



# **FastReport .NET Programmers Manual (WinForms, Mono, WPF, Avalonia, ASP.NET)**

Version 2025.2

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# General information

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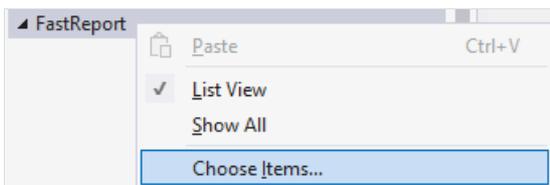
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# Installing into VS Toolbox

Working with FastReport.Net packages Toolbox is included in the package and should be automatically loaded by Visual Studio. Manual installation of Toolbox is also possible.

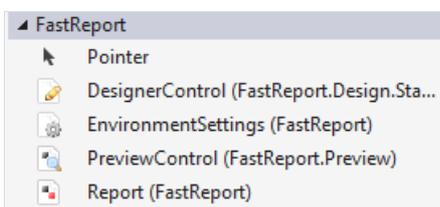
To add manually FastReport .NET components to the Visual Studio toolbox, you need to do the following steps:

- delete the "FastReport .NET" tab from the Toolbox, if it is there;
- create a new tab (to do this, right-click the Toolbox and select "Add Tab" item), or select an existing tab you would like to add FastReport components to;
- right-click on a tab and select "Choose Items...":



- in the dialog, press the "Browse..." button and choose FastReport.dll, FastReport.Web.dll files (they are located in the \Framework folder in the main directory of FastReport .NET, for example, "C:\Program Files\FastReports\FastReport .NET Professional\Framework");
- close the dialog with OK button.

After this, you will see FastReport .NET components in a chosen tab:



- Report;
- PreviewControl;
- DesignerControl;
- EnvironmentSettings;
- WebReport (this component will be visible in ASP.NET project only).

# Troubleshooting

If you face a problem when working with report designer (for example, some toolbars or tool windows are damaged), you should delete the configuration file. This file is created when you start FastReport. It is located in the following folder:

Windows XP:

```
C:\Documents and Settings\user_name\Local Settings\Application Data\FastReport
```

Windows Vista and above:

```
C:\Users\user_name\AppData\Local\FastReport
```

The config file name varies depending on product:

- FastReport.config for FastReport .NET;
- FastReport.Mono.config for FastReport Mono;
- FastReport.WPF.config for FastReport WPF.

The following information is stored in the config:

- sizes and locations of dialog windows;
- toolbar settings;
- recent used data connections;
- email settings (if you use the "Send Email" feature in the preview).

# Deployment

You may redistribute the following files along with your application:

- FastReport.dll (FastReport.Mono.dll, FastReport.WPF.dll) - the main FastReport library;
- FastReport.Web.dll - the library that contains ASP.Net WebReport component;
- FastReport.Bars.dll - the toolbars and docking windows library (related to FastReport .NET);
- FastReport.Editor.dll - the code editor with syntax highlight. This library is not needed if you don't provide an end-user designer (related to FastReport .NET);
- FastReport.WPF.RoslynPad.dll - the code editor with syntax highlight for .Net 6.0+ (related to FastReport WPF);
- FastReport.Forms.WPF.dll - the forms library (related to FastReport WPF);
- FastReport.Forms.Avalonia.dll - a library for supporting forms (related to FastReport Avalonia);
- FastReport.SkiaDrawing.dll - the Skia support library;
- FastReport.Compat.dll (FastReport.Compat.Skia.dll) - the library for cross-platform compatibility;
- FastReport.DataVisualization.dll (FastReport.DataVisualization.Skia.dll) - the library for drawing charts;
- FastReport.xml (FastReport.Mono.xml, FastReport.WPF.xml) - comments for classes, properties and methods used in FastReport. This file is used by the script editor, and also by the hint panels in the "Data" and "Properties" windows. It's not obligatory to distribute this file.

If your reports are stored in files, you have to deploy them as well.

FastReport NuGet packages:

- **FastReport.Core** ([demo on nuget.org](#)) - package containing the main logic of the program (obtaining the necessary data, rendering reports, exports, etc.). Some of the functionality from FastReport.NET is missing due to the cross-platform nature of this package. It works starting from versions .NET Framework 4.6.2 and .NET 6.
- **FastReport.Core.Skia** ([demo on nuget.org](#)) - a package with the main logic of the program for SkiaDrawing (obtaining necessary data, report rendering, exports, etc.). Works starting from .NET 6.
- **FastReport.Net** ([demo on nuget.org](#)) - package with the FastReport.dll library for .NET Framework 4.6.2 and .NET 6 and above exclusively for Windows. This package is available in several editions:
  - FastReport.Net.Demo - this package is available at nuget.org and in our official Trial installer, and it allows you to evaluate the product capabilities for various target frameworks on OS Windows. It has restrictions that are present in our other Demo edition products (random text fragments are replaced with "Demo" or "Demo version");
  - FastReport.Net - this package is available in our official installer for licensed owners of FastReport .NET Standard. It includes FastReport .NET for .NET Framework 4.6.2 and .NET 6 and above;
  - FastReport.NET.Pro (legacy) - this package was available in our official installer for licensed owners of FastReport .NET Professional and Enterprise. It included FastReport .NET for .NET Framework 4.6.2 and .NET 6 and above.
- **FastReport.WPF** ([demo on nuget.org](#)) - package with the FastReport WPF library for .NET Framework 4.6.2 and .NET 6.
- **FastReport.Avalonia** ([demo on nuget.org](#)) - a package with the FastReport Avalonia library for .NET 6 and above.
- **FastReport.Web** ([demo on nuget.org](#)) - package for integrating FastReport into scripts for working with

web applications (rendering a report in a browser, exporting and printing from a browser, working with Online Designer) for ASP.NET Core. Includes components for Blazor Server and is used only with FastReport.Core. It works starting from version .NET 6.

- **FastReport.Web.Skia** ([demo on nuget.org](#)) - a package for integrating FastReport into web application scenarios using SkiaDrawing (report rendering in the browser, export and printing from the browser, working with the Online Designer) for ASP.NET Core. It includes components for Blazor Server and is only used with FastReport.Core. Works starting from .NET 6.
- **FastReport.Core3.Web** ([demo on nuget.org](#)) - package for integrating FastReport into web application scenarios (report rendering in the browser, export and printing from the browser, working with Online Designer) for ASP.NET Core. Includes components for Blazor Server and is used exclusively with FastReport.NET for .NET 6 and higher.
- **FastReport.Blazor.Wasm** ([demo on nuget.org](#)) - this package contains Razor components for Blazor WebAssembly. Works starting from .NET 6.
- **FastReport.Localization** ([nuget.org](#)) - package with a set of FastReport localizations. Add it to your project if you need German or Russian localization, for example.
- **FastReport.Compat** and **FastReport.DataVisualization** - packages with basic logic (report compilation, MSChart support, etc.). You don't need to include them in your project, they are dependency packages.
- **FastReport.Data.\*** - packages with plugins-connectors for FastReport to work with various databases, the connectors of which are not included in the original library. These packages are "common" for all sets of components included in FastReport .NET (WinForms, Mono, WPF, Avalonia, ASP.NET). Limitations: FastReport version 2021.4.0+ and NuGet Client 3.4.4+ are required.
  - [FastReport.Data.ClickHouse](#)
  - [FastReport.Data.Couchbase](#)
  - [FastReport.Data.Firebird](#)
  - [FastReport.Data.Json](#)
  - [FastReport.Data.MongoDB](#)
  - [FastReport.Data.MsSql](#)
  - [FastReport.Data.MySql](#)
  - [FastReport.Data.OracleODPCore](#)
  - [FastReport.Data.Postgres](#)
  - [FastReport.Data.RavenDB](#)
  - [FastReport.Data.SQLite](#)

# Compiling the source code

FastReport's source code is shipped with Professional and Enterprise editions. You may include it in your application's solution file. Let us demonstrate how to do this with FastReport .NET project:

- open your project in the Visual Studio;
- open the Solution Explorer and right-click on the "Solution" item;
- choose the "Add|Existing Project..." item;
- add the `FastReport.csproj` file (located in the `\Sources\FastReport` folder in the main directory of FastReport .NET, for example, "C:\Program Files\FastReports\FastReport .NET Professional\Sources\FastReport").

Update the references to other FastReport .NET assemblies. To do this:

- expand the "FastReport|References" item in the Solution Explorer;
- remove the `FastReport.Bars` , `FastReport.Editor` references;
- right-click the "References" item and choose the "Add Reference..." item;
- add references to the `FastReport.Bars.dll` and `FastReport.Editor.dll` files. These files are located in the `\Framework` folder in the main directory of FastReport .NET, for example, "C:\Program Files\FastReports\FastReport .NET Professional\Framework".

To build FastReport WPF from source code, open the file "C:\Program Files\FastReports\FastReport WPF\Sources\FastReport.WPF\FastReport.WPF.sln". This solution file includes all FastReport WPF projects, as well as some sample projects.

# Working with Windows.Forms, WPF, Avalonia

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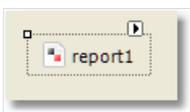
# Using the Report component in Visual Studio (WinForms)

Let us consider the typical use of the Report component in Visual Studio. We will use the data from a typed dataset.

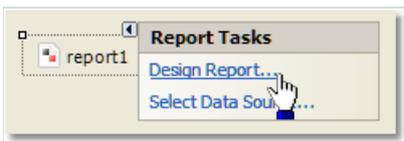
- create a new Windows Forms application;
- add a dataset into it ("Data|Add New Data Source..." menu item);
- switch to the Form designer;
- add the "DataSet" component on a form and connect it to the typed dataset that you have created.

To create a report, perform the following steps:

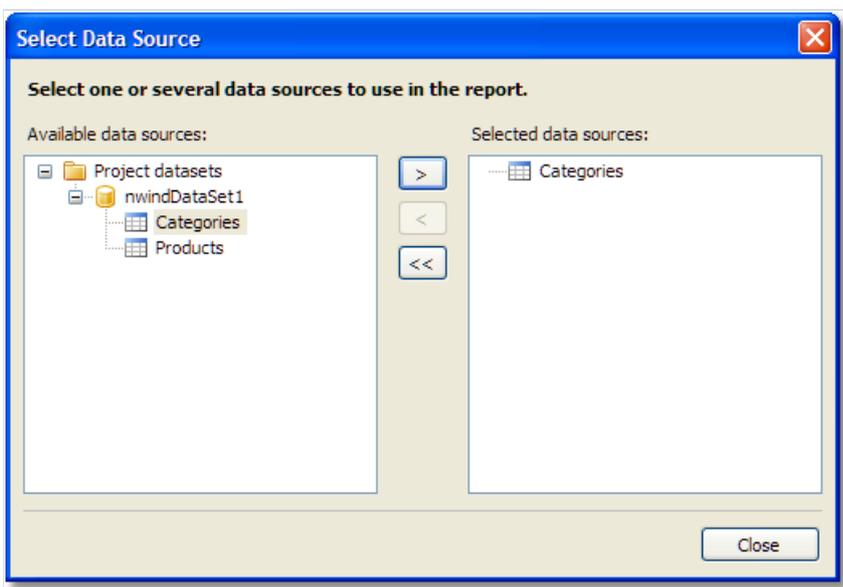
- put the "Report" component on a form:



- right-click it (or click on a smart tag button) and select the "Design Report..." item:



- choose the data source to use in a report:



- create your report. Read more about this in the User's Manual;
- close the report designer;
- add a "Button" control on your form;
- double-click it and write the following code in the `button_Click` event handler:

```
report1.Show();
```

- save the project and run it. When you click on a button you will see the prepared report.

# Working with report in a code

To work with Report component in a code, you need to do the following:

- create a report instance;
- load a report file into it;
- register the application-defined data in a report;
- pass the values into the report parameters, if needed;
- run the report.

The following example demonstrates how to do this:

```
using (Report report = new Report())
{
    report.Load("report1.frx");
    report.RegisterData(dataSet1, "NorthWind");
    report.Show();
}
```

We will consider these steps in details in the following sections of this manual.

# Storing and loading a report

You may store a report in the following ways:

Method	Description
<b>in the application's resources (WinForms/Mono)</b>	<p>The typical scenario of using the Report, which we looked at before, uses this method. The <code>StoreInResources</code> property of the Report object is responsible for this. This property is set to <code>true</code> by default. This method has the following pros and cons:</p> <ul style="list-style-type: none"><li>+ a report is embedded into your application, you don't need to deploy extra files;</li><li>- if you need to change a report, you have to recompile your application.</li></ul> <p>Loading a report is performed automatically. To do this, FastReport .NET adds a code into the <code>InitializeComponent</code> method of your form.</p>
<b>in the .FRX file</b>	<p>This method is useful if you want to give your users the ability to change a report. In this case, set the report's <code>StoreInResources</code> property to <code>false</code>. To load the report from a file, use the Load method of the Report object: <code>report1.Load("filename.frx");</code></p>
<b>in the database</b>	<p>You may store a report in the database, either as a string or in a blob-stream. To load the report from a string, use the <code>LoadFromString</code> method of the Report object. To load the report from a stream, use the overloaded version of the <code>Load</code> method: <code>report1.Load(stream);</code>. To support the load/save operations in the report designer, you need to replace the "Open File" and "Save File" dialogs in the designer. Read <a href="#">here</a> how to do this.</p>
<b>as a C#/VB.NET class</b>	<p>To work with a report as a class, design your report and save in to the .cs/.vb file. To do this, select "file type" in the "Save" dialog. The file type maybe either .cs or .vb - it depends on the script language in the report (it may be changed in the "Report[Options...]" menu). Include that file into your project. This method has the following pros and cons:</p> <ul style="list-style-type: none"><li>+ you can work with a report as a class;</li><li>+ you may debug a report;</li><li>+ this is the only way to use a report in ASP.NET project running on medium trust environment;</li><li>- you cannot edit such a report. To do this, you need the original .FRX file;</li><li>- if you need to change a report, you have to recompile your application.</li></ul> <p>To work with a report, create an instance of the report's class:</p> <pre>SimpleListReport report = new SimpleListReport(); report.Show();</pre>

# Registering data

If your report uses data from an application (for example, the typed dataset or a business-object), you have to register such data in a report. This can be done using the `RegisterData` method of the Report object.

When you use the Report as described in the "Using the Report component in Visual Studio" section, you don't need to register the data. FastReport .NET does it automatically (it adds the `RegisterData` call in the `InitializeComponent` method of your form).

The `RegisterData` method must be called after you have loaded the report:

```
report1 = new Report();
report1.Load("report.frx");
report1.RegisterData(dataSet1, "NorthWind");
```

The `RegisterData` method is overloaded and allows to register the following data:

Method	Description
<code>void RegisterData(DataSet data)</code>	Registers the dataset. This method registers all tables, views and relations as well. Attention: if you register more than one dataset, use the <code>RegisterData(DataSet data, string name)</code> method instead.
<code>void RegisterData(DataSet data, string name)</code>	Registers the dataset. Specify any name in the <code>name</code> parameter (it must be persistent and unique if you register more than one dataset).
<code>void RegisterData(DataTable data, string name)</code>	Registers the data table.
<code>void RegisterData(DataView data, string name)</code>	Registers the data view.
<code>void RegisterDataAsp(IDataSource data, string name)</code>	Registers the ASP.NET data source such as <code>AccessDataSource</code> .
<code>void RegisterData(DataRelation data, string name)</code>	Registers the relation.
<code>void RegisterData(IEnumerable data, string name, BOConverterFlags flags, int maxNestingLevel)</code>	Registers the business object. Specify what items (properties, fields) should be used, in the flags parameter. Specify the maximum nesting level in the <code>maxNestingLevel</code> parameter (typically you need no more than 3 levels). Several nested objects may slow down the report.

# Passing a value to a report parameter

The report may have parameters. Read more about this in the User's Manual. To pass a value to the parameter, use the `SetParameterValue` method of the Report object:

```
report1.Load("report.frx");  
report1.SetParameterValue("MyParam", 10);  
report1.Show();
```

This method is declared as follows:

```
public void SetParameterValue(string complexName, object value)
```

Specify the parameter's name in the `complexName` parameter. To access a nested parameter, use its full name, for example:

```
"ParentParameter.ChildParameter"
```

# Running a report

To run a report, use one of the following methods of the Report object:

Method	Description
<code>void Show()</code>	Runs a report and shows it in the preview window. This method is equal to: <pre>if (Prepare())     ShowPrepared();</pre>
<code>bool Prepare()</code>	Runs a report. If the report was prepared successfully, returns <code>true</code> . After this method, you need to call one of the following methods: <code>ShowPrepared</code> , <code>PrintPrepared</code> , <code>SavePrepared</code> , <code>Export</code> : <pre>if (Prepare())     ShowPrepared();</pre>
<code>bool Prepare(bool append)</code>	Runs a report. If the append parameter is set to <code>true</code> , the prepared report will be added to the existing one. So you can build several reports and display them in the preview as one report: <pre>report1.Load("report1.frx"); report1.Prepare(); report1.Load("report2.frx"); report1.Prepare(true); report.ShowPrepared();</pre>
<code>void ShowPrepared()</code>	Shows a prepared report in the preview window. The report must be either prepared using the <code>Prepare</code> method, or loaded from the .FPX file using the <code>LoadPrepared</code> method: <pre>if (Prepare())     ShowPrepared();</pre>
<code>void ShowPrepared(bool modal)</code>	Shows a prepared report in the preview window. The <code>modal</code> parameter determines whether the preview should be shown modally.
<code>void ShowPrepared(bool modal, Form owner)</code>	The same as the previous method. The <code>owner</code> parameter determines a window that owns the preview window.
<code>void ShowPrepared(Form mdiParent)</code>	The same as the previous method. The <code>mdiParent</code> parameter determines the main MDI window.

# Designing a report

You can use the report designer in your application. To do this, use the `Design` method of Report object:

```
report1 = new Report();  
report1.Load("report1.frx");  
report1.Design();
```

The `Design` method is overloaded:

Method	Description
<code>bool Design()</code>	Shows the designer.
<code>bool Design(bool modal)</code>	Shows the designer. The <code>modal</code> parameter determines whether it is necessary to show the designer modally.
<code>bool Design(Form mdiParent)</code>	Shows the designer. The <code>mdiParent</code> parameter defines the main MDI window (related to WinForms/Mono).
<code>async Task&lt;bool&gt; DesignAsync()</code>	Shows the designer async way (related to Avalonia).

# Exporting a report

The prepared report can be exported to one of the supported formats. At this moment, the following formats can be used:

- PDF;
- Excel 2007;
- Word 2007;
- PowerPoint 2007;
- OpenOffice Calc / OpenOffice Writer;
- RTF;
- Excel XML (Excel 2003+);
- HTML;
- MHT;
- Pictures (Bmp, Png, Jpeg, Gif, Tiff, Metafile);
- SVG;
- CSV;
- DBF;
- Json;
- TXT;
- ZPL;
- PPML;
- PostScript;
- XPS;
- LaTeX;
- DXF;
- XAML.

The export is performed by the export filter. To do this:

- prepare a report using the `Prepare` method;
- create an instance of export filter and set up its properties;
- call the `Export` method of the Report object.

The following example exports a prepared report in the HTML format:

```
// prepare a report
report1.Prepare();
// create an instance of HTML export filter
FastReport.Export.Html.HTMLExport export = new FastReport.Export.Html.HTMLExport();
// show the export options dialog and do the export
if (export.ShowDialog())
    report1.Export(export, "result.html");
```

In this example, export settings are made using the dialog window.

# Configuring the FastReport environment

Using the `FastReport.Utils.Config` global class, you can control some FastReport environment settings.

The `Config.ReportSettings` property contains some report-related settings:

Property	Description
<code>Language</code> <code>DefaultLanguage</code>	The default script language for new reports.
<code>bool</code> <code>ShowProgress</code>	Determines whether it is necessary to show the progress window.
<code>bool</code> <code>ShowPerformance</code>	Determines whether to show the information about the report performance (report generation time, memory consumed) in the lower right corner of the preview window.

The `Config.DesignerSettings` property contains some designer-related settings:

Property	Description
<code>Icon</code> <code>Icon</code>	The icon for the designer window.
<code>Font</code> <code>DefaultFont</code>	The default font used in a report.

The `Config.PreviewSettings` property contains some preview-related settings:

Property	Description
<code>PreviewButtons</code> <code>Buttons</code>	Set of buttons that will be visible in the preview's toolbar.
<code>int</code> <code>PagesInCache</code>	The number of prepared pages that can be stored in the memory cache during preview.
<code>bool</code> <code>ShowInTaskbar</code>	Determines whether the preview window is displayed in the Windows taskbar.
<code>bool</code> <code>TopMost</code>	Determines whether the preview window should be displayed as a topmost form.
<code>Icon</code> <code>Icon</code>	The icon for the preview window.
<code>string</code> <code>Text</code>	The text for the preview window. If no text is set, the default text "Preview" will be used.

The `Config.EmailSettings` property contains email account settings. These settings are used in the "Send Email" feature in the preview window:

Property	Description
<code>string</code> <code>Address</code>	Sender address (e.g. your email address).
<code>string</code> <code>Name</code>	Sender name (e.g. your name).

Property	Description
<code>string MessageTemplate</code>	The message template that will be used to create a new message. For example, "Hello, Best regards, ...".
<code>string Host</code>	SMTP host address.
<code>int Port</code>	SMTP port (25 by default).
<code>string UserName, string Password</code>	User name and password. Leave these properties empty if your server does not require authentication.
<code>bool AllowUI</code>	Allows to change these settings in the "Send Email" dialog. Settings will be stored in the FastReport configuration file.

UI style settings are available in the following properties of `Config` class:

Property	Description
<code>UIStyle UIStyle</code>	The style of designer and preview form.

Besides these properties, there are some events. Using such events, you may do the following:

- replace standard "Open file" and "Save file" dialogs in the designer;
- replace standard progress window;
- pass own connection string to a connection defined in the report.

These tasks will be described in the following sections of this manual.

# Replacing the "Open" and "Save" dialogs

If you decided to store a report in the database, you may need to change the designer in such a way that it can open and save reports from/to a database. That is, you need to replace standard "Open" and "Save" dialogs with your own dialogs that work with database. To do this, use the `FastReport.Utils.Config.DesignerSettings` global class (see the [Configuring the FastReport environment](#)). This class has the following events:

## Event `CustomOpenDialog`

Occurs when the report designer is about to show the "Open" dialog. In the event handler, you must display a dialog window to allow user to choose a report file. If dialog was executed successfully, you must return `e.Cancel = false` and set the `e.FileName` to the selected file name. The following example demonstrates how to use this event:

```
private void CustomOpenDialog_Handler(object sender, OpenSaveDialogEventArgs e)
{
    using (OpenFileDialog dialog = new OpenFileDialog())
    {
        dialog.Filter = "Report files (*.frx)|*.frx";
        // set e.Cancel to false if dialog
        // was successfully executed
        e.Cancel = dialog.ShowDialog() != DialogResult.OK;
        // set e.FileName to the selected file name
        e.FileName = dialog.FileName;
    }
}
```

## Event `CustomSaveDialog`

Occurs when the report designer is about to show the "Save" dialog. In the event handler, you must display a dialog window to allow user to choose a report file. If dialog was executed successfully, you must return `e.Cancel = false` and set the `e.FileName` to the selected file name. The following example demonstrates how to use this event:

```
private void CustomSaveDialog_Handler(object sender, OpenSaveDialogEventArgs e)
{
    using (SaveFileDialog dialog = new SaveFileDialog())
    {
        dialog.Filter = "Report files (*.frx)|*.frx";
        // get default file name from e.FileName
        dialog.FileName = e.FileName;
        // set e.Cancel to false if dialog
        // was successfully executed
        e.Cancel = dialog.ShowDialog() != DialogResult.OK;
        // set e.FileName to the selected file name
        e.FileName = dialog.FileName;
    }
}
```

## Event `CustomOpenReport`

Occurs when the report designer is about to load the report. In the event handler, you must load the report specified in the `e.Report` property from the location specified in the `e.FileName` property. The latter property

contains the name that was returned by the `CustomOpenDialog` event handler. It may be the file name, the database key value, etc. The following example demonstrates how to use this event:

```
private void CustomOpenReport_Handler(object sender, OpenSaveReportEventArgs e)
{
    // load the report from the given e.FileName
    e.Report.Load(e.FileName);
}
```

### Event `CustomSaveReport`

Occurs when the report designer is about to save the report. In the event handler, you must save the report specified in the `e.Report` property to the location specified in the `e.FileName` property. The latter property contains the name that was returned by the `CustomSaveDialog` event handler. It may be the file name, the database key value, etc. The following example demonstrates how to use this event:

```
private void CustomSaveReport_Handler(object sender, OpenSaveReportEventArgs e)
{
    // save the report to the given e.FileName
    e.Report.Save(e.FileName);
}
```

# Replacing the standard progress window

The progress window is shown during the following actions:

- running a report
- printing
- exporting

You may turn off the progress by setting the `FastReport.Utils.Config.ReportSettings.ShowProgress` property to `false`. Besides that, you may replace the standard progress window with your own. To do this, use the following events of the `FastReport.Utils.Config.ReportSettings` global class (see the "[Configuring the FastReport environment](#)" section):

Event	Description
<code>StartProgress</code>	Occurs once before the operation. In this event, you have to create your own progress window and show it.
<code>Progress</code>	Occurs each time when current report page is handled. In this event, you have to show the progress state in your window.
<code>FinishProgress</code>	Occurs once after the operation. In this event, you have to destroy the progress window.

The `Progress` event takes `e` parameter of `ProgressEventArgs` type. It has the following properties:

Property	Description
<code>string Message</code>	The message text.
<code>int Progress</code>	The index of current report page being handled.
<code>int Total</code>	The number of total pages in a report. This parameter may be 0 when preparing a report, because the number of total pages is unknown.

In most cases, you need to display the text from the `e.Message` property, in the `Progress` event handler. Other parameters may be useful if you want to display a progress bar.

# Passing own connection string

If you use data sources that are defined inside a report, you may need to pass an application-defined connection string to a report. This can be done in three ways.

The first method: you pass a connection string directly to the Connection object in a report. Do the following:

```
report1.Load(...);
// do it after loading the report, before running it
// assume we have one connection in the report
report1.Dictionary.Connections[0].ConnectionString = my_connection_string;
report1.Show();
```

The second method: you pass a connection string using the report parameter. Do the following:

- run the report designer;
- in the "Data" window, create a new report parameter (with "MyParameter" name, for example). See the User's Manual for more details;
- in the "Data" window, select the "Connection" object that contains a data source;
- switch to the "Properties" window and set the `ConnectionStringExpression` property to the following:

```
[MyParameter]
```

- pass the connection string to the `MyParameter` parameter:

```
report1.SetParameterValue("MyParameter", my_connection_string);
```

The third method: use the `DatabaseLogin` event of the `FastReport.Utils.Config.ReportSettings` global class (see the "Configuring the FastReport environment" section). This event occurs each time when FastReport opens the connection. Here is an example of this event handler:

```
private void environmentSettings1_DatabaseLogin(
    object sender, DatabaseLoginEventArgs e)
{
    e.ConnectionString = my_connection_string;
}
```

Keep in mind that the `DatabaseLogin` event is global, it works with all reports.

# Passing custom SQL

The report may contain data sources that are added using the Data Wizard (via "Data|Add Data Source..." menu). Sometimes it is needed to pass custom SQL to that data source from your application. To do this, use the following code:

```
using FastReport.Data;
report1.Load(...);
// do it after loading the report, before running it
// find the table by its alias
TableDataSource table = report1.GetDataSource("MyTable") as TableDataSource;
table.SelectCommand = "new SQL text";
report1.Show();
```

# Reference to a report object

When you work with a report as a class (see the ["Storing a report and loading it"](#) section), you may refer to the report objects directly. The following example demonstrates how to change the font of the "Text1" object contained in a report:

```
SimpleListReport report = new SimpleListReport();
report.Text1.Font = new Font("Arial", 12);
```

In other cases, you have to use the `FindObject` method of the Report object, if you need to get a reference to an object:

```
TextObject text1 = report1.FindObject("Text1") as TextObject;
text1.Font = new Font("Arial", 12);
```

To reference to a data source defined in a report, use the `GetDataSource` method of the Report object. This method takes a data source's alias as a parameter:

```
DataSourceBase ds = report1.GetDataSource("Products");
```

# Creating a report by using code

Let us consider how to create a report in code. We will create the following report:

ReportTitle	PRODUCTS
Group Header: [Products.ProductName]. Substring(0, 1)	[[Products.ProductName].Product
Data: Products	[Products.ProductName]
Group Footer	Count: [CountOfProducts]

```
Report report = new Report();

// register the "Products" table
report.RegisterData(dataSet1.Tables["Products"], "Products");

// enable it to use in a report
report.GetDataSource("Products").Enabled = true;

// create A4 page with all margins set to 1cm
ReportPage page1 = new ReportPage();
page1.Name = "Page1";
report.Pages.Add(page1);

// create ReportTitle band
page1.ReportTitle = new ReportTitleBand();
page1.ReportTitle.Name = "ReportTitle1";

// set its height to 1.5cm
page1.ReportTitle.Height = Units.Centimeters * 1.5f;

// create group header
GroupHeaderBand group1 = new GroupHeaderBand();
group1.Name = "GroupHeader1";
group1.Height = Units.Centimeters * 1;

// set group condition
group1.Condition = "[Products.ProductName].Substring(0, 1)";

// add group to the page.Bands collection
page1.Bands.Add(group1);

// create group footer
group1.GroupFooter = new GroupFooterBand();
group1.GroupFooter.Name = "GroupFooter1";
group1.GroupFooter.Height = Units.Centimeters * 1;

// create DataBand
DataBand data1 = new DataBand();
data1.Name = "Data1";
data1.Height = Units.Centimeters * 0.5f;

// set data source
data1.DataSource = report.GetDataSource("Products");

// connect databand to a group
group1.Data = data1;

// create "Text" objects
// report title
```

```

// report title
TextObject text1 = new TextObject();
text1.Name = "Text1";

// set bounds
text1.Bounds = new RectangleF(0, 0, Units.Centimeters * 19, Units.Centimeters * 1);

// set text
text1.Text = "PRODUCTS";

// set appearance
text1.HorzAlign = HorzAlign.Center;
text1.Font = new Font("Tahoma", 14, FontStyle.Bold);

// add it to ReportTitle
page1.ReportTitle.Objects.Add(text1);

// group
TextObject text2 = new TextObject();
text2.Name = "Text2";
text2.Bounds = new RectangleF(0, 0, Units.Centimeters * 2, Units.Centimeters * 1);
text2.Text = "[[Products.ProductName].Substring(0, 1)]";
text2.Font = new Font("Tahoma", 10, FontStyle.Bold);

// add it to GroupHeader
group1.Objects.Add(text2);

// data band
TextObject text3 = new TextObject();
text3.Name = "Text3";
text3.Bounds = new RectangleF(0, 0, Units.Centimeters * 10, Units.Centimeters * 0.5f);
text3.Text = "[Products.ProductName]";
text3.Font = new Font("Tahoma", 8);

// add it to DataBand
data1.Objects.Add(text3);

// group footer
TextObject text4 = new TextObject();
text4.Name = "Text4";
text4.Bounds = new RectangleF(0, 0, Units.Centimeters * 10, Units.Centimeters * 0.5f);
text4.Text = "Count: [CountOfProducts]";
text4.Font = new Font("Tahoma", 8, FontStyle.Bold);

// add it to GroupFooter
group1.GroupFooter.Objects.Add(text4);

// add a total
Total groupTotal = new Total();
groupTotal.Name = "CountOfProducts";
groupTotal.TotalType = TotalType.Count;
groupTotal.Evaluator = data1;
groupTotal.PrintOn = group1.Footer;

// add it to report totals
report.Dictionary.Totals.Add(groupTotal);

// run the report
report.Show();

```

The prepared report looks as follows:

## PRODUCTS

### A

Aniseed Syrup

Alice Mutton

**Count: 2**

### B

Boston Crab Meat

**Count: 1**

# Using own preview window

Using the `FastReport.Utils.Config.PreviewSettings` global class (see the "Configuring the FastReport environment" section), you may tune up the standard preview window.

If you don't want to use the standard preview window for some reason, you may create your own. To do this, use the `PreviewControl` control (`WpfPreviewControl` for FastReport WPF, `AvaloniaPreviewControl` for FastReport Avalonia) that can be added on your form. To show a report in this control, connect it to the `Report` object by the following code:

```
report1.Preview = previewControl1; // WinForms/Mono
report1.WpfPreview = previewControl1; // WPF
report1.AvaloniaPreview = previewControl1; // Avalonia
```

To prepare a report and show it in the `PreviewControl`, use the `Show` method of the `Report` object:

```
report1.Show();
your_form.ShowDialog();
```

or the following code:

```
if (report1.Prepare())
{
    report1.ShowPrepared();
    your_form.ShowDialog();
}
```

In these examples, the `your_form` is your form that contains the `PreviewControl`.

Using the methods of `PreviewControl` component, you can handle it from your code. You may even turn off the standard toolbar and/or statusbar, using the `ToolbarVisible`, `StatusbarVisible` properties.

This is demonstrated in the `\Demos\C#\CustomPreview` example project (in FastReport WPF, the demo is located here: `\Demos\WPF\CustomPreview`; in FastReport Avalonia, the demo is located here: `\Demos\Avalonia\CustomPreview`).

# Filtering tables in the Data Wizard

The Data Wizard can be called from the "Data|Add Data Source..." menu. Here you can set up the connection and choose one or several data tables. By default, the wizard displays all tables available in the selected connection.

If you want to filter unnecessary tables, use the `FastReport.Utils.Config.DesignerSettings.FilterConnectionTables` event. The following example shows how to remove the "Table 1" table from the tables list:

```
using FastReport.Utils;
Config.DesignerSettings.FilterConnectionTables += FilterConnectionTables;
private void FilterConnectionTables(
    object sender, FilterConnectionTablesEventArgs e)
{
    if (e.TableName == "Table 1")
        e.Skip = true;
}
```

# Working with ASP.NET

[Using the WebReport component](#)

[Setting up web handler](#)

[Storing and loading a report](#)

[Registering data](#)

[Passing a value to a report parameter](#)

[Working in the "Medium Trust" mode](#)

[Working in Web Farm and Web Garden architectures](#)

[Working with ASP.NET MVC](#)

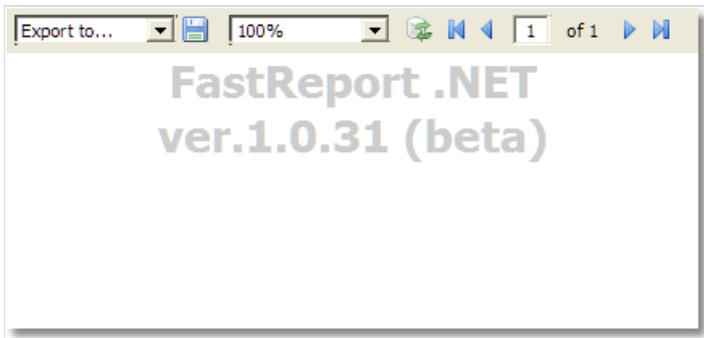
[Example of export in MVC](#)

[FastReport .NET and jQuery](#)

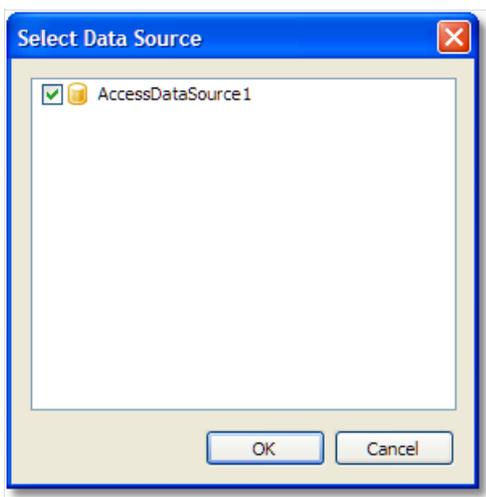
# Using the WebReport component

Let us consider the typical case of using the WebReport component.

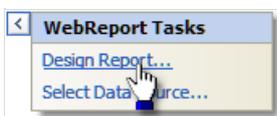
- assuming that you have a web project with all necessary data sources (for example, AccessDataSource);
- put the WebReport component on your web form:



- in the "smart tag" menu, select the "Select Data Source..." item and choose one or several data sources which you want to use in a report:



- in the "smart tag" menu, select the "Design Report..." item to run the report designer:



- create a report. Read more about this in the User's Manual;
- close the designer;
- save the changes in your project and run it. You will see a window with a prepared report.

# Setting up web handler

WebReport requires a specific handler to be set in the `web.config` file. When you create a report object in Visual Studio, necessary lines are automatically written to the configuration file. The WebReport component checks the availability of the specified configuration at run time of the application. If the required lines are not found in the `web.config` file an error is thrown, requesting the file to be changed.

The `web.config` file should contain the following lines when used with an IIS6 server:

```
<system.web>
...
<httpHandlers>
  <add path="FastReport.Export.axd" verb="*" type="FastReport.Web.Handlers.WebExport"/>
</httpHandlers>
...
</system.web>
```

and with an IIS7 server, these lines:

```
<system.webServer>
...
<handlers>
  <add name="FastReportHandler" path="FastReport.Export.axd" verb="*"
type="FastReport.Web.Handlers.WebExport"/>
</handlers>
...
</system.webServer>
```

The correct WebReport configuration lines in the `web.config` file must be used when transferring your project from one server to another.

Check for correct working of the WebReport handler by means of the URL:

[http://yoursite/app\\_folder/FastReport.Export.axd](http://yoursite/app_folder/FastReport.Export.axd)

An information message gives the version of FastReport and the server time.

# Storing and loading a report

You may store a report in the following ways:

## In a web form:

Typical scenario that we have looked at before, uses this method. The report is stored in the `ReportResourceString` property of the WebReport component. This method has the following pros and cons:

- + it's a simplest way to work with FastReport .NET;
- the report template is stored in the ViewState of your web form. It will be transferred on a client side. It may slow down the work if the report has a big size;
- this method is not compatible with "Medium Trust" mode.

The report loading is performed automatically.

## In the .FRX file:

This method assumes that the report is stored in a file in a special folder "App\_Data". To do this:

- run the report designer;
- create a report and save it to the .FRX file;
- in the Solution Explorer, select the "App\_Data" folder, right-click it and choose the "Add|Existing Item..." item. Select the report file that you just saved;
- select the WebReport component and clear its `ReportResourceString` property;
- select the `ReportFile` property, invoke its editor and choose the report from "App\_Data" folder.

This method has the following pros and cons:

- + the report is not transferred to a client machine;
- this method is not compatible with "Medium Trust" mode.

The report loading is performed automatically.

A report can also be loaded from `WebReport.StartReport` event handler. Example code in `StartReport` :

```
(sender as WebReport).Report.Load(this.Server.MapPath("~/App_Data/report.frx"));
```

## As a C#/VB.NET class:

In this method, you work with the report as a class. To do this:

- design your report and save in to the .cs/.vb file. To do this, select "file type" in the "Save" dialog. The file type maybe either .cs or .vb - it depends on the script language in the report (it may be changed in the "Report/Options..." menu);
- include that file into your project. It's better to save it in the "App\_Code" folder;
- clear both `ReportResourceString` and `ReportFile` properties of the WebReport component.

This method has the following pros and cons:

- + you can work with the report as a regular class;
- + you can debug the report in the Visual Studio;
- + it's the only way to use a report in the "Medium Trust" mode;
- you cannot edit such a report. To do this, you need the original .FRX file.

To work with a report, create the `WebReport.StartReport` event handler. In this handler, you should do the following:

- create an instance of your report class;
- register the data;
- set the report to the `Report` property of the WebReport component.

Example of the `StartReport` event handler:

```
SimpleListReport report = new SimpleListReport();
report.RegisterDataAsp(your_data, "your_data_name");
WebReport1.Report = report;
```

The prepared report can be displayed from `WebReport.StartReport` event handler using the property `WebReport.ReportDone`. Example code in `StartReport` to load and display a prepared report:

```
(sender as WebReport).Report.LoadPrepared(this.Server.MapPath("~/App_Data/Prepared.fpx"));
(sender as WebReport).ReportDone = true;
```

# Registering data

If you select the data source using the "smart tag" menu of the WebReport component, you don't need to register the data manually. In this case, FastReport .NET stores the names of data sources in the `ReportDataSources` property of the WebReport component.

In case you don't want to use such method of registering data, you need to do it manually. It can be done by using the `StartReport` event of the WebReport component. In this event handler, you can call the `RegisterData` and `RegisterDataAsp` methods of the report. The report can be accessed through the `WebReport.Report` property:

```
webReport1.Report.RegisterData(myDataSet);
```

Read more about registering data in [this section](#).

# Passing a value to a report parameter

To pass a value to the report parameter, use the `SetParameterValue` method of the Report object. This method was described in details in the "[Working with Windows.Forms](#)" chapter.

To use this method in ASP.NET, you need to create the event handler for the `StartReport` event of the WebReport component. The report can be accessed through the `WebReport.Report` property:

```
webReport1.Report.SetParameterValue("MyParam", 10);
```

# Working in the "Medium Trust" mode

This mode is used by many shared hosting providers. In this mode, the following actions are restricted:

- report compilation is impossible;
- impossible to use MS Access data source;
- impossible to use the RichObject;
- impossible to use some export filters that use WinAPI calls or temp files (PDF, Open Office);
- there may be other restrictions, depending on the provider.

To work with a report in this mode, you need to store a report as a C#/VB.NET class, as described in the "[Storing and loading a report](#)" section. In this case, the report compilation is not required.

# Working in Web Farm and Web Garden architectures

To use the FastReport report generator in a multi-server (Web Farm) or multi-processor (Web Garden) architecture there are additional requirements for creating special storage for data synchronization between WebReport objects.

Add the following lines to the configuration file `web.config` :

```
<appSettings>
<add key="FastReportStoragePath" value="\\FS\WebReport_Exchange"/>
<add key="FastReportStorageTimeout" value="10"/>
<add key="FastReportStorageCleanup" value="1"/>
</appSettings>
```

- `FastReportStoragePath` - path to the folder for temporary files when working in a multi-server architecture, each server must have access to this folder;
- `FastReportStorageTimeout` - cache time for reports, in minutes;
- `FastReportStorageCleanup` - time for checking the expired cache entries, in minutes.

Check for correct configuration by means of the URL:

[http://yoursite/app\\_folder/FastReport.Export.axd](http://yoursite/app_folder/FastReport.Export.axd)

You should see `Cluster mode: ON` .

# Working with ASP.NET MVC

Using FastReport in MVC ASPX markup is no different from regular ASP.NET usage. An example of applying WebReport in ASPX markup can be found in the folder \Demos\C#\MvcDemo.

The use of WebReport in the Razor markup, which appeared with the MVC 3 version, needs to be discussed in more detail. For WebReport to work correctly, you need to add handler definitions to the `web.config` file in the root folder of the web application. When using the IIS7 server and above, add the following line to the

`<system.webServer>` `<handlers>` section:

```
<add name="FastReportHandler" path="FastReport.Export.axd" verb="*"
type="FastReport.Web.Handlers.WebExport" />
```

When using IIS6, a line is added to the section `<system.web>` `<httpHandlers>` :

```
<add path="FastReport.Export.axd" verb="*" type="FastReport.Web.Handlers.WebExport" />
```

Then modify the `web.config` file in the folder containing Views. Add these lines in section

`<system.web.webPages.razor>` `<namespaces>` :

```
<add namespace="FastReport" />`<br/>`<add namespace="FastReport.Web" />
```

Add these lines to file `_Layout.cshtml` in tag `<head>` :

```
@WebReportGlobals.Scripts()
@WebReportGlobals.Styles()
```

Now you can draw the report on the View. Go to the controller and create a WebReport:

```
WebReport webReport = new WebReport(); // create object
webReport.Width = 600; // set width
webReport.Height = 800; // set height
webReport.Report.RegisterData(dataSet, "AppData"); // data binding
webReport.ReportFile = this.Server.MapPath("~/App_Data/report.frx"); // load the report from the file
ViewBag.WebReport = webReport; // send object to the View
```

Go to View and add the line:

```
@ViewBag.WebReport.GetHtml()
```

Similar code to create WebReport you can also write directly in View.

Let's look at the demo of WebReport in Razor in folder \Demos\C#\MvcRazor. There are various samples for

loading into the report, including pre-prepared, and there is an example of using the event `StartReport` .

Don't forget to add the missing dll in the bin directory.

# Example of export in MVC

When using FastReport .NET together with the ASP.NET MVC framework there is an easy method for creating a file in any supported format from a button press on the HTML form.

Add this code in the View:

```
@using (Html.BeginForm("GetFile", "Home"))
{
    <input id="pdf" type="submit" value="Export to PDF" />
}
```

- `GetFile` - name of the controller handler;
- `Home` - name of the controller (eg: HomeController.cs).

Add the name space in the controller:

```
using FastReport.Export.Pdf;
```

Add method `GetFile` in the controller:

```
public FileResult GetFile()
{
    WebReport webReport = new WebReport();
    // bind data
    System.Data.DataSet dataSet = new System.Data.DataSet();
    dataSet.ReadXml(report_path + "nwind.xml");
    webReport.Report.RegisterData(dataSet, "NorthWind");
    // load report
    webReport.ReportFile = this.Server.MapPath("~/App_Data/report.frx");
    // prepare report
    webReport.Report.Prepare();
    // save file in stream
    Stream stream = new MemoryStream();
    webReport.Report.Export(new PDFExport(), stream);
    stream.Position = 0;
    // return stream in browser
    return File(stream, "application/zip", "report.pdf");
}
```

Example for Excel 2007:

```
using FastReport.Export.OoXML;
...
webReport.Report.Export(new Excel2007Export(), stream);
...
return File(stream, "application/xlsx", "report.xlsx");
```

# FastReport .NET and jQuery

The WebReport object from FastReport .NET uses the jQuery library. You may already be using this library in your project.

To avoid duplication of jQuery boot scripts and styles in the client browser when working with markup Razor, you must use the following lines in `_Layout.cshtml` :

```
@WebReportGlobals.ScriptsWOjQuery()  
@WebReportGlobals.StylesWOjQuery()
```

replacing these lines, which include all jQuery files:

```
@WebReportGlobals.Scripts()  
@WebReportGlobals.Styles()
```

You must set the property `ExternaljQuery = true` (defaults to `false` ) when working with ASPX markup.

# Working with WCF

[WCF service library FastReport.Service.dll](#)

[Simple example of WCF service](#)

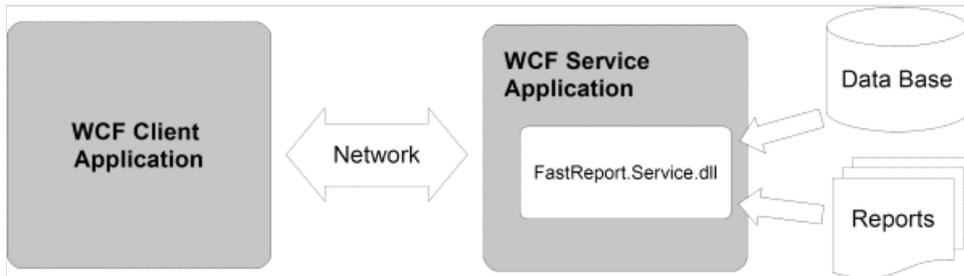
[Creating Web Service using FastReport.Service.dll](#)

[Creating the WCF service hosted in Windows service](#)

# WCF service library FastReport.Service.dll

FastReport .NET contains the library `FastReport.Service.dll`, which is designed for integration into applications on the .NET Framework version 4.6.2 and above.

This library is a WCF Service Library and is intended for use in custom applications that perform the functions of the service.



The library contains the following functions:

```
List<ReportItem> GetReportsList();
```

Returns a list of available reports. Each item is returned as a `ReportItem` object. Reports are stored on a hard drive on a server that is running the service. Files are sorted in alphabetical order.

```
List<ReportItem> GetReportsListByPath(string path);
```

Returns a list of available reports by `path`. Files are sorted in alphabetical order.

```
List<GearItem> GetGearList();
```

Returns a list of available formats that can generate service reports as elements `GearItem`.

```
Stream GetReport(ReportItem report, GearItem gear);
```

Returns a stream of the result of building a report. Parameters `report` and `gear` can be used from the lists previously obtained, or by creating new objects with the required properties. The returned stream does not support positioning.

Let's look at list elements.

