

3rdParty MCAL Integration

Technical Reference

Infineon TC3xx

Version 2.2.3

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Status	Released

Document Information

History

Author	Date	Version	Remarks
Andrej Gazvoda	2018-02-08	1.0.0	Basic Integration of TC3xx MCAL Series
Roland Suess	2018-02-09	2.0.0	Update Document Properties (Type Technical Reference)
Andrej Gazvoda	2018-03-05	2.0.1	Added chapters 2.1.1 and 2.1.2
Andrej Gazvoda	2018-04-11	2.1.0	Document Rename
Andrej Gazvoda	2018-04-24	2.1.1	Added chapter 2.1.4
Roland Suess	2018-06-12	2.1.2	Added chapter 2.1.5
Kishore Gunda	2018-07-20	2.2.0	Updated or Added the chapter 2.1.1, 2.1.2, 2.1.3, 2.1.4, 2.1.5, 2.1.6, 2.1.7
Andrej Gazvoda	2018-04-24	2.2.1	Update of chapter 2.1.9
Kishore Gunda	2018-09-06	2.2.2	Update of folder name patch to patches
Andrej Gazvoda	2018-09-25	2.2.3	Update of chapter 1.3, 2.1, 2.1.4, 2.1.5, 2.1.6, 2.1.7, 2.1.8
Kishore Gunda	2018-10-23	2.2.4	<p>Corrected the reference path mentioned in the sections 2.1.1, 2.1.2, 2.1.3.</p> <p>A new section 2.1.11 is added to explain the issue with the header file Test_Mcal_SafetyError.h</p> <p>A new section 2.1.12 is added to explain the issue Icu: Wrong Reference Value to Gpt Timer Configuration</p>
Kishore Gunda	2018-10-24	2.3.0	<p>Integrate the latest Package.</p> <p>MC-ISAR_AS42x_AURIX2G_TC38xA_TC39xB_BASIC_1.0.0-rc</p> <p>MC-ISAR_AS42x_AURIX2G_TC38xA_TC39xB_CD_1.0.0-rc</p>

Reference Documents

No.	Source	Title	Version
[1]	Vector	TechnicalReference_3rdParty-MCAL-Integration.pdf	See Delivery
[2]	Vector	ScreenCast_McalIntegration_Tresos.pdf	See Delivery

Scope of the Document

This document contains information about the integration of 3rd Party MCAL into Vector software stack.

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1 MCAL Integration

1.1 Type of Integration

Basic Integration

Both configuration tools, EB tresos™ as well as DaVinci Configurator, are used for configuration.

Recommended workflow:

Start initial configuration with EB tresos™, export it in AUTOSAR format and import it into DaVinci Configurator. Generation and minor changes in configuration are done in DaVinci Configurator.

For usage with DaVinci Configurator 5 please refer to chapter 'Mixed configuration tool usage' in the document `TechnicalReference_3rdParty-MCAL-Integration.pdf` [1].

Furthermore, you will find a Multimedia Link in the document `ScreenCast_McalIntegration_Tresos.pdf` [2].

1.2 MCAL Location within SIP

The 3rd Party MCAL is separated from the Vector parts within the SIP. Furthermore, it might not be part of the delivery. Please refer to chapter 'First Steps' in document `TechnicalReference_3rdParty-MCAL-Integration.pdf` [1].

1.3 Supported 3rd Party Products

This integration supports the following Infineon targets:

- ▶ TC38x A-Step
- ▶ TC39x B-Step



Note

Please refer to the Release Notes of the 3rd Party Products for further information, e.g. regarding supported versions, derivatives and compilers.



Note

Please be aware that only official 3rd Party vendor releases are part of this Vector integration package. Therefore, any customer-specific releases cannot be considered.

1.4 Configuration Tools

- ▶ DaVinci Configurator 5
- ▶ Tresos

2 Vector Comment

Please consider the attached `TechnicalReference_3rdParty-MCAL-Integration.pdf` [1] for further information regarding Vector integration and setup of a project.

2.1 Known Issues

Please be aware that the MCAL in use might not be the latest one. Updates or Hot Fixes might be available from the vendor.

If you discover errors in the MCAL during development, or suspect that faulty behavior could be caused by the MCAL, please contact the MCAL vendor. If there are updates for your MCAL available, it might be helpful to use them. The corresponding release notes will tell you which errors have been fixed.

