User's Manual

RUCG Tool

User's Manual

Version.1.1.2

Target Device:
RH850/P1M

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Abbreviations and Acronyms

Abbreviation / Acronym	Description
ARXML/arxml	AUTOSAR xml
AUTOSAR	AUTomotive Open System Architecture
BSWMDT	Basic Software Module Description Template
<MSN>	Module Short Name
ECU	Electronic Control Unit
DMA	Direct Memory Access
ECU	Electronic Control Unit
MCAL	Microcontroller Abstraction Layer
MCU	Microcontroller Unit
XML	eXtensible Mark-up Language
DLL	Dynamic Linking Library

Definitions

Terminology	Description
.arxml	AUTOSAR XML File.
.trxml	Translation XML File.
PerlCtrl	The utility converts a Perl program into an ActiveX control.

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Chapter 1 Introduction

The document describes the features of the RUCG Tool.

RUCG Tool is a command line tool that extracts information from ECU Configuration Description File(s) and generates Driver C source and C header files.

This document contains information on the options, input and output files of the RUCG Tool. In addition, this manual covers a step-by-step procedure for the usage of tool.

1.1 Document Overview

This user manual is organized as given in the table below:

Table 1.1 Document Overview

Section	Contents
Section 1 (Introduction)	Provides an introduction to the document and explains how information is organized in this manual.
Section 2 (Reference)	Provides a list of documents referred while developing this
Section 3 (RUCG Tool Overview)	Provides the component overview of RUCG.
Section 4 (Input Files)	Provides information about all the input files supplied to Tool.
Section 5 (Output Files)	Explains the output files that are generated by the RUCG Tool.
Section 6 (Precautions)	Contains precautions to be taken during execution of RUCG Tool.
Section 7 (User Configuration Validation)	Describes about user configuration validation done by the RUCG Tool.
Section 8 (Messages)	Describes all the Error/Warning/Information messages that help the user to understand the probable reason for the
Section 9 (Notes)	Provides notes to help the user to understand this document
Section 10(Appendix)	Provides additional information, if any.

Chapter 2 Reference

2.1. Reference Documents

The following table lists the documents referred to develop this document:

Table 2.1 Reference Documents

Sl.No.	Title	Version
1.	EAAR-RS-0089.pdf	1.1.0
2.	GettingStarted_MCAL_Drivers_X1x.pdf	1.0.6

2.2. Trademark Notice

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Chapter 3 Tool Overview

RUCG Tool is a command line tool that provides scalability and configurability for the component. It accepts Module Specific DLL, ECU Configuration Description File(s), BSWMDT File, Translation XML File and Configuration XML File as input and generates the C Header and C Source files. However Configuration XML File is optional.

RUCG Tool is a standalone windows executable. The Tool can run without any additional dependencies.

Operating Environment:

Operating System	Windows 7 Professional SP1 64 bit
RAM	8 GB

RUCG Tool doesn't support parallel execution.