## ReportItem

```
public class ReportItem
{
    public string Path;
    public string Name;
    public string Description;
    public Dictionary<string, string> Parameters;
}
```

**Path** – path to the report file on the server, relative to the root folder for storing reports. The file extension of the report must be \*.frx. This property is used to identify a specific report with further queries.

**Name** – name of the report, taken from the metadata of the report. If the metadata of the report contains an empty name then the property contains a filename without an extension. This property can be used to build an interactive list of available reports in your application (eg: in a ListBox).

**Description** – description of the report, taken from the metadata of the report.

**Dictionary<string, string> Parameters** – dictionary of report parameters, may be filling parameters, which will be subsequently transferred to the report. It supports only the string values that must be considered when designing a report template.

## GearItem

```
public class GearItem
{
    public string Name;
    public Dictionary<string, string> Properties;
}
```

**Name** – name of the format. May contain one of the following strings:

Name	Description
<b>PDF</b>	Adobe Acrobat file.
<b>DOCX</b>	Microsoft Word 2007 file.
<b>XLSX</b>	Microsoft Excel 2007 file.
<b>PPTX</b>	Microsoft PowerPoint 2007 file.
<b>RTF</b>	Rich Text file – supported by many text editors.
<b>ODS</b>	Open Office Spreadsheet file.
<b>ODT</b>	Open Office Text file.
<b>MHT</b>	Compressed HTML file together with the images, can be opened in Internet Explorer.
<b>CSV</b>	Comma separated values file.
<b>DBF</b>	dBase file.

Name	Description
<b>XML</b>	Excel XML table – without images.
<b>TXT</b>	Text file.
<b>FPX</b>	FastReport .NET Prepared report file. It can be opened in the Viewer.exe program for viewing or loaded directly into a report object from code using the <code>Report.LoadPrepared(stream)</code> method, after which the report can be displayed on the screen using the <code>Report.ShowPrepared()</code> method.

`Dictionary<string, string> Properties` – dictionary of parameters of a report. A complete list of supported parameters with default values is available on requesting the server to list formats.

When creating a service you must add the following lines in your `App.config` or `Web.config` :

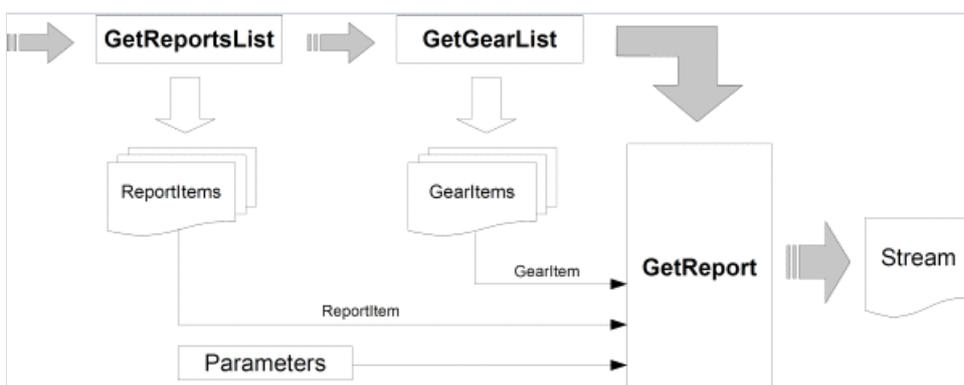
```
<appSettings>
  <add key="FastReport.ReportsPath" value="C:\Program files\FastReports\FastReport .NET Professional\Demos\Reports" />
  <add key="FastReport.ConnectionStringName" value="FastReportDemo" />
  <add key="FastReport.Gear" value="PDF,DOCX,XLSX,PPTX,RTF,ODS,ODT,MHT,CSV,DBF,XML,TXT,FPX" />
</appSettings>
```

`FastReport.ReportsPath` – specifies the path to the folder with the reports, a list of which will be transmitted to the client.

`FastReport.ConnectionStringName` – name of the connection string to the database, which is stored in the configuration section `<connectionStrings>` . Used to replace the internal connection string in the report template.

`FastReport.Gear` – list of available formats. You can select only those required and change the order of the names.

Schematic of using `FastReport.Service` :



And, if you already know exactly what to report and in which format to receive it (this reduces the number of queries made to the service):



Important points to note when you create report templates for use in the services:

- dialogs in the reports are not supported and will be ignored;
- each report must include an internal `DataConnection` , whose connection string for the report service is replaced by a string from the configuration.

Examples of use of `FastReport.Service.dll` can be found in the folders `\Demos\C#\Web\WCFWebService` and `\Demos\C#\Web\WCFWebClient`.

An example configuration file service - `FastReport.Service.dll.config` .

# Simple example of WCF service

This example does not require programming and is intended for testing the library and the configuration file. To complete the task, we will use the program WcfSvcHost.exe, that comes with Visual Studio:

1. Create a folder for our project anywhere on the disk, eg: as C:\WCF\FastReport
2. Copy these files to the folder: `FastReport.Service.dll`, `FastReport.Service.dll.config`, `FastReport.dll` and `FastReport.Bars.dll`
3. Create two sub-folders \Data and \Reports
4. Copy the database file to the \Data folder from the Demos folder \Demos\Reports\nwind.xml
5. Copy the contents of folder \Demos\Reports to \Reports – it contains test reports with built-in connections to the database, which are essential when used with library `FastReport.Service.dll`
6. Open the configuration file `FastReport.Service.dll.config` in any text editor
7. Change the path to the reports in section `<appSettings>`

```
<add key="FastReport.ReportsPath" value="C:\WCF\FastReport\Reports" />
```

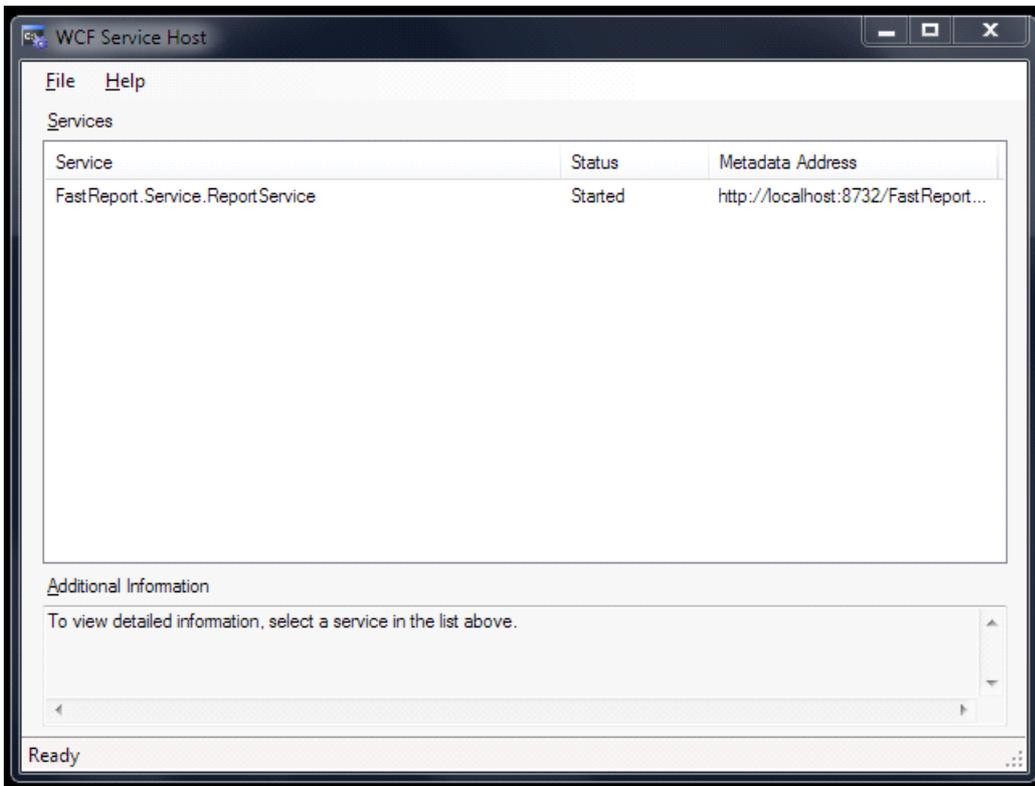
8. Change the connection string in section `<connectionStrings>` :

```
<add name="FastReportDemo" connectionString="XsdFile=;XmlFile=C:\WCF\FastReport\Data\nwind.xml"/>
```

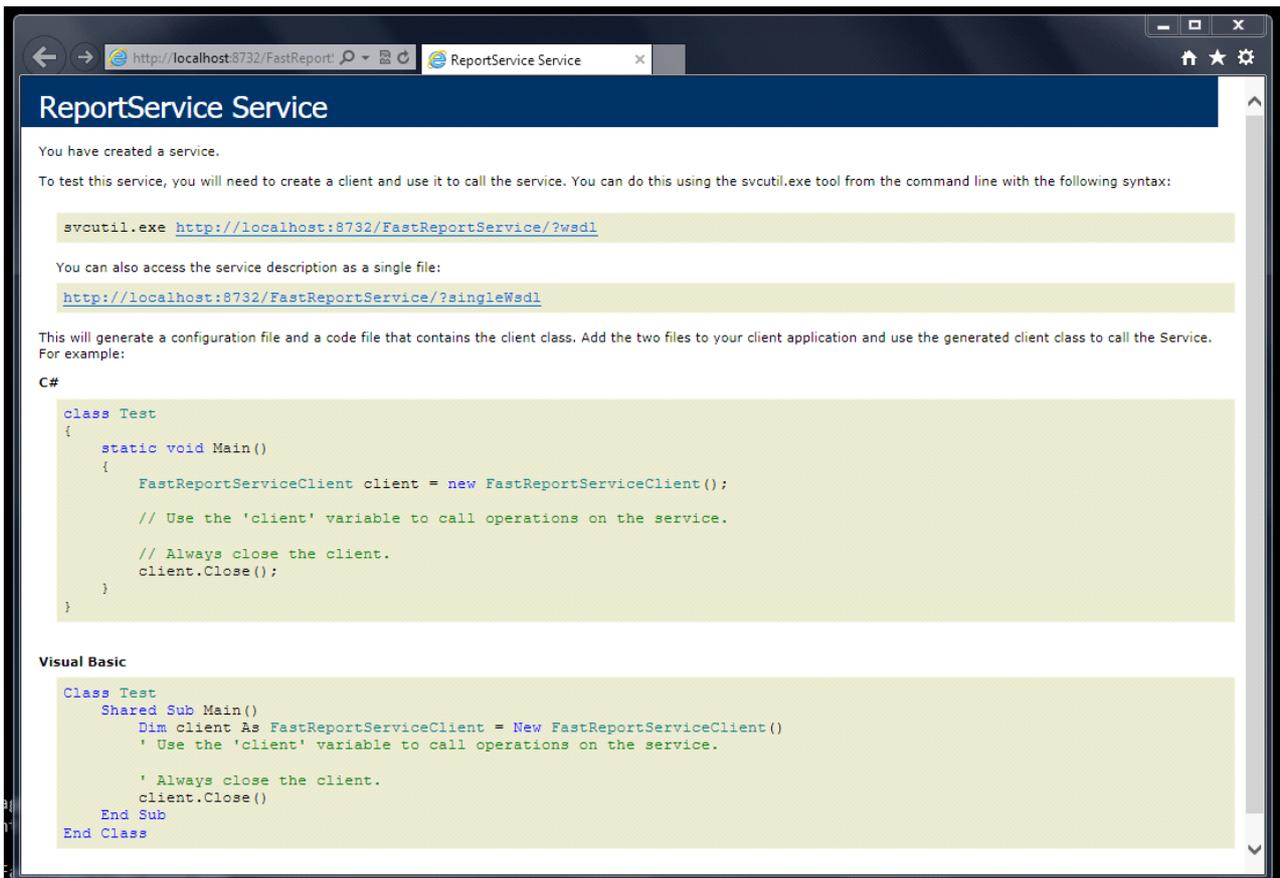
9. Create batch file service.bat containing the line:

```
"C:\Program Files\Microsoft Visual Studio 10.0\Common7\IDE\WcfSvcHost.exe"  
/service:"C:\WCF\FastReport\FastReport.Service.dll"  
/config:"C:\WCF\FastReport\FastReport.Service.dll.config"
```

10. Run service.bat from Explorer with administrator rights (Run as administrator). You will see an icon for WCF Service Host in the system tray. Double-click on the icon:



11. Open a web browser and go to address <http://localhost:8732/FastReportService/>



This shows the Service working normally. You can change the port number of the service in the configuration file:

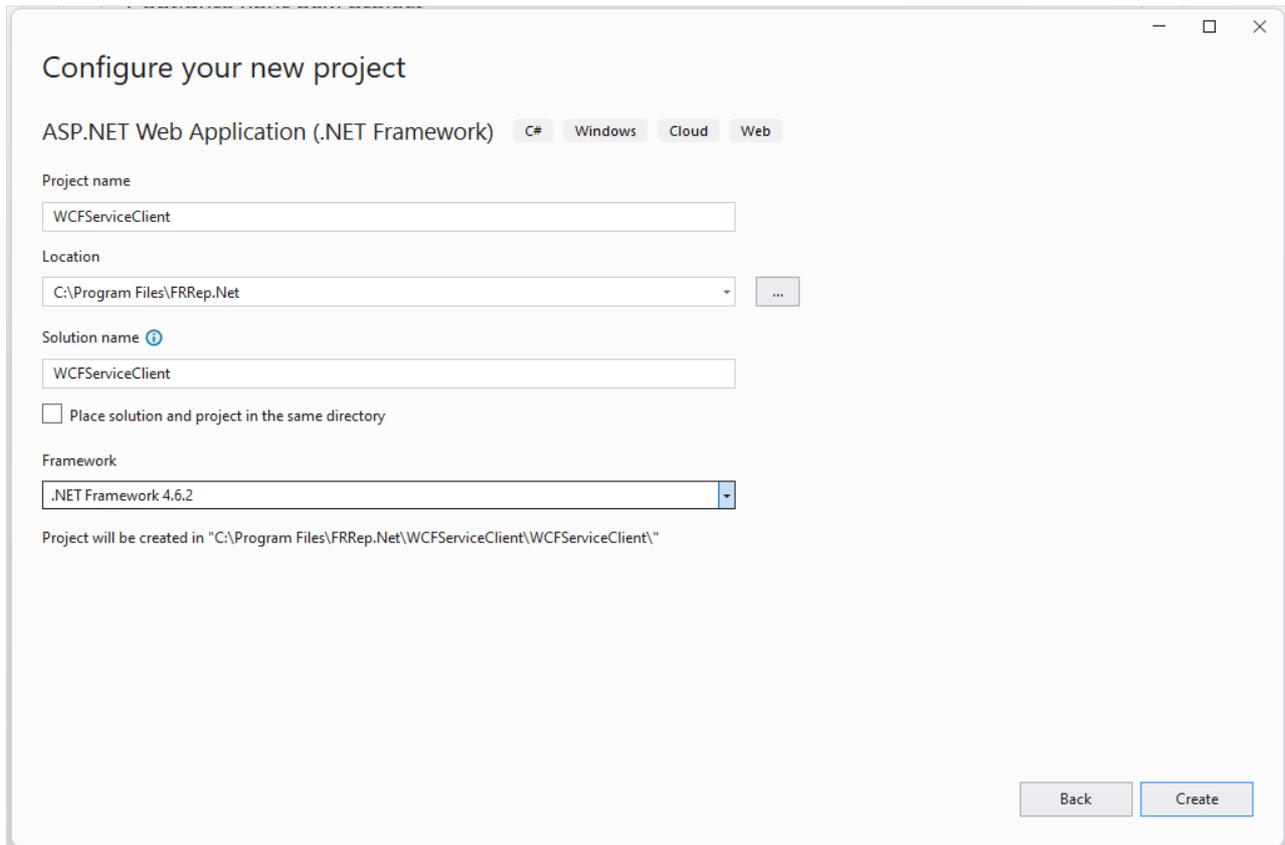
```
<add baseAddress="http://localhost:8732/FastReportService/" />
```

# Creating Web Service using FastReport.Service.dll

There is an easy way to implement a web service using the library `FastReport.Service.dll` (WCF Service Library), which is supplied with FastReport.

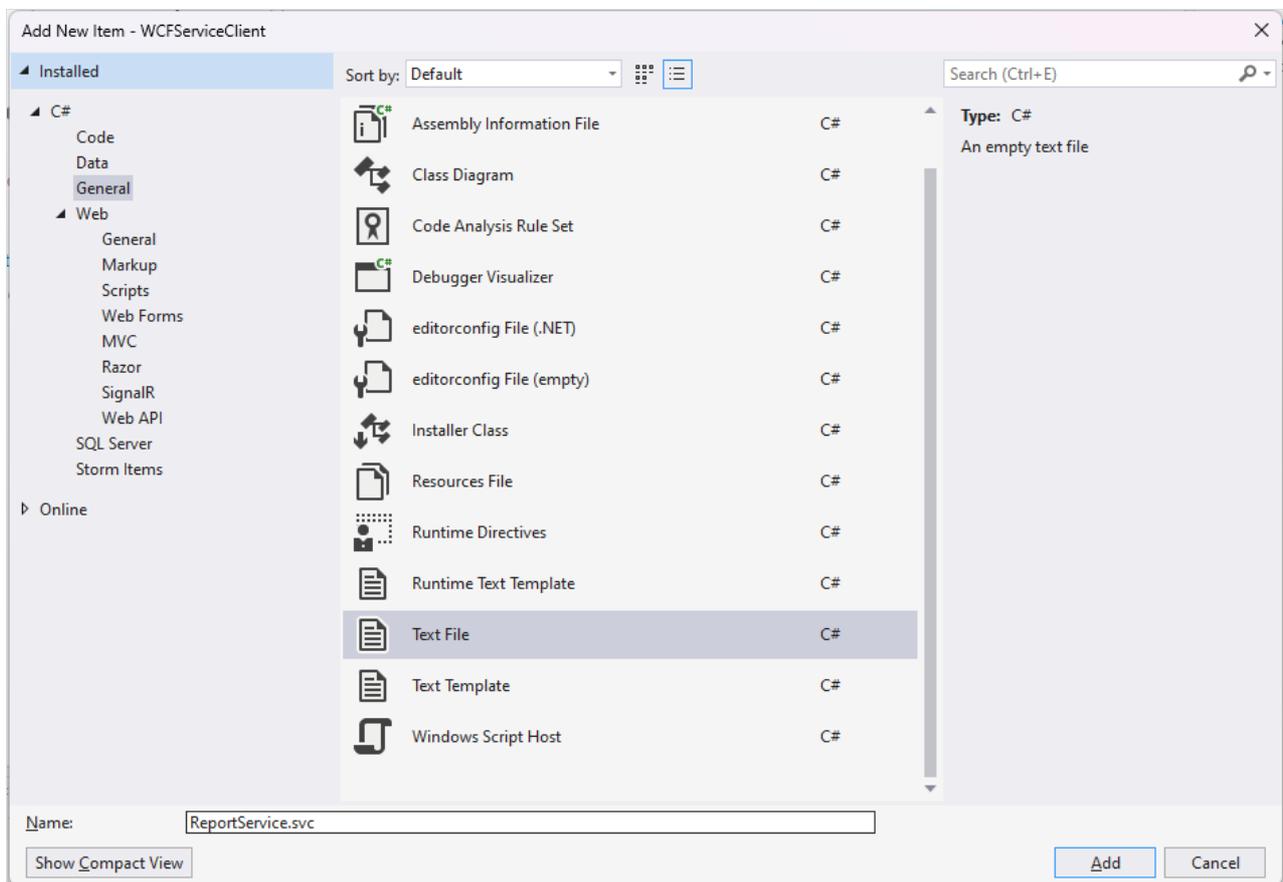
Our example is based on creating a simple web application with web service functions, but you can modify your existing project based on .NET Framework 4.6.2 or later.

Run Visual Studio and create a new ASP.NET Web Application project under .NET Framework 4.6.2 or higher.



Add references to libraries `FastReport.dll`, `FastReport.Bars.dll`, `FastReport.Service.dll`.

Create a new text file with name ReportService.svc in the site root.



Add these lines to the file:

```
<%@ ServiceHost Service="FastReport.Service.ReportService" %>  
<%@ Assembly Name="FastReport.Service" %>
```

Open `web.config` and add this code in `<configuration>` section:

```

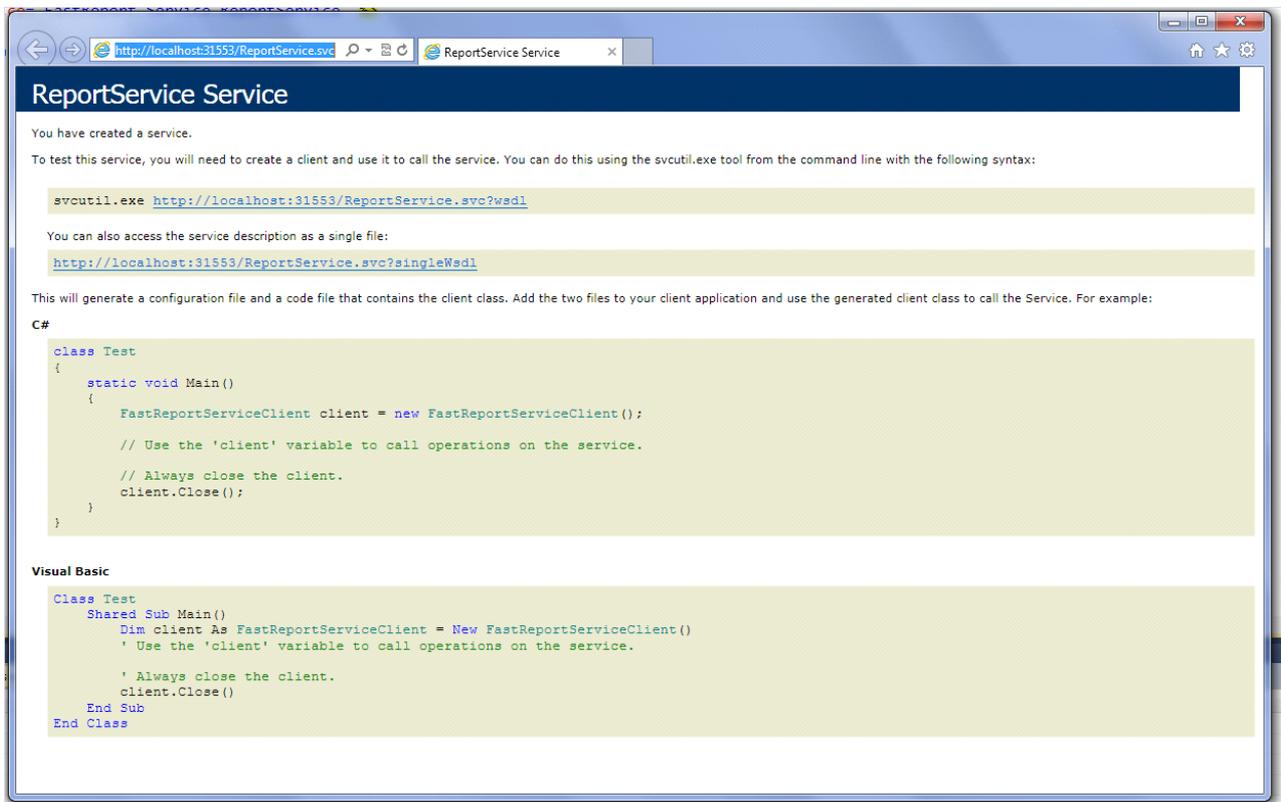
<appSettings>
  <!-- path to folder with reports -->
  <add key="FastReport.ReportsPath" value="C:\Program files\FastReports\FastReport .NET
Professional\Demos\Reports" />
  <!-- name of connection string for reports -->
  <add key="FastReport.ConnectionStringName" value="FastReportDemo" />
  <!-- Comma-separated list of available formats PDF,DOCX,XLSX,PPTX,RTF,ODS,ODT,MHT,CSV,DBF,XML,TXT,FPX.
You can delete any or change order in this list. -->
  <add key="FastReport.Gear" value="PDF,DOCX,XLSX,PPTX,RTF,ODS,ODT,MHT,CSV,DBF,XML,TXT,FPX" />
</appSettings>
<connectionStrings>
  <add name="FastReportDemo" connectionString="XsdFile=;XmlFile=C:\Program Files\FastReport
.NET Professional\Demos\Reports\nwind.xml"/>
</connectionStrings>
<system.serviceModel>
  <services>
    <service behaviorConfiguration="FastReportServiceBehavior" name="FastReport.Service.ReportService">
      <endpoint address="" binding="wsHttpBinding" contract="FastReport.Service.IFastReportService">
        <identity>
          <dns value="localhost" />
        </identity>
      </endpoint>
      <endpoint address="mex" binding="mexHttpBinding" contract="IMetadataExchange" />
    </service>
  </services>
  <behaviors>
    <serviceBehaviors>
      <behavior name="FastReportServiceBehavior">
        <serviceMetadata httpGetEnabled="True" />
        <serviceDebug includeExceptionDetailInFaults="True" />
      </behavior>
    </serviceBehaviors>
  </behaviors>
  <bindings>
    <basicHttpBinding>
      <binding messageEncoding="Mtom"
closeTimeout="00:02:00" openTimeout="00:02:00"
receiveTimeout="00:10:00" sendTimeout="00:02:00"
maxReceivedMessageSize="67108864" maxBufferSize="65536"
transferMode="Streamed">
        <security mode="None">
          <transport clientCredentialType="None" />
        </security>
      </binding>
    </basicHttpBinding>
  </bindings>
</system.serviceModel>

```

The key `FastReport.ReportsPath` should contain a path to the folder with the reports. You can set it to the demo folder `\Demos\Reports`, for example.

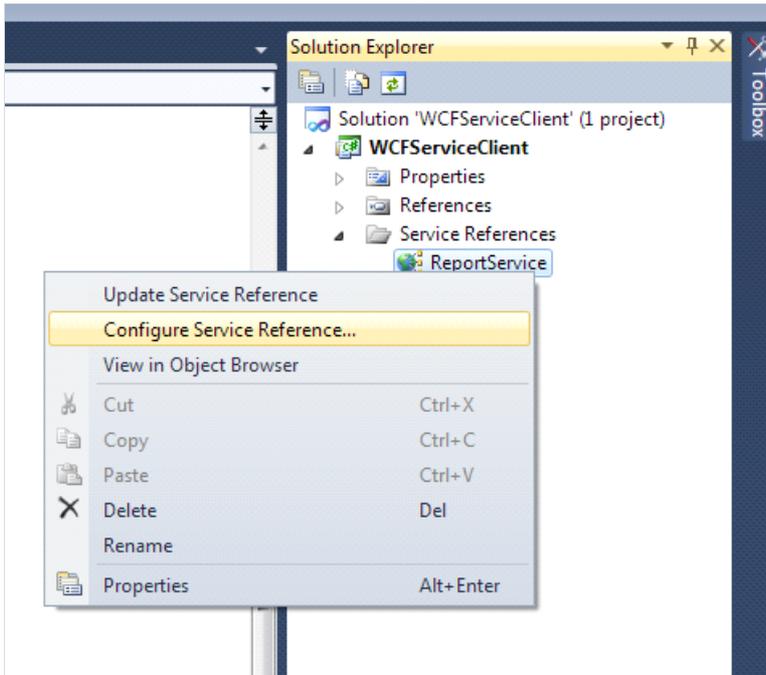
The key `FastReport.ConnectionStringName` should contain the connection string name. This line should be registered in section `<connectionStrings>`.

Let's run our site and check the availability of a Web service by accessing the file `ReportService.svc`.



When you deploy the project on the server, be sure to check that files `FastReport.dll` , `FastReport.Bars.dll` , `FastReport.Service.dll` are in the folder `\bin`.

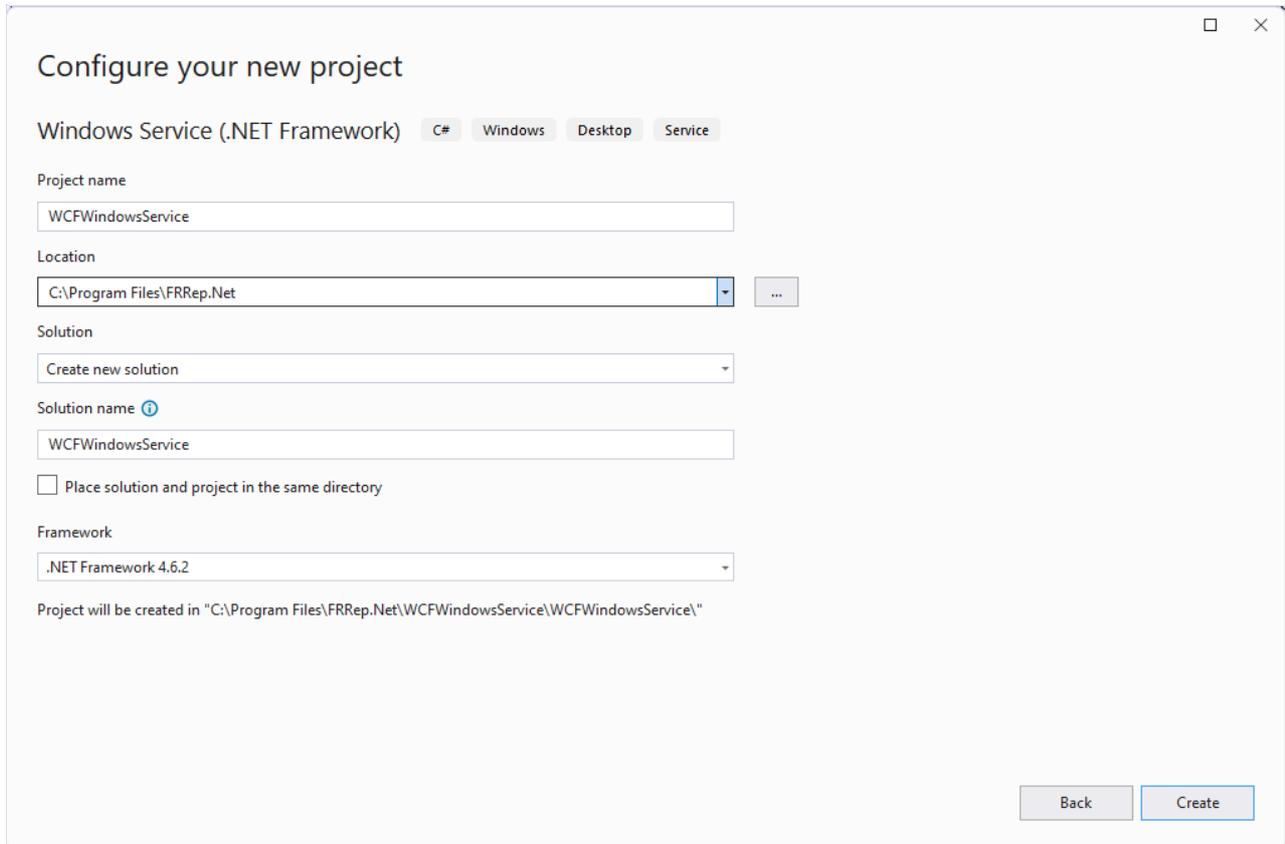
Examples of client programs can be found in the folders `\Demos\C#\Web\WCFWebClient`. Open each project in Visual Studio, right-click on ReportService and select Configure Service Reference in the popup.



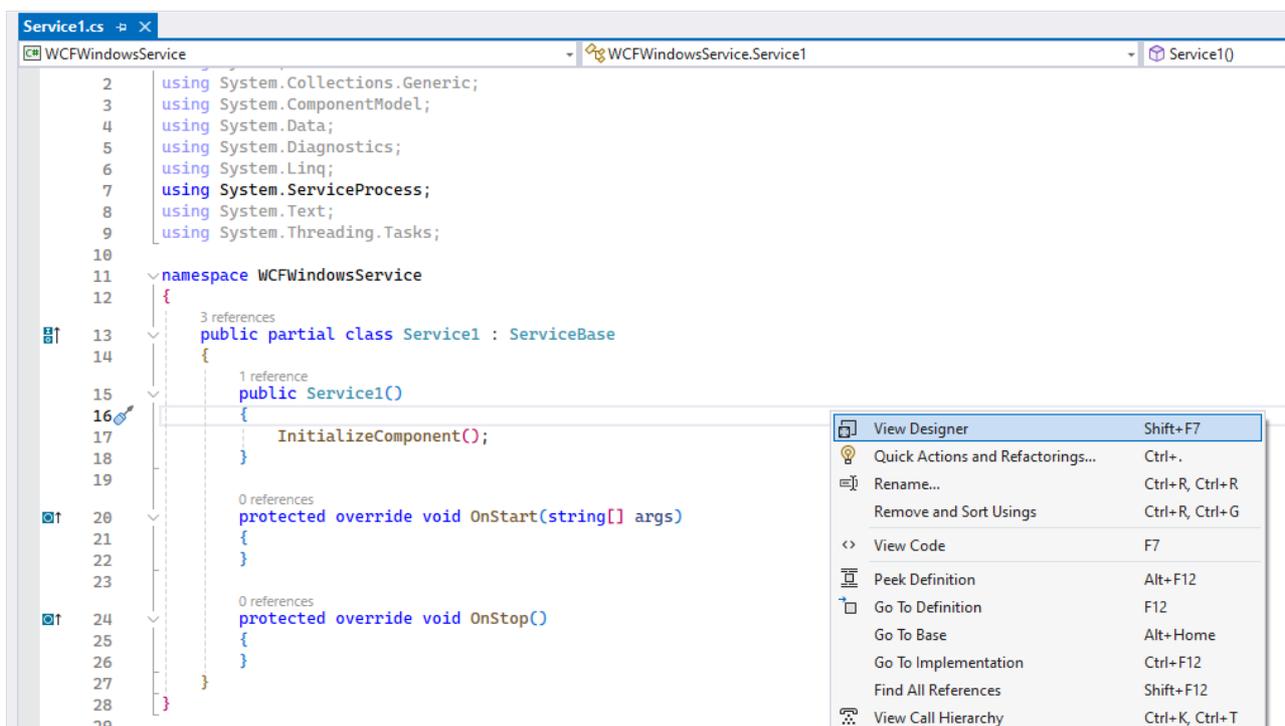
Specify the address of an existing web service in the configuration window.

# Creating the WCF service hosted in Windows service

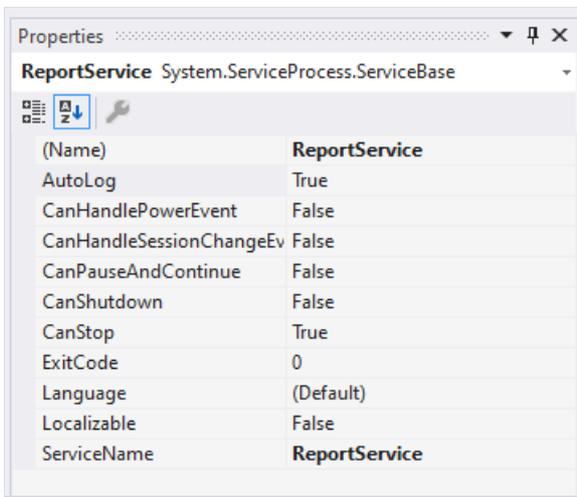
Open Visual Studio and create a project Windows Service.



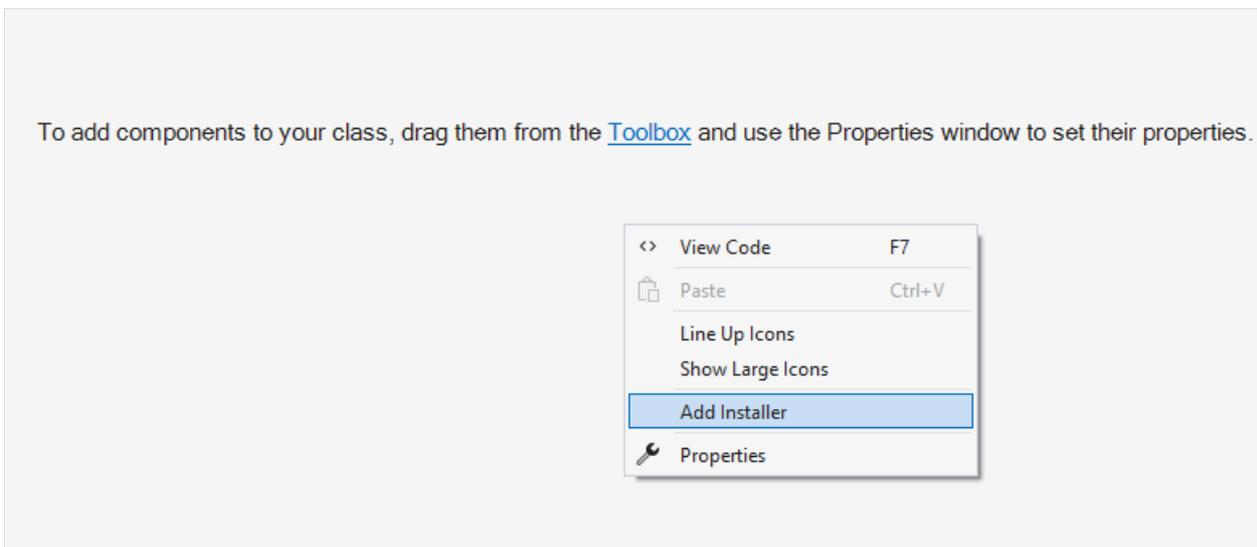
Open the designer of Service1.cs



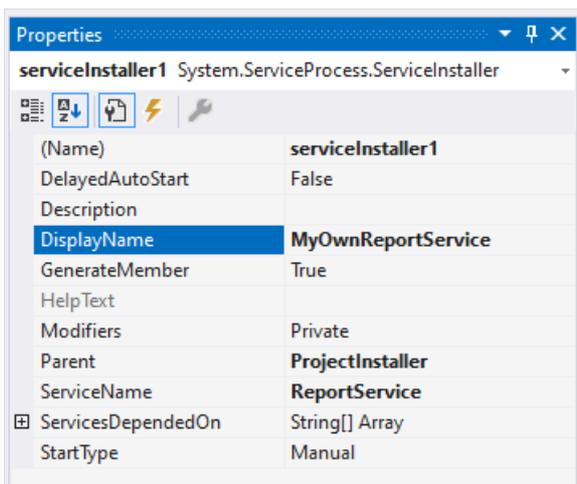
Change the name of the service to your own choice:



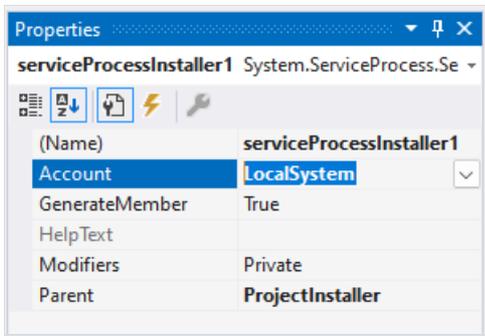
Right-click on window and select "Add Installer" in the popup:



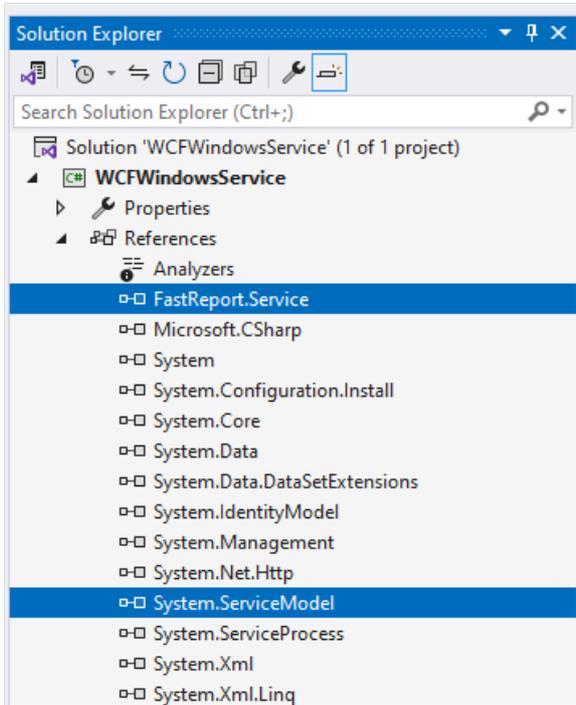
Edit the properties of the component serviceInstaller1 - set up a DisplayName.



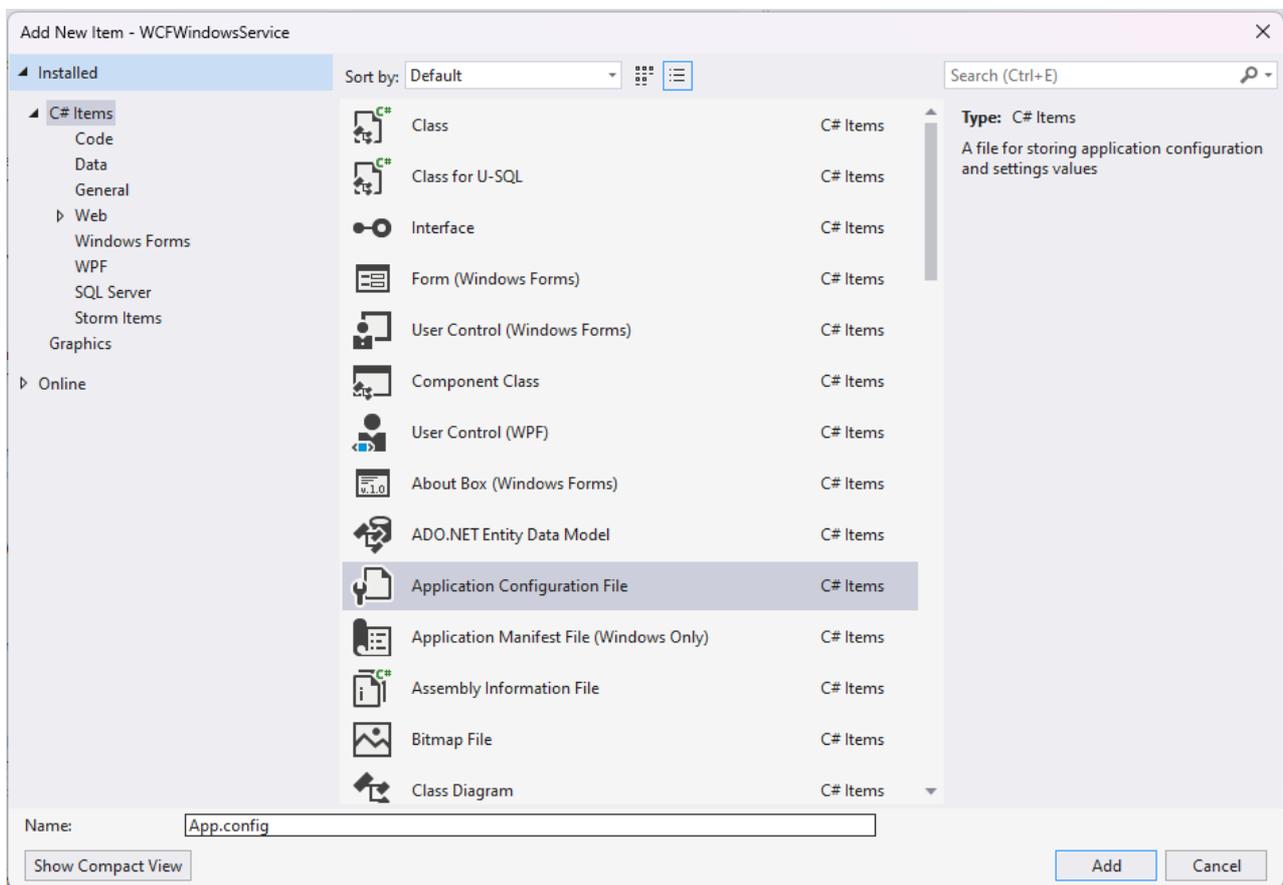
In the component properties of serviceProcessInstaller1 set the type of account for the service as LocalSystem.



Add references in the project to `System.ServiceModel` and `FastReport.Service.dll` :



Create an application configuration file:



Copy the following text into the new `app.config` file:

```
<?xml version="1.0"?>
<configuration>
  <appSettings>
    <!-- path to folder with reports -->
    <add key="FastReport.ReportsPath" value="C:\Program files\FastReports\FastReport .NET
Professional\Demos\Reports" />
    <!-- name of connection string for reports -->
    <add key="FastReport.ConnectionStringName" value="FastReportDemo" />
    <!-- Comma-separated list of available formats PDF,DOCX,XLSX,PPTX,RTF,ODS,ODT,MHT,CSV,DBF,XML,TXT,FPX.
You can delete any or change order in this list. -->
    <add key="FastReport.Gear" value="PDF,DOCX,XLSX,PPTX,RTF,ODS,ODT,MHT,CSV,DBF,XML,TXT,FPX" />
  </appSettings>
  <connectionStrings>
    <add name="FastReportDemo" connectionString="XsdFile=;XmlFile=C:\Program Files\FastReports\FastReport
.NET Professional\Demos\Reports\nwind.xml"/>
  </connectionStrings>
  <system.web>
    <compilation debug="true" />
    <membership defaultProvider="ClientAuthenticationMembershipProvider">
      <providers>
        <add name="ClientAuthenticationMembershipProvider"
type="System.Web.ClientServices.Providers.ClientFormsAuthenticationMembershipProvider,
System.Web.Extensions, Version=4.0.0.0, Culture=neutral, PublicKeyToken=31bf3856ad364e35" serviceUri=""
/>
      </providers>
    </membership>
    <roleManager defaultProvider="ClientRoleProvider" enabled="true">
      <providers>
        <add name="ClientRoleProvider" type="System.Web.ClientServices.Providers.ClientRoleProvider,
System.Web.Extensions, Version=4.0.0.0, Culture=neutral, PublicKeyToken=31bf3856ad364e35" serviceUri=""
cacheTimeout="86400" />
      </providers>
    </roleManager>
  </system.web>
  <!-- When deploying the service library project, the content of the config file must be added to the
```

```

host's
app.config file. System.Configuration does not support config files for libraries. -->
<system.serviceModel>
<services>
<service behaviorConfiguration="FastReportServiceBehavior" name="FastReport.Service.ReportService">
<endpoint address="" binding="wsHttpBinding" contract="FastReport.Service.IFastReportService">
<identity>
<dns value="localhost" />
</identity>
</endpoint>
<endpoint address="mex" binding="mexHttpBinding" contract="IMetadataExchange" />
<host>
<baseAddresses>
<add baseAddress="http://localhost:8732/FastReportService/" />
</baseAddresses>
</host>
</service>
</services>
<behaviors>
<serviceBehaviors>
<behavior name="FastReportServiceBehavior">
<serviceMetadata httpGetEnabled="True" />
<serviceDebug includeExceptionDetailInFaults="True" />
</behavior>
</serviceBehaviors>
</behaviors>
<bindings>
<basicHttpBinding>
<binding messageEncoding="Mtom"
closeTimeout="00:02:00" openTimeout="00:02:00"
receiveTimeout="00:10:00" sendTimeout="00:02:00"
maxReceivedMessageSize="67108864" maxBufferSize="65536"
transferMode="Streamed">
<security mode="None">
<transport clientCredentialType="None" />
</security>
</binding>
</basicHttpBinding>
</bindings>
</system.serviceModel>
<startup>
<supportedRuntime version="v4.0" sku=".NETFramework,Version=v4.6.2" />
</startup>
</configuration>

```

Go to the editor of Service1.cs and add the line:

```
using System.ServiceModel;
```

Modify the class of service so it looks like:

```

public partial class ReportService : ServiceBase
{
    ServiceHost reportHost;

    public ReportService()
    {
        InitializeComponent();
    }

    protected override void OnStart(string[] args)
    {
        if (reportHost != null)
            reportHost.Close();
        reportHost = new ServiceHost(typeof(FastReport.Service.ReportService));
        reportHost.Open();
    }

    protected override void OnStop()
    {
        reportHost.Close();
        reportHost = null;
    }
}

```

You can install the service using the command line utility InstallUtil.exe, which comes with .NET Framework, for instance:

```

C:\Windows\Microsoft.NET\Framework\v4.0.30319\InstallUtil.exe "C:\Program
Files\FRRRep.Net\WCFWindowsService\WCFWindowsService\bin\Debug\WCFWindowsService.exe"

```

And you can start the service with the command:

```

net start ReportService

```

Open a web browser and check the address <http://localhost:8732/FastReportService/>, which was set in `app.config` in `baseAddress`. You can change the folder and port to your own choice.

