new Heatmap chart is filled by programming using the `grHM` family of functions.

You can specify the colors to use.

Gradients for intermediate values are automatically generated.

The chart can be printed inside reports.

Benefit provided by this version 21 new feature:
Easy filling of the Heatmap chart.

024 new feature WD WB WM

PIE CHART: EVOLUTION

In a pie chart, version 21 lets you position one or more legends inside the chart.



Benefit provided by this new feature:
Inside, outside!

025 new feature WD WB WM

SUNBURST PIE CHART: EVOLUTION

In version 21, the pieces of a sunburst pie chart can be pulled out, to make them stand out more.



Benefit provided by this version 21 new feature:
Simplifies the reading of a chart's data.

026 new feature WD WB WM

CHART: OTHER EVOLUTIONS

In the window editor, the chart controls now offer their own edit mode, which allows you, among other things, to move the control and not just the legend or title.

Area chart: a gradient is possible.

Benefit provided by this version 21 new feature:
Useful new features

WDANALYTICS TELEMETRY: WHAT IS USED IN YOUR PRGRAMS, WHAT IS NOT

027 new feature WD WB WM

WDANALYTICS: FIND OUT EVERYTHING ABOUT YOUR DEPLOYED APPLICATIONS. AND IMPROVE THEM

With this new WINDEV 21 standard tool, you will finally know how your applications are used, what are the most often used choices, the choices that are least used or not used, what are the compute and response times ...

WDAnalytics enables you to find out how your applications are used.

Benefit provided by this version 21 new feature:

You'll know everything about your applications' use.

028 new feature WD WB WM

PRECISE STATISTICS

WDAnalytics collects the usage information, and then lets you analyze it. Note that collecting this information doesn't impact the performance of your applications.

For each button and each menu choice, the following information is collected:

- number of selections (total, average per day)
- activation with the mouse, keyboard or keyboard shortcut

For each window:

- number of activations (total, average)
- average display time for the window with and without activity (a window that remains open without any mouse or keyboard action for 1 minute is considered «display-idled»)

Controls in which actions happened are indicated, based on the order in which the actions were performed, as well as the amount of time present in each control.

New feature 039 details all the information collected.

Benefit provided by this version 21 new feature:

WDAnalytics collects useful information.

029 new feature WD WB WM

WHICH FEATURES ARE USED (AND UNUSED) IN YOUR APPLICATIONS?

WDAnalytics identifies the most often used windows. These are the windows you should optimized the most!

Similarly, WDAnalytics identifies the most often used reports.

These are the reports you should optimized as well.

WDAnalytics identifies the number of use of the export function (Excel, Word, mail ...) per window and per control.

If the number of export is high, you may want to create a specific process.

WDAnalytics tells you for each edit control whether the end user has activated the option for storing its value.

This information can be useful to activate the control storing option so all the users can benefit from this time saving.

WDAnalytics tells you for each button that has a shortcut (F2, F10, ...) whether the shortcut is used or not. This may be useful for training end users.

Similarly, WDAnalytics tells you which buttons are often clicked but don't have any shortcuts. You may want to provide a shortcut for them. Etc.

The information provided by WDAnalytics lets you improve the features that are really and often used by your applications' end users.

You have precise information so you can act on the most often used elements.

Benefit provided by this version 21 new feature:

You know everything about the use of your applications.



**WINDEV 21:
perfect balance**

030

new feature W D W B W M

WHAT DO WE MAINTAIN BUT NOBODY USES? = HOW CAN I FREE SOME TIME?

Elements of the application that are not used anymore are flagged: windows, reports, queries...

And even more precisely, per window, the unused controls (buttons that are never clicked for example) are flagged.

After taking the necessary precautions, you may consider removing these processes from the application.

The application will be lighter, and maintenance easier.

Your teams save time.

Be careful though not to delete a process that is only used once a year (like a yearly report for instance) or once every 4 years (leap years).

Benefit provided by this version 21 new feature:

Remove dead code.

031

new feature W D W B W M

WHICH VERSION OF YOUR APPLICATION DO YOUR CUSTOMERS USE?

An application has a life of its own.

An application has often several different versions deployed and in use at the same time.

Usually, some customers always upgrade while others keep running older versions.

WDAnalytics lets you find out which version of the application is used.

For all your deployed applications, WDAnalytics lets you find out the distribution between the different versions.

This information is useful:

- to sell upgrades
- to analyze the reasons why your users are not updating
- to compare adoption speed for new versions
- ...

Benefit provided by this version 21 new feature:

The right version is version 21!

032

new feature W D W B W M

PERFORMANCE METRICS IMPROVE PERFORMANCES: ALL WAIT TIMES NOTED

WDAnalytics goes even further: it also indicates the application's waiting times.

For each window and each report, the processes that take the longest are flagged.

This way, if a process is too slow on an end user machine, you know it.

This allows you to check the application's behavior based on the operating context.

The process time for each button is also indicated.

If a process is run a very large number of times, you are also notified.

You know precisely how your applications are used and how they perform.

Continues page 14...

033

W D W B W M

CONSULT THE RESULTS IN «GO»

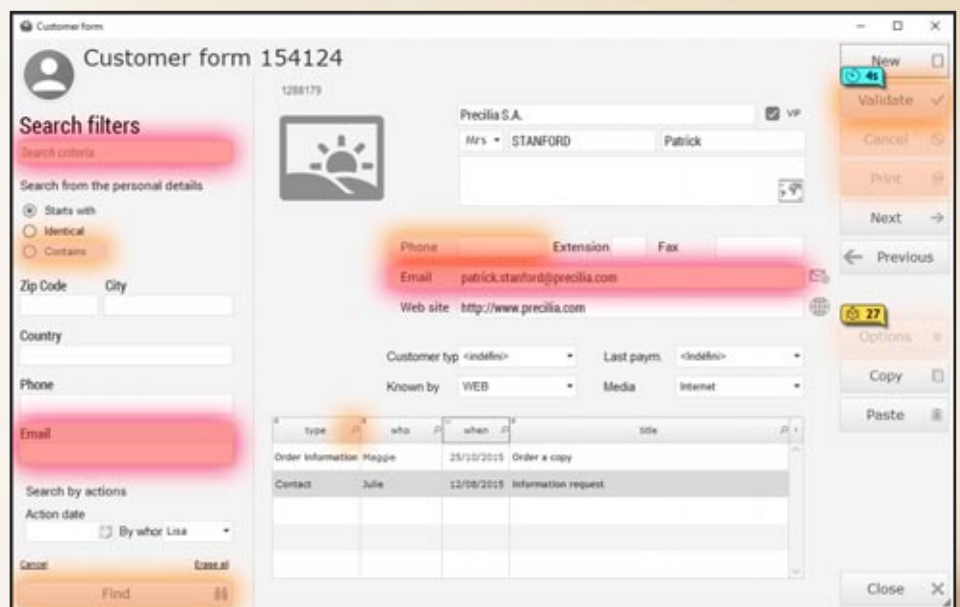
Consulting the results is done according to two operating modes.

The first operating mode consists in executing the application in WINDEV, and switching to «analytic» mode: simply go through the application. It automatically displays the information on the screen, next to the choices and the controls.

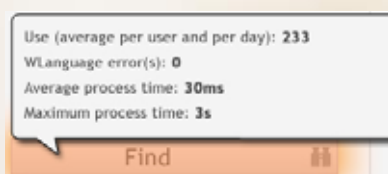
The telemetry data are displayed on the screen!

Benefit provided by this version 21 new feature:

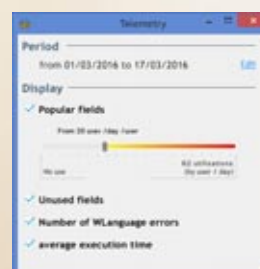
The analysis of the results is interactive.



Telemetry during a GO: the color indicates the most and least used controls. Hovering a control shows the details



Detail for 1 control



Remote control to decide what is highlighted in the window when run through a GO

TELEMETRY IN THE DASHBOARD

The screenshot shows the WinDev 21 Telemetry dashboard for the period from 01/03/2016 to 17/03/2016. Key features include:

- Selected period:** A callout points to the date range 'From 01/03/2016 to 17/03/2016' at the top of the dashboard.
- Printing the report:** A callout points to the 'Print' icon in the top navigation bar.
- Devices of users:** A callout points to a detailed view of screen resolutions, showing a table with columns for resolution and percentage of users.
- List of projects:** A callout points to the left-hand navigation menu, which lists various applications like 'Control Management', 'Accounting', 'GED', etc.

This screenshot provides a detailed view of a specific control element, 'WHL_Customer_Form'. It shows:

- Period:** From 01/03/2016 to 17/03/2016.
- Summary:** 25 openings, 4 hours 14 min.
- Statistics:** Average opening time of 235 ms and 1 total error.
- Most used controls and menus:** A table listing frequently used elements like 'BTH_SEARCH' (16 uses), 'BTH_CLOSE' (15), 'BTH_PRINT_ORDER' (1), 'BTH_NEW_ORDER' (7), and 'BTH_INVOICE' (17).
- Longest user actions:** A table showing actions like 'BTH_PRINT_INVOICE' (3 seconds) and 'BTH_SEND' (3 seconds).
- Unused controls and menus:** A list of elements that have not been used, such as 'BTH_Cancel' and 'BTH_Create_Account'.

034 new feature W D W B W M

CONSULT THE TELEMETRY RESULTS IN THE DASHBOARD

The consultation of the information can also be done via the dashboard of WDAalytics. The dashboard offers a very complete summary view of the telemetry data.

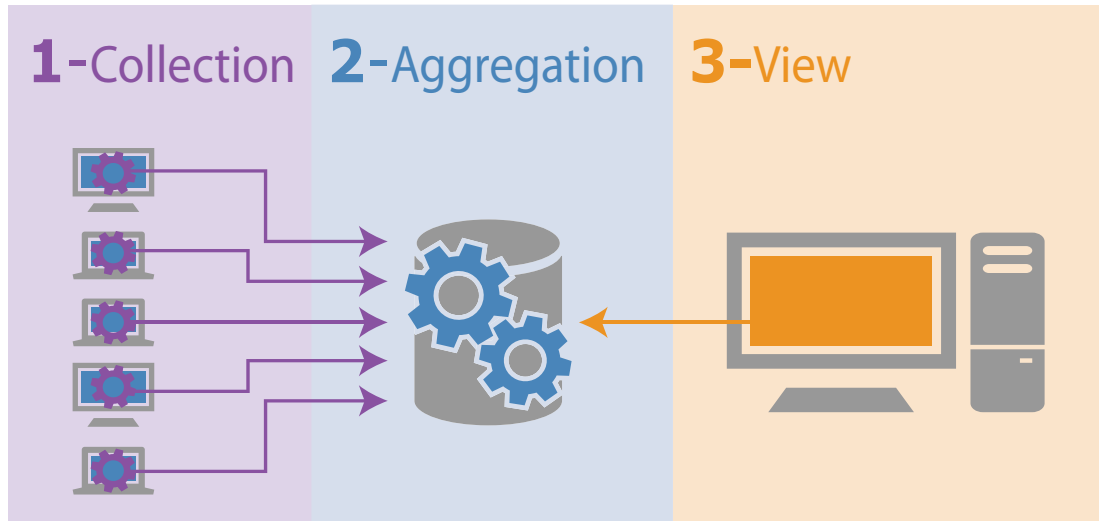
Benefit provided by this version 21 new feature:
Analyzing the results is easy.

You can take the necessary measures, software or hardware, to improve the final performance.

Benefit provided by this version 21 new feature:
Make your application faster.

037 new feature WD WB WM

DATA COLLECTION AND STORING TECHNOLOGY: LOCALLY ON THE NETWORK OR VIA THE CLOUD



035 new feature WD WB WM

ERROR OCCURRENCE METRICS AT CUSTOMERS' FOR DEPLOYED APPLICATIONS

Even the best developer may make mistakes when developing an application!

When the error occurs at the end users', they may not always notify you.

However, the developer should know about these errors in order to correct them.

This is where this new feature in version 21 is useful. WDAalytics collects the errors that occur.

This way you're informed about bugs that happen.

The information regarding the bugs contains useful elements such as the call stack, etc.

A large number of statistics are available. For example: how often an error occurs over time, the number of users affected, top ten, etc.

These elements help prioritize bug correction.

Benefit provided by this version 21 new feature:
Fix even the unreported bugs!

036 new feature WD WB WM

PRINT A REPORT

WDAalytics lets you print a complete telemetry report on an application.

This allows you to send the information to another team if needed.

Benefit provided by this version 21 new feature:
Print a telemetry report.

Telemetry data collection is done transparently, without any impact on the performance (less than 1% impact).

You can choose one of several methods.

Note that the data collected can be partially or totally anonymized.

You can choose to store the data:

- on a network server
- in the cloud (a subscription is required).

Once activated, WDAalytics automatically collects data.

Data aggregation is accomplished in the background, on the collection server.

Organizing, aggregating and viewing the data doesn't impact the application's performance.

Benefit provided by this version 21 new feature:
You have choices.

038 new feature WD WB WM

COLLECT SPECIFIC INFORMATION

You can request the collection of specific information when running through a particular piece of the interface or code.

This data collection can be useful for:

- analyzing a new feature
- checking on special cases: VIP ...
- counting the number of pages printed
- check on some computers
- count the number of invoices entered
- count the number of canceled operations
- ...

You can analyze processes and specific sections of your applications.

Benefit provided by this version 21 new feature:
Analyze with precision the operating mode of your applications' features.

AMONG THE COLLECTED AND AGGREGATED DATA...

The telemetry collects and aggregates the following data.

Note that the data collection is undetectable in terms of performance (less than 1% impact on average).

The data is stored per application:

- all the applications
- a selection of applications
- an application

Data is also stored by version.

Information available for each period is as follows.

On users

- Total number of users
- The number of new users
- The number of loss users (churn rate)
- The average daily number of users
- The daily minimum number of users
- The daily maximum number of users

On the hardware

- The OS distribution
- The distribution of the number of screens
- The distribution of the screen resolution
- The language distribution
- The memory capacity distribution

On an application, overall

- The total number of application runs
- The average daily number of runs for the application
- The minimum daily number of runs for the application
- The maximum daily number of runs for the application
- The average daily number of runs for the application per user
- The minimum daily average of runs for the application per user
- The maximum daily average of runs for the application per user
- The distribution of the language usage
- The daily average active time for the application per user
- The daily minimum active time for the application for a user
- The daily maximum active time of the application for a user

On the (potential) fatal errors detected by the WLanguage security mechanism:

- The total number of anomalies
- The total number of users affected by this anomaly
- The percentage of users affected by an anomaly
- The average number of anomalies per day
- The minimum number of anomalies per day
- The minimum number of anomalies per day when there's at least one anomaly
- The maximum number of anomalies per day
- The average number of anomalies per day per user
- The minimum number of anomalies per day for a user
- The minimum number of anomalies per day for a user affected by at least one anomaly
- The maximum number of anomalies per day for a user
- The average number of anomalies per day per user affected by at least one anomaly

Top 10 of elements

- Top 10 of the most used windows
- Top 10 of the most used queries
- Top 10 of the most used reports
- Top 10 of the least used windows
- Top 10 of the least used queries
- Top 10 of the least used reports

Unused elements

- Unused windows
- Unused queries
- Unused reports

On a given element (a window, a report...)

- The total number of uses
- The number of users that used it at least once
- The percentage of users that used it at least once
- The use rate
- The average daily number of uses
- The minimum daily number of uses
- The average daily minimum number of uses if there's at least one use
- The maximum daily number of anomalies
- The average daily number of uses per user
- The minimum daily average number of uses for a user

- The daily minimum number of uses for a user that used the window
- The daily maximum number of uses for a user
- Top 10 of the longest processes
- Top 10 of the most used processes

For a given process, for a given control, for a given menu choice, we want to know the most used, the least used and not used

- The total number of uses
- The number of users that used it at least once
- The percentage of users that used it at least once
- The use rate
- The average daily number of uses
- The minimum daily number of uses
- The average daily minimum number of uses if there's at least one use
- The maximum daily number of anomalies
- The average daily number of uses per user
- The minimum daily average number of uses for a user
- The daily minimum number of uses for a user that used the window
- The daily maximum number of uses for a user

AAF

- Top 10 of the most used AAF
- The total number of uses per AAF
- The number of users that used it at least once
- The use rate
- etc.



CLOUD



040 new feature WD WB WM

SHARE A TRANSLATION DICTIONARY IN THE CLOUD

As you know, WINDEV, WEBDEV and WINDEV Mobile allow you to develop for the cloud (see www.pcscloud.net). Projects can be stored and handled in the cloud. In version 21, you can store the WDMMSG translation dictionary (separate module) in the cloud in order to update it in real time and share it among multiple teams or translation agencies.

Benefit provided by this version 21 new feature:
Translate faster

041 new feature WD WB WM

TELEMETRY IN THE CLOUD

Telemetry data can be stored and aggregated in the cloud. In this case, you don't have anything to do!

Benefit provided by this version 21 new feature:
Hurrah for the cloud!

ENVIRONMENT

042 new feature WD WB WM

4K DISPLAY SUPPORT FOR DEVELOPERS

4K definition screens (ultra-high definition, 3,840 x 2,160 pixels) are getting here. Apple also offers high-end resolution on its hardware (from 2,048 x 1,536 to 5,120 x 2,880 at the time this document is being created). The development environment of version 21 has been adapted in order to support screens with such high resolution.



Benefit provided by this version 21 new feature:
The environment is optimal regardless of the screen type.

043 new feature WD WB WM

THE PROJECT EXPLORER SMARTS UP!

In version 21, the project editor stores the elements used at the time it is closed.

This is a nice little new feature that will make your day better! Among the stored elements, you'll find:

- The expand/collapse state at the closing/opening of the project
- As well as the project recompilation.
- Store the selected element
- ...

Benefit provided by this version 21 new feature:
No need to do a «walk through», you find your environment in the same state you left it!

044 new feature WD WB WM

CONFIGURATION OF PROJECTS: ELEMENTS DISPLAY WHICH CONFIGURATIONS USE THEM

In version 21, for a given element (window, report, procedure, class), a new menu option lets you list the configurations that use the element.

From this list, you can even include or exclude the element from various configurations.

Benefit provided by this version 21 new feature:
You know which configurations use what.

045 new feature WD WB WM

CONFIGURATION OF PROJECTS: USEFUL NEW FEATURES

In version 21, the project configurations offer new functionalities that you'll use everyday.

- configuration duplication
- change the configuration type (component, EXE, web service, ...)
- modification of the presentation order of the configurations in the editor treeview.

Benefit provided by this version 21 new feature:
No more back-and-forth.

046 new feature WD WB WM

ENTER MULTILINGUAL STATIC CONTROLS: NEW, CLEARER INTERFACE

As you know, WINDEV, WEBDEV and WINDEV Mobile let you develop an application in 64 different languages. Entering static controls and messages into the various languages is done via the additional program WDMSG, or directly in the window editor.

Among the new features of the multilingual entry, you benefit from the following functionalities:

- cleaner interface: only one scrollbar, less intrusive ribbon, popup menu...
- copy all the languages of a text in a single operation
- paste all the languages of a text in a single operation
- for a control, copy text from one language into all the other languages (useful to avoid empty controls when all the texts haven't been translated yet); this behavior can be set as a default
- not visualize the input area of one or more languages
- the text is automatically edited in the editor corresponding to its format: Text, RTF, HTML ...
- RTF or HTML text written in white appears on a colored background
- ...

Benefit provided by this version 21 new feature:
Easier foreign languages ...

047 new feature WD WB WM

CUSTOM LANGUAGES: «I AM NOT A NUMBER»!

The various editors let you enter static controls in multiple languages.

48 standard languages are offered by name.

You can also use 16 unlisted languages.

In older versions, these languages were displayed as «Language1», «Language 2» etc.

This didn't make reading your code any easier!

In version 21, you can now name a language. For example: Breton, Catalan, ... or Large Distributors, Hairdressers, Agency ...

Indeed, the ability to translate the static text in an application is also used by software editors to customize the vocabulary used in the interface based on the user profile!

Benefit provided by this version 21 new feature:
More meaningful names.

048 new feature WD WB WM

LANGUAGES: YOU CHOOSE THE DISPLAY ORDER OF THE LANGUAGES

In version 21, you can modify the display order of the languages in the project description.

The languages appear then in this order in all the multilingual edit controls of the environment.

Benefit provided by this version 21 new feature:
Your own order.

INCREDIBLE COMPATIBILITY WITH PREVIOUS VERSIONS

WINDEV 21 respects your existing assets.

No migration phase needed between WINDEV 7.5, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19 or 20 and WINDEV 21: all you have to do is recompile the application for it to work in version 21.

Going from WEBDEV 7, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19 or 20 to WEBDEV 21 is also very easy.

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

A version 21 directly opens a 7.5, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19 or 20 project.

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



GO: RERUN THE SAME GO IN ONE CLICK

When a developer performs a GO operation on an element, he may end up in a different section of code: modification of the code of a global procedure, modification of a class ...

Rerunning the GO operation on the original element after this modification could be tedious.

In version 21, to rerun a GO operation on a window that is not displayed anymore because you moved inside the code, a single click is all it takes!

Benefit provided by this version 21 new feature:
Less clicks.

DISCOVER UNSUSPECTED SHORTCUTS: ALT ENTER, SHIFT F2 ...

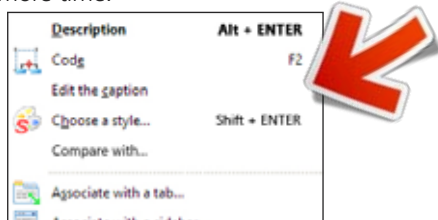
Keyboard shortcuts (function keys or key combinations) save you time and efforts every day.

Do your developers know about **Alt Enter**? This shortcut opens the 7-tab window.

And **Shift F2** on a procedure name? It opens the window that lists all the calls to the procedure. And **SPACE**?

In version 21, these shortcuts are specified in all the displayed menus.

This for sure will help you discover some unexpected shortcuts and save a little more time.



Your developers know their shortcuts

Benefit provided by this version 21 new feature:
Each known shortcut saves you time.

NEW: CONTROL DIFF

In version 21, you can compare 2 controls and display their differences...

The controls can be located in the same window, or in 2 different windows.

Benefit provided by this version 21 new feature:
Makes playing the 7 difference game easy!

PROJECT DIFF: NEW FEATURES

In version 21, the project diff lists all the modifications of the

language parameters: separator, date format, etc. The configuration generation folders are also compared.

Benefit provided by this version 21 new feature:
Find all the differences (there are often more than 7 ...)

SEARCH HAS BECOME EVEN MORE POWERFUL: COMPOSE A SENTENCE IN NATURAL LANGUAGE!

In version 21, a new search option lets you find out all elements (of a data type control for instance) that have very specific characteristics.

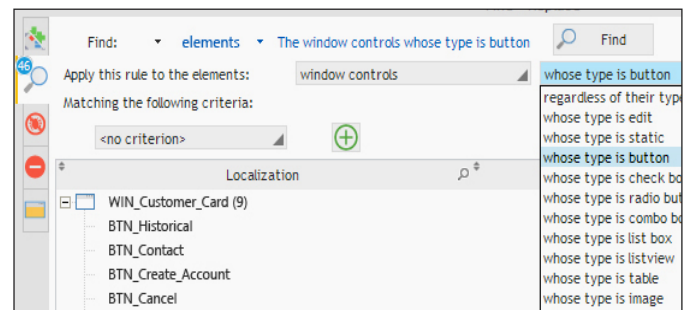
The interface lets you create a sentence in natural language to start the search.

For example:

«Find all the elements that use the `ShippingCost` component»

or

«Find the buttons that validate the window»



An even more efficient search

Benefit provided by this version 21 new feature:
Seek and you shall find!

RIBBON EVOLUTION

The environment ribbon evolves.

For example, the ribbon now offers to view and select the styles applicable to a control in a style pane.

Benefit provided by this version 21 new feature:
An even richer ribbon!

SKIN TEMPLATE GENERATOR: CREATE YOUR OWN SKIN TEMPLATES

Development teams that have design expertise sometime want to be able to create their own skin templates.

In version 21, a skin template generator is provided.

This makes it easier to create your own skin templates.

Benefit provided by this version 21 new feature:
Create your own skin templates.

BETTER SKIN TEMPLATE STORAGE

in version 21, skin templates are better organized. The images used are stored in a specific sub-directory for instance. The project is better organized.

Benefit provided by this version 21 new feature:
Less pollution.

IMPROVED NAVIGATION BETWEEN OPEN ELEMENTS (CTRL TAB)

The Ctrl + Tab key combination lets you navigate between the open windows.

In version 21, visualization is modernized.

Benefit provided by this version 21 new feature:
It's better ...

PROJECT MONITORING CENTER

PROJECT MONITORING CENTER: ORGANIZE YOUR TEAM'S TASKS DIRECTLY FROM THE GANTT DIAGRAM

The Project Monitoring Center lets you display a Gantt diagram of the current projects.

In version 21, it becomes possible to interact with this diagram using your mouse:

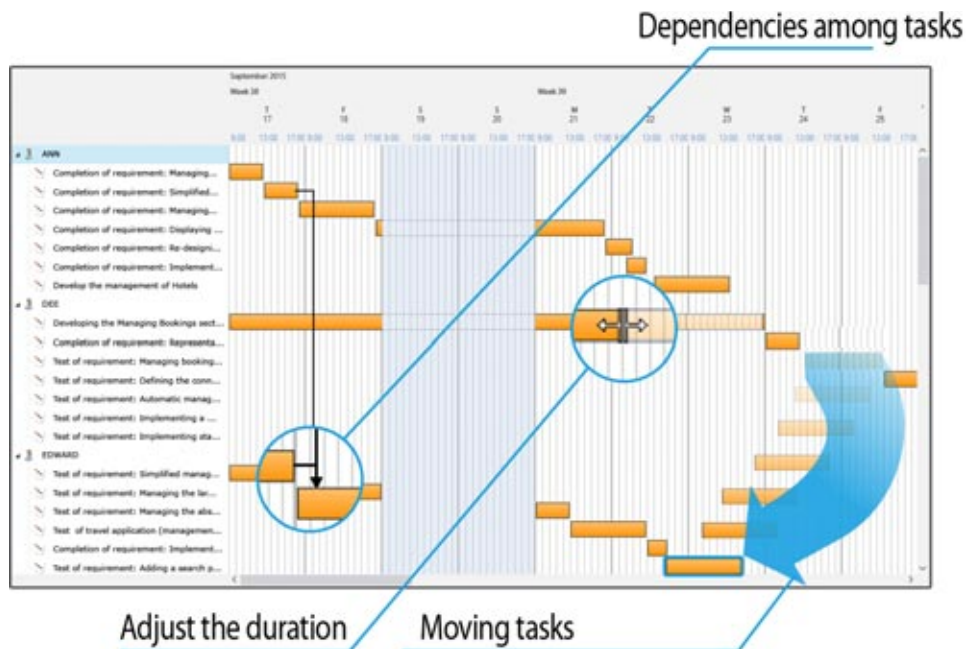
- move tasks
- adjust a task's length (shorten, lengthen)
- assign a task
- specify/modify the tasks' dependencies
- ...

This also allows you to easily perform simulations.

A Gantt diagram can cover one project or a set of projects.

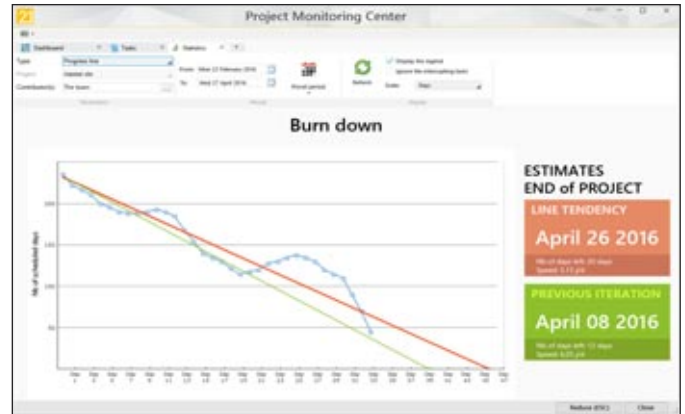
Benefit provided by this version 21 new feature:

Easily organize tasks.



PROJECT MONITORING CENTER: BURNDOWN CHART: ESTIMATE THE REAL END-OF-PROJECT DATE

The «Statistics» tab of the Project Monitoring Center offers new information: the project Burndown chart (Agile terminology).



Taking into account the real parameters, the end date is estimated to April 26 here

There is one curve and 2 trending lines in the window.

The curve represents the planned workload.

The number of planned days evolves with the project.

The real development speed is impacted by «reality», i.e.: meetings, webinars, training, debugging older apps, forgotten tasks, absences ...

The first trending line displayed represents the curve's trending. Therefore this trending indicates the theoretical end date of the project (or iteration).

The second trending line represents the trending taking into account past projects performance (you can choose one or more reference projects).

Thanks to version 21, you can estimate your project's delivery dates better.

Benefit provided by this version 21 new feature:
The end is in sight

060 new feature WD WB WM

NOTIFICATIONS FROM THE PROJECT MONITORING CENTER ARRIVE IN YOUR INBOX



Reminder: automatic notifications are generated by the environment for specific events (everything can be configured).

- a bug report author is notified when the bug is closed
- when a task is done, a notification is sent to everybody who has tasks depending on the completed task
- report on the continuous integration (action plan pass)
- monitoring robot notifications
- notifications by the HFSQL database servers
- SCM message: check-in...
- ...

