



# Smart Embedded Evaluation Kit Getting Started Guide

## TouchGFX V4.12.3

### Doc. V1.0

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## Revision history:

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2019-03-20	Release Candidate	RC
2019-03-22	First Release	V1.0
2019-09-24	P10, added Note, P17, modify list of .tpa files	V1.1
2019-10-16	Touchgfx design update	Vp
2019-10-17	Screenshots change to Designer V4.12.3	V1.0

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## Introduction

The Smart Embedded Evaluation Kit is intended to give the user a Jump Start in developing Applications for the Smart Embedded Modules.

The Evaluation Kit contains all necessary Hardware, Documentation and a Demo Example.

The Demo Example will run just by applying Power to the module.

This Guide describes the TouchGFX\* installation, installation of the STLINK-V2 programmer, the directory structure of an Application and how a new application can be created with TouchGFX Designer.

For every Smart Embedded Module we release, we will generate an Interface Description Document as well as a Document describing an Application Example that comes with the Evaluation Kit, using the Interfaces that come with the Module.

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\* TouchGFX is owned by STMicroelectronics. For information visit: [www.st.com/stm32gui](http://www.st.com/stm32gui) or [www.touchgfx.com](http://www.touchgfx.com)  
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## Table of Contents

Revision history: .....	2
Legal Disclaimer: .....	2
Table of Contents .....	4
1. Evaluation Kit Description.....	5
1.1 General .....	5
1.2 Picture of Evaluation Kit Box .....	5
2. Installation of TouchGFX Designer .....	6
2.1 Download TouchGFX Designer .....	6
3. Installation of STM32 ST-Link Utility Programming Software .....	7
3.1 Download the Programming utility .....	7
4. Getting familiar with TouchGFX.....	8
4.1 TouchGFX on Youtube.....	8
4.2 Application Template Packages for EDT Smart Embedded Modules .....	9
4.2.1 Activate Simulator .....	12
4.3 Browse Code.....	13
4.4 Run the Project on the Target Hardware .....	14
4.4.1 Run Application on Target .....	15
5. Installing EDT specific Application Templates .....	16

## 1. Evaluation Kit Description

### 1.1 General

The Evaluation Kit consists of:

- Smart Embedded Module
- Power Supply cable and a number of extra interface cables
- ST-Link USB Programmer with Cable to programming connector
- USB Cable for ST-LINK Programmer
- USB Memory Stick with Documentation and Application Example

### 1.2 Picture of Evaluation Kit Box



## 2. Installation of TouchGFX Designer

TouchGFX, now owned by STMicroelectronics, is free of charge and can be used to develop applications for Smart Embedded Modules.

### 2.1 Download TouchGFX Designer

Go to [https://www.st.com/content/st\\_com/en/stm32-graphic-user-interface.html](https://www.st.com/content/st_com/en/stm32-graphic-user-interface.html)

Scroll down to Development Tools and click on 'TouchGFXDesigner'.

#### SOFTWARE DEVELOPMENT TOOLS

Part Number	Manufacturer	Description
TouchGFXDesigner	ST	TouchGFX graphic design and code generation tool

You will be redirected to another webpage where you find the download button at the bottom of the page.

#### Get Software

Part Number	Download	Previous versions
+ TouchGFXDesigner	<a href="#">Get Software</a>	Select version ▼

You will be asked to accept the license agreement and registration is necessary.

At the time this document is written, the version of TouchGFXDesigner is 4.12.3. The size of the download file is ~200MB.

Once the installation is finished you can start using TouchGFX.

#### **Hint if you are new to TouchGFX:**

Check the TouchGFX videos on YouTube and surf the TouchGFX.com website. There are lots of useful information to be found there.

### 3. Installation of STM32 ST-Link Utility Programming Software

The ST-Link Utility software can be used stand-alone but is also used by TouchGFX Designer to download applications directly to the Smart Embedded module from within the Designer. Note that TouchGFX will generate an error if the ST-Link Utility is running during the 'Run Target' process.

