

Resource module user guide

TRAVEO™ T2G family

About this document

Scope and purpose

Welcome to the resource module user guide. This guide describes the architecture, configuration, and usage of the resource module. Some background information will be given. The description is based on the MCU driver.

Intended audience

This document is intended for anyone who uses the resource module of the TRAVEO™ T2G family.

Document structure

Chapter **1 General overview** gives a brief introduction to the resource module, explains the embedding of the driver in the AUTOSAR environment, and describes the supported hardware and development environment.

Chapter **2 Using the resource module** provides the steps required to use the resource module.

Chapter **3 Structure and dependencies** describes the file structure and the dependencies of the resource module.

Chapter **4 EB tresos Studio configuration interface** describes the module's configuration with the EB tresos Studio.

Abbreviations and definitions

Abbreviation	Definition
AUTOSAR	Automotive Open System Architecture
BSW	Basic Software. Standardized part of software which does not fulfill a vehicle functional job.
ECU	Electronic Control Unit
μC	Microcontroller
MCAL	Microcontroller Abstraction Layer
MCU	Microcontroller Unit
EB tresos ECU AUTOSAR Suite	A collection of AUTOSAR Basic Software modules and a Runtime Environment integrated in a common configuration and build environment.
EB tresos Studio	Elektrobit Automotive configuration framework

About this document

Related documents

AUTOSAR requirements and specifications

None.

Elektrobit automotive documentation

Bibliography

[1] EB tresos Studio for ACG8 user's guide.

Hardware documentation

The hardware documents are listed in the delivery notes.

Related standards and norms

None.

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1 General overview

1.1 Introduction to resource module

Resource Module provides the resource File (RF) to reduce the complexity of user configuration process. The resource module helps other MCAL modules by:

- Reading RF
- Storing RF information in an internal memory (for instance, Java memory)
- Providing RF information to other modules

An RF of a resource module describes all resources and features of the CPU. For example:

- Number of port pins
- Amount of flash, RAM, or both and their location
- Allowed OSC frequencies and prescalers
- Register address for peripherals like Can
- Data types for atomic access

Each electronic control unit (ECU) configuration refers to exactly one RF dependent on the selected architecture, derivative, subderivative, or all. By changing one of these basic ECU settings, the RF used will be changed automatically.

A lot of information read from the RF can be saved as derivative/subderivative or architecture dependent. The loaded value is saved in the resource module as a key/value pair and can be referred from other MCAL modules. The complete concept works only for source code or implementation of drivers and modules, which are compatible with all derivatives, subderivatives, and supported features.

1.2 Supported hardware

The resource module supports the TRAVEO™ T2G microcontroller. The supported derivatives are listed in the release notes.

Additional derivatives which contain only a subset of the capabilities of one derivative mentioned above can be implemented or supported by providing a resource file with its properties.

1.3 Development environment

The development environment corresponds to AUTOSAR release 4.2.2.

2 Using the resource module

This chapter describes all necessary steps to incorporate the resource module.

2.1 Installation and prerequisites

Note: Before you start, see the *EB tresos Studio for ACG8 user's guide* [1] for the following information:

1. The installation procedure of EB tresos ECU AUTOSAR components.
2. The usage of the EB tresos Studio.
3. The usage of the EB tresos ECU AUTOSAR build environment (It includes an explanation of how to setup and integrate the own application within the EB tresos ECU AUTOSAR build environment).

The installation of the resource module complies with the general installation procedure for EB tresos ECU AUTOSAR components given in the documents mentioned above. If the resource module has been successfully installed, the driver will appear in the module list of the EB tresos Studio (see *EB tresos Studio for ACG8 user's guide* [1]).

This guide assumes that the project is properly set up and is using the application template as described in the *EB tresos Studio for ACG8 user's guide* [1]. This template provides the necessary folder structure, project, and makefiles needed to configure and compile an application within the build environment. You need to be familiar with the usage of the command line shell.

2.2 Configuring the resource module

Figure 1 shows the subderivative configuration item based on a TRAVEO™ T2G microcontroller example.

Generally, user configuration is not needed in the resource plugin configuration. Each delivery of the software includes exactly one derivative that is supported. It is necessary to specify the exact package or derivative that is used. The used package or derivative is displayed in the outline section of the project explorer, as shown in **Figure 1**. In this example, the **ResourceSubDerivative** used is **CYT2B78CAS**. Then, you can select the derivative in the resource plugin.