These notifications are sent to the team member by email. The WINDEV 21 environment offers a secure and integrated messaging system. This messaging system lets you communicate confidentially (and without spams!) among team members.

In version 21, a «classic» Internet messaging system can also be used to receive notifications.

Benefit provided by this version 21 new feature:
Be notified in your regular email system.

061 new feature WD WB WM

DEPENDENCIES AMONG TASKS

Version 21 lets you define dependencies among tasks:

- one or more tasks indicate that they can't start until another or several other tasks have completed.

The Gantt diagram takes these dependencies into account, and won't let you schedule tasks depending on other tasks before the other tasks have completed.

When a task that was blocking other tasks has completed, an automatic notification is sent to the relevant developers (via the internal messaging system, if this mode has been activated).

Benefit provided by this version 21 new feature:
Dependencies among tasks are taken into account.

062 new feature WD WB WM

PROJECT MONITORING CENTER: PRINT GANTT CHARTS

Gantt chart printing comes back in version 21. Multi-page printing is more sophisticated. You can specify the granularity of the grid, the visible time frame, ... Dependencies among tasks are printed.

Benefit provided by this version 21 new feature:
Gantt will impress you all over again.

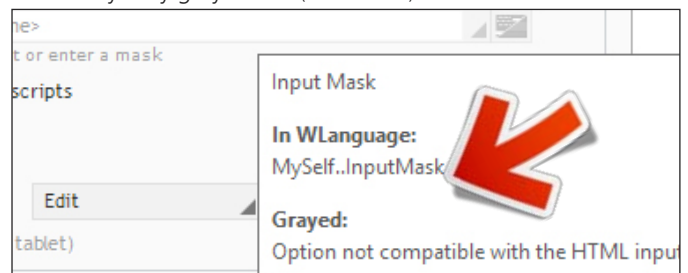
WINDOW EDITOR

063 new feature WD WB WM

7-TAB TOOLTIP

The tooltip is cleaner, and display additional information:• the description of the option

- the property corresponding to the WLanguage action (if relevant)
- multilingual values (if relevant)
- for the inaccessible options that appear grayed out, the reason why they grayed out (if relevant).



A more informative and cleaner looking tooltip

Benefit provided by this version 21 new feature:
Tooltips that carry a lot more information.

064 new feature WD WB WM

TABLE/COLUMN DESCRIPTION

In the menu opened by a right click on a table, you now have the ability to open the 7-tab window of the clicked table or column.

Benefit provided by this version 21 new feature:
Fewer operations.

065 new feature WD WB WM

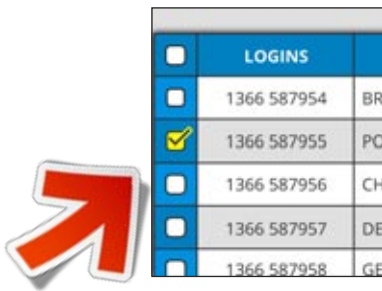
CONTROLS AND COLORS: CHOOSE THE COLORS OF THE SKIN TEMPLATE

The color selector available in the window editor offers, in addition to the usual modes, the ability to choose colors among the ones from the current skin template. This allows you to have a more stylish interface.

Benefit provided by this version 21 new feature:
Use the right colors!

066 new feature WD WB WM

APPLY A STYLE TO A «CHECK BOX» TYPE TABLE COLUMN



A custom column: the background of the check mark is green

In version 21, you can configure in details the style of the «check box» type table columns.

Benefit provided by this version 21 new feature:
Very custom tables.

067 new feature WD WB WM

VARIOUS NEW FEATURES OF THE WINDOW EDITOR

An image under the editor has an integrated thumbnail that represents its display mode. In version 21, you have the ability to not display this thumbnail (via the «7-tab»).

Benefit provided by this version 21 new feature:
More granular configuration.

21

Easily recompile your applications in version 21 and make your users benefit instantly from:

- Customization of the UI
- Repositionable note control
 - Tooltip
- Print spreadsheet and Cube worksheet
 - Window zoom

Imagine the instant benefit for your users and customers!

And for yourself, you benefit from the Telemetry feature to analyze the actual use of your applications.

Quickly switch to version 21!

REPORT EDITOR

068 new feature WD WB WM

CREATE A CUSTOM REPORT BASED ON AN ROLAP CUBE (PVT)

This new type of report in version 21 lets you print the content of a PVT control.

A source report is generated.

You can specify whether the printed cube must represent the cube fully expanded, fully collapsed or as it is shown on the screen.

The style of the cells is by default the one of the control, but each cell can be overloaded.

The multipage option is supported in width and height; Overlapping margins can be configured.

Benefit provided by this version 21 new feature:
A cube printed without any programming.

069 new feature WD WB WM

CREATE A CUSTOM REPORT BASED ON A SPREADSHEET



This new control in version 21 lets you print the content of a Spreadsheet control or an .xls or .xlsx file.

The style of the cell is by default the one of the control or file, but each cell can be overloaded.

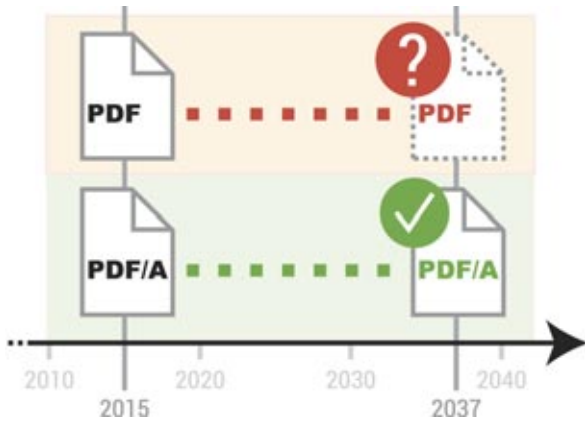
Multi-page printing is supported in width and height; overlapping margins can be configured.

You also have the ability to request that the control be automatically zoomed out so it fits on a single page.

Benefit provided by this version 21 new feature:
The spreadsheet prints on its own!

070 new feature WD WB WM

REPORT: A PDF THAT WILL LOOK THE SAME WHEN PRINTED 30 YEARS FROM NOW! (PDF/A)



PDF/A is a standard ISO format PDF. This type of PDF embeds in the PDF all the elements needed to display it or print it: for instance, all the fonts are embedded. This format is used for long term archiving.

In version 21, a new option is introduced to generate PDF/A.



The PDF/A format is a subset of the PDF format. For example, transparency is not allowed.

The WINDEV report editor guides the developer about the restrictions of the PDF/A format. If needed, compilation errors flagging what is not supported in a PDF/A are generated.

You can also sign PDF/A files (see new feature 071).

Benefit provided by this version 21 new feature:
PDFs set in stone!

072 new feature WD WB WM

REPORT WITH PDF FORM IN THE BACKGROUND: BETTER QUALITY (VECTOR)



The quality of the form is impeccable

A report can use a PDF as background.

The most common example is a government agency PDF: tax forms, ID card request, accounting form ...

The PDF is provided by the relevant administration agency. In version 21, the report editor optimizes the use of these PDF in the background when the report itself is generated in PDF (PDF as PDF background!)

The background PDF now uses a vector format.

There is no quality loss when zooming and the final size is often smaller.

Benefit provided by this version 21 new feature:
Sharp PDFs inside PDFs ...

071 new feature WD WB WM

A REPORT FOR THE LEGAL PROFESSION: SIGNED PDF

There are two types of signature for PDF reports: signatures for approval and signature for certification.

Version 21 supports both types of signature.

A new signature control is being introduced for approvals. It lets you include a digital signature in the report, for the PDF export. You can define the image or the text to display in this signature control, which will appear in the PDF report.

The choice of the digital certificate to use for the signature is done in the editor or via programming.

You can also add a signature to the printout programmed using the `iPrintSignature` function.

Benefit provided by this version 21 new feature:
Sign your PDF.

073 new feature WD WB WM

REPORT: NON-MODAL 7-TAB WINDOW

In version 21, you can open several 7-tab windows at the same time in the report editor.

This enables you to compare controls, do copy/paste operations ...

You can click the «Apply» button to see the instant effect of your modifications without closing the 7-tab window.



Two 7-tab windows open at the same time; you can make comparison, copy/paste ...

Benefit provided by this version 21 new feature:
Freer editing.

REPORT: QUICK CONTROL EDITING



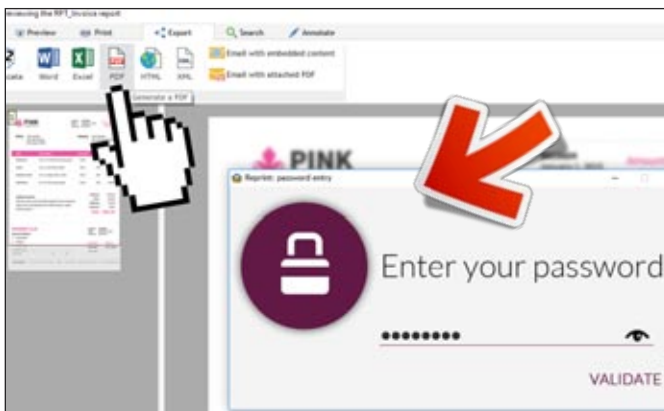
An additional popup menu lets you quickly edit controls in the report editor

A recurring task when creating and modifying reports is text formatting. To make this task easier, the report editor in version 21 offers a quick control editing mode. This mode is activated via the popup menu or using the «R» keyboard shortcut. The most common actions are offered in a popup window.

Benefit provided by this version 21 new feature:
Faster control editing.

print job. This code enables you to define custom processes:

- request of a password for actual printing
- request of the quality level for a PDF to generate
- be sure that the client has actually printed for legal reasons
- remove a black background or an image background in order to conserve the print cartridges
- ...



After clicking a PDF export button, a window request a password

Benefit provided by this version 21 new feature:
Master the printing process, even from the preview.

REPORT: VISUAL SCROLLBAR

In a large size report, with a large number of blocks, a vertical scrollbar may come up. In version 21, the scrollbar shows a miniature version of the report to be able to navigate better.

Benefit provided by this version 21 new feature:
Faster positioning.

REPORT: MODIFYING THE PRINT JOB FROM THE PREVIEW

A report can be printed directly from the application (process without interface or using a button click for instance). A report can also be printed by the end user after it has been viewed in the preview window. In version 21, a new process (pcode) is being introduced in reports: **Reprint**. It becomes possible to enter code that will be executed before starting an export or a



077 new feature WD WB WM

HTML EXPORT FOR REPORTS: BETTER BORDER RENDERING

A report can be printed in HTML.

The rendering of the borders around the controls has been improved in version 21.

The rendering takes no new parameters into account now: line style, thickness, dashes ...

Benefit provided by this version 21 new feature:
Better borders.

DATA MODEL EDITOR (DATA DIAGRAM)

078 new feature WD WB WM

ANALYSIS SCM (DATA DESCRIPTION): STORAGE SIZE DIVIDED BY 100!

For developers and teams that use SCM, the amount of disk space taken by the data model and its history is drastically reduced!

For the insiders, it is the end of the «ANAxXX» directories that were created with each generation.

These directories are used to keep the older versions of the analysis.

When an analysis is stored via SCM, these backup files become useless.

This is because SCM keeps the entire project's history, and optimizes it.

In version 21, these «ANAxXX» directories are not generated when the analysis is managed via SCM.

Benefit provided by this version 21 new feature:
Less directories and files stored on disks.

079 new feature WD WB WM

SCM ANALYSIS LABELING

In version 21, each time the analysis is generated, SCM automatically labels the corresponding data model in the database. This makes it easy to know with which version of the analysis has been used to create an application.

Benefit provided by this version 21 new feature:
A transparent history.

080 new feature WD WB WM

CONNECTION LIST DISPLAYED

For faster access, the list of connections described in the analysis comes up in the analysis treeview.

Benefit provided by this version 21 new feature:
Quick access.

QUERY EDITOR

081 new feature WD WB WM

BETTER PARAMETER NAMING

When you define a selection condition, the value to test can be provided as a «hard» value or as a parameter.

The default naming of this parameter evolves to take the name of the item used in the condition.

No more «param1, param2, param3»!

Benefit provided by this version 21 new feature:
More readable code.

082 new feature WD WB WM

EVOLUTION OF THE VISUAL INTERFACE

The query editor lets you view a query graphically.

In version 21, when the query is modified, the diagram is updated and keeps the presentation modifications.

A button lets you reinitialize the diagram.

Benefit provided by this version 21 new feature:
Your choices are kept.

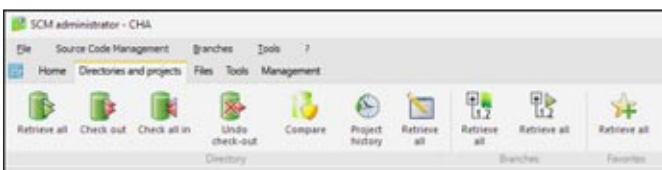


SCM (TEAMWORK)



083 new feature WD WB WM

ADMINISTRATOR LOOK OVERALL FOR BETTER USABILITY



In version 21, the SCM administrator is revamped and now includes a ribbon.

The functionalities are easier to find and use.

Benefit provided by this version 21 new feature:
SCM is better looking (and more practical)!

084 new feature WD WB WM

SCM AND COMPONENT

In order to increase the SCM speed and to lighten up operations when updating components, the number of checkouts has been reduced.

Benefit provided by this version 21 new feature:
SCM is faster.

085 new feature WD WB WM

SCM: AUTOMATIC PROJECT CHECK-IN

When a developer performs a modification on the project, WINDEV automatically offers to check out the project in order to perform the modifications.

You then need to validate the check-in once the operation is done.

In version 21, an option allows for the check-in to be done automatically, without confirmation.

Benefit provided by this version 21 new feature:
Simplified operations.

CONTINUOUS INTEGRATION (SOFTWARE FACTORY)

086 new feature WD WB WM

SOFTWARE FACTORY: IN WLANGUAGE

Thanks to the new WLanguage function, `ActionPlanInfo`, it is now possible to retrieve via programming a lot of information about the execution of the action plan in the software fabric. Among the information that can be retrieved, you'll find: status code, user who started the action plan, machine, start and end time, progress ...

Coupled with the `ActionPlanExecute` function, this new feature makes possible the control of the software fabric and the retrieval of the compilation results.

Benefit provided by this version 21 new feature:
Query the Software Fabric from an external application.

087 new feature WD WB WM

NEW ACTION: GENERATING THE HELP

The continuous integration (Software Fabric) now lets you automate the generation of the application's help.

Benefit provided by this version 21 new feature:
No forgetting the help anymore!

WDMMSG (AUTOMATED TRANSLATION SOFTWARE)

Reminder: WDMMSG is an optional tool of WINDEV, WEBDEV and WINDEV Mobile used to industrialize the translation of projects. Its dictionary automatically learns from the translations already performed.

088 new feature WD WB WM

NAMING LANGUAGES

Languages are not numbers anymore!
WDMMSG now uses names for additional languages.

Benefit provided by this version 21 new feature:
Less risk of confusing two languages.



089 new feature WD WB WM

CONDITIONAL TARGET-CODE: DECLARE IT DIRECTLY IN THE CODE

Conditional target-code lets you define sections of code that will be executed based on the platform on which the application is running: in Windows, Linux, iOS, Android ... Until now, conditional target-code was only declared in the visual interface of the code editor. In version 21, conditional target-code can also be declared directly in WLanguage in the source code, using this new syntax:

```
<COMPILE IF ConfigurationType=Android>
StartAndroidProcess()
<ELSE>
ToastDisplay(«Not available»)
<END>
```

Other new feature: the code that will not be executed will not generate compilation errors.

Benefit provided by this version 21 new feature:
Simplified declaration.

090 new feature WD WB WM

NEW CONDITIONAL TARGET-CODE: EVEN TARGET THE CONFIGURATIONS!

In version 21, it is also possible to execute a section of code based on the project's configuration. Simply use the following syntax:

```
<COMPILE IF Configuration="MyConfiguration">
...
<ELSE>
...
<END>
```

Benefit provided by this version 21 new feature:
Even more flexibility in the compilation of your projects.

091 new feature WD WB WM

NEW CONDITIONAL TARGET-CODE: VARIATION BASED ON THE COMPILATION DIRECTIVE CONSTANTS

Other new feature of the conditional target-code in version 21: you can now take into account a section of code based on the

value of a constant.

This new feature enables you for instance to configure the positioning of an internal component based on the project that uses it.

The syntax for this type of target-code is:

```
<COMPILE IF Constant=Value>
...
<ELSE>
...
<END>
```

Benefit provided by this version 21 new feature:
Even more precision when compiling your projects.

092 new feature WD WB WM

THREADS: AUTOMATIC PROTECTION OF THE VARIABLE ACCESS

The programming of threads required you to take precautions in order to prevent two threads from accessing the same variable at the same time.

This control was often performed via "Critical sections" and required a lot of skills from the developer in order to avoid creating deadlocks.

With version 21 this is all in the past! (still compatible though). The protection of variables inside a thread becomes automatic in version 21.

Simply use the new <Critical Section> attribute when declaring the variables to protect.

The <Critical Section> attribute specifies to the WLanguage that access to this variable will be protected against thread conflicts: if a second thread tries to access a variable already used in a current thread, this thread will be automatically made to wait.

For race conditions on arrays and associative arrays, a new syntax for <CriticalSectionStart> lets you claim exclusive access to the concerned array variable.

Benefit provided by this version 21 new feature:
The code is automatically more secure.

093 new feature WD WB WM

COMPRESSION OF MEMORY STRINGS INTO GZIP FORMAT

The «gzip» format is a very common and standard compression format.

This format is often used to exchange data between third-party applications.

In version 21, you can now compress or decompress a data buffer or a character string in «gzip» format (not only a file anymore).

The <Compress> and <Uncompress> WLanguage functions work on buffers and strings.

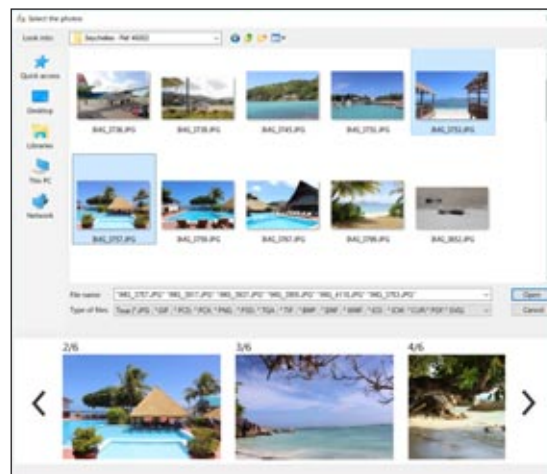
Benefit provided by this version 21 new feature:
Compact strings.

TAR AND TGZ ARCHIVING FORMAT

The TAR (Tape Archive) format is a file archiving format very popular in the Linux world. It is used to gather several files in a single archive (one large file).

Its TGZ (TAR.GZ) variant performs a GZIP compression in addition. In version 21, the WLanguage file compression functions (`zip` function family) gain additional functions to support these two new archive formats.

Benefit provided by this version 21 new feature:
Better compatibility with Linux.



Benefit provided by this version 21 new feature:
Increased user friendliness.

FOLLOW THE COMPRESSION AND DECOMPRESSION PROGRESSION (ARCHIVES)

In version 21, all the functions that compress or decompress files can automatically display a progress bar.

The end user can follow the operations' progress!

This progress bar concern the following operations: compression, decompression, adding files, deleting, splitting archives, grouping archives ...

When requested the progress bar is automatically displayed. You can also customize the display of the progress bar using a procedure.



Benefit provided by this version 21 new feature:
Display your archives' progression.

SELECTING IMAGES: MULTI-SELECTION

To offer the selection of an image from the drive of an application, the `fImageSelect` function opens a dialog box that displays the images on the machine.

In version 21, the visual image selector allows multiple selections.

You can then select multiple images at the same time in an application while continuing to benefit from the selector's preview feature.

HTTP REQUESTS: CONNECTION TIME-OUT

In version 21, you can specify a specific timeout for connections during HTTP requests.

The new `..ConnectionTimeout` property of the `HTTPRequest` WLanguage advanced type is being introduced.

Benefit provided by this version 21 new feature:
Control your HTTP request more finely.

HTTP REQUESTS: NO SPEEDING

When fine tuning an application that performs HTTP requests, it is sometime useful to simulate a slow network to make sure the application responds properly in a real or degraded environment.

The new `HTTPSimulateNetwork` function lets you limit the transfer speed, for incoming or outgoing transfers.

Benefit provided by this version 21 new feature:
Easily simulate a slow access.

NUMERIC VALUE FORMATTING: CHOOSE THE SEPARATORS

The `NumericToString` WLanguage function evolves in version 21.

`NumericToString` now lets you specify the separation character to use for the thousand and decimal places.

The characters offered are:

- the comma
- the point
- the space
- the character defined by the operating system,
- the character defined in the project.

Benefit provided by this version 21 new feature:
Always well formatted numbers.

100 new feature WD WB WM

ASSOCIATE AN APPLICATION WITH A FILE EXTENSION

When an end user double clicks a file in Windows Explorer, the application that uses this type of files starts (or Windows offers to choose an application to open the file).

Thanks to the new `SysLinkExtension` WLanguage function, you can now associate a file extension with an application that must be automatically started.

Benefit provided by this version 21 new feature:
The relevant application automatically starts.

101 new feature WD WB WM

COUNTRY LIST AND ISO CODE

The new `GetCountryList` WLanguage function returns the list of countries in the world as well as their ISO code

Benefit provided by this version 21 new feature:
Useful to fill a combo box with a choice of countries.

102 new feature WD WB WM

VARIOUS NEW WLANGUAGE FEATURES

The `TableEnumColumn` function automatically returns a `Control` type. There is no need for indirection anymore. The old syntax is still available of course.

The new `Point` and `Rectangle` types are available.

Benefit provided by this version 21 new feature:
Additional new features.

ICALENDAR



103 new feature WD WB WM

WHAT IS ICALENDAR USED FOR? TO SHARE CALENDAR INFORMATION

iCalendar is a RFC standard (RFC5545) to exchange calendar data.

A text file (`.ics` extension) contains the appointment details. This file lets you easily exchange calendar info between applications: for example I export the calendar info from a WINDEV application and I import it directly into Outlook (and vice versa). Version 21 lets you easily read and write data in an iCalendar type file.

Benefit provided by this version 21 new feature:
A known standard for exchange calendar information.

104 new feature WD WB WM

IMPORTING APPOINTMENTS INTO A SCHEDULER TYPE CONTROL

The new `iCalendarToScheduler` and `iCalendarToOrganizer` WLanguage functions let you directly display an iCalendar file in a WINDEV, WEBDEV or WINDEV Mobile Scheduler or Organizer, and even in reports.

The new `iCalendarToAppointment` WLanguage function lets you retrieve all the appointments found in an iCalendar file. This function reads the file's content and returns an `Appointment` type array (native WLanguage type) filled with the data from the file.

It is then easy to manipulate this array of appointments via programming to display the appointments directly in an Organizer control, or to save the appointments into a database.

Benefit provided by this version 21 new feature:
Easily import appointments from Google, Outlook, ...

105 new feature WD WB WM

EXPORT ONE OR MORE APPOINTMENTS FROM A SCHEDULER CONTROL

The new `SchedulerToiCalendar` and `OrganizerToiCalendar` WLanguage functions let you directly export a WINDEV Mobile (or WINDEV, WEBDEV) Scheduler or Organizer.

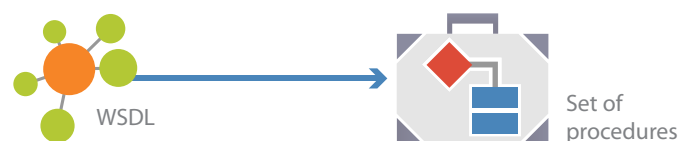
The new `AppointmentToiCalendar` WLanguage function lets you automatically generate an iCalendar type file from a given array of Appointments.

Benefit provided by this version 21 new feature:
Easily export appointments.

SOAP WEB SERVICES

106 new feature WD WB WM

CREATING A WEB SERVICE: YOU GET THE WSDL FILE, YOU GENERATE THE SET OF PROCEDURE IN 1 CLICK!



Creating a Web service in WINDEV (or WEBDEV) is very easy. It's even easier in version 21, with the automatic generation of the set of procedures from a WSDL file.

Reminder: a WSDL file contains the description of the structures and entry points of the Web service: it's the «specifications» of the Web service.

When you need to program a Web service, simply request the WSDL file and let WINDEV (or WEBDEV) do the work for you!

Benefit provided by this version 21 new feature:

Easy creation of Web services.

107 new feature WD WB WM

RETURN MULTIPLE VALUES

A Web service can return multiple values.

In version 21, this is made easier.

Benefit provided by this version 21 new feature:

Expanded support for the SOAP standard

108 new feature WD WB WM

TESTING THE CALL TO A WEB SERVICE WITH LOW SPEED (3G, EDGE, ...)

In test mode, you can slow down the data transfer to simulate a 3G or Edge connection or a specific speed. ([HTTPSimulateNetwork](#) function).

This function lets you test a Web service in degraded conditions.

Benefit provided by this version 21 new feature:

Simulate!

109 new feature WD WB WM

CONTROL THE REQUEST TIMEOUT

In version 21, you can specify a timeout for the requests during SOAP requests.

The new `..Timeout` property is being introduced for this purpose.

Benefit provided by this version 21 new feature:

Keep control!

AUTOMATIC TEST EDITOR

110 new feature WD WB WM

RUN YOUR TESTS AT LOW SPEED

The test editor lets you create automatic and unit tests that will be replayed at high speed.

In version 21, you can request for the tests to be run at lower speed.

This lets you check the application's behavior on the screen, and not just make sure it's running properly.

Benefit provided by this version 21 new feature:

if you want to see what's going on ...

WITH WINDEV 21,
THE WEBSERVICE IS INCLUDED!

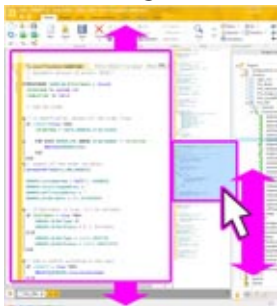


CODE EDITOR

111 new feature WD WB WM

VISUAL SCROLLBAR: NAVIGATE BY SIGHT!

In version 21, a new way of moving around your code is being introduced. The right (or left) side of the code editor displays the code in reduced size. The active visualization window is shown. And the movement of the small visualization window also moves the content of the code editor. This mode of movements brings precision, speed and comfort when scrolling.



This mode also offers a preview of all the code. For example, all the procedures of a set of procedures or all the methods of a class are displayed.

Benefit provided by this version 21 new feature:
Assisted navigation.

112 new feature WD WB WM

ASSISTED «SWITCH» EDITS ON ENUMERATIONS

The code editor in version 21 now offers assisted entry for **SWITCH** statements with an **ENUMERATION** type variable. The code editor generates all the **CASE** statements with all the possible values of the **ENUMERATION**. Small feature but very useful when handling **ENUMERATION**!

```
Global procedure DisplayStatus * If Error: by program
PROCEDURE DisplayStatus(CurrentStatus is RobotStatus)
SWITCH CurrentStatus
CASE Operate
CASE Stopped
CASE Maintenance
CASE Broken
END
```

Benefit provided by this version 21 new feature:
No more forgetting a case!

113 new feature WD WB WM

OUT OF CONFIGURATION ELEMENTS: GRAYED CODE

When opening an element out of configuration, its code is grayed. This makes it obvious that it is not compiled, and that it doesn't belong to the current configuration.

Benefit provided by this version 21 new feature:
Caution, this code doesn't belong to your current configuration!

114 new feature WD WB WM

AUTOMATIC GENERATION OF COMMENTS

When creating a procedure, an option is now available to activate or not the automatic generation of the prototype comment for the procedure.

This option is stored.

This option satisfies the 2 schools of thoughts:

- the school that doesn't want a bunch of comments on top of the prototype, and that leaves it empty,
- the school that wants to the comments and fill them up.

Benefit provided by this version 21 new feature:
You have choices!

ENVIRONMENTAL POLICIES

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

NGO, which includes among others Greenpeace, Friends of the Earth and the WWF. For example printing 100,000 copies of a 68-page documentation on glossy paper consumes 10 trees: PC SOFT or the printer has 10 trees replanted immediately. Also, we favor pulp coming mainly from re-

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

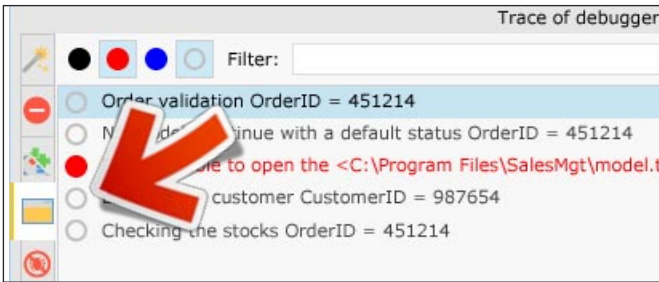


DEBUGGER

115 new feature WD WB WM

NEW TRACE WINDOW

In version 21, the debugger trace window evolves. On each line, the information type is represented by an icon. You can filter messages based on these icons. The details of the WLanguage errors are now displayed directly.



Benefit provided by this version 21 new feature:
A better trace.