#### 3.1 Download the Programming utility

Go to <http://www.st.com/en/development-tools/stsw-link004.html>

#### Get Software

Part Number	General Description	Software Version	Supplier	Download
STSW-LINK004	STM32 ST-LINK utility	4.5.0	ST	<a href="#">Get Software</a>

Click on 'Get Software' button

You will be asked to Accept the License agreement and Register. Once downloaded, unzip the file and run the installation program. Follow the instructions and install the Drivers also.

#### Picture of ST-LINK programmer



#### Connections from Programming connector to ST-LINK

Pin #	Name	I/O	Description
1	VDD	P	Target VDD connect to Pin 1 on ST-LINK/V2
2	SWO	O	Not used for programming
3	SWDIO	IO	Connect to Pin 7 on ST-LINK/V2
4	SWCLK	I	Connect to Pin 9 on ST-LINK/V2
5	NRST	I	RESET connect to Pin 15 on ST-LINK/V2
6	VSS	P	GND Connect to Pin 4 on ST-LINK/V2

A Programming Cable is supplied with the Evaluation Kit.

## 4. Getting familiar with TouchGFX

### 4.1 TouchGFX on Youtube

Click on below link and check the TouchGFX Designer example videos:

<https://www.youtube.com/playlist?list=PLMwuljkA-155LSn9y9PYEHao2onyj2ZNw>

Watch all 5 instruction videos to get an idea of how Designer works. It is highly recommended to develop a few Projects using Buttons to navigate to different Screens, using sliders and other widgets to get familiar with Designer and Interactions.



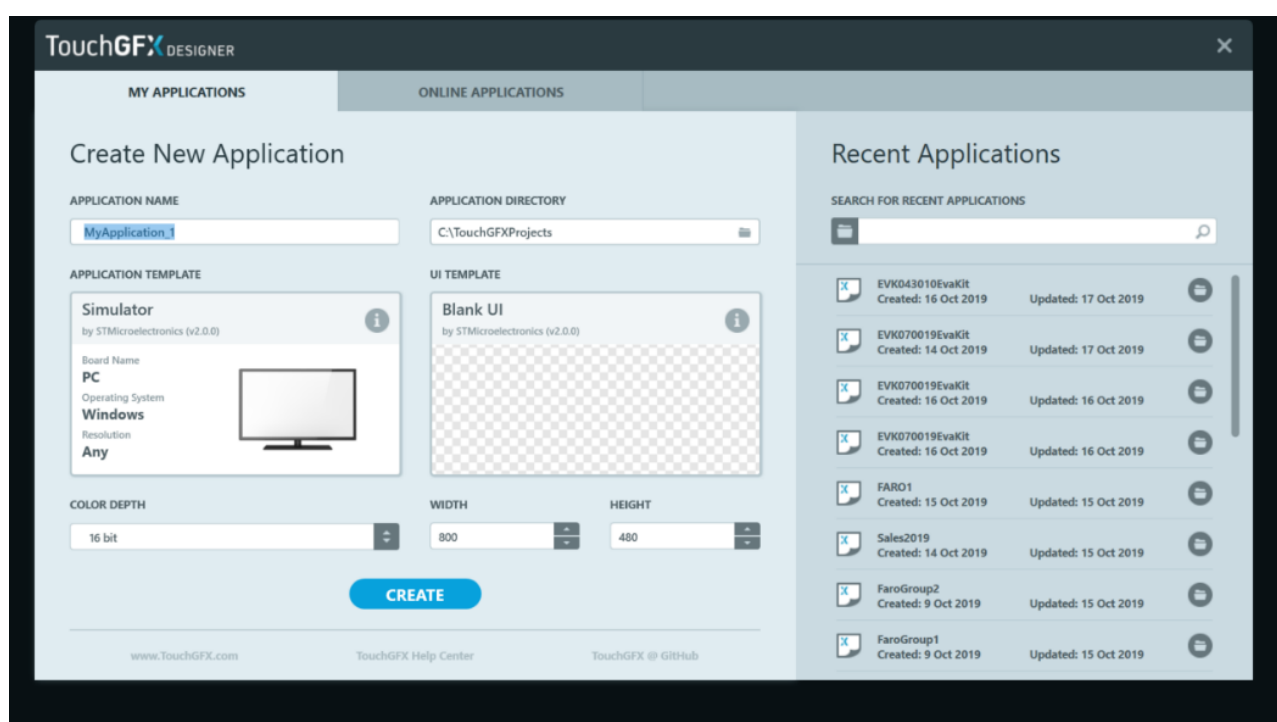
## 4.2 Application Template Packages for EDT Smart Embedded Modules