The errors documented in the following chapters were detected at Vector during the MCAL integration and reported to the manufacturer.



Note

If in the future Vector integrates a version of the MCAL in which a known error has been fixed, the description of it will no longer be included in this document.



Caution

Modifications to the MCAL, which may be described in the following chapters, must take place after the `3rdPartyMCALIntegrationHelperTool` has run. Otherwise the changes will be overwritten.

2.1.1 MC-ISAR_AS42x_AURIX2G_TC38xA_TC39xB_1.0.0-rc

2.1.1.1 Extern Definition for the function `Spi_MainFunction_Handling` is defined with a compiler switch.

The function `Spi_MainFunction_Handling` is called unconditionally in the file `SchM_Spi.h` without any compiler switch but the extern definition of this function is defined in `spi.h` file with a compiler switch.

This leads to an error as below.

In file included from `../../external/BSW/ThirdParty/Mcal_Tc3xx/Supply/MC-ISAR_AS42x_AURIX2G_TC38xA_TC39xB_BASIC_1.0.0-beta/McIsar/Src/Mcal/Tricore/Spi/ssc/src/Spi.c:75:`

`gendata/SchM_Spi.h:33: arguments given to macro 'Spi_MainFunction_Handling'`

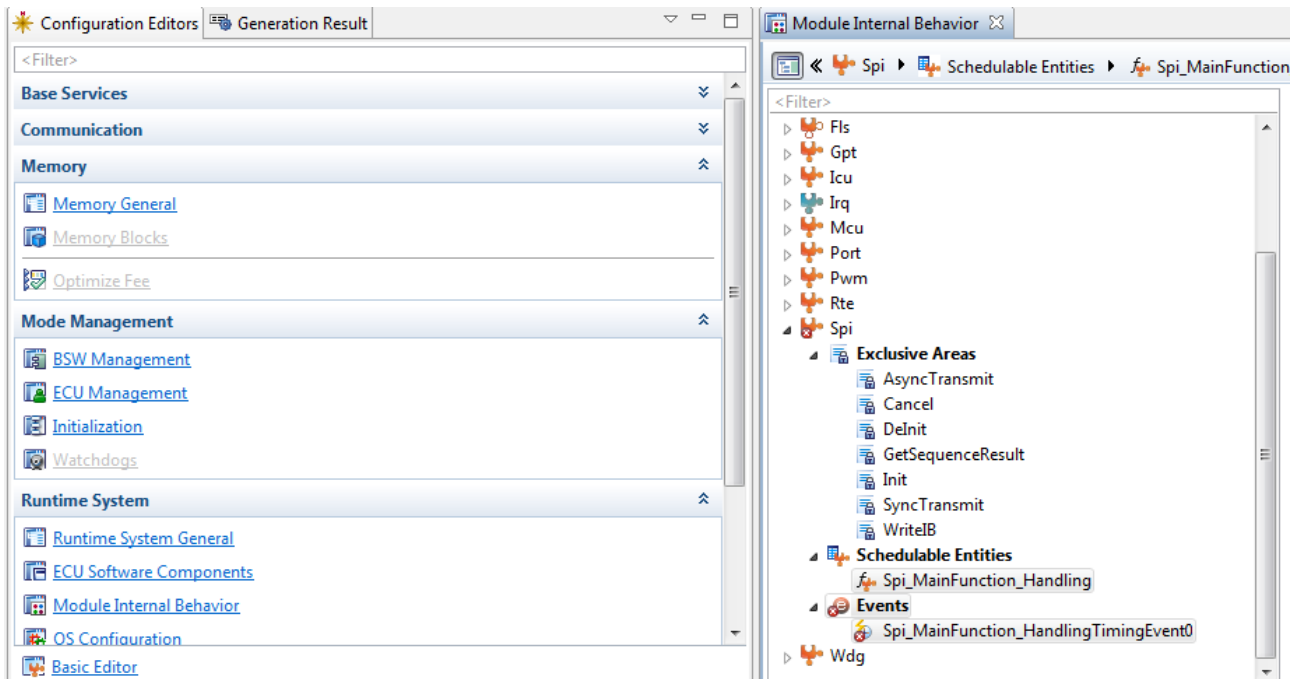


Workaround

Remove the configuration for Spi_MainFunction_Handling in

Runtime System → Module Internal Behavior → Spi → Schedulable Entities and Events

Please see the below image for some more information.