116 new feature WD WB WM

PRECISE INFORMATION RETURN

The debugger in version 21 displays precise information on the application's fatal errors:

- name and version of the application
- element and process that triggered the error
- line of code that triggered the error
- name of the function or property (if relevant to the error)
- call stack
- complete error message
- author of the line of code
- ...

Benefit provided by this version 21 new feature:
Actionable information.

117 new feature WD WB WM

STRICT MODE

In strict mode, the debugger systematically stops on each error, whether it is fatal or not.

This allows you to detect the fatal errors that are hidden by `When Exception` code and to detect the silent non-fatal errors.

Benefit provided by this version 21 new feature:
Thorough debugging!

118 new feature WD WB WM

ANALYZING ERRORS THAT OCCURS AT THE CUSTOMER (DEPLOYED APPLICATIONS)

Thanks to the «Telemetry» new feature (WDAalytics) (see new features 027 to 039), it is now possible to retrieve debug dumps from deployed applications.

If a bug occurs, the debug dumps is automatically collected by the telemetry server.

The dumps open directly in the debugger, and are positioned on the line that triggered the error.

The call stack is displayed, and the content of the variables can be consulted.

Benefit provided by this version 21 new feature:
Easy asynchronous debugging of deployed applications.

119 new feature WD WB WM

DISPLAYING THE CONTENT OF THE CURRENT RECORD

The debugger can now display the content of a data file's current record.

Simply enter the name of the file in the display area of the debugger's variables.

You can even select the items to display.

Benefit provided by this version 21 new feature:
Easier debugging.

120 new feature WD WB WM

DISPLAYING THE COLORS IN COLOR!

The debugger displays the content of the variables.

When these are `color` type variables, the debugger doesn't only display the RGB values but also a rectangle with the corresponding color.

Benefit provided by this version 21 new feature:
See life in color!

XML



121 new feature WD WB WM

XML TYPE: XPath REQUEST, DIRECTLY

In version 21, the `XMLExecuteXPath` function can also directly accept an `XML` type variable as parameter.

The benefit of the native function is that you can process an entire document in one path, and therefore get better performances.

Benefit provided by this version 21 new feature:
Clearer code and better performances!

AUDIT FOR OPTIMIZATION



122 new feature WD WB WM

STATIC AUDIT

The static audit analyzes your projects and provides suggestions for improvements.

The WINDEV editor comes in 32-bit and 64-bit mode.

Often people use the 32-bit version of the WINDEV editor.

When a project reaches a consequent size (1,000+ elements), using the 64-bit version improves the editor's performance.

The static audit points this out in version 21.

The .cp1 directory contains the project compilation information. When this directory is located on a network drive the editor's performance may slow down.

The static audit in version 21 flags these directories and recommend to store them on a local drive.

Benefit provided by this version 21 new feature:

The static audit also improves your performance in the editor.

HFSQL



123 new feature WD WB WM

CALCULATED ITEMS

Version 21 of HFSQL lets you define calculated items.

A calculated item is a «virtual» item from a data file.

For example, a CUSTOMER data file may contain a LASTNAME and FIRSTNAME item.

In version 21, you can declare a calculated item, FULL_NAME corresponding to the concatenation of LASTNAME and FIRSTNAME.

Another useful example: a data file contains a date of birth. A calculated item «AGE» can be defined to simplify processes.

A calculated item can be represented physically in a file, or not, as you wish.

Benefit provided by this version 21 new feature:
More flexibility for your data.

124 new feature WD WB WM

DEFAULT VALUES DEFINED VIA SQL CODE

When defining a data file (table) in the data model editor (data description), you can specify a default value for each item (column) of the data file (table).

Until now the possible default values were:

- NULL,
- a constant (integer, real, string, ...)

In version 21, it is now possible to specify an SQL formula as the default value.

This means you can initialize an item with the date or the name of the connected user.

This feature is also very useful for compatibility with third-party databases.

Benefit provided by this version 21 new feature:

More possibilities for your files.

Do I use calculated items or do I code myself?



AUTOMATIC DATETIME ITEM: TIME STAMP YOUR RECORDS

Version 21 offers a new type of item for HFSQL data files (tables): the **Timestamp** items.

A **Timestamp** item (column) is automatically initialized by the HFSQL database engine with the date and time of creation of the record (row) (or, at your choice, with the date and time of the last modification).

You can filter or search based on a **Timestamp** item.

Benefit provided by this version 21 new feature:

Accurate record timestamps.

HEXECUTESQLQUERY WITH SECURE PARAMETERS

The WINDEV query editor lets you graphically define queries on databases.

You can also directly enter queries in SQL language into code, using the **HExecuteSQLQuery** WLanguage function.

In version 21, the query entered directly accepts parameters.

These parameters are simply passed to **HExecuteSQLQuery**.

To protect the application against «SQL injection» type attacks, WINDEV automatically formats the parameters into SQL syntax.

Therefore an «Hacker» cannot use an edit control to modify the SQL code.

Benefit provided by this version 21 new feature:

Better security when using SQL directly.

PERFORMANCES: OPTIMIZED CACHE FILE MANAGEMENT

When stopping an HFSQL server or after a long period of idleness, the database engine's caches are emptied.

However these caches are very useful to improve the access performance of the database.

In version 21, the HFSQL engine automatically initializes the caches and maintains them in order to insure continued performance.

A new function allows you to empty the caches on demand.

Benefit provided by this version 21 new feature:

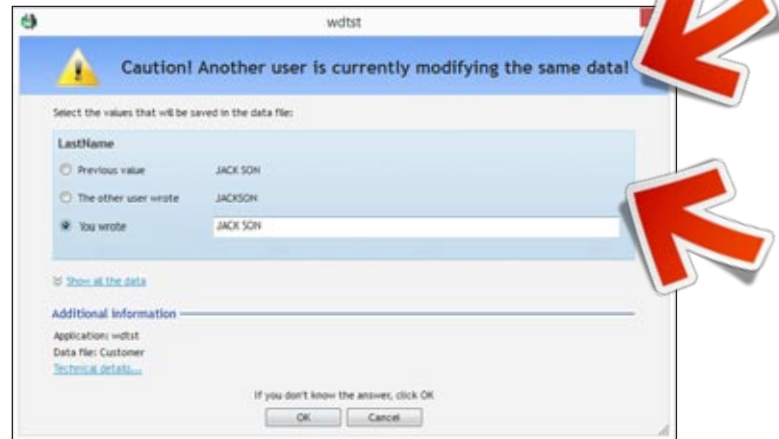
Searches that always perform well.

CLEARER AUTOMATIC ASSISTANCE WINDOWS

HFSQL offers automatic assistance windows for the end user.

These assistance windows enable the end user to process unexpected error cases: duplicate or modification conflict error for instance.

In version 21, the messages of these automatic assistance windows have been simplified.



Benefit provided by this version 21 new feature:

Better user experience for the end user.

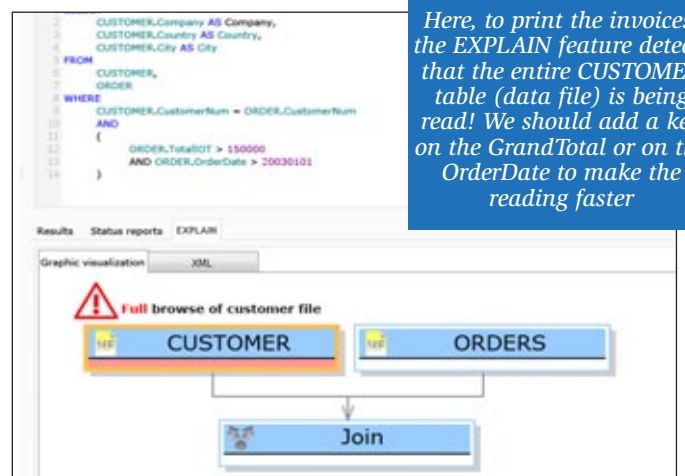
HFSQL CONTROL CENTER: A VISUAL «EXPLAIN»

The new **EXPLAIN** feature on an SQL query enables you to find out the specific operating process of the database engine on the analyzed query, using the actual data.

The **EXPLAIN** code indicates the indexes used for instance, and the reading order for the data.

This allows you to understand why in some special cases a query is not as fast as expected, and to redefine the indexes.

In version 21, the result of an **Explain** is presented visually.



This allows you to easily understand the detailed path of each query.

Benefit provided by this version 21 new feature:
Try it, you'll adopt it instantly!

130 new feature W D W B W M

HFSQL CONTROL CENTER: 64-BIT MODE

The 64-bit mode of the HFSQL Control Center lets you fully exploit the machines' memory. In this 64-bit mode, for instance, reindexing a data file in classic mode is faster. The use of third-party databases in 64-bit mode is also possible.

Benefit provided by this version 21 new feature:
Ability to exploit the full machine's power.

131 new feature W D W B W M

HFSQL CONTROL CENTER: SQL SERVER NATIVE ACCESS

The type of access to SQL Server (Dblib, SQLnCli ODBC, SQLnCli OLE DB) can be specified in the Control Center.

Benefit provided by this version 21 new feature:
Manage native SQL access from the HFSQL Control Center.

HFSQL CLUSTER

As you know, HFSQL has a «Cluster» version. This Cluster version can also be freely distributed with your applications developed using WINDEV, WEBDEV and WINDEV Mobile. The advantage of the cluster is to automatically distribute the storage and access to the data on several servers, and this way benefit from better response times, and better security. (For more information, please consult the HFSQL documentation).

132 new feature W D W B W M

SYNCHRONIZATION PROGRESS BAR

When a new machine is added to an existing cluster, it must of course get synchronized. This synchronization is completely automatic. In version 21, a progress bar lets you follow the synchronization's progress. Information about the synchronization progress can also be consulted in real time in the HFSQL Control Center.

Benefit provided by this version 21 new feature:
Better visibility into the HFSQL cluster status.

133 new feature W D W B W M

FREE TRANSACTIONS ON DEMAND

HFSQL Cluster takes care of everything! But a data administrator may want to free a transaction in progress on demand and instantly, especially during the testing phase: this possibility is now offered in version 21 of HFSQL Cluster.

Benefit provided by this version 21 new feature:
Debugging without interruption!

134 new feature W D W B W M

AUTOMATICALLY SEND A MESSAGE TO THE CLIENTS

The `HSendMessageToClient` WLanguage function lets you send a message to all the clients connected to a HFSQL server. This function may be used to warn users before a service interruption (cluster maintenance for example) or be managed by applications and used as a communication mechanism among applications. Starting with version 21, this WLanguage function is also available for the users of HFSQL Cluster.

Benefit provided by this version 21 new feature:
Spread the word ... in cluster too!

135 new feature W D W B W M

REINDEXING DATA FILE ON DEMAND

As you know, HFSQL Cluster automatically manages indexes. But a data administrator may want to reindex one or more data files: this possibility is now offered in version 21.

Benefit provided by this version 21 new feature:
Reindex on demand as well!

136 new feature W D W B W M

INCREASE THE DATABASE SPEED ON DEMAND (VIA INDEX OPTIMIZATION)

HFSQL Cluster takes care of everything. But a data administrator may want to start an index optimization to improve the read and write speed: this possibility is now offered in version 21.

Benefit provided by this version 21 new feature:
Optimization on demand!

BIG DATA



Version 21 of WINDEV lets you easily use Hadoop Big Data technology, directly in WLanguage.

137 new feature WD WB WM

HADOOP: DISTRIBUTED ARCHITECTURE



Hadoop is a framework allowing you to process massive amount of data using server clusters.

Hadoop is not a discreet piece of software, but rather a «concept».

Among the different programs that make up Hadoop there is HBase (the database proper), Hive (the query language) and HDFS (low level storage layer for files, which are always distributed).

The main concept in big data is that the storage architecture is massively distributed, usually over several hundreds if not thousands of servers.

Five machines (which can be virtual machines) minimum are required to set up a Hadoop database.

Big data architectures are scalable, which means that you can add more servers to scale applications.

Applications developed with version 21 natively access the Hadoop data clusters.

Benefit provided by this version 21 new feature:
Hadoop is here to serve your applications!

138 new feature WD WB WM

HADOOP, NoSQL: NON-RELATIONAL DATABASES

Hadoop databases are called «NoSQL» databases. This term is overused because they are really «non-relational» databases.

A NoSQL database is a database that is freed from the relational databases limitations (scalability), but also freed from some of their functionalities: coherence, integrity, referential, persistence, real time, ...

Benefit provided by this version 21 new feature:
Hadoop is ready to serve your applications!

139 new feature WD WB WM

NATIVE HADOOP CONNECTOR: HBASE, HIVE, HDFS

Version 21 offers native access to Hadoop.

Hadoop uses 3 hierarchical levels for writing and accessing data:

- the column level (HBASE)
- the «query» level, because No SQL database creators have figured out that sometimes a query is needed (Hive).
- the file level (entire file or block) (HDFS)

Benefit provided by this version 21 new feature:
Native Hadoop connector!

140 new feature WD WB WM

HBASE



HBase is a non-relational (NoSQL) distributed database, based on columns and using non-structured storage for large tables. HBase is a core component of Hadoop.

HBase has been conceived for processing large volumes of data (several million rows, several million columns per row) and non-standard data (each row can have a structure different from the next row).

In a HBase database, data is stored in a table, in a distributed way.

A table is split into families of columns, which themselves contain columns.

Each row (equivalent to a record in a traditional DBMS) is identified by one and only one RowKey.

The RowKey is the only key of the table.

A cell is the intersection of a row and a column (nothing new there!).

The history of a cell's content is kept with its timestamp (date/time it was written).

You can set filters on a HBase table (similar to a HFSQL filter).

Benefit provided by this version 21 new feature:
Native access to Big Data databases from your applications and sites.

141 new feature WD WB WM

HBASE: PROGRAMMING

Version 21 offers a family of WLanguage functions for accessing HBase type databases.

These new WLanguage functions let you create a new table, add rows, read data and delete data: `hbCreateTable`, `hbWrite`, `hbListTable`, `hbRead`, `hbGetTableDescription`, `hbDelete`, `hbDeleteTable`.

New native types are being introduced: `hbCell`, `hbColumn`, `hbConnection`, `hbColumnDescription`, `hbTableDescription`, `hbWriting`, `hbReading`, `hbScanParameter`, `hbScanResult`.

Benefit provided by this version 21 new feature:
Native access to Big Data databases from your applications and sites.

142 new feature WD WB WM

HIVE: QUERY HADOOP DATABASES

Hive is a software layer in Hadoop allowing you to execute queries.

Hive uses the HiveSQL language; which is a language close to SQL.

(The databases are NoSQL, but they ended up recreating SQL anyway! They recovered by saying that «no» meant «Not only» ...)

The developer specifies a query using HiveSQL (syntax derived from SQL) and the Hive engine translates this query to perform a native query on the database.

In version 21, you can execute HiveSQL queries on a HBase database using the usual `SQLExec` WLanguage functions.

In version 21, you can create queries for data selection and addition.

Benefit provided by this version 21 new feature:

Query Big Data databases in WLanguage

143 new feature WD WB WM

HDFS: HADOOP DISTRIBUTED FILE SYSTEM

HDFS is one of the component in the Hadoop framework. HDFS is a distributed file system, which means that it uses a cluster of servers to create a data store.

HDFS can store any number of files. The files stored in the cluster are split into data blocks and distributed among the nodes of the HDFS cluster.

To guarantee data resilience, each data block is duplicated onto several nodes (three by default).

This way, if a node fails, the file system is not affected.

HDFS lets you copy files among other things.

In version 21, WLanguage applications have a new set of WLanguage functions available to them for accessing and managing files stored on a HDFS cluster: `hdfsList`, `hdfsCopyTo`, `hdfsCreateDirectory`...

Benefit provided by this version 21 new feature:

Store away!

**WINDEV 21,
it's the one I've chosen!**



21

SQL FUNCTIONS OF HFSQL



144 new feature WD WB WM

TRANSACTIONS IN SQL

Version 21 of HFSQL supports 8 new types of syntax to allow support for transactions in SQL queries:

- `BEGIN [WORK]` • `BEGIN TRANSACTION` • `START TRANSACTION [ISOLATION LEVEL ...]` • `COMMIT [WORK] [AND CHAIN]` • `COMMIT TRANSACTION [AND CHAIN]` • `ROLLBACK [WORK] [AND CHAIN]` • `ROLLBACK TRANSACTION [AND CHAIN]` • `SET ISOLATION LEVEL ...`

Thanks to the new syntax, you can now handle transactions and their level of isolation directly in SQL.

Benefit provided by this version 21 new feature:
New SQL commands.

145 new feature WD WB WM

SEVERAL SQL COMMANDS IN A SINGLE QUERY

In version 21, several SQL commands can be sent to the server in a single operation: for example, a set of `INSERT`, or a series of `BEGIN - UPDATE - COMMIT...`

Simply separate the commands with a ; (semicolon).

Benefit provided by this version 21 new feature:
SQL in HFSQL, top that!

146 new feature WD WB WM

SQL CONVERT COMMAND

The `CONVERT` SQL command (as it is described in the ISO standard for SQL) lets you convert a character string from one character set to another.

For example, it lets you convert a string in ISO-8859-1 (French character set used by Windows) into UTF-8.

It is being introduced in version 21.

Benefit provided by this version 21 new feature:
Respect of the ISO standard.

147 new feature WD WB WM

SQL DAY, DAYOFMONTH, DAYOFWEEK AND DAYOFYEAR COMMANDS

With the four new SQL commands: `DAY`, `DAYOFMONTH`, `DAYOFWEEK` and `DAYOFYEAR`, the handling of days in SQL queries gets more sophisticated.

See also new feature 124 (SQL default value).

Benefit provided by this version 21 new feature:
SQL days.

148 new feature WD WB WM

SQL EVERY COMMANDS

The `EVERY` SQL command is an aggregation function (like `SUM` for instance), that is, it applies to a set of data and returns a single value.

The `EVERY` command returns True if all the arguments it received are True, and False otherwise.

Benefit provided by this version 21 new feature:
SQL: true or false?

149 new feature WD WB WM

SQL CURRENT_USER COMMAND

Version 21 of HFSQL supports the `CURRENT_USER` command. This SQL command returns the name of the user for the current connection.

This value can be used, for instance, to automatically save the author of a modification.

Benefit provided by this version 21 new feature:
You know whose done what.

150 new feature WD WB WM

SUMMARY OF THE NEW SQL COMMANDS

Version 21 offers 18 new SQL functions:

<code>BEGIN / BEGIN WORK , BEGIN TRANSACTION , START TRANSACTION</code>	Lets you start a transaction.
<code>COMMIT COMMIT WORK COMMIT TRANSACTION</code>	Lets you validate a transaction.
<code>CONVERT</code>	Converts a character string from one charset to another
<code>CURRENT_USER</code>	Returns the name of the user for the current connection.
<code>DAY / DAYOFMONTH</code>	Returns the number corresponding to the day in the month.
<code>DAYOFWEEK</code>	Returns the number of the day in the week.
<code>DAYOFYEAR</code>	Returns the number for the day in the year.
<code>EVERY</code>	Returns True if the argument is True for all the records.
<code>ROLLBACK / ROLLBACK WORK, ROLLBACK TRANSACTION</code>	Lets you cancel a transaction.
<code>SET ISOLATION LEVEL</code>	Sets the isolation level of the transaction.

THIRD-PARTY DATABASES, NATIVE CONNECTORS

151 new feature WD WB WM

NATIVE CONNECTOR (NATIVE ACCESS) TO ORACLE IN LINUX

The native Oracle connector was already available in 32 and 64 bits for Windows.

In version 21, this native connector is also available for 32-bit Linux and 64-bit Linux.

(module available as an option)

Benefit provided by this version 21 new feature:
Extension of Oracle native support.

152 new feature WD WB WM

NATIVE 64-BIT SAP CONNECTOR

The native SAP connector is available in 32-bit and 64-bit modes.

Benefit provided by this version 21 new feature:
Support for 64-bit SAP.

153 new feature WD WB WM

NATIVE CONNECTOR (NATIVE ACCESS): FORMULA FOR DEFAULT VALUES

The description of a database used via native access (native connector) can now use items initialized via SQL code (see new feature 124).

Benefit provided by this version 21 new feature:
Better compatibility with imported data descriptions.



Each update to version 21 entitles you to 15 inquiries with the free Technical Support.

In version 21, your teams benefit from the free technical support!

YOU'RE SAFE...

FREE SUPPORT

(during the commercial availability of the version)

WINDEV®



WINDEV 21

156

new feature WD WB WM

NEW WIRE CONTROL, LINK BETWEEN 2 CONTROLS

With the new Wire control type, easily create workflow diagrams, and offer your end users to create or modify some! The Wire control can be used as «decor» to beautify interfaces! See new features 003 to 007.



Here the Wire only plays an informational role

Benefit provided by this version 21 new feature:
Visually link controls easily!

157

new feature WD WB WM

JUSTIFIED STATIC CONTROL

In version 21, you can request that the text found in a multi-line static control be justified.
This improves the look of presentations.

154

new feature WD WB WM

BENEFIT FROM THE 150 NEW FEATURES OF VERSION 21

Almost all the new features presented in the previous pages are available in WINDEV 21.

In addition to this already impressive list of new features, WINDEV 21 offers the following new features detailed in this chapter.

This version 21 of WINDEV is really very rich!

Benefit provided by this version 21 new feature:
Hundreds of new features for WINDEV in version 21.

NEW CONTROLS

155

new feature WD WB WM

CUSTOMIZATION OF THE WINDOWS BY THE END USER

If the application's developer authorizes it, the end user of an application developed using version 21 can modify himself the application's screens, move controls, change their size and color.

For example, an often used button will be enlarged!

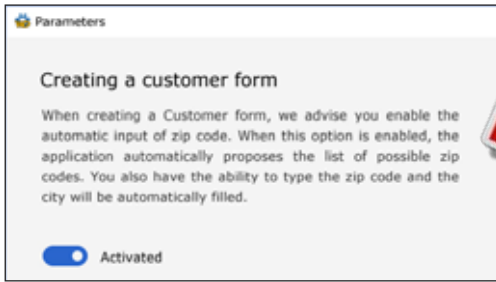
Or controls that are never used for inputting orders in this company will be moved to the bottom of the screen!

This new feature provides a lot of latitude to the end users for adapting the UI to their custom needs.

See new features 014 to 018.

Benefit provided by this version 21 new feature:
Freedom for your end users.





The text is justified

Benefit provided by this version 21 new feature:
Be square (with your static controls)!

158 new feature WD WB WM

NEW «REPOSITIONABLE NOTE» CONTROL

The «Repositionable note» control is being introduced in version 21.

This control allows the end user to enter text and position it wherever he or she wants in the window.

The control is automatically saved and will reappear the next time the window is opened.

The «Repositionable note» control can be moved at any time by the end user.

Please note that the Repositionable note feature is also available via the AAF (see new feature 242).

Benefit provided by this version 21 new feature:
Paste without glue!

159 new feature WD WB WM

«AUTOMATIC» COLOR

In the window editor, a new color has been introduced: the «automatic» color.

This color can be applied to all the controls' captions.

At run time, the WINDEV framework will calculate the color to use based on the background color and the skin template.

This allows you to not have to define all the possible color combinations!

The display will always be readable: looper control background, bands, control background, window background ...

This feature is also available in WINDEV Mobile 21.

Benefit provided by this version 21 new feature:
White text on light background, gone!

160 new feature WD WB WM

TRANSPARENCY IN IMAGE CONTROLS

In version 21, you can change via programming the method for managing transparency inside controls: magenta, upper left hand pixel, etc.

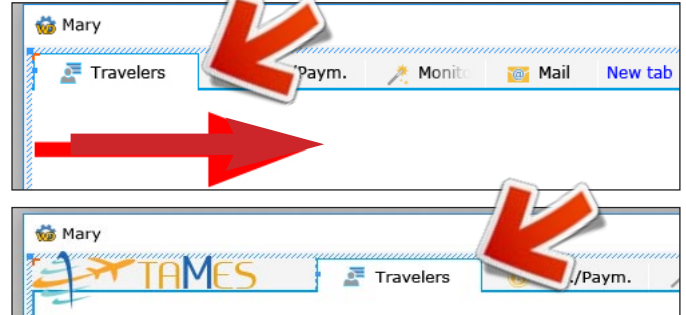
Benefit provided by this version 21 new feature:
Choose your level of transparency.

161 new feature WD WB WM

TAB CONTROL: LAYOUT OPTIONS

In version 21, a new option for presenting tabs is being introduced: shift all the tabs to the right.

This allows you to leave room to display a logo for instance, or a button that expand options.



Here the tabs are shifted to the right, to insert a logo for instance.

Benefit provided by this version 21 new feature:
The tab is settled ...

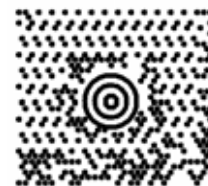
162 new feature WD WB WM

NEW BAR CODES: MAXICODE (UPS)



The Maxicode bar code was invented by UPS, the world-wide delivery company.

Maxicode type bar codes can be printed by WINDEV 21 applications, on the screen or in reports.



Benefit provided by this version 21 new feature:
A new type of bar code.

163 new feature WD WB WM

NEW BAR CODES: AZTEC

The Aztec type bar code can be printed by WINDEV 21 applications, on the screen and in reports.

This type of bar code is used by ticketless train reservations.



Benefit provided by this version 21 new feature:
Another new type of bar codes.

164 new feature WD WB WM

FADE-IN/FADE-OUT TRANSITION ON IMAGE CONTROLS

When changing an image inside an image control, a fade-in/fade-out type animation can be activated with one click.

Benefit provided by this version 21 new feature:
Visual effects in 1 click.

165 new feature WD WB WM

X-CLOSE IN AN EDIT CONTROL

In an edit control, an X mark can be added to allow the visual deletion of the control's content.

Benefit provided by this version 21 new feature:
Easy deletion of a control's content

166 new feature WD WB WM

ROUND IMAGES

In version 21, any image can be displayed with a «round» mask.

The mask is automatically applied by WINDEV.



Provide a rectangular image, it will become a circle at run time

Benefit provided by this version 21 new feature:
Make circles easily.

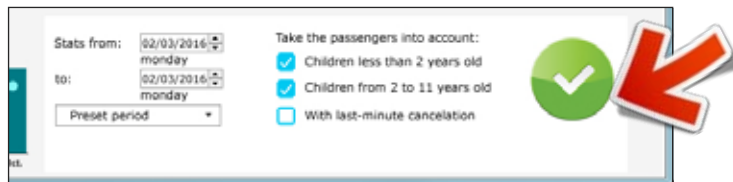
167 new feature WD WB WM

ROUND BUTTONS

In version 21, buttons can also be round.

Transparency is automatically supported.

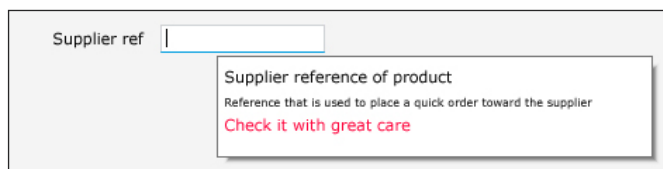
The click is adapted to the form: If the user clicks in the corner of the control, outside the circle, the click is not taken into account.



Benefit provided by this version 21 new feature:
The circle is the new square.

168 new feature WD WB WM

CONTROL TOOLTIPS ARE GETTING MORE SOPHISTICATED



A tooltip with different fonts and colors

A control can display a tooltip when hovered.

A tooltip is easily defined in the 7-tab window or via programming (`..Tooltip` property).

In version 21, tooltips offer margins and accept text formatted in RTF directly in the editor.

In version 21, tooltips become pretty.

Benefit provided by this version 21 new feature:
Pretty tooltips.

169 new feature WD WB WM

SPEED: LOOPER CONTROLS AND ENDLESS TABLES

In version 21, a table or a looper control is able to display only part of its content (the first 100 rows for instance).

Depending how the user browses, the next rows will be loaded only if needed.

This is done automatically, you just need to specify the default number of rows.

Benefit provided by this version 21 new feature:
Less work for the application, better response time.

BACKGROUND IMAGE FOR TABLE ROWS, LOOPER ROWS AND MULTI-LINE AREAS

In version 21, it is possible to specify an image to fill out a line's background:

- for a table
- for a looper.

This enables you to create better interfaces.



Everything is possible in the background

Benefit provided by this version 21 new feature:
Lines become work of art!

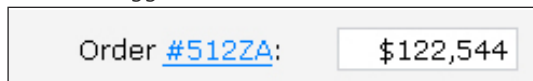
THE WORDS IN THE CAPTIONS ARE CLICKABLE

A large number of controls use captions in their display: static control of course, edit control, row in a list or table, radio button or check box option, etc.

In version 21, these captions can contain one or more clickable words.

Thanks to the new `gClickableLink` function, you can insert a hyperlink into the text of a caption.

When the end user clicks the hyperlink, an application procedure is called to trigger the defined action.



The order can be clicked (to open the visualization window of the order).

Benefit provided by this version 21 new feature:
Even more useful labels.

LIST BOXES AND COMBO BOXES: YOUR TEXT ARE WELL ALIGNED!

The `WLanguage` function for graphic strings let you handle the `List` or `Combo` controls' content at a granular level.

For instance, you can insert images into the `gImage` `WLanguage` function.

The `gAlignment` `WLanguage` function is used to align the elements of a graphic string.