Commands to stop and to uninstall the service:

```

net stop ReportService

```

```

C:\Windows\Microsoft.NET\Framework\v4.0.30319\InstallUtil.exe /u "C:\Program
Files\FRRRep.Net\WCFWindowsService\WCFWindowsService\bin\Debug\WCFWindowsService.exe"

```

# Working with Blazor

Presenting `FastReport.Web` package with components for embedding a web application into your [Blazor Server](#). Starting from version 2021.3, this library contains Razor components for the [Blazor Server](#) (server-side) application, which means that all operations will be performed on the server side, which will then pass the finished display to the client.

The minimum target framework at the moment is .Net 6 to ensure the highest possible compatibility with the latest LTS (long-term support) version.

# Preflight Preparation

To use Blazor components in `FastReport.Web`, you need to add a reference in your project file (csproj)

`PackageReference` specifying the id of this package and the `FastReport.Core` package (versions may differ):

```
<ItemGroup>
  <PackageReference Include="FastReport.Core" Version="2021.3.0-demo"/>
  <PackageReference Include="FastReport.Web" Version="2021.3.0-demo"/>
</ItemGroup>
```

Then, to simplify naming, we recommend adding the following namespaces to your project's imports (

`_Imports.razor` file):

```
@using FastReport.Web
@using FastReport.Web.Blazor.Components
@using FastReport.Web.Blazor.Components.Internal
```

In fact, just adding `FastReport.Web.Blazor.Components` may be enough, however, for some cases, you may need other namespaces as well.

Also, some components are likely to move within these namespaces during the beta version.

In the configurator of your web application, you need to call the `UseFastReport` method with an optional lambda expression for setting `FastReportOptions`.

Also, for some built-in common styles and SVG images of icons in Toolbar and Tab to work, you need to use the `UseStaticFiles` call (if you are not going to use Toolbar and Tabs, the `UseStaticFiles` call to use this package is optional):

```
public void Configure(IApplicationBuilder app, IWebHostEnvironment env)
{
  // ...
  app.UseStaticFiles();
  // ...
  app.UseFastReport();
  // ...
}
```

# Description of built-in components

The following is a description of the components included in `FastReport.Web`. We do not recommend using components other than `WebReportContainer`, because they can be unstable outside of the standard component tree.

However, to fine-tune the rendering, you may need to use other components.

## WebReportContainer

The main and most versatile Blazor component that performs `WebReport` rendering is `<WebReportContainer/>`. It is located in the namespace `FastReport.Web.Blazor.Components`.

The only parameter it takes is an object of the `WebReport` class. This means that to use this component, you must create an object of the `WebReport` class, assign it a `Report`, other necessary parameters, and pass this object to the `WebReportContainer` parameters.

### Example

```
<WebReportContainer WebReport="@UserWebReport" />

@code {
    public WebReport UserWebReport { get; set; }

    protected override void OnParametersSet()
    {
        var report = Report.FromFile(
            Path.Combine(
                directory,
                "My report.frx"));

        // Registers the application dataset
        Report.RegisterData(DataSet, "NorthWind");

        UserWebReport = new WebReport();
        UserWebReport.Report = Report;
    }
}
```

This component can define a different Mode (Designer, Dialog, and normal Preview) and can prepare a report, embed default styles and individual styles, display Toolbar, Outline and Tabs, work with interactive reports, etc.

## WebReportPreview

It is similar to the previous component but does not take into account the Designer Mode. That is, it always tries to prepare and render a report.

## ReportContainer

It is similar to the previous component but does not include loading `WebReport` styles (common and individual for Toolbar/Tabs/Outline).

It is engaged in the preparation of the report and subsequent display together with the Toolbar and Tabs (if necessary).

When working with any interactivity (clicks on the report / working with dialog forms), it is this component that is updated.

## ReportBody / ExportComponent

The `ReportBody` calls the Outline rendering (if necessary) and "nests" a component that is the rendering of the report itself ( `ExportComponent` ), which the `ReportContainer` passes to it. *Not recommended for use.*

## BlazorExport

The "lowest" level of a component is not a component at all, but `BlazorExport` itself - a tool for exporting a prepared report to the `RenderTreeBuilder` build format. Located in `FastReport.Web.Blazor.Export` namespace.

To build this export, you must:

1. Prepare the report;
2. Make sure that this report does not use dialog forms (they are rendered using the `DialogPageComponent` and are not covered in this tutorial);
3. Create your own component and explicitly define the construction method in it (call the override of the `BuildRenderTree` method);
4. In this build method, create a `BlazorExport` instance, set the properties it needs, and call `Export` passing the following parameters: a `Report` and a builder instance that is an argument to this overridden method.

```
/// Main function
protected override void BuildRenderTree(RenderTreeBuilder builder)
{
    using (BlazorExport blazor = new BlazorExport())
    {
        blazor.StylePrefix = $"fr{WebReport.ID}";
        blazor.EmbedPictures = true;
        blazor.OnClick += ProcessClick;
        blazor.EnableMargins = WebReport.EnableMargins;
        blazor.SinglePage = true;
        blazor.CurPage = WebReport.CurrentPageIndex;

        blazor.Export(myReport, builder);
    }
}
```

## Online Designer

At the moment, Online Designer can work in the `iframe` element using JavaScript and it is fully compatible with the Online Designer assembly for Core.

To use only the designer's capabilities, you can call the `<IFrameDesigner/>` component passing it the `WebReport` parameter with the configured Report property and the optional `DesignerLocale` and `DesignerPath` :

```
<IFrameDesigner WebReport="CurrentWebReport" />
```

However, we remind you that the `WebReportContainer` component understands which `Mode` it is currently working with and it is not at all necessary to call `IFrameDesigner` in this form.

# Setting up common styles and SVG

Unlike `FastReport.Web` for Core, SVG images for Toolbar and Tabs, as well as some general display styles of Tabs, Outline, etc. have been moved to `staticWebAssets` for possible customization in your web application (changing colors, sizes, replacing images).

These resources are located in your local storage. At the time of development/assembly of your application, they are located at: `{UserName}/.nuget/packages/fastreport.web/{version}/staticwebassets`

At the time of publishing your web application (dotnet publish), these resources are copied to the directory:

`wwwroot/_content/FastReport.Web`

# Demo project

You can find a project for demonstrating work with the `FastReport.Web` package on our [GitHub](#). An example of using the `WebReportContainer` is in the custom component under `Pages/Index.razor` and `Pages/Index.razor.cs`.

# Extending FastReport functionality

Create your own connection types

# Creating custom connection types

Data connections are used to add a data source to a report. This allows you to connect to data directly from the report, rather than using data provided by the application.

To create your own connection you need to do the following:

- create a connection class - a descendant of `FastReport.Data.DataConnectionBase` and implement some of its methods;
- create a connection editor - an heir of `FastReport.Data.ConnectionEditors.ConnectionEditorBase` and implement the user interface and methods `GetConnectionString` , `SetConnectionString` ;
- register the connection in FastReport.

These steps will be described below.

# DataConnectionBase class

To create your own connection, use the `FastReport.Data.DataConnectionBase` class. This class has the following set of methods that you must override when creating your own connection:

```
public abstract class DataConnectionBase : DataComponentBase
{
    protected virtual string GetConnectionStringWithLoginInfo(string userName, string password)
    public abstract string QuoteIdentifier(string value, DbConnection connection);
    public virtual DbConnection GetConnection();
    public virtual DbDataAdapter GetAdapter(string selectCommand, DbConnection connection,
        CommandParameterCollection parameters);
    public virtual ConnectionEditorBase GetEditor();
    public virtual Type GetParameterType();
    public virtual string GetConnectionId();
    public virtual string[] GetTableNames();
    public virtual void TestConnection();
    public virtual void FillTableSchema(DataTable table, string selectCommand,
        CommandParameterCollection parameters);
    public virtual void FillTableData(DataTable table, string selectCommand,
        CommandParameterCollection parameters);
}
```

Not all methods need to be overridden - some of them have a default implementation, which will be sufficient for most cases. So, if your connection uses objects of type `DbConnection` and `DbDataAdapter` (and this is standard for the vast majority of connections), you need to implement the following methods:

```
public abstract string QuoteIdentifier(string value, DbConnection connection);
protected virtual string GetConnectionStringWithLoginInfo(string userName, string password)
public virtual DbConnection GetConnection();
public virtual DbDataAdapter GetAdapter(string selectCommand, DbConnection connection,
    CommandParameterCollection parameters);
public virtual ConnectionEditorBase GetEditor();
public virtual Type GetParameterType();
public virtual string GetConnectionId();
public virtual string[] GetTableNames();
```

If your connection does not work with such objects, but, for example, is a bridge between the application server and the report, you will need to implement the following methods:

```
public abstract string QuoteIdentifier(string value, DbConnection connection);
public virtual ConnectionEditorBase GetEditor();
public virtual Type GetParameterType();
public virtual string GetConnectionId();
public virtual string[] GetTableNames();
public virtual void TestConnection();
public virtual void FillTableSchema(DataTable table, string selectCommand,
    CommandParameterCollection parameters);
public virtual void FillTableData(DataTable table, string selectCommand,
    CommandParameterCollection parameters);
```

Below is a description of each method.

# ConnectionString property

Each connection type has its own set of parameters, such as database path, SQL dialect, username and password. The `ConnectionString` property, which has a string type, is used to store the parameters.

This property is used as follows:

- in the `GetConnection` method when creating an object of type `DbConnection` ;
- In the connection editor. In the latter case, individual parameters are selected from the connection string (e.g., the path to the database file). This uses a class of type `DbConnectionStringBuilder` , specific to each connection type. For example, for MS SQL it is `SqlConnectionStringBuilder` .

# QuoteIdentifier method

An identifier (table or column name) is passed to this method. The method must return a quoted identifier. Quotation marks are specific to each database. For example, MS Access uses square brackets:

```
select * from [Table with long name]
```

The method in `MsAccessDataConnection` looks like this:

```
public override string QuoteIdentifier(string value, DbConnection connection)
{
    return "[" + value + "];"
}
```

You must override this method. Refer to the manual for this connection type to find out which characters are used to refer to tables with long names.

# GetConnectionStringWithLoginInfo method

This method should take the existing connection string (from the `ConnectionString` property), include the username and password information, and return the modified string. This method is used if the connection settings specify "Ask for password when connecting".

For example, the implementation of this method for `MsSqlDataConnection` looks like this:

```
protected override string GetConnectionStringWithLoginInfo(string userName, string password)
{
    // get the existing connection string
    SqlConnectionStringBuilder builder = new SqlConnectionStringBuilder(ConnectionString);

    // include the username and password
    builder.IntegratedSecurity = false;
    builder.UserID = userName;
    builder.Password = password;

    // return the modified string
    return builder.ToString();
}
```

You have to override this method.

# GetConnection method

The method returns a new object of type `DbConnection`, specific to this connection. This object is used to connect to the database when the table needs to be filled with data.

The connection parameters are taken from the `ConnectionString` property. For example, for `MsSqlConnection`, the method looks like this:

```
public override DbConnection GetConnection()
{
    return new SqlConnection(ConnectionString);
}
```

Most of the time you have to override this method. It is used in two other methods, `FillTableSchema` and `FillTableData`. If your connection type does not use `DbConnection` and `DbDataAdapter` objects to get information about the table and load data into it, you may not override this method. In that case, you must override the `FillTableSchema` and `FillTableData` methods.

# GetAdapter method

The method returns a new object of type `DbDataAdapter`, specific to this connection. This object is used to fill the table with data.

The following parameters are passed to the method:

Parameter	Description
<b>selectCommand</b>	SQL query text.
<b>connection</b>	Object of type <code>DbConnection</code> , created in the <code>GetConnection</code> method.
<b>Parameters</b>	Query parameters, if defined.

Let's look at an example implementation of this method in `MsSqlConnection`:

```
public override DbDataAdapter GetAdapter(string selectCommand, DbConnection connection,
    CommandParameterCollection parameters)
{
    SqlDataAdapter adapter = new SqlDataAdapter(selectCommand, connection as SqlConnection);
    foreach (CommandParameter p in parameters)
    {
        SqlParameter parameter = adapter.SelectCommand.Parameters.Add(p.Name, (SqlDbType)p.DataType, p.Size);
        parameter.Value = p.Value;
    }
    return adapter;
}
```

The method creates an adapter specific to MS SQL, fills the query parameters and returns the adapter. The parameters should be described in more detail. The query text may contain parameters. In this case, a collection of parameters in the `parameters` variable is passed to the method - these are the parameters defined in the FastReport designer when the query was created. You must add the parameters to the `adapter.SelectCommand.Parameters` list. Each parameter in the `parameters` collection has the following properties:

Property	Description
<b>Name</b>	Parameter name.
<b>DataType</b>	The data type of the parameter. This is an <code>int</code> type property; you must cast it to the type used for the parameters in this connection.
<b>Size</b>	The size of the parameter data.
<b>Value</b>	The value of the parameter.

Most of the time you have to override this method. It is used in two other methods, `FillTableSchema` and `FillTableData`. If your connection type doesn't use the `DbConnection` and `DbDataAdapter` objects to get information about the table and load data into it, you may not override this method. In that case, you must override the `FillTableSchema` and `FillTableData` methods.

# GetEditor method

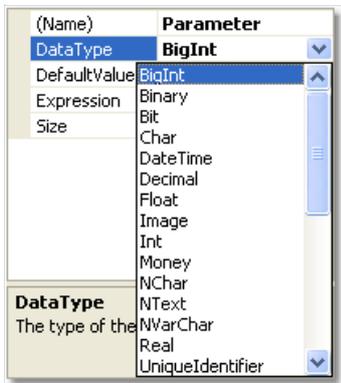
This method returns an instance of the editor for the given connection type. The implementation of the editor will be discussed in "[Connection Editor](#)".

An example implementation of this method in `MsSqlDataConnection` :

```
public override ConnectionEditorBase GetEditor()
{
    return new MsSqlConnectionEditor();
}
```

# GetParameterType method

The value returned by this method is used in the query parameter editor to select the data type of the parameter:



For example, for `MsSqlConnection` the parameter is of type `SqlDbType` :

```
public override Type GetParameterType()
{
    return typeof(SqlDbType);
}
```

You have to override this method.

# GetConnectionId method

The value returned by this method is used in the "Connection Wizard" to display short information about the connection.

This value usually contains the name of the connection type and the name of the database. In `MsSqlDataConnection` the implementation of the method looks like this:

```
public override string GetConnectionId()
{
    SqlConnectionStringBuilder builder = new SqlConnectionStringBuilder(ConnectionString);
    string info = builder.InitialCatalog;
    if (String.IsNullOrEmpty(info))
        info = builder.AttachDBFilename;
    return "MS SQL: " + info;
}
```

Note that `SqlConnectionStringBuilder` is used to parse the connection string ( `ConnectionString` property).

You have to override this method.

# GetTableNames method

This method returns a list of tables and views in the database. As a rule, the `GetSchema` method of the `DbConnection` object is used for this, which is returned by the `GetConnection` method.

This method has a standard implementation. In case the standard implementation is incompatible with your connection type (i.e., it does not return a list of database entities), you will have to override this method. Consider the `MssqlDataConnection` implementation of this method as an example:

```
public override string[] GetTableNames()
{
    List<string> list = new List<string>();
    GetDBObjectNames("BASE TABLE", list);
    GetDBObjectNames("VIEW", list);
    return list.ToArray();
}

private void GetDBObjectNames(string name, List<string> list)
{
    DataTable schema = null;
    using (DbConnection connection = GetConnection())
    {
        connection.Open();
        schema = connection.GetSchema("Tables", newstring[] { null, null, null, name });
    }
    foreach (DataRow row in schema.Rows)
    {
        list.Add(row["TABLE_NAME"].ToString());
    }
}
```

# TestConnection method

This method is called when you click the "Test" button in the connection settings.

The method has a default implementation that creates the connection and tries to open it:

```
public virtual void TestConnection()
{
    DbConnection conn = GetConnection();
    if (conn != null)
    {
        try
        {
            conn.Open();
        }
        finally
        {
            conn.Dispose();
        }
    }
}
```

If the test was successful, the method does nothing. Otherwise, an `Exception` occurs when the connection is opened, which is handled in the "Connection Wizard" and gives a window with an error text.

As a rule, you don't need to override this method. You may need it if your connection does not use a `DbConnection` object to access the database (and therefore you do not return it in the `GetConnection` method).

# FillTableSchema method

The method fills in the table schema (i.e. field names and types).

The following parameters are passed to the method:

Parameter	Description
<b>table</b>	The <code>DataTable</code> object whose schema you want to fill.
<b>selectCommand</b>	Query text in SQL.
<b>parameters</b>	Query parameters, if defined.

The method has a default implementation that uses objects returned by the `GetConnection` and `GetAdapter` methods:

```
public virtual void FillTableSchema(DataTable table, string selectCommand, CommandParameterCollection parameters)
{
    using (DbConnection conn = GetConnection())
    {
        OpenConnection(conn);

        // prepare select command
        selectCommand = PrepareSelectCommand(selectCommand, table.TableName, conn);

        // read the table schema
        using (DbDataAdapter adapter = GetAdapter(selectCommand, conn, parameters))
        {
            adapter.SelectCommand.CommandTimeout = CommandTimeout;
            adapter.FillSchema(table, SchemaType.Source);
        }
    }
}
```

In most cases, you do not need to override this method. You may need to do this if you don't use the `DbConnection` and `DbDataAdapter` objects to access the data (and therefore don't implement the `GetConnection` and `GetAdapter` methods).

# FillTableData method

The method fills the table with data.

The following parameters are passed to the method:

Parameter	Description
<b>table</b>	The <code>DataTable</code> object to be filled.
<b>selectCommand</b>	Query text in SQL.
<b>parameters</b>	Query parameters, if defined.

The method has a default implementation that uses objects returned by the `GetConnection` and `GetAdapter` methods:

```
public virtual void FillTableData(DataTable table, string selectCommand, CommandParameterCollection parameters)
{
    using (DbConnection conn = GetConnection())
    {
        OpenConnection(conn);

        // prepare select command
        selectCommand = PrepareSelectCommand(selectCommand, table.TableName, conn);

        // read the table
        using (DbDataAdapter adapter = GetAdapter(selectCommand, conn, parameters))
        {
            adapter.SelectCommand.CommandTimeout = CommandTimeout;
            table.Clear();
            adapter.Fill(table);
        }
    }
}
```

In most cases, you do not need to override this method. You may need to do this if you don't use the `DbConnection` and `DbDataAdapter` objects to access the data (and therefore don't implement the `GetConnection` and `GetAdapter` methods).

# Connection Editor

To edit the connection, use a control of type UserControl, which is displayed in the connection selection window (in the figure the control is highlighted with a red frame).

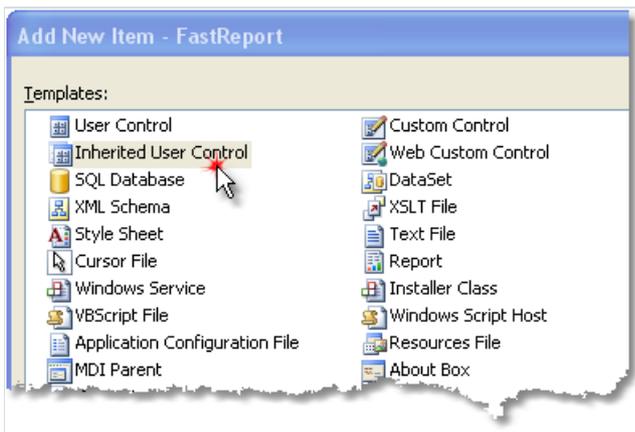
Each connection type has its own editor. All editors are inherited from the base class -

`FastReport.Data.ConnectionEditors.ConnectionEditorBase` :

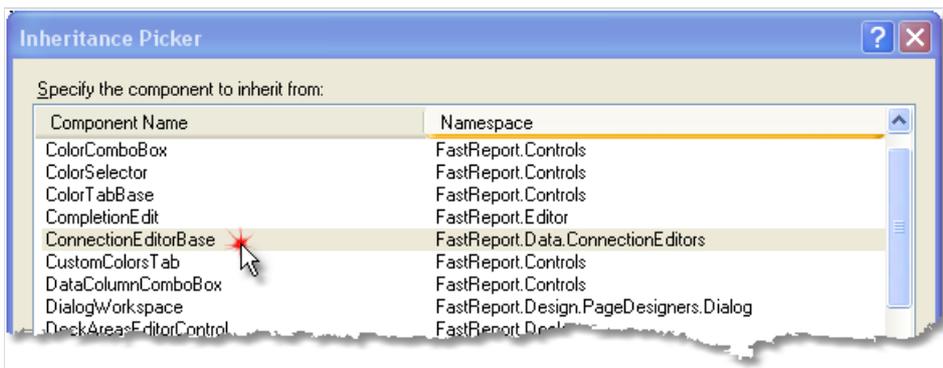
```
public class ConnectionEditorBase : UserControl
{
    protected virtual string GetConnectionString();
    protected virtual void SetConnectionString(string value);
}
```

To create your own editor, do the following:

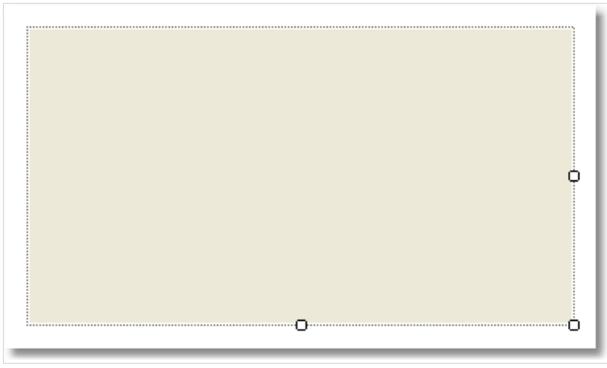
- Add a new control to the project (Add->User Control...) and select "Inherited User Control" in the "Add New Item" window:



- select the `ConnectionEditorBase` base class type:



A control that looks like this will be added to the project:



On the form of the editor, place the controls you need. Change the height of the editor to accommodate all the elements. The width of the editor is fixed and cannot be changed.

The methods of the base class allow you to fill the controls with values from the connection and, conversely, to pass values from the elements to the connection.

## **GetConnectionString method**

This method is called when you close the editor window with the OK button. It should return a connection string that contains the values entered in the editor.

# SetConnectionString method

This method is called the first time the editor is displayed. It must parse the connection string into its component parts and display their values in the editor. To parse a connection string, it is convenient to use a class of type

`DbConnectionStringBuilder`, which is available in every connection type. For example, for MS SQL it is

`SqlConnectionStringBuilder`.

# Registering a connection in FastReport

In order for your connection to be used in the FastReport designer, it must be registered. There are two ways to do this.

Method 1: Your connection is part of your project (i.e. it is not in a separate .dll plugin). Registration is done using the following code:

```
FastReport.Utils.RegisteredObjects.AddConnection(typeof(MyDataConnection));
```

This code must be executed once in the entire lifetime of the application, before you start the designer.

Method 2. Your connection is contained in a separate .dll plugin. In this case you can connect the plugin to FastReport, and it will be loaded every time you work with the designer. To do this, you need to declare a public class like `FastReport.Utils.AssemblyInitializerBase` in the plugin and register your connection in its constructor:

```
public class AssemblyInitializer : FastReport.Utils.AssemblyInitializerBase
{
    public AssemblyInitializer()
    {
        FastReport.Utils.RegisteredObjects.AddConnection(typeof(MyDataConnection));
    }
}
```

When you load your plugin, FastReport will find classes like `AssemblyInitializerBase` and initialize them.

To attach a plugin to FastReport, bring up the designer and select the `Settings...` item in the View menu. In the window that opens, select the "Plugins" tab and add your .dll plugin.

This can also be done by adding the module name to the FastReport configuration file. This file is created in the user directory by default:

```
C:\Documents and Settings\User\Local Settings\Application Data\FastReport\FastReport.config
```

Add a plugin inside the `Plugins` tag:

```
<?xml version="1.0" encoding="utf-8"?>
<Config>
    ...
    <Plugins>
        <Plugin Name="c:\Program Files\MyProgram\MyPlugin.dll"/>
    </Plugins>
</Config>
```

# Release Notes

[Version 2025.2](#)

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[Version 2023.2](#)

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[Version 2022.1](#)

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# Version 2025.2

## .NET 9 Support

Added support for .NET 9 for FastReport .NET, FastReport.Core, FastReport.Core.Skia, FastReport.WPF, FastReport.Avalonia, as well as FastReport.Web, FastReport.Web.Skia, and FastReport.Blazor.Wasm. This platform improves application performance and adds many new features for your projects.

We have done away with binary serialization. `BinaryFormatter` caused a number of security issues and Microsoft in .NET 9 dropped its use. Our team has also removed the `BinaryFormatter` class from the source code.

[You can read more about it at this link.](#)

## Import of Word documents

The FastReport .NET Ultimate component set now includes a plug-in that allows you to import Microsoft Word (.docx) documents. When you open such a file, it is converted into a FastReport .NET report template (.frx).

Due to the large differences in formats, it is not always possible to completely match two documents. However, this plugin allows you to significantly reduce the time required to create a template based on an existing docx file.

At the moment our plugin does not support: background highlighting of part of a line, Shapes, as well as nested vector graphics Vector Markup Language (VML) and OLE objects.

[You can read about the peculiarities of import and how to connect the plugin in the article.](#)

## Connection to Apache Ignite

With this update, a new plugin has been added that greatly simplifies the process of working with Apache Ignite databases when creating reports. This plugin allows you to directly connect reports to the specified databases, providing convenient access to the necessary data for analysis and visualization.

The Apache Ignite connector is implemented based on the .NET Thin Client Ignite.NET. It provides the ability to connect to Apache Ignite clusters, work with caches (including SQL tables) and process various types of data.

In addition, the connector supports connecting to one or more Apache Ignite nodes. Node addresses are specified in `host:port` format and separated by commas. Connection is possible with or without authentication (if `authenticationEnabled` is used in the configuration).

The connector supports working with caches created as key-value and SQL tables. For caches with `QueryEntity` metadata, operations of getting the list of fields and their data types are supported.

[Read more in the article.](#)

## Report Designer Improvements

Also in this version, several useful features have been introduced to simplify work with reports.

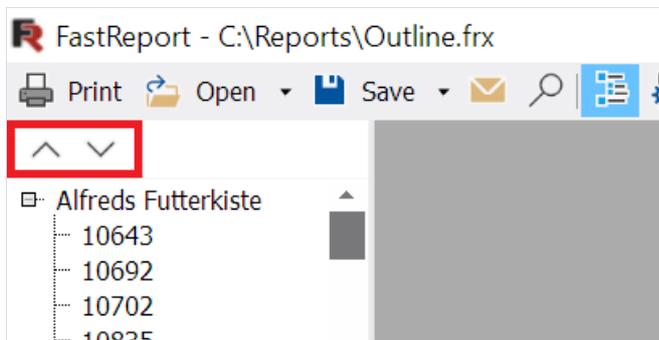
In the Object Inspector, you can now quickly copy data from the list of object properties using the Ctrl + C hotkeys. This will help you easily transfer object properties between different parts of the document or even between different reports.

In addition, it is now possible to copy totals and parameters while preserving the nesting hierarchy. This means that when copying complex data structures, their original organization will be preserved, avoiding the need to manually

rebuild the structure after copying.

## Improvements of the preview window

In OutlineControl we have added handy buttons with icons for minimizing and maximizing. These buttons were there before, but without icons.

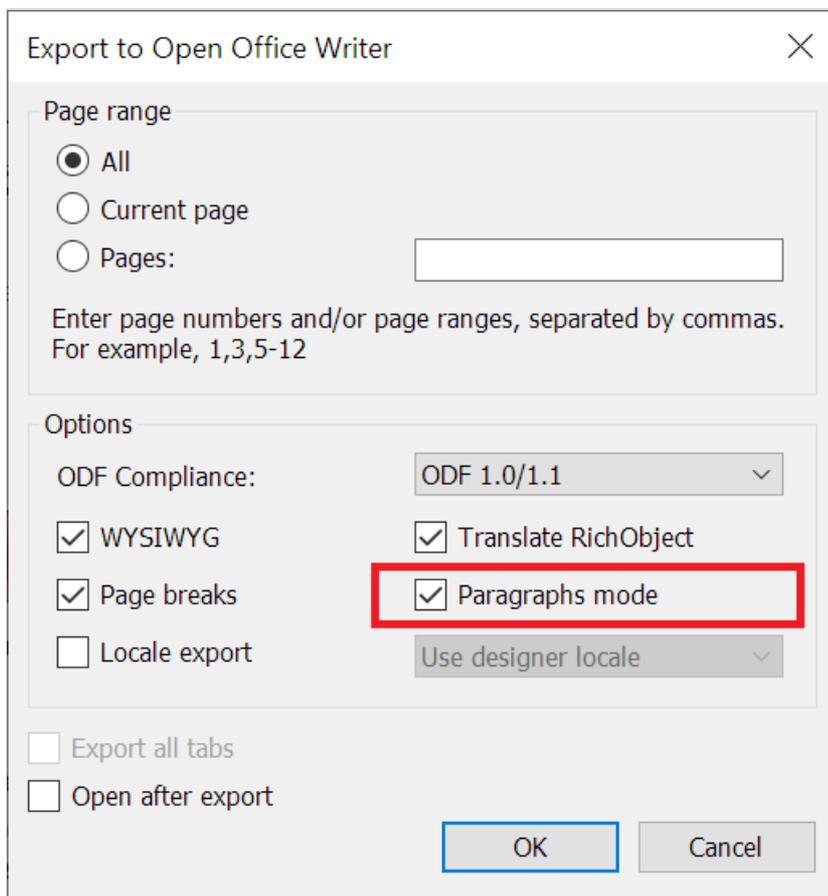


In addition, properties have been added that allow you to change the width and height of the scrollbars in the preview window.

## Export Improvements

Added export of number, currency, date, time and percent formats to OpenOffice Calc (.ods).

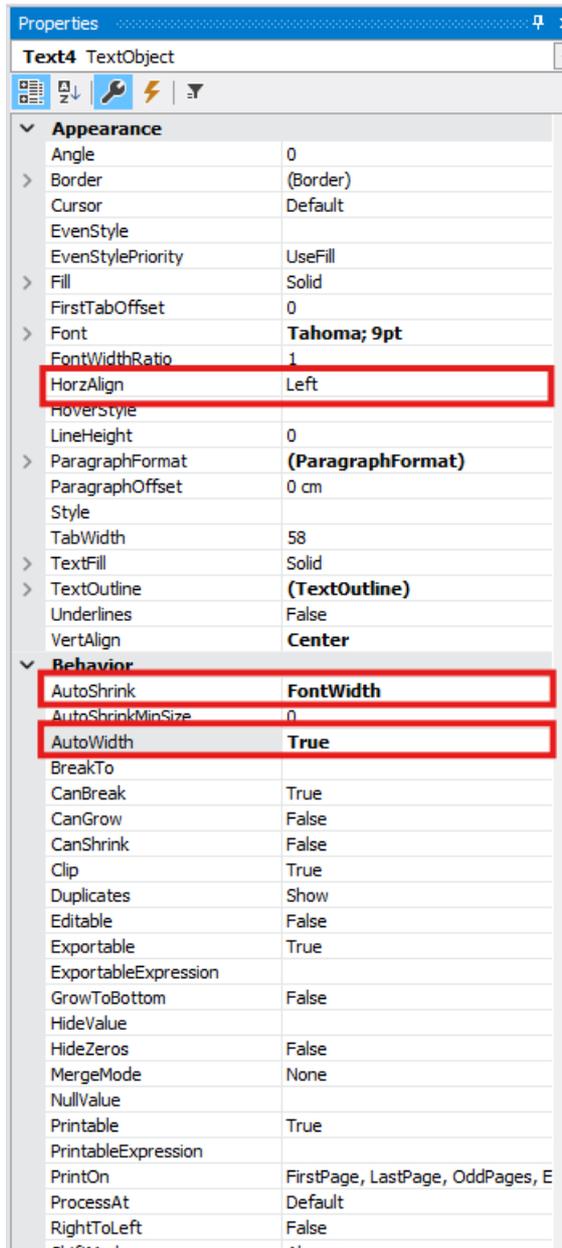
This update also introduces a new paragraph export mode for OpenOffice Writer (.odt) format files. This makes it easier to edit generated documents and makes them more visually understandable to humans. The new export mode does not replace but complements the existing mode and extends its capabilities.



In addition, an  Autosize width  option for MS Excel export has been added.

Will only work with certain values of text object properties: AutoWidth and AutoShrink properties are enabled;

HorzAling property value is any except Justify.

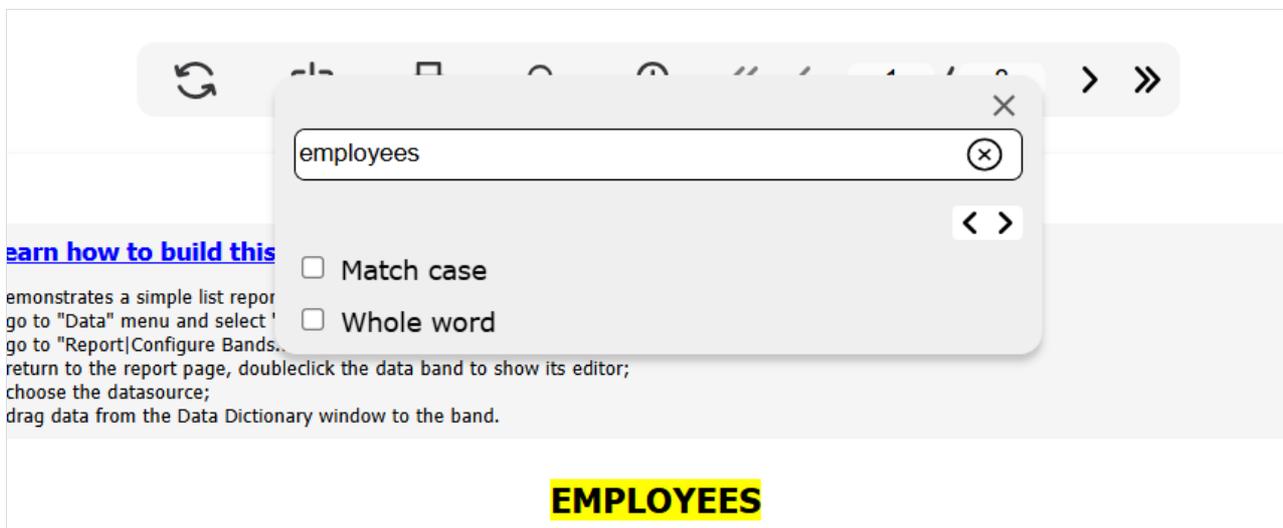


## Changes in WebReport

### Search across the entire report

Added text search for the entire report, similar to the desktop version of the Viewer, if a word is found on another page, the viewer will automatically switch to it. Search is available in WebReport with FastReport.Core, in WebReport for Blazor Server and WebReport for Blazor Wasm. You can control the display of the search button by using the property:

```
WebReport.Toolbar.ShowSearchButton = false;
```



The highlighting color of the words found can be changed using the property:

```
WebReport.Toolbar.SearchHighlight = Color.Red;
```

## Improvements in caching configuration for WebReport

With the release of the new version, WebReport now has additional options for caching configuration.

First, you can now set individual caching parameters for each specific instance of WebReport. Previously, only general settings applied to all reports were available, which could be inconvenient, especially if you needed to keep certain reports in memory longer. With the `webReport.CacheOptions` property, you can customize the cache retention time for a specific report.

Secondly, there is more flexibility in setting the report cache retention time thanks to the `AbsoluteExpirationDuration` and `AbsoluteExpiration` options. Previously, only the `CacheDuration` option was used, which was based on a sliding principle: if the report was used for a given amount of time, the timer would reset and the report would remain in memory. This could result in a report never being removed from the cache. The new parameters allow you to specify the exact time when a report should be permanently deleted from the cache, regardless of its usage. In this case, `CacheDuration` and the new parameters `AbsoluteExpiration` and `AbsoluteExpirationDuration` can be used together.

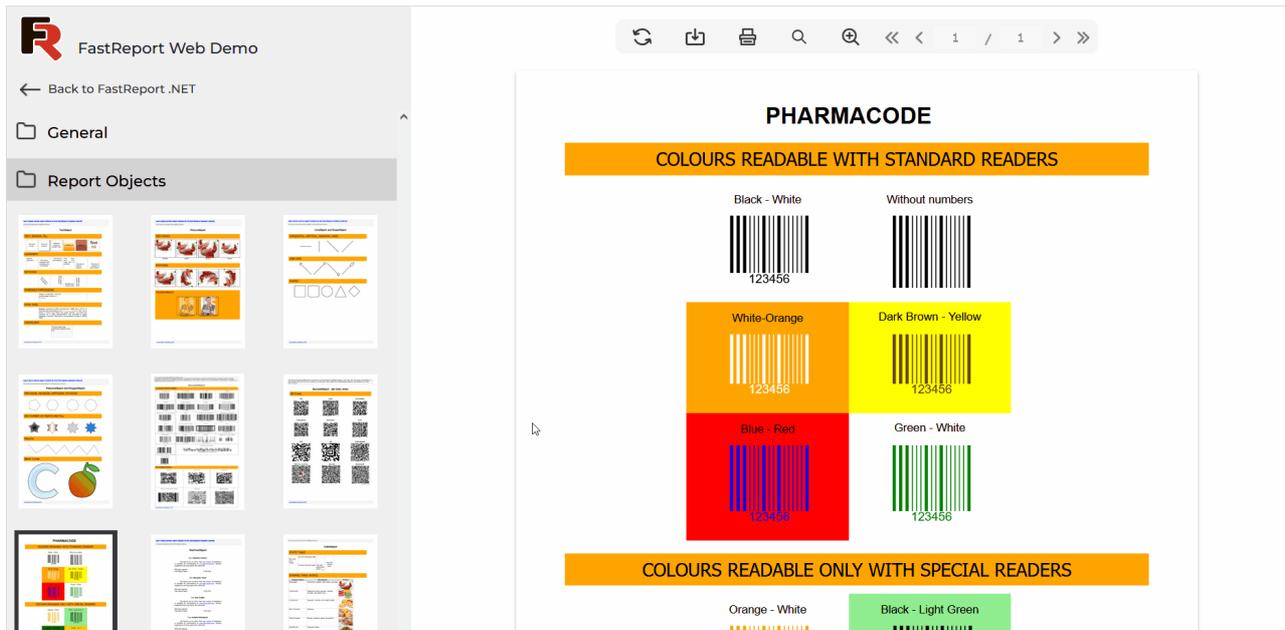
```
// Global settings for all WebReports
services.AddFastReport(options =>
{
    options.CacheOptions.CacheDuration = TimeSpan.FromMinutes(10);
    options.CacheOptions.AbsoluteExpirationDuration = TimeSpan.FromMinutes(20);
});

// Individual WebReport settings, which take precedence
webReport.CacheOptions = new WebReportCacheOptions()
{
    CacheDuration = // ...,
    AbsoluteExpiration = DateTime.Now.AddMinutes(30),
    // or
    AbsoluteExpirationDuration = // ...
};
```

## Updated demo web application on ASP .NET Core

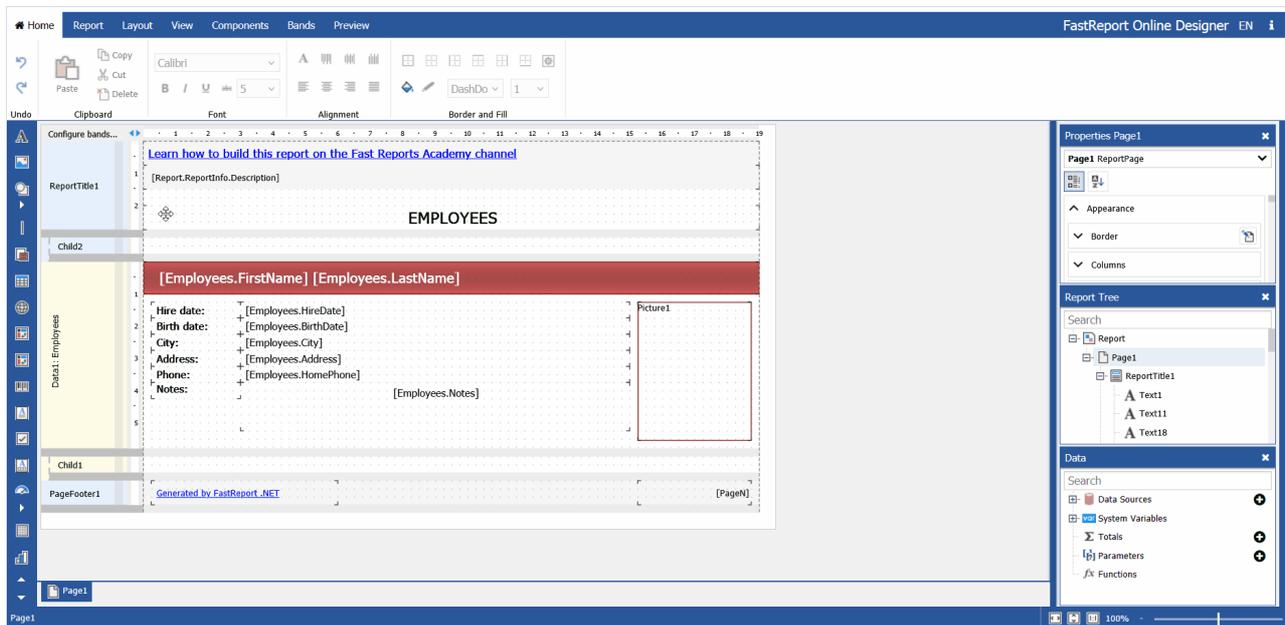
We have updated our demo application to ASP.NET Core, so that the product pleases you not only with its

functionality, but also with its appearance. The updated application is available at the link: <https://demo.fast-report.com/net-core/>



## Updated Online Designer Demo

In addition, we have updated the Online Designer demo application, where you can view more examples of our reports, export them, and try the updated online designer on them. The updated application is available at the link: <https://demo.fast-report.com/net-core/designer>



## Support of FastScript .NET

Added ability to use FastScript .NET to run report scripts.

FastScript .NET is a library for running C# scripts. It does not depend on CodeDOM/Roslyn and can be used in environments where code generation is restricted (Native AOT, iOS, WASM). You can read more about FastScript .NET [here](#).

FastScript .NET is included in the following FastReport .NET editions: WinForms, WPF, Avalonia, Mono, Web, Ultimate.

To use FastScript .NET in the FastReport .NET:

- in your application, add the `FastReport.Plugins.FastScript` nuget package;
- run the following code before the first use of the `Report` class:

```
FastReport.Code.CodeProvider.DefaultProvider = typeof(FastReport.Code.FastScript.FastScriptCodeProvider);
```

Now, all the reports will utilise FastScript .NET to calculate expressions and run the report script.

FastScript .NET does not support VB.NET script language. The `dynamic` type is not supported too, some of "Advanced Matrix" functions will not work.

[Detailed documentation on how to work with FastScript .NET is available at this link.](#)

## Full list of changes

### [Engine]

- + added new scripting engine - FastScript .NET;
- + added support for vertical tabulation;
- + added import of DOCX files to FRX report template;
- + added support of encoding for Chinese (simplified) language when converting RTF;
- + added the ability to disable integration with FR Cloud;
- + added GS1 Datamatrix barcode;
- + added the conversion of SkBitmap to a Bitmap and Image in FastReport.SkiaDrawing;
- fixed error with RichObject (zh-tw codepage);
- fixed a bug with simultaneous compilation of a report script when preparing reports in multiple threads;
- fixed a bug when printing an empty matrix;
- fixed bug when passing null value to a MS SQL query parameter;
- fixed errors when compiling libraries under .NET 9;
- fixed a bug leading to infinite loop when child band of "Page Header" or "Column Header" has "StartNewPage" property turned on;
- fixed a bug leading to System.ArgumentException when connecting to MySQL;
- fixed calculation of PrintableExpression of page;
- fixed a bug leading to System.NullReferenceException in the Report.GetParameterValue method;

### [Designer]

- + added a possibility to copy data from the list of properties of an object using the keyboard shortcut Ctrl + C;
- + added the ability to copy totals and parameters, preserving their hierarchy;
- \* in the window for opening the report page, it is still possible to select only a \*.frx file;
- \* in the Mono designer settings, the tab "Code page" with inaccessible settings was hidden;
- \* changed the logic of style processing for .rtf files when opened in the designer;
- fixed a bug where the image of PictureBox disappeared after canceling changes in the designer when editing a prepared page;
- fixed a bug with the search filter in the data tree that reset the current search state;
- removed the "New Dialog" context menu item in the Community version, which when selected resulted in an unhandled exception;
- fixed a bug when running preview from a designer;
- fixed System.InvalidOperationException when deleting a data source column when that column no longer exists in the database;
- fixed reading the GS1 DataMatrix barcode as a DataMatrix;
- fixed a bug with selecting layout of band columns in "Data Band Column Editor" window;
- fixed deleting objects and categories from the sidebar in the designer;
- fixed a bug with displaying icons that appeared in version AvaloniaUI 11.1;
- fixed a bug when adding IsNull function via "Text editor" added an extra comma;
- fixed a bug with TreeView inplace editor (Avalonia, WPF)

### [Preview]

- + added a button to send a report by email when using MAPI in a preview in WPF;
- + added collapse and expand buttons with icons in OutlineControl;
- + added the ability to change the width and height of the scroll bar through the code;
- fixed disabling the button to save the prepared report in the preview;

- fixed disabling the "Storage" tab in the report saving menu in the preview;
- fixed bug with "Advanced Matrix" when filters are missing;
- fixed a bug where the print form did not appear in the preview when pressing Ctrl + P;
- fixed a bug with incorrect paper size for printers without "Auto paper size" option, when clicking "Settings" and then "Advanced" buttons in "Print" window;

#### [Exports]

- + added export of "Author" property in export to PDF/A;
- + added support for HTML non-breaking space tag when exporting to Excel;
- + added export of number, currency, date, time, and percentage formats to OpenOffice Calc (.ods);
- + added "Shrink to fit" option for export to MS Excel;
- + added paragraph export mode in OpenOffice Writer export (.odt files)
- \* now, when exporting Pages with ExportAlias property to Excel, suffix "-n" will not be added to sheet name if it's possible;
- fixed a bug where the font name was exported without quotes to HTML;
- fixed a bug in FR.Core with some user fonts;
- fixed a bug in HTML-export when the barcode border was not displayed;
- fixed the error of opening files when exporting a report with special characters to ODT and ODS formats;
- fixed incorrect display and export of some unicode symbols in Skia/Avalonia;
- fixed export of TableObject fills to PDF;
- fixed export of TableObject and page fills to HTML;
- added export of height for the merged cells in Excel export;

#### [WebReport]

- + added WebReport search;
- + added WebReport WASM search;
- + added .NET 9 support for FastReport.Blazor.Wasm;
- + added the ability to create a connection to a stored procedures in WebReport;
- + added the ability to configure caching for a single WebReport using the WebReport.CacheOptions property;
- fixed an issue that made it impossible to change the DataConnection after it was created in OnlineDesigner;
- fixed converting of TextObject to SVG when preview in Blazor;
- fixed support for the Size of the CommandParameter;
- fixed rendering of page toggle buttons in Blazor when they are disabled;
- fixed a bug when the value of the RouteBasePath parameter was not taken into account when setting up WebReport;

#### [.Net Core]

- + added a filter for connection tables;
- + added a JsonConnectionType class for use in the JsonDataConnection.GetConnectionType method and GetConnectionType() and GetParameterType() methods;
- fixed a bug with encoding when connecting of CSV data file for report in .NET Core;

#### [Common]

- \* changed width of "About..." window;

#### [Extras]

- + added connection to Apache Ignite;

#### [Demos]

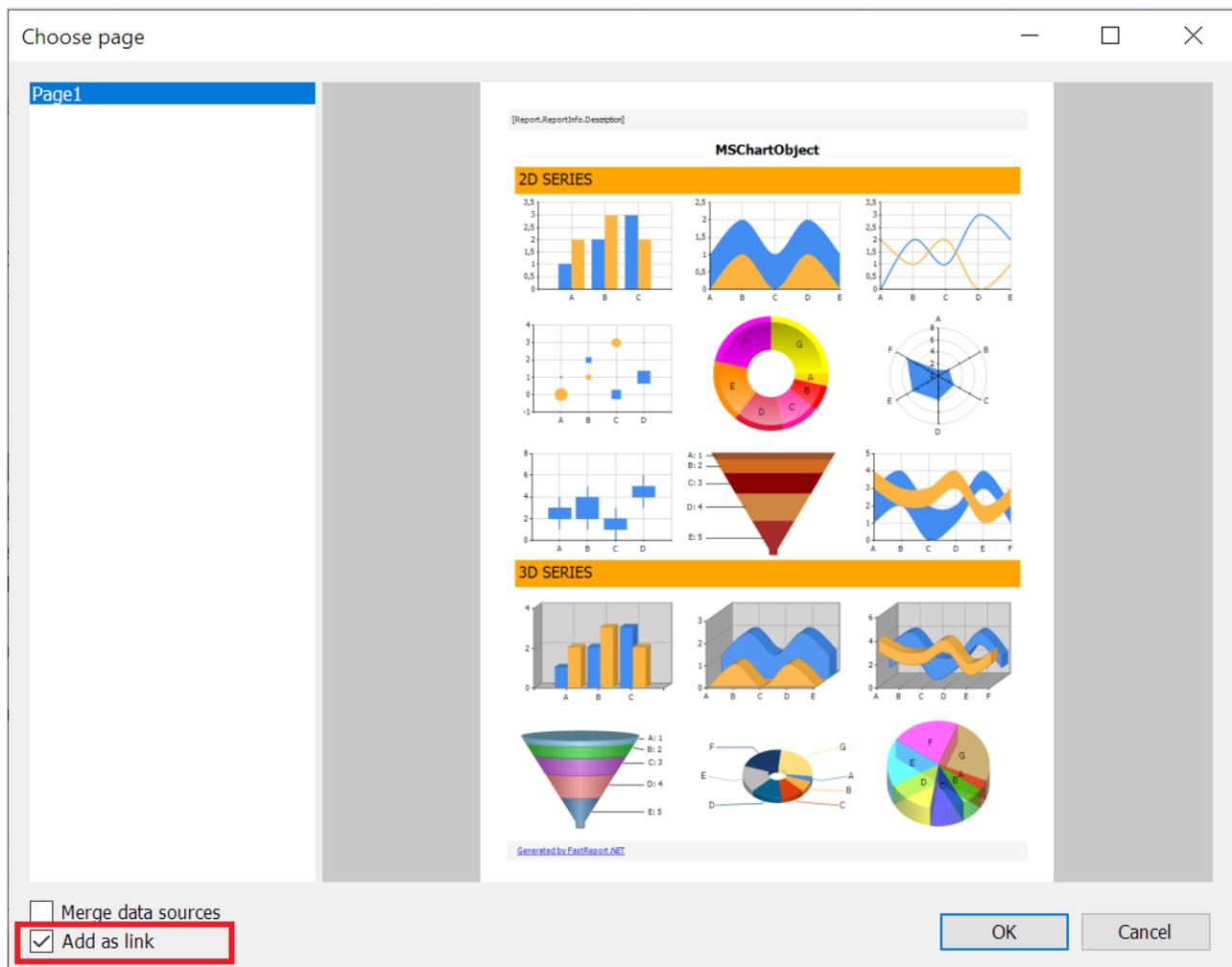
- + added UsedPackages.version file for WPF packs;
- fixed Avalonia and WPF name in demo.