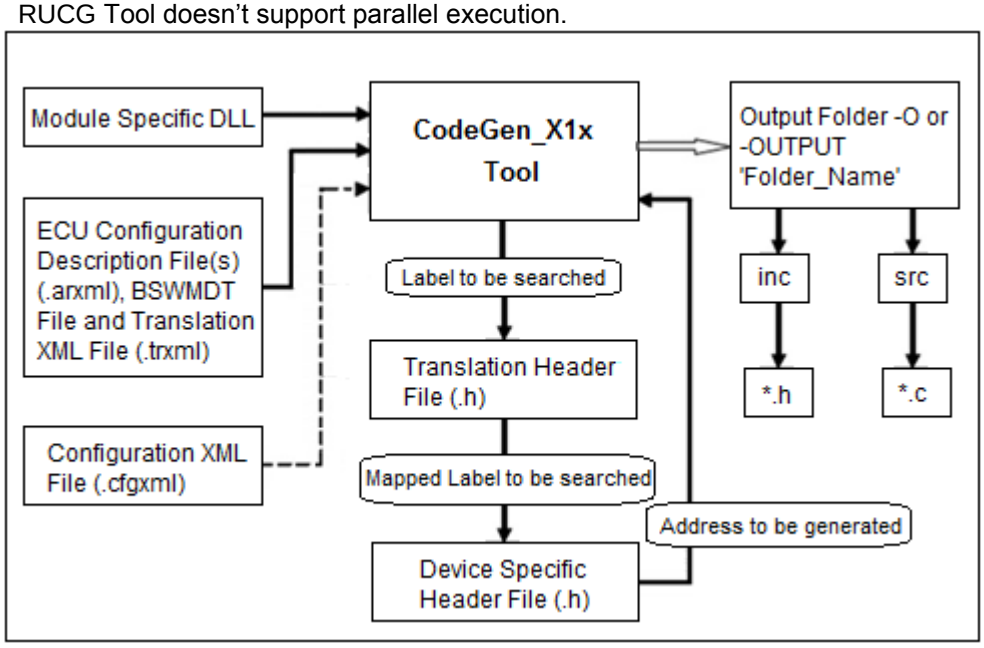

Figure 3.1 Tool Overview

For more information about input files to be given to the RUCG tool refer section "4 *Input Files*".

For more information about output files generated by the RUCG tool refer section "5 *Output Files*".

3.1 Usage

This section provides the information regarding usage of the RUCG Tool. It also provides the syntax of the command line arguments (input filenames and options).
RUCG Tool executable is invoked as shown below.

RUCG.exe <DLL Path> [<Options>] {<Input Filename>}

Where,

RUCG.exe: RUCG Tool Executable
DLL Path: Module specific DLL file path
Options: [-H/-Help -C/-Config -O/-Output -Osrc -Oinc -L/-Log –F/-FILVERSION -D/-Dryrun –T/-TimeOut]
Input Filename: {ECU Configuration Description File(s), BSWMDT File, Translation XML File [optional] and Configuration XML File [optional]}

Notations:
{data} represents compulsory data
<data> represents the actual data that will be specified on command line during tool usage.
[data] represents optional data.

Table 3.1 Options and Description

Options	Description
-H/-Help	To display help regarding usage of the tool. Gets the highest priority when used with other options.
-C/-Config	To execute tool with the options provided in the Configuration XML File. Command line options get the higher priority than the options provided in Configuration XML File.
-O/-Output	By default, the tool generates output files in the "<Msn>_Output" folder in the path where DLL is present. The user can use the -O option followed by the folder name, to generate the output files in the specified folder. Either absolute path or relative path can be provided to specify the folder name. The C Source and C Header files are generated in the sub folders "src" and "inc" within the output folder.
-Osrc	The user can use the -Osrc option followed by the folder name, to generate the C Source files in the specified folder.
-Oinc	The user can use the -Oinc option followed by the folder name, to generate the C Header files in the specified folder.
–L/-Log	To log the output to the <Msn>.log file in the output folder.
-D/-Dryrun	To execute tool in validation mode. The tool will not generate output files even though the input file provided is error free.
-F/-FILEVERSION	To display the perl file version which are used to create the DLL.
-T/-TimeOut	The user can use the –TimeOut option followed by the timeout value, to set the maximum timeout for underlying DLL execution. Default timeout value is 10 seconds. Timeout value should be in the range of 1 – 60 seconds.

Remark

- If the "-H/-Help" option is provided on the command line without any other inputs, RUCG Tool help is displayed.

- If the “-H/-Help” option is provided with DLL path, module specific DLL help is displayed.
- If Translation XML File is not provided on the command line then "<Msn>_X1x.trxml" which is present in the same location of DLL is considered as "default" Translation XML File by the RUCG Tool.
- If Configuration XML File is not provided on the command line then "<Msn>_X1x.cfgxml" which is present in the same location of DLL is considered as "default" Configuration XML File by the RUCG Tool.
- The RUCG tool doesn’t allow parallel execution.
- The RUCG tool returns its execution status to the user through the console. User can get this tool return status using the environment variable %ERRORLEVEL%.

