



TMS FNC Print DEVELOPERS GUIDE

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Index

Getting Started	3
TTMSFNCPrinters	3
Methods	3
Callback Event	3
Properties	3
Platform Specific Properties.....	4
Example	4
TTMSFNCGraphicsPrintIO.....	5
Methods	5
Events	5
Properties	6
TTMSFNCPrintIOOptions Properties	6
Example	7
TMS FNC UI Pack Print components.....	8
TTMSFNCGridPrintIO	8
Example	8
TTMSFNCRichEditorPrintIO (not available in TMS WEB Core)	9
Example	9

Getting Started

Included in the TMS FNC Core package is a print library that is capable of creating files and send them to the printer. The print library supports creating documents, adding pages and page content such as HTML formatted text, plain text, drawing primitives such as rectangles, circles and lines, Images and many more ...

TTMSFNCPrinters

To get started with the lowest level of implementation for the print library, add the FMX.TMSFNCPrinters, VCL.TMSFNCPrinters, LCLTMSFNCPrinters or WEBLib.TMSFNCPrinters unit depending on the chosen framework. The code is shareable between the four supported frameworks.

This allows you to print files similar to the basic printer class of the framework.

Instead of Printer you will need to use the instance of TMSFNCPrinter, it is important to place all your drawing in the callback event **OnDrawContent** and end this procedure with an EndDoc to close the printing!

This way of working is necessary because the printing works asynchronous in **Android**. After starting a new document with BeginDoc, the code is not executed sequential, but once ready it will trigger the **OnDrawContent** callback.

Important for **Android** implementation: It is necessary to add the FNCPrintDocumentAdapter.jar or the combined FNC JAR file to your project libraries! This file can be found in the Android Support folder in your installation directory.

Methods

BeginDoc	Start the request for a new document to print.
EndDoc	Ends the creation of a new document and will start the printing.
New Page	Add a new page to the document.

Callback Event

OnDrawContent	TTMSFNCPrinterDrawContentCallBack procedure without any parameters. Within this event it is expected to define your drawing calls for the document. <i>(Is mandatory in Android.)</i>
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Properties

Device	Returns the active printer's name as a string. <i>(Is not used in TMS WEB Core, Android, and iOS.)</i>
DPI	Returns the selected dpi of the active printer as an integer. <i>(Is settable in TMS WEB Core and Android.)</i>
Graphics	The TTMSFNCGraphics property can be used to draw on the printer canvas.
Orientation	Can be used to set the TPrinterOrientation of the paper to poPortrait or poLandscape.
PageHeight	Returns the height of the document in pixels as an integer. <i>(Is settable in TMS WEB Core.)</i>
PageNumber	Returns the index as an integer of the current page that you are

	working on.
PageWidth	Returns the width of the document in pixels as an integer. (Is settable in TMS WEB Core.)

Platform Specific Properties

PrintCompleted	Boolean that can be used in iOS, that indicates if the print is completed.
PrintJobName	String used to define the printjob in Android.
PrintSize	TPrintSize property to select the paper size in Android.

Example

uses

```
..., FMX.TMSFNCPrinters, FMX.TMSFNCGraphicsTypes;
```

procedure Click(Sender: TObject);

begin

```
TMSFNCPrinter.OnDrawContent :=
```

procedure

begin

```
TMSFNCPrinter.Graphics.Font.Color := gcBlue;
```

```
TMSFNCPrinter.Graphics.Font.Size := 40;
```

```
TMSFNCPrinter.Graphics.DrawText(0, 20, TMSFNCPrinter.PageWidth, 100, 'Hello', False,
                                gtaCenter, gtaCenter);
```

```
TMSFNCPrinter.Graphics.Fill.Color := gcRed;
```

```
TMSFNCPrinter.Graphics.DrawEllipse(100, 200, TMSFNCPrinter.PageWidth - 100, 300);
```