In version 21, this function offers to keep either the horizontal alignment or the vertical alignment of the previous element, and to

only specify the other alignment. This is useful to align a set of controls.

Benefit provided by this version 21 new feature:
Alignment stays in line with you!

HIGHLIGHT YOUR ICONS IN THE SYSTEM TRAY!

Applications developed with WINDEV can create icons in the «system tray»: the bottom right part of your screen next to the time.



The notification is clickable

In version 21, it becomes possible to display a notification associated with these icons.

The notification will be displayed when the end user will hover the icon.

You can also define a procedure that will be called when clicking the notification.

Benefit provided by this version 21 new feature:
Even better possibilities for your interfaces!

SMOOTH UP ANGLES

WINDEV offers a large number of drawing functions. Thanks to these functions, you can draw in an image control (or in memory using an `Image` type variable).

You can draw circles, rectangles, polygons, etc.

In version 21, a new shape can easily be drawn: the rectangle with rounded corner using the `dRoundedRectangle` `WLanguage` function.



Benefit provided by this version 21 new feature:
Even cleaner drawings.

OPENING WINDOWS IN CASCADE

When opening several windows in cascade, a new mode is being introduced: «Centered but shifted in respect to the parent window»...

This mode prevents any window from being hidden.

Benefit provided by this version 21 new feature:
Always visible windows.

VARIOUS NEW FEATURES FOR CONTROLS

For Organizer controls, in «Month» mode, you can customize the appointments via an internal window (like for other periods).

On buttons, the customization of the «focus» state can be done via the «element» combo box of the style tab (and not just via a 5-state image).

In the Treeview type controls, it becomes possible to customize the style of the folders and the lines.

It becomes possible to modify the number of columns and looper controls via programming.

Still on Looper controls, you can create composite attributes (to make sorting and searching easier).

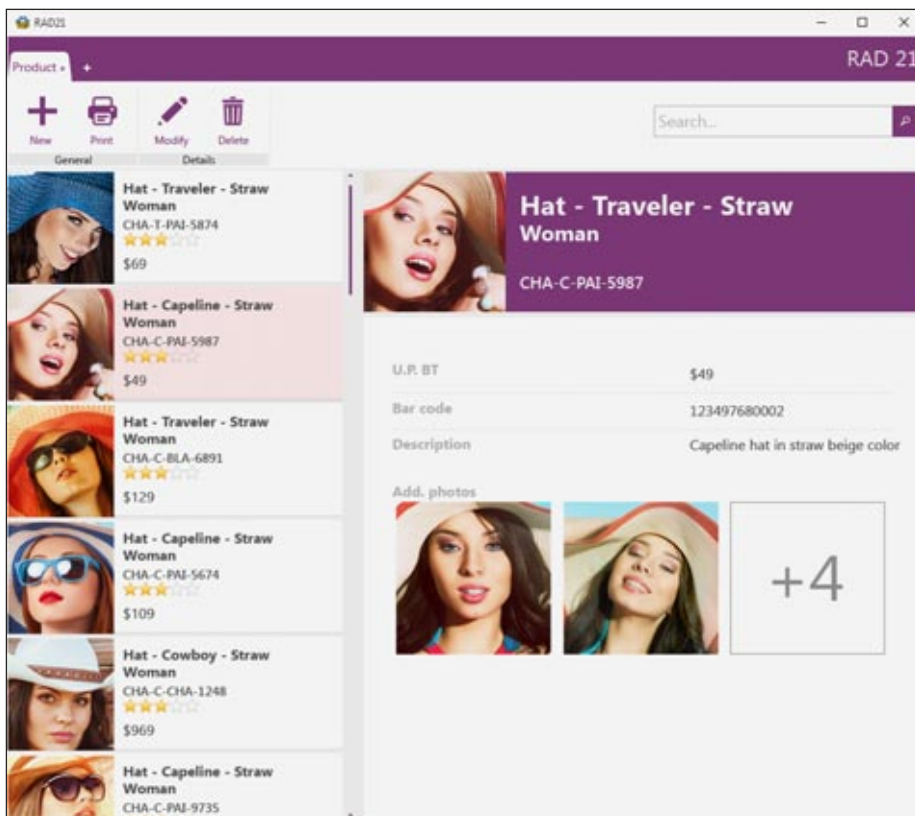
Benefit provided by this version 21 new feature:

Five new features useful for controls.

THE NEW RIBBON RAD

A MORE MODERN RAD

A new type of RAD is being introduced in version 21: it is the «Ribbon» RAD.



The main characteristic of this RAD is that the navigation is done via a ribbon, automatically generated.

Benefit provided by this version 21 new feature:

A contemporary RAD.

RIBBON

A ribbon is generated in each window to manage the addition, deletion, modification, saving and printing of the visualized data.

The ribbon also offers choices for visualizing linked elements, such as a customer orders on the screen for instance.

Benefit provided by this version 21 new feature:

The ribbon, it's groovy!

SOPHISTICATED FORMATTING

Windows generated by the ribbon RAD offer a pleasing presentation by default.

The developer chooses a presentation layout, answers questions about presentation (image or not, sub-title or not, etc...) and the RAD generates the corresponding window.

Benefit provided by this version 21 new feature:

Customized windows.

DYNAMIC TAB, NON-MODAL WINDOWS

With the Ribbon RAD, the end user can for instance, open several customer files in parallel, and navigate from one to the other.

He can tear off the forms and position them side by side, for instance, to compare elements.

Benefit provided by this version 21 new feature:

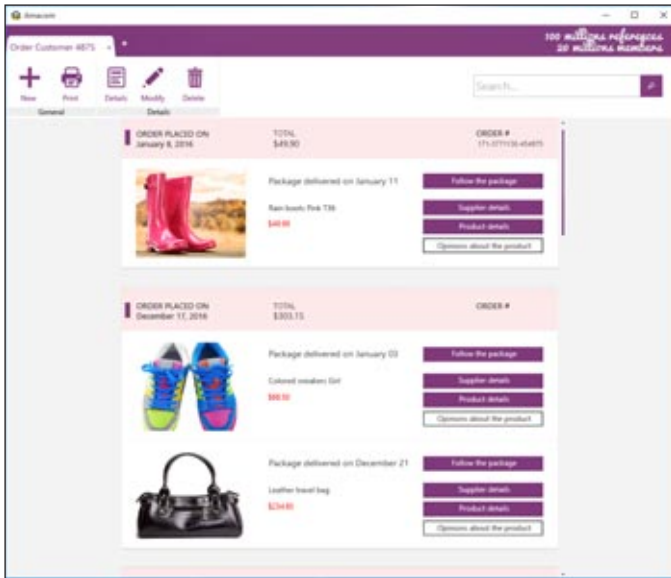
A popular operating mode.

RAD MODELS FOR TABLE OR LOOPER WINDOWS

The Ribbon RAD is smart!

For example, when visualizing a customer form, the Ribbon RAD automatically offers to visualize the orders for this customer.

In this example, the order window is automatically generated by the Ribbon RAD.



The LP (Looper controls) are generated in the tabs

Benefit provided by this version 21 new feature:
Looper controls without any effort!

182 new feature W D W B W M

EASY TO UNDERSTAND AND MAINTAIN CODE

The code generated by the Ribbon RAD is easy to understand and maintain.

Benefit provided by this version 21 new feature:
Easy code.

183 new feature W D W B W M

RIBBON RAD: EVERYTHING CAN BE CUSTOMIZED

The ribbon itself can of course be customized as well. The ribbon options generated by RAD are modifiable. You can add options to the ribbon. You can modify the generated controls, add other controls, change the style. You can also modify the generate code, etc.

Benefit provided by this version 21 new feature:
Ability to customize everything that is generated.

TSE

184 new feature W D W B W M

AUTOMATIC DISABLING OF IMAGE ANIMATIONS

TSE is a remote access technology that companies use a lot. In this execution mode, you need to limit graphic effects be-

cause the network latency slows down the display and therefore the end user. This is why, in version 21, WINDEV automatically disables effects on image controls (such as fade-in/fade-out) in TSE mode.

Benefit provided by this version 21 new feature:
Improved speed and fluidity in TSE.

WINDOWS 10: UNIVERSAL WINDOWS 10 PLATFORM APPS

185 new feature W D W B W M

WINDOWS 10

First, remember that applications developed using WINDEV 21 (and older version) work instantly, without modifications, for all the versions of Windows, including Windows 10.

In Windows 10 a new type of applications has been introduced, the Universal Windows 10 Platform Apps.

These applications only work on hardware that run Windows 10 and Windows 10 Mobile.

These Universal Windows 10 Platform Apps don't work on other versions of Windows, nor on Linux, MacOS, iOS or Android.



Benefit provided by this version 21 new feature:
WINDEV supports all the versions of Windows.

186 new feature W D W B W M

WINDEV 21 & WINDOWS 10

WINDEV 21 allows you of course, in addition to all the other types of applications, to develop «Universal Windows 10 Platform Apps» type applications.

Benefit provided by this version 21 new feature:
You've made a good choice with WINDEV..

PROGRAMMING UNIVERSAL WINDOWS 10 PLATFORM APPS WITH WINDEV 21

The programming is done the same way. Note that you benefit from an important competitive advantage. This is because calls the Windows 10 kernel have changed, and now a large number of APIs are asynchronous. Your competitors who do not use WINDEV must revise their application's architecture in order to support asynchronous processes. Therefore they need to change their architecture and redevelop parts of their applications. With WINDEV, no worries: WINDEV takes care of everything, as always! You don't need to modify anything, the development method doesn't change: your teams develop the same ways as always.

Benefit provided by this version 21 new feature:
Programming doesn't change, you can keep your existing code.

UNIVERSAL WINDOWS 10 APPS UI WITH WINDEV 21

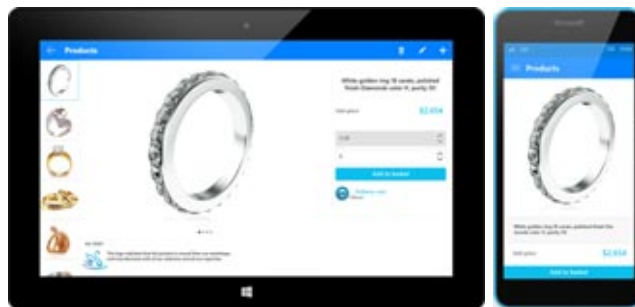
The internal format of the Universal Windows 10 Platform Apps windows change and is now based on XAML. With WINDEV, no worries! WINDEV takes care of everything, as always! Note that you benefit from an important competitive advantage as well. Your competitors who don't use WINDEV must recreate their interface using XAML. With WINDEV 21, your teams have nothing to modify, the existing windows are compatible with Windows 10. Your teams create their windows as always. As you know, thanks to WINDEV 21, your windows and their code are compatible with Windows 10 Universal Apps, but also with older versions of Windows, as well as Android, iOS, Linux, and can be reused in WEBDEV to create Internet or Intranet sites.

Benefit provided by this version 21 new feature:
Reuse your existing code.

SUPPORT FOR DIFFERENT SCREEN SIZES IN WINDOWS 10

With version 21, you can easily manage the differences in presentation between the desktop, tablet and smartphone version of an application. The «layout» technology lets you create universal windows. When editing a window, a layout defines several different positions for the controls of a same window.

Depending on the planned runtime platforms, the expected screen resolution, different layouts are created. The source code is identical for the various layouts of a window.



Tablet in Windows 10, Smartphone in Windows 10 Mobile

At run time, WINDEV 21 automatically uses the layout corresponding to the physical characteristics of the device.

Benefit provided by this version 21 new feature:
Develop once.

HFSQL AND WINDOWS 10

To manage local data, a Universal Windows 10 App will use the HFSQL Classic database.

A Universal Windows 10 App can also connect to a HFSQL Client/Server database, stored on a Windows server or a Linux server.

The usual HFSQL features are available:

- command in the «h» family (`hReadSeek,...`)
- SQL commands (`hExecuteQuery`, `SQLExec...`)
- data binding (`FileToScreen,...`).

Replication is available.

Benefit provided by this version 21 new feature:
HFSQL is really a universal database.

LIST OF CONTROLS AVAILABLE FOR UNIVERSAL WINDOWS 10 APPS

WINDEV 21 already offers the following controls for Universal Windows 10 Apps:

- Static
- Check box
- Combo box
- Progress bar
- HTML control
- Edit
- Radio button
- Image
- Slider
- Internal window ...
- Button
- List box
- Looper
- Chart

Skin templates and layouts are also available.

Benefit provided by this version 21 new feature:
The controls don't change, reuse your existing code.

MORE THAN 1,100 WLANGUAGE FUNCTIONS AVAILABLE FOR UNIVERSAL WINDOWS 10 APPS

Let's mention one more time that your existing applications work without modifications in Windows 10.

To create Universal Windows 10 Apps, WINDEV 21 offers already more than 1,100 WLanguage functions. The 43 family of functions are listed below, for a detailed list, please check the online help.

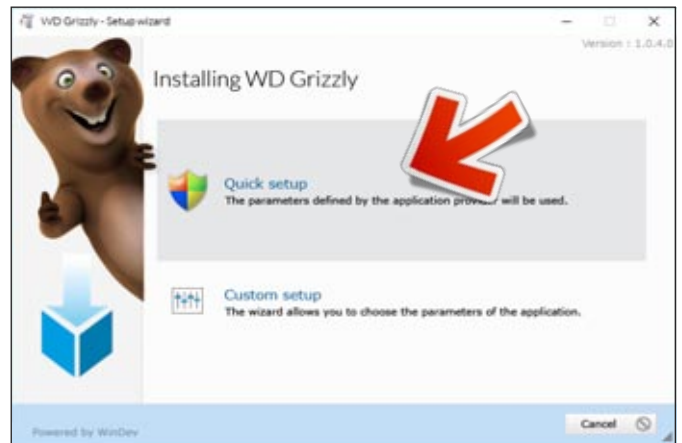
Date management (`Datexxx`), times (`Timexxx`), Character string management (`Stringxxx`), Control management (`Controlxxx`), Combo box (`Comboxxx`), List box (`Listxxx`), looper controls (`Looperxxx`), Chart management (`grxxx`), Drawing functions (`dxxx`), Stopwatch (`Chronoxxx`), Math functions (`Cosine`, `Sine`, ...), matrixes (`Matxxx`), statistics (`statxxx`), financial (`finxxx`), External file management (`fxxx`), HFSQL functions (`hxxx`), HTTP functions (`HTTPxxx`), Array management (`Arrayxxx`), combinations (`Combinationxxx`), enumerations (`Enumerationxxx`), Error management (`Errorxxx`), exceptions (`Exceptionxxx`), Debugging functions (`dbgxxx`), Stack and queue management, Memory zone management (`Memxxx`), video (`Multimediaxxx`), mutex (`Mutexxxx`), semaphores (`Semaphorexxx`), critical sections (`CriticalSectionxxx`), Parallel tasks (`ParallelTaskxxx`), signals (`Signalxxx`), threads (`Threadxxx`), Timers (`Timerxxx`), SOAP functions (`SOAPxxx`), XML (`XMLxxx`), Archive management (`zipxxx`), captors (`Captorxxx`), emails (`Emailxxx`), GPS (`GPSxxx`), printing (`ixxx`), Hash functions (`Hashxxx`), replication (`Replixxxx`), Tile management (`Tilexxx`), vibrations (`Vibrationxxx`).

Benefit provided by this version 21 new feature:
Programming doesn't change, you can keep your existing code.

INSTALLER



INSTALL IN 1 CLICK: DEFAULT OPTIONS



The new installation choice in 1 click

When a user starts installing an application, the first screen now offers the «default» install for the application. 1 click from the user and everything gets installed according to the preset parameters (if the user makes that choice, of course).

Benefit provided by this version 21 new feature:
Install in one click!

Winning DEVelopment



INSTALL: CUSTOMIZATION

When creating an install, you may need to customize the actions that will be performed.

With older versions of WINDEV, you needed to modify the source code of the setup program (WDSETUP, provided with the product).

In version 21, you can now include a custom library (.WDL) in the setup program.

You will be the one writing the plugin.

Special processes can be created at various points in the setup program: when the setup starts, before an «automatic modification», ...

The plugin can include internal windows, which allows you to easily add screens or series of screens to the standard setup program.

This customization method enables you to benefit from future updates to the install.

Benefit provided by this version 21 new feature:
A completely customizable setup program, easily.

UNINSTALL

In version 21, you can specify an additional .EXE to run when the end user uninstall an application.

Benefit provided by this version 21 new feature:
Customization.

INSTALL: CLEAN UP!

In version 21, the setup program automatically removes useless modules from older versions, such as old frameworks for instance.

Installation directories are cleaner!

Of course, there's an option available if you do not want to remove anything ...

Benefit provided by this version 21 new feature:
Self-cleaning setup!

COMMENTED PUSH INSTALL!

The WINDEV setup editor offers remote installation to a list of given machines («push» setup).

This list can be provided via a text file.

In version 21, you can include comments in this text file.

These comments will be displayed in the network application Control Center's interface.

This is useful to identify machines, for instance by specifying the name of the location (New York, Los Angeles, Dallas, ...) where the machine is located.

Benefit provided by this version 21 new feature:
Useful information.

AAF (USER ACTION)

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

Everything is standard and automatic!

AAF: CUSTOMIZATION OF THE UI BY THE END USER (SEE NEW FEATURES 014 TO 018)

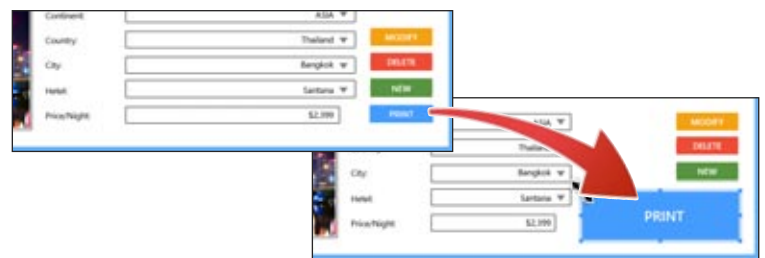
In version 21, the end user can resize the controls in the windows (except of course if the developer prevented it).

For example:

- increasing the display size of a table
- reducing the size of some controls to gain room
- rearranging buttons that are used most often
- changing the colors
- ...

The end user has the ability at anytime to go back to the original presentation.

Note that every time a modified window is displayed, a toast signals it. This way each end user knows that he's using a modified version of the application.



Benefit provided by this version 21 new feature:
Customization of the interface by the end user.

AAF: ADDING A TOOLTIP TO A CONTROL

The end user can add (and delete) a tooltip on a control to remember how to use a control or its specificity, on a button, ...



The end user enters his own information

Benefit provided by this version 21 new feature:
A custom reminder.

242 new feature W D W B W M

AAF: ADDING A REPOSITIONABLE NOTE IN THE WINDOW

The end user can add one or more repositionable notes in a window.
The note will be automatically stored and will reappear the next time the window is opened.

Examples of notes:

- Caution, this process takes 3 min at the end of the year
- Do not bill Argentina
- Call Mary if invoice reference is 78hJk6
- Jeremy's number during his vacation: 06 06 06 06 06
- ...

With this automatically offered control, the end user will be happier and more efficient.

Of course, this feature can be disabled by programming.



This note was created by an end user

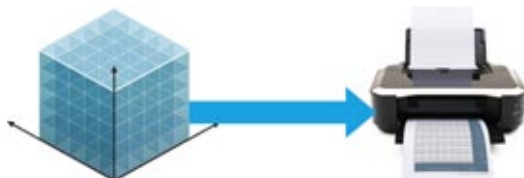
Benefit provided by this version 21 new feature:
The end user annotates the windows.

243 new feature W D W B W M

ROLAP CUBE (PVT): AUTOMATIC PRINT

In version 21 the end user can directly print the content of a PVT (Cube).

There's nothing to develop, everything is planned.



Preview is offered by default. Printouts over several pages (height, width) are automatically generated.
The report used by the AAF can be customized by the development team.

Benefit provided by this version 21 new feature:
Print several dimensions in 2 dimensions without coding anything!

244 new feature W D W B W M

SPREADSHEET: AUTOMATIC PRINTING

In version 21, the end user can finally directly print a spreadsheet worksheet.

There is nothing to develop, everything is planned.

Preview is offered by default.

Printing over several pages (width, height) is automatically managed.

The report used by the AAF can be customized by the development team.



Benefit provided by this version 21 new feature:
Automatic print.

245 new feature W D W B W M

AAF: WINDOW ZOOM

The end user can zoom into a window's content using the mouse (Ctrl wheel). If needed, scrollbars come up.

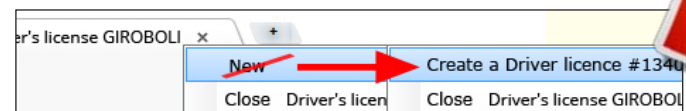


The end user can zoom in the display at run time

Benefit provided by this version 21 new feature:
Even without glasses, the end user can see well!

246 new feature W D W B W M

CUSTOMIZE THE CAPTIONS OF THE AAF MENU VIA PROGRAMMING



Here the choice «New» has been replaced by something more specific

A right click inside a window usually calls the AAF menu.
In version 21, the labels of this AAF menu can be customized via programming (AAFChangeCaption).
You can even pass a multilingual string to the function, to translate these labels.

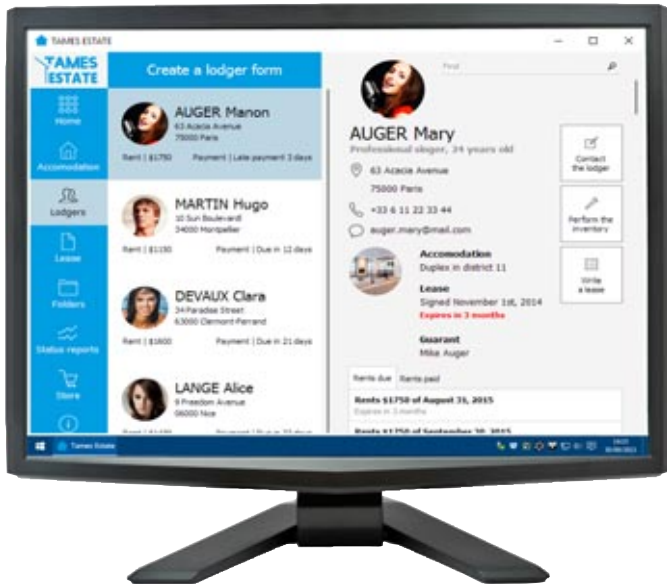
Benefit provided by this version 21 new feature:
Complete customization.

NEW SKIN TEMPLATES

247 new feature WD WB WM

2 NEW SKIN TEMPLATES

A skin template defines the graphic style of an application.



End users' taste and habits evolve with time and trends. Therefore it is important to have access to new application skin templates.

Benefit provided by this version 21 new feature:
New ways of customizing your applications.

SCM (SOURCE CODE MANAGER)

248 new feature WD WB WM

THE SCM WIDGET DISPLAYS THE NUMBER OF ELEMENTS CHECKED OUT «FOR TESTING»

When elements are checked out from SCM «for testing» (therefore they will not be checked back in), the SCM widget of the dashboard displays the number of elements checked out.

Benefit provided by this version 21 new feature:
Avoid traps!



JAVA



249 new feature WD WB WM

JAVA: NEW TYPES

The Stack, Queue and List types are supported in Java.

Benefit provided by this version 21 new feature:
New types.

250 to **260** new feature WD WB WM

NEW WLANGUAGE FUNCTIONS FOR JAVA

WLanguage gains 11 new functions for Java:

Dequeue	Pop	Push	Enqueue
fSplit	QueueInfo	fMerge	fDirExist
fTempDir	ListInfo	StackInfo	

it is now possible to use a 32-bit assembly and a 64-bit assembly depending on the configuration.

Benefit provided by this version 21 new feature:
Granular configuration.

263 new feature WD WB WM

.NET: GENERIC INSTANTIATION

In version 21, you can instantiate generic parameters directly in the WLanguage code.

Benefit provided by this version 21 new feature:
Better interoperability with existing assemblies.

264 new feature WD WB WM

.NET: METHODS WITH GENERIC PARAMETERS

A generic method is a class method whose parameter type is not defined when writing the method. The type is replaced by a specific data type when the method is instantiated.

WINDEV 21 lets you call generic methods declared in .Net classes imported into the project.

Benefit provided by this version 21 new feature:
Better compatibility with .Net assemblies.

265 new feature WD WB WM

.NET: EXTENSION METHOD

Version 21 of WINDEV lets you call «extension methods» type .Net methods from WLanguage. This new feature makes it easier to use methods provided by the System.Linq name space.

Benefit provided by this version 21 new feature:
Flex ... extend.

MAC

261 new feature WD WB WM

NEW MACOS FEATURES

WLanguage gains 11 new functions for Mac.

Dequeue	Pop	Push	Enqueue
fSplit	QueueInfo	fMerge	fDirExist
fTempDir	ListInfo	StackInfo	

Benefit provided by this version 21 new feature:
Improvement of the Mac development.

LINUX

266 new feature WD WB WM

LINUX: SUPPORT FOR FTPS AND SFTP

The FTPS and SFTP secure protocols are supported on Linux.

Benefit provided by this version 21 new feature:
Better security.

.NET

262 new feature WD WB WM

ASSEMBLY AND PROJECT CONFIGURATION

In version 21, you can specify the assemblies to use for configuring the project.

Example: a project exists in 2 configurations, 32-bit and 64-bit,

267 new feature W D W B W M

LINUX: SURFACE CHART CONTROL

The «Surface» type of chart is available on Linux.

*Benefit provided by this version 21 new feature:
Charting!*

268 new feature W D W B

LINUX, PDF REPORT: CHART SUPPORT

In reports generated in PDF format on Linux, you can now insert Chart controls.

*Benefit provided by this version 21 new feature:
Even more sophisticated reports on Linux.*

269 new feature W D W B W M

LINUX: SUPPORT FOR THE SVG GRAPHIC FORMAT

The **Image** control in applications developed for Linux accepts images in the SVG format.

*Benefit provided by this version 21 new feature:
Image quality is not affected when resized.*

270 new feature W D W B

LINUX: NATIVE ORACLE CONNECTOR

The native Oracle connector («Native access», optional) is available for Linux in version 21.

*Benefit provided by this version 21 new feature:
Native Oracle and Linux!*

271 to 323 new feature W D W B W M

THE NEW LINUX FUNCTIONS FOR WINDEV

WLanguage offers 89 new constants for Linux.

WLanguage gains 53 new functions for Linux:

OrganizerToiCalendar	CallInterface	dBorder	GetCountryList
dRoundedRectangle	fDirExist	fTempDir	grHMAddData
grHMColor	grHMCaptionX	grHMCaptionY	grHMGetData
grHMDeleteColor	grRotation	grSunburstStartAngle	grSunburstPullOut
grSurfaceAddData	grSurfaceAltitudeColor	grSurfaceMarkCaption	grSurfaceMesh
grSurfaceGridlines	grSurfaceDeleteAltitudeColor	grSurfaceDeleteMarkCaption	hbCreateTable
hbWrite	hbListTable	hbRead	hbGetTableDescription
hbDelete	hbDeleteTable	hdfsCopyFrom	hdfsCopyTo
hdfsCreateDirectory	hdfsCloseConnection	hdfsList	hdfsOpenConnection
hdfsRename	hdfsDelete	HRecordToJSON	HFTListWord
HJSONToRecord	HRplDeclareLink	HTTPSimulateNetwork	iCalendarToOrganizer
iCalendarToScheduler	iCalendarToAppointment	iCurrentFile	SchedulerToiCalendar
FirstDayOfYear	AppointmentToiCalendar	TraceBuild	LooperRestorePositionAndSelection
LooperSavePositionAndSelection			



*This is really a NATIVE application
in Linux. Yes, but created with
WINDEV 21!*

WLANGUAGE

324 new feature W D W B W M

NEW CONSTANTS

97 new constants are available in WLanguage in version 21: please see the complete list in the online help.

325 to 339 new feature W D W B

NEW TYPES

15 new types of variables are available in WLanguage in version 21

hbSession	hbCell	hbColumn	hbConnection
hbColumnDescription	hbTableDescription	hbWriting	hbReading
hbScanParameter	hbScanResult	hdfsConnection	hdfsRights
hdfsStatus	point	rectangle	

340 to 362 new feature W D W B W M

NEW PROPERTIES

WLanguage gains 23 new properties for WINDEV.