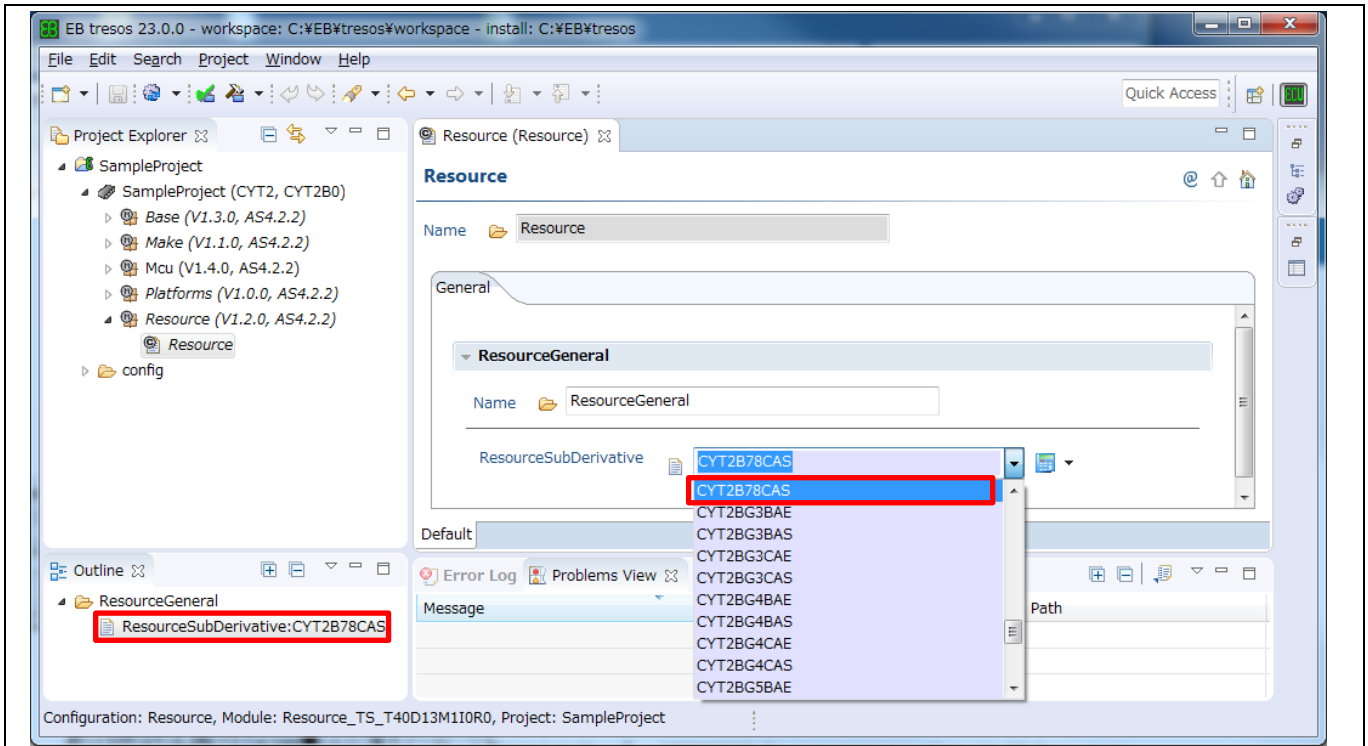


Figure 1 Subderivative configuration in the GUI

When changing from one subderivative to another, not all available configuration items are omitted. All configuration items that are not supported are also listed and displayed in the **Problems View** tab.