# Version 2025.1

## New Opportunities

### Adding a report page with a link

In previous releases it was possible to add a page of another report to a report. This option can be found in the "File->Open Page.." By default, a copy of the page is added to the report.



You can now enable the "Add as link" option, which will add a link to the page to the report rather than a copy of the page. This means that when you change a page in the original report, the changes will be reflected in all reports to which the page is added as a link. And vice versa, if a page is changed in one of the reports that has a link to it, it will be changed in the original report as well.

### Asynchronous report preparation

Added the `report.PrepareAsync()` method, enabling asynchronous report preparation in addition to the existing synchronous `report.Prepare()` method. This method also supports `CancellationToken`, allowing users to cancel the report preparation process if needed, improving control and performance for large reports in non-blocking environments. This functionality may be further enhanced in the future, with new methods providing additional asynchronous access.

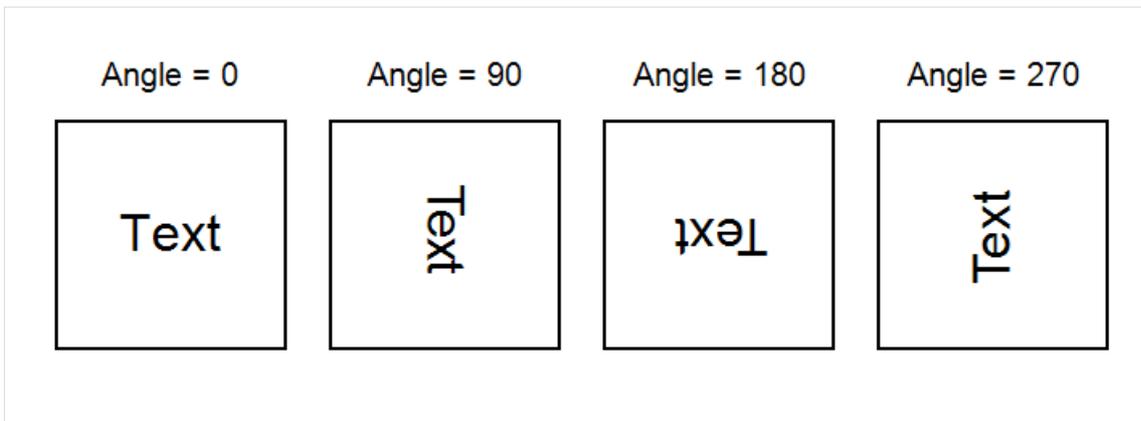
### IfNull function

```
object IfNull(object expression, object defaultValue)
```

There is a new function allows to avoid `System.NullReferenceException` when evaluating expressions. The function has two parameters: the first is the expression to be evaluated, the second is the default value. If the expression can be evaluated, the function returns its result. If not, it returns the default value.

### Rotate text with `TextRenderType.HtmlParagraph`

Added support for rotating text with `TextRenderType.HtmlParagraph`. Previously, text rotation was only available with other text renderer types. You can see examples of text rotation below.

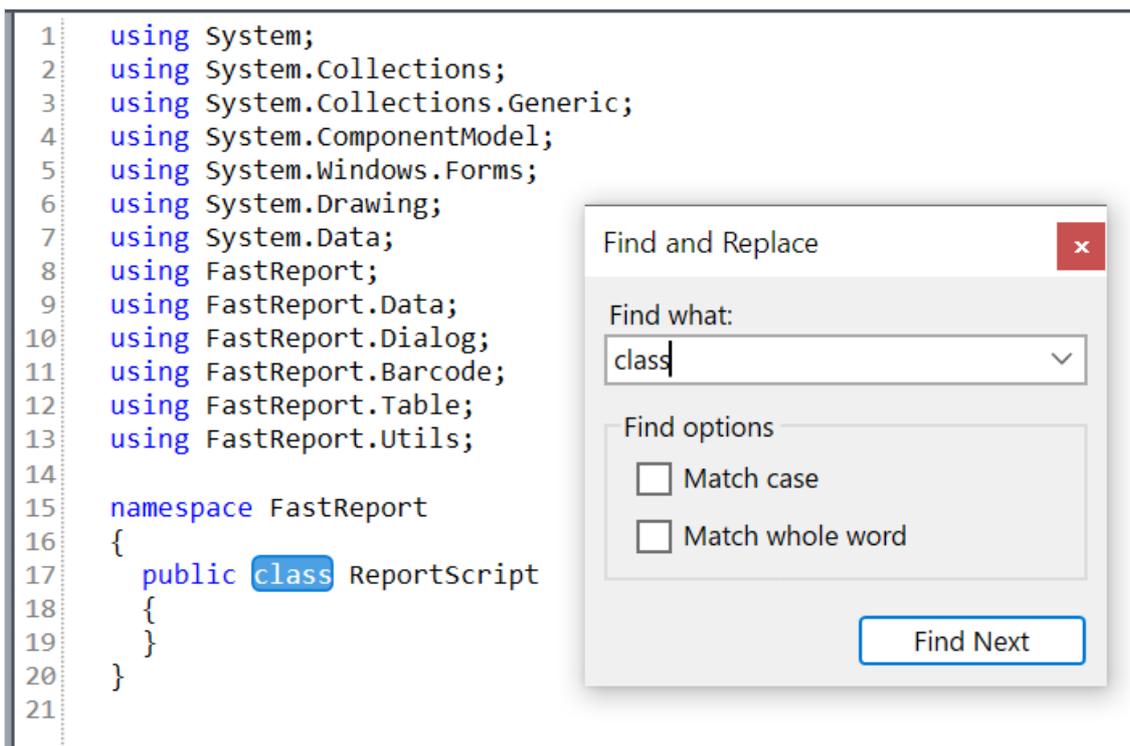


In addition, such texts are now correctly exported to PDF.

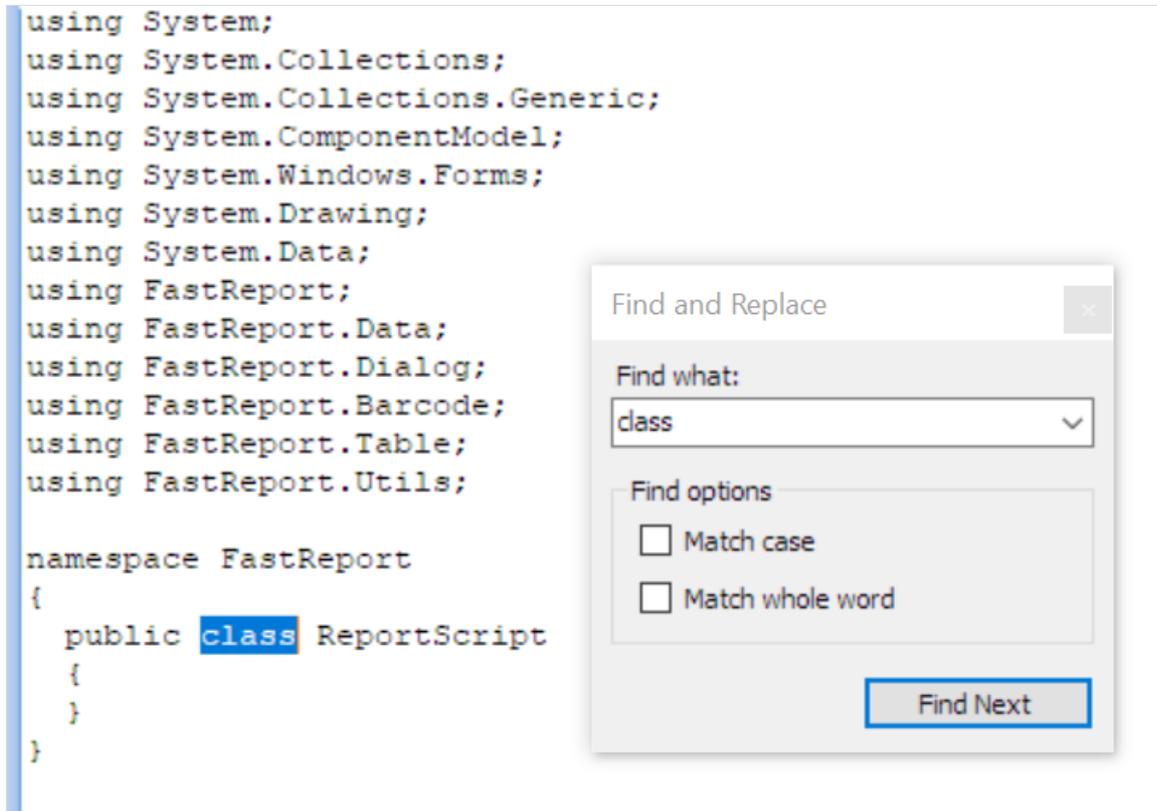
### Text search in FastReport WPF and FastReport Mono code editors

Now you can search for text not only in FastReport .NET code editor, but also in FastReport WPF and FastReport Mono editors.

An example of searching for text in FastReport WPF code:



And in the FastReport Mono code editor:



## Changes in WebReport

### Localization support for Blazor WASM WebReport

Introduced localization support for the WebReport interface in FastReport Blazor WebAssembly. Previously, localization was managed through file-based methods, which were incompatible with the WASM environment. A new method, `webReport.SetLocalization(Stream)`, allows loading localization from a Stream, making it compatible with Blazor WASM applications.

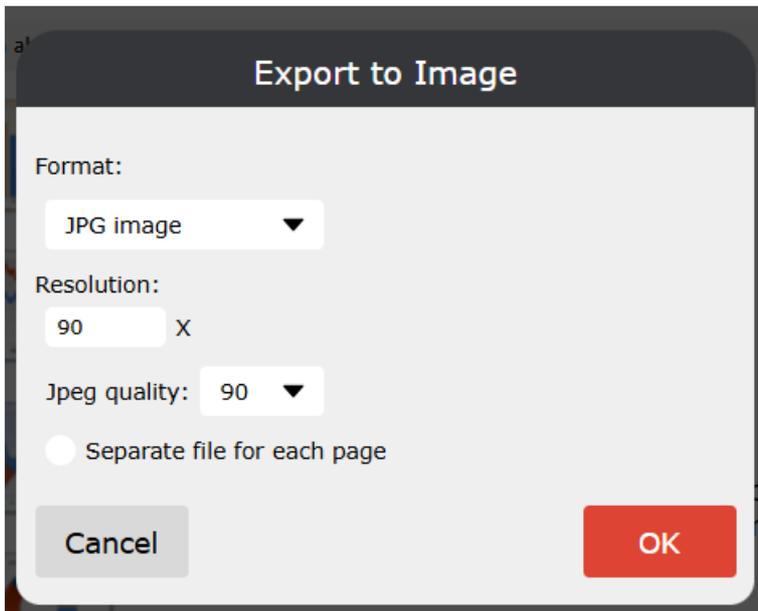
### Image Export to WebReport

Added export of the report to images. To display it in the list of exports, add the following code:

```
WebReport.Toolbar.Exports.ShowImageExport = true;
```



If necessary, you must enable the WebReport option to configure the export to images WebReport.Toolbar.Exports.Enable Settings. After enabling it, you can click on the "gear" and change the settings in the modal window that appears.



## Full list of changes

```
[Engine]
+ added PicturesInParagraph property to RichObject;
+ added method for asynchronous report preparation PrepareAsync();
+ added converting of strings to dbtype compatible;
+ added print scale;
+ added decimal conversion to words in ToWords functions;
+ added locale identifier for Spanish is 22538 (Spanish - Latin America) and 3082 (Spanish - Spain (Modern Sort));
+ a new IfNull function has been added for working with expressions. It returns the result of the calculated expression if it is not null, otherwise the specified default value;
+ implemented calculation of horizontal position of pictures in RichObject;
```

- + added the ability to send a request in the virtual-host-style;
- + added support for text rotation with TextRenderType = HtmlParagraph;
- + added the ability to use header bands for the "PrintOn" property of the Totals;
- \* upgraded Oracle.ManagedDataAccess.Core in FastReport.Data.OracleODPCore;
- \* methods GetConnection, OpenConnection and Dispose marked as virtual;
- \* added null check for incoming value for Hyperlink.Value property;
- \* static verification methods TryParse has been introduced into classes of QRCodes;
- fixed text break issues;
- fixed page visibility change after PageStart event;
- fixed conversion to parameter type;
- fixed checking of the report script for stop-words if it contained in the variable name;
- fixed visibility of the bottom border of a text object with enabled GrowToBottom;
- fixed border doubling when the grouped DataBand has the GrowToBottom option;
- removed rendering of child clipPath tags in SVGPictureObject;
- fixed a bug in FinishReport event;
- removed invalid ability to add SubreportObject to ContainerObject;
- fixed changing the CommandType of the request if it was set in GetAdapter;

#### [Designer]

- + added ability to open page as link from another report;
- + added italic, bold, underline and strikethrough font styles to the span tag;
- + added a search in the TreeView by the character entered from the keyboard;
- + add a search function in the code editors in WPF and Mono;
- \* added a check for duplicates of downloaded fonts;
- \* replaced default property values in the constructors of CurrencyFormat, NumberFormat, and PercentFormat classes from fixed values to values from CultureInfo.CurrentCulture;
- fixed incorrect position of Amiri, Cambria Math, DejaVu Math TeX Gyre fonts in the font selection drop-down list;
- fixed a bug leading to System.NullReferenceException when saving borders via Border Editor;
- fixed incorrect display of SVG-images in the designer;
- fixed the display of variables declared in one line on the Code tab in the tooltips;
- fixed page margins length in "ExtraDesignWidth" mode;
- fixed the length of the Guides in the designer for long reports;
- fixed a bug where the selected font was not displayed in the drop-down list;
- fixed incorrect application of data formats;
- fixed an error leading to System.NullReferenceException when deleting a band with a Subreport object;

#### [Preview]

- + added properties Outline.Expand and Outline.Width in PreviewControl;
- fixed index out of range when previewing empty SvgObject;
- fixed closing of PreviewSearchForm after clicking the "Next" button;

#### [Exports]

- + added the ability to combine all report pages into one when exporting to Excel;
- + added an option to use a custom format instead of general in Excel-export;
- + added strikethrough text formatting to Word-export;
- + added the MemoryOptimized option for Word-export, which enables the use of FileStream instead of MemoryStream;
- + added support for rotating text with TextRenderType = HtmlParagraph when exporting to PDF;
- \* format display adjustments - format 'D' and 'MMMM yyyy' are displayed as dates (format 'MM yyyy' if possible), numeric format with negative pattern '-n' is displayed in standard Excel numeric format;
- \* changed the export of the PictureObject border as an image in Word;
- \* optimized memory consumption when exporting to PDF;
- \* changed layout of table export to fixed;
- fixed the issue with HTML tags rendering in HTML export;
- fixed the export of negative PDF property values;
- fixed the color of cell borders in the browser after exporting to Excel;
- fixed border style of cell in Word and PowerPoint;
- fixed export of pictures in header and footer to Word;
- fixed bug with deleting temporary file;
- fixed calculation of line-height when exporting to HTML;
- fixed incorrect export of borders with double line style to PDF;
- fixed a bug with transparency in HTML-Export;
- fixed an issue where the &lt;p> tag was incorrectly displayed during HTML-export;
- fixed default value of "UseHeaderAndFooter" option in Word export;
- fixed incorrect location of images in tabular export to Word;
- fixed the row height of objects sets after TableObject when exporting to Excel;
- fixed NullReferenceException when exporting font to PDF with alternative lookup of substitution;

#### [WebReport]

- + added the ability to display the report name instead of parameters in the tab;
- + added SetLocalization method for loading WebReport localization from a Stream;
- + added ability to export report to image format in WebReport;
- fixed inheritance of "box-sizing" from custom application styles in WebReport;
- fixed IndexOutOfRangeException exception when previewing a WebReport;
- fixed a bug that caused the WebReport.Debug property to not display error information in the report when enabled;
- fixed a bug where a NullReferenceException exception could occur when clicking a tab in WebReport;
- fixed reset AdditionalFilter in WebReport;
- fixed WebReport printing with pages in landscape orientation;

#### [Online Designer]

- + added a method for updating the table;
- fixed previewing of empty SVG object in Online Designer;

#### [.Net Core]

- + added methods for MS SQL stored procedures in FastReport Core;

#### [Common]

- + added a new method for setting an parameter expression via code;
- + added a timestamp when signing installs;

#### [Extras]

- + added ability of connection to stored procedures in Oracle;
- \* updated the Firebird.Client version to 10.0.0;
- \* updated vulnerable packages Npgsql(Postgres) and System.Data.SqlClient;
- \* changed the text of the error message when pressing the "Advanced" button in the connection to Linter;
- fixed a bug with missing menu in the designer of forms for the Report object;
- fixed a bug with "character varying" type of Postgres;

#### [Demos]

- fixed demo-report Barcode.frx.

# Version 2024.2

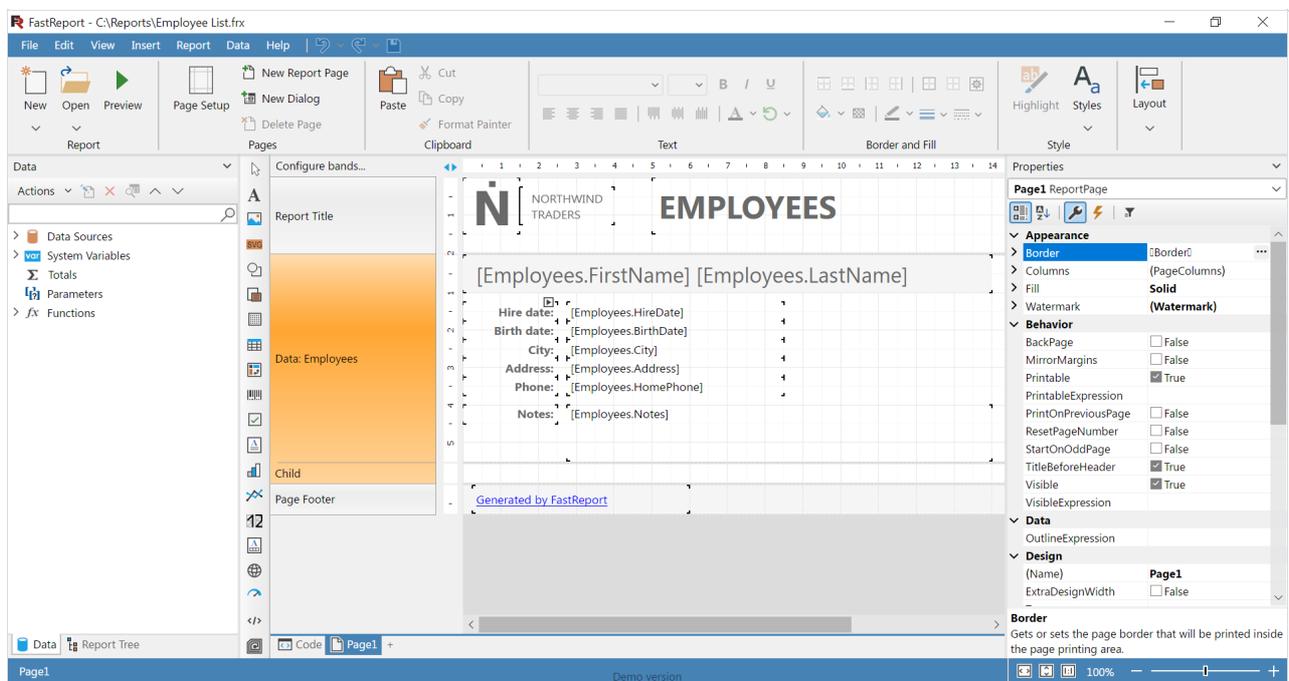
## New FastReport Avalonia component

The FastReport .NET component lineup has introduced a new addition - FastReport Avalonia. This is a versatile library that enables report creation when developing cross-platform applications using Avalonia UI. This component allows for the development of applications with a unified user interface for macOS, Linux, and Windows. FastReport Avalonia is compatible with x64, x86, and arm64 processor architectures. It supports Avalonia UI, .NET 6 and above.

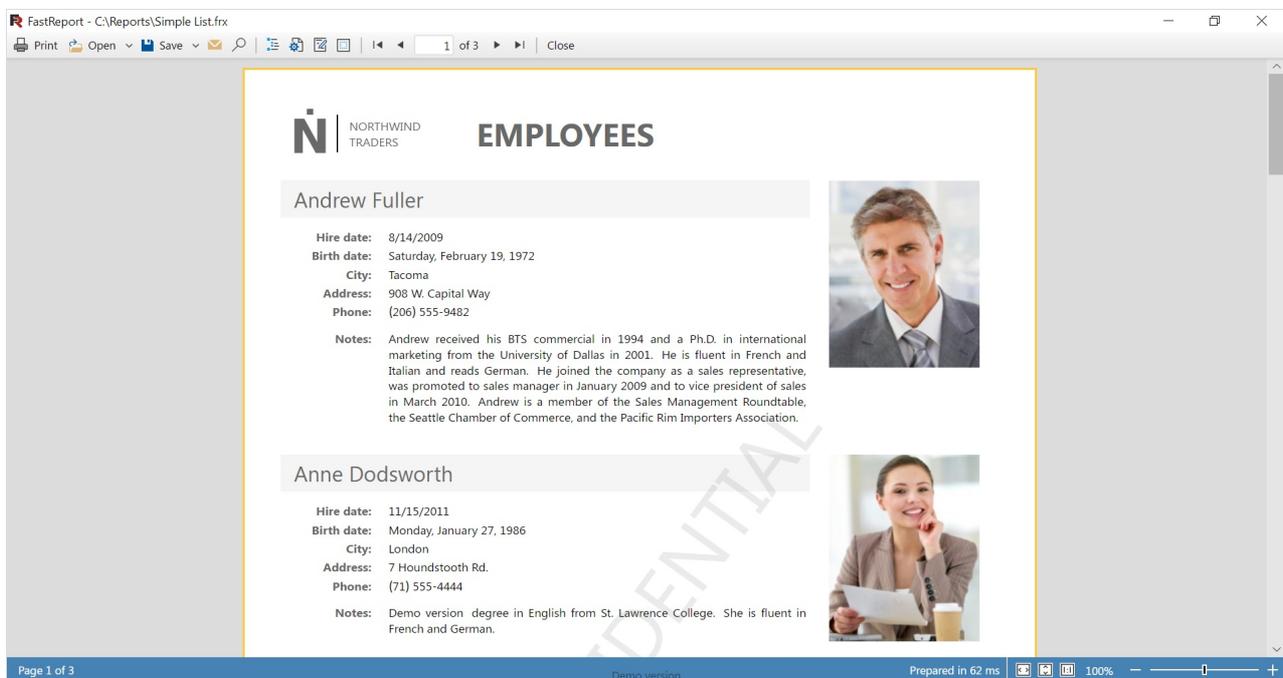
FastReport Avalonia is part of the unified FastReport ecosystem in C#. Reports created in other products will work in FastReport Avalonia and vice versa.

The product includes the report development core, designer, and viewer with a familiar interface.

The report designer looks like this:



And this is how the viewer looks like:



[For more information about the new component, please read the articles.](#)

## New opportunities

### ReportPage object's CreatePage event

The ReportPage has a StartPage event, which is triggered before the page is rendered. This event is called once for each template page in the report. Now, there is a new event called CreatePage, which is triggered when a page is created in the prepared report. Unlike StartPage, it is called more frequently, for each prepared page that corresponds to a template page. Both events can have their handlers assigned, allowing you to perform actions in addition to the standard ones.

[Read more about CreatePage in the article.](#)

### Export improvements in Word 2007

Word export has undergone significant changes. Its performance has been improved, resulting in faster operation. New options have been added, such as "Keep Line Height" and "Use Headers and Footers of Word Pages". Additionally, we have fixed various bugs that had a significant impact on the functionality of the export.

### Export of hyperlinks and bookmarks to SVG

With this update, hyperlinks and bookmarks of report objects are also exported to SVG format images.

### Support for PostgreSQL functions and views

When connecting to Postgres databases, you have the ability to use function and view data in your reports. To do this, use the FastReport.Data.Postgres plugin.

## HTML Plugin support for FastReport.Core.Skia

FastReport.Core.Skia has added support for HTML Plugin. Now you can easily embed HTML content in your reports, enhancing their creation and presentation.

To use this functionality, install the FastReport.Plugins.HtmlObject package using NuGet.

## Changes in Blazor WebAssembly

## Webcil support for .NET 8

Starting with .NET 8, by default, all libraries necessary for operation are packaged in the Webcil format (.wasm) instead of the usual.dll . This is a more secure and web-friendly format ([see more](#)).

However, to compile the report script we must use these libraries. Previously, we advised our users to disable packaging in .wasm. Starting from the current version, FastReport.Blazor.Wasm can work with Webcil resources and use them to compile a report script without preliminary settings, everything happens automatically.

## Automatic addition of required SkiaSharp resources

Previously, one of the requirements for using FastReport.Blazor.Wasm was that users had to manually add the necessary SkiaSharp and HarfBuzzSharp resources to their Blazor WebAssembly projects. The main issue was that these resources varied depending on the .NET version and the use of multithreading in WASM. Users had to manually select which libraries they needed, which caused a lot of complexity.

Starting from the current version, FastReport.Blazor.Wasm can determine the resources needed depending on the environment, and apply them to your application automatically. However, if you still need to select the required resource manually, then you can disable automatic behavior by adding to your .csproj project the following code:

```
<PropertyGroup>
  <ShouldIncludeNativeSkiaSharp>False</ShouldIncludeNativeSkiaSharp>
</PropertyGroup>
```

## Removal of support for .NET Core 2.0, 2.1, 2.2, 3.0, 3.1, .NET 5.

To cover an increasing number of technologies continually being added to the .NET world, we have decided to drop support for the outdated .NET Standard 2.0 - 3.1 and .NET 5 compatibility layers in our libraries. The minimum supported version is now .NET 6, and the minimum supported framework is .NET Framework 4.6.2.

[Read more about the changes in the news.](#)

## Full list of changes

```
[Engine]
+ added CreatePage event for the ReportPage object;
* now, when converting RTF, insignificant spaces after tabs are discarded;
- added exception handling if the contents of the RichObject are incorrect;
- removed top and bottom padding when splitting TextObject between pages;
- fixed vertical indents in RichObject;
- fixed the display of a row following a row with a column union;
- fixed an exception when preparing a report with a TableObject containing MSChartObject;
- fixed loss of spaces in the RTF parser;
- fixed display of the bottom border line when using GrowToBottom;
- fixed support for the Portuguese language in the RTF parser;
- fixed a bug when the Report.IsPrepared parameter returned an incorrect value when preparing a report asynchronously;
- fixed translation of RichObject to TableObject;
- fixed error when printing with different pages selected;
- fixed IndexOutOfRangeException when executing Graphics.Path.AddBeziers;
- fixed vulnerability with the ability to call JS code from a hyperlink;
- fixed default tab setting when converting RTF;

[Designer]
+ added the Contains (string , string) function, which determines whether a string contains a substring;
* changed the text of the warning message about duplicate parameter names in the query wizard;
* replaced the error with a warning form about parameters with the same names in the SQL query;
* changes in SwissQR: the processing of the "Amount" field has been changed; the "Currency" field is now a text field; added processing of data from the database in the fields of information about the
```

Recipient, Payer and in the "Link" field;

- fixed Datamatrix brush color;
- fixed errors in the PictureObject editor;
- fixed a bug in the format editor;
- fixed a bug when resizing the dialog form;
- fixed the drawing of a rotated ITF14 barcode;
- fixed a bug with the operation of the "select all" keyboard shortcut;
- fixed a bug in resetting the format when changing an expression;
- fixed errors with the separation of source data into lines, both separator options (\r\n and \n) are now supported;
- now during the QR code generation process, extra \r\n characters at the end of the line are removed;
- fixed NullReferenceException when editing the SelectCommand of the data source table;
- fixed text scrolling in AdvMatrix;
- fixed context menu of the RFIDLabel object;
- fixed the band title in the classic band display mode;
- fixed a problem when using the hh:mm time format;
- fixed a bug leading to System.NullReferenceException when connecting to JSON;
- fixed a bug when resizing objects while holding down the Shift key;
- fixed an exception that occurred when using DontEditMode;
- fixed incorrect behavior of lines when changing the Height property for a horizontal line or the Width property for a vertical line if the Diagonal property is set to False;

#### [Preview]

- fixed a bug with the search dialog in the preview;
- fixed rendering of report objects outside the page;
- fixed incorrect display of superscript or subscript text for RichObject if such text is at the beginning of the line;
- fixed display of vertical paddings in preview when using the LineHeight property;

#### [Exports]

- + added the option "Use Headers and Footers of Word Pages" when exporting Word;
- + increased speed of export to docx;
- + added the "Keep Line Height" option to export to Word 2007;
- + added export of hyperlinks and bookmarks to SVG;
- fixed error in exporting a rotated svg image to pdf;
- fixed a bug when images with a transparent background were incorrectly exported to PDF of the PdfA\_1a standard in FastReport.Skia;
- fixed font reset in an empty cell after exporting a report to Word;
- fixed a bug with incorrect export to a JSON file;
- fixed a problem with exporting to Word 2007 when using a watermark and the "Page Title" band with a system variable;
- fixed a bug in svg export (hangs if text contains incorrect cr/lf sequences);
- fixed incorrect calculation of row height in a table when exporting to Excel;
- fixed error in exporting vector graphics to PDF;
- fixed error in SVG export (table with merged cells);
- fixed opening of exported reports in Word 2007;
- fixed incorrect black background when exporting RichObject with image to layered HTML-export;
- fixed the value of the paddingNonSeparatePages variable in ImageExport (OpenSource) to eliminate unnecessary padding;

#### [WebReport]

- + added support for the Webcil format in FastReport.Blazor.Wasm;
- + added dialog form title to WebReport;
- + added a detailed description of the report compilation error in the WebReport preview;
- \* the logic of standard images in WebReport has been reworked. Now images are loaded directly into the report, rather than being loaded by a large number of requests from the server;
- fixed a problem with editing tables in a document when exporting a report to Word 2007 via WebReport;

#### [Extras]

- + added support of FastReport.Plugins.HtmlObject for FastReport.Core.Skia;
- + added support for views and functions in the PostgreSQL connector (Extras/Core/FastReport.Data/Postgres);
- + added a new filter for selecting file extensions when connecting to SQLite, combining .db and .db3, with the first filter selected by default;
- fixed import of plugins for FastReport .NET with TargetFramework net6.0 and higher;
- fixed the issue of object alignment in a report that contains an HTMLObject plugin;

#### [Mono]

- \* changed the tooltip text in RichObject to Mono;

- changes the tooltip text in messages to none;
- fixed maximum text length on code pages in the designer.

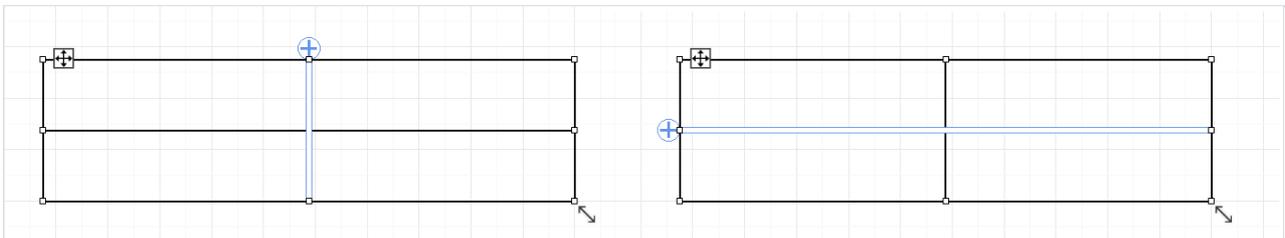
# Version 2024.1

## New opportunities

### Improved work with the Table object

Working with the report designer has become easier and more convenient. There are new capabilities for working with the "Table" object.

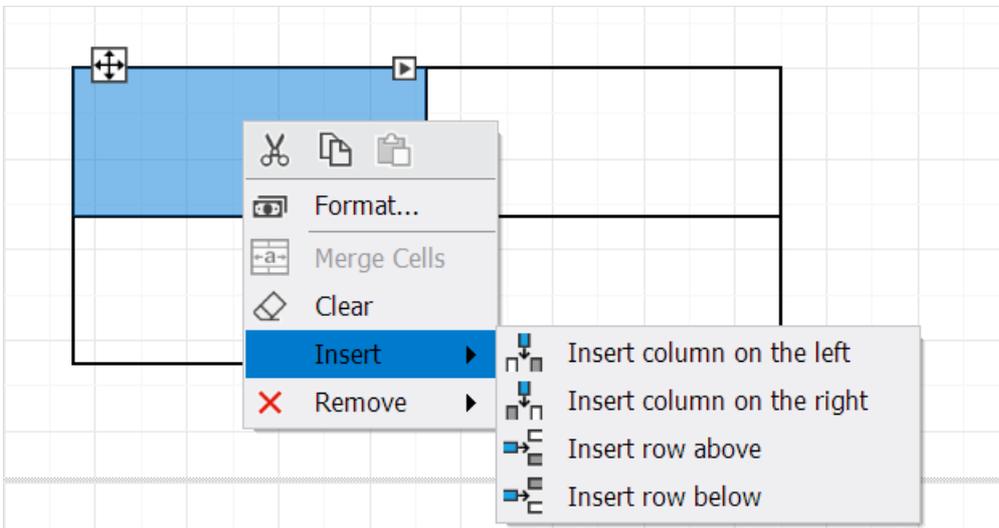
**1. Quickly add columns and rows.** If you point to a row boundary to the left of the table or a column boundary at the top, a conditional display will appear showing where a new row or column will be added. There is also a button that, when clicked, will add a new row or column to the table.



The table must be active (selected). Otherwise, new controls will not appear.

**2. Change the height of rows and width of columns.** Now, you can change the column width or row height accordingly by dragging the column or row border using the mouse.

**3. Drop-down menu "Insert."** When you right-click a cell in the context menu, you will see a drop-down list that allows you to insert a new column or row next to the cell.



**4. Hotkeys.** Copy cell text and paste text into a cell using the hotkeys Ctrl+C and Ctrl+V<sup>\*\*,\*\*</sup>

[Read more about the new table capabilities in the article.](#)

### Merge text objects

Now, there is a mechanism for merging text objects with the same text. For this purpose, a new MergeMode property has been added to the "Text" object, which allows you to configure the merge mode. The new property works very similar to the Duplicates property in Merge mode, but there are important differences:

- Duplicates works only with one object located in the "Data" band. For example, the Data1 band has a text object

named Text1, and the Duplicates property is set to Merge. When building a report, at the first iteration of Data1, when the first record is displayed in Text1, the text "10" will be displayed. On the second iteration of Data1 and the output of the second record, the same text will be output in Text1. As a result, two instances of Text1 will be connected, and the text "10" will be displayed only once.

- MergeMode, unlike Duplicates, can merge instances of different text objects, and do this both vertically and horizontally. For example, when building a report, the text "10" will be displayed in Text1 and Text2, located next to and to the right. In this case, Text1's MergeMode property is equal to Horizontal. In this case, the text objects will be connected and the text "10" will be displayed once.

[Read more about the new property in the article at this link.](#)

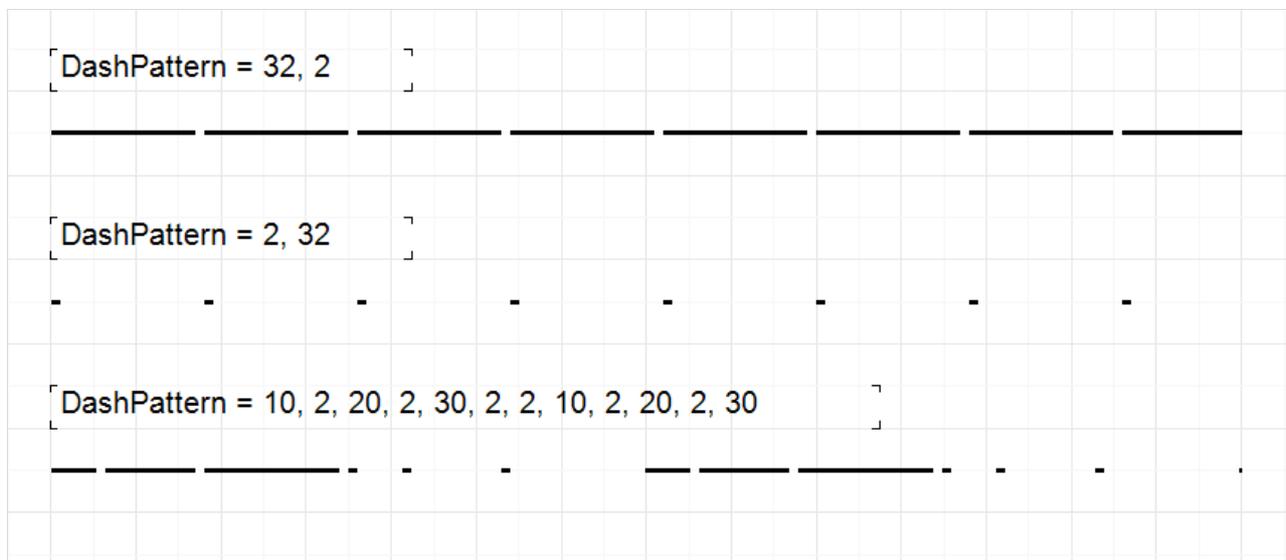
## Custom line styles

For the LineObject, ShapeObject, PolyLineObject, and PolygonObject objects, a new property has been added - DashPattern, which allows you to create your line styles. Previously, the line style of these objects was set using the Border.LineStyle property. Only six styles were available: Solid, Dash, Dot, DashDot, DashDotDot and Double. With the new property, you can specify a collection of values that will sequentially specify the length of strokes and spaces.

For example, with values 5, 4, 3, and 2, we set a pattern in which a stroke of length 5, a space of length 4, a stroke of length 3, and a space of length 2 will be displayed. Then, the values will be repeated in a circle, starting from 5. The unit of measurement here is the Border.Width.

If there is at least one value in the DashPattern collection, then this new mechanism will work. And the Border.LineStyle property will be ignored. If the DashPattern collection is empty, the Border.LineStyle property mechanism will still work.

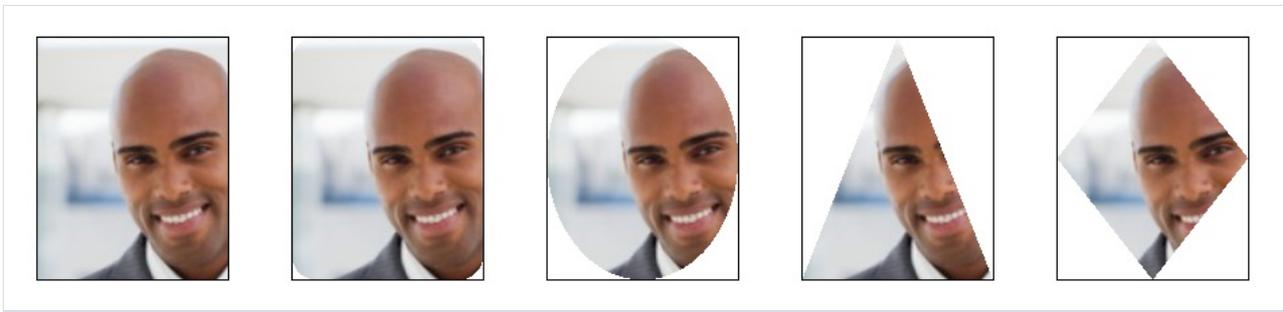
Below, you can see some examples:



[Instructions for setting up lines are available at the following link.](#)

## Changing the shape of the "Picture" object

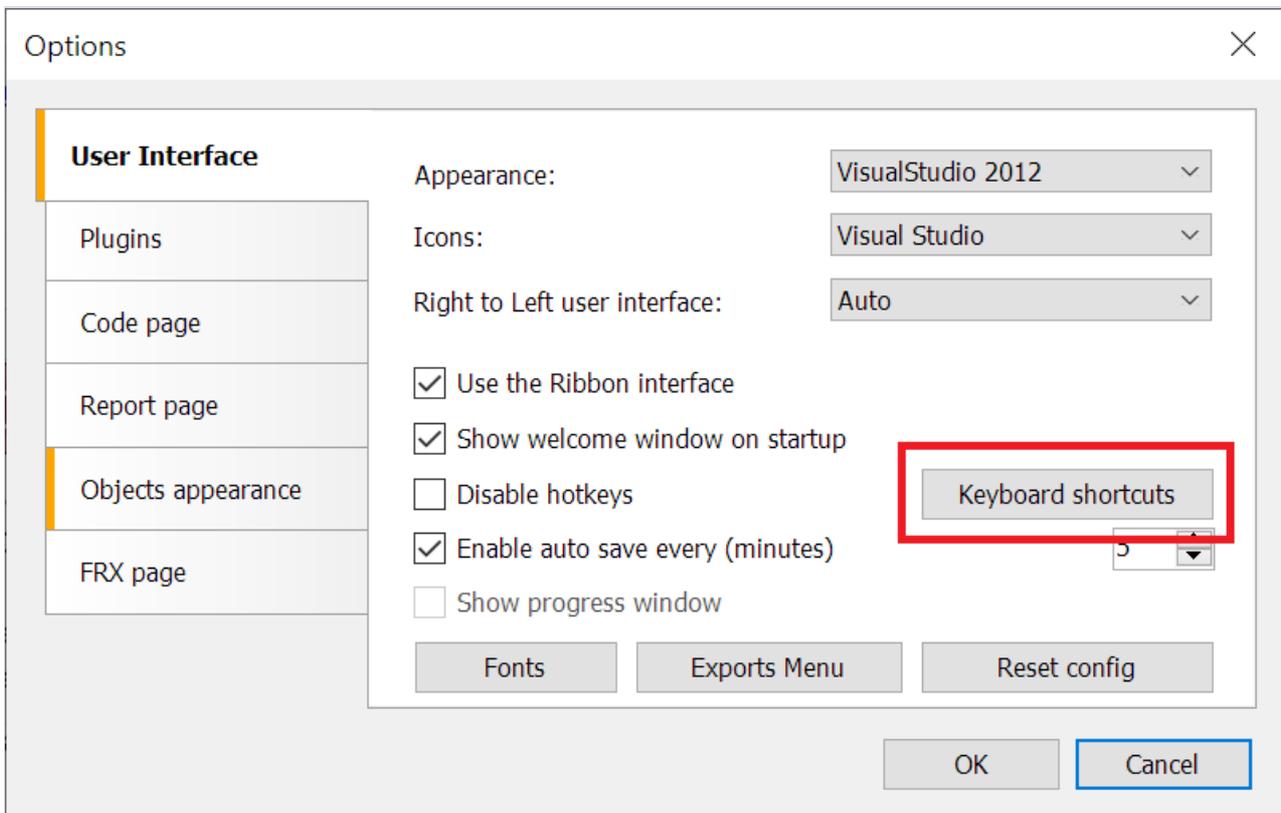
It is now possible to change the shape of the "Picture" object. PictureObject now has a new Shape property that allows you to specify the following shapes: rectangle (default), round rectangle, ellipse, triangle, and diamond.



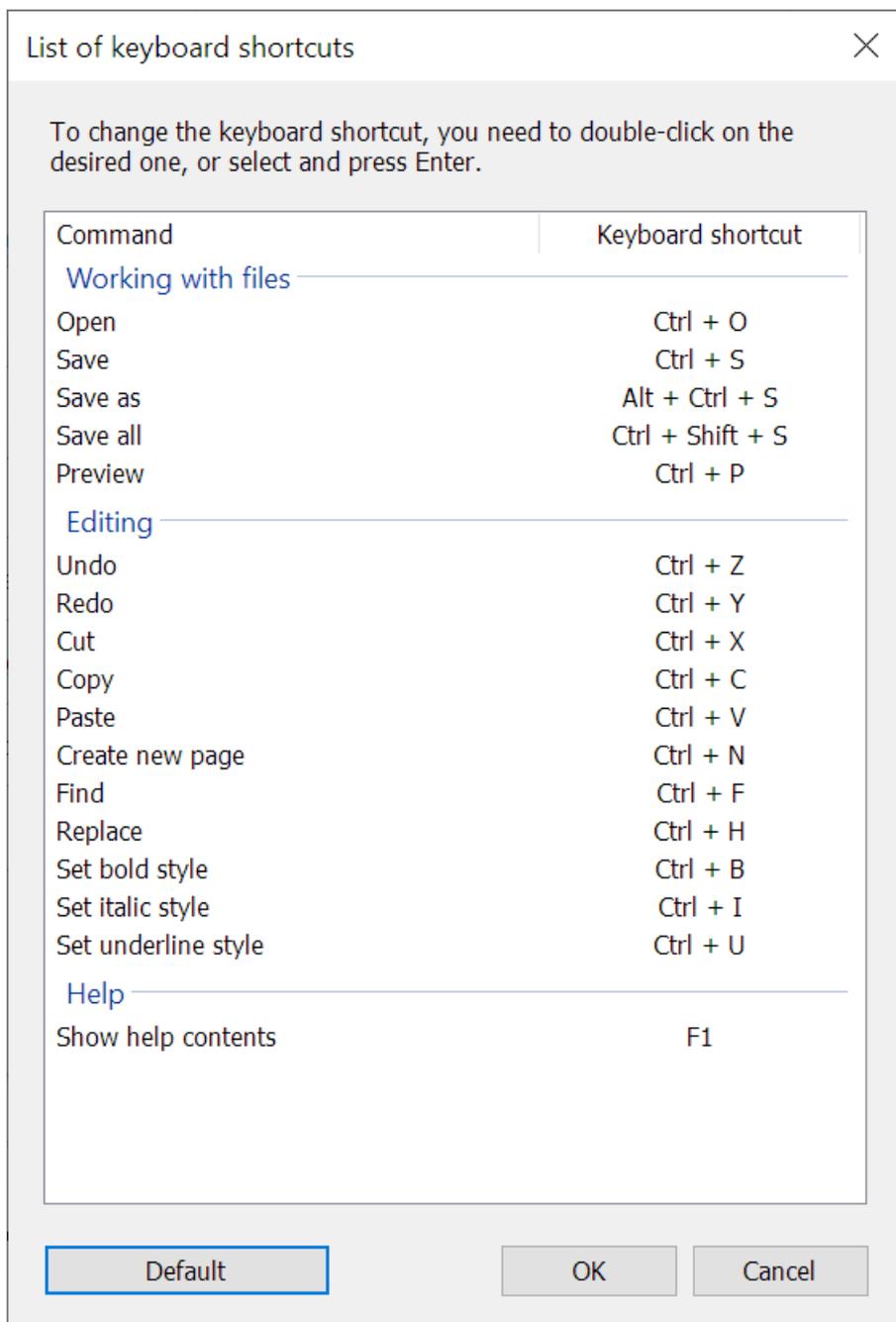
[You can find out more in the article.](#)

## Setting up hotkey combinations

It is now possible to customize hotkey combinations at your discretion. You can configure commands for actions such as "Open file," "Save file," "Prepare report," and much more. To do this, a new button has been added to the "Interface" tab in the designer settings.