2.1.1.2 Test_Mcal_SafetyError.h: No such file or directory

While checking for the dependency, If the macro APP_SW is not defined the below error occurs

Error Message:

In file included from ../../external/BSW/./ThirdParty/Mcal_Tc3xx/Supply/MC-ISAR_AS42x_AURIX2G_TC38xA_TC39xB_BASIC_1.0.0-beta/DemoWorkspace/McalDemo/TC38A/0_Src/BaseSw/Infra/Autosar_Srv/Mcal_SafetyError.c:38:

../../external/BSW/./ThirdParty/Mcal_Tc3xx/Supply/MC-ISAR_AS42x_AURIX2G_TC38xA_TC39xB_BASIC_1.0.0-beta/DemoWorkspace/McalDemo/TC38A/0_Src/BaseSw/Infra/Autosar_Srv/Mcal_SafetyError.h:42: Test_Mcal_SafetyError.h: No such file or directory

../../external/BSW/./ThirdParty/Mcal_Tc3xx/Supply/MC-ISAR_AS42x_AURIX2G_TC38xA_TC39xB_BASIC_1.0.0-beta/DemoWorkspace/McalDemo/TC38A/0_Src/BaseSw/Infra/Autosar_Srv/Mcal_SafetyError.c:40: Test_Print.h: No such file or directory

../../external/BSW/./ThirdParty/Mcal_Tc3xx/Supply/MC-ISAR_AS42x_AURIX2G_TC38xA_TC39xB_BASIC_1.0.0-

beta/DemoWorkspace/McalDemo/TC38A/0_Src/BaseSw/Infra/Autosar_Srv/Mcal_SafetyError.c:43: Test_Mcal_SafetyError.h: No such file or direct



Workaround

Define the APP_SW as below in Compiler_Cfg.h to solve this issue.

```
#define APP_SW 3
```

2.1.2 MC-ISAR_AS42x_AURIX2G_TC38xA_TC39xB_1.0.0-beta

2.1.2.1 Wdg: Wrong Reference Value to Mcu Clock

The Wdg module description file Wdg_17_Scu.bmd contains a wrong value for the parameter WdgSystemClockRef in the container Wdg/WdgSettingsConfig. As a workaround, you might add the following manual input for the reference value in the DaVinci Configurator 5 Basic Editor view (consider the configured names of the Mcu containers):

```
/Mcu/Mcu/McuModuleConfiguration/McuClockSettingConfig_0/McuClockReferencePointConfig
```

This issue has been reported to Infineon with issue number **0000053912-3126**

2.1.2.2 Gpt: Wrong Reference Value to Gpt Clock

The Gpt module description file Gpt.bmd contains a wrong value for the parameter GptClockReference in the container /Gpt/GptDriverConfiguration/GptClockReferencePoint. As a workaround, you might add the following manual input for the reference value in the DaVinci Configurator 5 Basic Editor view (consider the configured names of the Mcu containers):

```
/Mcu/Mcu/McuModuleConfiguration/McuClockSettingConfig_0/McuClockReferencePointConfig
```

This issue has been reported to Infineon with issue number **0000053912-2886**.

2.1.2.3 Adc: Wrong Reference Value to Adc Clock

The Adc module description file Adc.bmd contains a wrong value for the parameter AdcSystemClock in the container Adc/AdcConfigSet. As a workaround, you might add the following manual input for the reference value in the DaVinci Configurator 5 Basic Editor view (consider the configured names of the Mcu containers):

```
/Mcu/Mcu/McuModuleConfiguration/McuClockSettingConfig_0/McuClockReferencePointConfig
```

This issue has been reported to Infineon with issue number **0000053912-2886**.

2.1.2.4 MCU: Incorrect configuration parameters for McuInitDelInitApiMode and McuRuntimeApiMode

In MCU Configuration: For the parameter McuInitDelInitApiMode, McuRuntimeApiMode there are the values MCU_MCAL_SUPERVISOR and MCU_MCAL_USER1 in the xdm file, while in the bdm files they are only called MCAL_SUPERVISOR and MCAL_USER1. This leads to errors in the generation. This issue has been reported to Infineon with issue number **0000053912-3296**



Workaround

Replace Copy_Mcu.arxml in BSWMD\Mcal_Tc3xx with the modified description file Mcu.bmd, which can be found in the folder *VectorIntegration\patches\Mcu_Aurix2G*.