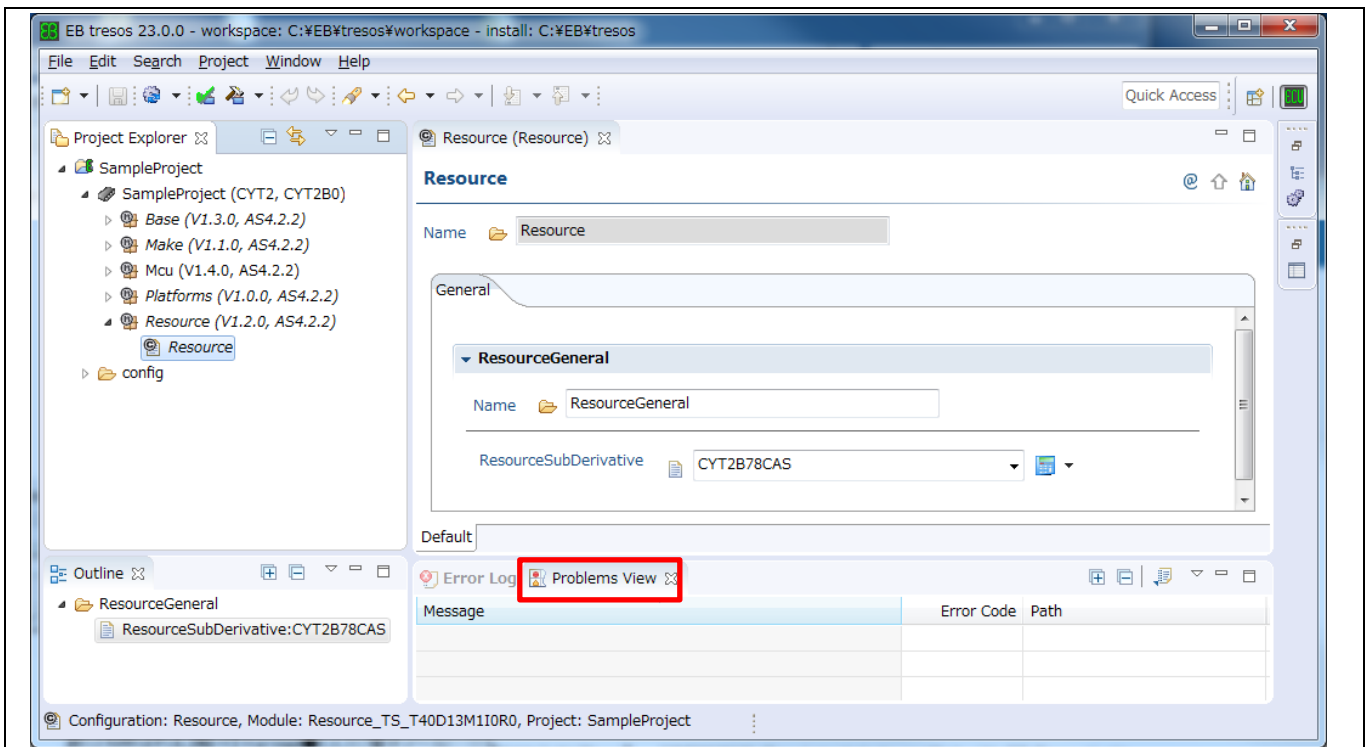


Figure 2 CYT2B78CAS (example) configuration

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The complete ECU was configured for the subderivative CYT2B78CAS as shown in **Figure 2**. The configuration does not have errors.

Simple migration to another subderivative is possible by changing the global subderivative in the resource plugin. All potential problems that must be considered by the migration will be listed in the **Problems View** tab as shown in **Figure 3**. For example, some port pins, pwm, or clock are unavailable in the new subderivative.