Certificate	Finds out and modifies the certificate of a signature control.
EndControl	Finds out and modifies the end control for a link between two controls.
StartControl	Finds out modifies the start control for a link
PrintedSheet	Defines the number of the spreadsheet worksheet to print.
ShapeExtremityEnd	Defines the end shape for a link between 2 controls
ShapeExtremityStart	Same for the start shape of a link
AdjustmentMode	Lets you find out and modify the adjustment mode of a Spreadsheet control.
WinEditMode	Lets you specify the authorized modifications when the window switches to the «Edit by end user» mode.
TransparencyMode	Finds out and modifies the transparency mode of an image. This property can be used: * for an Image control, * for an Image type table column, * for the background of a Chart control found in a window.
MaxNbSegment	Lets you specify the maximum number of line segments for drawing a link between two controls.
WorksheetName	Finds out or modifies the name of the current worksheet in a Spreadsheet control.
Option (in a report)	Enables you to configure the display of a Bar Code control

PersistedCalculatedItem	Lets you define whether the value of a calculated item is stored in the file. If this property is False, the value is re-calculated for each read. If this property is True, the value is calculated when written and stored in the file	gClickableLink grHMAddData grHMColor	Adds a clickable link inside a graphic string. Adds data into a HeatMap chart. Specifies the colors of the various values of a HeatMap type chart.
AttachPointEnd	Lets you specify the end of an attach point for a link	grHMCaptionX	Changes the caption of a category for the X axis of a Heat-Map type chart.
AttachPointStart	Lets you specify the start of an attach point for a link	grHMCaptionY	Changes the caption of a category of the Y axis for a Heat-Map chart.
AutoLineWrap	In a multiline control: automatic carriage return to the next line	grHMGetData grHMDeleteColor	Retrieves data from a HeatMap chart. Retrieves the z-Order colors specified by grSurfaceAltitudeColor.
ShapeExtremitySize	Lets you find out and modify the size of the shapes used for the ends of a link between two controls.	grSunburstStartAngle	Specifies the start angle of the first slice in a sunburst type chart.
ParallaxRateHeight	Speed of reduction of a control when the scrollbar of its window/internal window moves	grSunburstPullOut hbCreateTable	Pulls out a slice or all the slices of a Sunburst type chart. Creates an HBase table or modifies the description of an HBase table.
ParallaxRateY	Lets you specify the speed at which a control moves based on its window/internal window scrollbar	hbWrite hbListTable hbRead hbGetTableDescription hbDelete hbDeleteTable hdfsCopyFrom	Lets you write cells in one or more rows in a HBase table. Lets you get the list of tables in Apache HBase. Lets you read cells from a row in a HBase table. Lets you get the description of a HBase table. Deletes cells in a HBase table. Deletes a HBase table.
CalculatedDefaultItem	Lets you define the SQL formula defining the default value of an item.	hdfsCopyTo	Copies a file located on a Hadoop server to the local machine. Copies a file located on the local machine to a Hadoop server.
X (on point and rectangle)	Lets you find out or modify the X coordinate	hdfsCreateDirectory hdfsCloseConnection hdfsList hdfsOpenConnection hdfsRename	Creates a directory to a Hadoop server. Closes a connection with a Hadoop server. Lists the content of a directory on a Hadoop server. Opens the connection to a Hadoop server. Changes the name of a file or directory on a Hadoop server.
Y (on point and rectangle)	Same for Y coordinates.	hdfsDelete HRecordToJSON	Deletes a file or directory from a Hadoop server. Retrieves the structure and value of the current record and exports them into a string in JSON format.
PrintArea	Lets you define the area to print in a Spreadsheet control.	HFTListWord HTTPSimulateNetwork	Lists the words of the current record that will be taken into account by the full-text indexing. Simulates a slow network by limiting the download/upload speed.

363 to 448 new feature W D W B W M

NEW WLANGUAGE FUNCTIONS AVAILABLE IN WINDEV

WLanguage gains 86 new functions for WINDEV:

OrganizerToiCalendar	Exports the appointments in an organizer to the iCalendar format	iCalendarToOrganizer	Fills an Organizer with data in iCalendar format
ScrollbarIsVisible	Allows you to find out whether a control's scrollbar is visible.	iCalendarToScheduler	Fills a planning from data in iCalendar format
ScrollbarMaxPosition	Retrieves the maximum position of one of the scrollbars for a control	iCalendarToAppointment	Lists the appointments described in a character string in iCalendar format.
ToolTipMargin	Modifies the margin set for the tooltip margins.	iCurrentFile	Returns a character string containing the name of the file being generated.
MapConfigureGgIAPI	Declares additional parameters for the Map control that will be transmitted to the Google API.	iPrintSignature BrowserRunApp ActionPlanInfo	Prints a signature inside a rectangular area. Opens the default Web browser of the device. Retrieves information about the execution of an action plan instance.
AAFChangeCaption	Customizes the caption of the popup menu for an AAF.	SchedulerToiCalendar	Exports the appointments of a Scheduler control into iCalendar format.
dBOrder	Draws a frame inside an image or an Image control.	AttachPointAdd	Adds an attach point to a control so a «link between 2 controls» type control can attach to it.
GetCountryList	Provides the list of countries with their ISO code (3166-1 standard) and the corresponding nation constant.	AttachPointDeleteAll FirstDayOfYear	Deletes all the attach points on a control. Returns the first day of the year from a given date or the current date.
dRoundedRectangle	Draws a rounded rectangle inside an Image control, in an Image type variable.	AppointmentToiCalendar	Builds a character string in iCalendar format describing a list of appointments.
FBSessionStatus	Checks the status of a Facebook session.	SysLinkExtension	Associates an extension (.txt, .avi, etc.) to a default execution program.
FBStopSession	Disconnects the user from Facebook.	SysUnlinkExtension	Deletes the association between an extension and a command.
FBStartSession	Allows the connection and authentication to Facebook.	SysIconDisplayTooltip SysNation SysGetExtLink TableListChild	Displays a tooltip for an icon in the task bar. Returns the current language for the current machine. Retrieves the command associated with the extension. Lists the «children» of a node and the «children» of these «children» in a Treeview table control. A WLanguage procedure is called whenever a «child» element is found.
FBGetUserInformation	Retrieves the Facebook information of a user.	TelemetryEnable TelemetryDisable TelemetryIsEnabled TelemetryConfigure TextEllipsis	Enables the sending of telemetry data. Disables the sending of telemetry data Returns True if the telemetry is active Configures the telemetry
FBRequest	Makes a communication request (HTTP request) to the Facebook Graph API.	TraceBuild	Calculates for a given text the text with ellipses displayed in an edit control, a combo box or a static control.
WinEdActive	Activates or deactivates the control editing in a window or internal window.	VibrationStop	Displays a custom information message inside the trace window open in parallel to the current window. Stops the vibrations of the device (even if they have been triggered by another application).
WinEdLoad	Loads modifications made by the end user in a window or internal window.	LooperAddInProgress	Displays or hides the Internal window showing the progress bar for adding additional elements.
WinEdDeclareUndo	Indicates how to cancel an action added with the WinEdDo() function.	LooperRestorePositionAndSelection	Restores the position of the scrollbar in a looper control and /or the selected element(s).
WinEdDeselectAll	Deselects all the controls during the editing of a window by the end user.	LooperSavePositionAndSelection	Saves the position.
WinEdDo	Executes an action with support for Undo/Redo at run time.		
WinEdRedo	Repeats the last canceled action in the edit mode at run time.		
WinEdRestore	Cancels all the modifications made by the end user in a window or internal window.		
WinEdSave	Saves the modifications made in «edit» mode by the end user.		
WinEdSelect	Returns one of the controls selected in edit mode by the end user.		
WinEdSelectMinus	Deselects a control for the end user «edit mode» in a window or internal window.		
WinEdSelectOccurrence	Indicates the number of controls selected in edit mode by the end user.		
WinEdSelectPlus	Selects a control to be edited by the end user in a window or internal window.		
WinEdUndo	Cancels the last action performed in edit mode at run time.		
fDirExist	Checks the existence of a directory.		
fTempDir	Returns the name of the directory used to store the temporary files.		
gImageExists	Indicates whether an image was previously loaded to be used with the Image function.		

WINDEV Mobile[®]



WINDEV MOBILE

451

new features W D W B W M

CROSS-PLATFORM VISUALIZATION PANEL: HOW DOES YOUR APPLICATION LOOK ON DIFFERENT DEVICES

449

new feature W D W B W M

BENEFIT FROM THE 150 NEW FEATURES OF VERSION 21

WINDEV Mobile 21 benefits from the majority of new features presented at the beginning of this document.

New controls, evolution on the existing controls, new features in the editors, new features in WLanguage, in HFSQL: your teams are instantly more efficient.

450

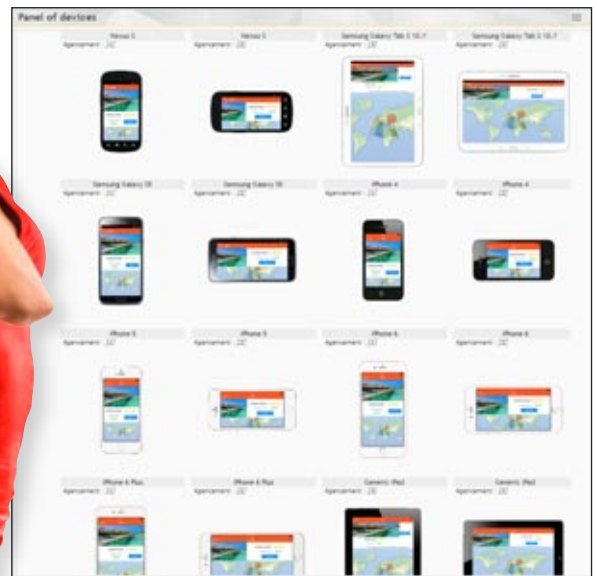
W D W B W M

REMINDER: TRANSFER THE EXISTING APPLICATIONS TO MOBILE IN A FEW HOURS

You already have WINDEV applications? Even if these applications have been developed years ago, they are compatible with mobiles! Your existing applications move over to mobile in a few hours or a few days. Are your teams efficient in WLanguage? Then they're comfortable developing for mobile. Creating applications for Android or iOS (iPhone, iPad) is real child's play. Your existing applications are compatible: code of course, but also windows (though they need to be resized as you probably guessed), analysis, queries, data, ... The HFSQL database (as well as the HyperFileSQL database) is natively compatible with mobiles: you can embed the data (and the indexes) instantly You've made the right choice with WINDEV and WINDEV Mobile!

Benefit provided by this version 21 new feature:

The portability of your existing code is ensured.



The panel is updated in real time in the editor: you can see the results of your modifications instantly

A new visualization mode for application in the process of being developed is introduced in version 21: the «panel» mode.

This new visualization mode lets you instantly check that the interface works for all the targeted devices:

- correctly positioned anchors enabled
- support for landscape/portrait mode
- behavior on different resolution screens
- layout check: proper size position and anchors dissociation
- font compatibility
- ...

The visualization is performed in real time. The visualization size for the devices can be defined. Each device can be zoomed in.

The clock on the device starts the «test» window (GO of the window) in order to test the behavior, and to be able to compare between several devices or systems.
 For example: is the behavior the same between iOS and Android? Etc.

Do not confuse this new feature with the «layouts». The layouts set up the behavior. The panel visualizes the end result in «real» devices.

Benefit provided by this version 21 new feature:
 Check your applications' behavior (anchors and layout) on all the devices.

452 new feature W D W B W M

NEW LAYOUTS

A layout lets you create several different presentations for the same window.
 The same application can therefore use different presentations depending on the runtime device.
 In version 21, the definition of the targets is made easier by the concept of generic targets (telephone, Android phone, iPhone, tablet, etc.).
 The definition of a specific target (Samsung Galaxy, iPhone 6s, ...) is always available.

Size of layouts to create for Android
 Your window is intended to be run:

- On a fleet of heterogeneous devices (store for example)
 The layouts will be based on a small screen size.
 The anchors will have to be adjusted properly.
- On a fleet of precise devices (fleets of identical devices)
 The layouts will be based on the sizes of the screens found on the devices that will be selected below.

Platform: [dropdown] Edit resolution: [dropdown]

Portrait/Landscape
 Do you want to use anchors or layouts to manage the orientation of the device?

- Create layouts
 I need to modify the layout of controls according to the orientation.
- Use the anchors only
 The anchors are sufficient to reposition the controls.

Phone/Tablet
 Do you want to manage the GUI difference between tablet and phone?

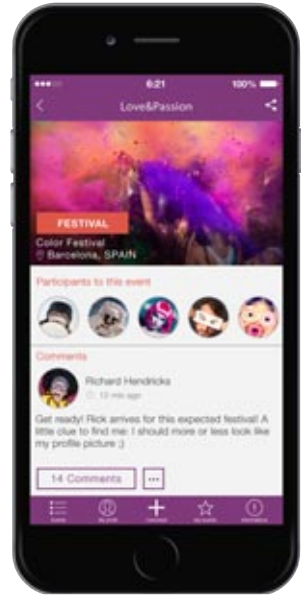
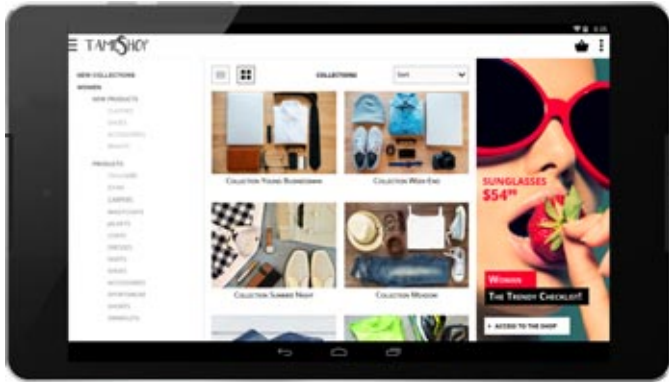
- Create layouts
 I need to modify the layout of controls between phone and tablet.
- Use the anchors only
 The anchors are sufficient to reposition the controls.

Benefit provided by this version 21 new feature:
 Thanks to the new wizard, the layouts are more pertinent.

453 new feature W D W B W M

7 NEW SKIN TEMPLATES

7 new WINDEV Mobile skin templates are offered in version 21, allowing you to propose up-to-date styles for your applications.
 The ActivFox and ActivAndroid 5 skin templates take the appearance of the Android L platform (Material Design).



2 of the 7 new mobile skin templates

MOBILE CONTROLS

454 new feature W D W B W M

NEW SCHEDULER CONTROL

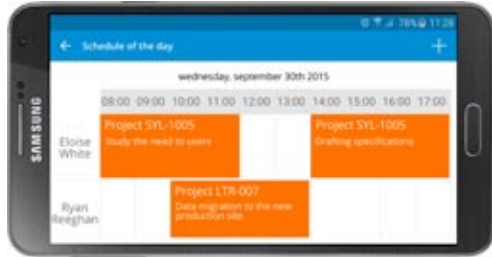
In version 21 the Organizer control is available for Android and iOS applications.

When you retrieve WINDEV or WEBDEV applications that use the Scheduler control, the existing code is compatible.
 The Scheduler control adapts to work on mobile with tactile screens changing a time period can be done with a finger swipe for instance.

The default display modes are:

- 1 day
- 3 days
- week
- months.

Indeed on a phone, since the display surface is reduced, you need to be able to navigate easily.



Displaying Scheduler controls on tablets and smartphones.

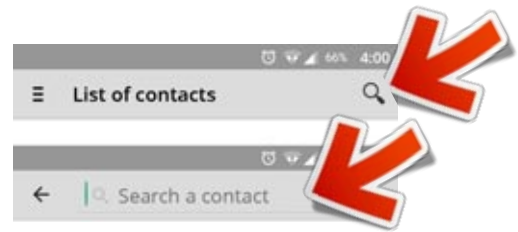
See also the iCalendar new feature (number 103 to 105).

Benefit provided by this version 21 new feature:
Schedules on mobile.

455 new feature W D W B W M

ACTION BAR/NAV BAR WITH SEARCH

In version 21, you can offer a «magnifier» button in the Action Bar; this button activates a search edit control directly in the Action Bar.

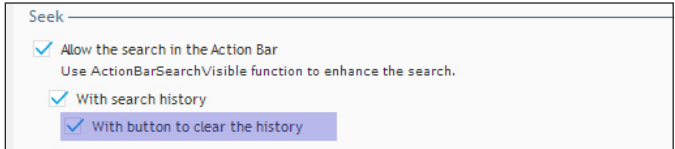


At run time, the search control inside the bar

An indication text can be displayed inside the control. Search history is supported.

The search history can be deleted by the end user.

It's just a check mark in the «7-tab»!



In the «7-tab», creating the search control

Benefit provided by this version 21 new feature:
Search!

456 new feature W D W B W M

MAKE THE ACTION BAR DISAPPEAR USING TRANSPARENCY

Another disappearing mode for the Action Bar is being introduced in version 21: disappearance by progressive transparency. This mode is activated by programming, and also allows for specific behaviors: you can leave the Action Bar displayed with a set transparency rate.

Benefit provided by this version 21 new feature:
Disappearing with elegance.

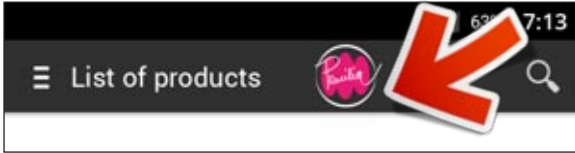
My favorite development tool !

WINDEV Mobile 21

DEVELOP 10 TIMES FASTER

ACTION BAR: AN IMAGE IN THE TITLE

You can position an image in the Action Bar: for example the software or company's logo !
The positioning is done via the `gImage WLanguage` function.



The company's logo has been added inside the Action Bar

Benefit provided by this version 21 new feature:
Customize...

ENDLESS LOOPER (FILLED IF NEEDED)

Today, a common consultation mode for information list is the «endless list» mode: each time the user scrolls down the list, additional information is displayed.

This information is automatically loaded «on demand», just when the user scrolls. If the user doesn't scroll, the application doesn't do anything.

The benefit is that you don't consume bandwidth unnecessarily, and the interface is faster.

A new process is being introduced to «fill the looper when the user reaches the end».

The application decides of the amount of information to load. If needed a small progress bar comes up.

In the «7-tab» you can set a limit to the amount of information loaded (for instance, don't display more than 1,000 rows).

Benefit provided by this version 21 new feature:
Improve your applications' responsiveness.

LOOPER: CUSTOMIZE THE HORIZONTAL SWIPE

In a looper control, a horizontal swipe can delete the swiped row.

In version 21 you can customize the way the swipe action behaves.

The swipe can offer actions on the row: modification, archiving, sending email, telephone call ...

This customization is done via an «internal window»: no limit!
The action can be different depending whether the swipe is from left-to-right or right-to-left.



Here the swipe action offers to call the contact, send him an email or SMS

Benefit provided by this version 21 new feature:
Always more powerful features.



**21: a version
that puts
you in a
good mood**

ENDLESS TABLE: FILLING IF NEEDED

The Table control benefits also from new feature 458, automatic endless filling.

Benefit provided by this version 21 new feature:
To infinity ... and beyond!

TABLE: NEW CHECK BOX TYPE BUTTON

Mobile tables now accept check box type columns.

Benefit provided by this version 21 new feature:
Richer tables.

ROUND IMAGES

Round images are now fashionable! Therefore it makes sense that version 21 of WINDEV Mobile lets you display images inside circles.

To display a rectangular image inside a «round» shape simply specify it in the «7-tab».

There's no modification of the image to perform in an image processing or other software.

The part of the image that is not displayed (the control's «corners») is transparent.

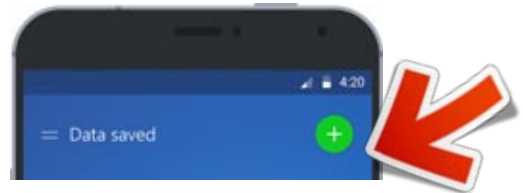


Benefit provided by this version 21 new feature:
Square pegs into round holes.

ROUND BUTTONS

Version 21 of WINDEV Mobile also lets you create «round» buttons.

This also involves a selection in the «7-tab»



Even buttons can be round

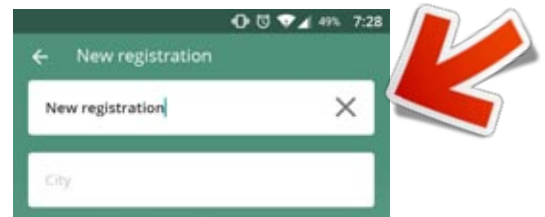
Benefit provided by this version 21 new feature:
Round and around!

GETTING ALONG WITH THE EX! (X MARK IN EDIT CONTROLS)

A common behavior to delete data inside a control consists in using an X located in the edit control, on the right.

WINDEV Mobile 21 offers such an X mark in edit controls.

One click in the «7-tab» is all it takes!



Clicking the X empties the control

Benefit provided by this version 21 new feature:
Powerful features without any programming.

FACEBOOK IDENTIFICATION



IDENTIFICATION: THE USER'S FACEBOOK LOGIN IS USED AS YOUR APPLICATION'S LOGIN

This is a common connection process: the end user uses his or her Facebook parameters (email, password) to authenticate himself or herself in third-party applications (here: yours!)

The benefit for the end user is that there are fewer passwords to remember.

In version 21, WINDEV Mobile can allow you to set up this authentication mode for your applications.

Connect with Facebook



Benefit provided by this version 21 new feature:
Powerful features without any programming.

466 new feature W D W B W M

FACEBOOK AUTHENTICATION, HOW DOES IT WORK?

The first step consists in declaring the application that will use Facebook services to Facebook (once regardless of the number of users).

Facebook returns an identifier.

This identifier will be used in the application to trigger the user authentication, via the new WLanguage function `FBStartSession`.

This function opens the Facebook identification window.

The function returns «True» if the authentication is successful. Some information is made available to the application by Facebook: last name, first name, photo, email address...

The application can retrieve this information using the `FBGetUserInfo` WLanguage function.

The `FBRequest` WINDEV Mobile 21 function lets you request actions from Facebook: post to a wall, like ...

Benefit provided by this version 21 new feature:
Interaction with Facebook.

ANIMATE YOUR MOBILE WINDOWS

467 new feature W D W B W M

MOBILE INTERFACES ARE BECOMING MORE AND MORE SOPHISTICATED. WINDEV MOBILE 21 HELPS YOU!

Today, mobile applications often offer sophisticated interfaces. Animations make navigation more enjoyable. Version 21 of WINDEV Mobile helps you include sophisticated animations in your applications.

Benefit provided by this version 21 new feature:
Powerful features without any programming.

468 new feature W D W B W M

ANIMATION ON SWIPE (HORIZONTAL FINGER MOTION)

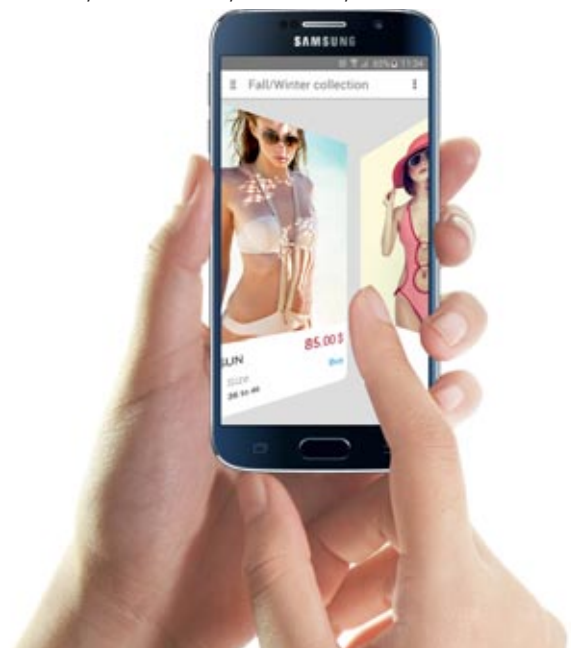
A swipe lets you move from one form to another, from one item to another (news item or stock item!)

An animation can materialize this action:

- zoom
- turn around effect
- backup effect
- fade in...

An animation is easily defined using the «7-tab» or by programming.

Indeed the animation may depend on the next window displayed: detail, end of order, validation, ...



This is tricky to explain in a printed document, which by definition, displays static images!

To see the animation, read this QR Code with your phone (if

you're reading the PDF version of the document, click the link)



To see the effect, read the code or visit www.windev.com/21468

Benefit provided by this version 21 new feature:
Effects that impress!

469 new features W D W B W M

FADE-IN AND FADE-OUT ANIMATIONS

WINDEV Mobile 21 lets you fade between images when they display. This makes for a sophisticated transition. An unusual use of this feature is to vary the display of the same image: display it light then dark to make it stand out.



To see the effect, read the code or visit www.windev.com/21468

Benefit provided by this version 21 new feature:
It's not just the sun that fades.

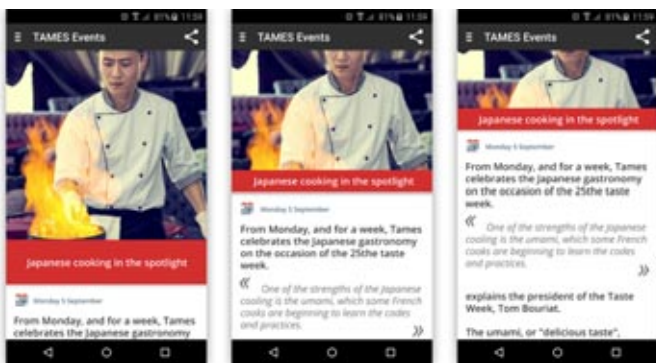
470 new features W D W B W M

«PARALLAX SCROLLING» ANIMATION: THE IMAGE SCROLLS SLOWER THAN THE WINDOW THAT SCROLLS

When the end user scrolls toward the bottom to see the window's content, the image scrolls slower and is covered by the top of the window that goes up (by the bottom).



To see the effect, read the code or visit www.windev.com/21470



The image scrolls up slower than the text, and the height of the red bar decreases.

This subtle effect makes your interface more pleasant.

Benefit provided by this version 21 new feature:
Create special effects.





Progressive disappearance of the Action bar

471 new feature WD WB WM

ACTION BAR ANIMATION

Let's take the example of a news reader on a phone (your favorite daily!)

When you display an article, the Action Bar is usually located at the top of the window.

When you scroll down the text then, the Action Bar progressively disappears, as if it was coming out through the top of the screen.

Setting up this WINDEV Mobile 21 behavior is done in 1 click in the «7-tab»!

Can you top that!



To see the effect, read the code or visit www.windev.com/21471

Benefit provided by this version 21 new feature:
Cool animations ...

472 new feature WD WB WM

AND IF YOU DIDN'T WANT ANIMATIONS?

In version 21, you can request that the window opens without animation.

This can be useful for special cases.

Benefit provided by this version 21 new feature:
Total discretion...



GUI/WINDOW

473 new feature WD WB WM

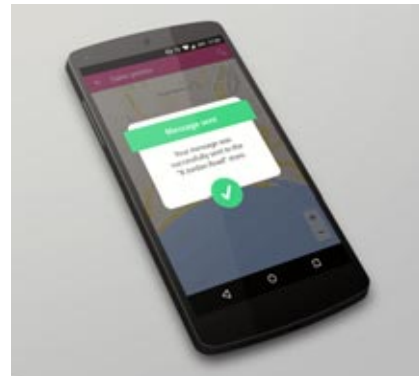
CLIPPED WINDOWS

A clipped window (non rectangular) lets you vary your interfaces!

Version 21 of WINDEV Mobile lets you create clipped mobile windows.

All you need to do is provide the window's background image in PNG format.

The PNG's transparency is respected.



A clipped window on iPhone

Benefit provided by this version 21 new feature:
Get clipping!

GPS

474 new feature WD WB WM

GEO-LOCALIZATION IN THE BACKGROUND (AND THAT DOESN'T RUN THE BATTERY OUT!)

This new feature in version 21 is really very useful! And it works even if the app is closed! (you just need to have started the app once, even if the phone is then turned off and back on).

The feature can be disabled by the end user, enabled in some cases, etc.

When the device is moved more than 500 meters, an app's procedure is automatically called.

This call is performed directly by the operating system, there's nothing to program when this mode is enabled.

For example, this procedure can:

- save the position
- send the position
- detect the closeness of a given point: other user, store, charging station, gas station, bar, restaurant...



The `geoTrackingEnable`, `geoTrackingProcedure`, `geoTrackingDisable`, `geoTrackingStatus` new WLanguage functions let you specify the procedure to call.

The functions usually need to be used in the project initialization code.

Your teams are free to program the process of their choice... without draining the users' battery!

Benefit provided by this version 21 new feature:

Don't drain the battery!

OTHER COMMON NEW FEATURES

475

new feature WD WB WM

GO: ZOOM IN AND ZOOM OUT!

When executing a GO for a mobile application, the application is displayed with the frame of the device.

Given the high DPI for tablets, it may happen that the tablet viewed spills out of the PC's screen! In version 21 you can zoom out of the display.

Benefit provided by this version 21 new feature:

You can see the entire screen.

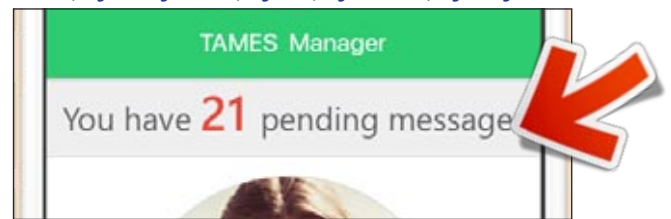
476

new feature WD WB WM

SUPPORTING TEXT FORMATTING VIA PROGRAMMING

Any text that can be modified by programming can be enriched using the classic «g» family of functions:

`gFont`, `gFontBold`, `gFontItalic`, `gFontUnderlined`, `gFontSize`, `gBackground`, `gPen`, `gToText`, `gImage`.



Text formatting on mobile using the «g» functions: the «21» is much more visible!

The graphic string obtained this way can be used in the `List box` or `Combo box` controls for instance.

In version 21, the graphic string functions are available for Android and iOS applications

MOBILE RAD

477

new feature WD WB WM

BETTER LOOKING TABLES

The mobile RAD creates windows and apps for Mobiles.

The tables created by the Mobile RAD are better looking in version 21.

Margins are smoother, column separators can be hidden to lighten up the table, ...

Benefit provided by this version 21 new feature:

Smoother tables.