Pressing it opens a window for setting up hotkey combinations.



Here is a table with actions and their assigned keyboard shortcuts. You can change the combination by double-clicking on the desired line. You can also navigate the table using the Up and Down keys, and make changes by pressing the Enter key. You can also return all combinations to their default values.

[You can find more information about setting up keys in this article.](#)

## **.NET 8 support**

Added [.NET 8 support](#) for FastReport .NET, FastReport.Core, FastReport.Core.Skia, and FastReport.WPF. This platform improves application performance and adds many new features to your projects.

## **Refusal of support for .NET Standard 2.0 in FastReport.Web**

To cover more and more technologies that are constantly being added to the .NET world, we have decided to abandon the legacy .NET Standard 2.0 compatibility layer in our Web integration library FastReport.Web (WebReport Core/Skia). The minimum supported version of TargetFramework for this product will now be .NET Core 3.1 and higher (including .NET 5, 6, 7, and 8). FastReport.Core and FastReport.Core.Skia will still support .NET Standard 2.0 without changes.

## **Added ODBC connector support for FastReport.Core**

Our users have been asking us for a long time to add the ability to connect to databases via the ODBC protocol for our cross-platform products. This feature was present only in FastReport .NET and FastReport WPF previously. With this update, it is also available in FastReport.Core and FastReport.Core.Skia. To use it, add the FastReport.Data.Odbc plugin to your project and register it with this code:

```
FastReport.Utils.RegisteredObjects.AddConnection(typeof(OdbcDataConnection));
```

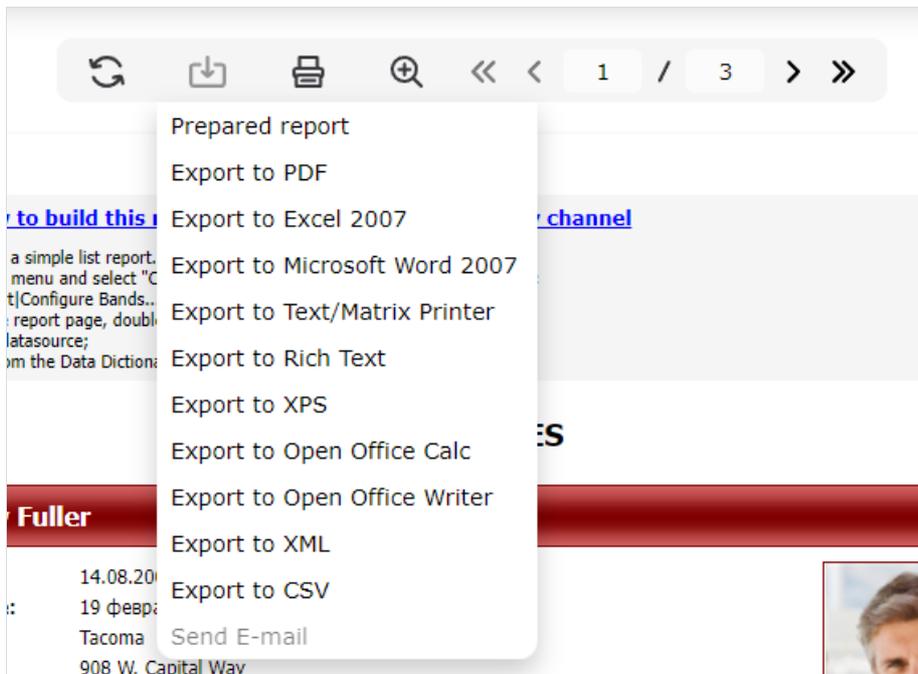
## Changes in WebReport

### Email Export to WebReport

Now, WebReport has a function for sending reports by email. To enable this feature, you need to configure the SMTP server parameters when registering FastReport services. Just add the code:

```
services.AddFastReport(options => options.EmailExportOptions = new FastReport.Web.EmailExportOptions
{
    Address = "SomeAddress@example.com",
    EnableSSL = true,
    Host = "Host",
    MessageTemplate = "Message template here",
    Name = "John",
    Password = "password",
    Port = 25,
    Username = "Username"
});
```

After this, activate the option `WebReport.Toolbar.Exports.ShowEmailExport` and users will be able to send reports by email:



When you click the "Send by mail" button, the user will be asked to configure the message through a convenient modal window:

### Send E-mail

**E-mail**

Address:

Subject:

Message:

Attachment:

Name attachment file:

## Printing in Blazor WebAssembly

WebReport now allows you to print reports in Blazor WebAssembly. This feature is enabled by default, but if you need to disable it, just use the following code:

```
webReport.Toolbar.ShowPrint = false;
```

Your reports can now be printed directly from Blazor WebAssembly:

BlazorWasm .Net 7

- About Microsoft Chart
- Advanced Matrix
- AdvMatrix - Collapse + Sort
- AdvMatrix - Items comparison
- AdvMatrix - Order details
- AdvMatrix - Sort Year by total
- AdvMatrix - Sparkline, Gauge
- AdvMatrix - Stepped layout
- AdvMatrix - Two data cells
- AdvMatrix - User function
- Alternate Color Each Row
- Badges
- Barcode
- Box
- Business Objects
- Cascaded Data Filtering

Print from browser
Print from Adobe Reader

[Learn how to build this report on the Fast Reports Aca...](#)

Demonstrates a simple list report. To create it:

- go to "Data" menu and select "Choose Report Data..." item to select a datasource;
- go to "Report/Configure Bands..." menu to create the band structure;
- return to the report page, doubleclick the data band to show its editor;
- choose the datasource;
- drag data from the Data Dictionary window to the band.

### EMPLOYEES

**Andrew Fuller**

<b>Hire date:</b>	8/14/2009	
<b>Birth date:</b>	Saturday, February 19, 1972	
<b>City:</b>	Tacoma	
<b>Address:</b>	908 W. Capital Way (206) 555-9482	
<b>Phone:</b>		
<b>Notes:</b>	Andrew received his BTS commercial in 1994 and a Ph.D. in international marketing from the University of Dallas in 2001. He is fluent in French and Italian and reads German. He joined the company as a sales representative, was promoted to sales manager in January 2009 and to vice president of sales in March 2010. Andrew is a member of the Sales Management Roundtable, the Seattle Chamber of Commerce, and the Pacific Rim Importers Association.	

**Anne Dodsworth**

<b>Hire date:</b>	11/15/2011	
<b>Birth date:</b>	Monday, January 27, 1986	
<b>City:</b>	London	
<b>Address:</b>	7 Houndstooth Rd. (71) 555-4444	
<b>Phone:</b>		
<b>Notes:</b>	Anne has a BA degree in English from St. Lawrence College. She is fluent in French and German.	

**Janet Leverling**

<b>Hire date:</b>	4/1/2009	
<b>Birth date:</b>	Tuesday, August 30, 1983	
<b>City:</b>	Kirkland	
<b>Address:</b>	722 Moss Bay Blvd.	
<b>Address:</b>		

## Full list of changes

#### [Engine]

- + added merging of text objects;
- + added the ability to change the shape of PictureObject;
- + added the ability to create custom line styles;
- \* now working with fonts is done without blocking;
- fixed text going beyond the boundaries of the TextObject when TextRenderer = HTMLParagraph;
- fixed creation of fonts from PrivateFontCollection;
- fixed incorrect text color in RichObject;
- fixed a break between RichObject and image;
- fixed a bug when the focus was lost from the DateTimePicker object if it had the DetailedControl property specified;
- fixed a bug in barcodes (display on HiDPI, export to PDF);
- fixed indentation in HTMLTextRenderer;
- fixed incorrect RichObject breaks;
- fixed clipping of a TextObject when rendering with HTMLTextRenderer;

#### [Designer]

- + added the ability to remove the marker from SberQR;
- + added the "Show progress window" property to the designer settings;
- + added the ability to configure hotkey combinations;
- + improved usability of working with the "Table" object in the designer;
- \* updated checks for links; links with spaces are now processed correctly;
- \* changed the behavior of trees - after clearing the search field, the data tree collapses and the report tree expands;
- fixed the appearance of extra lines when scaling a RoundedRectangle of small size;
- fixed slash encoding in Barcode 93 Extended;
- fixed deleting a link when merging dictionaries;
- fixed a bug with the choice of date or time formatting in the Hungarian localization;
- fixed reset of search in DataTree and ReportTree;
- fixed exceptions System.NullReferenceException and System.FormatException when incorrect data entered to FloatCollection;

#### [Preview]

- fixed incorrect size of the page border when the page height or width is infinite;

#### [Exports]

- + implemented saving of each image in a separate thread;
- + added missing links to event handlers in exports to Excel 2007, Word 2007, and RTF;
- + added a new property for scaling barcodes when exporting to ZPL;
- + added selection of group by which the report will be divided into sheets in Excel 2007;
- + added the ability to disable grouping of sheets when exporting to Excel 2007;
- + added the use of wrap mode for texture fill when exporting to SVG;
- \* when exporting to cloud storage, the window automatically closes after receiving the authorization code;
- corrected private font collections;
- fixed error in parsing the GSUB table;
- fixed incorrect export of DashDot, DashDotDot, and Double object border styles to PDF;
- fixed a bug when the numbers in the Gauge were displayed blurry during HTML export;
- fixed calculation of the ContentMD5 header in S3 export;
- fixed incorrect positioning of text when exporting to ZPL;
- fixed incorrect export of GaugeObject to PowerPoint 2007;
- fixed incorrect export of RadialGauge with filling in layered export in Word 2007;
- fixed incorrect export of RadialGauge with filling in non-layered HTML;
- fixed display in "Clamp" transfer mode for texture fill when exporting to SVG;
- fixed the change in text size when using HTML tags in Excel 2007 export;
- fixed the incorrect behavior of HTML tags with tabs when exporting to Excel 2007;
- fixed the problem of reducing the quality of the watermark when exporting to PDF;
- fixed a bug with incorrect indents when exporting to tables in Word 2007;
- fixed image positioning in CheckBox when exporting to Word 2007;

#### [WebReport]

- + added ability to send an e-mail with a report from WebReport;
- + added ability to print to FastReport.Blazor.WASM;
- support for .NET Standard 2.0 has been removed in FastReport.Web;
- fixed an error when exporting in the Blazor application;
- fixed ignoring Margin when printing with PrintHtml in WebReport;

#### [.Net Core]

- fixed a bug when the text width was incorrectly calculated when exporting to PDF;

[Demos]

- fixed a bug in displaying the navigation menu after minimizing Demo New;

[Extras]

- + added Variant conversion to CLR types in MySqlConnection;

- + added FastReport.Data.Odbc plugin;

- + added support for FastReport.WPF for FastReport.Data connector plugins;

- \* changed the behavior of the message about duplicate names in a request;

- fixed the automatic creation of parameters in a request.

# Version 2023.3

## New features

### New RFIDLabel object

The new version includes a new object - an RFID tag. It enables the identification of goods and closely resembles a barcode, but unlike the barcode, it uses radio signals. This allows for scanning a large number of items in short time intervals.

The tag contains 4 data banks: a reserved bank for storing access and destruction passwords, an electronic product code bank, a tag identifier bank, and a user data bank. In the FastReport .NET product lineup, the RFID tag is represented as a report object. The tag can be customized using a user-friendly editor, accessed by double-clicking.

The screenshot shows the 'RFID Label editor' dialog box. The 'Reserved bank' is selected in the sidebar. The configuration fields are as follows:

Field	Value
Access password	00000000
Data column	[Empty] fx
Kill password	00000000
Data column	[Empty] fx
Access password access mode	Open
Kill password access mode	Open

RFID tags can be created by some Zebra printers, therefore, in addition to the tag object itself, we implemented their export to ZPL. For correct export, the RFID tag must be in a single copy on the page.

[Read more in the article.](#)

### Support for images in WebP format

There is now a plug-in that supports images in the WebP format. Now you can upload them into a PictureObject using the editor in the report designer and from code. FastReport.Skia supports WebP images without a plugin, but they are converted to PNG format when uploaded.

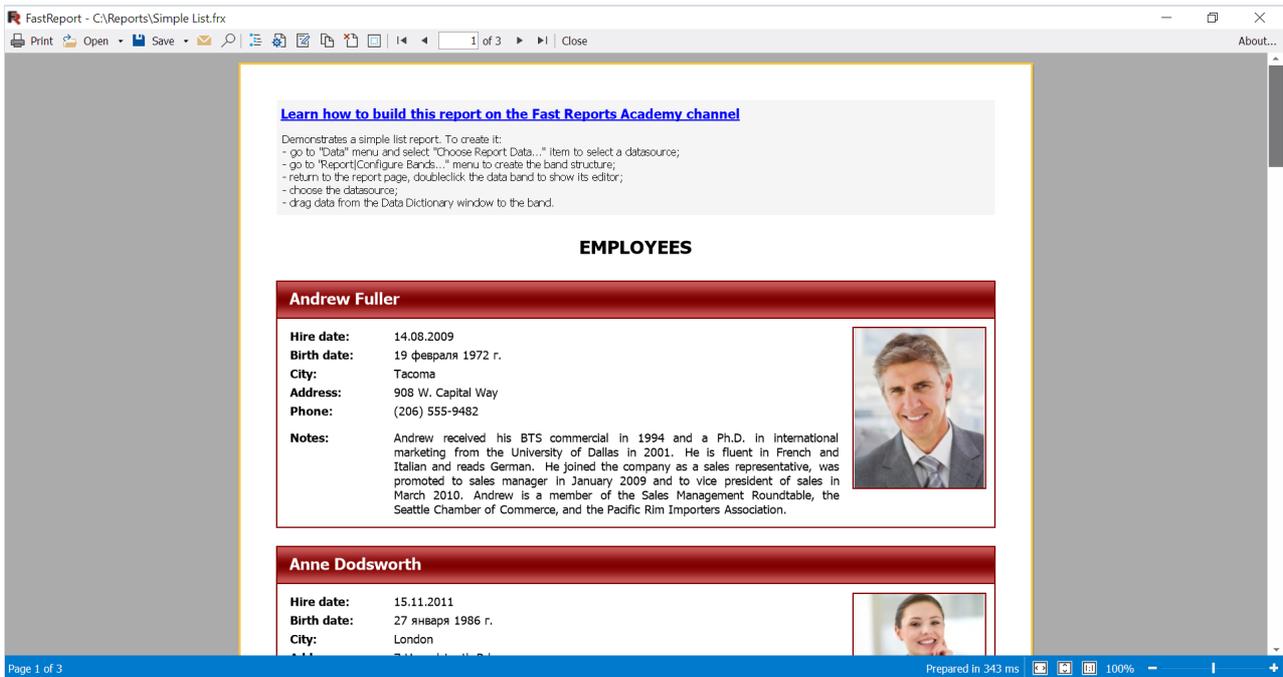
[You can find details about the format and instructions for using the plugin in this article.](#)

### Preview in the designer window and asynchronous report viewing

Now, you can launch a report preview in the designer window when using the designer in your application. Previously, the preview always started in a separate window. To do this, add the following line in your code:

```
Config.DesignerSettings.EmbeddedPreview = true;
```

It will look like this:



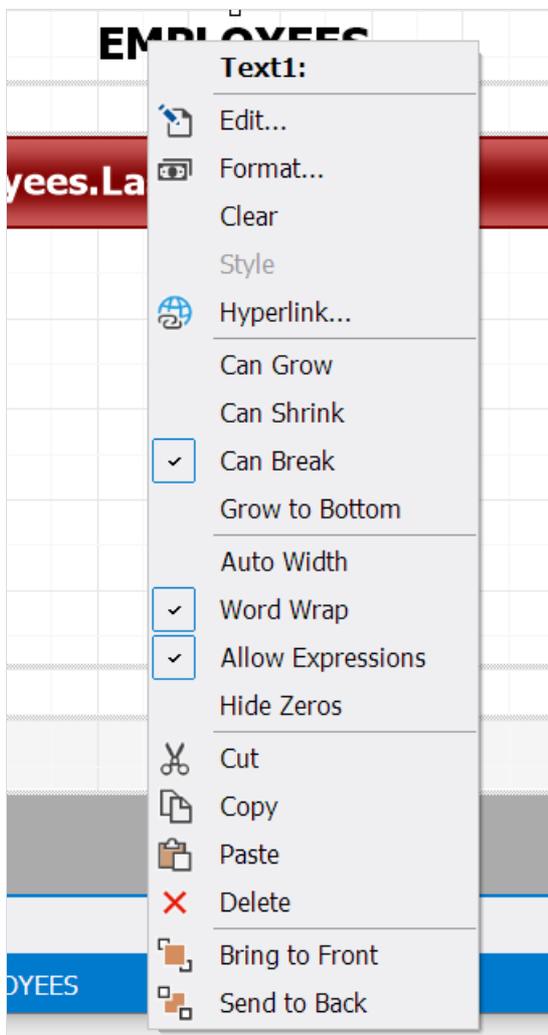
In some cases, such a mode can be more convenient.

We have also introduced asynchronous methods for report preparation and viewing: `Report.PrepareAsync()` and `Report.ShowAsync()`. They can be used when handling large reports. In that case, you can use the preview window while the report is being prepared. This way, the user will not have the impression that the application is frozen or unresponsive.

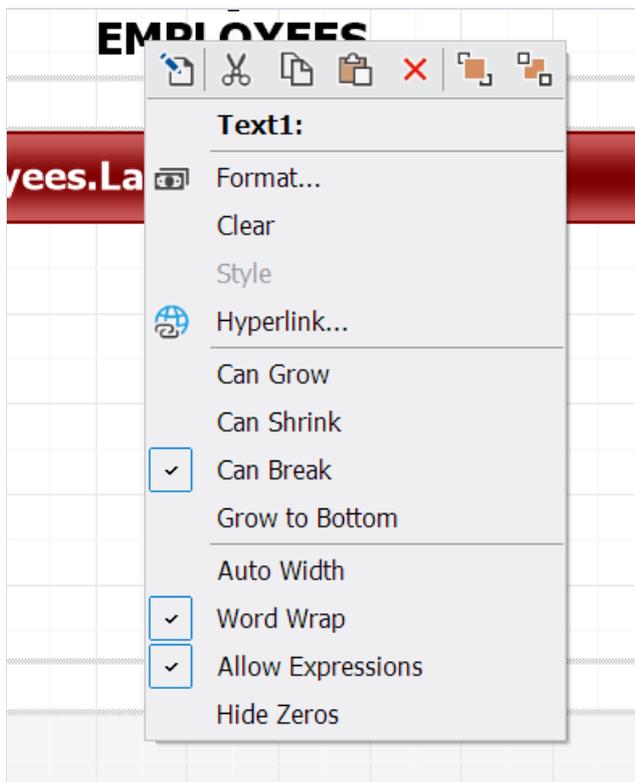
## The toolbar in the context menu

The context menu has been improved when right-clicking on an object. A toolbar appeared at the top, which contains frequently used items, such as edit, cut, copy, paste, etc.

The menu used to look like this:



The new menu has become more compact and ergonomic:

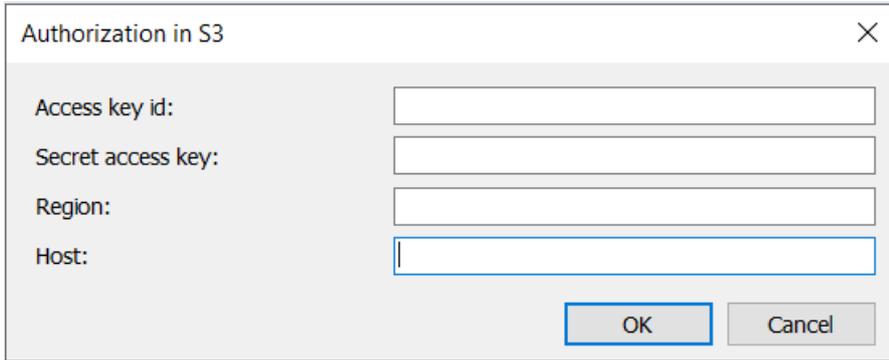


## Export to S3

We have added the ability to upload prepared and exported reports to the Simple Storage Service (S3 for short).

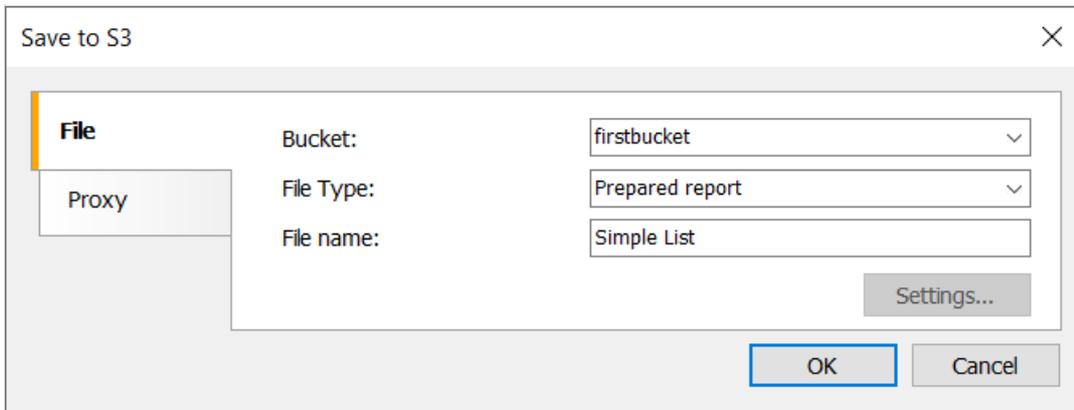
The new export is located in the "Storage" tab of the prepared report saving menu.

During the first export, you will need to enter registration data in the authorization window.



You can get the necessary keys in your S3 account settings. You can find more details in the service documentation.

After successful authorization, you will see an export window.



Here you can select the bucket to save, type, and file name. If you select a file type other than "Ready Report", then the settings for the corresponding export will become available.

[Read more in the article.](#)

### Ability to customize barcode font settings

The "Font" property is now available for "Barcode" objects. It allows you to set the font parameters used when displaying barcode texts. The default font is Arial, the same font used in previous versions. Now you can choose a different font, change its size, style, etc. As a result, you can create, for example, such barcodes:



However, you should be careful with font settings. Not all scanners may be able to read such barcodes.

### "Convert general to text format" option when exporting to Excel 2007

Excel 2007 has several data formats, including two that are very similar: general and text.

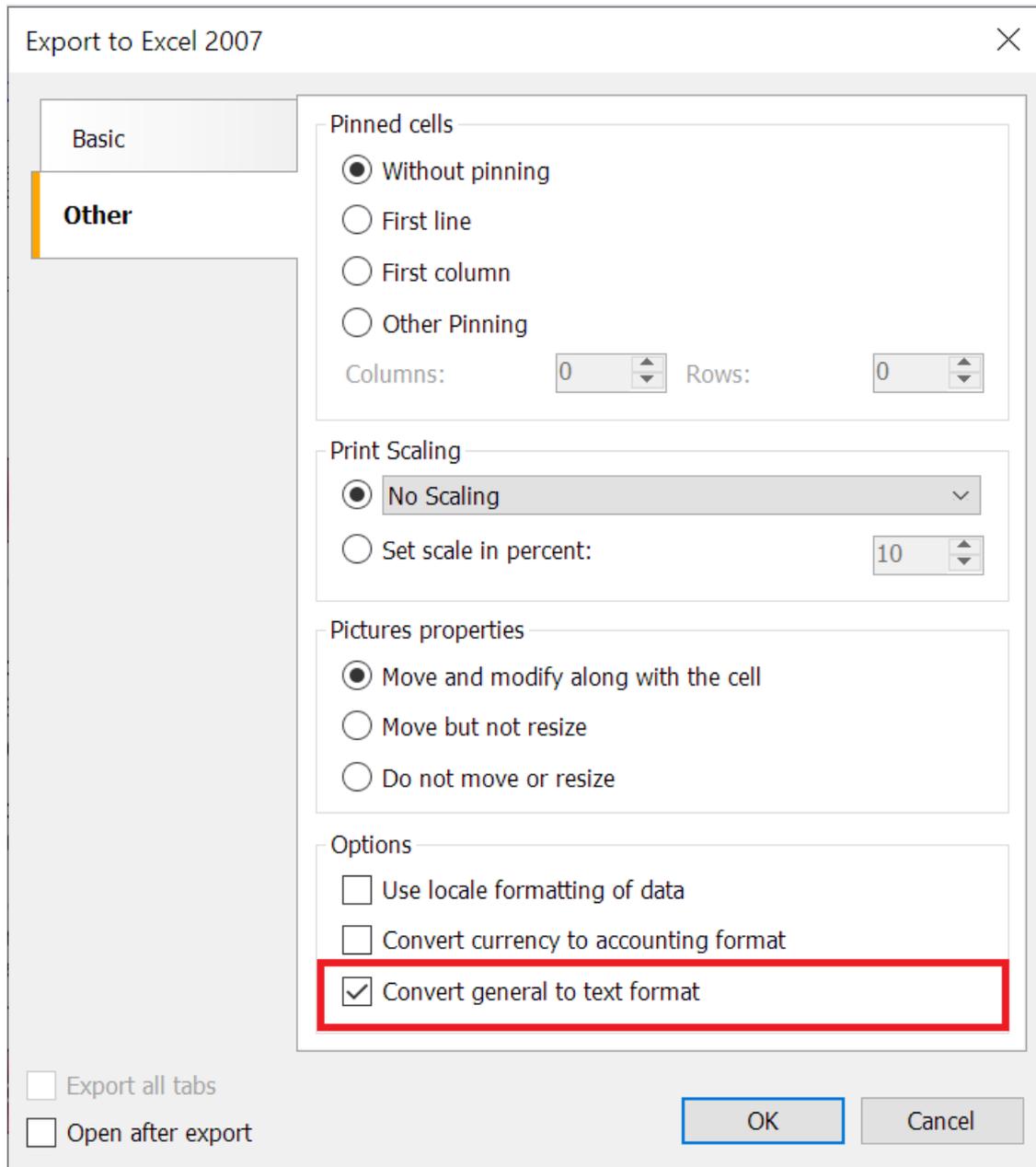
General is the default. In most cases, numbers in this format appear as entered. But if the cell width is not enough to display the entire number, then it is rounded.

The text format always displays data as entered.

FastReport .NET also has several formats, for example, general, numeric, date, and many others. The appropriate format is selected during export, the numeric is converted to numeric, and the date remains a date.

The general format in FastReport .NET is also used by default. It displays the data exactly as it was entered. The general format is System.String. In turn, there is no separate text format in FastReport .NET.

Excel 2007 export has a new option that allows you to convert the FastReport .NET general format to Excel text format (general is exported as general by default).



Reports created in previous FastReport .NET versions will be exported in the same way in the new version since this option is disabled by default.

## Support for partial report compilation

FastReport.Core, FastReport.Core.Skia and FastReport.Core.Win now enable partial compilation of a report to speed up its preparation if the report script has not been changed in the report and there are no objects that do not support partial compilation. You can enable it with the following command:

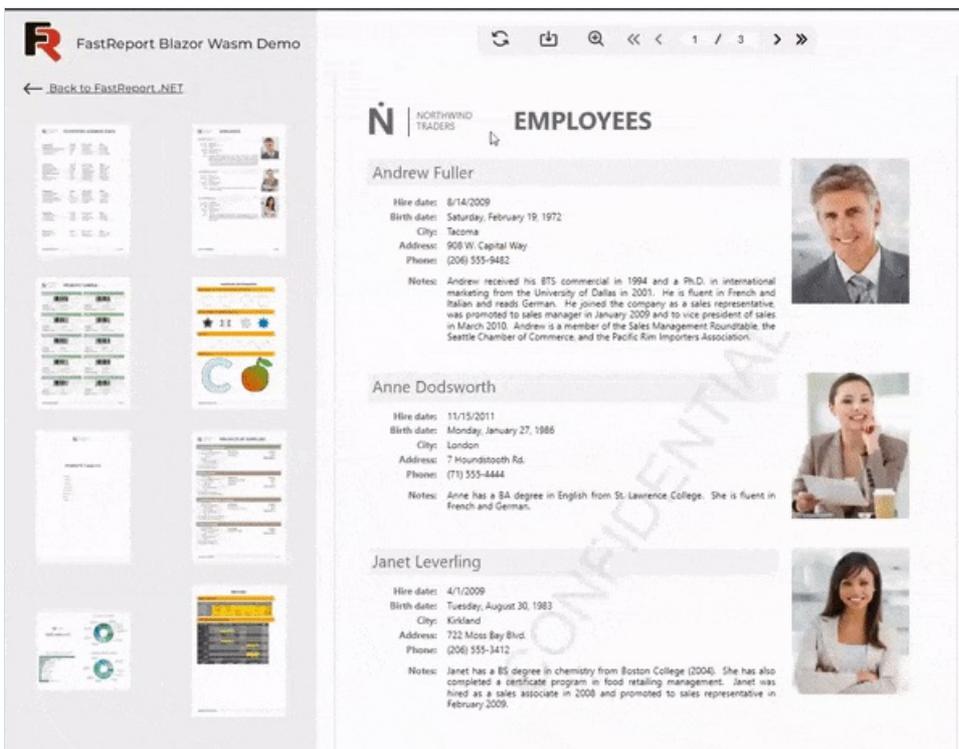
```
FastReport.Utils.Config.CompilerSettings.ReflectionEmitCompiler = true;
```

Enabling Reflection.Emit Compiler does not cause any performance degradation. If the new compiler cannot be used in the new report, it will simply use the standard procedure without harming the report.

## New WebReport features

### Improvements in WASM

Previously, you could only view reports opened in the browser using our FastReport.Blazor.Wasm library. This update added support for exports. Now users can export the resulting reports to various formats, just as is in regular WebReport.



Also, Reflection.Emit compilation accelerated the loading and preparation of reports without a script in WebAssembly.

### Toolbar personalization

Now you can create elements, such as buttons, dropdowns, and input fields, and add them to the toolbar. These elements can have various options, including images, titles, and styles. You can also implement logic using JavaScript and C#.

An example of adding custom elements to the toolbar:

```

var button = new ToolbarButton()
{
    Title = "MyCustomButton",
    OnClickAction = new ElementClickAction()
    {
        OnClickAction = async (webreport) =>
        {
            webreport.LocalizationFile = "MyLocalizationFile";
        }
    },
};

var select = new ToolbarSelect()
{
    Title = "MyCustomSelect",
    Items = new List<ToolbarSelectItem>
    {
        new ToolbarSelectItem()
        {
            Title = "MySelectItem",
            OnClickAction = new ElementScript()
            {
                Script = "console.log('My item is working')"
            }
        }
    }
};

var input = new ToolbarInput()
{
    InputType = "number",
    OnChangeAction = new ElementChangeAction()
    {
        OnChangeAction = async (webreport, inputValue) =>
        {
            webreport.Report.Prepare();
            webReport.Toolbar.Height = int.Parse(inputValue);
        }
    }
};

webReport.Toolbar.InsertToolbarElement(button);
webReport.Toolbar.InsertToolbarElement(select);
webReport.Toolbar.InsertToolbarElement(input);

```

As a result, these customized elements will appear in your toolbar after changes:



## Full list of changes

```

[Engine]
+ added new RFIDLabel object;
+ added GS1 automatic formatting for GS1-128 barcode;
+ added loading tables in cells of other tables when converting RDL templates;
+ added Config.CompilerSettings.ReflectionEmitCompiler property, which, when enabled, speeds up report preparation if the script has not been changed (works only in .NET Core/.NET);
+ added the ability to configure barcode font using the new "Font" property;
* improved work with private font collections;

```

- \* demo version 5-page limit removed; the text is randomly replaced with "Demo version";
- fixed an infinite loop when calculating a parameter expression equal to this parameter;
- fixed the problem of reading the DataMatrix barcode by a mobile scanner;
- fixed a bug when line strikethroughs were incorrectly displayed during manual transfers;
- fixed the calculation of the shift of translated RichObject objects;
- fixed conversion of empty Variant to other types;
- fixed deletion of a column after which the column data remained in the report;
- fixed the work of the VisibleExpression property for matrix and table rows and columns;
- fixed deletion of fonts that are no longer present from the font\_hash dictionary;
- fixed a bug with unsorted tab stops in RichObject;
- fixed a bug with parsing GSUB table leading to exception;
- fixed loss of stream stop when exporting to PDF with the "Text in curves" option, resulting in System.StackOverflowException;
- fixed a bug with loading object borders when converting RDL templates;
- fixed deletion of the first three characters in the GS1-128 barcode;
- fixed coding table for Code93 Extended barcode;
- fixed text encoding in DataMatrix barcode;
- fixed text rendering bug during word break due to lack of space;
- fixed RightToLeft text conversion when the ConvertRichText option is enabled;
- fixed line break in HtmlTextRenderer;
- fixed a bug when page columns were printed over band columns;
- fixed white highlighting of empty lines between text paragraphs and some paragraphs in RichObject when using fill;
- fixed selection of text parts with white color in RichObject with ConvertRichText = true;
- fixed ignoring ConnectionString if ConnectionStringExpression returned null;
- fixed indents of translated text objects from RichObject;
- fixed positioning of objects when translating RichObject;
- fixed import of tables from JasperReports;
- fixed System.NullReferenceException when clearing TableObject;
- fixed horizontal image alignment in RichObject when ConvertRichText = true;
- fixed System.NotImplementedException when the TextObject tab stop is negative;
- fixed null conversion if the expression contains a function;
- fixed System.ArgumentException when JSON data source host has an empty CharSet;
- fixed positioning of TableObject when translating RichObject;

[Designer]

- + added ability to take column names from the first row in Excel connection;
- + added categories for "Barcode" objects;
- + added Config.DesignerSettings.EmbeddedPreview property for report preview in the designer window;
- + added the "Other" category for dialog controls in the "Objects" panel;
- + added the ability to display the translated object in the Online Designer;
- + added the procedure selection page in the form of the data connection wizard;
- + added the toolbar to the context menu;
- + added the ability to use expressions in the "Payment amount" field in the SberbankQr editor;
- + added parsing of parameters from SQL query;
- + added a warning when the names of the request parameters match;
- + added a check for the existence of a file when it is changed in a CSV connection via the CsvFile property;
- \* changes in the "Query Builder" interface;
- \* updated "Data Connection Wizard." Improved interface, fixed bugs, and increased speed;
- \* change in the rendering of tooltips with coordinates/sizes in the designer;
- fixed the problem of connecting to CSV via URL;
- fixed a bug in the "Save as ..." operation for a file opened from the cloud;
- fixed the "Map" object in NET 6.0 (empty polygon labels);
- fixed error with reading values from the designer configuration file;
- fixed a bug when a new report page was created after double right-clicking on the "Code" tab;
- fixed an error after closing the preview window with empty values of numerical parameters;
- fixed a bug when the designer did not respond during the authorization process;
- fixed bugs in the Gauge object editors;
- fixed System.NullReferenceException when merging dictionaries that include parameter connections;
- fixed text highlighting in RichObject when using property ConvertRichText = true;
- fixed a bug with the order of formats when there are several expressions in a text object;
- fixed a scaling error in the designer settings window on the "Plugins" tab;
- fixed incorrect scaling of the data source selection form in Visual Studio;
- fixed incomplete display of pages with infinite width in the preview page adding;
- fixed a bug with password-protected report loading;
- fixed problems with scaling some controls;
- fixed a bug when fields are selected for unselected tables during connection editing;
- fixed a bug when all tables were selected during connection editing even though only some of them were

fixed a bug when all tables were selected during connection editing, even though only some of them were actually selected;

- fixed a System.IO.FileFormatException when using an incorrect XML report on the FRX page;
- fixed incorrect work of font settings in MSChartObject when the scale is more than 100%;
- fixed a bug when connecting a CSV database via URI;
- fixed a bug when running a report with MSChartObject and SparklineObject on a DataBand with the CanBreak property enabled;
- fixed problems with displaying SVG in the designer;
- fixed a bug with the font size in the "Report Tree" window;
- fixed the behavior of the "About" window when changing scaling;
- fixed ignored MSChartObject rendering if Title is missing;

#### [Preview]

- fixed text object horizontal alignment when AutoWidth = true;
- fixed problems with displaying SVG in preview;

#### [Exports]

- + added export to S3;
- + added export of page borders during image export;
- + added "Use page breaks" option in the form of HTML export;
- + added option to enable or disable adding bookmarks to each page when exporting to Word 2007;
- + added creating a new sheet when the number of lines approaches the maximum allowed on one Excel 2007 sheet;
- + added the "Convert general format to text" option in Excel 2007 export;
- + expansion of font names;
- + improved font packaging subsystem for PDF export;
- \* speeded up export to PDF;
- \* optimized export of interactive forms to PDF;
- fixed a bug when LineHeight was ignored when exporting using Skia;
- fixed multi-threaded export to PDF and private font collections;
- fixed loading of fonts with traditional Chinese characters;
- fixed kerning of right-to-left fonts when exporting to PDF;
- fixed a bug where fonts smaller than 10 were displayed incorrectly with the ConvertRichText property enabled when exporting to RTF;
- fixed kerning errors in PDF export;
- fixed a bug in PDF export in "Text in curves" mode at high monitor resolution;
- fixed a bug when a dark frame was drawn for some objects in PDF export;
- fixed export of font families registered in FastReport.Utils.FRPrivateFontCollection;
- fixed display of HTML <strike>, <sub> and <sup> tags when exporting to RTF;
- fixed a bug where the export of a report with pictures for Skia ended with an error;
- fixed export of footer objects to RTF and DOCX;
- now single-byte spaces do not disappear from the string after export to Excel 2007;
- added extra text breaks when exporting to CSV;
- fixed a bug with extra separators when exporting to CSV;
- fixed a bug when fonts were damaged during multi-threaded export to PDF;
- fixed a bug when hyphen characters were not processed when exporting to HTML;
- fixed incorrect work of hyperlinks in RichObject when exporting to PDF;
- fixed row height multiplier in RTF export;
- fixed double saving of report in Google Drive;
- fixed API call for saving reports in OneDrive;
- fixed problems with displaying SVG when exporting to PDF;
- fixed errors in the export tree;
- fixed export of text with HTML tags to Word 2007;

#### [WebReport]

- + added report shadow in WebReport;
- + added support for report export to Wasm;
- \* changed Toolbar behavior for one-page reports;
- \* changed the behavior of printing a report from a browser in WebReport. Now a print page closes automatically;
- fixed a bug when click events in WebReport did not work;
- fixed incorrect export to Word 2007 in web reports;
- fixed a bug where some report objects (for example, RichObject) might not be displayed in the Web designer;
- fixed a bug where a single-page report did not export if settings were used;
- fixed a bug when the report was not updated when the parameter was changed;

#### [.NET Core]

- fixed a bug when the InvariantGlobalization option was enabled;

[Demos]

\* changed the script in the "Sort Group By Total" template for the correct work of the report and display of totals when using the "Can grow" and "Can shrink" properties of the "Group Footer" band;

[Extras]

- + added export of page borders when exporting with PDFSimpleExport;
- + added the ability to connect to MariaDB using the MySqlConnection plugin;
- + added .db format to the file filter for connecting SQLite;
- + added a plugin with support for images in WebP format;
- \* RPTImportPlugin updated to .NET Framework 4.7.2;
- fixed a bug resulting in System.IO.FileLoadException when connecting to ClickHouse and MongoDB;
- fixed the data source selection form, which did not open in the foreground.

# Version 2023.2

## New opportunities

### Blazor WebAssembly support

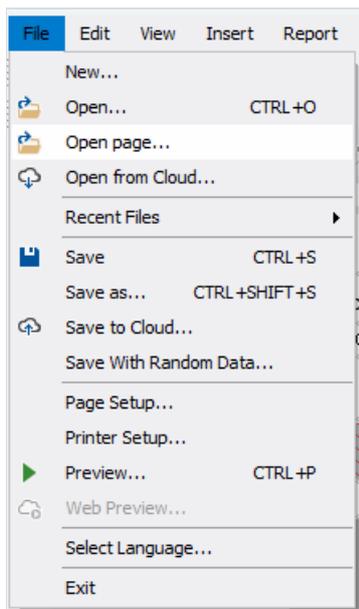
Added FastReport.Blazor.Wasm package with Blazor WebAssembly support for owners of FastReport .NET Enterprise and higher editions. Now you can use Razor components to display a report in your WebAssembly application. Attention! Blazor WebAssembly support is currently in beta.

```
<WebReportContainer WebReport="WebReport" />
```

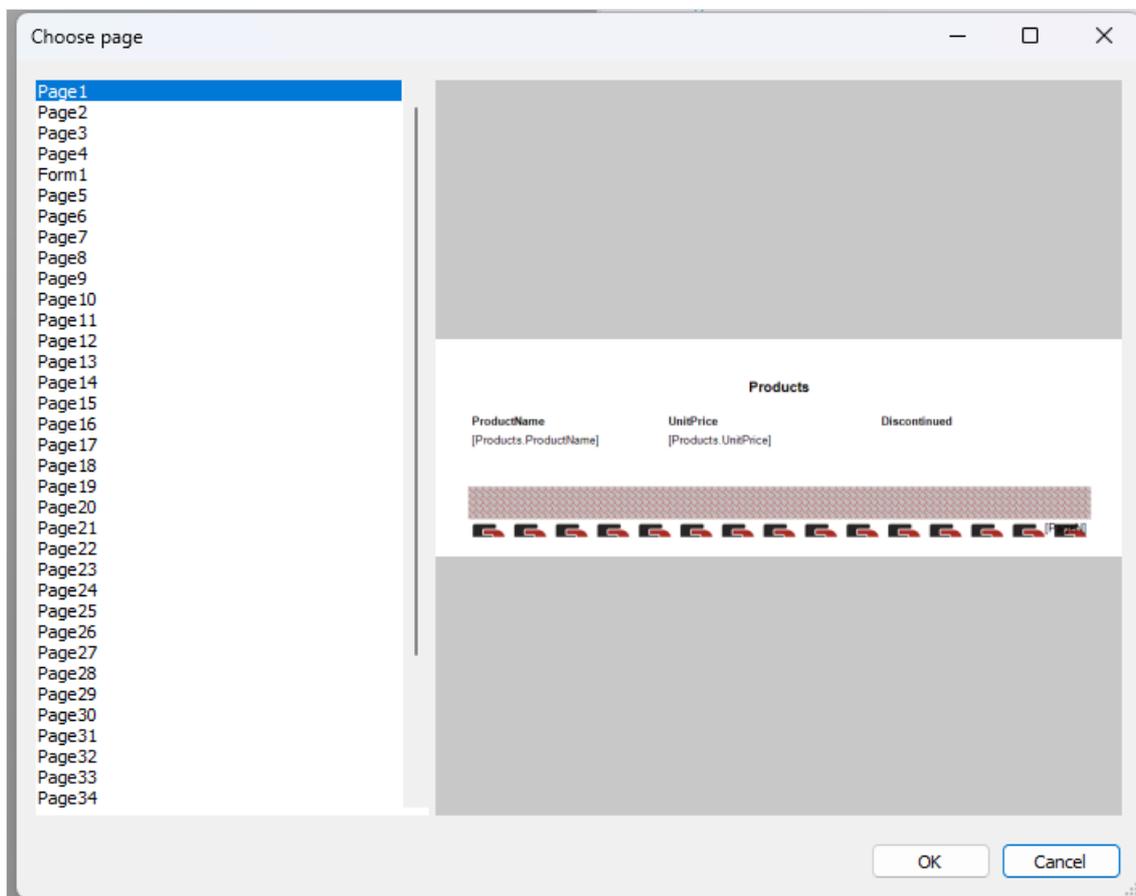
[Read more in this article.](#)

### Ability to open another report page

The designer now allows you to open and add pages and dialog forms of another report to the developing report. To do this, go to the "File" menu and select "Open Page...".



Next, the standard file selection dialog box will open where you can select a report. After that a window will appear with a list of pages and a preview of the selected page.

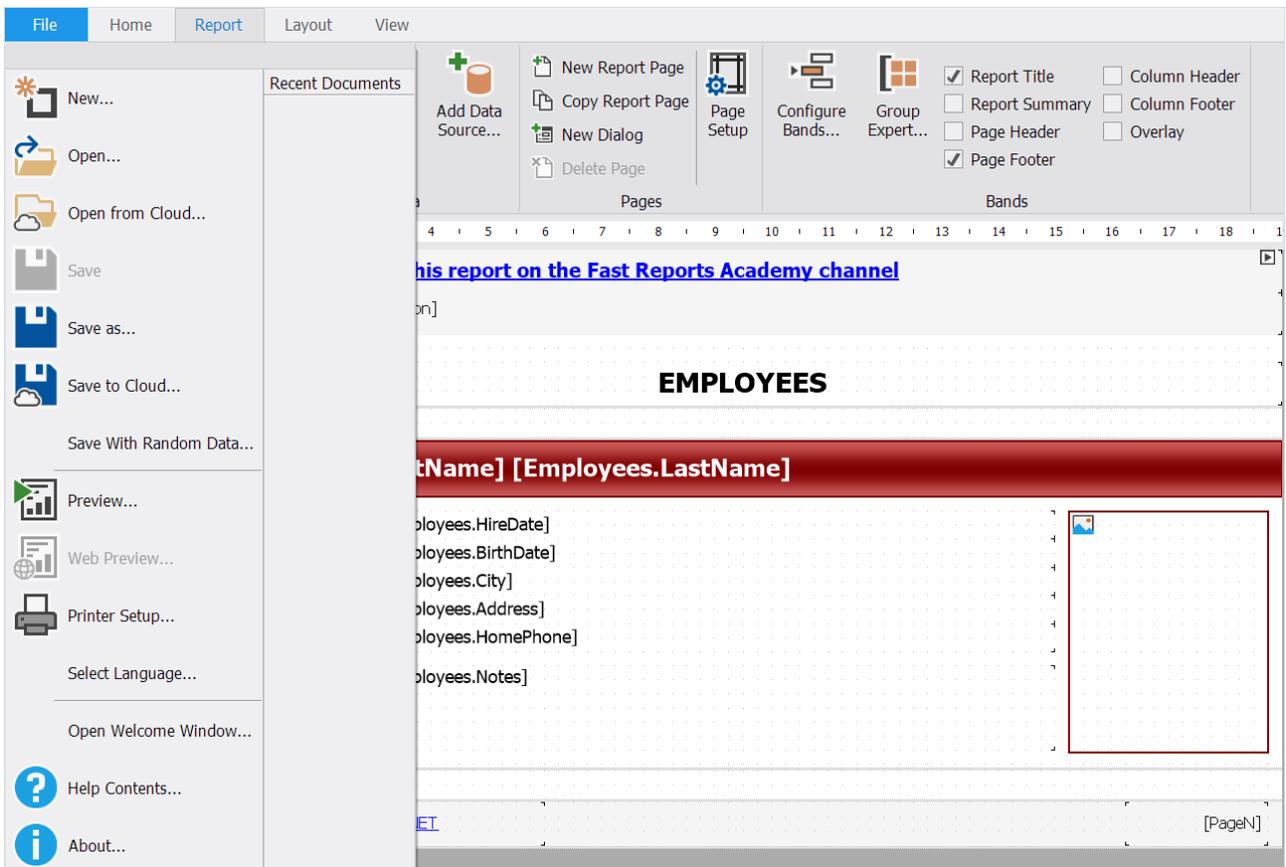


Here you can select one or more pages to be added to the current report. The names of pages and all objects contained in them, will be changed to unique, if the report already has them. This is necessary to avoid errors, as identical names are not allowed.

