EB GUIDE extension and application examples

Working with the examples for EB GUIDE Studio and EB GUIDE Monitor extensions and EB GUIDE GTF extensions and applications

Version 6.9.0.200120181101

Copyright © 2019 Elektrobit Automotive GmbH

Legal notice

1. Background information

With EB GUIDE you can use extensions and applications to customize the visual appeareance and behavior of your EB GUIDE Studio installation, your EB GUIDE model or to enhance EB GUIDE Monitor with additional functionalities. A collection of ready-to-use source code examples shows you how to create your own EB GUIDE Studio and EB GUIDE Monitor extensions, as well as EB GUIDE GTF extensions and applications. To download these examples, see https://www.elektrobit.com/ebguide/examples/.

The downloaded EB_GUIDE_Examples.zip file contains all files needed for building and using the examples:

▶ The folder EB_GUIDE_Studio contains examples for EB GUIDE Studio extensions.

   For more information, see section 2, "EB GUIDE Studio extension examples".

▶ The folder EB_GUIDE_GTF contains examples for EB GUIDE GTF extensions and applications.

   For more information, see section 3, "EB GUIDE GTF extension and application examples".

▶ The folder EB_GUIDE_Monitor contains examples for EB GUIDE Monitor extensions.

   For more information, see section 4, "EB GUIDE Monitor extension examples".

2. EB GUIDE Studio extension examples

You can customize the visual appeareance and behavior of your EB GUIDE Studio installation. A collection of ready-to-use source code examples shows you how to create your own EB GUIDE Studio extensions.

To download these examples, see https://www.elektrobit.com/ebguide/examples/.

For instructions on how to create your own EB GUIDE Studio extension, see EB GUIDE Studio user documentation.

2.1. Background information

2.1.1. List of current EB GUIDE Studio extension examples

The following EB GUIDE Studio extension examples are currently available:

Table 1. List of current EB GUIDE Studio extension examples

Name	Content
AnnotationsPlugin	Shows how to modify the user interface of EB GUIDE Studio. With this example, you create customized docking components, view models, views, or model elements.
CommandLinePlugin	Shows how to create your own command line option. With this example, the number of events of a model on project load are printed via a command line option.
ExportStatisticsPlugin	Shows how to extend the EB GUIDE Studio exporter.
MenuActionPlugin	Shows how to modify the user interface of EB GUIDE Studio. With this example, a customized menu for the menu bar, a toast notification, and a call of a model action is created.
ProjectMetadataPlugin	Shows how to hook into the project lifecycle of an EB GUIDE model.
ValidationPlugin	Shows how to write a custom validator that can add entries to the **Problems** component in EB GUIDE Studio.

2.2. Working with EB GUIDE Studio extension examples

The following instructions show you how to build and use the EB GUIDE Studio extension examples.

NOTE   **Default window layout**

All instructions and screenshots use the default window layout. If you want to follow the instructions, we recommend to set the EB GUIDE Studio window to default layout by selecting **Layout** > **Reset to default layout**.

2.2.1. Building the EB GUIDE Studio extension examples with Visual Studio

Building the EB GUIDE Studio extension examples with Visual Studio

Prerequisite:

- Visual Studio 2017 version 15.9 or later is installed.

- EB GUIDE Studio is installed.

- You downloaded and unzipped the EB_GUIDE_Examples.zip folder.

Step 1
Go to `$EXAMPLE_PATH/EB_GUIDE_Examples/EB_GUIDE_Studio` and navigate to an extension example.

Step 2
In Visual Studio, open the `EB_GUIDE_Studio_examples.sln` file and build the project.

A `.dll` file is created.

2.2.2. Running the EB GUIDE Studio extension examples

For instructions on how to run the EB GUIDE Studio extension examples, see the `Readme.md` enclosed with each example.

3. EB GUIDE GTF extension and application examples

With EB GUIDE you can use extensions and applications to customize the visual appeareance and behavior of your EB GUIDE model. A collection of ready-to-use source code examples shows you how to create your own EB GUIDE GTF extensions and applications.

To download these examples, see https://www.elektrobit.com/ebguide/examples/.