Benefit provided by this version 21 new feature:
You found the «g» function.

478 new feature WD WB WM

RASTERIZED SVG IMAGES FOR FASTER DISPLAY

An SVG vector image requires some processor time to be decoded and displayed.
That's a constraint of this vector format.
Upon request, when generating the application, for the SVG images used, WINDEV Mobile 21 can generate bitmap images of different sizes.
The images are generated to support the common DPI.

Benefit provided by this version 21 new feature:
Useful in some cases.

479 new feature WD WB WM

UI COMPILATION ERROR: QUASI IDENTICAL LAYOUTS!

As you know, a layout defines the position of the controls based on a family of devices or a screen definition.
No need to create a layout for each separate device!
When WINDEV Mobile 21 detects layouts very close to each others, it flags them.

Benefit provided by this version 21 new feature:
Simplify your applications.

480 new feature WD WB WM

MODERNIZED UNIT EXAMPLES

WINDEV Mobile comes with dozens of examples.
A unit example illustrates a specific feature: use of the GPS, printing ...
In version 21, these examples have been modernized.
A search engine helps you easily find the examples that can be useful to your teams.

Benefit provided by this version 21 new feature:
Use the examples provided!

481 new feature WD WB WM

NEW SCROLL PROCESS

In version 21, the new `scroll bar movement` process (pcode) enables the application to be notified for each action that moves the window, looper controls, internal windows, ... (scroll).

482 new feature WD WB WM

IoT (INTERNET OF THINGS): CONNECTED OBJECT BLUETOOTH (LOW ENERGY)

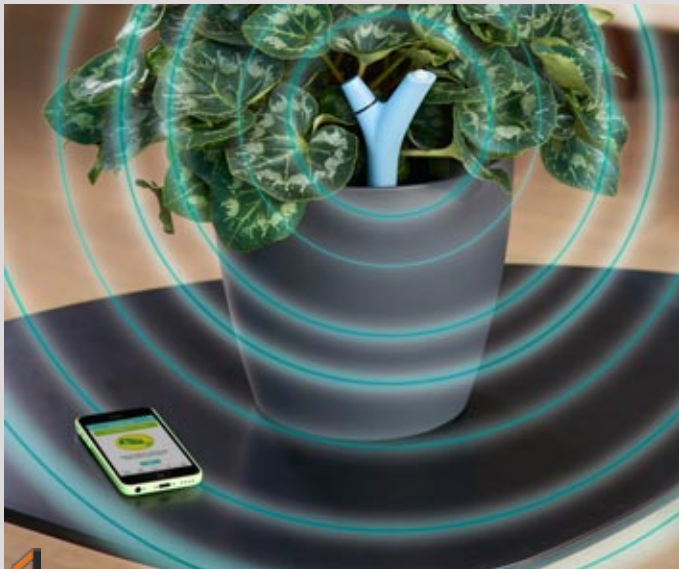
The Bluetooth LE standard (for Low Energy) lets you manage devices with low energy consumption.
This is fundamental for the IoT technologies.

The intent for this standard is to allow connected objects to work for several months without having to change a battery!
For this purpose, we're introducing the **BTLE** family of functions:

BTLEStatus	BTLEConnect	BTLEDisconnect	BTLEListDevice
BTLEInitialize	BTLECharacteristicChangeOfValue	BTLECharacteristicReadValue	BTLECharacteristicWriteValue

Benefit provided by this version 21 new feature:
Manage any IoT objects in your applications.

Parrot - Flower Power - Intelligent captor for your plants



Polar - Cardiac frequency transmitter H7



This process enables you to easily program:

- a change in opacity for the action bar based on the movement performed by the user
- a reading process
- know that the user has reached the bottom of the window to execute a specific process

Benefit provided by this version 21 new feature:
Refine your applications.

483 new feature W D W B W M

CHANGE THE MARKERS ALIGNMENT IN A MAP



WINDEV Mobile 21 lets you modify the alignment of the markers in a map.
This is useful when the application uses a custom marker.

Benefit provided by this version 21 new feature:
Point!

484 new features W D W B W M

WHAT LANGUAGE DOES THIS PHONE SPEAK?

The `sysNation` WLanguage function lets you find out what language is used on a device.

This is useful if you develop applications that are distributed internationally, or even for a country that uses multiple languages. Canada, Belgium, Switzerland, ...

You can adapt your applications based on the language.

Benefit provided by this version 21 new feature:
Become a polyglot!

485 new features W D W B W M

CROSS PLATFORM APPLICATION: DETECTING MULTIPLE SYNTAX

In some rare cases, a function may not expect the same parameters depending on the platform.

For example, «InApp» purchases are not supported the same way in the Apple Store and Google Play.

The WLanguage function doesn't have the same syntax. If conditional code is not used, these differences are now flagged by the compiler.

Benefit provided by this version 21 new feature:
An even more precise compiler.

NATIVE IOS: IPHONE, IPAD

Don't forget that your existing WINDEV code, your windows, even if they have been developed 5 or 10 years ago, are compatible with the iPhone and iPad.

Resize your windows, perform some changes, and that's it, in a few hours or in a few days, you get outstanding applications for iPhone and iPad.

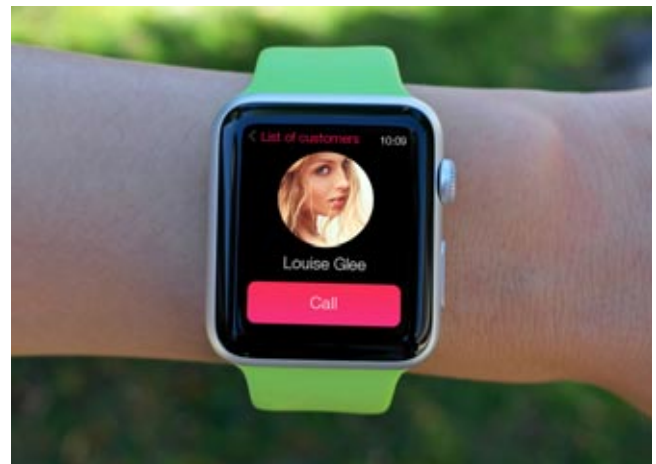
Your teams do not have to learn a new language because after 20 years of constant innovation, WLanguage is a universal language: iOS, Windows, Linux, Android, Web, Mac, Windows 10 Mobile...

You've made the right choice!

iOS benefits from all the general new features in version 21, as well as the new features common to mobile environments: GPS function that doesn't consume batteries, low energy Bluetooth for Internet of Things, ...

486 new feature W D W B W M

APPLE WATCH SUPPORT



An Apple watch lets you execute useful applications: information about the current customer, display the 3 closest stores offering the most sought after product, preview of the month's sales, alert based on a given figure, sales goals display ...

Version 21 of WINDEV Mobile lets you create applications for the Apple Watch.

In general, apps for the Apple Watch are much simpler than the usual iPhone apps.

Over 250 WLanguage functions are already available in this version.

Benefit provided by this version 21 new feature:
Support for all the devices and system versions.

487 new feature W D W B W M

CONTROLS FOR APPLE WATCH

WINDEV Mobile offers 3 types of controls for the Apple Watch:

- static

- image
- button.

Benefit provided by this version 21 new feature:
Support for all the devices and versions of iOS.

488 new feature W D W B W M

APPLE WATCH: A WELL SUITED EDITOR

The window editor enables you to create windows in the size of the Apple Watch, and offers specific options for the Apple Watch.

The GO and the application's test can be performed on the development machine.

Benefit provided by this version 21 new feature:
A well suited editor.

489 new feature W D W B W M

APPLE WATCH: DEPLOYMENT ON THE APPLE STORE

Deploy your Apple Watch applications on the Apple Store.

Benefit provided by this version 21 new feature:
Deploy for the Apple Watch.

490 new feature W D W B W M

APPLE TV

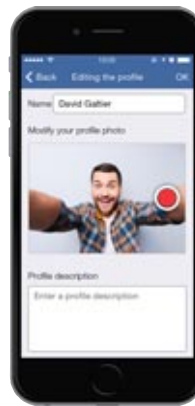
In version 21, a new Multimedia control option lets you send video streams to the television.

Benefit provided by this version 21 new feature:
You're watching too much TV!



491 new feature W D W B W M

CAMERA CONTROL



In version 21, the Camera control is available for iOS, iPhone and iPad (in previous versions, taking picture or video was only possible in full screen mode).

This allows you to include the taking of pictures or video directly in an application window that also offers other functionalities.

Benefit provided by this version 21 new feature:
Take pictures from your apps!

492 new feature W D W B W M

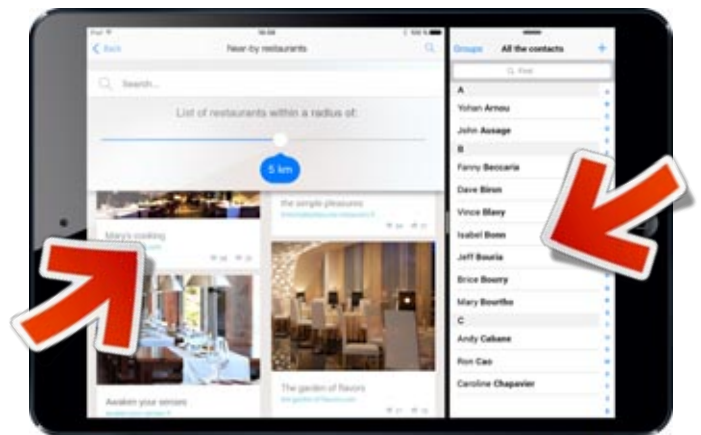
DECODING BARE CODES USING THE CAMERA CONTROL

With the older versions of WINDEV Mobile, decoding a bar code in iOS was always done in full screen mode. In version 21, it is now possible to read and display a bar code inside a window of the application, without leaving this window.

Benefit provided by this version 21 new feature:
More fluids apps.

493 new feature W D W B W M

SPLIT WINDOW ON IPAD (IOS 9)



2 different apps on the same screen

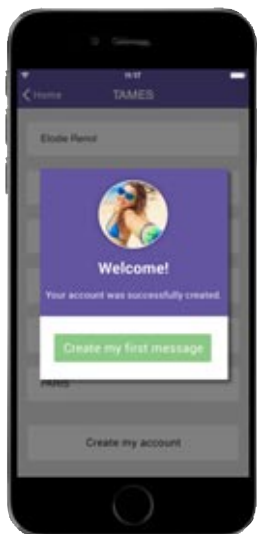
On iPad Air 2, 2 windows from 2 different apps can be displayed simultaneously, side by side.

The end user can move the split between the 2 windows: anchors are automatically applied, and even layouts if needed!

Benefit provided by this version 21 new feature:
Take advantage of the new features in iOS.

UN-MAXIMIZED WINDOW ON IPHONE

By default, a window is maximized on the iPhone. The concept of «un-maximized» window did not exist by default on the iPhone.



A un-maximized window on iPhone

But an un-maximized window can be interesting on an iPhone, for instance to display small amount of information to the end user.

Un-maximized windows are now offered by WINDEV Mobile 21.

A un-maximized window can also be clipped! (see new feature 473).

Benefit provided by this version 21 new feature:

Custom displays.

USE «NON-APPLE» FONTS IN YOUR APPS

You can choose to use specific fonts in your apps, for example to differentiate them from other apps, or to apply an overall graphic charter, that applies to all devices.

Of course, WINDEV Mobile 21 lets you use any font, but it goes even further!

By default, «non-standard» fonts are embedded in the bundle (the package that contains all the elements of the application), and will be automatically used when the app is executed on the iPhone or iPad.

(just make sure you have the rights to use this font)

Benefit provided by this version 21 new feature:

Fonts always available.

ACCESSING THE CALENDAR ON THE DEVICE

The iPhone and iPad offer an integrated calendar (iCalendar). Applications developed with WINDEV Mobile 21 can read and write in the iOS Calendar.



Use the iOS calendar

See also the «iCalendar» new feature (number 103 to 105)

Benefit provided by this version 21 new feature:

Even more interactive.

AUTOMATIC BACKUP TO ICLOUD: DON'T SAVE USELESS (LARGE) FILES

When a user activates his or her iCloud account on a device, by default all the data of all the apps are stored (then synchronized) to iCloud.

Some data is confidential and shouldn't leave the user's iPhone! Other data can be very large (and already backed up somewhere else, such as the company's customer file of a sales rep which is already in the company's database).

Backing up to iCloud can take a lot of time and use a lot of the phone's data plan.

WINDEV Mobile 21 offers the `iOSExcludeFileFromiCloud` function which lets you specify the file(s) that Apple should not back up.

Benefit provided by this version 21 new feature:

Control your backups to iCloud.

SHARE VIA SMS, MMS, EMAIL, SOCIAL NETWORK



In iOS, the `startShare` WLanguage function opens a menu that lets you select the application to use for sharing a resource (text or document). The application will be opened with the specified resource.

For example, an image can be sent via MMS, via email, or posted to Facebook. A text can be tweeted.

Benefit provided by this version 21 new feature:
Share data easily from iOS.

INCLUDING OBJECTIVE-C (.M AND .MM) SOURCE CODE IN YOUR APPLICATIONS

Often, SDK or frameworks are provided as source code (.M and .MM files).

In version 21, you can easily include Objective-C source files in your applications.

When generating the application, simply specify the .M and .MM files to include, and the potential options (`-arc` for example).

Benefit provided by this version 21 new feature:
Make better use of SDKs.

BITCODE

The generation of iOS applications generates code that can be used by the Apple Store: bitcode ARM32, bitcode ARM64 and bitcode x86.

Apple's recommendation is to compile in «bitcode» mode.

Benefit provided by this version 21 new feature:
Generate applications for the Apple Store.

SUPPORT FOR FTPS AND SFTP

The FTP functions of WINDEV Mobile 21 add support for the FTPS (FTP over TLS layer) and SFTP (SSH File Transfer Protocol) secure protocols on iOS.

Benefit provided by this version 21 new feature:
Secure file transfers.

SPEECH SYNTHESIS: MAKE YOUR APPLICATIONS TALK

The `SpeechSynthesis` speech synthesis family of functions is available on iOS.

Pass a text as parameter, and your application will read it out loud!



Your apps make the iPhones talk!

Benefit provided by this version 21 new feature:
We can make you talk, iPhone!

SUPPORT OF THE IPAD PRO



WINDEV Mobile 21 lets you create apps for the iPad Pro. The stylus and its pressure are supported.

Benefit provided by this version 21 new feature:
Pro for the pros!

3D TOUCH: PRESSURE ON THE SCREEN

WINDEV Mobile 21 offers the new function `GesturePressure` which lets you find out the finger or stylus pressure on the screen, and eventually offers different actions based on this pressure.

Benefit provided by this version 21 new feature:
Don't give in to pressure.

PROCESS OF «RELEASE ON CHART»

The new process (pcode) «Release on chart» in iOS lets you execute some code when the end user is done with moving inside the chart with his finger.

Benefit provided by this version 21 new feature:
Customize interactions with charts even more.

NEW IOS TYPES

Version 21 offers 7 new types for iOS and 125 new constants (please, see the full list in the online help).

100 NEW WLANGUAGE FUNCTIONS SUPPORTED IN IOS

100 new WLanguage functions are being introduced for iOS in version 21:

ActionBarSearchVisible	ActionBarDeleteSearchHistory	OrganizerToiCalendar	BTLEConnect
BTLEDisconnect	BTLEWriteAttribute	BTLEStatus	BTLEListAttribute
BTLEListDevices	BTLEReadAttribute	BTLENotification	dBorder
GetCountryList	dRoundedRectangle	FBSessionStatus	FBStopSession
FBStartSession	FBGetUserInformation	FBRequest	fDirExist
fTempDir	geoTrackingEnable	geoTrackingDisable	geoTrackingStatus
geoTrackingProcedure	GesturePressure	gBackground	gImage
gFont	gFontBold	gFontItalic	gFontUnderlined
gFontSize	grHMAAddData	grHMColor	grHMCaptionX
grHMCaptionY	grHMGetData	grHMDeleteColor	grSunburstStartAngle
grSunburstPullOut	gPen	HTMLToRTF	HTMLToText
HTTPSimulateNetwork	iCalendarToOrganizer	iCalendarToScheduler	iCalendarToAppointment
iCurrentFile	iOSExcludeFileFromCloud	StartShare	SchedulerDisplayPreviousPeriod
SchedulerDisplayNextPeriod	SchedulerAddAppointment	SchedulerAddResource	SchedulerChangeMode
SchedulerTimeDisplayed	SchedulerInfoXY	SchedulerListAppointment	SchedulerMode
SchedulerPositionDateTime	SchedulerPositionResource	SchedulerSelectMinus	SchedulerSelectPlus
SchedulerDeleteAppointment	SchedulerDeleteResource	SchedulerDeleteAll	SchedulerToiCalendar
FirstDayOfYear	AppointmentDisplay	AppointmentAdd	AppointmentList
AppointmentListCalendar	AppointmentModify	AppointmentDelete	AppointmentToiCalendar
RTFToHTML	RTFToText	SpeechSynthesisStop	SpeechSynthesisProgress
SpeechSynthesisInitialize	SpeechSynthesisReadFile	SpeechSynthesisReadText	AppointmentReset
WinInitialized	SysNation	TextToHTML	TextToRTF
TraceBuild	VibrationStop	VideoDisplay	VideoStop
VideoCapture	VideoStatus	VideoParameter	LooperAddInProgress

ANDROID



Developing in Android has never been as powerful as with WINDEV Mobile 21. You can take advantage of powerful new features that come in addition to all the ones you already have.

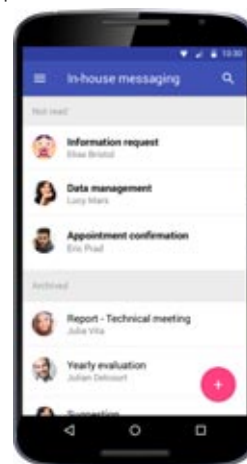
Android benefits both from the common new features of version 21, as well as the new features common to mobiles: GPS function that doesn't consume batteries, low energy Bluetooth for Internet of Things, ...

Android 6.0 is supported.

«MATERIAL DESIGN» LOOK

The material Design look has been made popular by Google. By default, the applications created by WINDEV Mobile 21 use the Material Design's elements: look and animation of the Action Bar, look of the «info», «Error», «Dialog», «Combo» windows, of the Check box controls, progress bar ...

By default also, applications recompiled in version 21 use the «Material Design» theme, which make the applications more modern looking! (option that can of course be deactivated).



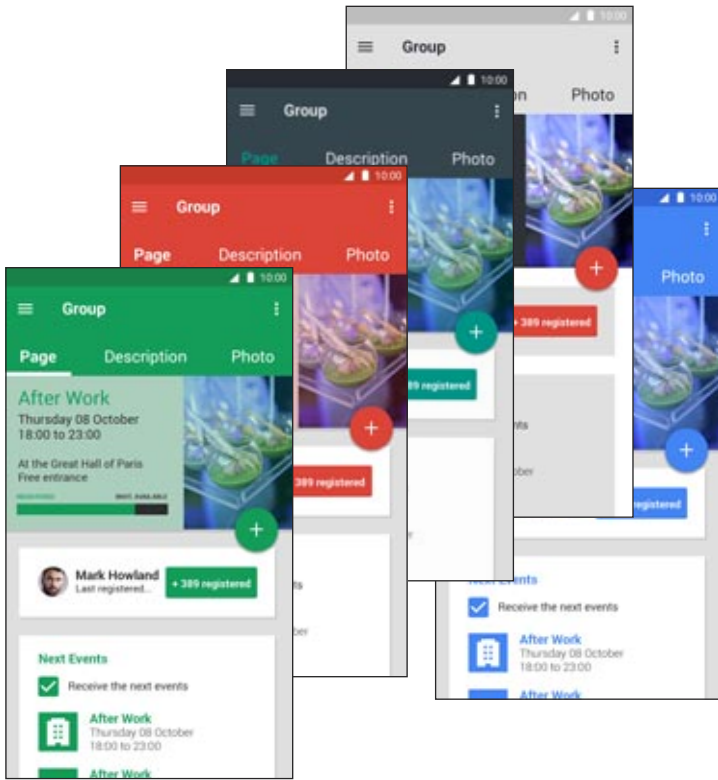
Benefit provided by this version 21 new feature:
You can see the results in just a glance.

«MATERIAL DESIGN» SKIN TEMPLATES

In order to help you easily create applications with the «material

design» look in version 21, a skin template using this look is offered with several color variations.

Benefit provided by this version 21 new feature:
Lots of choices.



609 new feature W D W B W M

DECODING BAR CODES WITH THE CAMERA CONTROL



Read bar codes directly from a window in your application (without having to leave the window).

In version 21, the Android applications can read and decode bar codes directly in a Camera control. No need to read then in full screen mode! Options for displaying a crosshair or blur the area outside the bar codes are available.

Benefit provided by this version 21 new feature:
Read bar codes without exiting the window.

610 new feature W D W B W M

BUTTON FIXED ON THE SCREEN (THEREFORE FLOATING INSIDE THE WINDOW)

A floating button is fixed on the screen: it floats inside the window.

This is a button that will always be visible regardless of the scrolling performed by the user. This type of button lets you create applications with the Material Design look. The fixed button is now offered on Android.



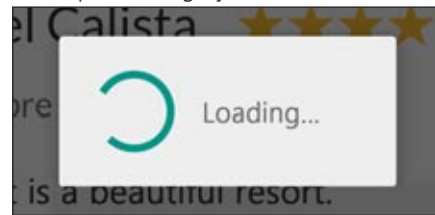
The « + » button will remain in the same spot, even if scrolling occurs

Benefit provided by this version 21 new feature:
It is fixed, therefore it floats.

611 new feature W D W B W M

NICE COMBO BOXES AND HOURLASS

In version 21, combo boxes and hourglass change look: they undertook a complete overall ... Your applications will be even better looking! (no new wardrobe needed, or plastic surgery to finance!)



Fashionable hourglasses ...

Benefit provided by this version 21 new feature:
Be trendy.

612 new feature W D W B W M

OPACITY OF CONTROLS

The `..Opacity` property lets you specify the opacity percentage of a control and create visual effects this way. For example, a table control could let you see an image through a control located on top of it. In version 21, the `..Opacity` property is available for all the types of controls in Android applications.

Benefit provided by this version 21 new feature:
Even more transparency.

613 new feature W D W B W M

SPELL CHECKER

The spell checker offered by default on edit controls can now be disabled, when entering a last name for instance.

Benefit provided by this version 21 new feature:
Better parameters.

614 new feature W D W B W M

CHECK BOXES: SKIN TEMPLATE LOOK OR SYSTEM LOOK

When using a skin template, you can force the use of the «system» look for check boxes instead of the skin template's look (overload the check box's look). This is a noticeable detail!



«System» look check box

Benefit provided by this version 21 new feature:
A useful detail.

615 new feature W D W B W M

CHOICE OF THE FIRST WINDOW OF THE APP (FOR PHONE? FOR TABLET?)

Version 21 of WINDEV Mobile lets you specify the first window to open based on the device used. This enables you to only have one app to compile (single configuration) for phone and tablet.

Benefit provided by this version 21 new feature:
Start your app with a window adapted to the device.

616 new feature W D W B W M

SUPPORT FOR GRADIENT COLORS

Each time a background color can be used, it is now possible for Android applications recompiled with version 21 to use a gradient color.

For example: window background, band, button ...

Benefit provided by this version 21 new feature:
Nice colors.

617 new feature W D W B W M

RETRIEVE NOTIFICATIONS FROM THIRD-PARTY APPS

An application built using WINDEV Mobile 21 knows how to display push notifications. These notifications use a preset format to transport informa-

tion.

This format is published so it can be used from a third-party app.

Benefit provided by this version 21 new feature:
Better interoperability.

618 new feature W D W B W M

INCLUDING LIBRARIES FROM «MAVEN»

MAVEN is a Java library sharing system via Internet. WINDEV Mobile 21 lets you include libraries coming from the MAVEN central repository in Android projects.

Benefit provided by this version 21 new feature:
Don't reinvent the wheel.

619 new feature W D W B W M

UNLIMITED NUMBER OF PROCEDURES

Older versions of WINDEV Mobile were limited to the use of 65,000 procedures per application. In version 21, the number of procedures in an Android project is not limited anymore.

Benefit provided by this version 21 new feature:
No limit.

620 new feature W D W B W M

INTERNAL PROCEDURE (LAMBDA)

An internal procedure is a procedure defined inside a process. What is special in an internal procedure is that it can only be called from inside the process where it is defined. The internal procedure accesses the local variables of the process that contains it. In version 21, it is now possible to define internal procedures in Android applications.

Benefit provided by this version 21 new feature:
Armored procedures!

621 new feature W D W B W M

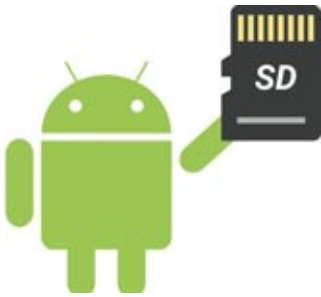
ANDROID SDK: AUTOMATIC DOWNLOAD AND INSTALLATION

The compilation of Android applications requires the presence of the Android SDK on the compilation machine. If the SDK is not already installed, WINDEV Mobile 21 automatically downloads this SDK, installs it and configures it automatically.

A lot of steps avoided!

Benefit provided by this version 21 new feature:
Don't lose time creating the configuration anymore.

ANDROID: EXTERNAL STORAGE SUPPORT



Android devices may have multiple storage spaces: the internal storage, where the applications are installed and where each application has its own data directory, and external storage.

In version 21, new WLanguage functions support external storage (SD card ...),

and let you get their properties (available space) and access them in read or write mode.

Benefit provided by this version 21 new feature:
Storage à gogo

ANDROID: WHERE DO DATA HIDE? (CACHE DIRECTORY)

The cache directory is intended to contain temporary application data.

The cache directory of an Android application is a special directory allocated by the system when the application is installed. The content of this directory can be automatically erased by the system when it needs disk space.

The content of the cache directory can also be emptied by user request.

WINDEV Mobile 21 offers the new WLanguage function, `fCacheDir`, which allows you to find out the physical location of an application's cache directory.

If the developer needs to store temporary data in an application, he can use this cache directory: the application will not have anything to manage!

Benefit provided by this version 21 new feature:
Easily access cache data.

ANDROID: STACK TYPE, QUEUE TYPE, LIST TYPE

The `Stack`, `Queue` and `List` types are abstract data types that group a set of same type variables.

In a stack, elements are retrieved in the reverse order they were put in (Last in First out, LIFO)

In a queue, the elements are retrieved in the order they're added (First in First out, FIFO).

Elements in a list can be added at the end or inserted in the list. These types can be accessed directly by multiple threads without any risk of conflicts among threads.

The `Stack` type of variables and the stack management functions (`Push`, `Pop`, etc.), the `Queue` type of variables and the

queue management functions (`Enqueue`, `Dequeue`, etc.), the `List` type of variables and the list management functions are available in version 21 for Android applications.

Benefit provided by this version 21 new feature:
Stack up your apps!

ANDROID: DYNAMIC CHECK BOXES

In version 21, the `CheckBox` family of functions (`CheckBoxAdd`, `CheckBoxDelete`, etc.) that lets you handle check box type control via programming, is available.

Benefit provided by this version 21 new feature:
Day..night, Day..night, Day..night..

ANDROID: DYNAMIC RADIO BUTTONS

In version 21, the `RadioButton` family of functions (`RadioButtonAdd`, `RadioButtonDelete`, etc.) that lets you handle via programming the options displayed by a Radio Button type control, is available.

Benefit provided by this version 21 new feature:
Select.

VARIOUS NEW ANDROID FEATURES

- The latest version of Android is supported.
- ...

Benefit provided by this version 21 new feature:
New features for Android.

NEW CONSTANTS AND NEW TYPES IN WLANGUAGE FOR ANDROID

Version 21 offers 3 new types for Android and 47 new constants (please see the complete list in the online help).

NEW WLANGUAGE FUNCTIONS SUPPORTED ON ANDROID

78 new WLanguage functions are being introduced for Android in version 21:

ActionBarSearchVisible	ActionBarDeleteSearchHistory	ScrollbarPosition	BTLEConnect
BTLEDisconnect	BTLECharacteristicChangeOfValue	BTLEStatus	BTLECharacteristicReadValue
BTLEListDevice	BTLECharacteristicWriteValue	BTLEInitialize	Dequeue
Pop	Push	Enqueue	FBSessionStatus
FBStopSession	FBStartSession	FBGetUserInformation	FBRequest
fSplit	QueueInfo	fMerge	fCacheDir
fDirExist	geoTrackingEnable	geoTrackingDisable	geoTrackingStatus
geoTrackingProcedure	gBackground	gImage	gClickableLink
gFont	gFontBold	gFontItalic	gFontUnderlined
gFontSize	gPen	gToText	iCalendarToScheduler
iCalendarToAppointment	CheckBoxAdd	CheckBoxInsert	CheckBoxCount
CheckBoxDelete	ListInfo	OpenPopupMenu	StackInfo
SchedulerDisplayPreviousPeriod	SchedulerDisplayNextPeriod	SchedulerAddAppointment	SchedulerAddResource
SchedulerChangeMode	SchedulerTimeDisplayed	SchedulerInfoXY	SchedulerListAppointment
SchedulerMode	SchedulerPositionDateTime	SchedulerPositionResource	SchedulerSelectMinus
SchedulerSelectPlus	SchedulerDeleteAppointment	SchedulerDeleteResource	SchedulerDeleteAll
SchedulerToiCalendar	AppointmentToiCalendar	RadioButtonAdd	RadioButtonInsert
RadioButtonCount	RadioButtonDelete	SysCacheExternalStorage	SysStatusExternalStorage
SysMemoryExternalStorage	SysNation	SysNbExternalStorage	SysDirExternalStorage
SysRemovableExternalStorage	LooperAddInProgress		

WINDEV Mobile 21
my projects are
mobile

WINDOWS MOBILE AND CE

Windows Mobile, Windows CE and Windows Embedded are very popular in industrial settings. Version 21 of WINDEV Mobile benefits from the common new features of the environment, and offers new WLanguage functions.