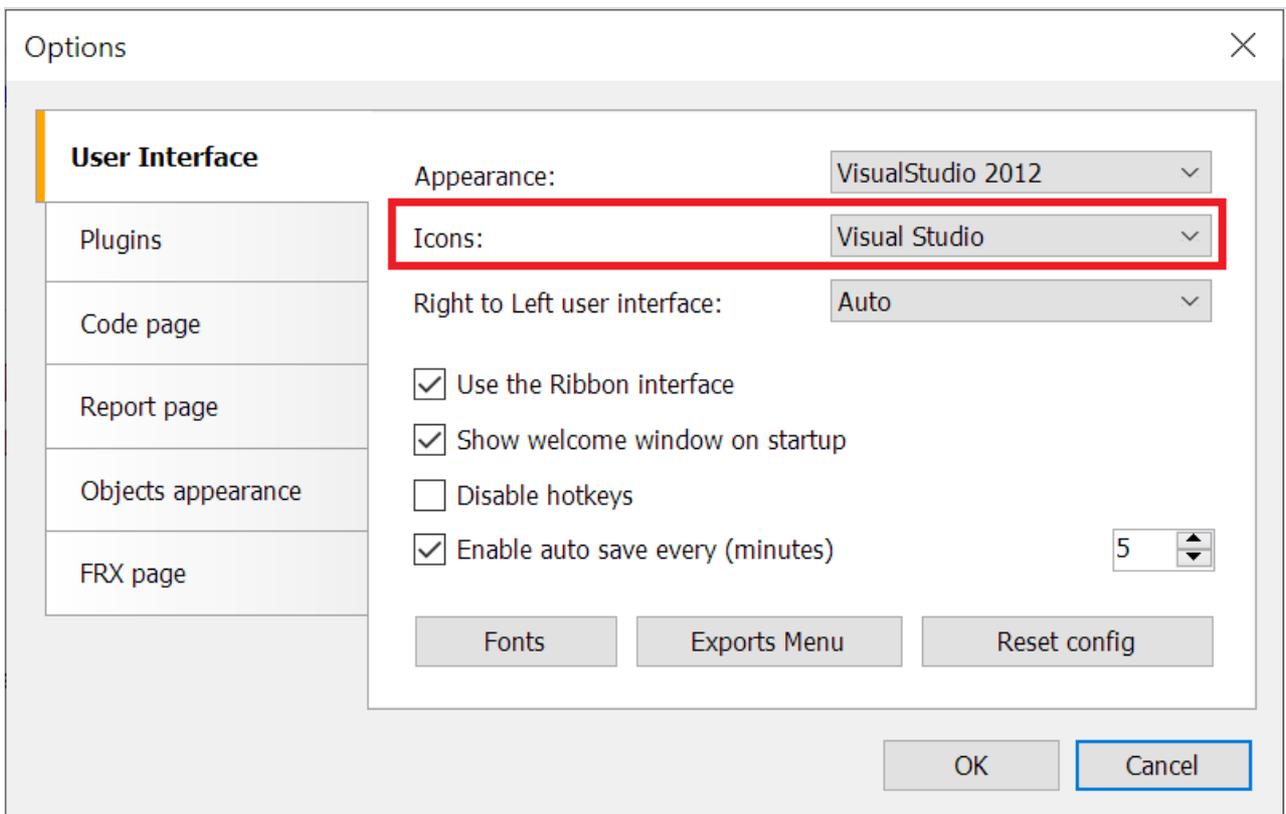
[Read more in this article.](#)

## New icons for the Ribbon interface

New Visual Studio-style icons have been added to the Ribbon interface in the designer.



You can select them in the user interface options.



Will need to restart the designer for the changes to take effect.

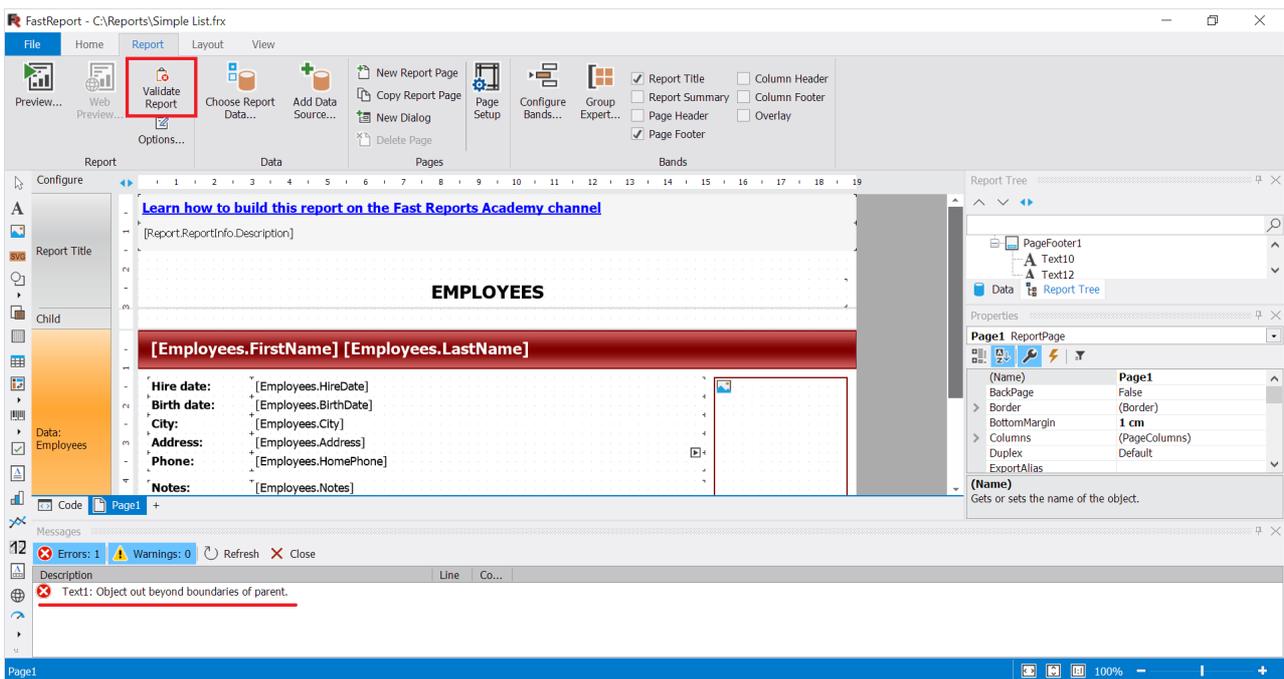
### Filter in the properties window

A new button has been added to the properties window that allows you to enable the display of object-specific properties. For example, for a text object, this mode displays the Text, Font properties. Common object properties such as Top, Left, Height and Width are not displayed.

Properties		
Text10 TextObject		
	RightToLeft	False
	WordWrap	True
	Trimming	None
	Clip	True
	Wysiwyg	False
	TextRenderType	Default
	HideZeros	False
	HideValue	
	NullValue	
	ProcessAt	Default
	Duplicates	Show
	Editable	False
	CanBreak	True

## Report validator changes

The report validator now doesn't run in the background, but runs with a separate "Validate Report" button in the "Report" menu. In addition, the validator window has been removed, and its messages are displayed in the window "Messages".



## Ability to hide connection string

Added a new property `Config.ConnectionStringVisible`, which gives the ability to hide the connection string in the designer. Can be used to differentiate permissions between the application developer and the report user. When set to false, the user will not be able to see and edit connection strings in the designer.

## WebReport changes

Added support for `MemoryCache`. By default, at the moment, the current `WebReportCache` is used. You can enable `MemoryCache` when registering FastReport services:

```
services.AddFastReport(options =>
{
    options.CacheOptions.UseLegacyWebReportCache = false;
});
```

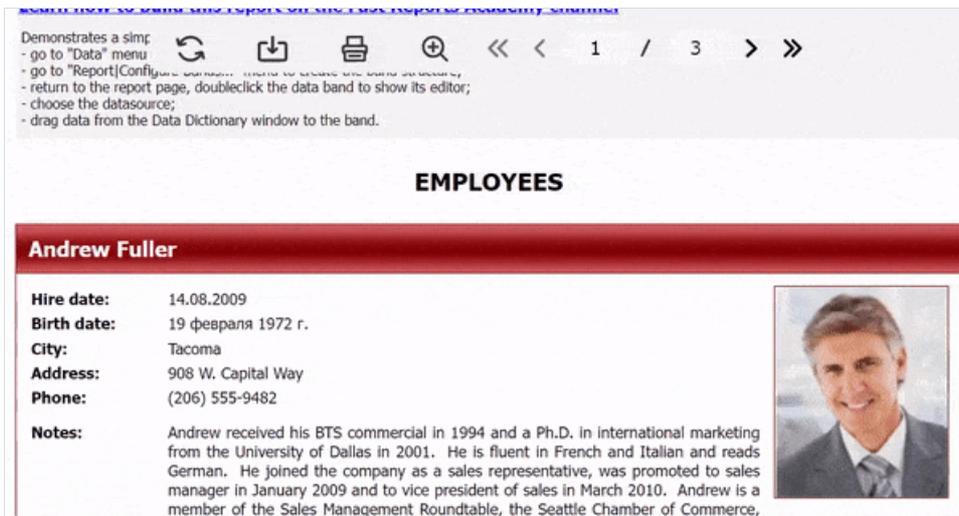
Unlike the built-in cache in WebReport, MemoryCache unloads WebReport instances more aggressively after a certain time CacheOptions.CacheDuration of WebReport instance inactivity, which can help in cases where the old cache for some reason does not clear memory.

Added the ability to fix the toolbar on the screen. Now you can configure the toolbar to always stay in place, even when scrolling through the page. This is convenient when working with large reports - the toolbar will always be visible.

To pin the toolbar on the screen, you need to set the following property:

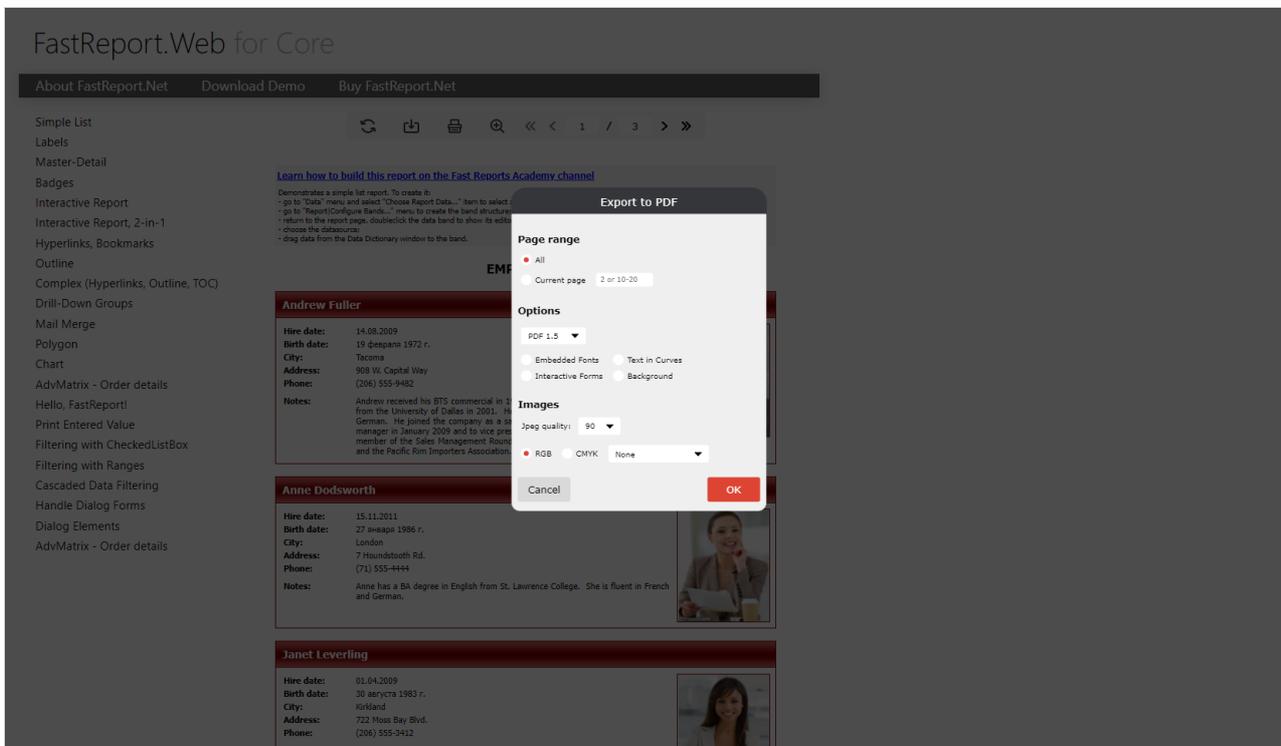
```
webReport.Toolbar.Sticky = true;
```

Now the toolbar will always be in view

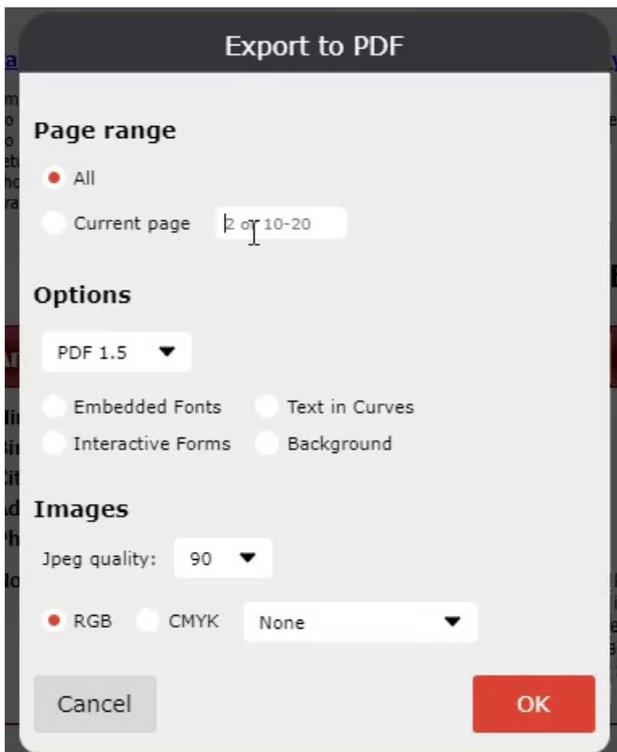


Also, the ability to customize the export settings window has been added. Now it can be made fixed on the screen and displayed in the foreground. To do this, you need to set the following property:

```
webReport.Toolbar.Exports.PinnedSettingsPosition = true;
```



Validation for entering a range of pages has been added to the export settings window. Now, in case of incorrect input, the field will look like this.

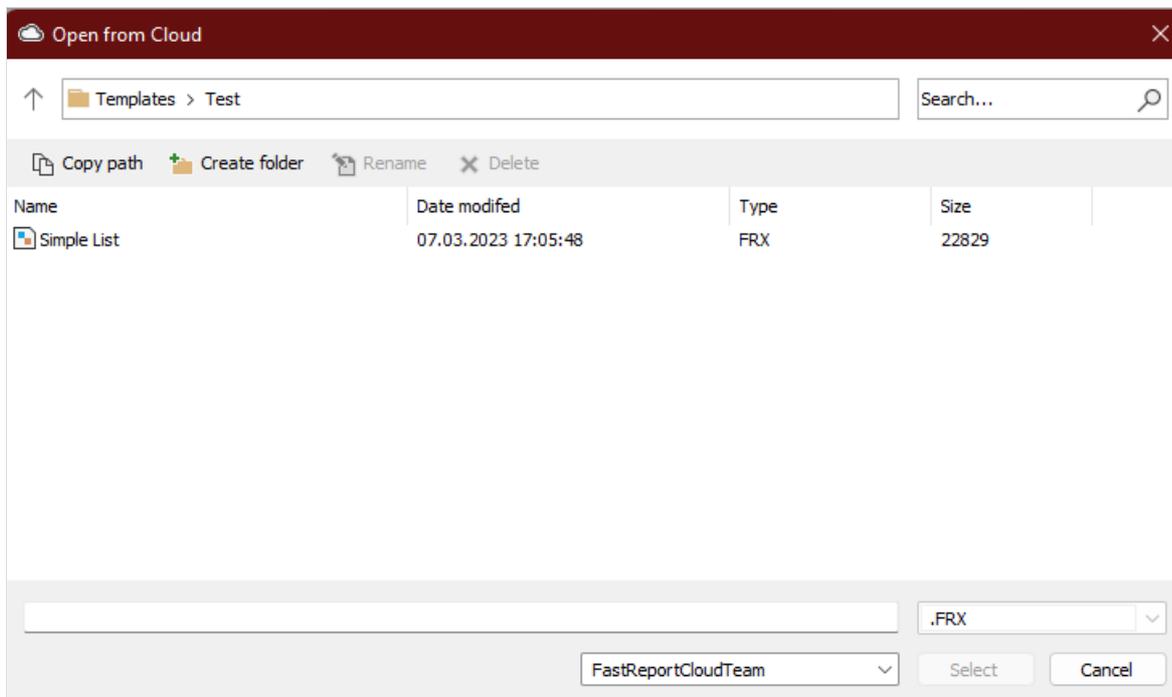


## FastReport.Core.Skia improvements

Improved the performance of the FastReport.Core.Skia package. Export errors have been fixed, examples are listed below:

Fixed the rendering of objects with CanShrink = true:





## Full list of changes

### [Engine]

- + added property `Config.ConnectionStringVisible`, which indicates whether the connection strings of data sources will be displayed in the designer;
- fixed a bug with extraction of procedures in connection that cannot contain procedures;
- fixed a bug where the first column of the page was always displayed in the leftmost position;
- fixed a bug when `GaugeObject.Value` property was set equal `GaugeObject.Minimum`, if new value was more than `GaugeObject.Maximum`. Now it will be set equal `GaugeObject.Maximum`;

### [Designer]

- + added the ability to open report from FastReport Cloud using recent files list;
- + added a context menu to the page panel elements;
- + a context menu for creating new pages and dialog forms has been added for the panel with report pages;
- + added new Visual Studio style icons for the Ribbon interface;
- + added "Sync" button in the "Report Tree" window;
- + added Filter button in the Properties window;
- + added HiDPI icons for Ribbon-interface;
- + added support of `DBNull` and `Guid` types for parameters;
- \* now the name of the attached file when exporting to mail, can be set from the code when creating the export form;
- \* report validator now runs from "Report|Validate report" menu. "Messages" window is used to display validation messages;
- \* changed interface of QR code editor;
- fixed a bug on right clicking Data Sources menu item;
- fixed a bug when checkbox "Select all" was not visible in Data wizard;
- fixed a bug causing `System.NullReferenceException` when deleting dialog form;
- fixed the absence of the Api key when re-opening the Account->Server window if it was entered in the standard server item;
- fixed incorrect web address when trying to preview webview for custom server;
- fixed the problem of collapsing panels and incorrect change of the language of tabs and bars when changing the localization in the Ribbon interface;
- fixed issue with adding tables that were not selected in the connection wizard;
- fixed a bug causing `System.NullReferenceException` when creating connection to stored procedure;
- fixed exception when manually entering an invalid parameter type;
- fixed a bug where it was impossible to set an object to a transparent color;
- fixed reopening of the query wizard;

### [Preview]

- + added a message about sending a report to the mail in the status bar;

### [Exports]

- + added word wrapping in cells when exporting to Excel 2007;
- fixed a bug that made MSChart text blurred after HTML export;
- fixed incorrect margins when exporting the report to HTML;
- fixed an error that made the transparent background become white with Skia;
- fixed a bug with an extra empty page when exporting if there are bands with the Exportable property equal false;
- fixed a bug when padding top was not taken into account when exporting to layered HTML;
- fixed an error that made the text go beyond the table when the page was zoomed out in HTML export;

#### [WebReport]

- + added Blazor WebAssembly support;
- + added support for DI in WebReport.Core/Blazor. To use, call services.AddFastReport();
- + added support for Microsoft.Extensions.Caching.Memory.MemoryCache instead of the standard WebReportLegacyCache. To use, when registering a DI container, use services.AddFastReport(options => options.CacheOptions.UseLegacyWebReportCache = false);
- + implemented the ItemCheck event in CheckedListBox;
- + added an option to enable the toolbar to display regardless of the screen position in WebReport using WebReport.Toolbar.Sticky property;
- + added asynchronous version of method WebReport.Designer.SaveMethod - WebReport.Designer.SaveMethodAsync;
- + added validation of page range in WebReport export settings window;
- + added WebReport.Toolbar.Exports.PinnedSettingsPosition property. If enabled, the container of export settings will be fixed on the screen and displayed in the foreground;
- fixed a bug when selection mode in ListBox was multiple, but it was able to select only one item;
- fixed a bug of non-refreshing dialog when CheckedException was the initiator of the event. In this case, add at least one dependent object of the CheckedException to the DetailControl property;
- fixed a bug when in .NET Framework MVC application the report with dialog form on clicking "OK" would not hide dialog form and not show loading of the report;
- fixed an error that caused extra pages to appear when printing;
- fixed incorrect work of report 'Interactive Report' on WebReport.Core;
- fixed rare NullReferenceException in WebReportLegacyCache;

#### [Online Designer]

- fixed a bug where First Page Source, Other Page Source, Last Page Source and Duplex properties was not saved when changing ReportPage;
- fixed an error that made the report preview not refresh before pressing "Refresh" button;

#### [.Net Core]

- + the script compiler will now display errors depending on the selected locale set with FastReport.Utils.Res.LoadLocale() or FastReport.Utils.Config.CompilerSettings.CultureInfo;
- fixed an issue where text with CanShrink = True was incorrectly rendered after export with Skia;
- fixed a bug with incorrect indent width between characters with TextRenderType = HtmlTags in Skia;
- fixed a bug that caused the watermark with transparency to have a gray background when exporting with Skia;
- fixed an error that caused incorrect calculation of table row height;

#### [CoreWin]

- fixed error when trying to add new data connection;

#### [Mono]

- + added zoom control in preview and designer windows;
- fixed problem of scaling PreviewControl;

#### [Demos]

- + added demo-app ASP.NET Core (Razor pages) under .NET 6.0;
- \* updated demo applications for FastReport Core;

#### [Extras]

- fixed a situation in which the host during logout could not match the one during authorization;
- fixed a bug when updating an expired session in the Account window, a browser opens and requests re-authorization.

# Version 2023.1

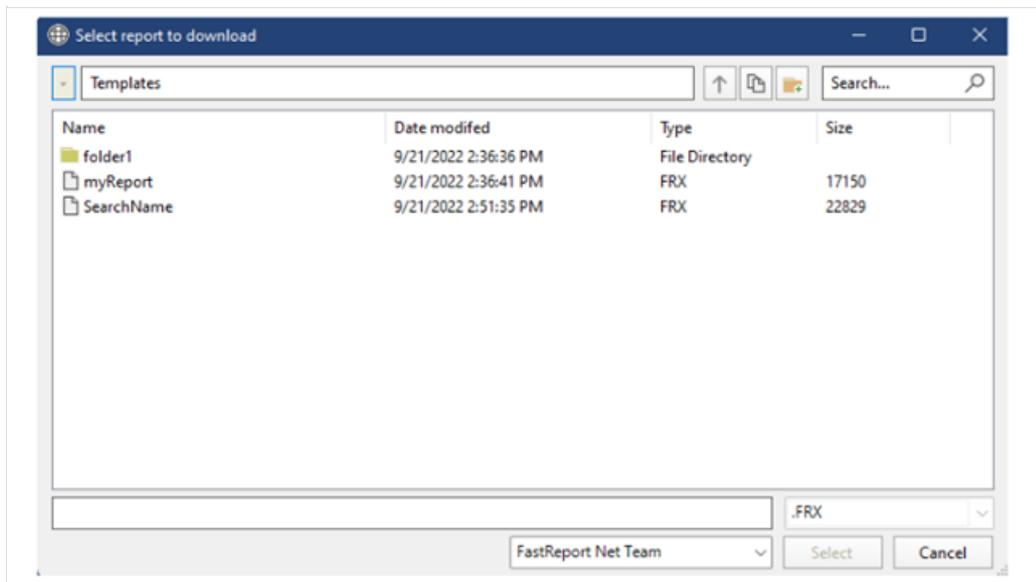
## New opportunities

### Integration with FastReport Cloud

FastReport .NET, FastReport CoreWin, and FastReport Mono now support some interaction experience with FastReport Cloud.

### Downloading and uploading reports

Now you can download the report from Cloud and work on it in the designer, or vice versa — upload your files to Cloud.



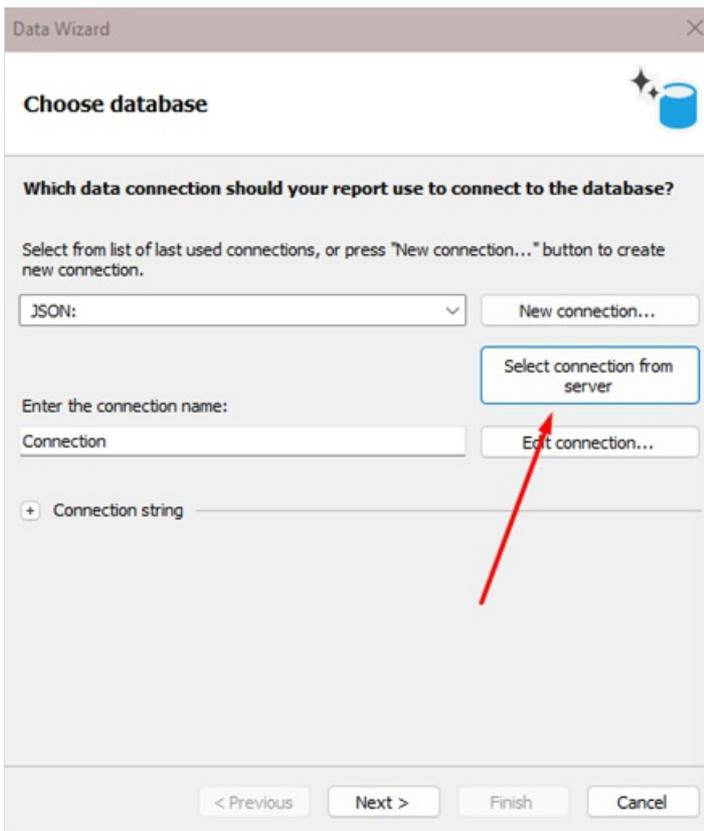
### Web Preview

A web preview function has also appeared in addition to the standard preview. The report can only be viewed this way if it was opened from Cloud.

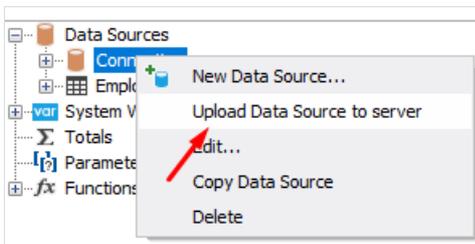


### Connecting to FastReport Cloud data sources

FastReport Cloud can store connections to data sources. From now on, you have the option to add these data sources to your report.



It also became possible to upload the connection to Cloud.



[Read this article to learn more about the new features](#)

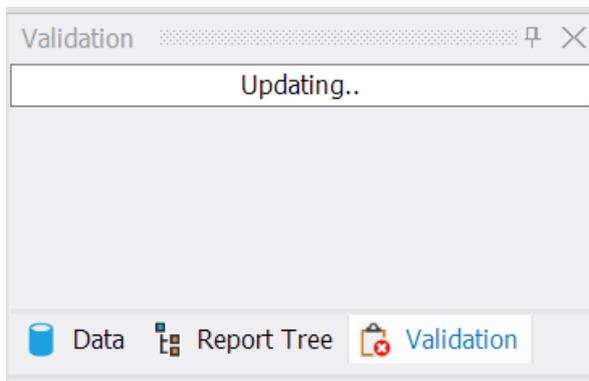
## **.NET 7 support**

We have added [.NET 7](#) support for FastReport.Core and FastReport.CoreWin. This platform improves application performance and adds many new features to your projects.

## **Report validator improvements**

### **Increased work speed**

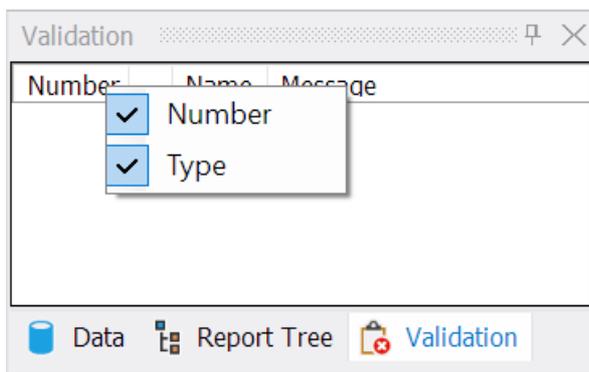
Now the report validator runs in a single thread. The speed of its work is significantly optimized. You can notice the changes in processing reports with a large number of errors. While the validator is checking the report, the check window shows a respective message.



In this case, you can edit the report. A table with errors will appear upon completion of the validator.

### Validator table setup

For convenience, we have added a new column with error numbers. Its display can be enabled or disabled via the table context menu. In the same way, you can customize the display of the error type column.



### JasperReports Template Converter

We have added the option to convert report templates from JasperReports to FastReport .NET templates. JasperReports reports may contain objects that are not supported by the FastReport designer. These objects will not be converted or will be replaced to make the generated report as similar as possible to the one created in JasperReports.

[Read more in the article.](#)

### MSChartObject improvements and fixes

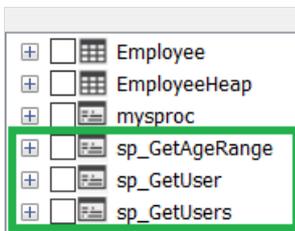
The MSChartObject object has many properties and settings. The most frequently used ones are moved to the object editor. Properties that are not available in the editor can be modified using the Object Inspector. However, there was a problem with these properties — when they were changed, the report was not seen as modified. As a result, saving was not available.

To save the report, it was necessary to change its other property or object. In addition, the values of the specified properties were reset to their default values when preparing a report and after closing the preview window.

This bug has been fixed in the new version.

### Connection to Stored Procedures in MsSQL

We have added the option to connect to procedures stored in MsSQL. This was previously available via a database query. Now you can connect to procedures much more conveniently using the interface of database table connection. They will be displayed in the selection window along with the tables.



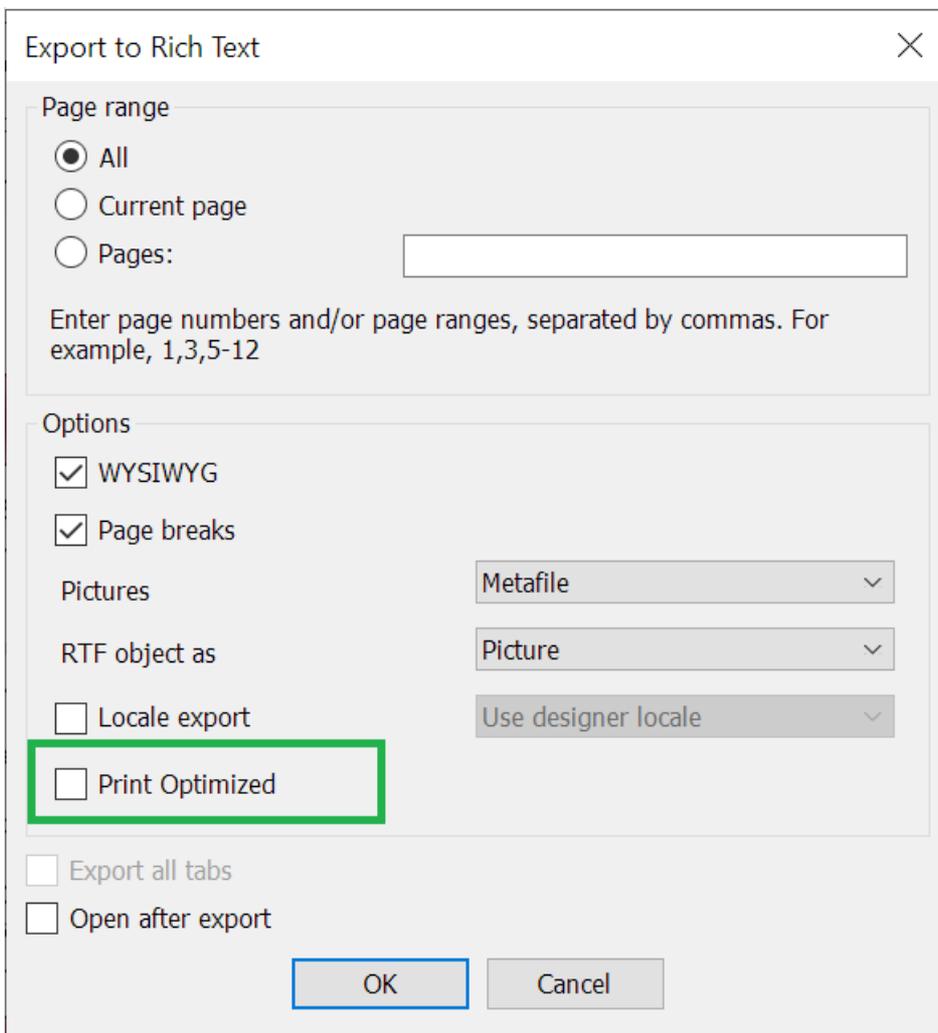
Once you select a procedure, a window with parameter settings, if any, will appear.

[Read more in the article.](#)

## Export Improvements

### "Print Optimized" option in RTF export

We have added a new PrintOptimized property and a corresponding option in the export window. Enabling this option will greatly increase the quality of the exported image. However, the size of the output file will be bigger.



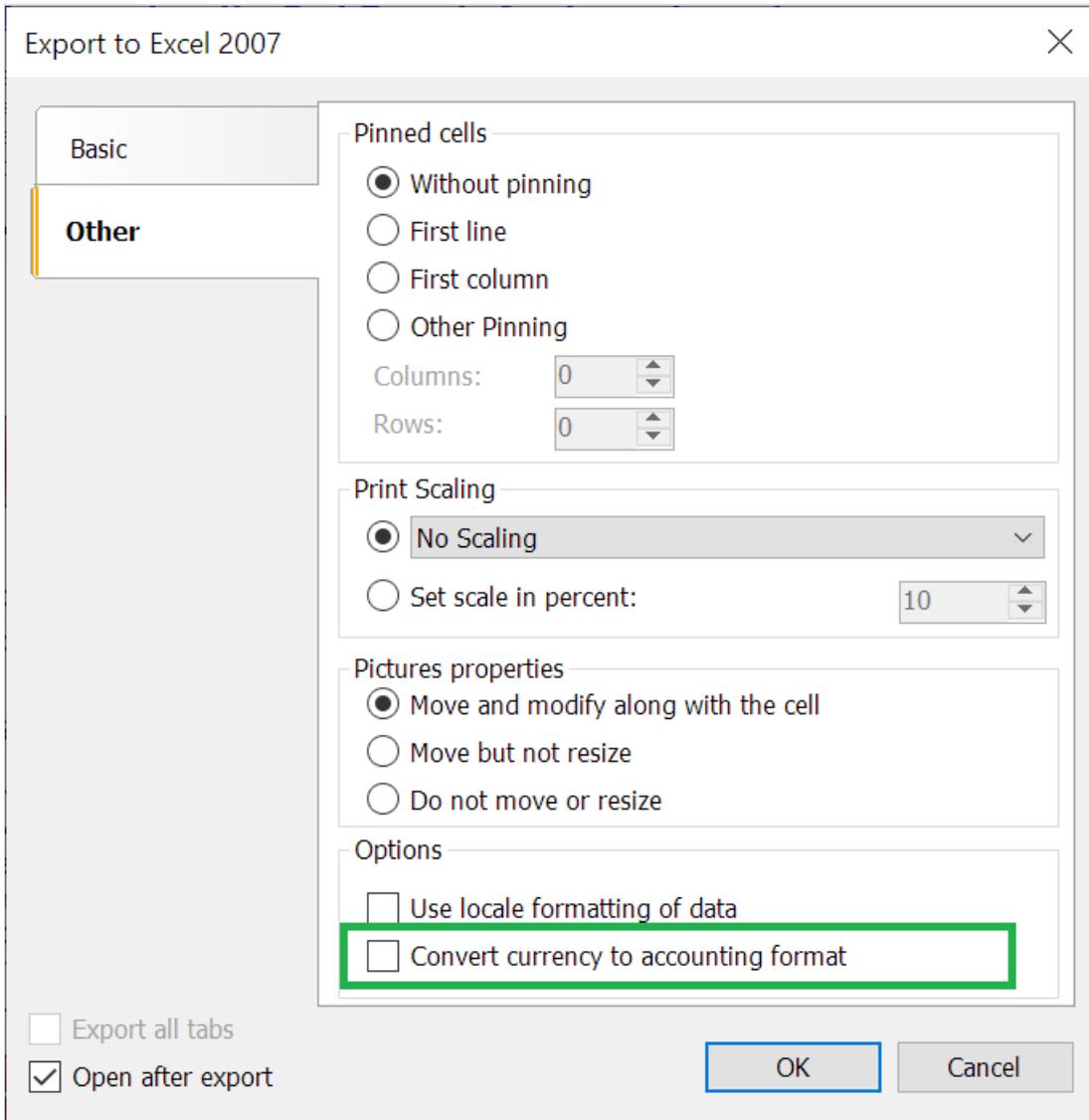
### UseFileStream property in Excel 2007 export

We have added a new option, UseFileStream, for exporting to Excel 2007. It can only be used when exporting from code to a file. This option is useful when exporting reports with a large number of pages (several tens of thousands) in multiple threads. This will help you avoid memory shortage errors. In other cases, it does not make much sense to use it and it is not recommended to do it. Example:

```
Report report = new Report();
Excel2007Export export = new Excel2007Export();
export.UseFileStream = true;
report.Export(export, "report.xlsx");
```

### Accounting format when exporting to Excel 2007

You can now export the currency data format as an accounting format. To do this, a corresponding option has been added in the export window and the CurrencyToAccounting property.

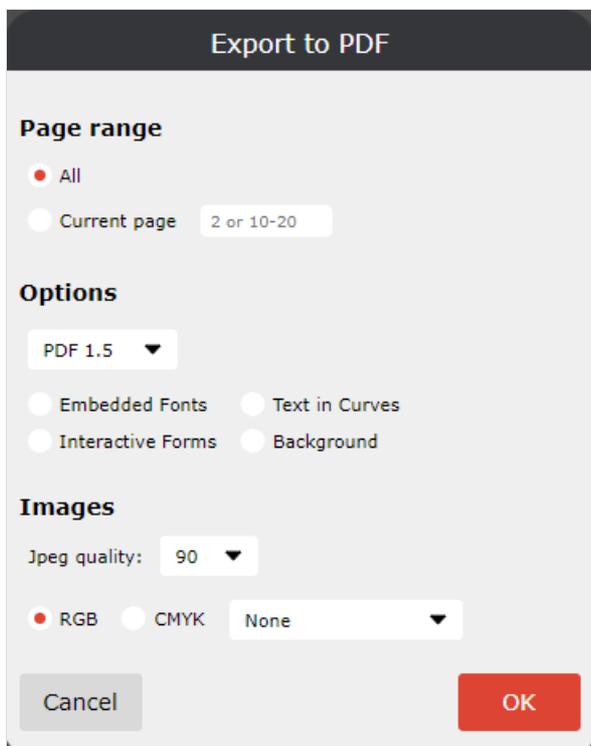


### Update of WebReport Core/Blazor design

The appearance of the toolbar has been changed. The color palette has been changed to lighter, with the toolbar now centered by default.



The forms of export settings have also been changed. Previously, some properties were set using a slider. For greater convenience, these properties are now set as a drop-down list.



We changed the toolbar design, but we kept the possibility of its customization, so it is possible to partially restore the previous design. To do this, use the following settings:

```
var toolbarSettings = new ToolbarSettings
{
    Color = Color.LightGray,
    Roundness = RoundnessEnum.None,
    ContentPosition = ContentPositions.Left,
    IconTransperency = IconTransparencyEnum.None
};

webReport.Toolbar = toolbarSettings;
```

## Upgrading the minimum .NET Framework version from 4.0 to 4.6.2

We are upgrading the minimum supported version of FastReport .NET to .NET Framework 4.6.2 due to the following:

- support for .NET Framework 4.0 has long been ended;
- there are problems with building the FastReport source code in the latest versions of Microsoft Visual Studio;
- the need to implement new APIs.

## Full list of changes

```
[Engine]
+ added property Report.IsPrepared;
+ added TextRenderType.Inline;
+ implemented converter of JasperReports templates;
+ implemented connection to stored procedures in MsSQL;
* increased minimum version of .NET Framework from 4.0 to 4.6.2;
* receiving JSON in the data source is exposed to the interface part;
- fixed a bug leading to System.ArgumentException when TextObject.FontWidthRatio property equal zero;
- fixed highlight of text in RTF parser;
- fixed multiple requests to get image when using URL in ImageLocation;
- fixed IsNull function;
- fixed a bug with drawing RichObject with aligned pictures;
```

- fixed an issue where the calculation of vertical distances was incorrect when converting RichObject to text;
- fixed AdvMatrix object bug with report refresh;
- fixed a bug with getting JSON row of JsonTableDataSource;
- fixed a bug leading to infinite loop when building table if there is not enough space on page for one row;

#### [Designer]

- + added ability to create calculated column for IEnumerable data sources;
- + added window with message about loading a report when opening a file;
- + added column with error numbers in table of report validation;
- + added the ability to hide and show columns with the number and type of error in the report validation table;
- + added notification form when trying to resave report that has already been modified;
- + added ability to show web preview of report that was opened from FastReport Cloud;
- + added ability to interact with data source from Cloud - downloading, uploading, updating;
- \* increased the speed of the report validator;
- \* the delete band button is now disabled in situations where the band cannot be deleted;
- \* changed root folder name on FastReport Cloud form, it depends now on localization;
- \* now there is not possible to create a table in the query wizard if another table with the same name already exists;
- fixed data tree view with IEnumerable data source, which column was not adding, if it consists of value type;
- fixed a bug with localization of the "Remove" button in the report properties on the "Script" tab;
- fixed a bug with selection object after click on row in "Validation" window;
- fixed a bug due to which selected object did not change when changing the height of the band with mouse;
- fixed a problem with System.OverflowException when editing text object without editor;
- fixed a bug causing System.StackOverflowException when copying formatting;
- fixed selection of object located on inactive page when clicking on row in "Validation" window;
- fixed showing progress of updating list of errors in "Validation" window when changing report;
- fixed an error with an invalid value when changing the line color in the MSChartObject editor;
- fixed order of switching by "Tab" key in connection forms;
- fixed a bug where the border properties of the chart axes were not saved when they were changed in the editor;
- fixed incorrect values when changing the interval in the stripes on the axes in MSChartObject;
- fixed an error that occurred when deleting a band through the band configurator if the classic mode for displaying bands is selected;
- fixed an error that occurs when clicking the "Delete" button on the configure bands form if there are no bands in the report;
- fixed an error that occurs when removing bands from the workspace with holding left mouse button;
- fixed restoring state of GridControl when closing column editor form;
- fixed an error that occurs when clicking on the "Cancel" button in the Grid object column editor;
- fixed displaying label about report change when changing MSChartObject;
- fixed moving columns of GridControl in column editor form;
- fixed bugs when dragging objects from the report tree to pages and the "Code" tab;
- fixed errors in the query constructor window when adding a table to the workspace and when creating relationships between tables;

#### [Preview]

- + added tooltip for the "Copy" field in the "Send by E-mail" form;
- fixed display of the print form when increasing the display scaling;
- fixed a bug when new exports did not appear in the menu;
- fixed order of switching by "Tab" key in export forms;
- fixed left indent of RichObject;

#### [Exports]

- + added option "Print optimized" in RTF export;
- + added the ability to export currency data format as accounting in Excel 2007 export;
- + added UseFileStream option for Excel 2007 export;
- \* increased export forms for correct display of inscriptions in different localizations;
- fixed a bug with exporting lines drawn from right to left or from bottom to top when exporting to layered HTML;
- fixed a bug with exporting Tahoma italic font to PDF;
- fixed a bug that resulted in a System.ArgumentException when exporting to a stream with the ImageExport.SeparateFiles property enabled;
- fixed a bug in SVG export where some shapes were drawn twice;
- fixed a bug with the export of the accounting format in Excel 2007, which did not take into account the number of decimal places;

number of decimal places;

- fixed memory leaks in tabular-type exports;
- fixed a bug with temporary file deletion in case of emergency program shutdown during export to PDF;
- fixed a bug with exporting italic and bold fonts to PDF;
- fixed a bug due to which the background of objects with a Solid fill was not printed from the browser;
- fixed a bug with set method of HtmlTemplates.IndexTemplate property;
- fixed export of 4-byte symbols to PDF;
- fixed row height multiplier in export to RTF;
- fixed row height multiplier in table export to Word 2007;
- fixed position of first object on page with non-zero value in export to Word 2007;
- fixed a bug of access to temporary file when exporting to Excel 2007 using the UseFileStream and SplitPages properties;
- fixed a bug with localization of CurrencyToAccounting property in Excel 2007 export;
- fixed navigation buttons and page numbering display in HTML export;
- fixed ascent and descent of font in PDF-export;

#### [WebReport]

- \* reworked WebReport.ReportPrepared property, now this property is bound to the same report's property;
- \* updated WebReport design for FastReport.Core.Web and FastReport.Web.Blazor;
- fixed a rare crash when trying to add an empty data source to WebReport;
- fixed a bug due to which Outline did not work in WebReport.LoadPrepared();
- removed refresh button when loading prepared report (.fpx);
- fixed an issue due to which tabs of RichObject were incorrectly calculated in WebReport;
- removed page selection in export settings for single-page reports;

#### [.Net Core]

- + added support for .NET 7;
- + added LoadReport method with stream instead of filename string for Stimulsoft Import;

#### [CoreWin]

- removed extra components from the Visual Studio toolbar;

#### [Demos]

- \* updated design of demo reports;
- fixed a bug with scaling child windows in new demo application;

#### [Extras]

- + plugin FastReportBGObjects was updated, added support for Bubble chart;
- \* connection to Elasticsearch moved to a separate plugin.

# Version 2022.3

## New features

### Skia support:

FastReport.Core now supports graphics and text rendering using the SkiaSharp library which is used instead of System.Drawing.Common + libgdipplus on Linux systems (but also works on other operating systems).

For this, packages with the .Skia suffix are used:

- FastReport.Core.Skia
- FastReport.Web.Skia

This version has limited support for the .NET Framework and is mainly targeted at .NET Core/.NET projects. To use it in your application, just change the package name FastReport.Core -> FastReport.Core.Skia, and add the following packages to work on Linux (on Windows and macOS, the necessary packages are added automatically):

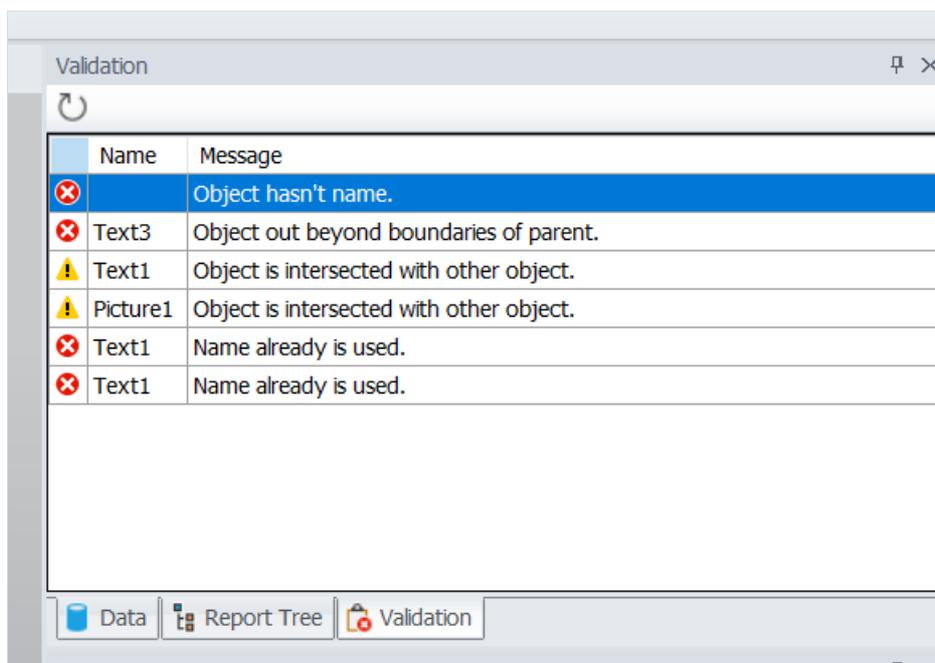
- SkiaSharp.NativeAssets.Linux
- HarfBuzzSharp.NativeAssets.Linux

[Read more about Skia support in the next article.](#)

### Report validator

A "Validation" tab has been added to the report designer (on the right, next to the "Data" and "Report Tree" tabs). Here you can check the report template and get a list of errors and warnings.

