# Smart Embedded Evaluation Kit Getting Started Guide

# TouchGFX V4.10.0

# Doc. V1.0

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# Revision history:

| Date | Page, change | Version |
|------------|---------------------|-------------|
| 2019-03-13 | Started Document | Preliminary |
| 2019-03-20 | Release Candidate | RC |
| 2019-03-22 | First Release | V1.0 |

## Legal Disclaimer:

# 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 or www.touchgfx.com*
*TouchGFX is a registered and/or unregistered trademark of STMicroelectronics International NV or its affiliates in the EU and/or elsewhere. In particular, TouchGFX is Registered in the US Patent and Trademark Office*

# Table of Contents

# 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/STM32GUI

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

| Development Tools | | |
|---|---|---|
| **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 | Software Version | Marketing Status | Supplier | Download |
|---|---|---|---|---|
| TouchGFXDesigner | 4.10.0 | Active | ST | Get Software |

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 4.10.0. The size of the download file is ~190MB.

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

Click on 'Get Software' on bottom of page.  Get Software

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=PLMwuIjkA-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.
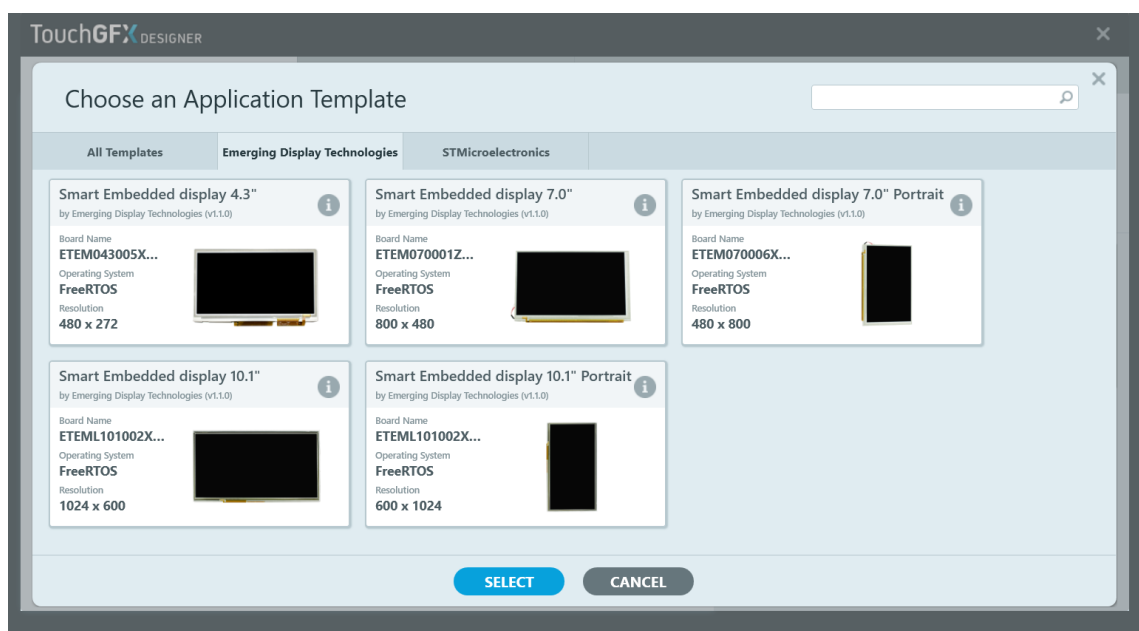
Start TouchGFXDesigner.