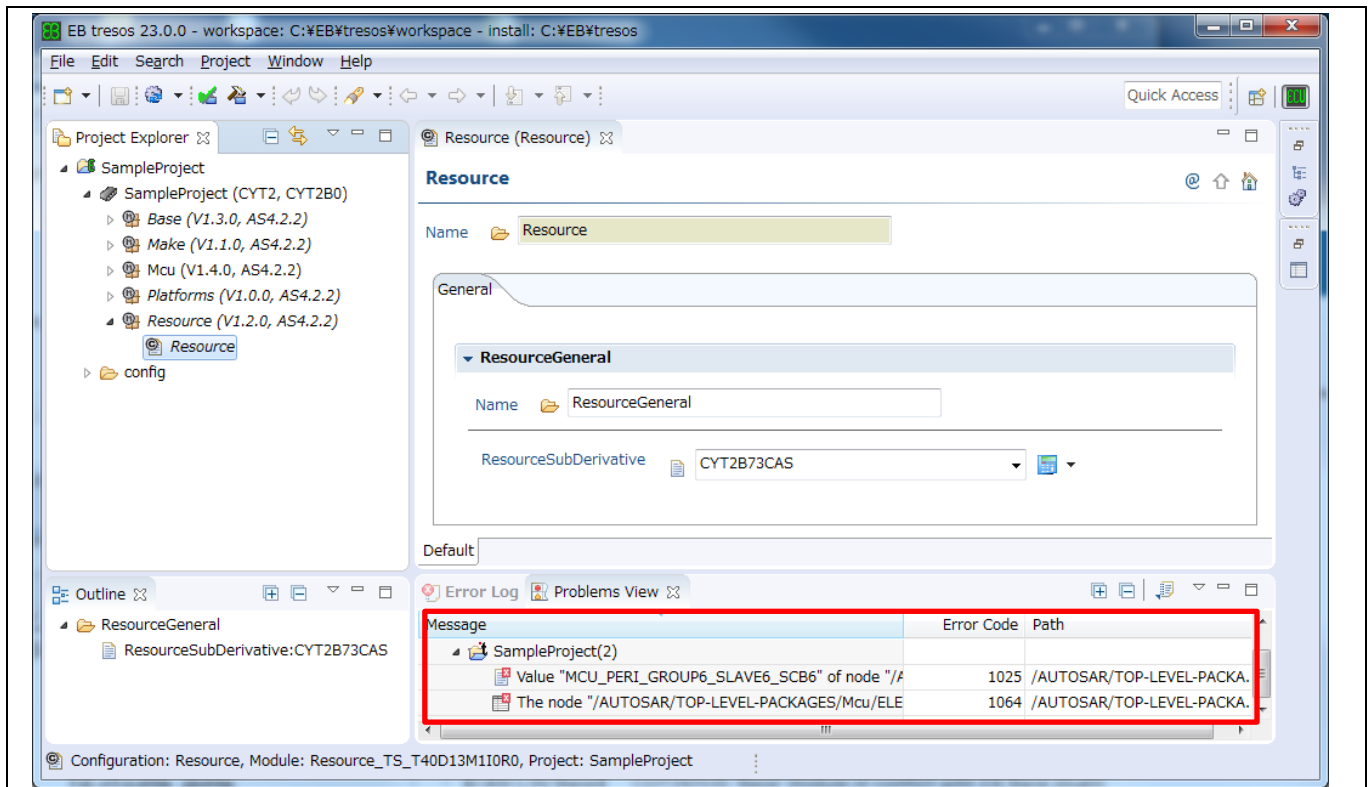


Figure 3 Migration to CYT2B73CAS

Note: No BH16M License user can select a BH16M derivate (CYT6B0 and CYT4B0_BH16M) at the EB tresos project creation. However, no BH16M License user cannot refer to BH16M device information because BH16M device information is only included in resource module v2.

CYT6B0 and CYT4B0_BH16M are derivate values required when specifying the BH16M device in ResourceSubDerivative.

3 Structure and dependencies

The resource module consists of static, configuration, and generated files.

3.1 Static files

- $\$(PLUGIN_PATH)=\$(TRESOS_BASE)/plugins/Resource_TS_*$ is the path to the resource module plugin.
- $\$(PLUGIN_PATH)/autosar$ directory contains the vendor specific parameter definition with architecture and derivative specific adaptations to create a correct matching parameter configuration for the resource module.
- $\$(PLUGIN_PATH)/resources$ directory contains the resource files for the derivative specific.

3.2 Configuration files

The resource module is configured with the EB tresos Studio. When saving a project, the configuration description is written to the *Resource.xdm* file. This file is in the $\$(PROJECT_ROOT)/config$ in your *project* folder. This file serves as input for the generation of the make file during the build process.

3.3 Generated files

During the build process, the file *swcd/Resource_Bswmd.arxml* containing BSW module description is generated based on the current configuration description. This file is in the *output/generated* sub folder of your *project* folder.

Note: Additional steps are required for the generation of BSW module description.
In EB tresos Studio, follow the menu path **Project > Build Project**. Click **generate_swcd**.

3.4 Dependencies

There are no dependencies for the resource module.

4 EB tresos Studio configuration interface

The GUI is not part of this delivery. For further information see *EB tresos Studio for ACG8 user's guide* [\[1\]](#).

4.1 General configuration

The `ResourceGeneral` container has the `ResourceSubDerivative` parameter, which is used to select a subderivative.

Revision history

Revision	Issue date	Description of change
**	2018-05-23	New spec.
*A	2019-06-04	Updated hardware documentation information.
*B	2020-11-19	MOVED TO INFINEON TEMPLATE.
*C	2021-12-22	Updated to Infineon style.
*D	2023-03-03	Updated 2.2 Configuring the resource module.
*E	2023-12-08	Web release. No content updates.

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