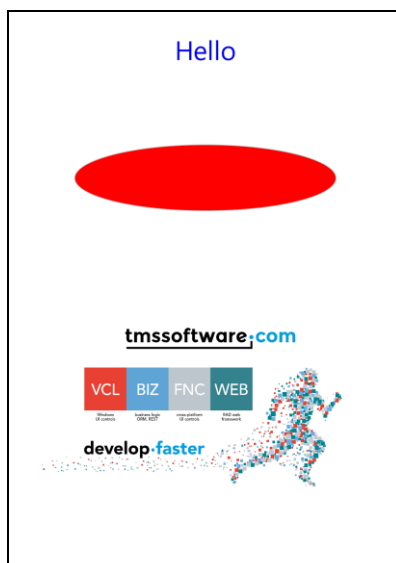
```
TMSFNCPrinter.Graphics.DrawBitmap(50, 400, TMSFNCPrinter.PageWidth - 50,
                                TMSFNCPrinter.PageHeight - 50, Image1.Bitmap, True, True);
```

```
TMSFNCPrinter.EndDoc;
```

end;

```
TMSFNCPrinter.BeginDoc;
```

end;



TTMSFNCGraphicsPrintIO

A second level on top of the TMSFNCPrinters can be used to create a document with some more configurable layout as header, footer and pagenumber.
It also allows to export certain TMS FNC components as well.

Methods

Print	Starts a new document to print.
Print(AExportObject: TTMSFNCPrintIOExportObject; AExportRect: TRectF);	Starts a new document with a TMS FNC component and the rectangle to where it should be placed.
procedure Print(AExportObjects: TTMSFNCPrintIOExportObjectArray);	Starts a new document with an array of multiple TMS FNC components.
Print(AExportObjects: TTMSFNCPrintIOExportObjectArray; AExportRects: TTMSFNCPrintIOExportRectArray);	Starts a new document with an array of multiple TMS FNC components and places them in their respective rectangles.

Events

OnAfterDraw	Is triggered when all the drawing is done. It has the TTMSFNCGraphics property as a parameter.
OnAfterDrawContent	Is triggered when one of the export objects has been drawn or before adding a new page. It has the TTMSFNCGraphics property as a parameter and the export object TTMSFNCPrintIOExportObject.
OnAfterDrawFooter	Is triggered when the footer text has been drawn. It has the following parameters: the export object TTMSFNCPrintIOExportObject, the page index, the drawing rectangle, the TTMSFNCGraphics property and the footer text.
OnAfterDrawHeader	Is triggered when the header text has been drawn. It has the following parameters: the export object TTMSFNCPrintIOExportObject, the page index, the drawing rectangle, the TTMSFNCGraphics property and the header text.
OnAfterDrawPageNumber	Is triggered when the page number has been drawn. It has the following parameters: the page index, the drawing rectangle, the TTMSFNCGraphics property and the page number formatted text.
OnBeforeDrawContent	Is triggered before drawing one of the export objects has been drawn or when a new page is added. It has the following parameters: TTMSFNCGraphics property, the export object TTMSFNCPrintIOExportObject and a DefaultDraw Boolean to enable the drawing or not.
OnBeforeDrawFooter	Is triggered before drawing the footer text. It has the following parameters: the export object TTMSFNCPrintIOExportObject, the page index, the drawing rectangle, the TTMSFNCGraphics property, the footer text and the DefaultDraw Boolean.
OnBeforeDrawHeader	Is triggered before drawing the header text. It has the following parameters: the export object TTMSFNCPrintIOExportObject, the page index, the drawing rectangle, the TTMSFNCGraphics property, the header text and the DefaultDraw Boolean.
OnBeforeDrawPageNumber	Is triggered before drawing the page number. It has the following parameters: the page index, the drawing rectangle, the TTMSFNCGraphics property, the page number formatted text, and

	the DefaultDraw Boolean.
OnCanCreateNewPage	Is triggered before drawing a new export object, to check if a new page should be created. It has the following parameters: the TTMSFNCGraphics property, the export object TTMSFNCPrintIOExportObject and a Boolean to allow the new page or not.
OnGetExportRect	Is triggered before exporting the TMS FNC component to the rectangle. It has the following parameters: the TTMSFNCGraphics property, the export object TTMSFNCPrintIOExportObject and the rectangle used for the export.

Properties

BitmapContainer	The TTMSFNCBitmapContainer will be attached to the used TTMSFNCGraphics when exporting the TMS FNC component.
ExportObject	The TTMSFNCPrintIOExportObject property is another way to set the object that you want to export.
Options	The TTMSFNCPrintIOOptions property is used to further customize the document settings and the layout of the footer, header, and page number.