Chapter 4 Input Files

RUCG Tool accepts the following files as inputs to generate output files.

4.1 Msn Control DLL

Module specific DLL File can be generated using PerlCtrl utility from the perl scripts. The Perl script contains implementation of generating configuration output files with PerlCtrl template. PerlCtrl accepts the perl scripts and generates module specific DLL. For the PerlCtrl template contents, refer Chapter "10 Appendix".

4.2 ECU Configuration Description File(s)

The ECU Configuration Description file is in XML format, which contains the configured values for Parameters, Containers and Modules. ECU Configuration Description XML File format will be compliant with the AUTOSAR ECU specification standards. ECU Configuration Description File can be created or edited using ECU Configuration Editor.

4.3 BSWMDT File

The BSWMDT File in XML format, which is the template for the Basic Software Module Description. BSWMDT File format will be compliant with the AUTOSAR BSWMDT specification standards.

RUCG Tool uses "Common Published Information" from module specific BSWMDT file. BSWMDT file should not be updated manually since it is "Static Configuration" file.

The required elements from BSWMDT File by module specific Generation Tool is as follows:

BSW-MODULE-DESCRIPTION
• MODULE-ID

BSW-IMPLEMENTATION
• SW-VERSION
• VENDOR-ID
• AR-RELEASE-VERSION
• VENDOR-API-INFIX

In case of multiple driver support implementation, VENDOR-API-INFIX is mandatory. In case of single driver support implementation, VENDOR-API- INFIX is not used.

4.4 Translation XML File

Translation XML File is in XML format which contains translation and device specific header file path. For the syntax of the contents of Translation XML File, please refer the Chapter 10 Appendix.

If mapped device specific address label is changed/updated then only respective mapping in Translation Header File needs to be updated. In this case there will not be any impact on Generation Tool for the generation of address in tool generated output file(s).

4.4.1 Translation Header File

This file is look-up table (mapping in the form of definitions) for the device specific address labels. Based on the configuration in ECU Configuration Description File, the mapped device specific address labels will be searched in Device Specific Header File by RUCG Tool to generate associated address in tool generated output file(s). For the Translation Header File path, the value of "<Msn>DeviceName" parameter from the container "<Msn>General" container should be present as child tag of TRANSLATION-FILE-PATH in Translation XML File. Both "Absolute" and "Relative" paths are supported by generation tool however default path is "Relative" path.

E.g.
<TRANSLATION-FILE-PATH>
<Value_Of_MsnDeviceName>..\DF_Timer.h ..\DF_Timer_ISR.h</
Value_Of_MsnDeviceName>
</TRANSLATION-FILE-PATH>

4.4.2 Device Specific Header File

This file contains device specific labels and associated address. Based on the configuration in ECU Configuration Description File, the mapped device specific address labels will be used to generate associated address in tool generated output file(s). For the Device Specific Header File path, the value of “<Msn>DeviceName” parameter from the container “<Msn>General” container should be present as child tag of DEVICE-FILE-PATH in Translation XML File. Both “Absolute” and “Relative” paths are supported by generation tool however default path is “Relative” path.

If multiple Device Specific Header Files need to be provided for the same device (value of “<Msn>DeviceName” parameter) in Translation XML File, then each Device Specific Header File path should be separated with “space”.

E.g.
<DEVICE-FILE-PATH>
<Value_Of_MsnDeviceName>..\DF_Timer.h ..\DF_Timer_ISR.h</
Value_Of_MsnDeviceName>
</DEVICE-FILE-PATH>

4.5 Configuration XML File

Configuration XML File is in XML format which contains command line options and input/output path. For the syntax of the contents of Configuration XML File, please refer the Chapter 10 Appendix.