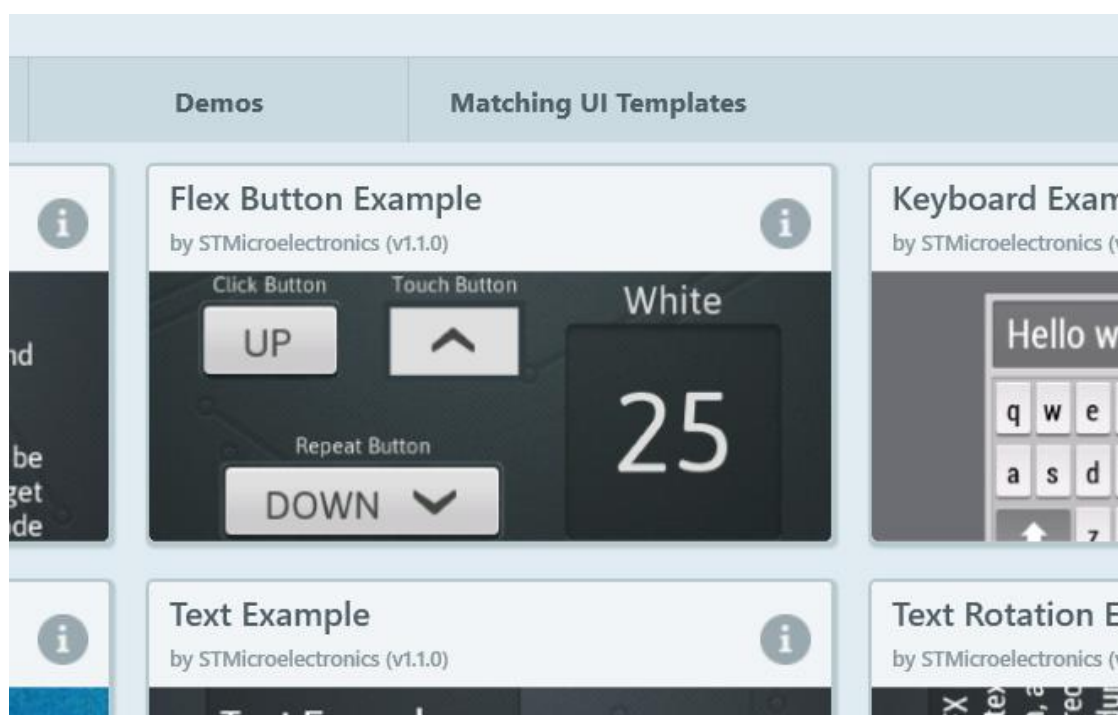Click on 'File', 'New' and the 'Create