COMMON NEW FEATURES

WINDEV Mobile 21 for Windows Mobile and Windows Embedded benefit from the common new features in version 21.

NEW WLANGUAGE FUNCTIONS FOR WINDOWS MOBILE AND CE

12 new WLanguage functions have been introduced for Windows Mobile and Windows CE in version 21.

BufferToHexa	dBorder	GetCountryList	dRoundedRectangle
fDirExist	fTempDir	grSunburstPullOut	FirstDayOfYear
TableListChild	TraceBuild	LooperRestorePositionAndSelection	LooperSavePositionAndSelection

WINDOWS 10 AND WINDOWS 10 MOBILE (UNIVERSAL WINDOWS 10 PLATFORM APPS)

720 new feature W D W B W M

DEVELOP FOR WINDOWS 10 AND WINDOWS 10 MOBILE

WINDEV Mobile 21 lets you generate Universal Windows 10 Apps that will run on PC, Smartphones and Tablets on Windows 10 or Windows 10 Mobile (new name of Windows Phone).

The WINDEV Mobile code is identical. Windows are also identical thanks to anchors and layouts.

Benefit provided by this version 21 new feature:

A single code for all the modes.

721 new feature W D W B W M

COMPATIBILITY WITH ANDROID AND IOS (AND PC, AND LINUX, AND WEB...)

An application developed using WINDEV Mobile 21 for Windows 10 Mobile is compatible with Android and iOS: just recompile to get a native Android or native iOS app. Similarly, this application is compatible with all the versions of Windows, with Linux and can even be ported to a Web site! (of course you'll probably need to modify the windows and make them larger).

Benefit provided by this version 21 new feature:

A portability with no match on the market.

722 new features W D W B W M

WINDOWS 10 MOBILE CONTROLS

Among the native controls available in Windows Mobile 10, you'll find:

- static
- button
- list box
- image
- progress bar, slider
- HTML controls
- ...
- edit controls
- check box, radio button
- combo box
- loop
- chart
- internal window

The generation of PDF reports is available.

HFSQL Classic and HFSQL Client/Server are available.

Note that windows created with WINDEV Mobile 21 are really

universal (a PC SOFT exclusive): they can run on Windows 10 Mobile, Android, and iOS (and even a PC, on Linux, on Mac, ...)

Benefit provided by this version 21 new feature:

Windows 10 support.

723 new feature W D W B W M

WLANGUAGE FUNCTIONS FOR WINDOWS 10 MOBILE

Over 1,100 Windows 10 Mobile functions are already available. This allows you to create the applications you need.

Please see the list of families in new feature 192.

Benefit provided by this version 21 new feature:

Already more than 1,100 WLanguage functions.

724 new feature W D W B W M

WINDOWS STORE



Applications developed for Windows 10 Mobile can be deployed via the Microsoft Store.

Benefit provided by this version 21 new feature:

Universal deployment.

725 new feature W D W B W M

WINDOWS 10 MOBILE HFSQL

HFSQL is available for Windows 10 Mobile. The database can be stored locally on the device, or it can be accessed remotely via a Client/Server connection or via the cloud.

Programming is identical.

Benefit provided by this version 21 new feature:

Manage your data.



WEBDEV

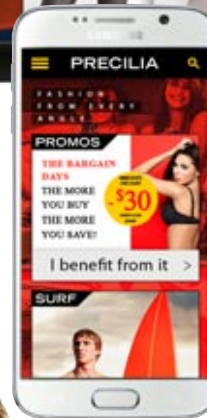


WEBDEV 21 COMMON NEW FEATURES

726 new feature WD WB WM

150 COMMON NEW FEATURES

WEBDEV benefits from version 21 common new features. WEBDEV 21 benefits from the evolution of the development environment and from the compatibility with WINDEV and WINDEV Mobile.



RESPONSIVE WEB DESIGN

727 WD WB WM

WHAT IS RESPONSIVE WEB DESIGN?

Responsive Web Design is a new development method for Web sites.

The basis for this method is to allow the same Web page to automatically adapt, during navigation, to the size and resolution of the screen where it is displayed.

The main advantage is to be able to target a Web page for smartphones, tablets or desktops all in one.

The adaptation is done in real time in the browser. This adaptation also lets you optimize the portrait and landscape modes.

*Responsive Web Design:
a single page, 3
different display*



*Benefit provided by this
version 21 new feature:
Sites that adapt to the
device.*

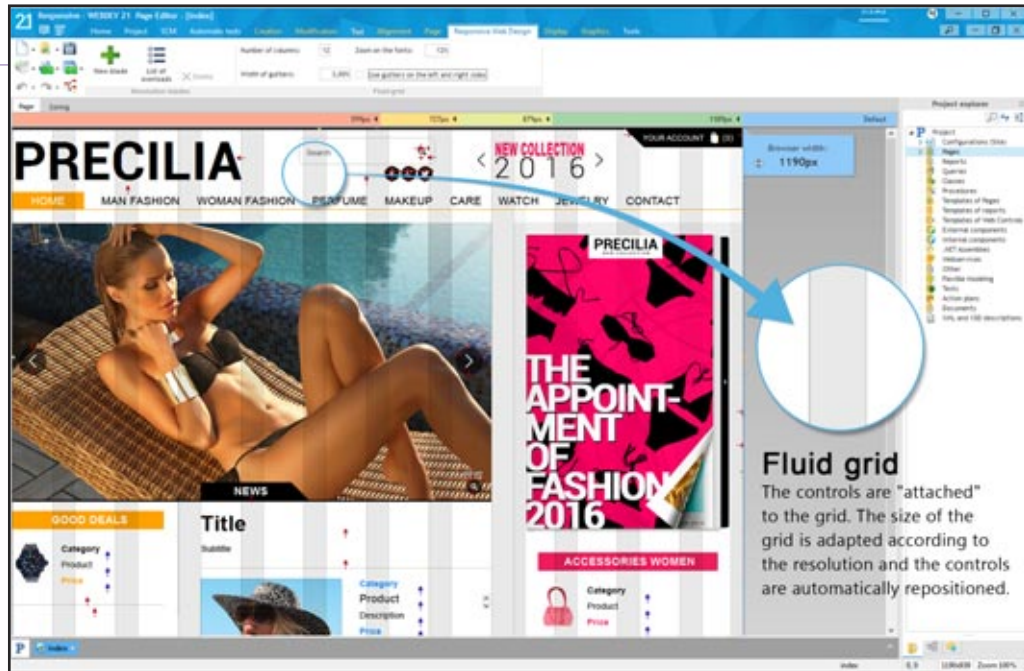
BENEFITS OF THE RESPONSIVE WEB DESIGN WITH WEBDEV 21: DEVELOP ONLY ONCE

The benefit of the Responsive Web Design approach is that you only create and maintain a single page.

In Responsive Web Mode, no more «desktop page», «tablet page» and «mobile page» versions that needed to be developed in parallel (even if you could share some of the code and controls).

Benefit provided by this version 21 new feature:

Design once, display everywhere!



BENEFIT OF WEBDEV 21 RESPONSIVE WEB DESIGN: BETTER REFERENCING

In its ranking of sites during a search, Google now favors mobile friendly sites, that is the sites whose format is adapted to mobile devices.

This requires the site to be designed to display in full width on a mobile (no horizontal scroll bar), without zoom effect, with readable text and controls large enough to be handle by touch.

Thanks to WEBDEV 21 Responsive Web Design, your sites are automatically mobile friendly, therefore they get better rankings from Google.

Benefit provided by this version 21 new feature:

The WEBDEV 21 sites are better ranked.

HOW TO CREATE RESPONSIVE WEB PAGES WITH WEBDEV 21?

An entire site can be responsive, or only some of its pages. An existing site can be modified, totally or partially (just a few pages) to become responsive.

Create responsive pages with WEBDEV 21 is easy.

Benefit provided by this version 21 new feature:

Easy evolution, no need to start from scratch for a site to become responsive.

RESPONSIVE WEB DESIGN: FLUID GRID

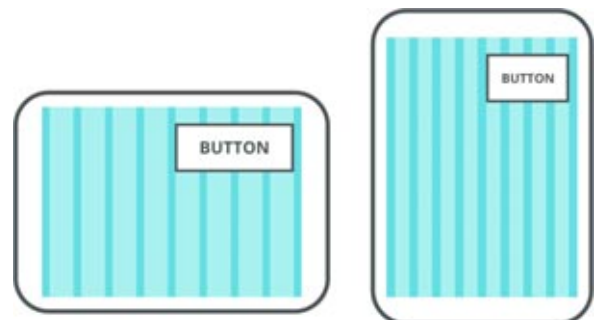
In edit mode, responsive pages are automatically displayed with a fluid positioning grid.

This grid is made of a set of columns of identical size.

The page's controls are positioned and anchored in width to these columns.

The columns are separated by «gutters» to guarantee spacing between controls and be visually more pleasing.

When the width of the page varies, the width of the columns varies proportionally, and the controls adapt automatically in position and size.



Benefit provided by this version 21 new feature:

Automatic adaptation.


THE FLUID GRID IN WYSIWYG

When creating the page, the developer places the controls in the page, as usual.

The controls are automatically anchored (on the right and on the left) to the columns of the grid.

Because of this, at run time, the controls stretch or shrink based

on the width of the column.
 The controls follow the grid.
 As soon as the page is created, directly in the editor, we can see the result in different page widths.
 Simply increase or decrease the navigation width in edit mode.

 To see the behavior, read the code or visit www.windev.com/21732

Benefit provided by this version 21 new feature:
 A more visual editing mode.

733 new feature W D W B W M

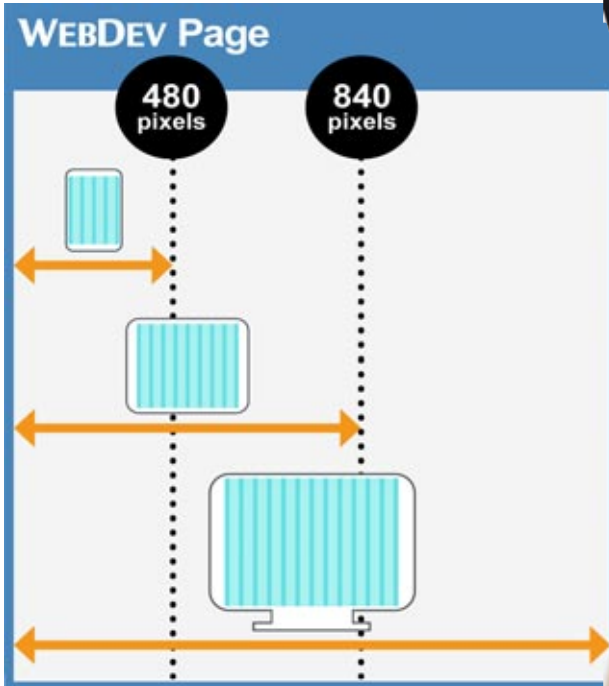
**RESPONSIVE WEB DESIGN:
 RESOLUTION BLADESS**

A fluid grid, it's great!
 But when the available display size are all over the spectrum, for instance with a phone and a desktop screen, the result can be hard to read.

A responsive page uses an additional concept, the «blades».
 A blade is a section, it is defined by a minimal width and a maximum width of the browser (in pixels, independent from the DPI)

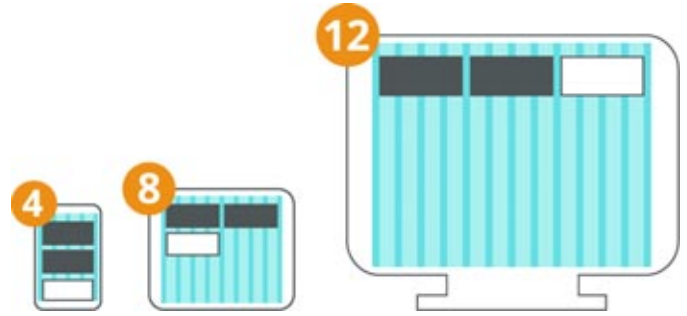
For example:

- a first blade for the browser that has less than 480 pixels (typically smartphones) (0 to 480),
- a second blade going from 480 to 840 pixel wide (for tablets and small screens)
- and a third blade above 840 pixels for large screens (PC,...)



You can associate a different fluid grid to each blade.
 Each fluid grid will have a suitable number of columns.
 For example, 4 columns for the first blade, 8 columns for the intermediate blade, and 12 columns for the maximum blade (see diagram below).

When you reduce the number of columns, the controls in the deleted columns are relocated vertically in the remaining columns. For example, a mobile site will grow in height!



WEBDEV 21 offers «default page templates» with resolution intervals already defined for the most common layout cases.

 To see the operation, read the code or visit www.windev.com/21733



Benefit provided by this version 21 new feature:
A stellar layout every time.

734 new feature W D W B W M

RESPONSIVE WEB DESIGN: FONT SIZE VARIATIONS

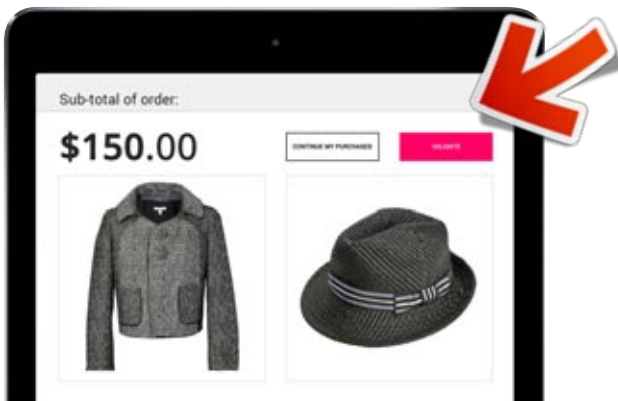
For each blade, you can define an expansion or reduction coefficient for the text fonts.
The text size will then automatically adapt, based on the blade displayed.

Benefit provided by this version 21 new feature:
What's up with the fonts? They automatically adapt!

735 new feature W D W B W M

RESPONSIVE WEB DESIGN: REFINE THE CONTROLS BASED ON THE BLADE (PROPERTY OVERLOAD)

Based on the blade, you can change (overload) the properties of one or more controls: for example increase its size, change its position.
Another case is buttons: the size of the buttons can be increased on a smartphone to make it easier to be clicked.



A WEBDEV 21 responsive site on a tablet: we're in the max size



The same WEBDEV 21 responsive site displayed on a smartphone: we're in the petite section

These modifications are performed in WYSIWYG, simply edit the corresponding blade.
At run time, the control will be displayed with the correspon-

ding properties.
Depending on the blade, you can decide not to display some controls.

Benefit provided by this version 21 new feature:
The developer precisely adapts its page layout to the platform.

736 new feature W D W B W M

RESPONSIVE WEB DESIGN: OPTIMIZE THE IMAGE RESOLUTION BASED ON THE BLADE

Depending on the display size (based on the blade), it may be better to load a larger or smaller resolution image (therefore with a lower weight).

The image control in WEBDEV 21 evolves to benefit from the new Responsive Web Design features .

In version 21, you can select a different image or an image with a different resolution (define a different path) for each blade.

Benefit provided by this version 21 new feature:
More elegant pages, regardless of size.

737 new feature W D W B W M

RESPONSIVE WEB DESIGN: EVOLUTION OF THE WEBDEV21 CONTROLS

The setup of Responsive Web Design sites is made easier by the changes and new features in version 21 of WEBDEV.

The «navigation bar» control is being introduced (see new feature 750) to manage the page headers.

The new menu lets you automatically display horizontally or vertically at run time.

The new support for static controls (see new feature 742) allows for an intelligent homothetic.

The new «stretch paragraph» anchor in rich text areas enables a better suited display in width.

Etc.

These new features allow the sites created in version 21 to be «responsive»!

Benefit provided by this version 21 new feature:
The changes that you expected!

**With WEBDEV 21,
make your sites Mobile Friendly.
Your sites will be better referenced.**

Operating mode of a Responsive page

Large-width blade



The font is enlarged

A different image may be displayed on small screen

Small-width blade



The element becomes invisible on small screen (overloading properties)

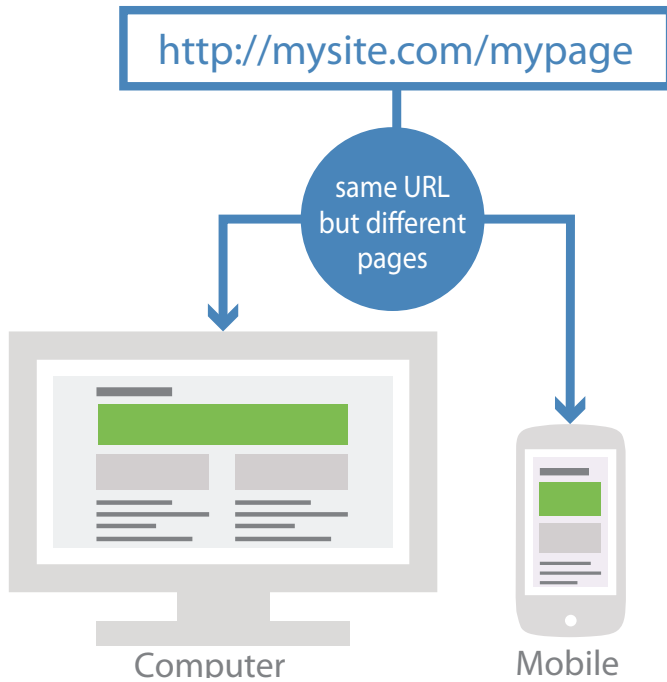
The other elements are positioned below

DYNAMIC SERVING: ONE URL, 2 DISTINCT PAGES

738

new feature WD WB WM

DYNAMIC SERVING



Dynamic serving is a technique where the same address (URL) leads to 2 different pages: a page for PC and a page for mobile. Depending on the device (PC or mobile) that accesses the page, the right page will be displayed.

This is an alternate solution (even complementary) to the Responsive Web Design to make a traditional site more mobile friendly.

With this method, no need to modify the existing pages: just add new ones for mobile.

This technique provides for great referencing by Google.

Benefit provided by this version 21 new feature:

Switch your existing sites to a mobile version without modifying what you have.

739

new feature WD WB WM

DYNAMIC SERVING: EXTREMELY EASY WITH WEBDEV 21

To associate the PC pages (on large screen) and the mobile pages, a new window is introduced in the project editor. At run time, depending on the hardware, the WEBDEV 21 ap-

plication server decides on the page to use. By programming it is possible to turn off the automatic routing. This way it is possible to offer the user with a mobile to stay on the desktop site.

Benefit provided by this version 21 new feature:

Adding mobile pages is child's play.

EDGE: NEW WINDOWS 10 BROWSER



740

new feature WD WB WM

EDGE

Microsoft offers a new Internet browser for Windows 10: Edge. Note that Internet Explorer still comes with Windows 10.

Edge uses a new rendering engine based on HTML5 and CSS.

Note that Edge does not support ActiveX.

Sites created with WEBDEV 21 are of course compatible with Edge.

In the WEBDEV 21 development environment, you can of course request a GO operation on Edge.

Benefit provided by this version 21 new feature:

Stay on the Edge with WEBDEV!



CONTROL CHANGES

741 new feature WD WB WM

CONTROL CLONING



In version 21, WEBDEV lets you clone controls. Cloning a control consists in duplicating an existing control (which can be visible or hidden) in a web page to create a new control.

The control's clone has the same characteristics, the same style and the same code as the initial control.

The clone can be handled via programming like any other control of the page.

The `ControlClone` WLanguage function is used for cloning. You can clone:

- controls that have the «stackable control» property
- controls found in RTA (rich text areas)
- controls found in fluid page layout zones,
- table columns.

Benefit provided by this version 21 new feature:
Even more dynamic pages.

742 new feature WD WB WM

NEW FULL BROWSER DISPLAY MODE FOR IMAGES

Support for the «static» image controls evolves in version 21. These new display modes are mainly intended for responsive designs.

4 new display modes are offered for the «static» image controls:

- homothetic
- homothetic without enlargement
- homothetic extended
- extended homothetic without enlargement.

These homotheties are performed in the browser, without going back to the server.

In the case where the browser is resized by the user, the images adapt automatically.

Benefit provided by this version 21 new feature:
Always adapted images.

743 new feature WD WB WM

NEW ANCHOR: STRETCH PARAGRAPH

In WEBDEV 21, controls located in a Rich Text Area (RTA) benefit from the new anchoring capabilities: «Stretch paragraph». If the RTA is anchored in width, the control will expand proportionally to the RTA.



When the text area increases, the right limit of the image moves.

Benefit provided by this version 21 new feature:
Always more flexible layouts.

744 new feature WD WB WM

CROSS REFERENCES ON STYLES (WEBDEV AND CSS)

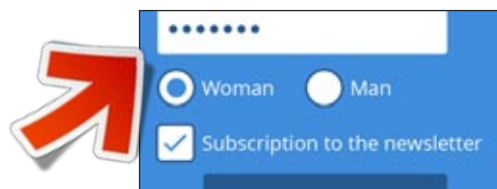
WEBDEV 21 lets you open a cross reference window on a style (WEBDEV style or CSS style). This way, the developer can know which project pages and controls use this style.

This new feature is very useful when modifying a style to ensure that the modification will not have any undesired effects on other pages of the site.

Benefit provided by this version 21 new feature:
Change your sites without side effects!

745 new feature WD WB WM

RADIO BUTTON AND CHECK BOX CONTROLS: ADVANCED CUSTOMIZATION



Custom radio button and check boxes

The customization of the look of the radio button and check box controls is even more granular in version 21.

It becomes possible to modify the style of the boxes for the check box control.

The space between the check box and the caption is adjustable in WYSIWYG mode directly in the editor («tracker»).

Benefit provided by this version 21 new feature:
 Even more stylish radio buttons and check boxes.

746 new feature W D W B W M

TABLE CONTROL: IMAGES ADAPTED TO THE COLUMNS

A table control column can contain an image. In version 21, all the homothetic modes are offered:

- homothetic
- range
- with or without enlargement
- ...

Benefit provided by this version 21 new feature:
 Keep your images in check.

747 new feature W D W B W M

TABLE CONTROL: CUSTOMIZATION OF THE ICONS

WEBDEV 21 lets you customize the various icons used by the Table control for its AAF:

DESCRIPTION OF PRODUCTS	QTY
APABARBEC gas barbecue Grill and Plancha 5 cm - 3 burners	1
LUIDELA water barrel - 250 L	1

- search
- filters
- sort
- ...

This way you can adapt the look of the table controls to the rest of the site.

It also becomes possible to adapt the size of these icons to the size of the header area.

In version 21, even these icons respect the site's graphic charter!

Benefit provided by this version 21 new feature:
 Customize!

748 new feature W D W B W M

A HORIZONTAL LOOPER CONTROL RESPONDS WELL (SMARTPHONE...)

The linear Looper control lets you display several occurrences of controls by repeating them horizontally (side by side).

With the older versions of WEBDEV, this control only offered buttons located on the right or left end to scroll the content.

In version 21, you can also make the content of the Looper control scroll linearly simply with your finger.

This new feature makes the control more intuitive to use on tablets and smartphones.

Benefit provided by this version 21 new feature:
 A control easier to use on touch screens.

749 new feature W D W B W M

MULTI-COLUMN LOOPER: MINI, MAXI, CONTROL THE LOOK

The Looper control can be configured in order to adapt dynamically the number of columns displayed based on the browser display width.

In version 21, in addition to the maximum number of columns to display, it becomes possible to specify the minimum number of columns to display.

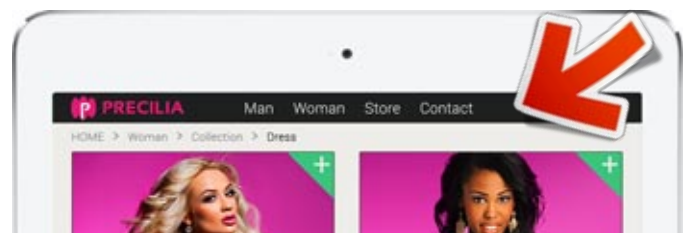
This parameter, available as all the others in the «7-tab» window of the Looper control, lets you prevent the Looper control from being reduced to a single column (for aesthetic reasons).

Benefit provided by this version 21 new feature:
 Better control of the looper control display.

NEW NAVIGATION BAR CONTROL

750 new feature W D W B W M

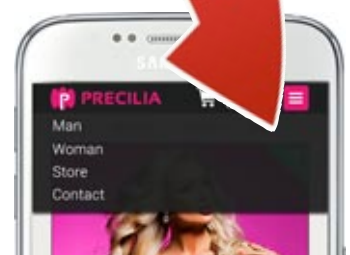
NEW «NAVIGATION BAR» CONTROL: IT ADAPTS TO THE BROWSER'S SIZE



1- A site displayed on a tablet (larger screen). The «Navigation Bar» control takes up the entire width.



2- The same site on smartphone; the navigation bar has changed look and behavior. The horizontal menu that was present on the large screen is replaced by a «hamburger».



3- When clicking the hamburger, the menu is displayed vertically.

The new «Navigation bar» control of WEBDEV 21 lets you create a menu area that adapts to the size of the end user's browser (or to the resizing).

The menu area can change appearance, shape, operating mode (it is not just moving controls to another line) based on the site's display size.

The advantage of a navigation bar is that a single control manages different display cases and adapts automatically during navigation.

Note that, for sophisticated sites, the navigation bar is a quasi required element of the Responsive Web Design.

Benefit provided by this version 21 new feature:

A very rich bar.

751 new feature W D W B W M

NAVIGATION BAR: CREATION

The Navigation Bar is a container, that contains various elements usually including a menu.

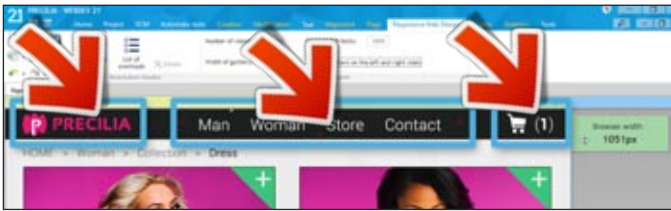
A Navigation Bar contains 3 areas:

- The Left zone
- The Central zone
- The Right zone.

Each zone is itself a container that may contain several controls of different types.

The Central zone usually contains the menu entries.

It can be a menu control, or clickable buttons, or images or a mix of these elements...



Here the left zone contains a logo, the central zone a menu and the right zone the basket

The creation of a navigation bar is WYSIWYG.

Benefit provided by this version 21 new feature:

An intuitive way to build the nav bar.

752 new feature W D W B W M

NAVIGATION BAR: BEHAVIOR

How does the navigation bar behave?

The Left zone is always displayed.

The Right zone is always displayed.

If there's enough room, the central zone is displayed as is.

If there's not enough room (smartphone for instance), this central zone is not displayed.

A «hamburger» button comes up then.



Clicking this button brings up the content of the Central Zone below the Left and Right zones, like a menu...

All the elements found in the Central zone are positioned automatically according to the Responsive Web Design rules to take up the available space based on the size variations of the zone. For example, a series of buttons positioned next to each others horizontally in extended mode, become positioned below each others in compact mode.

Several visual effects are offered for this display: expanded, appearing on the side, overlay ...

Benefit provided by this version 21 new feature:

The bar adapts to the current environment.

753 new feature W D W B W M

NAVIGATION BAR: IMPLEMENTATION

A navigation bar is a container.

It reacts based on the programming of the various elements contained in the container.

Benefit provided by this version 21 new feature:

Regular programming, completely customized.

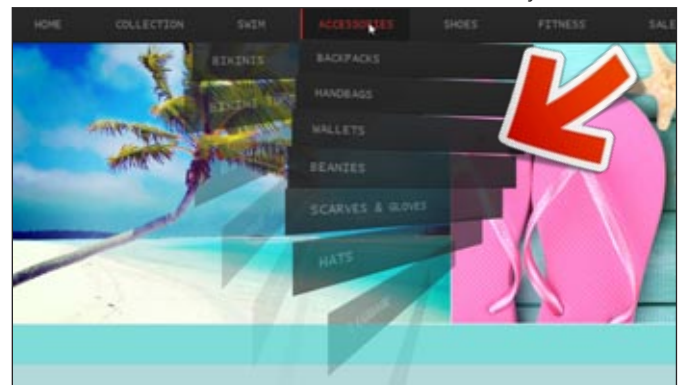
NEW MENU CONTROL

754 new feature W D W B W M

NEW LOOK, NEW BEHAVIOR

A new display form for the menu control is being introduced in version 21.

Of course the existing menu operating mode remains available. The look of the new menu is more refined, transitions, transformations, animations are now supported by the menus. The new look for the menu makes the old one look shabby!



Benefit provided by this version 21 new feature:

More enticing menus in version 21!