E.g.
<LOG>ON/OFF</LOG>
<HELP>ON/OFF</HELP>

4.6 Other Description Files

RUCG Tool requires other description files (i.e. Dem File and MCU File) inputs, depends on the corresponding parameter configuration in the ECU Configuration Description File

Chapter 5 Output Files

RUCG Tool is a command line tool that provides scalability and configurability for Msn Driver component. It accepts inputs which mentioned in the Chapter 4 Input Files and generates configuration details in C Header and C Source files (<Msn>_Cfg.h, <Msn>_Cbk.h, <Msn>_Lcfg.c and <Msn>_PBcfg.c).

<Msn>_Cfg.h
This file contains pre-compile configuration parameters.

<Msn>_Cbk.h
This file contains prototype declarations for callback notification functions.

<Msn>_Lcfg.c
This file contains link-time parameters.

<Msn>_PBcfg.c
This file contains post-build configuration data.

Log File
The file which briefs the execution details of RUCG Tool.

Remark: Output files generated by Msn Driver Generation Tool should not be modified or edited manually

Chapter 6 Precautions

- Module Specific DLL must be created by using PerlCtrl with the PerlCtrl template which specified in this document. For the PerlCtrl template contents, refer Chapter "10 Appendix".
- ECU Configuration Description File and BSWMDT File must comply with AUTOSAR standard for R4.0 ECU Configuration Description File and BSWMDT File respectively.
- Default Translation XML File (<Msn>_Xx4.trxml) must be present in same location of DLL file.
- Default Configuration XML File (<Msn>_Xx4.cfgxml) must be present in same location of DLL file.
- If Translation XML File is not provided on the command line, <msn>_Xx4.trxml which is present in same location of DLL file is considered as ‘default’ Translation XML File.
- If Configuration XML File is not provided on the command line, Msn_Xx4.cfgxml which is present in same location of DLL file is considered as ‘default’ Configuration XML File.
- ECU Configuration Description File(s) should contain the file extension ‘.arxml’.
- Translation XML File should contain the file extension ‘.trxml’.
- Configuration XML File should contain the file extension ‘.cfgxml’.
- If the output files generated by RUCG Tool are modified externally, then they may lead to error while compilation or not produce the expected results.

Chapter 7 User Configuration Validation

This section provides help to analyze the error, warning and information messages displayed during the execution of RUCG Tool. It ensures conformance of input file with syntax and semantics. It also performs validation on the input file for correctness of the data.

For more details on list of Error/Warning/Information messages that are displayed as a result of input file(s) validation, refer Chapter “8 *Messages*”.

The RUCG Tool displays error or warning or information messages when the user has configured incorrect inputs. There are two types of messages displayed,

RUCG Tool generated messages
Module Specific DLL generated messages

The format of RUCG Tool generated message is as shown below.

- CGERR/CGINF/CGWAR<xx><yy>:

  <Error/Warning/Information Message>.

<xx>: Stage of error happen

<yy>: Actual error code

The format of Module Specific DLL generated messages is as shown below.

- ERR/WRN/INF<mid><xxx>: <Error/Warning/Information

  Message>. where,

<mid>: 123 - MSN Driver Module id (123) for user configuration checks.

000 - for command line checks.

<xxx>: 001-999 - Message id.

- File Name: Name of the file in which the error has occurred
- Path: Absolute path of the container in which the parameter is present.

‘File Name’ and ‘Path’ need not be present for all Error/Warning/Information messages.

Chapter 8 Messages

The messages help to identify the syntax or semantic errors in the inputs supplied to execution.
The following section gives the list of error, warning and information messages displayed during the tool execution.
When the tool detects the following errors, it will automatically exit after showing the error message.

8.1. RUCG Tool Messages

This section contains the list of error/warning/information messages which is generated by the RUCG tool.

8.1.1 Error Messages

CG_ERR0001: Another instance is already running.
This error occurs, if trying to run more than one instance of application in parallel.