2.1.2.5 MCU: MCUSTMAllocationConf container missing in bmd files

In MCU configuration: There is a container MCUSTMAllocationConf in the xdm file, but it is missing in the bmd files. This leads to errors in DaVinci Cfg5, the component cannot be generated. This issue has been reported to Infineon with issue number **0000053912-3296**.



Workaround

Replace Copy_Mcu.arxml in BSWMD\Mcal_Tc3xx with the modified description file Mcu.bmd, which can be found in the folder *VectorIntegration\patches\Mcu_Aurix2G*.

2.1.2.6 ICU: Incorrect lower multiplicity for IcuSignalMeasurement, IcuTimestampMeasurement containers

ICU configuration: The 2 containers IcuSignalMeasurement, IcuTimestampMeasurement are mandatory in the bdm file, but should only be present if IcuMeasurementMode is configured accordingly. This leads to errors during generation with CFG5. This issue has been reported to Infineon with issue number **0000053912-3202**.



Workaround

Replace Copy_Icu.arxml in BSWMD\Mcal_Tc3xx with the modified description file Icu.bmd, which can be found in the folder *VectorIntegration\patches\Mcu_Aurix2G*.

2.1.2.7 Updated BMD files for DIO, GPT, IRQ, PWM

Infineon has provided updates for the BMD files for the modules Dio, Gpt, Icu, Irq, Pwm. For further information contact Infineon.



Workaround

Replace Copy_<MSN>.arxml in BSWMD\Mcal_Tc3xx with the modified description file <MSN>.bmd, which can be found in the folder *VectorIntegration\patches\Mcu_Aurix2G*.

2.1.2.8 Missing configuration parameter to enable/disable the Autosar version check

The compiler switch is not implemented for the inter module Autosar version check.

Like, if the code has inter-module version checks as below

```
If( < MSN 1>_AR_RELEASE_MAJOR_VERSION != < MSN  
2>_AR_RELEASE_MAJOR_VERSION),
```

then these has to be encapsulated in the compiler switch as below.

```
If (MSN_VERSION_CHECK_EXT_MODULES == STD_ON)
{
If( < MSN 1>_AR_RELEASE_MAJOR_VERSION != < MSN
2>_AR_RELEASE_MAJOR_VERSION)
}
}
```

This issue has been reported to Infineon with issue number **0000053913-1253**.



Workaround.

Comment the inter module version check code in case of any issues during compilation.

2.1.2.9 Mcu: Memory Section Error in Mcu_17_TimerIp.c

In Mcu_17_TimerIp.c, a Memory Section MCU_17_TIMERIP_START_SEC_CODE_ASIL_B_GLOBAL is opened in line 771 and closed in line 6413, but in between again new memory section MCU_17_TIMERIP_START_SEC_VAR_INIT_ASIL_B_GLOBAL_32 is opened in line 6325.

This leads to a compiler error.

In file included from include/MemMap.h:2151,

from ../../external/bsw/mcal_tc3xx/Mcu_MemMap.h:1,

from ../../external/BSW/ThirdParty/Mcal_Tc3xx/Supply/MC-ISAR_AS42x_AURIX2G_TC38xA_TC39xB_BASIC_1.0.0-beta/McIsar/Src/Mcal/Tricore/Mcu/ssc/src/Mcu_17_TimerIp.c:6333:

../../external/bsw/_common/MemMap_Common.h:1099: #error "MemMap_Common.h: New section opened before closing the former one. Please close the former code/const/data section before opening a new one. (Check_1)"



Workaround.

Updated Mcu_17_TimerIp.c is provided in VectorIntegration\patches\Mcu_Aurix2G

2.1.2.10 Extern Definition for the function Spi_MainFunction_Handling is defined with a compiler switch.

The function Spi_MainFunction_Handling is called unconditionally in the file SchM_Spi.h without any compiler switch but the extern definition of this function is defined in spi.h file with a compiler switch.