EDT has developed a number of 'Packages' that makes it very easy to develop applications with TouchGFX and run the Project directly on Smart Embedded Boards.

These are now integrated in Designer and EDT Smart Embedded Modules can be selected in Designer when creating a new application.

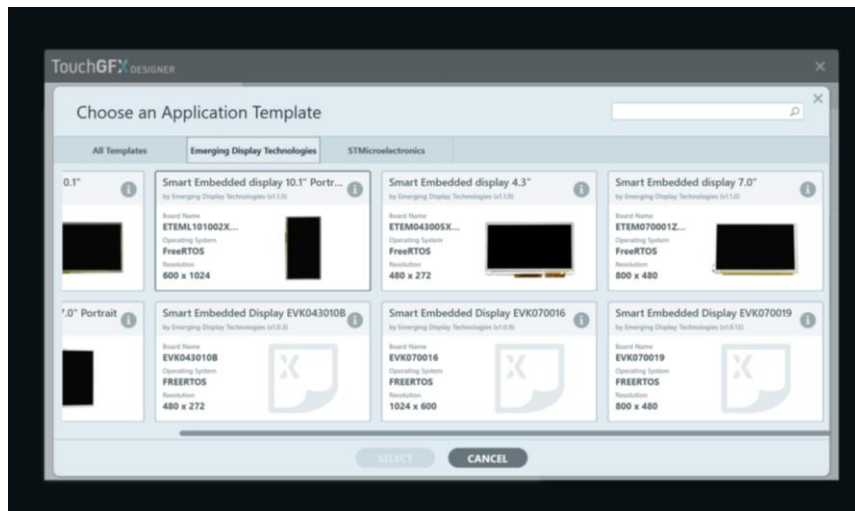
Start TouchGFXDesigner.

Click on 'File', 'New' and the 'Create New Application' Window will open.