CG_ERR0002: First argument should be a module specific DLL file path.
This error occurs, if the specified first file argument does not have extension (.dll or .ocx).

CG_ERR0003: DLL not found on specified path.
This error occurs, if the specified DLL file input is not found in the specified location.

CG_ERR0004: Specified module specific DLL file is not DLL executable.
This error occurs, if the specified DLL file is not a windows executable DLL.

CG_ERR0101: Please provide valid number of arguments.
This error will occur, if the no option is provided in the command line.

CG_ERR0102: Please provide valid time out value in seconds (1 - 60).
This error occurs, if the specified timeout value is invalid or out of range.

CG_ERR0301: DLL activation context creation failed.
This error occurs, if the generated manifest file for the specified DLL is wrong. Ensure the manifest file write implementation in the RUCG Tool.

CG_ERR0302: Specified DLL implemented using wrong PerlCtrl template.
This error occurs, if the specified DLL file is created using wrong Control ID in PerlCtrl template. For the PerlCtrl template contents, refer Chapter "10 Appendix".

CG_ERR0303: DLL directory should be write-enabled.
This error occurs, if the specified DLL file path is write protected.

CG_ERR0401: Code generation is not completed within the time out.
This error occurs, if the specified DLL does not return within a default or specified timeout.

Note: When Code Generation is terminated due to timeout, the RUCG Tool drops a temporary file (GLOB(0x2a8d104)) in the execution location. Please delete the file after the execution.

CG_ERR0402: Cannot find implementation of method "execution" in the DLL.
This error will occur, if the specified DLL created without entry function call "execute".

CG_ERR0403: Error occurred while code generation.
This error will occur, when the specified DLL calls “exit” function while its execution. In the tool code implementation, general assumption is “exit” function in the perl script should called only at the erroneous conditions.

8.1.2 Warning Messages

None

8.1.3 Information Messages

CG_INF0001: Tool Version
This is to display Tool Version for each execution of the tool.

CG_INF0002: Module DLL Path
This is to display parsed Module DLL Path from the command line arguments.

CG_INF0003: <RUCG Tool Usage Information>
This is to display usage information of the tool.

CG_INF0004: Execution terminated due to parallel execution errors.
This information will occur, if the execution is terminated due to parallel execution.

CG_INF0005: Execution terminated due to command line errors.
This information will occur, if the execution is terminated due to command line errors.

CG_INF0006: Execution terminated due to the previous errors.
This information will occur, if the error happened during the DLL execution.

CG_INF0007: Code generation completed successfully.
This information will occur, if the tool execution completed successfully.

8.2. Common Messages

This section contains the list of error/warning/information messages which is common for AUTOSAR Renesas R3.2.2 and R4.0.3 X1x MCAL Driver module that will be generated during the Module Specific DLL execution.

8.2.1 Error Messages

ERR000001: File <File_Name> does not exist.
This error occurs, if the input <File_Name> is not found.

ERR000002: Name of the Generation Tool Configuration XML File is

not given along with <-C/-CONFIG> option.
This error occurs, if the name of the Generation Tool Configuration XML File is not given along with <-C/-CONFIG> option.

ERR000003: File <File name> is not as per XML standard.
This error will occur, if the input <File name> is not as per XML standard.

ERR000004: Cannot open the <Log file name> file.
This error will occur, if unable to open the <Log file name> file.

ERR000005: Name of output directory is not given along with <-O/-OUTPUT> option.
This error will occur, if the output directory name is not given along with <-O/- OUTPUT> option.

ERR000006: Name of output directory is not given in OUTPUT-PATH tag in <File name>.
This error will occur, if the output directory is not given in OUTPUT-PATH tag in configuration file.

ERR000007: The Generation Tool expects inputs.
This error will occur, if Only specified Module Specific DLL path in the command line without default configuration file.

ERR000008: The option <option> is not supported by the Generation Tool. The Generation Tool supports <-O/-OUTPUT, -Osrc , -Oinc, -H/-HELP, -L/-LOG, -C/-CONFIGFILE and -D/-DRYRUN>" options.
This error will occur, if the invalid <option> is provided to the tool.