All this is displayed in a table with the object name (if there is one) and error description. If you select a row in the table, the corresponding object will be highlighted in the designer.



Errors and warnings can be of the following types: unnamed objects, objects with the same name, overlapping objects, objects with zero height or width, and objects that are partially or completely outside the parent object.

Objects without names and objects with the same name are critical errors. They can lead to various errors and even

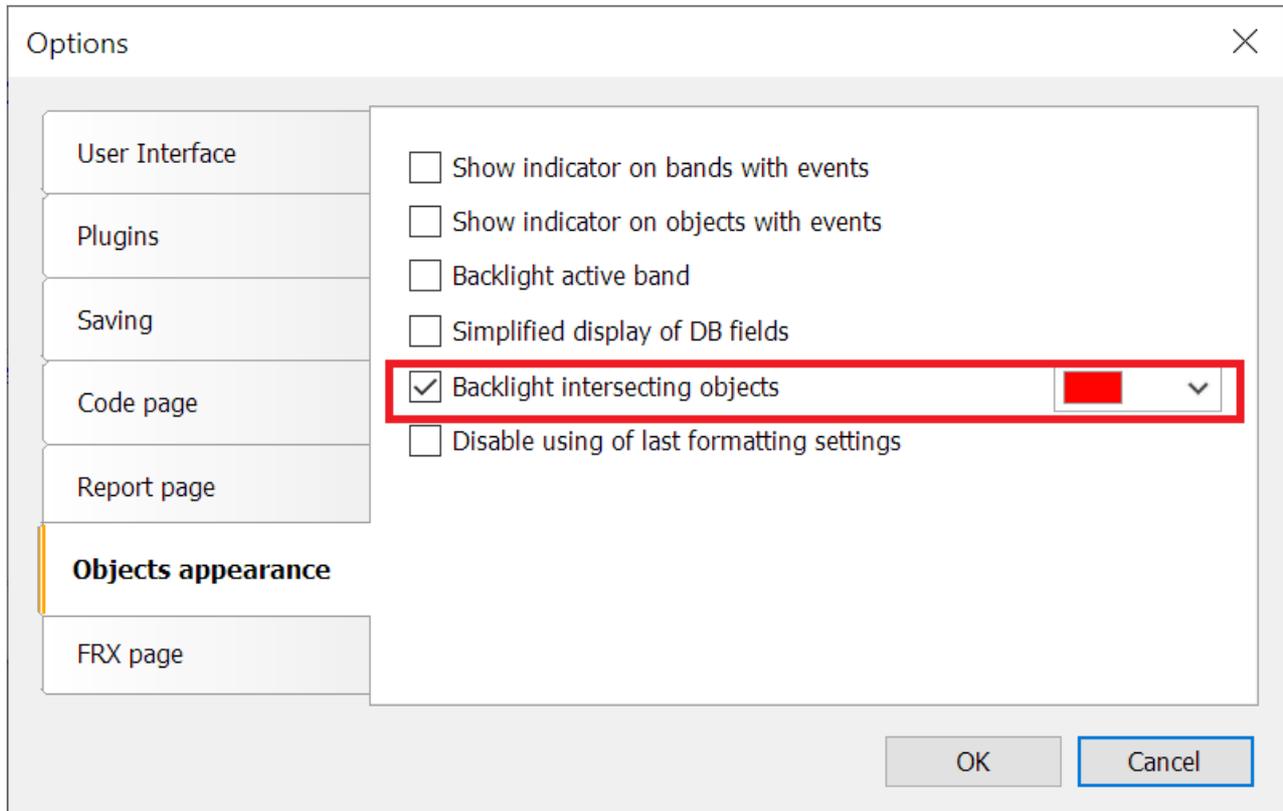
crash the application while preparing a report. Besides, without a validator, these errors are very hard to find.

Intersecting objects is not a serious error. In some cases, they can be useful and used purposefully (e.g., lines or rectangles). Intersecting text objects, in most cases, can lead to incorrect exports. Especially in table exports, such as Excel. The export will result in a lot of extra cells, etc. It is necessary to be careful with such objects.

Objects partially exceeding parent object boundaries (e.g. band or page) can also be useful in rare situations. But in most cases, it causes errors in the preparation and export of the report.

Objects that are completely outside the parent one is a serious error. Finding such objects without a validator is also very hard.

Intersecting objects and objects outside the parent can now be highlighted in color (which you can choose) if the corresponding setting in designer options is enabled.

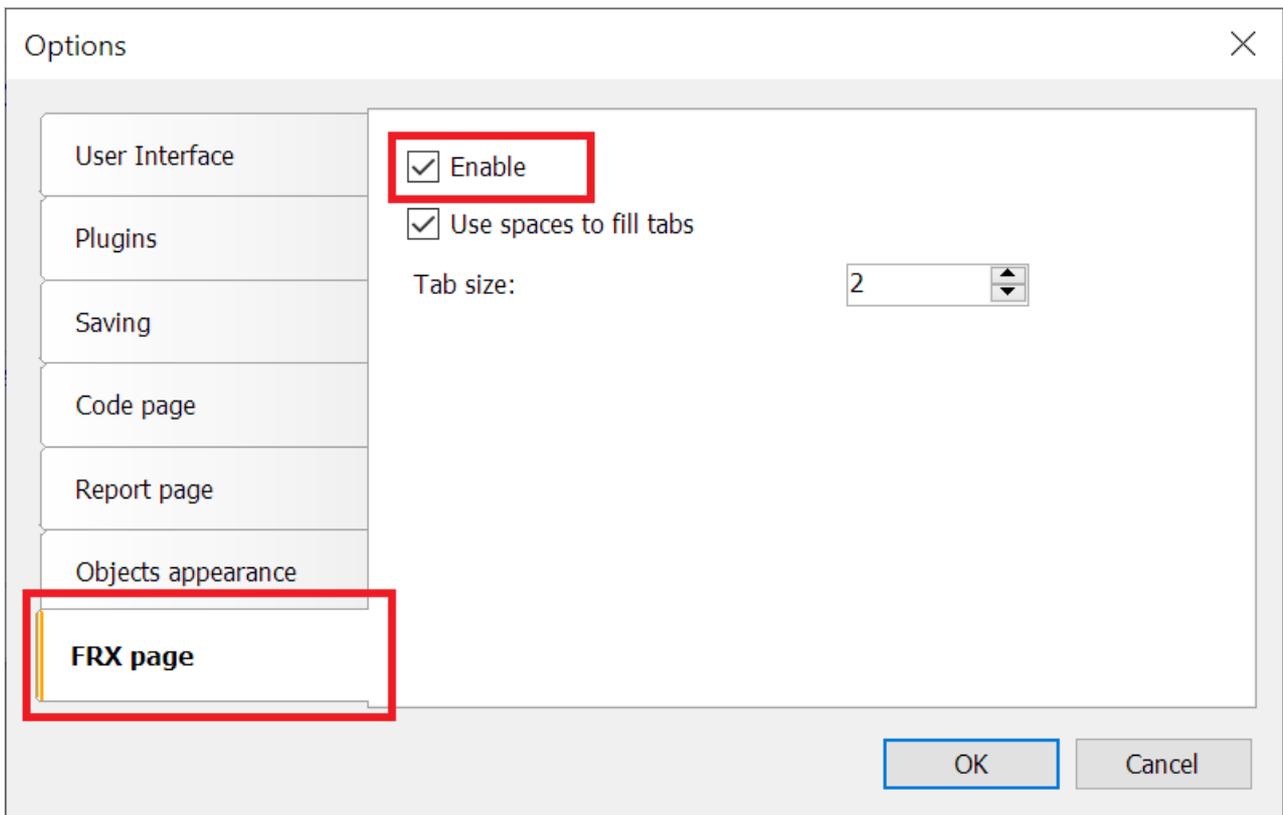


It is not necessary to use report validation. But it can be useful when your report doesn't work or look the way you want it to.

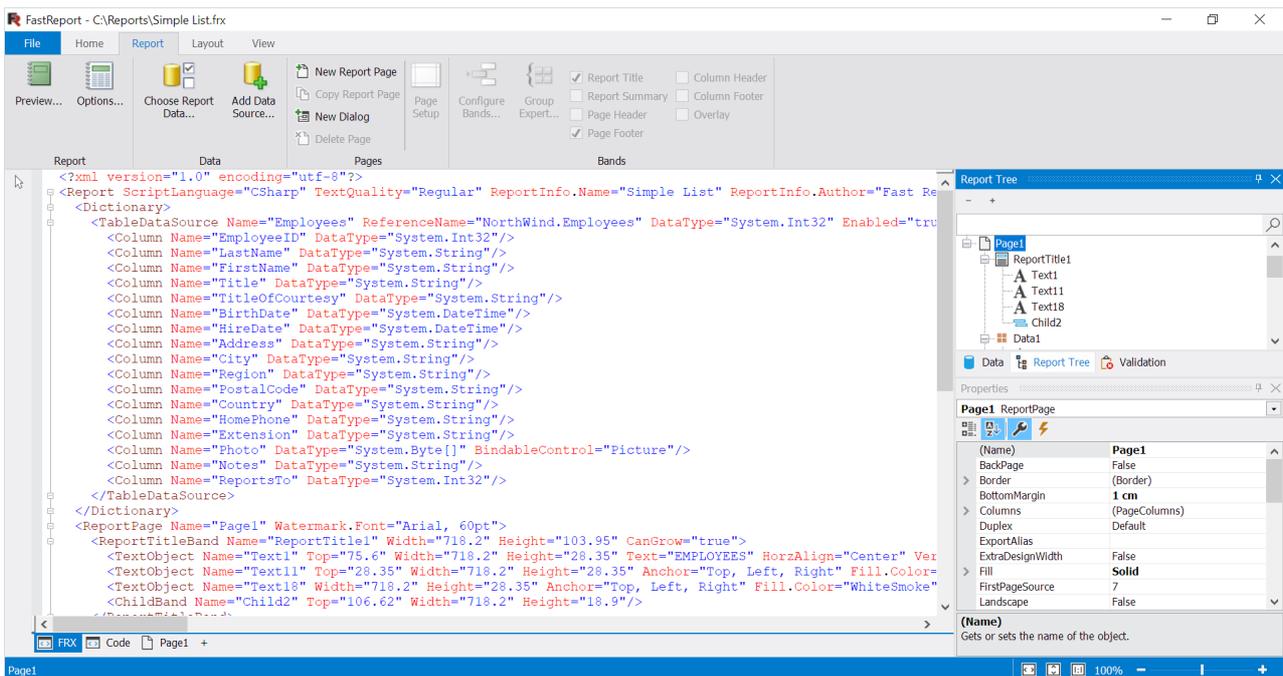
[Read more about report validator in the next article.](#)

### FRX Editor

Sometimes it is necessary to edit the contents of the FRX file using third-party text editors. Now you can do this more conveniently, directly in the report designer. The FRX editor is added for this purpose. By default, it is disabled. You can enable it in the designer options.



In the report designer, the FRX tab will appear to the left of the Code tab.



The changes made here, will be immediately applied to the report and displayed on its pages.

[Read more about the FRX editor in the following article.](#)

### StimulSoft report converter

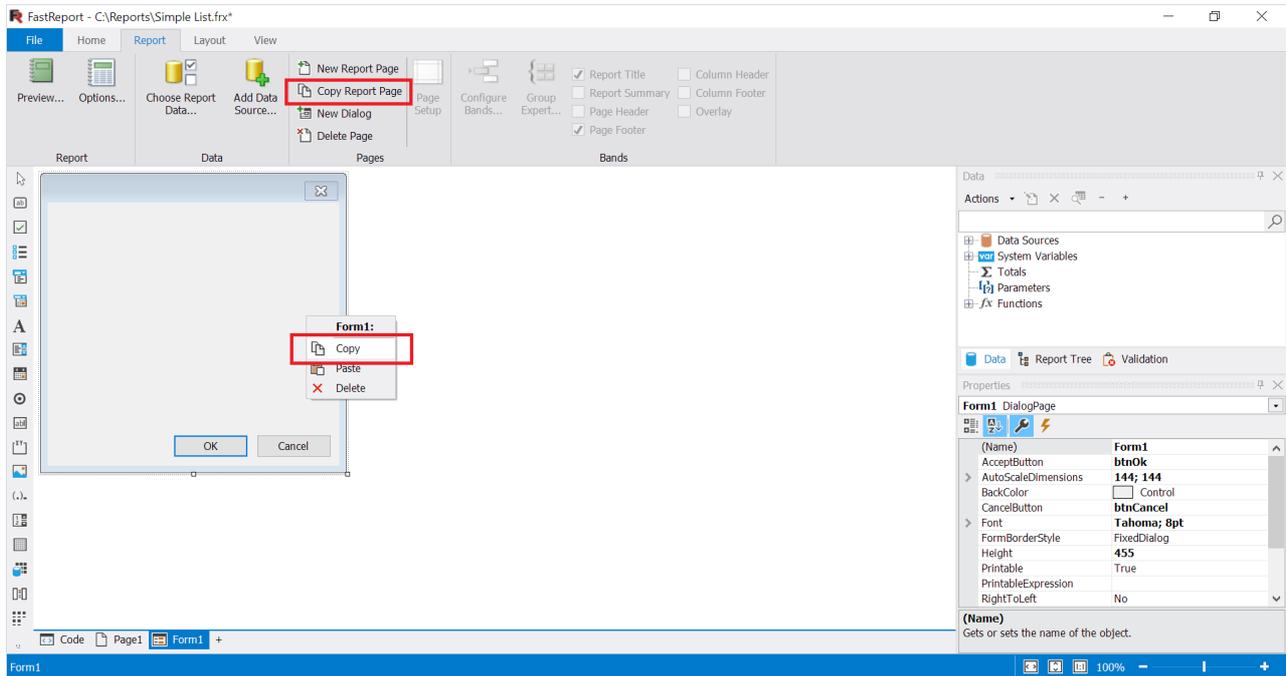
Added the ability to convert report templates from StimulSoft to FastReport .NET templates.

StimulSoft reports may contain implementation objects that are not supported by the FastReport designer. These objects will not be exported or will be replaced by others in such a way that the generated report is as similar as possible to the one created in StimulSoft. It is important to note that the import of cross-bands is implemented by moving their contents to the parent band.

[Read more about converting reports in the article at the following link.](#)

## Copying dialog pages

Added the ability to copy dialog pages. Both using the context menu of the dialog page and using the «Report -> Copy Report Page» button.



Copying creates a copy of the dialog page with a unique name. All child objects will also have unique names. However, the event handlers of the objects will be the same as those of the original page. If necessary, you must create new handlers.

Also now dialog pages can be deleted not only with the «Report -> Delete Page» button, but also via the context menu in the form editor and report tree.

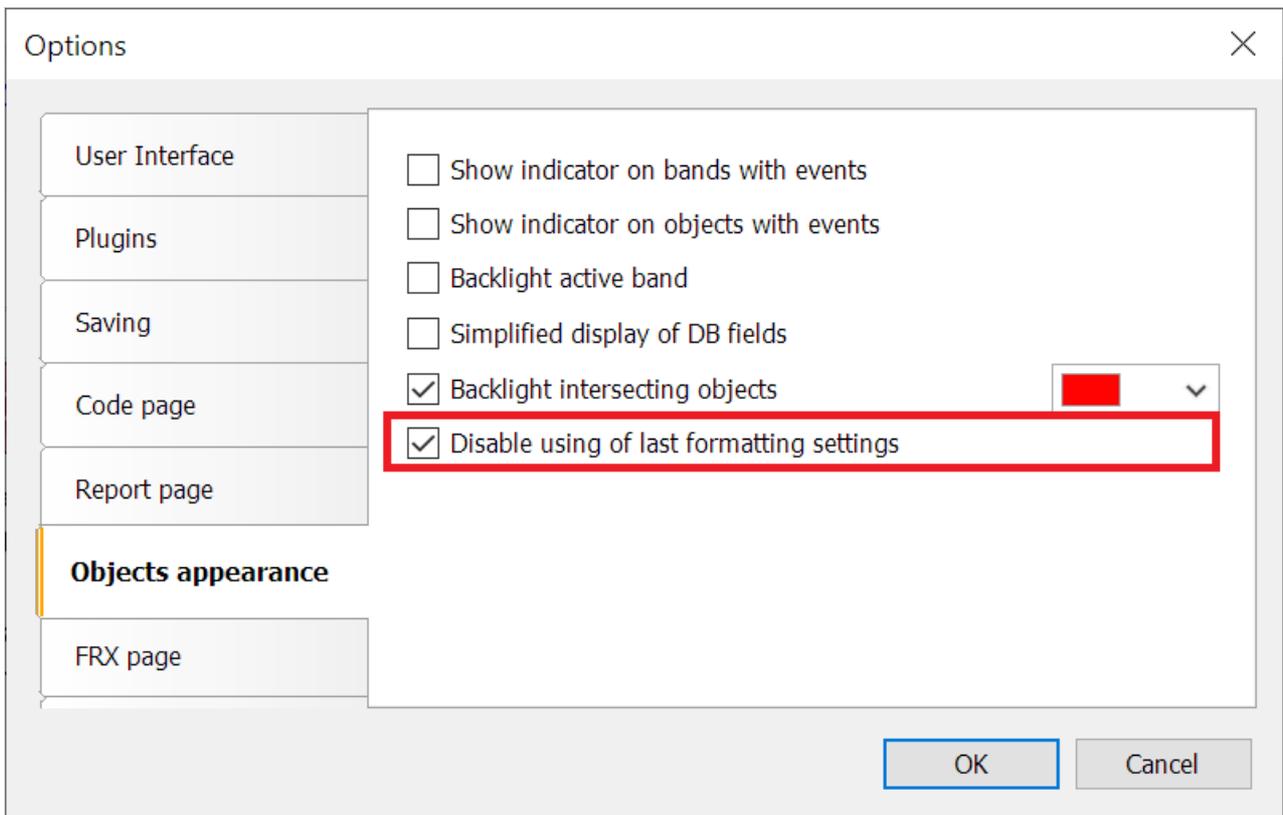
## Disabling last formatting settings

When creating an object in the designer, its settings will be applied to the next created object of the same type.

For example, if you create a text object, set its font size, borders, fill color, the next text object will be created with the same settings.

This is useful when you need to create several objects with the same or similar settings.

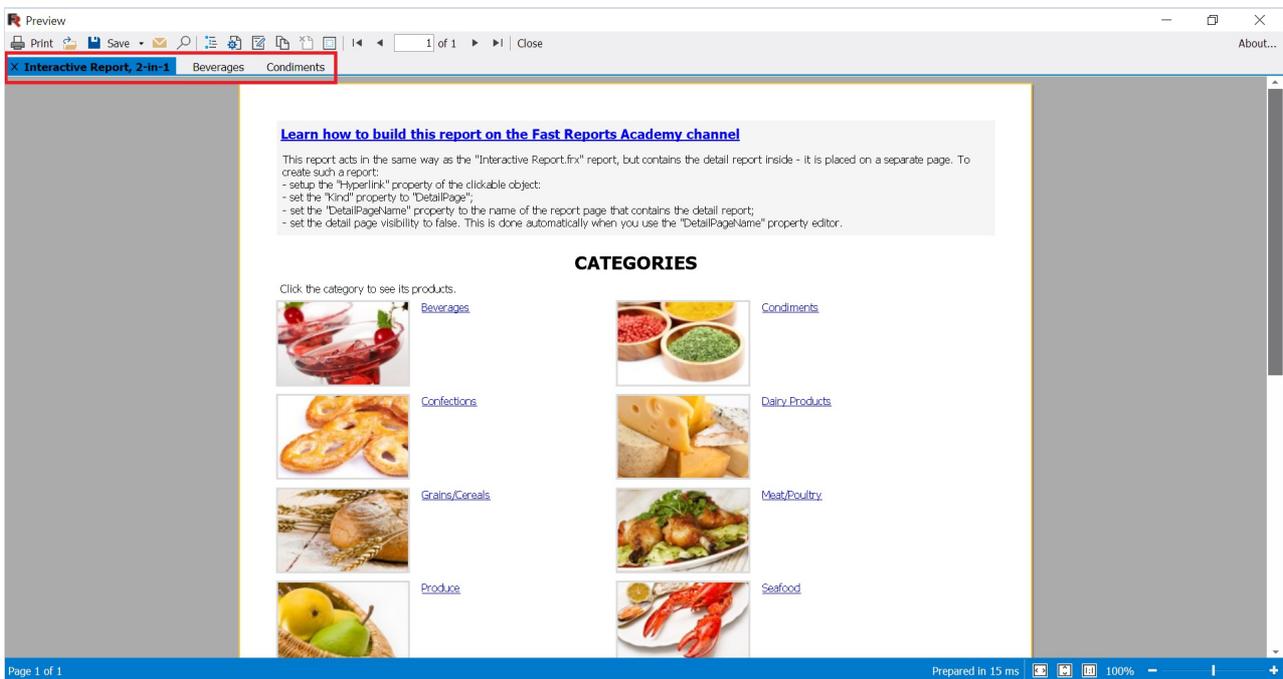
In situations when you don't need this designer behavior you can disable it in options.



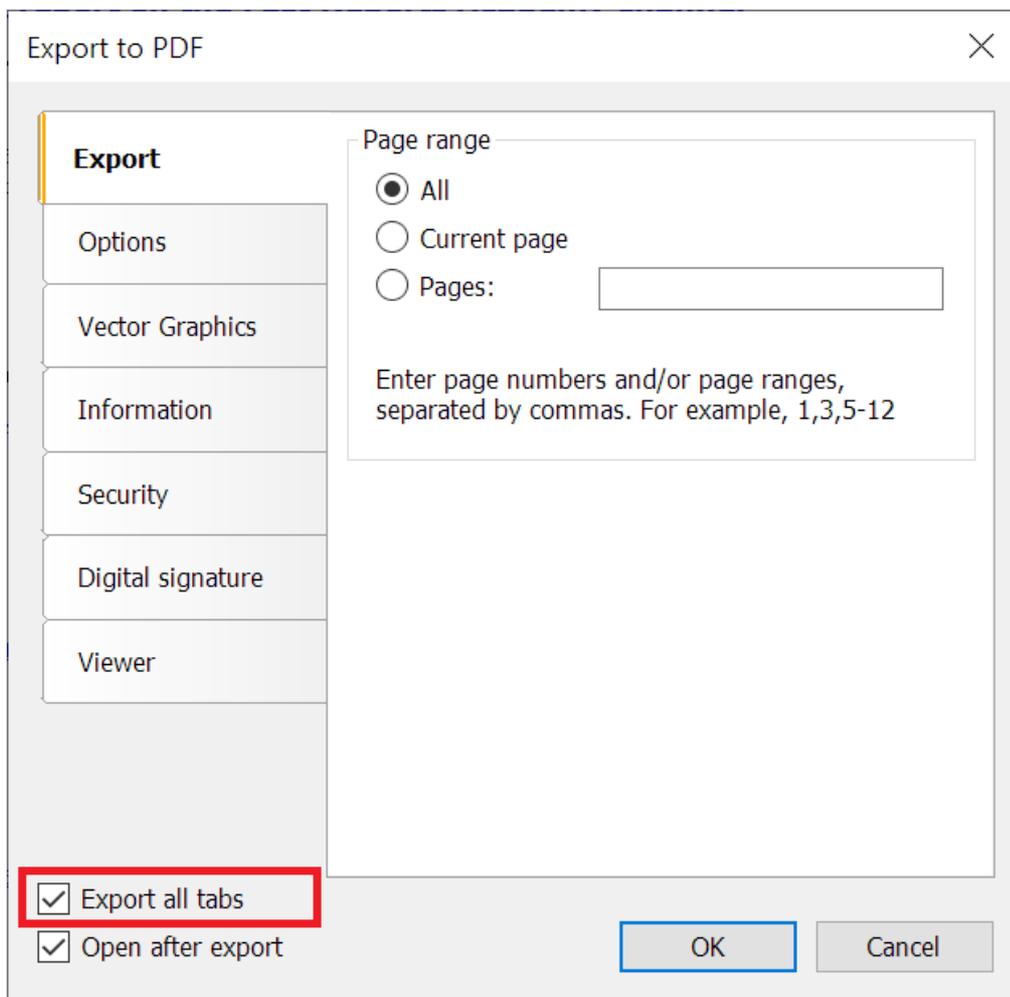
This will create objects with default settings.

### Export all tabs

When viewing interactive reports, you can open detailed reports in new tabs.



You can see three open tabs here. Previously, only the active tab was exported. Now you can export all tabs to one file using the new "Export all tabs" option.



### Detailed description of referenced assemblies and installed plugins

Now when you hover your mouse over a dll in the plugins list (Options -> Plugins) and in the list of links to builds (Report -> Options -> Script), detailed information with description, version, size, creation date, etc. is displayed.

## Exports improvements

### PDF export improvements:

Linux version:

- support for complex languages (Arabic, Hebrew etc.) in Skia version;

All version:

- support for Font Fallback (automatic font selection mechanism for displaying characters that are not supported by the current font);



- accurate positioning of special characters such as vowels and accents;

### UseFileStream property in PDF export

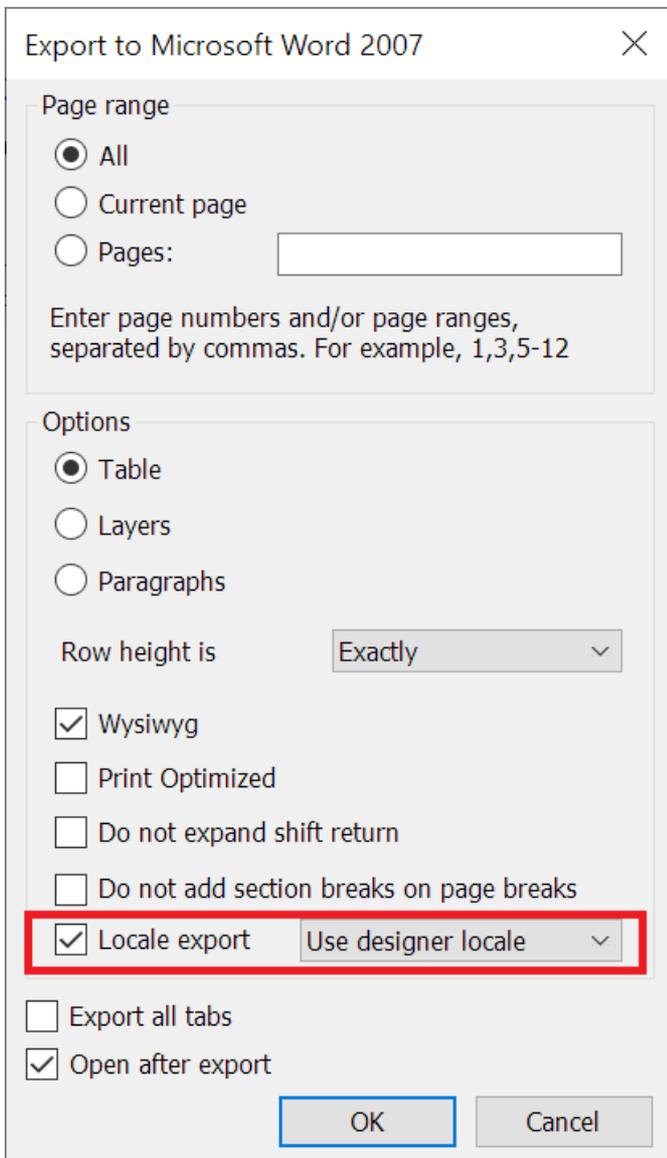
A new UseFileStream option has been added for PDF export. It can only be used when exporting from code to file. This option is useful when exporting reports with a large number of pages (several tens of thousands) in multiple threads. It allows you to avoid memory shortage errors. In other cases, it does not make much sense to use it.

Example:

```
Report report = new Report();
PDFExport export = new PDFExport();
export.UseFileStream = true;
report.Export(export, "report.pdf");
```

## Export of locale in Word, PowerPoint, Rich Text, OpenOffice Write and OpenOffice Calc exports

You can now select the language of the document in these exports. By default the language selected in the designer is used.



The screenshot shows a dialog box titled "Export to Microsoft Word 2007". It has a close button (X) in the top right corner. The dialog is divided into two main sections: "Page range" and "Options".

**Page range section:**

- All
- Current page
- Pages:

Below the radio buttons, there is a text instruction: "Enter page numbers and/or page ranges, separated by commas. For example, 1,3,5-12".

**Options section:**

- Table
- Layers
- Paragraphs
- Row height is:
- Wysiwyg
- Print Optimized
- Do not expand shift return
- Do not add section breaks on page breaks
- Locale export
- Export all tabs
- Open after export

At the bottom of the dialog, there are two buttons: "OK" and "Cancel".

Also added option "Show Gridlines" when exporting to Excel 2007.

## Complete list of changes

### [Engine]

- implemented converter reports of StimulSoft;
- added changing name of JSON data source in expressions when it's renamed;

- added converting of PaperSize property when converting reports from StimulSoft;
- added checking existence of referenced assembly when converting reports from StimulSoft;
- added PrintOnParent property to Table and Matrix objects;
- added loading of report parameters when converting reports from RDL;
- added loading of subreports when converting reports from RDL;
- added the feature to store JSON connection data using the StoreData property;
- optimized speed in reports containing large amount of objects;
- changed exception text when calculating and formatting expression if e.InnerException is null;
- when loading RDL report, page width will be equal section width in case when there is no page width;
- fixed length calculation encoding DataMatrix C40 and text;
- handled System.ComponentModel.Win32Exception when printing with disabled Print Spooler;
- fixed hide border of picture when printing with auto size;
- fixed stack overflow error when prepare report with child band of page footer and then start new page option enabled for it;
- fixed a bug with not passing path of base report to current one in Unix OS;
- fixed a bug with creating subreport and page with the same name when converting reports from StimulSoft;
- fixed a bug with invalid names when converting reports from StimulSoft;
- fixed a bug with TotalPages in Page.VisibleExpression that causes an exception when double pass is disabled;
- fixed a bug when band can grow out of page;
- fixed a bug when objects can grow out of band or ContainerObject;
- fixed "back indent" feature in RTF translator;
- fixed RichText line spacing when RTF translated to report objects;
- fixed an error with ConnectionString property in JsonDataSourceConnectionStringBuilder class when value was without a request headers;

#### **[Designer]**

- added the report validator that helps to find invalid objects (duplicate names, negative sizes, etc.);
- added editor for RichObject.Text property;
- added FRX editor in report designer;
- added detailed description of referenced assemblies and installed plugins;
- added the ability to copy dialog pages;
- added the ability to delete dialog pages using the context menu;
- added ability to disable using of last formatting options when creating objects;
- added integration with FastReport.Id;
- added call to online-documentation in the report designer;
- added wizard for visualization of control identification signs;
- add tooltip about right and bottom indents for guides and objects in designer;
- added ability to select color of backlight intersecting objects in designer;
- added possibility to connect bases of Access 2007;
- changed the look of ElasticSearch connection editor form;
- changed the text fields in CISWizardForm with units to text fields that only support numbers;
- fixed a bug leading to System.NullReferenceException when creating calculated column for subtable JSON;
- fixed a bug leading to System.FormatException when drawing labels of maps;
- fixed a bug leading to the System.NullReferenceException when clicking the "Paste" button in the context menu of dialog pages;
- fixed a bug with scaling zoom controls of designer in HiDPI mode when run from old demo application;
- fixed opening form of save changes after save all report;
- fixed unscalable items in welcome window;
- fixed backlighting intersected charts;
- fixed exception on rename JSON table;

- fixed UpdateStatusBar in DialogWorkspace;
- fixed a bug with localization of "Account..." button in menu "File";
- fixed canceling selection of object if its properties are changed;
- fixed a bug when switching to the "Code" page did not occur after adding an event handler;

#### **[Preview]**

- implemented export of all open tabs;
- fixed a bug leading to System.NullReferenceException when preparing report with RichObject on system without printers;
- fixed a bug in the MSChart object in HiDPI mode;

#### **[Exports]**

- added export of locale in Word, PowerPoint, Rich Text, OpenOffice Write and OpenOffice Calc exports;
- added encryption of the password of the digital signature certificate in PDF-export when it is saved;
- added option "Show gridlines" when exporting to Excel 2007;
- added data types export to DBF;
- added a new property to the SVG export PrefixStyle, which allows you to set a prefix for all styles inside the SVG export;
- added option "Use locale formatting of data" when exporting to Excel 2007;
- added PDFExport.UseFileStream property, which allows to export huge reports on systems with low amount of RAM without System.OutOfMemoryException;
- set UTF-8 as default encoding in DBF export;
- fixed incorrect scaling pictures in layered HTML-export when enabled high quality SVG and zoom more than 1;
- fixed a bug leading to System.IndexOutOfRangeException when exporting font without kerning to PDF;
- fixed a bug with scaling picture in layered HTML-export;
- fixed a bug leading to System.NullReferenceException when exporting report with empty page to Word 2007;
- fixed memory leak in PDF export with some CJK fonts;
- fixed a bug when SVG picture was not rotated to needed angle in HTML/Blazor export;
- fixed repeated rendering of table cell in SVG export;
- fixed incorrect pageStyle when printing from browser for table HTML export;
- fixed exception when export object with negative size in HTML export;
- fixed export to pdf if Compressed = false;
- fixed incorrect record of border-collapse property in table HTML-export;
- fixed a bug in Excel-export, when the fill in the output file did not change the first time;
- fixed export of watermark to PostScript;
- fixed error of font scale when export to PDF;
- fixed a bug where a text object with HtmlTags exported to RTF was not modified by the

, tags;

#### **[WebReport]**

- onlineDesigner properties are moved to webReport.Designer with backwards compatibility;

- fixed a bug when event "CheckedChanged" handled by RadioButton was not performed;
- fixed incorrect scaling of Dialog components in Blazor;
- fixed a bug with incorrect font size in Excel export;
- fixed a bug in Blazor when font of text object with property TextRenderType = HtmlParagraph was always default;

#### **[.NET Core]**

- fixed incorrect search for public-methods in report script;
- fixed problem of creating a fontlist file on Azure;

#### **[CoreWin]**

- fixed behavior of WinForms components in Toolbox for Visual Studio (Design-Time);
- fixed incorrect launch of the browser when clicking on links in CoreWin;
- for FastReport.CoreWin, reports with a script that use the WinForms API have been fixed;

#### **[Demos]**

- added the ability to change the localization of a new demo application without restarting it;
- added demo on React with FastReport.Core;
  
- fixed position of one chart in Chart.frx;

#### **[Plugins]**

- [implemented connection to Cassandra](#);
  
- updated RPTImportPlugin;

#### **[Extras]**

- added FastReport.Web (only for .NET Framework) and FastReport.VSDesign libraries for FastReport.Net\* packages;
- added an option to import reports using streams;

#### **[Service]**

- fixed incorrect version of FastReport.Compat in FastReport.Net packages.

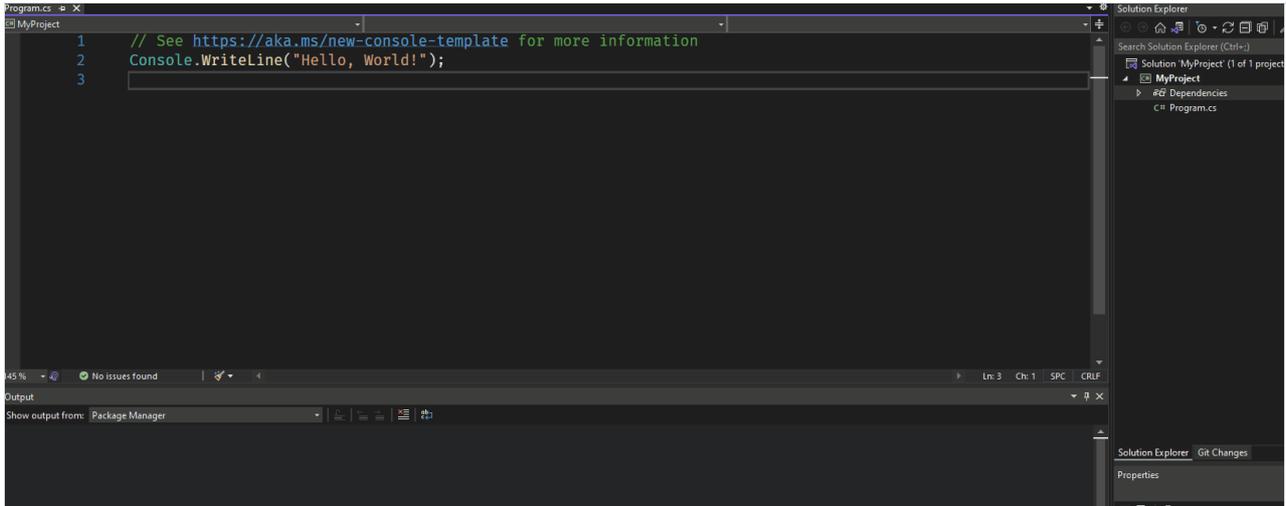
# Version 2022.2

## New features

### Fast Reports NuGet-server

We recently launched our own NuGet-server - a repository of licensed Fast Reports products for users. Now you can conveniently download the latest versions of our components on any operating system.

[More details in article.](#)



### Added support for interactivity of the "Advanced Matrix" object in WebReport:

All WebReports (.NET Framework, .NET Core, Blazor Server) now have interactivity support for the new Advanced Matrix. The collapse and sort buttons now work correctly in the browser.

Demonstrates the following AdvMatrixObject features:

- adjacent column groups;
- TopN group;
- collapse/expand header elements;
- interactive sort;
- stepped layout of row groups;
- change sort order of Category element by external sort button;
- use of matrix.ItemCount property to display number of items inside the collapsible elements.

### PRODUCT SALES BY EMPLOYEES AND CUSTOMERS

Sort Category: ▲

	Employees									Top 5 customers		Total
	Anne Dodsworth	Michael Suyama	Steven Buchanan	Laura Callahan	Janet Leverling	Nancy Davolio	Robert King	Margaret Peacock	Andrew Fuller	Total	Others (94)	
▶ Beverages (12)	\$19 642,56	\$11 538,20	\$30 998,53	\$23 297,85	\$45 297,41	\$46 725,36	\$66 404,83	\$52 324,21	\$40 463,25	\$144 007,88	\$192 684,30	<b>\$336 692,18</b>
▶ Condiments (12)	\$10 125,55	\$6 208,47	\$4 115,30	\$46 437,66	\$14 581,64	\$17 027,56	\$9 731,38	\$24 634,87	\$96 210,67	\$123 407,20	\$105 665,89	<b>\$229 073,09</b>
▶ Confections (13)	\$8 053,16	\$6 940,63	\$4 809,80	\$21 699,91	\$33 622,40	\$28 568,92	\$14 518,99	\$27 768,73	\$21 455,69	\$54 823,13	\$112 615,09	<b>\$167 438,23</b>
▶ Dairy Products (10)	\$21 101,13	\$17 039,04	\$21 769,63	\$56 269,47	\$32 320,84	\$36 022,98	\$27 621,86	\$33 549,80	\$23 812,55	\$103 074,28	\$166 433,01	<b>\$269 507,29</b>
▶ Grains/Cereals (7)	\$1 245,30	\$9 410,70	\$4 027,56	\$11 072,05	\$21 235,01	\$8 465,91	\$6 535,50	\$22 579,61	\$11 172,95	\$31 368,01	\$64 376,58	<b>\$95 744,59</b>
▶ Meat/Poultry (5)	\$8 676,66	\$9 003,69	\$11 488,20	\$16 395,28	\$20 502,62	\$15 038,47	\$101 176,72	\$70 867,14	\$129 873,60	\$269 495,38	\$113 526,98	<b>\$383 022,36</b>
▶ Produce (5)	\$314,81	\$11 560,71	\$18 734,02	\$12 016,52	\$11 960,85	\$32 206,25	\$10 753,38	\$17 186,56	\$24 376,48	\$67 154,22	\$71 955,36	<b>\$139 109,58</b>
▶ Seafood (12)	\$8 148,91	\$5 940,71	\$5 744,25	\$12 041,54	\$25 032,10	\$24 206,16	\$7 146,59	\$27 315,93	\$15 747,57	\$31 732,55	\$99 591,19	<b>\$131 323,74</b>
<b>Total</b>	<b>\$77 308,07</b>	<b>\$77 642,13</b>	<b>\$101 687,28</b>	<b>\$199 230,28</b>	<b>\$204 552,84</b>	<b>\$208 261,60</b>	<b>\$243 889,24</b>	<b>\$276 226,85</b>	<b>\$363 112,76</b>	<b>\$825 062,63</b>	<b>\$926 848,41</b>	<b>\$1 751 911,04</b>

Generated by FastReport .NET

### Ability to save the report with random data

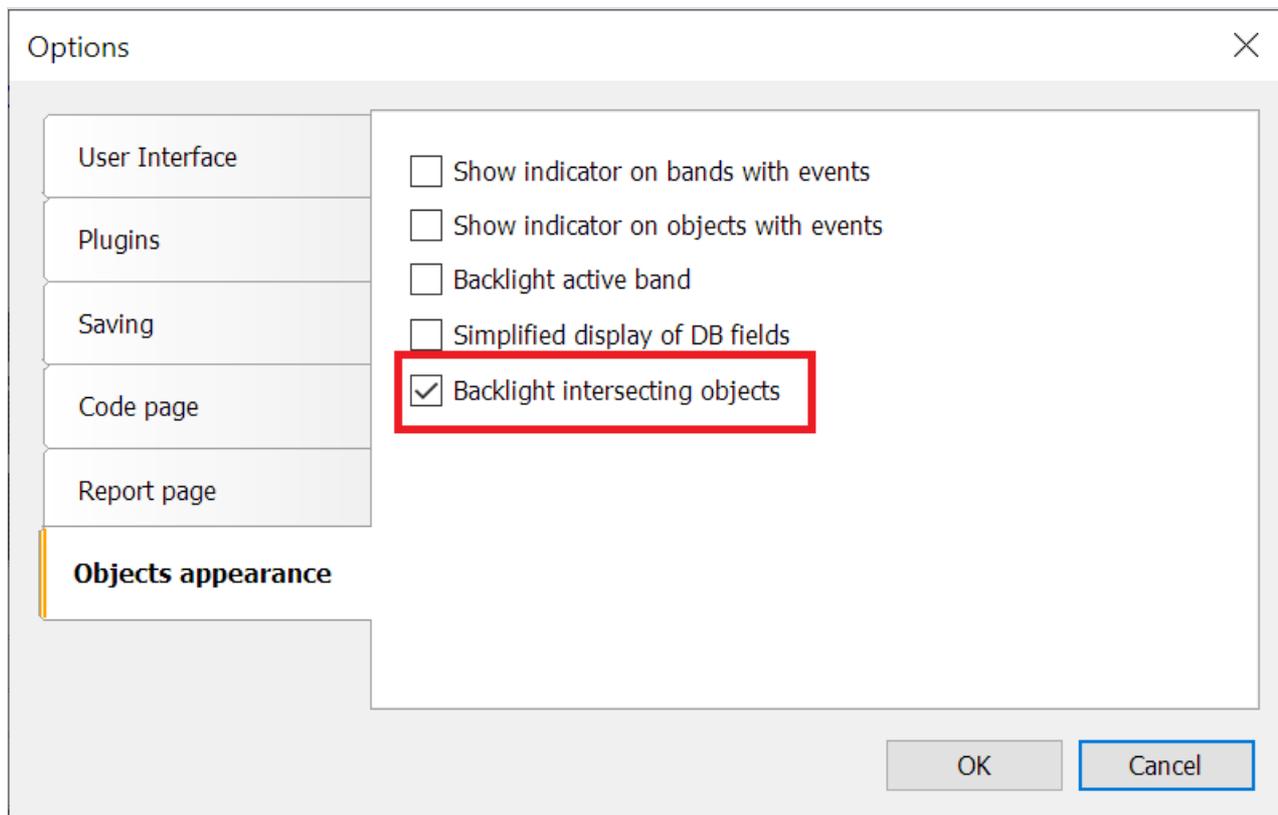
The file menu in the report designer has a new item "Save with random data...". When you save the report in this way, all data sources will be saved in the report and the data in them will be replaced with random values.

### Backlight of intersecting objects in the designer

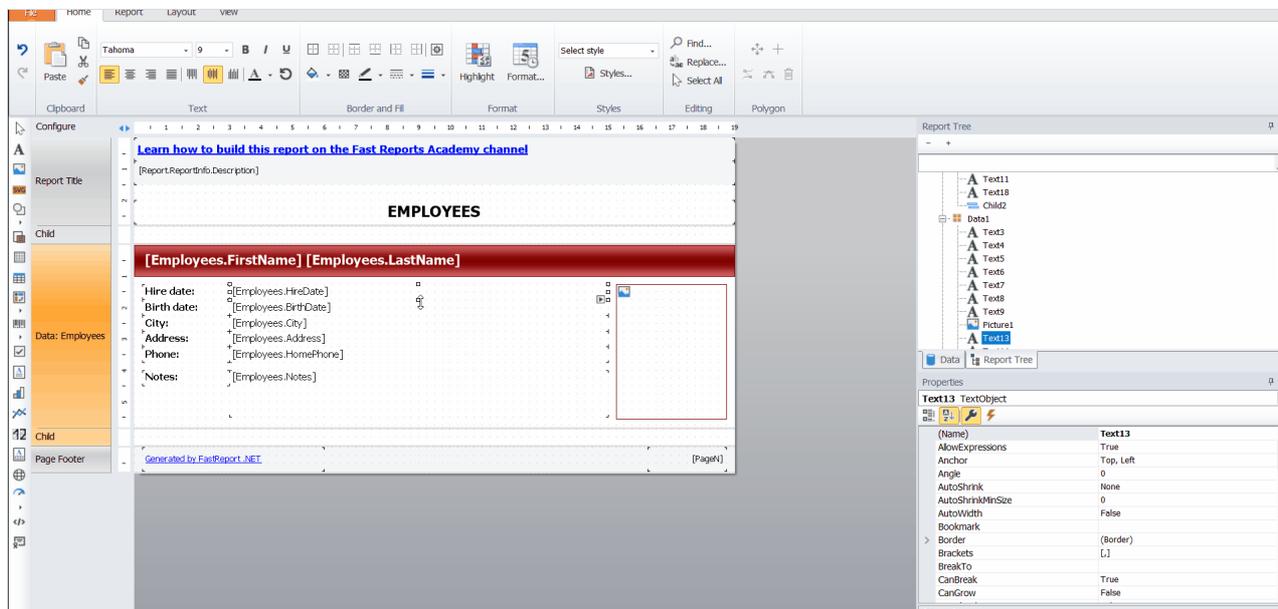
Now, when you place objects on the report page, the color will highlight the intersecting objects and objects

outside of bands and page. In a correct report, there should not be such objects. Ignoring to comply with this recommendation, can lead to a number of problems in the preparation and exporting of reports. By default, this option is disabled.

You can enable it in the designer settings (menu File->Options).



Backlight demo below:



### Ruler with guides in the RichObject editor

The new tool allows you to conveniently adjust indentation and tab positions when editing RichObject. [Read more in article.](#)

### A console RTF conversion utility has been added

With it, you can conveniently convert RTF files into report templates.

## Ability to use XLSX files as data sources

You can now retrieve data from Excel 2007 files as from a database and use it in a report.