TTMSFNCPrintIOOptions Properties

DefaultFont	TTMSFNCGraphicsFont used for the text drawing if not customized by the user.
Device	The device name as a String retrieved from the TTMSFNCPrinters class.
Footer	The footer text as a String.
FooterFont	TTMSFNCGraphicsFont used for the footer drawing.
FooterHorizontalAlignment	TTMSFNCGraphicsTextAlign for horizontal position in the drawing rectangle for the footer.
FooterMargins	TTMSFNCMargins to set the space between the page borders for the footer.
FooterSize	The height of the footer as a Single.
FooterVerticalAlignment	TTMSFNCGraphicsTextAlign for vertical position in the drawing rectangle for the footer.
Header	The header text as a String.
HeaderFont	TTMSFNCGraphicsFont used for the header drawing.
HeaderHorizontalAlignment	TTMSFNCGraphicsTextAlign for horizontal position in the drawing rectangle for the header.
HeaderMargins	TTMSFNCMargins to set the space between the page borders for the header.
HeaderSize	The height of the header as a Single.
HeaderVerticalAlignment	TTMSFNCGraphicsTextAlign for vertical position in the drawing rectangle for the header.
Margins	TTMSFNCMargins to set the space between the page borders.
PageNumber	TTMSFNCPrintPageNumber for the position of the page number: pnHeader, pnFooter or pnNone.
PageNumberFont	TTMSFNCGraphicsFont used for the page number drawing.
PageNumberFormat	UnicodeString how the page number is shown as text.
PageNumberHorizontalAlignment	TTMSFNCGraphicsTextAlign for horizontal position in the drawing rectangle for the page number.
PageNumberMargins	TTMSFNCMargins to set the space between the page borders for the page number.

PageNumberSize	The height for the page number as a Single.
PageNumberVerticalAlignment	TTMSFNCGraphicsTextAlign for vertical position in the drawing rectangle for the page number.
PageOrientation	TPrinterOrientation retrieved from the TTMSFNCPrinters class.
PageSize	For Android , the TPrintSize retrieved from the TTMSFNCPrinters class.

Example

uses

```
..., FMX.TMSFNCPrintIO;
```

```
procedure Click(Sender: TObject);
```

```
var
```

```
  r: TRectF;
```

```
begin
```

```
  TMSFNCGraphicsPrintIO1.Options.Footer := 'My Footer Text';
```

```
  TMSFNCGraphicsPrintIO1.Options.PageNumber := pnHeader;
```

```
  TMSFNCGraphicsPrintIO1.Options.PageNumberFormat := 'Page %d';
```

```
  r := RectF(TMSFNCGraphicsPrintIO1.Options.Margins.Left,
             TMSFNCGraphicsPrintIO1.Options.Margins.Top,
             TMSFNCGraphicsPrintIO1.Options.Margins.Left + TMSFNCGrid1.Width,
             TMSFNCGraphicsPrintIO1.Options.Margins.Top + TMSFNCGrid1.Height);
```

```
  TMSFNCGraphicsPrintIO1.Print(TMSFNCGrid1, r);
```

```
end;
```

Page 1

0					
1	59	3	93	15	71
2	74	49	52	46	41
3	44	56	81	35	47
4			16	40	6
5	52		8	79	9
6	12	94	34	50	92
7	31	8	56	1	74
8	4	23	91	98	76
9	16	69	24	0	30

My Footer Text

TMS FNC UI Pack Print components

On top of the TTMSFNCGraphicsPrintIO we have two components that are specially created for a specific TMS FNC Component. These are available for TTMSFNCGrid and TTMSFNCRichEditor.

TTMSFNCGridPrintIO

An example for the TMSFNCGrid was already shown in the TTMSFNCGraphicsPrintIO chapter, but for more complex grids there is the TTMSFNCGridPrintIO.

This component has some additional properties to make the export of the grid even more customizable for starters with multiple pages, but also the ability to repeat fixed cells, ...