ERR000009: Invalid output directory name <output directory name> as the file with same name exists.
This error will occur, if the <output directory name> already exists.

ERR000010: Invalid output directory name <output directory name> Directory name should not contain any of *\?\"\|\: characters.
This error will occur, if the <output directory name> path contains junk character.

ERR000011: ECU Configuration Description File is not provided as input to the Generation Tool.
This error will occur, if the ECU Configuration Description File is not given in the command line or in configuration file.

ERR000012: The input <File name> is not as per XML standard. Provide the ECU Configuration Description File as input on the command line.
This error will occur, if the ECU Configuration Description File is not as per XML standard.

ERR000014: 'TRANSLATION-FILE-PATH' tag in <File name> is empty.
This error will occur, if the translation <File name> doesn't have "TRANSLATION-FILE-PATH" tags.

ERR000015: The 'device_name' tag should be present as child of 'TRANSLATION-FILE-PATH'' tag in <File name>.
This error will occur, if the device mentioned in ECU Configuration Description File is not present in "TRANSLATION-FILE-PATH" tag in the <File name>

ERR000016: 'DEVICE-FILE-PATH' tag in <File name> is empty.

This error will occur, if the translation file <File name> doesn't have "DEVICE- FILE-PATH" tags.

ERR000017: The 'device_name' tag should be present as child of 'DEVICE-FILE-PATH' tag in <File name>.
This error will occur, if the device mentioned in ECU Configuration Description File is not present in "DEVICE-FILE-PATH" tag.

ERR000018: Cannot create directory <output directory name>.
This error will occur, if unable to create output directory <output directory name>.

ERR000019: Cannot open <File name>.
This error will occur, if unable to open <File name>.

ERR000020: The macro label <macro label> should be unique in <translation file name> translation C Header File.
This error will occur, if macro label is not unique in translation C Header File.

ERR000021: The macro definition for <macro label> macro is not found in <translation file name> translation C Header File. The macro label format should be <label format>.
This error will occur, if macro definition is not found in translation C Header File.

ERR000022: The macro value for <macro label> macro is empty in <translation file name> translation C Header File.
This error will occur, if macro label value is empty in translation C Header File.

ERR000023: The macro definition for <macro value> macro is not found in input device specific C Header File(s).
This error will occur, if macro definition is not found in input device specific C Header File(s).

ERR000024: The macro value for <macro value> macro is empty in input device specific C Header File(s).
This error will occur, if macro value is empty in input device specific C Header File(s).

ERR000025: Path <Configured Reference Path> provided for Bsw Module is incorrect.
This error will occur, if the reference provided for Bsw Module Component is incorrect.

ERR000026: BSWMDT content is not present in the input file(s) for '<Module Name>' module.
This error will occur, if the module specific BSWMDT content is not present in the input files.

ERR000027: <MSN> BSWMDT File of either AUTOSAR R3.2 or R4.0 should be given as input.
This error will occur, if the both R3.2 and R4.0 BSWMDT file given to the input to the generation tool.

ERR000028: 'MODULE-DESCRIPTION-REF' element should be present in the description file of '<Module Name>' module.
This error will occur, if the MODULE-DESCRIPTION-REF element is not present module specific description file.

ERR000029: AUTOSAR version of BSWMDT File and Module Description File is different.
This error will occur, if the AUTOSAR version of the BSWMDT File and module description file is different.

Remark Apart from the above error codes DLL will generates some additional Module Specific errors during the execution.

8.2.2 Warning Messages

WRN000001: As per AUTOSAR ECU Configuration Description File naming convention, the file extension should be '.arxml' for file.
This warning will occur, if ECU Configuration Description files having an extension other than ".arxml".

8.2.3 Information Messages

INF000001: DLL Version:
This is to display DLL Version of specified module specific DLL.