3.1. Background information

3.1.1. List of current EB GUIDE GTF examples

The following EB GUIDE GTF examples are currently available:

Table 2. List of current EB GUIDE GTF examples

Name	Content
`ApplicationInteractionEx-ample`	Shows interaction between HMI and business logic
`BasicExample`	Shows basic structure of an EB GUIDE GTF extension
`BloomEffect`	Adds a bright light effect for an image
`ConfigurationImporterExam-ple`	Shows how to load an own custom configuration `.json` file, other than the ones provided by the export
`CoreStageExample`	Shows how to use core stages in EB GUIDE GTF

Name	Content
CrepuscularEffect	Adds a volumetric light scattering effect for special visual effects of the scene
DatapoolExample	Shows basic concept of datapool communication
DependencyResolverExample	Shows the dependency resolving example in EB GUIDE GTF
EventExample	Shows concept of event communication
ExtendedContainerWidget	Adds a custom container widget with child visibility control
ExternalKeyInputExample	Shows concept of key-based interaction
ExternalTouchInputExample	Shows concept of touch-based interaction
FocusPolicyWidgetFeature	Adds a custom focus policy to a widget
FocusedWidgetFeature	Adds a custom focus reaction on rectangle widgets
GaussianBlur	Adds a widget with Gaussian blur effect. All child widgets are affected by the blurring. This example also shows how to create a custom framebuffer.
ImageDataExample	Shows how to load images from an application into the datapool items of a model. The images can be static, like .png files or dynamic like a Mandelbrot image.
ModelStageExample	Shows how to use model stages in EB GUIDE GTF
RippleEffect	Adds a ripple effect for special visual effects of the scene
ScriptFunction	Adds custom add EB GUIDE Script function
ScreenshotExample	Shows how to capture the last renderer result
SettingsExample	Shows how to deal with EB GUIDE GTF settings
TriangleWidget	Adds a basic triangle-shaped widget for different design options
TraceOutputExample	Adds own output plug-in for printing trace messages in a .csv file
WindowListExample	Shows basic concept with list handling

3.1.2. Structure of EB GUIDE GTF examples

Each example in the examples folder consists of the following:

▶ EB GUIDE model in the model folder.

 Each model contains prebuilt examples and you can use them without previous compilation.

▶ Example source code in the src folder

▶ build files

3.2. Working with EB GUIDE GTF examples

The following instructions show you how to build, use, and migrate the EB GUIDE GTF examples.

NOTE **Migration of EB GUIDE GTF extensions**

The extension examples provided on https://www.elektrobit.com/ebguide/examples/ are compatible with the newest EB GUIDE software and ready-to-use.

If your EB GUIDE project contains custom widgets and you want to update your EB GUIDE software, you first need to build the custom widgets with the newest EB GUIDE GTF version. Afterwards, you can migrate the EB GUIDE Studio projects. For instructions, see section 3.2.3, "Migrating EB GUIDE projects with custom widgets".

NOTE **Default window layout**

All instructions and screenshots use the default window layout. If you want to follow the instructions, we recommend to set the EB GUIDE Studio window to default layout by selecting **Layout** > **Reset to default layout**.

3.2.1. Building the EB GUIDE GTF examples

The following instructions show you how to build the EB GUIDE GTF examples.

3.2.1.1. Building the EB GUIDE GTF examples with Visual Studio

All EB GUIDE GTF examples are provided with Visual Studio 2017 solution and project files.

NOTE **Preconfigured Visual Studio solution files**

All Visual Studio solution files are preconfigured to use required files from the EB GUIDE default installation folder. If you have installed EB GUIDE in a custom folder, adapt the values of `Additional include directories` and `Additional library directories` in the Visual Studio project file.

Building the EB GUIDE GTF examples with Visual Studio

All EB GUIDE GTF examples are provided with Visual Studio 2017 solution and project files.

Prerequisite:

- Visual Studio 2017 version 15.9 or later is installed.

Step 1
Open the solution file of the example in Visual Studio 2017 and run the build.

If EB GUIDE Studio is not installed in the default path, adapt the paths accordingly in your Visual Studio project.

Step 2
Copy the resulting `.dll` files into the resource sub-folder of the EB GUIDE project. Hereby you overwrite the existing `.dll` files.

The extension is now available in your EB GUIDE model.

3.2.1.2. Building the EB GUIDE GTF examples with CMake generated Visual Studio solution file

With CMake 3.7.1 you can generate the Visual Studio solution file for the EB GUIDE examples. Afterwards, you can open the generated solution file with Visual Studio and build the `.dll` files of all EB GUIDE examples at once.

	Building the EB GUIDE GTF examples with CMake generated Visual Studio solution

Prerequisite:

- Visual Studio 2017 version 15.9 or later is installed.

- CMake 3.7.1 is installed.

Step 1
Start `cmake-gui` of CMake 3.7.1.

Step 2
Set **Where is the source code:** to the root folder of the EB GUIDE GTF examples.

Step 3
Set **Where to build the binaries:** to a dedicated working directory with write permissions, e.g. `C:\Users\...\Desktop\eb_guide_sdk_examples_build`.