This leads to an error as below.

In file included from ../../external/BSW/./ThirdParty/Mcal_Tc3xx/Supply/MC-ISAR_AS42x_AURIX2G_TC38xA_TC39xB_BASIC_1.0.0-beta/McIsar/Src/Mcal/Tricore/Spi/ssc/src/Spi.c:75:
gendata/SchM_Spi.h:33: arguments given to macro `Spi_MainFunction_Handling'

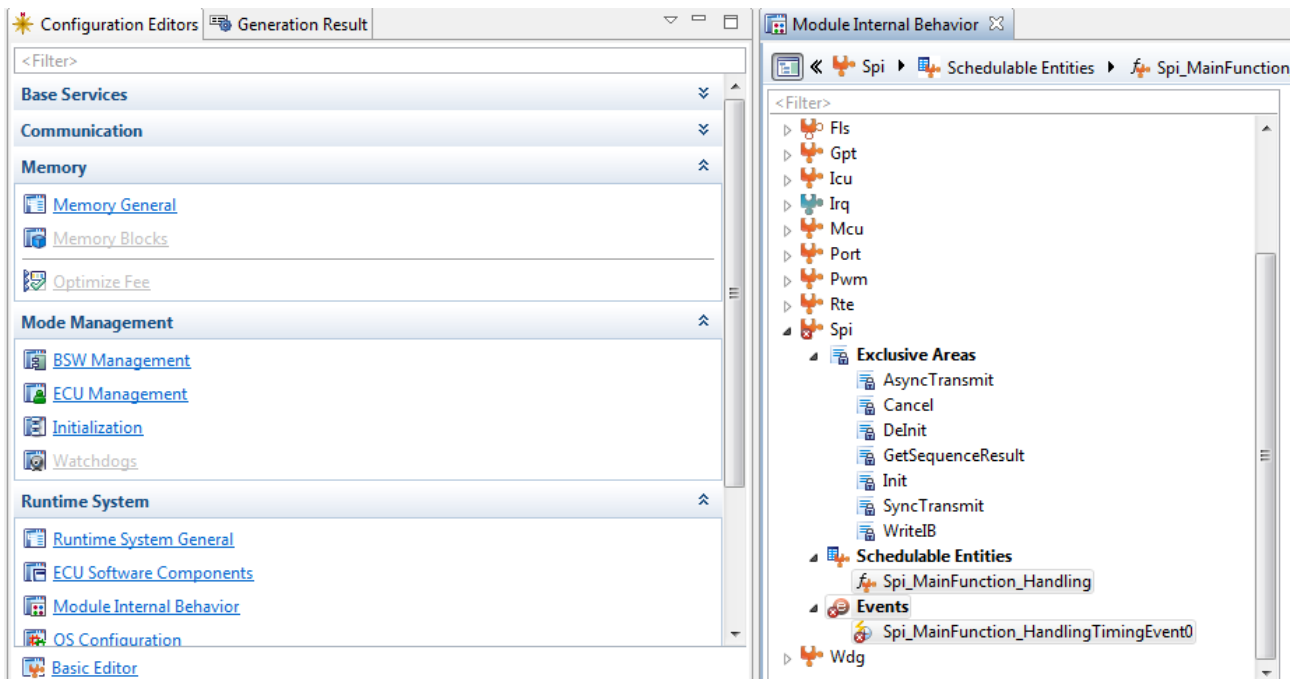


Workaround

Remove the configuration for Spi_MainFunction_Handling in

Runtime System → Module Internal Behavior → Spi → Schedulable Entities and Events

Please see the below image for some more information.



2.1.2.11 Test_Mcal_SafetyError.h: No such file or directory

While checking for the dependency, If the macro APP_SW is not defined the below error occurs

Error Message:

In file included from ../../external/BSW/./ThirdParty/Mcal_Tc3xx/Supply/MC-ISAR_AS42x_AURIX2G_TC38xA_TC39xB_BASIC_1.0.0-beta/DemoWorkspace/McalDemo/TC38A/0_Src/BaseSw/Infra/Autosar_Srv/Mcal_SafetyError.c:38:
../../external/BSW/./ThirdParty/Mcal_Tc3xx/Supply/MC-ISAR_AS42x_AURIX2G_TC38xA_TC39xB_BASIC_1.0.0-beta/DemoWorkspace/McalDemo/TC38A/0_Src/BaseSw/Infra/Autosar_Srv/Mcal_SafetyError.h:42: Test_Mcal_SafetyError.h: No such file or direct

```
../../../../external/BSW/./ThirdParty/Mcal_Tc3xx/Supply/MC-
ISAR_AS42x_AURIX2G_TC38xA_TC39xB_BASIC_1.0.0-
beta/DemoWorkspace/McalDemo/TC38A/0_Src/BaseSw/Infra/Autosar_Srv/Mcal_SafetyEr
ror.c:40: Test_Print.h: No such file or directory
```

```
../../../../external/BSW/./ThirdParty/Mcal_Tc3xx/Supply/MC-
ISAR_AS42x_AURIX2G_TC38xA_TC39xB_BASIC_1.0.0-
beta/DemoWorkspace/McalDemo/TC38A/0_Src/BaseSw/Infra/Autosar_Srv/Mcal_SafetyEr
ror.c:43: Test_Mcal_SafetyError.h: No such file or direct
```



Workaround

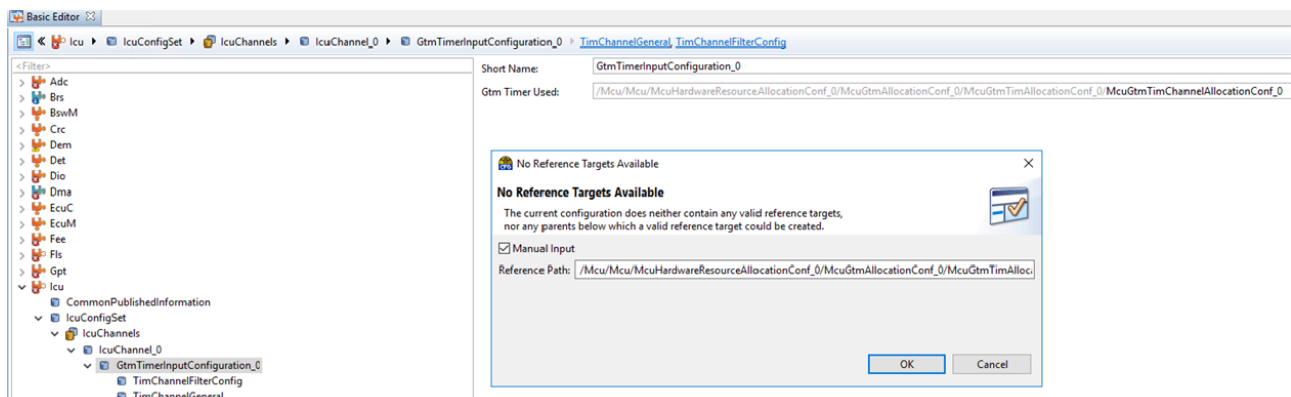
Define the APP_SW as below in Compiler_Cfg.h to solve this issue.

```
#define APP_SW 3
```

2.1.2.12 Icu: Wrong Reference Value to Gpt Timer Configuration

The Icu module description file Icu.bmd contains a wrong value for the parameter GtmTimerInputConfiguration_0 in the container /Icu/Icu/IcuConfigSet/IcuChannel_0. As a workaround, you might add the following manual input for the reference value in the DaVinci Configurator 5 Basic Editor view (consider the configured names of the Mcu containers):

```
/Mcu/Mcu/McuHardwareResourceAllocationConf_0/McuGtmAllocationConf_0/McuGtmTim
AllocationConf_0/McuGtmTimChannelAllocationConf_0
```



3 Glossary and Abbreviations

3.1 Glossary

Term	Description
3 rd party components / MCAL	BSW modules not provided by Vector. Vector may have integrated the software within the SIP but does not take over any responsibility regarding functionality of these modules.
DaVinci Configurator	Configuration and generation tool for Vector MICROSAR components

Table 3-1 Glossary

3.2 Abbreviations

Abbreviation	Description
MCAL	Microcontroller Abstraction Layer
AUTOSAR	Automotive Open System Architecture
SIP	Software Integration Package (as provided by Vector)
MSN	Module Short Name according AUTOSAR

Table 3-2 Abbreviations

4 Contact

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www.vector.com