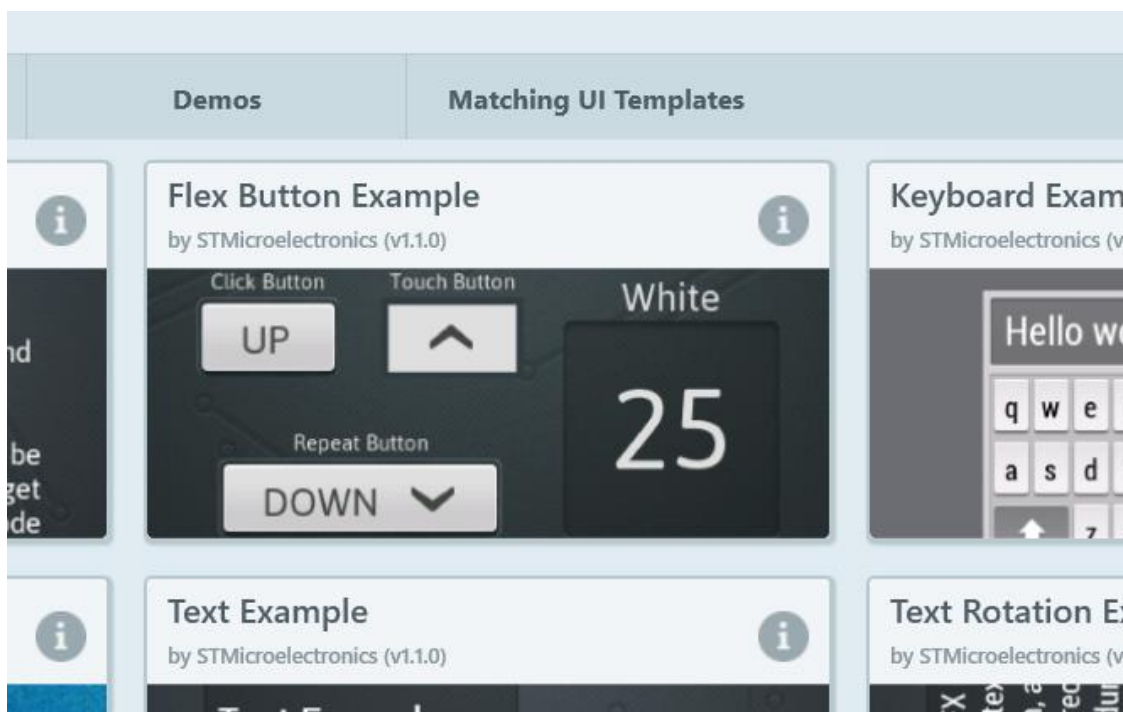


Move the Cursor to the APPLICATION TEMPLATE and Click on 'Change'.

Select the Emerging Display Technologies pane and select the template.