New Application' Window will open.
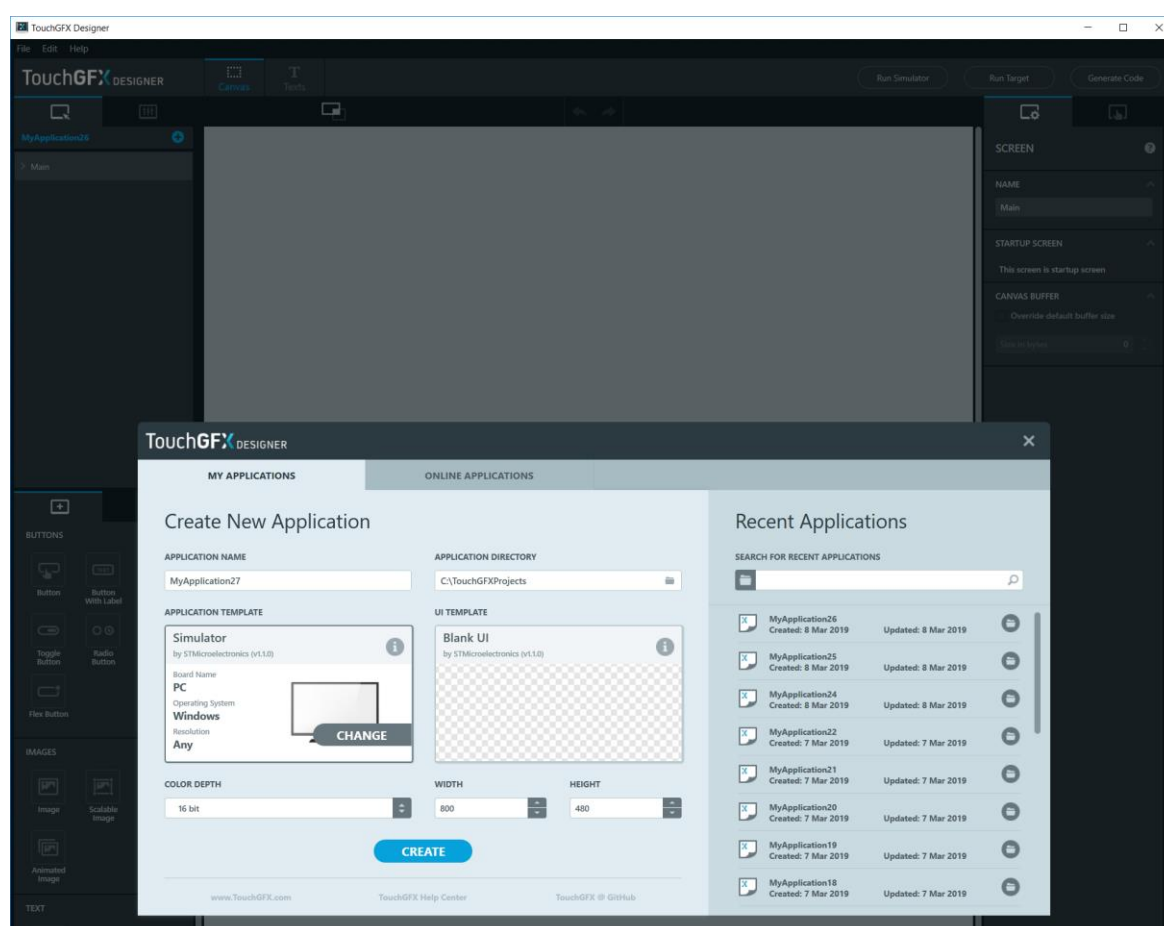