A «FULL CSS» MENU

The new menu in version 21 is completely managed in CSS mode.

This allows you to apply a different CSS style to each menu element if you want.

The display is more fluid because it is generated only with CSS rules.

The use of CSS also enables you to benefit from the display effects offered by CSS: transformations, animations, shadows, rounded borders, opacity, transition, etc.

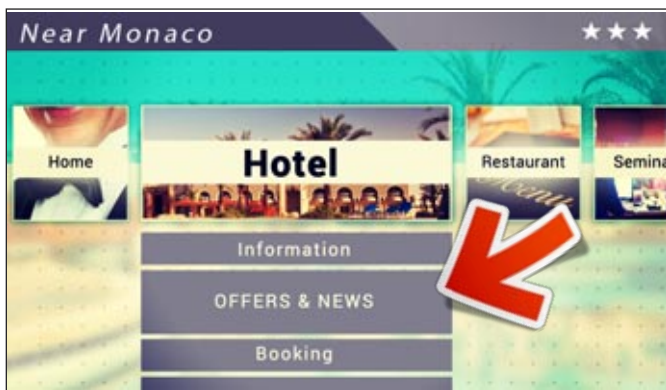
Of course, you don't need to know CSS to create these new menus: WEBDEV takes care of everything.

Benefit provided by this version 21 new feature:

The advantages of CSS, the ease of WEBDEV!

MENU: SIZE AND POSITIONING CUSTOMIZED FOR EACH MENU OPTION

The size and position of each option is individually modifiable.



Benefit provided by this version 21 new feature:

A really custom menu: a menu à la carte!

A MENU RECOGNIZED BY SEARCH ENGINES

The new menu in version 21 is identified as a «menu» by search engines.

The referencing is more adapted.

On the technical side, the menu is generated with <nav> HTML tags.

Benefit provided by this version 21 new feature:

A menu recognized as such!

A MENU THAT PIVOTS!

When creating it, you don't need to specify whether the menu is «horizontal» or «vertical».

Depending on the runtime device and the available space, simply choose the best possible mode.

And the menu can pivot dynamically when the user pivots his or her smartphone...

Benefit provided by this version 21 new feature:

A menu always in the right direction.

A TOUCH MENU, ADAPTED TO MOBILES

When the menu is displayed on a touch screen device, the menu responds to the touch to expand its sub-menus

Benefit provided by this version 21 new feature:

A touching menu...

ACCESSIBILITY: AN ACCESSIBLE MENU

The menu follows browser accessibility standards.

For example, if a user cannot see, the menu will be dictated by the browser.

For the HTML specialists, the menu is generated using the «role» HTML attribute.

Benefit provided by this version 21 new feature:

An accessible menu.

UNCHANGED PROGRAMMING

The programming of the new menu is identical to the one for the old menus.

The existing menu can switch to the new display mode without you having to modify the code!

Benefit provided by this version 21 new feature:

Your code is preserved.



CHART CONTROL IN WEBDEV 21

764

new feature WD WB WM

USERS CAN CHANGE CHART AS THEY WANT

Users can change the chart type themselves. In version 21, the chart permutation options only offer pertinent options. So, a «scattered» type chart, can not be changed into a «donut» chart because a scatter chart has 2 dimensions while a donut only has 1 dimension! This type of permutation is not offered anymore.

Benefit provided by this version 21 new feature:
Users choose their chart.

765

to 770 new feature WD WB WM

6 NEW INTERACTIVE CHARTS

Version 21 of WEBDEV offers 6 new types of charts:

- Waterfall: bar chart used to represent the positive or negative additions of several series
- Radar: used to highlight a series according to another one
- Scatter: represents the relationship between two numeric values in two series of data
- Funnel: represents the successive steps of a process
- Bubble chart: shows the correlation between three variables via bubbles of different sizes
- Stock charts: candlestick, barcharts, minmax

All these charts benefit from the dynamic chart features: vector drawing, automatic animations and interactivity ...

With WEBDEV 21, it has never been this easy to offer charts to your users!

Benefit provided by this version 21 new feature:
A large choice of charts with sophisticated behavior

762

new feature WD WB WM

INTERACTIVE CHARTS

The chart display engine of WEBDEV offers a dynamic vector rendering for charts. 6 new types of charts are introduced in version 21; and benefit from the advanced features:

- Animations,
 - Instant vector resizing (without quality degradation),
 - Fluidity (building the chart in browser code),
 - Interaction when hovered, clicked or touched,
 - Modern design (opacity, gradient, light shadow, background transparency)
 - Referencing (Google) of the titles and legends
 - Accessibility support for reading the chart.
- If a crosshair is needed in the chart, it is available.

Benefit provided by this version 21 new feature:
Modern charts.

763

new feature WD WB WM

HAMBURGERS IN YOUR CHARTS

The interactive chart control in WEBDEV comes with a toolbar allowing the user to easily change the type of chart as well as the display options.

In version 21, this toolbar evolves and adopts a more compact look, in line with the current Web standards.

It is presented in the form of a «hamburger» (because the icon looks like a hamburger with 2 patties).

Benefit provided by this version 21 new feature:
A more discrete display.



ENVIRONMENT

771 new feature WD WB WM

BENEFIT FROM THE COMMON NEW FEATURES OF THE VERSION 21 DEVELOPMENT ENVIRONMENT

The WEBDEV 21 environment benefits from all the common new features of the environment (new features 042 to 057)

Benefit provided by this version 21 new feature:
Constant evolution.

772 new feature WD WB WM

AUTOMATIC FONT INSTALLATION

In version 21, when the project of a site using fonts not found on the machine is first opened, WEBDEV automatically installs these fonts on the development computer.

Benefit provided by this version 21 new feature:
Even more WYSIWYG editing!

APPLICATION RAD

773 new feature WD WB WM

NEW «RESPONSIVE» TEMPLATE

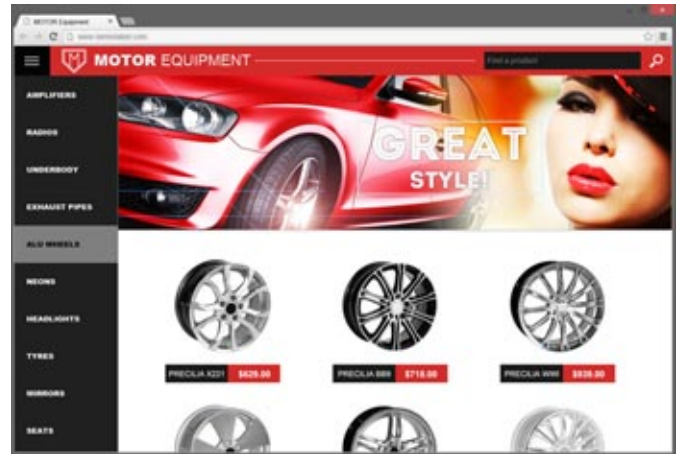
A new RAD pattern lets you generate a site respecting the Responsive Web Design standard.

Benefit provided by this version 21 new feature:
Automatically generate Responsive Web Design sites.

774 new feature WD WB WM

5 RETAIL SITE TEMPLATES

In version 21, 5 retail site templates are offered. Each template offers a different look! It will be easier to shop 'til you drop!



Benefit provided by this version 21 new feature:
Create a retail site in just a few clicks!

PHP



775 new feature WD WB WM

PHP: BENEFIT FROM THE COMMON NEW FEATURES

As you know, WEBDEV can generate a PHP site. Most of the new features presented in WEBDEV as well as the common new features are available for PHP sites.

Benefit provided by this version 21 new feature:
Richer PHP sites.

776 new feature WD WB WM

PHP 7

PHP 7 is the last major version of the PHP language. This version brings performance optimization among other things.

Any new version of PHP bring differences with the previous major PHP versions. WEBDEV 21 ensures compatibility of the PHP code generated with this new version.

Benefit provided by this version 21 new feature:
Also create PHP 7 sites.

777 new feature WD WB WM

RESPONSIVE PHP

PHP sites created in WEBDEV 21 benefit from the new features for Responsive Web Design:

- Edition using the fluid grid,
- Resolution blade,

- Property overload,
- Variable font size,
- Etc.

Benefit provided by this version 21 new feature:
Create responsive PHP sites with WEBDEV 21.

778 new feature W D W B W M

THE NEW PHP CONTROLS

The new available controls in WEBDEV are also available for PHP.

- navigation bar
- new menu
- all the charts
- control evolution

Benefit provided by this version 21 new feature:
Use the new features in PHP.

779 to 804 new feature W D W B W M

NEW WLANGUAGE FUNCTIONS IN PHP

26 new WLanguage functions are being introduced for PHP in version 21.

CharactUnicode	StringInsert	StringReverse	ChangeCharset
SeekProcedure	ChronoPause	ChronoReset	ChronoResume
MakeInteger	SysDateTime	DateTimeValid	MoveLine
SwapLine	fAddBuffer	fAddText	fChangeSize
fLoadBuffer	fDirExist	fTempDir	fSaveBuffer
fDeleteFileWebFolder	BrowserMobile	BrowserOS	TableListChild
UTF8ToAnsi	UTF8ToUnicode		

WLANGUAGE

805 new feature W D W B W M

SECURITY: SUPPORT FOR THE «HTTPONLY» AND «SECURE» COOKIES

The «HttpOnly» and «Secure» cookies let you increase the security of the cookies.

The HttpOnly cookies are cookies that can only be read or modified using a **HTTP** request.

Therefore they cannot be accessed in JavaScript from a browser. This reduces the pirating risks.

The Secure cookies are HttpOnly cookies that only work in HTTP/S. (these are not PC SOFT names).

This also reduces the pirating risks.

The **CookieWrite** WLanguage function of WEBDEV 21 lets you create these two types of cookies.

Benefit provided by this version 21 new feature:
Protected cookies for your sites...

806 new feature W D W B W M

WLANGUAGE VARIABLES USABLE ONLY IN SERVER CODE.

The variable attribute `<server only>` lets you specify that a variable can only be used in server code.

A compilation error will be generated if this variable is accessed from the browser code.

This new attribute enables you to secure variables containing sensitive information such as a password for instance.

These variables cannot be found in the browser code, they are protected from pirates.

Benefit provided by this version 21 new feature:
Always more secure sites.

807 new feature W D W B W M

HANDLING HTTP HEADERS

The new WLanguage functions **PageReadHeaderHTTP** and **PageWriteHeaderHTTP** let you read and write custom http headers.

For example this new feature enables you to read the **REFERER** header to find out the referring page, even from another site.

Benefit provided by this version 21 new feature:
Strong headed (header).

808 new feature W D W B W M

FINDING OUT THE BROWSER

In WEBDEV 21, the new WLanguage function **BrowserMobile** lets you find out whether the device where the site is displayed requires a «mobile-friendly» type of display.

The WLanguage function **BrowserOS** lets you find out the the end user's specific operating system.

In combination with the WLanguage functions from the **Browser** family, these new functions allow for a very granular detection and adaptation of the site to the device.

Benefit provided by this version 21 new feature:
The site can adapt its layout specifically to the platform.



CONTROL TIME

The `DateValid` and `DateTimeByDefault` WLanguage functions are also available in browser code in version 21 of WEBDEV. These functions allow the developer to easily control the validity of the data entered before transmitting them to the server, therefore faster.

Benefit provided by this version 21 new feature:
Faster control of the user input, since it is done in browser code.

ARRAY FUNCTIONS IN BROWSER CODE

In version 21 of WEBDEV, the `Array` (`ArrayAdd`, `ArraySort`, etc.) family of functions is also available in browser code. It becomes easy to store and manage data in «array» type variables in browser code.

Benefit provided by this version 21 new feature:
Arrays in the browser ...

LENGTHTOSTRING

The `LengthToString` WLanguage function in version 21 lets you easily and quickly format a size expressed in bytes into a character string using the best scale (Ko, Mo, To... depending on the value).

Benefit provided by this version 21 new feature:
It's not the size that matters ...

NEW PROPERTIES, NEW TYPES AND NEW CONSTANTS

Version 21 of WEBDEV offers 15 new properties, 11 new types

and 100 new constants (see the complete list in the online help).

WLANGUAGE: NEW SERVER FUNCTIONS

26 new WLanguage functions are being introduced in server mode in WEBDEV version 21.

CharactUnicode	StringInsert	StringReverse	ChangeCharSet
SeekProcedure	ChronoPause	ChronoReset	ChronoResume
MakeInteger	SysDateTime	DateTimeValid	MoveLine
SwapLine	fAddBuffer	fAddText	fChangeSize
fLoadBuffer	fDirExist	fTempDir	fSaveBuffer
fDeleteFileWebFolder	BrowserMobile	BrowserOS	TableListChild
UTF8ToAnsi	UTF8ToUnicode		

WLANGUAGE: NEW BROWSER FUNCTIONS

32 new WLanguage functions are being introduced in browser mode in WEBDEV version 21.

Add	AddLine	Seek	SeekByProcedure
DateTimeByDefault	DateValid	Move	Insert
InsertLine	Delete	DeleteLine	DeleteAll
ArrayAdd	ArrayAddLine	ArrayAddSorted	ArraySeek
ArraySeekByProcedure	ArrayCopy	ArrayMove	ArrayMoveLine
ArraySwapLine	ArrayInfo	ArrayInsertLine	ArrayReverse
ArrayMix	ArrayDeleteDuplicate	ArrayDeleteLine	ArraySort
ArrayToString	ArrayToCSV	LengthToString	Sort

LINUX

Reminder: a site developed using WEBDEV can be deployed on a Linux version of the WEBDEV application server.

EXECUTION COMPATIBLE WITH SITES FROM PREVIOUS VERSIONS

Version 21 of the WEBDEV Application server for Linux takes into account the WEBDEV sites developed with older versions of WEBDEV.

It also lets you deploy Linux WEBDEV sites created with an older version of WEBDEV.

Benefit provided by this version 21 new feature:
A single application server to install for Linux sites.



I love WEBDEV all year around

872

W D W B W M

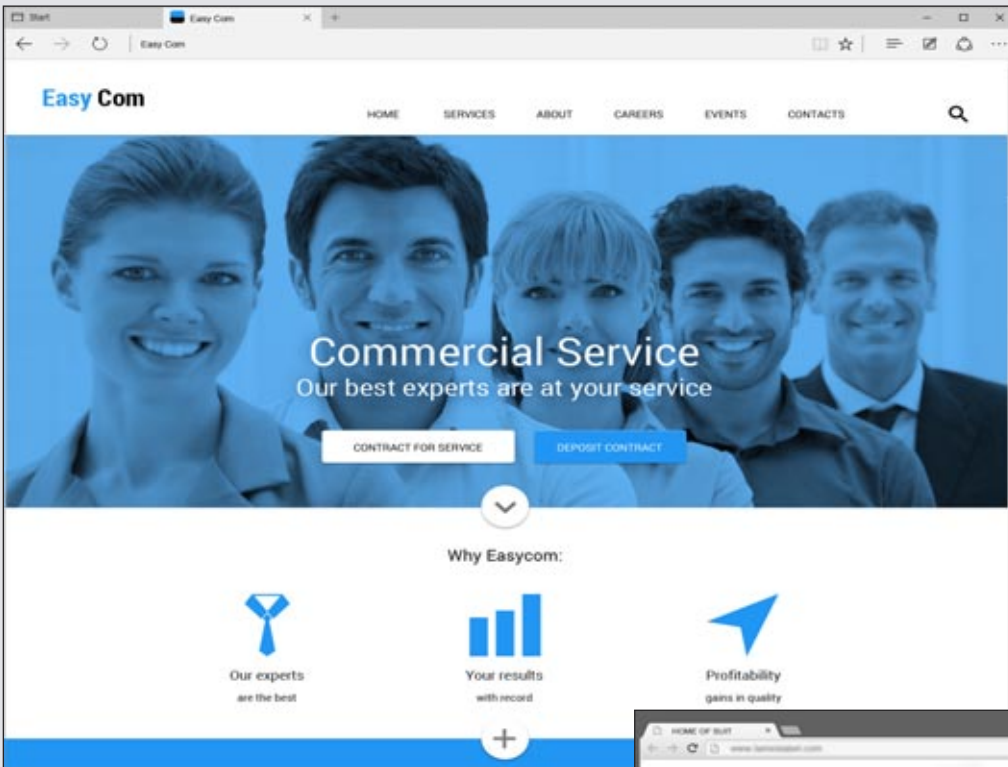
STYLE BOOK: 2 NEW SKINS

Two new skins have been introduced in WEBDEV 21:

- a «Material Design» looking skin (Google suggestion)
- a «flat» skin, with the current look. This adds new choices for possible style books that can be instantly used for your projects.

Benefit provided by this version 21 new feature:

Additional style book offerings.



873

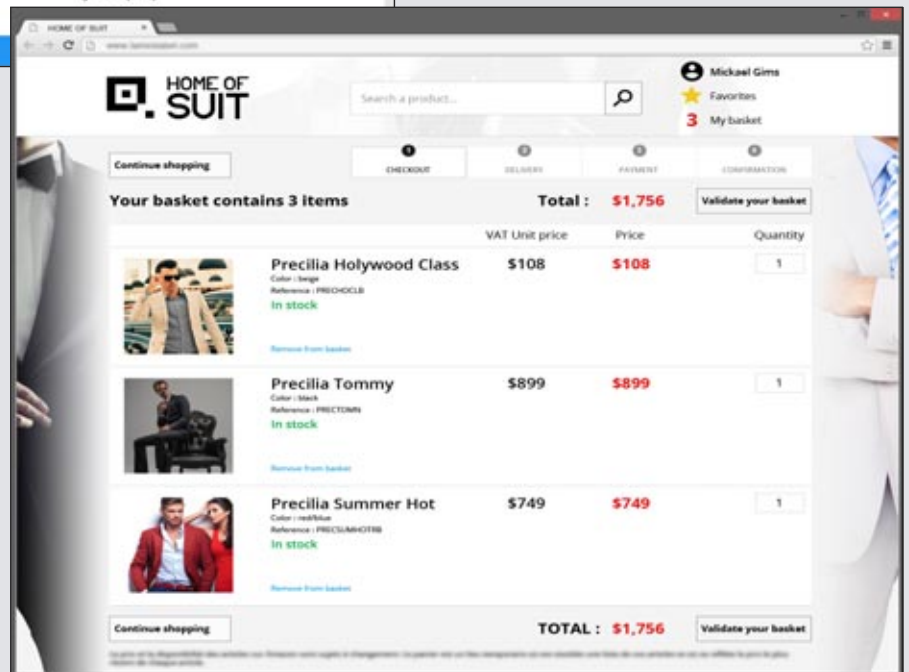
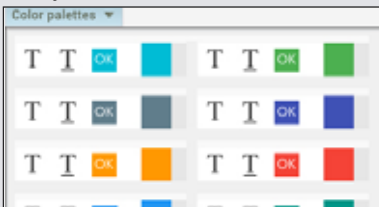
W D W B W M

DOZENS OF NEW PALETTES

In addition to the two new skins, WEBDEV 21 also offers dozens of new color palettes. Among these palettes, some use the new «Material Design» color scheme.

Benefit provided by this version 21 new feature:

Always more colors (smooth).



874

new feature W D W B W M

NEW CONTROLS

The new controls of version 21 are supported by the Linux application server.

Benefit provided by this version 21 new feature:

Use all the new features in Linux.

875 to 916

new feature W D W B W M

NEW FUNCTIONS IN LINUX

42 new WLanguage functions are being introduced in WEBDEV Linux in version 21.

OrganizerToCalendar	CallInterface	dBorder	GetCountryList
dRoundedRectangle	fDirExist	fTempDir	grSunburstStartAngle
grSunburstPullOut	hbCreateTable	hbWrite	hbListTable
hbRead	hbGetTableDescription	hbDelete	hbDeleteTable
hdfsCopyFrom	hdfsCopyTo	hdfsCreateDirectory	hdfsCloseConnection
hdfsList	hdfsopenConnection	hdfsRename	hdfsDelete
HRecordToJSON	HFTListWord	HRplDeclareLink	
HTTPSimulateNetwork	iCalendarToOrganizer	iCalendarToScheduler	iCalendarToAppointment
iCurrentFile	BrowserMobile	BrowserOS	PageWriteHTTPHeader
PageReadHTTPHeader	SchedulerToCalendar	FirstDayOfYear	AppointmentToCalendar
TableListChild	TraceBuild		



SAAS

917 new feature WD WB WM

UNICODE SAAS

WEBDEV lets you easily create and manage a Web site in SaaS mode: Everything is included
In version 21, the database, the web service as well as the SaaS administration site are Unicode.
In version 21, you can use user names of functionalities that contain characters from any alphabet: Chinese, Russian, Arabic, Hebrew, ...

Benefit provided by this version 21 new feature:
open your SaaS to any alphabet.



REFERENCING

918 new feature WD WB WM

RESPONSIVE WEB DESIGN

Creating a site in Responsive Web Design mode enables this site to be referenced by Google.
(see new features 727 to 737).

Benefit provided by this version 21 new feature:
Better referenced sites.

919 new feature WD WB WM

..ALTERNATIVE TEXT PROPERTY

The new property `..AlternativeText` is available for image controls in version 21.
This property lets you modify by programming the text associated with an image (that is the `ALT` attribute in HTML).
This is the text that is used by the search engines to reference the image. In the case of a dynamic image, this new feature lets you set the alternative text.

Benefit provided by this version 21 new feature:
Better referencing of the images in your sites.

APPLICATION SERVER

920 new feature WD WB WM

SECURITY: LIMIT THE SESSION TO A SINGLE IP

This new option available in version 21 reinforces the security of

the WEBDEV sites.
With this option, the IP address associated with the session cannot change during the browsing session.
This security prevents «session hijack» type attacks (attack consisting in spoofing a legitimate user connected to the server).

Benefit provided by this version 21 new feature:
Maximum security for your sites.

921 new feature WD WB WM

STRONGER PROTECTION: «HTTPOONLY» CONTEXT COOKIES

In an AWP site, the site's context is stored on the server. The identifier of this context is sent then stored in the browser via a cookie.
There are several types of cookies, including the «httpOnly» type.
The «httpOnly» type cannot be read from JavaScript code. Therefore a pirate couldn't easily read this cookie.
This mode efficiently protects against the XSS type attacks (XSS stands for Cross-Site Scripting).
The AWP sessions of WEBDEV 21 use this type of cookie, and therefore are more secure.
This mode is activated by default in version 21.

Benefit provided by this version 21 new feature:
Don't touch my context cookie.

922 new feature WD WB WM

SCHEDULED TASKS IN HTTP/S

In version 21, WEBDEV lets you managed scheduled tasks both in HTTP mode and in HTTPS mode.

Benefit provided by this version 21 new feature:
Even stronger security for your WEBDEV sites.



MANAGEMENT

923 new feature W D W B W M

AUTOMATICALLY MOVE A SITE FROM ONE SERVER TO ANOTHER

The new automatic site move feature offered by WEBDEV 21 will please server administrators.

With WEBDEV 21, it becomes really easy to move a live site from one machine to another!

The move takes care of:

- the site (library and resources)
- the site's data
- the web server's configuration
- the security configuration of the associated accounts.

The move is also possible for web services created with WINDEV or WEBDEV.

Benefit provided by this version 21 new feature:
WEBDEV 21, on the move!

DEPLOYMENT

924 new feature W D W B W M

INSTALL A SINGLE LANGUAGE

In version 21, it becomes possible to ask the setup wizard to only deploy one language for a multilingual site.

This new feature speeds up deployments and updates of the WEBDEV sites for the cases where a single language is needed

on a given Application Server.

This is also useful if a translation in another language is not quite done.

Benefit provided by this version 21 new feature:
Faster deployments

925 new feature W D W B W M

FILTER THE DISPLAY OF THE UPDATE FILES

The deployment wizard for the WEBDEV sites can now show only the files that will be updated (or deleted) on the server. This display, more compact, enables you to better see the elements of the site that are going to be modified on the server.

Benefit provided by this version 21 new feature:
Better control of the update for a WEBDEV site

926 new feature W D W B W M

EXCLUDE A FOLDER DURING DEPLOYMENT

The WEBDEV 21 installer lets you permanently exclude a folder from a site.

Even if new files are added to this folder (directory), the setup wizard will automatically ignore them and will never deploy them on the Hosting server.

This new feature allows you for instance to exclude from the deployment a subdirectory containing test data.

This way, test files are never deployed and do not risk overwriting production files.

Benefit provided by this version 21 new feature:
More secure deployments!

927 new feature W D W B W M

USE THE SERVER'S PARAMETERS

The parameters of a WEBDEV site (maximum number of connections, session length, etc.) can be defined globally for all the sites.

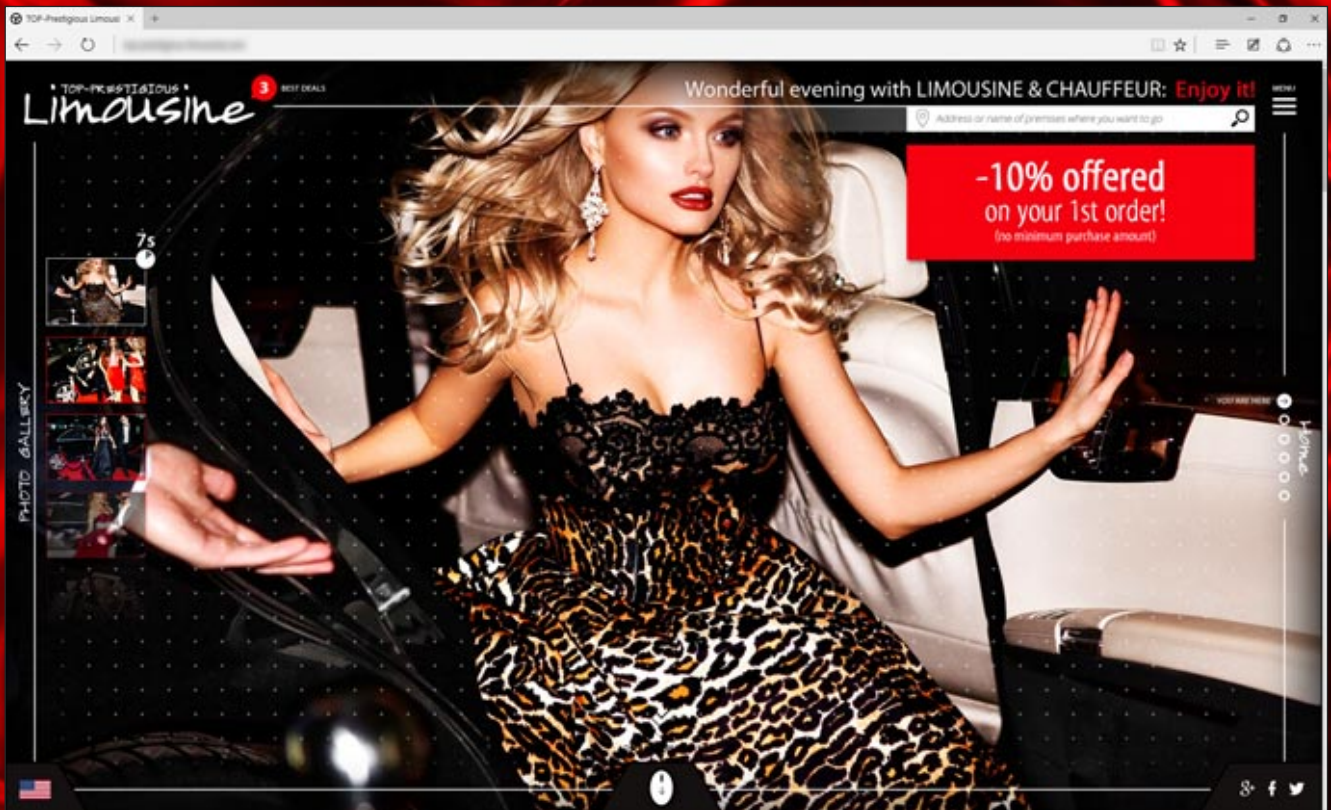
In version 21, you can request to inherit the future server modifications.

Benefit provided by this version 21 new feature:
Benefit from global modifications.

928 new feature W D W B W M

... AND MANY OTHER FEATURES

Version 21 also offers a large number of other interesting new features that you'll discover once you've ordered and received your product.



TECHNOLOGY DOESN'T WAIT: ORDER YOUR COPY OF VERSION 21 TODAY



Your code is unique: Windows, Internet, HTML5, CSS, Linux, Mobile, Java, .Net, PHP, Mac, Web service, Android, iOS, Windows Mobile, Cloud, SaaS...

Order your copy today! Version 21 has been announced. Any purchase of WINDEV 20 or WEBDEV 20 or WINDEV Mobile 20 (except updates) from 1/9/2015 entitles you to a free upgrade (product, manuals, and DVD) to the corresponding version 21, as soon as available. Any purchase of an upgrade to version 20 after 1/9/2015 entitles you to version 21 (product, manuals, and DVD) for the difference in upgrade prices (except shipping cost). The new versions are announced now so you can adapt your developments and not lose time developing yourself a feature that will become part of the product. Some functions may not be available right away when the version ships, but will be offered later as downloads. Also note that additional improvements and new features other than the ones described in this document may be available in the new version. WINDEV, WEBDEV and WINDEV Mobile are professional software. Despite the care taken in creating this document, it is not contractual. The screen shots and the lists are given for information purposes only. Don't hesitate to contact us if you need any additional information or to get confirmation of a feature. All the trademarks mentioned in this publication are registered trademarks of their respective owners.

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