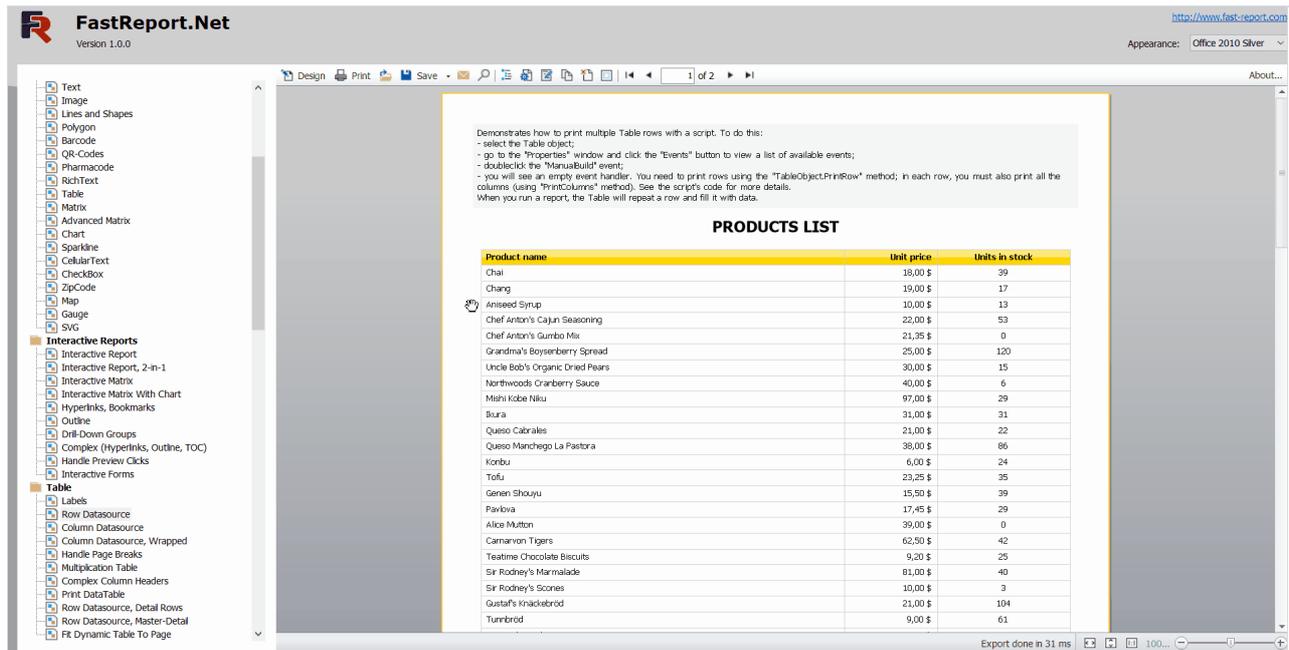
[Read more in article.](#)

## Exports Improvements

### "Pinned cells" option when exporting to Excel 2007

This feature, allows you to define an area of the sheet that will always be visible when you scroll. You can lock: the first row, the first column, a certain number of rows and columns.

The settings look like this:



And the this option works is:

Product name	Unit price	Units in stock																
Chai	18,00 \$	39																
Chang	19,00 \$	17																
Aniseed Syrup	10,00 \$	13																
Chef Anton's Cajun Seasoning	22,00 \$	53																
Chef Anton's Gumbo Mix	21,35 \$	0																
Grandma's Boysenberry Spread	25,00 \$	120																
Uncle Bob's Organic Dried Pears	30,00 \$	15																
Northwoods Cranberry Sauce	40,00 \$	6																
Mishi Kobe Niku	97,00 \$	29																
Sura	31,00 \$	31																
Queso Cabrales	21,00 \$	22																
Queso Manchego La Pastora	38,00 \$	86																
Konbu	6,00 \$	24																
Tofu	23,25 \$	35																
Genen Shouyu	15,50 \$	39																
Pavlova	17,45 \$	29																
Alice Mutton	39,00 \$	0																
Carnarvon Tigers	62,50 \$	42																
Teatime Chocolate Biscuits	9,20 \$	25																
Sir Rodney's Marmalade	81,00 \$	40																
Sir Rodney's Scones	10,00 \$	3																
Gustaf's Knackebrod	21,00 \$	104																
Tunnbröd	9,00 \$	61																
Guaraná Fantástico	4,50 \$	20																
NuNuCa Nuß-Nougat-Creme	14,00 \$	76																
Gumbär Gummibärchen	31,23 \$	15																
Schoggi Schokolade	43,90 \$	49																
Rössle Sauerkraut	45,60 \$	26																

### ZPL II support when exporting to ZPL

### "High quality SVG" option in HTML export

With this setting enabled, the quality of SVG images will be significantly higher when exporting. Note, however, that the amount of memory occupied will also be higher.

### Added export of bookmarks and internal links into Word

## Implemented export tab character width in PDF, Word, HTML and RTF

## New PrefixStyle property in SVG export

This property allows you to set a prefix for all styles when exporting to SVG.

## Added export of number and date formats in Excel 97

## Export of tab character width in PDF, Word, HTML and RTF

# Complete list of changes

### [Engine]

- added ability to save report with random data;
- the ExportBand method now uses the BandBase argument instead of Base;
- fixed bugs with double calling events AfterData, BeforePrint and AfterPrint of ContainerObject;
- fixed a bug leading to System.NullReferenceException when running reports with dialog forms;
- fixed a bug with not working VisibleExpression property of subreports and pages;
- fixed a bug with vertical shift of non-intersecting objects when converting RTF;
- fixed a bug with right anchor on pages with unlimited width and landscape orientation;
- fixed translation of lists when converting RTF;
- fixed a bug with not working RichObject.AllowExpressions property;
- fixed a bug leading to System.OverflowException when drawing unlimited page without preparing;

### [Designer]

- added backlight of intersecting objects;
- added ruler with guides in RichObject editor;
- replaced password symbols on dots in object inspector;
- added warning about possible stack overflow when putting Matrix or AdvMatrix on repeated bands;
- removed error message when text of barcode consist expression;
- fixed a bug with disable hot keys option;
- fixed dropdown menu when click on LineStyle and LineWidth button;
- fixed a bug with viewing data in designer;
- fixed bugs leading to System.NullReferenceException when dragging objects into AdvMatrix;
- fixed a bug with incorrect showing settings of shadow in border editor;

### [Preview]

- fixed a bug leading to System.NullReferenceException when clicking on editable TextObject;
- fixed a bug with not working hyperlinks in report with multi-column databands;
- fixed a bug when exporting a report resulted to saving the prepared report;
- fixed a bug with setting lists of available exports and exports to clouds in PreviewControl;

### [Exports]

- added export to ZPL II;
- added option "High Quality SVG" in export to HTML;
- added option "Pinned cells" in export to Excel 2007;
- added ability to scale print in export to Excel 2007;
- added export of bookmarks and inner hyperlinks to Word;
- added export of numbers and dates format to Excel 97;
- added encryption of personal data in Email-export;
- added indent of RichObject in export to RTF;
- added line break of RichObject in export to RTF;
- added indent of TextObject when exporting to Word;
- added export of tab width in PDF, Word, HTML and RTF exports;

- added property PrefixStyle to SVG-export, which allows to set a prefix for all styles;
- improved export of RichObject to Excel 2007;
- removed FastReport Cloud and XMPP exports;
- fixed incorrect rotation of landscape orientation of pages when printing HTML if they used styles from previous pages;
- fixed a bug with font scale when export to PDF;
- fixed a memory lose when export SVG objects to HTML with option "High Quality SVG";
- fixed a bug with embedding fonts for which packing is prohibited in PDF-export;
- fixed a bug with exporting tab symbols to Word;
- fixed fill background picture and property of line-height in export to HTML;
- fixed a bug with exporting custom dash line of SVGObject to PDF;
- fixed a bug with exporting borders of spanned cells to SVG;

#### **[WebReport]**

- added interactivity for advanced matrix in WebReport;
- fixed closing canceling processing in OnFormClosing in Core web dialogs;

#### **[.NET Core]**

- fixed a bug with not working "open after export" option;

#### **[WebReport Core]**

- now the DatePicker icon looks the same in all browsers;

#### **[Demos]**

- added a new demo for Blazor with a demonstration of working with two reports;
- fixed a bug due to which the cursor did not change when hovering over links in the new demo;
- fixed a bug with AdvMatrix in new demo;

#### **[Plugins]**

- added connection to Excel
- fixed SQLite connector for FastReport.Core, FastReport.CoreWin and FastReport.OpenSource;
- fixed a bug with ConnectionString to Firebird;

#### **[Extras]**

- added tool for conversion of RTF documents to report templates (\Extras\Misc\rtf2frx).

# Version 2022.1

## New features

### Added new "Advanced Matrix" object:

	Anne Dodsworth	Michael Suyama	Steven Buchanan	Laura Callahan	Janet Leverling	Nancy Davolio	Robert King	Margaret Peacock	Andrew Fuller	Total
▼ Beverages (12)	\$19 642,56	\$11 538,20	\$30 998,53	\$23 297,85	\$45 297,41	\$46 725,36	\$66 404,83	\$52 324,21	\$40 463,25	\$336 692,18
1. Chal	3%	13%	3%	5%	4%	2%	1%	7%	4%	\$12 788,10
2. Chang	3%	16%	3%	5%	3%	7%	2%	9%	3%	\$16 374,96
3. Chartreuse verte	1%	39%	69%	29%	5%	4%	0%	7%	4%	\$42 732,54
4. Côte de Blaye	74%		20%		56%	50%	30%	56%	62%	\$144 728,74
5. Guaraná Fantástica	1%	5%	1%	4%	1%	2%	1%	0%	1%	\$4 504,37
6. Ipoh Coffee				12%	14%	14%	3%	4%	9%	\$23 526,70
7. Lakkalikööri	5%	7%	2%	15%	7%	8%	1%	3%	3%	\$15 760,44
8. Laughing Lumberjack Lager				1%	0%		0%	1%	2%	\$2 396,80
9. Outback Lager	4%	5%		6%	3%	3%	2%	6%	3%	\$10 672,65
10. Rhönbräu Klosterbier	4%	8%	1%	6%	3%	3%	53%	2%	2%	\$49 212,49
11. Sasquatch Ale	1%	4%	0%	1%	2%		5%	1%	2%	\$6 350,40
12. Steeleye Stout	4%	4%	0%	17%	1%	6%	2%	3%	5%	\$13 644,00
► Condiments (12)	\$10 125,55	\$6 208,47	\$4 115,30	\$46 437,66	\$14 581,64	\$17 027,56	\$9 731,38	\$24 634,87	\$96 210,67	\$229 073,09
► Confections (13)	\$8 053,16	\$6 940,63	\$4 809,80	\$21 699,91	\$33 622,40	\$28 568,92	\$14 518,99	\$27 768,73	\$21 455,69	\$167 438,23
► Dairy Products (10)	\$21 101,13	\$17 039,04	\$21 769,63	\$56 269,47	\$32 320,84	\$36 022,98	\$27 621,86	\$33 549,80	\$23 812,55	\$269 507,29
► Grains/Cereals (7)	\$1 245,30	\$9 410,70	\$4 027,56	\$11 072,05	\$21 235,01	\$8 465,91	\$6 535,50	\$22 579,61	\$11 172,95	\$95 744,59
► Meat/Poultry (6)	\$9 676,66	\$9 003,69	\$11 488,20	\$16 395,28	\$20 502,62	\$15 038,47	\$101 176,72	\$70 867,14	\$129 873,60	\$383 022,36
► Produce (5)	\$314,81	\$11 560,71	\$18 734,02	\$12 016,52	\$11 960,85	\$32 206,25	\$10 753,38	\$17 186,56	\$24 376,48	\$139 109,58
► Seafood (12)	\$8 148,91	\$5 940,71	\$5 744,25	\$12 041,54	\$25 032,10	\$24 206,16	\$7 146,59	\$27 315,93	\$15 747,57	\$131 323,74
<b>Total</b>	<b>\$77 308,07</b>	<b>\$77 642,13</b>	<b>\$101 687,28</b>	<b>\$199 230,28</b>	<b>\$204 552,84</b>	<b>\$208 261,60</b>	<b>\$243 889,24</b>	<b>\$276 226,85</b>	<b>\$363 112,76</b>	<b>\$1 751 911,04</b>

Here is a list of its key features:

- row and column headers can contain groups and simple elements in any order. This allows you to build asymmetric reports;
- collapse buttons allow you to interactively manage the visibility of individual elements;
- sorting buttons allow you to interactively sort the matrix by the selected values, including the total values;
- Top N grouping allows you to display N values in the header, and group the remaining values into a separate element with the ability to expand;
- output of matrix headers in a stepped form;
- sorting headers by total values;
- a wide range of aggregate functions;
- support of custom aggregate functions;
- a wide range of special functions that allow you to get the values of totals, adjacent cells, as well as functions for calculating percentages;
- support for "Sparkline" and "Gauge" objects in data cells.

TopN group with ability to expand/collapse its elements

Expand/collapse matrix elements

Block or stepped layout

Top 5 customers		Total	Total
	Total	Others (84)	
▶ Beverages (12)	\$144 007,88	\$192 684,30	\$336 692,18
▶ Condiments (12)	\$123 407,20	\$105 665,89	\$229 073,09
▶ Confections (13)	\$54 823,13	\$112 615,09	\$167 438,23
▶ Dairy Products (10)	\$103 074,28	\$166 433,01	\$269 507,29
▶ Grains/Cereals (7)	\$31 368,01	\$64 376,58	\$95 744,59
▼ Meat/Poultry (6)	\$269 495,38	\$113 526,98	\$383 022,36
1. Alice Mutton	\$13 428,48	\$19 269,90	\$32 698,38
2. Mishi Kobe Niku	\$1 319,20	\$5 907,30	\$7 226,50
3. Pâté chinois	\$7 137,60	\$10 288,80	\$17 426,40
4. Perth Pasties	\$6 916,56	\$13 657,61	\$20 574,17
5. Thüringer Rostbratwurst	\$239 795,40	\$60 573,28	\$300 368,67
6. Tourtière	\$898,14	\$3 830,10	\$4 728,24
▶ Produce (5)	\$67 154,22	\$71 955,36	\$139 109,58
▶ Seafood (12)	\$31 732,55	\$99 591,19	\$131 323,74
<b>Total</b>	<b>\$825 062,63</b>	<b>\$926 848,41</b>	<b>\$1 751 911,04</b>

Sort elements by the total value

Matrix header can contain different types of elements

	2011	2012	2013	2014	2015	2012 to 2011 change	2012 to 2011 %
Andrew Fuller	3900	2100			1800	-1800	53,85%
Janet Leverling	6100	3200				-2900	52,46%
Nancy Davolio	3300	2700	3100		1700	-600	81,82%
Steven Buchanan			3999	8100			
<b>Total</b>	<b>13300</b>	<b>8000</b>	<b>7099</b>	<b>8100</b>	<b>3500</b>	<b>-5300</b>	<b>60,15%</b>

Special functions to get other cell's value

Learn more about this object in the [documentation](#).

**Added GS1 DataBar barcodes: Limited, Omnidirectional, Stacked and Stacked Omnidirectional.**



**New properties: Config.CompilerSetting.ExceptionBehaviour and Config.CompilerSetting.Placeholder.**

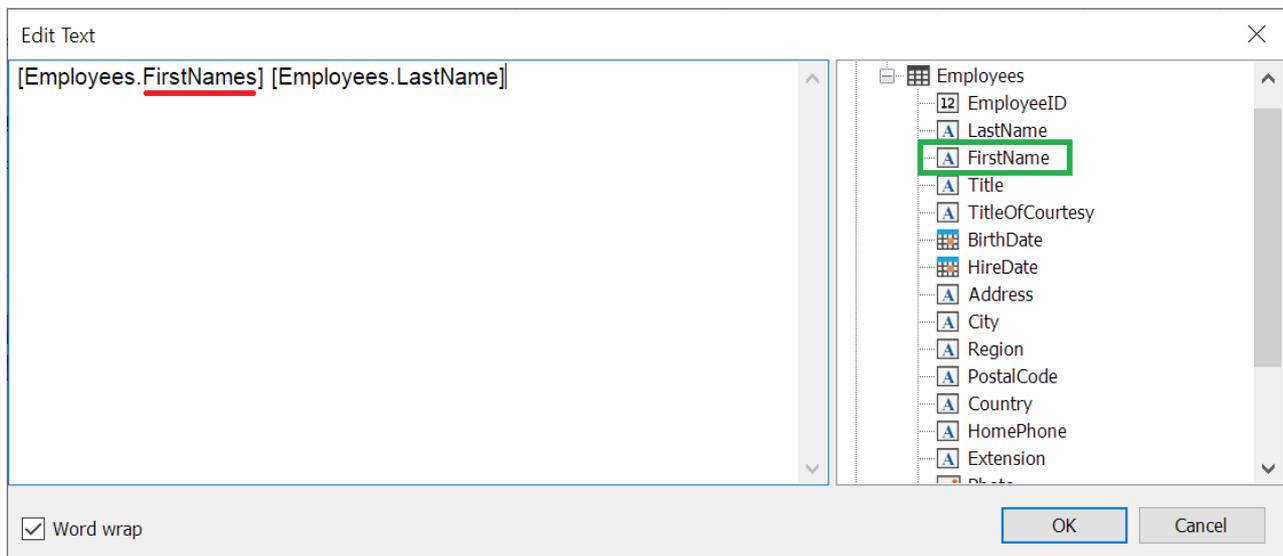
These properties allow you to customize the behavior when exceptions with invalid database field and table names occur.

**Config.CompilerSetting.Placeholder** is a string variable that is used to replace expressions with nonexistent names. By default, the value of this variable is an empty string.

**Config.CompilerSetting.ExceptionBehaviour** can have the following values: **ExceptionBehaviour.Default** - default behavior, as it was before. If there are errors with invalid names, an error message is displayed. Report preparation is interrupted. **ExceptionBehaviour.ReplaceExpressionWithExceptionMessage** - invalid expressions are replaced by the text of the exception message. Errors are not shown at that. Report preparation is not interrupted. **ExceptionBehaviour.ShowExceptionMessage** - A message appears with the exception text, after pressing **OK**, report preparation continues. Incorrect expressions are replaced with the value of **Placeholder** variable. **ExceptionBehaviour.ReplaceExpressionWithPlaceholder** - invalid expressions are simply replaced with **Placeholder**. No error messages. Report preparation is not interrupted.

Example with variable values: **ExceptionBehaviour =**

**ExceptionBehaviour.ReplaceExpressionWithPlaceholder Placeholder = "NO DATA!"**



Here you can see that the table has a field named **FistName**, but it's not specified correctly in the expression.

## EMPLOYEES

### NO DATA! Fuller

**Hire date:** 14.08.2009  
**Birth date:** 19 февраля 1972 г.  
**City:** Tacoma  
**Address:** 908 W. Capital Way  
**Phone:** (206) 555-9482

**Notes:** Andrew received his BTS commercial in 1994 and a Ph.D. in international marketing from the University of Dallas in 2001. He is fluent in French and Italian and reads German. He joined the company as a sales representative, was promoted to sales manager in January 2009 and to vice president of sales in March 2010. Andrew is a member of the Sales Management Roundtable, the Seattle Chamber of Commerce, and the Pacific Rim Importers Association.



### NO DATA! Dodsworth

**Hire date:** 15.11.2011  
**Birth date:** 27 января 1986 г.  
**City:** London  
**Address:** 7 Houndstooth Rd.  
**Phone:** (71) 555-4444

**Notes:** Anne has a BA degree in English from St. Lawrence College. She is fluent in French and German.



And this is the result of preparing such a report. Previously it would have been impossible to prepare it due to errors.

### Improved translation quality of RTF into report objects.

Conversion of RTF into report objects is optimized. RTF translation in table cells is added. Lots of bugs fixed.

## Exports improvements

### Implemented export of watermark to Word and RTF.

### Added SVG image scaling in export matrix.

This improves the quality of exported images when exporting to Word and Excel. However, this increases the size of the output file. To use this feature, you must enable the "Print optimized" option when exporting.

### Export groups to single sheets in Excel 2007 has been implemented.

### Excel 2007 has added the ability to export a property that determines the size and location of the image when exporting.

Now you can define how the image will behave in a cell when its position and size are changed. In doing so, the image can:

- move and resize together with the cell
- move together with the cell, but not change its size
- don't move or resize

### Implemented the ability to hide or show grid lines when exporting to Excel 97.

### Added "Don't rotate landscape pages when printing" option in HTML export.

Previously, we were forcibly rotating landscape-oriented pages when printing. The reason was that browsers

cannot correctly print reports with pages both in portrait and landscape orientation. When you print such documents, pages with landscape orientation are cut off by the width of pages with portrait orientation. Now, you can adjust whether to rotate pages in landscape orientation or not. In addition, a bug where landscape-oriented pages were always rotated, even when there are no portrait-oriented pages, has been fixed.

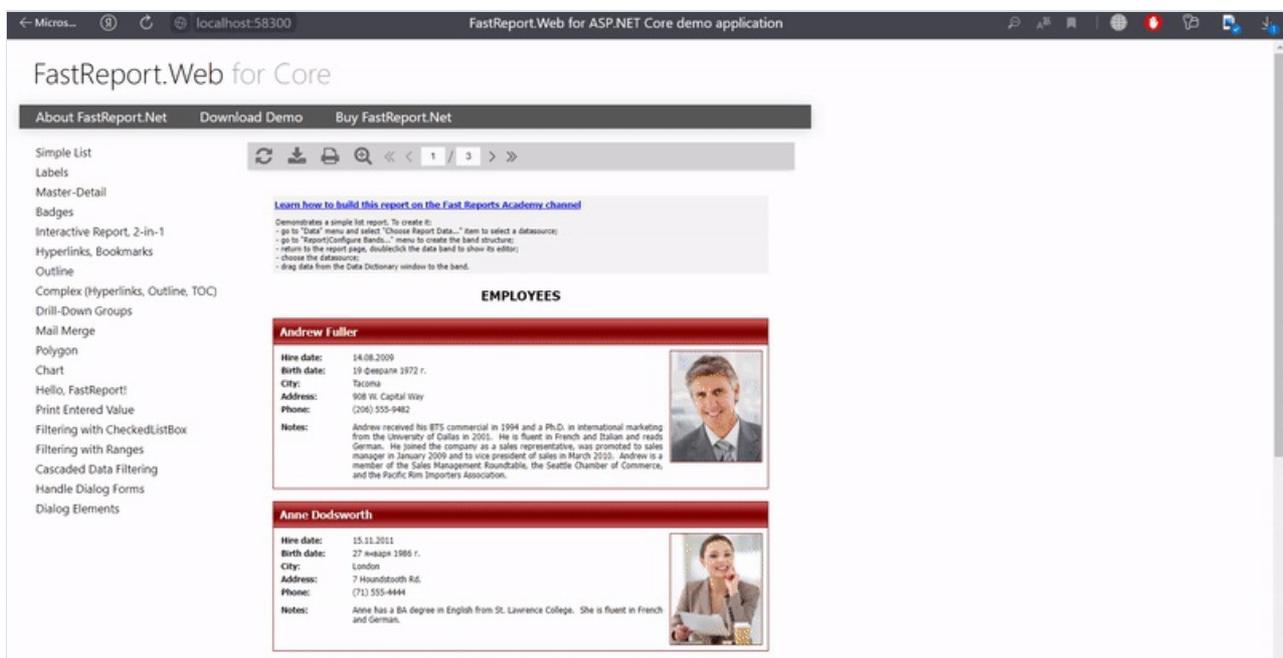
## .NET 6 support

Added .NET 6 support for FastReport.Core and FastReport.CoreWin.

## Improvements to WebReport for Core and Blazor Server

### Export settings

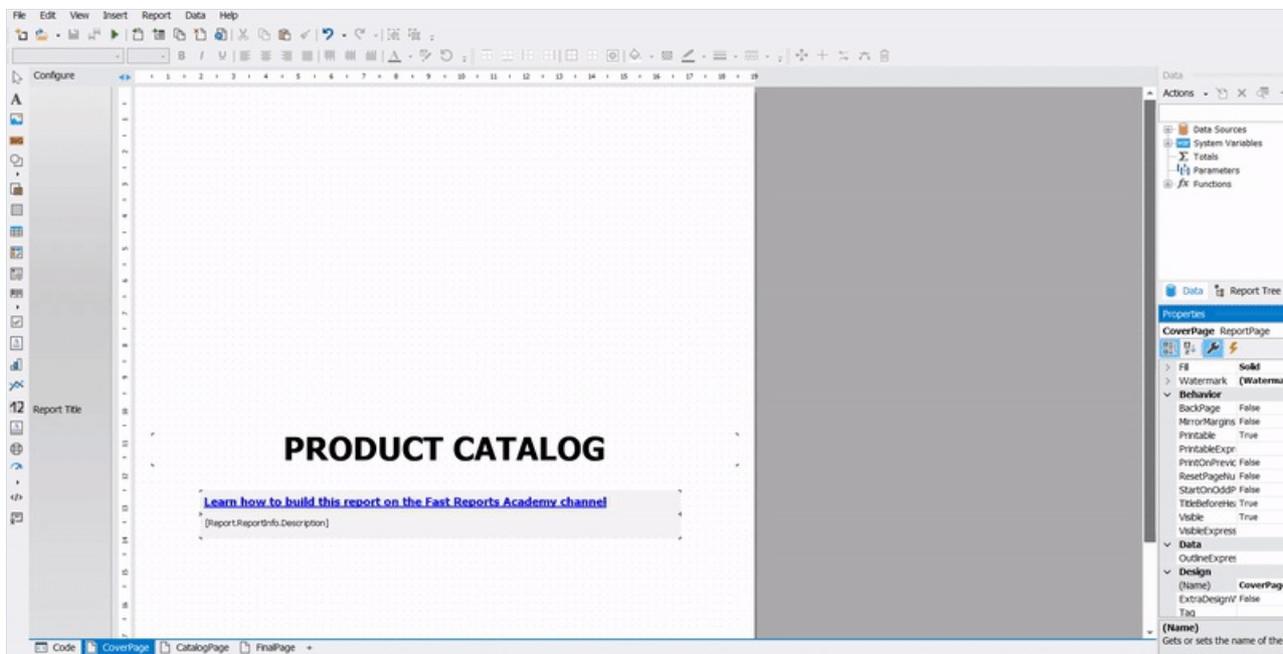
Added the ability to configure the export of a report in the required format from WebReport. When the **webReport.Toolbar.Exports.EnableSettings** property is activated, the settings icon will appear next to the required export button. Clicking on this button will display a window with a list of possible settings (exported pages, properties, etc.).



The export settings window can be customized using the **webReport.Toolbar.Exports.Color** and **webReport.Toolbar.Exports.FontSettings** properties.

### Separating different report pages into bookmarks

Added the ability to open different ReportPage pages in different WebReport tabs. To activate this feature, you need to enable the **webReport.SplitReportPagesInTabs** option.



## Static Styles in WebReport

To be able to override the standard styles of the toolbar, outline and other elements for your own customization, static class names have been added. These include: `fr-toolbar`, `fr-toolbar-item`, `fr-toolbar-narrow`, `fr-toolbar-dropdown-content`, `fr-toolbar-zoom-selected`, `fr-toolbar-pointer`, `fr-toolbar-notbutton`, `fr-toolbar-slash`.

## Complete list of changes

### [Engine]

- added a new AdvMatrixObject
- added GS1 DataBar barcodes: Limited, Omnidirectional, Stacked and Stacked Omnidirectional
- added new properties: Config.CompilerSetting.ExceptionBehaviour and Config.CompilerSetting.Placeholder. These properties give the ability to customize the behavior when exceptions are thrown with incorrect names of database tables and fields.
- added translation of RichObject inside TableCell
- reworked translation of RichObject into report objects
- fixed ShiftMode of translated RTF object
- fixed a bug with two parameters with the same name in report leading to System.ArgumentException
- fixed a bug with subreport containing multicolumn Databand
- fixed a bug with wrong band height calculation
- fixed a bug with displaying of hyperlinks when converting RTF to report objects
- fixed translation of RichObject if it set from a report script
- fixed a bug with private fonts added to Config.PrivateFontCollection

### [.Net Core]

- added support for .NET 6
- fixed incorrect search for Bold-Italic fonts

### [Designer]

- added verification of entered data in editing window of the QR code of SberBank
- fixed a bug with line break in text object editor
- fixed a bug when converting rdl reports containing matrices inside table cells

- fixed a bug with guide lines in the designer
- fixed a bug with Report tree window
- fixed a bug leading to System.NullReferenceException and crash of the designer during its launch when the Auto Guides option is enabled

#### **[Preview]**

- fixed a bug with shifting the position of objects when switching the view of bands while editing a prepared page

#### **[Exports]**

- implemented export of watermark to Word
- implemented export of watermark to RTF
- added "Don't rotate landscape pages when printing" option in export to HTML
- added the ability to change the name of the attached file when sending by Email
- add zooming of SVG images in export matrix
- added the ability to export a property that determines the size and position of the image when exporting to Excel 2007
- implemented ability to hide or show gridlines when exporting to Excel 97
- implemented export of groups on separate sheets to Excel
- implemented export of transparency level watermark images to Word
- implemented export image size of watermark to RTF
- fixed a bug leading to System.NullReferenceException when exporting to text, tables with rows count less than one
- fixed incorrect left padding of tables in export to Word
- fixed a bug with Wingdings font in HTML tags when exporting to HTML
- fixed a bug with export Wingdings and Webdings fonts to HTML
- fixed a bug with width of frame in export to PowerPoint
- fixed a bug with exporting objects with transparent fill to RTF
- fixed a bug with exporting objects with transparent fill to Word
- fixed a bug leading to System.OutOfMemoryException when exporting to PDF
- fixed incorrect line break display when exporting to HTML
- fix out of memory when export to PDF
- fixed bugs in export to PDF in non-Windows systems
- fixed a bug with exporting tables with more than 63 columns to Word 2007
- fixed a bug leading to a memory leak and System.OutOfMemoryException in PDF-export when the "Text in curves" option is enabled
- fixed a bug with line break in HTML-export

#### **[WebReport]**

- fixed a bug with new line character when using Wingdings font

#### **[WebReport Core / Blazor Server]**

- added the ability to configure the properties of exporting a report from WebReport. When the webReport.Toolbar.Exports.EnableSettings property is activated, the settings icon will appear next to the required export button
- added property webReport.SplitReportPagesInTabs, which allows you to split different ReportPage-s in different tabs of WebReport
- added static class names for the ability to override the standard styles of toolbar, outline and other elements
- fixed updating WebReport when entering a value from the keyboard in the DateTimePicker field
- fixed the width of tabs with non-standard sizes of the report page

#### **[Demos]**

- added demo of using WebReport Core for .NET 5
- added demo of using WebReport Core for Angular
- added demo of using WebReport Blazor for Blazor Server

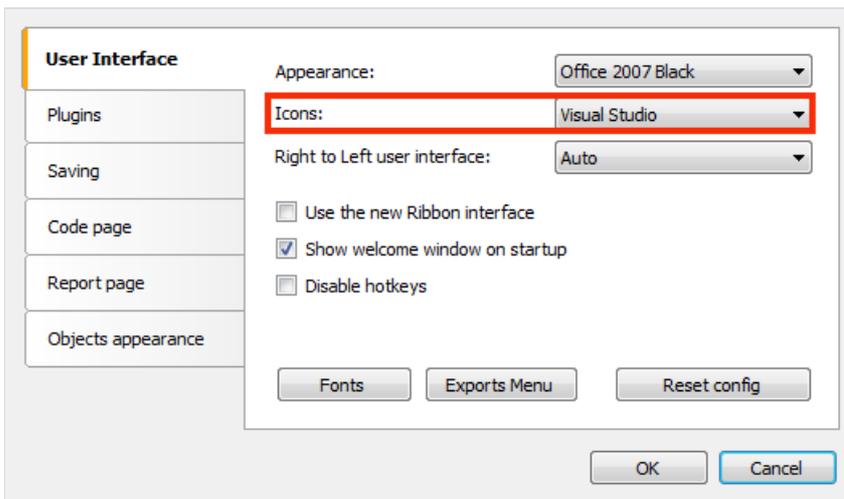
# Version 2021.4

## Editions changes

The WinForms and Win+WebForms editions are gone. Instead, a new Standard edition has been added that includes Windows Forms components, ASP.NET components, and .NET Core / .NET 5 / Blazor support.

## New features

- Added new Visual Studio-styled icons. You may switch between icon packs in the "View/Options/User Interface" window (or, "File/Options/User Interface" if you use ribbon UI):



The new icons are well suited for hiDPI screens.

- Added ability to reset the FastReport configuration stored in the `FastReport.Config` file in the user's profile. It can be done in the "View/Options/User Interface" window, the "Reset config" button. Restart of the designer is required in order to apply changes.
- Added ability for the Text object to display DB field names in a simplified form when designing a report. You can activate this option in the "View/Options/Objects appearance" window. This option is off by default. When you turn it on the Text object with a single DB field will display the field name part only, with no datasource name:

CUSTOMERS ORDERS			
[Orders.Customers.CompanyName]			
OrderID	[Orders.OrderID]	OrderDate	[Orders.OrderDate]
ShippedDate	[Orders.ShippedDate]		
Product name		Unit Price	Quantity
[Order Details.Products.ProductName]		[Order Details.UnitPrice]	[Order Details.Quantity]
Total this order: [SumOfOrder]			
Generated by FastReport .NET			[PageN]

It makes the report look cleaner especially when it contains a lot of small objects. You still can see a full text of object in the status bar.

- Added ability to set up each cell in the Matrix object's corner area. To do this use the cell's context menu and its commands "Split cell", "Merge cells":

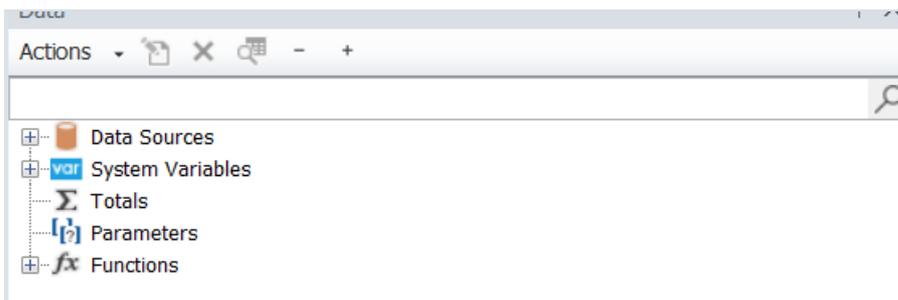
Name	[Year]		Total
	[Month]	Total	
[Name]	[Revenue]		
Total			

Generated by FastReport .NET

- Added ability to connect to Elasticsearch. Connection available in data wizard and from code.
- Added barcode Japanese Post 4 - State Code.



- Added the collapse all/expand all buttons and, a search field for the report tree and data tree in the designer. When clicking on **+** tree will expand. On **-** tree will collapse.



These changes should simplify working with reports containing many objects and/or data sources.

- The RichText to report objects converter has been significantly improved and optimized.
- The number of available exports in WebReport Core/Blazor Server has increased significantly.
- Added FastReport Business Graphics integration objects (\Extras\Objects\FastReportBGOjects).

## Universal plugins FastReport.Data

Packages with FastReport.Data plugins have been updated. Now they include plugins for different FastReport editions (.NET, Core, CoreWin, OpenSource) and automatically connect the necessary library, depending on the product you use. The FastReport edition 2021.3.0 or higher is required for correct work.

The FastReport.Core.Data, FastReport.CoreWin.Data, and FastReport.OpenSource.Data plugins are declared obsolete and are no longer supported.

## Improvements in publishing user applications using FastReport

For user applications on .NET Core 3.0+ and .NET 5+ using FastReport.Core, FastReport.CoreWin, FastReport.OpenSource has been added [Single File Applications \(SFA\)](#) support.

Also, added support for publishing [application with trimmed unused libraries](#) - MSBuild property - PublishTrimmed\*.

**Warning!** In some cases you may need to explicitly specify the list of builds that .NET should not trim. This may be useful if your report script uses these libraries, but your application's code does not make use of them.

This is done using the `TrimmerRootAssembly` property. In this case, for example, it's explicitly stated that the `System.Security` library doesn't need to be trimmed:

```
<ItemGroup>
  <TrimmerRootAssembly Include="System.Security" />
</ItemGroup>
```

## Localizations

In the logic of the localization change small changes were made.

1. Added package **FastReport.Localization**. This package contains localization files for FastReport.NET, FastReport.Core, FastReport.CoreWin, FastReport.Mono, FastReport.OpenSource products and creates the Localization directory in the output directory of the user project when adding this package.
2. Added new API for changing the localization using the `CultureInfo` type - `FastReport.Utils.Res.LoadLocale(CultureInfo culture)`.

When this method is called, FastReport searches for the appropriate localization for the selected culture. Loaded locales are cached. For this method to work correctly, you must install the FastReport.Localization package from step 1 in your project or set the path to the folder with the localization files in the `FastReport.Utils.Res.LocaleFolder` property.

## Changes and improvements in the WebReport Core/Blazor toolbar

- Toolbar settings were moved from `WebReport` class to `WebReport.Toolbar` property of `ToolbarSettings` class.
- Added toolbar settings: Position, color of dropdown menu, font, transparency of icons, changing icon color, changing content position. These properties are available in the `webReport.Toolbar`.
- During report loading, the toolbar is no longer displayed.
- Added the `ShowOnDialogPage` property to the `Toolbar` object (true by default), which will allow to turn off the toolbar rendering if a dialog window is currently open
- Added more exports to the toolbar dropdown menu. These properties are available in `webReport.Toolbar.Exports.ExportTypes`. List of added exports: HTML, Hpgl, Dxf, Json, LaTeX, Ppml, PS, Xaml, Zpl, Excel97, Svg.

```
ToolbarSettings toolbar = new ToolbarSettings()
{
    Color = Color.LightBlue,
    DropDownMenuColor = Color.LightBlue,
    ShowOnDialogPage = false,
    DropDownMenuTextColor = Color.Black,
    IconColor = IconColors.Black,
    Position = Positions.Right,
    FontSettings = new Font("Arial", 14, FontStyle.Bold),
    Exports = new ExportMenuSettings()
    {
        ExportTypes = Exports.Pdf | Exports.Excel97 | Exports.Rtf
    }
    // or
    //Exports = ExportMenuSettings.All
};
webReport.Toolbar = toolbar;
```

[Learn how to build this report on the Fast Reports Academy channel](#)

Demonstrates a simple list report. To create it:  
- go to "Data" menu and select "Choose Report Data..." item to select a datasource;  
- go to "Report|Configure Bands..." menu to create the band structure;  
- return to the report page, doubleclick the data band to show its editor;  
- choose the datasource;  
- drag data from the Data Dictionary window to the band.

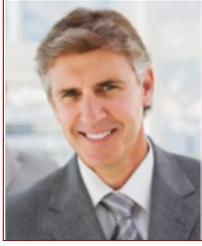
- Export to PDF
- Export to Rich Text
- Export to Excel 97

A vertical toolbar on the right side of the report page. It contains several icons: a refresh icon at the top, followed by a download icon, a print icon, a zoom icon (magnifying glass with a plus sign), and navigation icons (double left arrow, single left arrow, a page number '1', a slash '/', a page number '3', a single right arrow, and a double right arrow).

## EMPLOYEES

**Andrew Fuller**

<b>Hire date:</b>	14.08.2009
<b>Birth date:</b>	19 февраля 1972 г.
<b>City:</b>	Tacoma
<b>Address:</b>	908 W. Capital Way
<b>Phone:</b>	(206) 555-9482
<b>Notes:</b>	Andrew received his BTS commercial in 1994 and a Ph.D. in international marketing from the University of Dallas in 2001. He is fluent in French and Italian and reads German. He joined the company as a sales representative, was promoted to sales manager in January 2009 and to vice president of sales in March 2010. Andrew is a member of the Sales Management Roundtable, the Seattle Chamber of Commerce,



## WebReport Core/Blazor Server improvements

Added support for [Blazor Server components](#) for FastReport.Core3.Web package (CoreWin).

Improved support for dialog report components:

- DateTimePicker has been improved. In DateTimePicker.Format.Time mode it displays only time, in DateTimePicker.Format.Short mode - only date, DateTimePicker.Format.Long - both date and time

**DateTimePicker1 Short:**

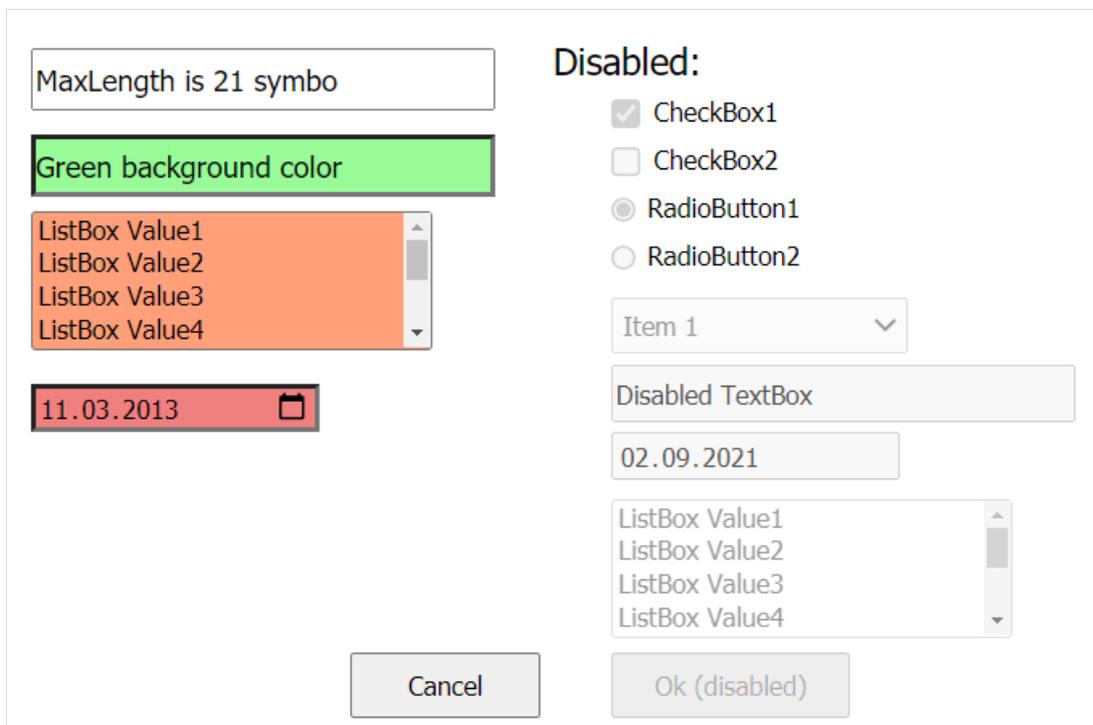
**DateTimePicker2 Long:**

**DateTimePicker3 Time:**

- Added support of MaxLength property for TextBox
- Added support for the Enabled property
- Added support for background-color



## Fixes

- Fixed bug with `Dock` and `Anchor` properties of the objects that are inside the Table/Matrix cell.
- Fixed stack overflow bug when you add `Subreport` object to the page footer band.
- Fixed bug with SVG export if the system's DPI setting is greater than 96DPI.

## Complete list of changes

### [Engine]

- added connection to ElasticSearch
- added a new barcode - Japanese PostNet
- added the `Res.LoadLocale (CultureInfo)` method, which changes the selected locale by the `CultureInfo` argument. Loaded locales are cached. For correct operation, the added `FastReport.Localization` package is required
- optimized and unified converter `RichText` to report objects
- fixed a bug with incorrect tab width when `TextObject.TextRenderType = TextRenderType.HtmlTextRenderer`
- fixed a bug with `SubreportObject` on a page footer band which caused `StackOverflow` exception
- fixed a bug with `Dock` and `Anchor` properties of objects inside table/matrix cells
- fixed a bug leading to `System.ArgumentException` when drawing `PictureObject` located outside the band
- fixed a bug with incorrect work of right anchor (`Anchor = AnchorStyles.Right`) when page has unlimited width
- fixed a bug with replacing a custom font with a default font when preparing a report
- fixed a bug with vertical alignment when converting RTF (by default, now `Top` instead of `Center`)
- fixed a bug with converting RTF tables to report objects

### [Designer]

- added simplified display of DB field names in the designer
- added collapse all/expand all button and search field for Report tree and Data tree
- new icons added. Use the designer's "View|Options|User interface" dialog to switch between icon packs.
- fixed a bug leading to the crash of the report designer with an incorrect table in the data source.

### [Preview]

- fixed a bug with saving prepared reports containing converted `RichObject`

## [Exports]

- added option when export to Word 2007 "Do not add section breaks on page breaks". By default, both page breaks and section breaks are added.
- fixed page-break in Html export (PageBreaks property)
- fixed SVG export with "Multiply export" parameter
- fixed SVG export bug on hidpi monitor
- fixed the names of files saved in the zip archive
- fixed tab symbols width when export RichObject
- fixed XPS export bug where documents exported on Linux would not open on Windows
- fixed bugs with incorrect work of Anchor and Dock properties when exporting pages with unlimited width
- fixed a bug in Excel 2007 export of text objects with enabled HtmlParagraph render type. Disable WYSIWYG export option to export text instead of images.

## [WebReport]

- added background-color support for dialogs in WebReport
- added support for the Enabled property for dialogs in WebReport
- added support for the MaxLength property for the TextBox dialog component in WebReport
- optimized loading of localization for Toolbar
- fixed incorrect page background-color for HTML/Blazor export on Safari browsers
- fixed a bug with hanging of online designer save call-back in WebReport with sessions
- fixed bugs with incorrect work Anchor and Dock properties on pages with unlimited width

## [Online Designer]

- fixed save/preview from OnlineDesigner with page in Landscape orientation

## [.Net Core]

- added support for Single File Application
- updated dependencies for FastReport.Compat and FastReport.DataVisualization. FastReport.Compat now correctly detects the possibility of using the WinForms API. FastReport.DataVisualization now has no dependency on System.Data.SqlClient and System.Drawing.Common
- fixed a bug where the report did not work with data from the custom library, although it was registered with ReferencedAssemblies in CoreWin
- fixed application crash when loading a report with unknown Font in multiple threads on Linux
- fixed a bug "Could not load type 'System.Drawing.Design.UITypeEditor'"
- fixed loading of table names in XmlDataConnection
- fixed a bug due to which the report and resources were not loaded when publishing/debugging using IIS/IIS Express. For correct work, you need to call the `UseFastReport()` method before 'UseMvc/UseEndpoints'

## [WebReport Core/Blazor Server]

- added support for Blazor components for FastReport.Core3.Web package
- fixed incorrect output of multiline text in Blazor (Interactive Forms & TextBox)
- added xml comments (DocumentationFile) to Web libraries
- added a property to disable showing of the toolbar on the dialog page of the report: `webReport.Toolbar.ShowOnDialogPage`
- added more exports to the toolbar dropdown menu. These properties are available in `webReport.Toolbar.Exports`
- added the ability to customize the toolbar: Position, color of the drop-down menu, font, transparency of icons, change the color of icons, change the position of content. These properties are available in `webReport.Toolbar`
- dialog `DateTimePicker` for WebReport has been improved. In `DateTimePicker.Format.Time` mode, it displays

only time, in DateTimePicker.Format.Short mode - only date, DateTimePicker.Format.Long - both date and time.

- fixed missing line breaks for the Label dialog component in WebReport

#### **[Extras]**

- added package 'FastReport.Localization', which includes FastReport localization files in your project for working with different languages
- added FastReport Business Graphics integration objects (\Extras\Objects\FastReportBGObjects)

#### **[Demos]**

- implemented transition to list of reports, when clicking on the arrow on folder in new demo
- changed Target Framework for new demo to 4.7.2
- changed color of inactive buttons in the thumbnail view mode of new demo
- changed background color of the zoom slider in new demo
- changed background color when displaying dialog forms in the new demo
- changed background color of interactive reports tabs in new demo
- changed the location of the folder with report thumbnails for the demo application. Now this folder is located not in Program Files but in AppData\Local
- fixed problems with displaying interface elements of the new demo application
- fixed a bug that caused saving a prepared report when clicking on the drop-down items in the save menu of the new demo application
- fixed a bug with alignment of reports in preview window of the new demo
- fixed a bug with double launching dialog forma when selecting a report in new demo
- fixed a bug with stretching thumbnails in the new demo
- fixed a bug leading to a lag when moving the window of new demo
- fixed a bug in the new demo with simultaneous displaying of thumbnails in folder and report bars

#### **[Plugins]**

- packages with plugins-connectors FastReport.Data have been updated. Now they include plugins for different FastReport editions (.NET, Core, CoreWin, OpenSource) and automatically include the necessary library, depending on the product used
- postgres npgsql version downgrade from 4.0.3 to 3.2.7

# Contacts and technical support

You can always ask questions about using the product by [email](#), or by using [the form on the website](#).

We also welcome your suggestions on how to improve our product.