Move the Cursor to the APPLICATION TEMPLATE and  Click on 'Change'.

Select the Emerging Display Technologies pane and select the size and orientation of the template.



Move the Cursor to the Blank UI window and select one of the Application Templates. [1]



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[1] If you don't find any EDT Application Templates read section 5
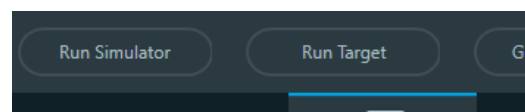
Finally click on 'CREATE'



And the Project will be created.
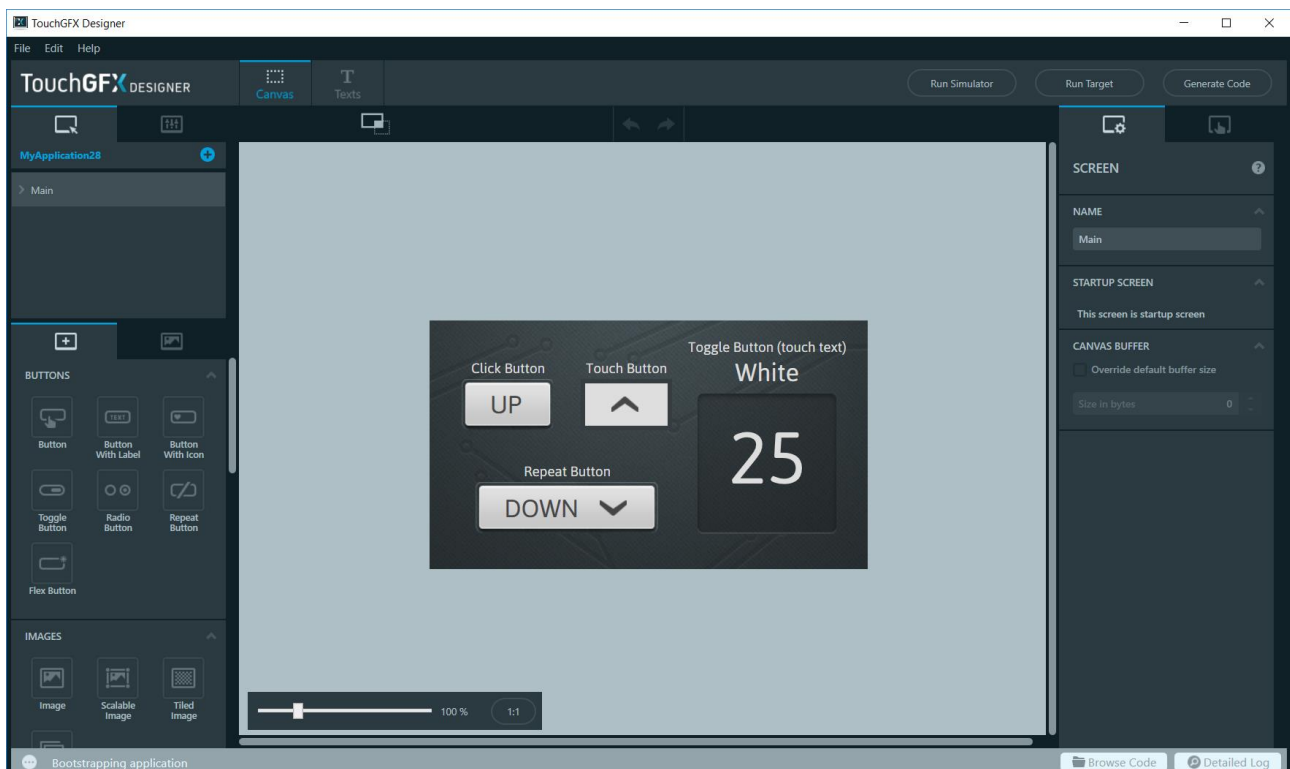
### 4.2.1  Activate Simulator

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:

| Navn | Ændringsdato | Type | Størrelse |
|---|---|---|---|
| assets | 08-03-2019 12:33 | Filmappe | |
| build | 08-03-2019 12:33 | Filmappe | |
| config | 08-03-2019 12:33 | Filmappe | |
| generated | 08-03-2019 12:33 | Filmappe | |
| gui | 08-03-2019 12:33 | Filmappe | |
| simulator | 08-03-2019 12:33 | Filmappe | |
| touchgfx | 08-03-2019 12:33 | Filmappe | |
| MyApplication25 | 08-03-2019 12:36 | TouchGFX 4.10.0 D... | 15 KB |
| output_CompileSimulator | 08-03-2019 12:36 | Tekstdokument | 1 KB |
| output_GenerateAssets | 08-03-2019 12:36 | Tekstdokument | 1 KB |
| output_PostGenerate | 08-03-2019 12:36 | Tekstdokument | 0 KB |
| output_RunSimulator | 08-03-2019 12:36 | Tekstdokument | 0 KB |

Windows (C:) > TouchGFXProjects > MyApplication25

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 > MyApplication25 > gui > src

| Navn | Ændringsdato |
|---|---|
| common | 08-03-2019 12:33 |
| main_screen | 08-03-2019 12:33 |
| model | 08-03-2019 12:33 |

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.