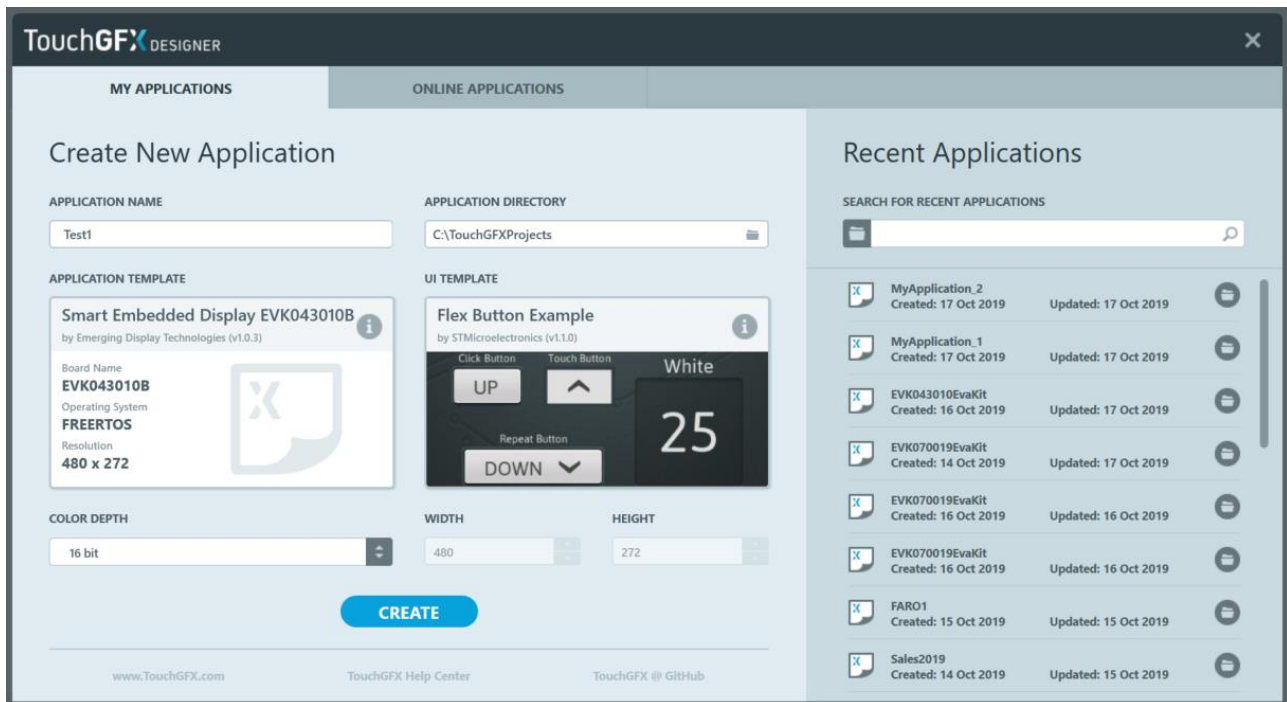


Move the Cursor to the Blank UI window and select one of the Application Templates. <sup>1</sup>

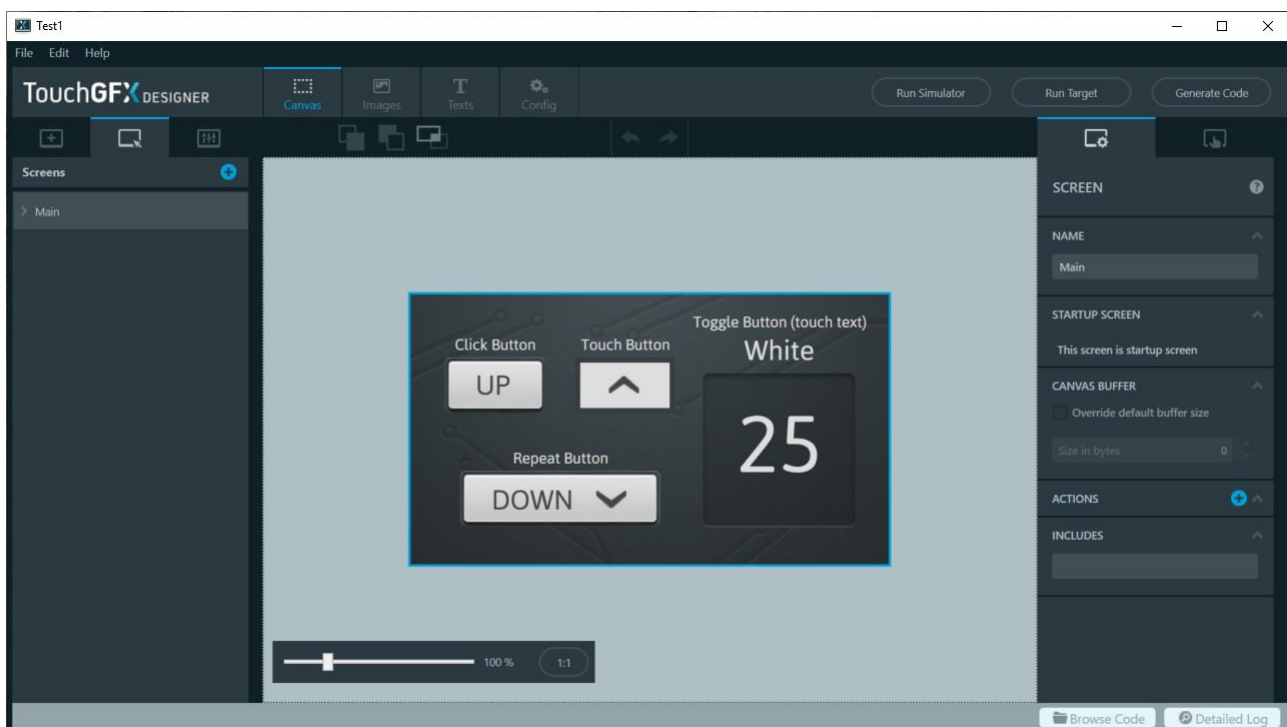


<sup>1</sup> If you don't find any EDT Application Templates read section 5, Version of Template might be changed

Finally click on 'CREATE'

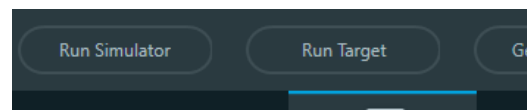


And the Project will be created.