Example

uses

```
..., FMX.TMSFNCGridPrintIO;
```

procedure Click(Sender: TObject);

begin

```
TMSFNCGridPrintIO1.Grid := TMSFNCGrid1;
```

```
TMSFNCGridPrintIO1.Options.Footer := 'My Footer Text';
```

```
TMSFNCGridPrintIO1.Options.PageNumber := pnHeader;
```

```
TMSFNCGridPrintIO1.Options.PageNumberFormat := 'Page %d';
```

```
TMSFNCGridPrintIO1.Print;
```

end;

Page 1					
0					
1	59	3	93	15	71
2	74	49	52	46	41
3	44	56	81	35	47
4	52			16	40
5				8	79
6	12	94	34	50	92
7	31	8	56	1	74
8	4	23	91	98	76
9	16	69	24	0	30
My Footer Text					

TTMSFNCRichEditorPrintIO (not available in TMS WEB Core)

The TTMSFNCRichEditor is one of the components where it is not yet possible to do an export via TTMSFNCGraphicsPrintIO. For this component we have created the specific print IO component. There is still the possibility to set the TTMSFNCRichEditorPrintIOOptions, but the TTMSFNCRichEditorPrintIO will automatically calculate for linebreaks and new pages.

Example

uses

```
..., FMX.TTMSFNCRichEditorPrintIO;
```

procedure Click(Sender: TObject);

begin

```
TTMSFNCRichEditorPrintIO1.RichEditor := TTMSFNCRichEditor1;  
TTMSFNCRichEditorPrintIO1.Options.PageNumber := pnHeader;  
TTMSFNCRichEditorPrintIO1.Print;
```

end;

5	<p>13 Hoc proelio facto, reliquis copias Helvetiorum ut consequi posset, pontem in Arari faciendum curat atque ita exercitum traducit. 2 Helvetii repentino eius adventu commoti cum id quod ipsi diebus XX aegerrime confecerant, ut flumen transirent, illum uno die fecisse intellegent, legatos ad eum mittunt; cuius legationis Divico princeps fuit, qui bello Cassiano dux Helvetiorum fuerat. 3 Is ita cum Caesare egit: si pacem populus Romanus cum Helvetiis faceret, in eam partem ituros atque ibi futuros Helvetios ubi eos Caesar constituisset atque esse voluisset; 4 sin bello persequi perseveraret, reminisceretur et veteris incommodi populi Romani et pristinae virtutis Helvetiorum. Quod improvise unum pagum adortus esset, cum ii qui flumen transissent suis auxilium ferre non possent, ne ob eam rem aut suae magnopere virtuti tribueret aut ipsos despiceret. Se ita a patribus maioribusque suis didicisse, ut magis virtute contenderent quam dolo aut insidiis niterentur. 5 Quare ne committeret ut is locus ubi constitissent ex calamitate populi Romani et internecione exercitus nomen caperet aut memoriam proderet.</p> <p>14 His Caesar ita respondit: eo sibi minus dubitationis dari, quod eas res quas legati Helvetii commemorassent memoria teneret, atque eo gravius ferre quo minus merito populi Romani accidissent; 2 qui si alicuius iniuriae sibi conscius fuisset, non fuisse difficile cavere; sed eo deceptum, quod neque commissum a se intellegeret quare timeret neque sine causa timendum putaret. 3 Quod si veteris contumeliae oblivisci vellet, num etiam recentium iniuriarum, quod eo invito iter per provinciam per vim temptassent, quod Haeduos, quod Ambarros, quod Allobrogas vexassent, memoriam deponere posse? 4 Quod sua victoria tam insolenter gloriarentur quodque tam diu se impune iniurias tulisse admirarentur, eodem pertinere. 5 Consuesse enim deos immortales, quo gravius homines ex commutatione rerum doleant, quos pro scelere eorum ulcisci velint, his secundo interdu res et diuturniorem impunitatem concedere. 6 Cum ea ita sint, tamen, si obsides ab iis sibi dentur, uti ea quae polliceantur facturos intellegat, et si Haeduis de iniuriis quas ipsis sociisque eorum intulerint, item si Allobrogibus satis faciunt, sese cum iis pacem esse facturum. 7 Divico respondit: ita Helvetios a maioribus suis institutos esse uti obsides accipere, non dare, consueverint; eius rem populum Romanum esse testem. Hoc responso dato discessit.</p> <p>15 Postero die castra ex eo loco movent. Idem facit Caesar equitatumque omnem, ad numerum quattuor milium, quem ex omni provincia et Haeduis atque eorum sociis coactum habebat, praemittit, qui videant quas in partes hostes iter faciant. Qui cupidius novissimum agmen insecuti alieno loco cum equitatu Helvetiorum proelium committunt; et pauci de nostris cadunt. 2 Quo proelio sublatis Helvetiis, quod quingentis equitibus tantam multitudinem equitum propulerant, audacius subsistere non numquam et</p>
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