Step 4
Click **Configure**.

Agree on creating missing folders and using the generator for **Visual Studio 15 2017**.

Step 5
CMake will report an error in the configuration process.

Set the value of the CMake variable `CMAKE_INSTALL_PREFIX` a dedicated install folder with write permissions, e.g. `C:\Users\...\Desktop\eb_guide_sdk_examples_install`.

Step 6
Set the value of the CMake variable `GTF_TARGET_SDK_ROOT` to the folder that contains the EB GUIDE GTF EB GUIDE SDK.

Step 7
Click **Configure**.

The CMake error is solved.

Step 8
Click **Generate**.

Your Visual Studio solution for the EB GUIDE examples is now generated and you can close `cmake-gui`.

Step 9
Start Visual Studio and open the `EB_GUIDE_GTF_examples.sln` from the folder you configured previously for **Where to build the binaries:** in the `cmake-gui`.

Step 10
In the **Solution Explorer** of Visual Studio, right-click **INSTALL**. Select **Build** from the context menu to build and install all EB GUIDE GTF example plug-ins.

All EB GUIDE GTF examples plug-ins are now available in the folder you configured previously for `CMAKE_-INSTALL_PREFIX` in the `cmake-gui`.

Step 11
Copy the resulting `.dll` files into the resource subfolder of the EB GUIDE projects. Hereby you overwrite the existing `.dll` files.

Your plug-ins are now available in your EB GUIDE models.

For information on how to use CMake, see https://cmake.org/runningcmake.

3.2.2. Using the EB GUIDE GTF extension examples

The following instruction shows you how to use the extension examples in EB GUIDE Studio.

Using an EB GUIDE GTF extension example in your EB GUIDE project

Prerequisite:

- You downloaded and unzipped the `EB_GUIDE_examples` file.

Step 1
Select an example and navigate to the folder `model`.

Step 2
Double-click the EB GUIDE project file.

Your extension is now available in your EB GUIDE model.

3.2.3. Migrating EB GUIDE projects with custom widgets

If your EB GUIDE project contains custom widgets and you want to update your EB GUIDE software, you first need to build the custom widgets with the newest EB GUIDE GTF version. Afterwards, you can migrate the EB GUIDE Studio projects.

NOTE   **Check release notes**

Before you start the migration, check the EB GUIDE release notes for further migration instructions.

The extension examples provided on https://www.elektrobit.com/ebguide/examples/, are compatible with the newest EB GUIDE Studio version.

	Migrating the EB GUIDE project

Step 1
Build the custom widgets with the new EB GUIDE GTF version.

Step 2
Copy the library files into the resource folder of your EB GUIDE project.

Step 3
Migrate the EB GUIDE project by opening it with the new EB GUIDE Studio version and confirm the migration prompt.

The EB GUIDE project is migrated to the new EB GUIDE Studio version.

4. EB GUIDE Monitor extension examples

With EB GUIDE you can use extensions to enhance EB GUIDE Monitor with additional functionalities. A collection of ready-to-use source code examples shows you how to create your own EB GUIDE Monitor extensions.

To download these examples, see https://www.elektrobit.com/ebguide/examples/.

4.1. Background information

4.1.1. List of current EB GUIDE Monitor extension examples

The following EB GUIDE Monitor extension examples are currently available:

Table 3. List of current EB GUIDE Monitor extension examples

Name	Content
`MonitorUiExtension`	Shows how how to modify the user interface of EB GUIDE Monitor. In this example, you create a "Hello World" component.
`MonitorUiExtensionDatapool`	Shows how to add a list of all datapool items in a separate tab component in EB GUIDE Monitor
`MonitorUiExtensionEvents`	Shows how to add a list of all events in a separate UI component in EB GUIDE Monitor
`MonitorUiExtensionTar-getViewer`	Shows how to take and save a screenshot from the currently running EB GUIDE model
`MonitorUiExtensionMacro`	Shows how to track EB GUIDE Monitor sent messages, and convert them into an EB GUIDE Monitor script.
`MonitorRemoteViewPlugin`	Shows how to take a single screenshot or several screenshots in a specified interval.

4.1.2. Structure of EB GUIDE Monitor extension examples

The folder `monitor` contains a subfolder for every EB GUIDE Monitor extension example with the following files:

► Visual Studio solution file

► Visual Studio project file

4.2. Building and working with with EB GUIDE Monitor extension examples

For instructions on how to build and work with the EB GUIDE Monitor extension examples, see the `Readme.-md` enclosed with each example.