## 4.2.1 Activate Simulator

Click on 'Run Simulator' in the upper right corner. The Simulator will start after the Project has been compiled, and you can now use the mouse to activate the buttons.



Screenshot of the simulator.

### 4.3 Browse Code

Click on 'Browse Code' in lower right corner, and you will see the Project Directory structure as follows:

Windows (C:) > TouchGFXProjects > MyApplication_1 > TouchGFX				
Navn	Ændringsdato	Type	Størrelse	
assets	16-10-2019 09:32	Filmappe		
build	16-10-2019 09:33	Filmappe		
config	16-10-2019 09:32	Filmappe		
generated	16-10-2019 09:32	Filmappe		
gui	16-10-2019 09:32	Filmappe		
simulator	16-10-2019 09:32	Filmappe		
target	16-10-2019 09:32	Filmappe		
application	16-10-2019 09:32	CONFIG-fil	1 KB	
MyApplication_1	16-10-2019 09:32	TouchGFX 4.10.0 ...	15 KB	
output_CompileSimulator	26-07-2019 10:06	Tekstdokument	1 KB	
output_GenerateAssets	26-07-2019 10:06	Tekstdokument	1 KB	
output_PostGenerate	26-07-2019 10:06	Tekstdokument	0 KB	
output_RunSimulator	26-07-2019 10:06	Tekstdokument	0 KB	

Code generated by TouchGFXDesigner is located in the 'generated' folder. The source code files in this folder should never be modified, but all functions can be 'overlayed' in the 'gui' folder and modified.

Windows (C:) > TouchGFXProjects > MyApplication_1 > TouchGFX > gui > src				
Navn	Ændringsdato	Type	Størrelse	
common	16-10-2019 09:32	Filmappe		
main_screen	16-10-2019 09:32	Filmappe		
model	16-10-2019 09:32	Filmappe		

In the following link you can read about adding code in this project.

<https://touchgfx.zendesk.com/hc/en-us/articles/205443982>

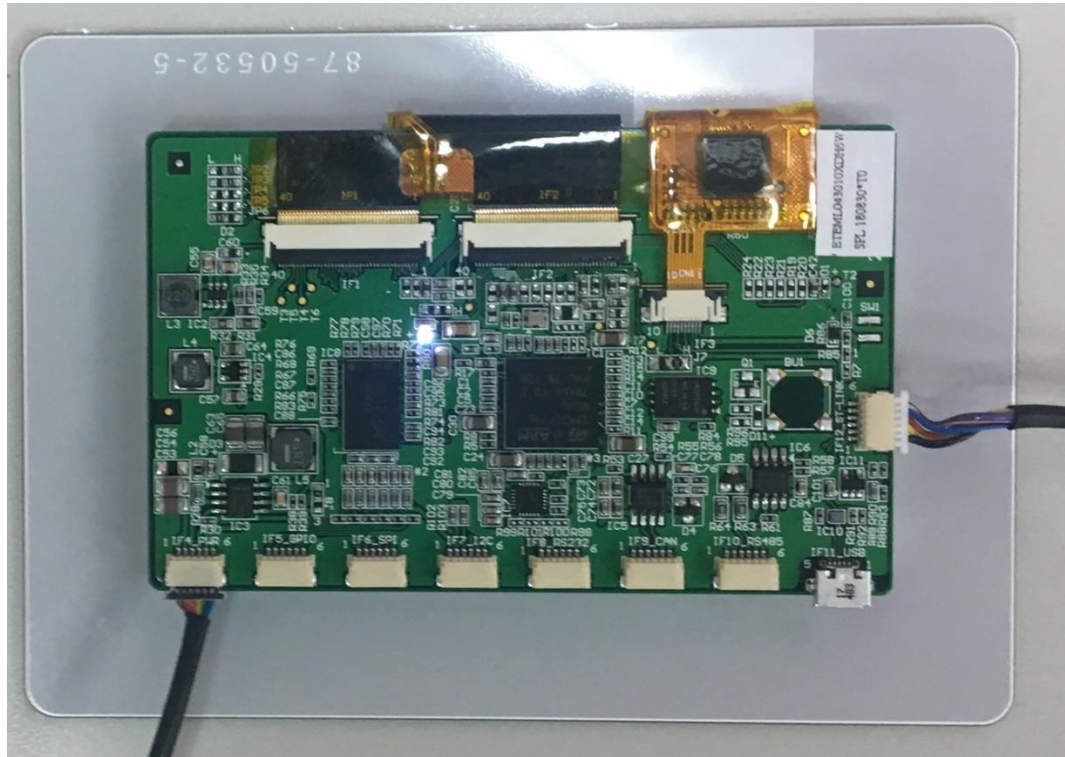
There is a more detailed Getting Started - TouchGFX tutorial with many examples here:

<https://touchgfx.zendesk.com/hc/en-us/categories/200529271-Getting-Started>

#### 4.4 Run the Project on the Target Hardware

Now it is time to connect the ST-LINK Programming adapter to the PC using the USB cable and the 6-pin connector to the programming connector on the module. Connect also the Power Source to the **Power** connector.

**BE CAREFUL TO CONNECT POWER ONLY TO THE POWER CONNECTOR!**



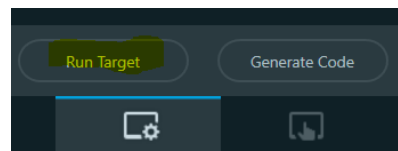
Programming

**POWER**

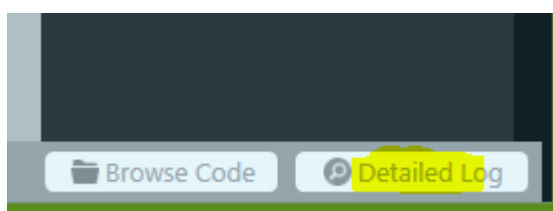


#### 4.4.1 Run Application on Target

Click 'Run Target' and the Project will be compiled for the Target Processor and when compiled and linked, the code will be downloaded to the Target.



Hint: Click on 'Detailed Log' in the lower Right Corner to see the output from Compiler and Linker.











## 5. Installing EDT specific Application Templates

Application Templates are located in the 'TouchGFX\4.12.3\app\packages' folder.

You can get the '*modulename.tpa*' files from EDT and copy them to this folder.

Ask your Distributor or send a request to:

[support@edt-europe.com](mailto:support@edt-europe.com)

Windows (C:) > touchgfx > 4.12.3 > app > packages			
Navn	Ændringsdato	Type	Størrelse
 BlankUI-2.0.0.tpa	10-09-2019 09:35	TPA-fil	2 KB
 EVK043005B-1.0.3.tpa	08-08-2019 05:34	TPA-fil	75.624 KB
 EVK043010B-1.0.3.tpa	08-08-2019 07:20	TPA-fil	73.144 KB
 EVK070006B-1.0.3.tpa	06-08-2019 12:28	TPA-fil	65.360 KB
 EVK070016B-1.0.7.tpa	23-07-2019 11:07	TPA-fil	113.725 KB
 EVK070019B-1.0.11.tpa	26-07-2019 04:10	TPA-fil	73.981 KB
 EVK101002B-1.0.3.tpa	09-08-2019 02:59	TPA-fil	69.385 KB
 Simulator-2.0.0.tpa	10-09-2019 09:35	TPA-fil	16 KB

2

<sup>2</sup> The Filenames wil most likely be different from the files shown.