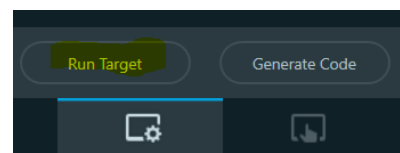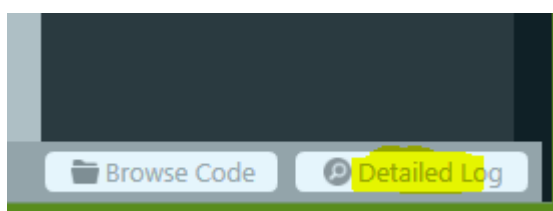**BE CAREFUL TO CONNECT POWER *ONLY* TO THE POWER CONNECTOR!**
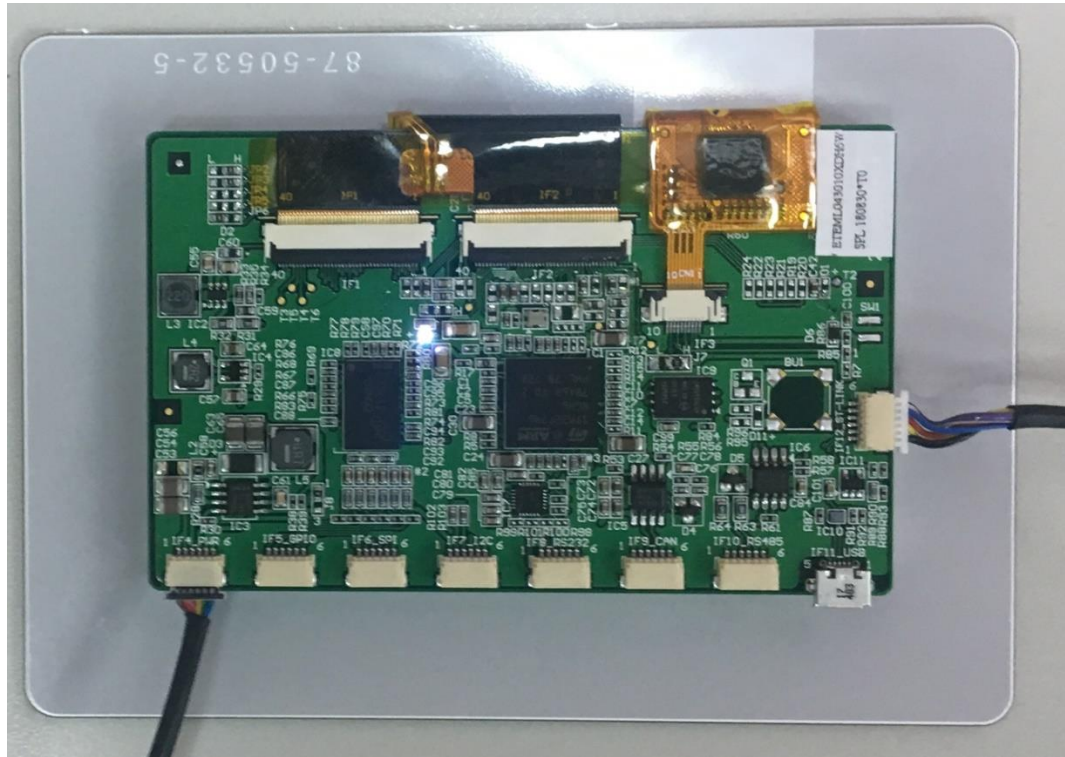


Programming

**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\4.10.0\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



| Navn | Ændringsdato | Type |
|------|------|------|
| BlankUI-1.1.0.tpa | 23-11-2018 16:54 | TPA-fil |
| ETEM043005XDH6-1.3.0.tpa | 10-12-2018 10:48 | TPA-fil |
| ETEM070006XDH6-1.3.0.tpa | 10-12-2018 10:06 | TPA-fil |
| ETEM070006XDH6PORTRAIT-1.3.0.tpa | 10-12-2018 10:30 | TPA-fil |
| ETEML101002XDH6-1.3.0.tpa | 10-12-2018 11:05 | TPA-fil |
| ETEML101002XDH6PORTRAIT-1.3.0.tpa | 10-12-2018 11:26 | TPA-fil |
| Simulator-1.1.0.tpa | 23-11-2018 16:54 | TPA-fil [2] |

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[2] The Filenames wil most likely be different from the files shown.