INF000002: Command line arguments:
This is to display the DLL arguments received from the Tool.

INF000003: The valid inputs are provided below.
This information will occur, if the DLL option is not given. (I.e. only provide Module DLL Path as command line arguments)

INF000004: Opened file <filename> at <time>.
This information will occur, during opening the file.

INF000005: Error(s) and Warning(s) detected.
This information will display the number of errors and warnings.
INF000006: Execution completed successfully.
This information will occur, if the execution completed successfully.

INF000007: Execution completed successfully with warnings.
This information will occur, if the execution completed successfully with warnings.

INF000008: Execution terminated due to command line errors.
This information will occur, if the execution terminated due to command line errors.

INF000009: Execution terminated due to error in the input file.
This information will occur, if the execution terminated due to error in the input file.

INF000010: Execution terminated due to error, during the structure generation in the output file.
This information will occur, if the execution terminated during structure generation in output file.

8.3. R3.2.2 Messages

This section contains the list of error/warning/information messages which is specific to AUTOSAR Renesas R3.2.2 X1x MCAL Driver module that will be generated during the Module Specific DLL execution.

8.3.1 Error Messages

ERR000030: The 'parameter tag name' tag should be configured in BSWMDT File.
This error will occur, if any of the configuration parameter(s) mentioned below is (are) not configured in BSWMDT File.

The list of mandatory parameters with respect to container is listed below:

Table 8.1 R3.2.2 BSWMDT Mandatory Parameters

Container	Parameters
BswImplementation	SW-MAJOR-VERSION
	SW-MINOR-VERSION
	SW-PATCH-VERSION
	AR-MAJOR-VERSION
	AR-MINOR-VERSION
	AR-PATCH-VERSION
	VendorApiInfix
BswModuleDescription	ModuleId

Note: VendorApiInfix parameter is mandatory for only some modules.

8.3.2 Warning Messages

None.

8.3.3 Information Messages

None.

8.4. R4.0.3 Messages

This section contains the list of error/warning/information messages which is specific to AUTOSAR Renesas R4.0.3 X1x MCAL Driver module that will be generated during the Module Specific DLL execution.

8.4.1 Error Messages

ERR000030: The 'parameter tag name' tag should be configured in BSWMDT File.
This error will occur, if any of the configuration parameter(s) mentioned below is (are) not configured in BSWMDT File.

The list of mandatory parameters with respect to container is listed below:

Table 8.2 R4.0.3 BSWMDT Mandatory Parameters

Container	Parameters
BswImplementation	SwVersion
	VendorId
	ArReleaseVersion
	VendorApiInfix
BswModuleDescription	ModuleId

Note: VendorApiInfix parameter is mandatory for only some modules.

8.4.2 Warning Messages

None.

8.4.3 Information Messages

None.

Chapter 9 Notes

“Tool” terminology is used interchangeably to refer RUCG Tool.

Chapter 10 Appendix

• Translation XML File

Translation XML File content format shall be given as mentioned below:

```
<?xml version="1.0" encoding="UTF-8"?>
<!--
The tag PATH-DETAILS should not be renamed since it is top level
element.
-->
<PATH-DETAILS>
<!--
TRANSLATION-FILE-PATH should contain the path of the translation
header file. The tag TRANSLATION-FILE-PATH should not be
renamed. Only respective value should be updated for the translation
header file.
-->
<TRANSLATION-FILE-PATH>
   <value_of_MsnDeviceName>Path</value_of_MsnDeviceName>
</TRANSLATION-FILE-PATH>
<!--
The tags present in DEVICE-FILE-PATH tag should contain the path
of the device specific C Header File.
The tags present in DEVICE-FILE-PATH should be equal to the value for
parameter
MsnDeviceName present in MsnGeneral container. The
tag DEVICE-FILE-PATH should not be renamed.

If multiple device header files need to provide for same device then
each file name should be separated with space.
-->
 <DEVICE-FILE-PATH>
   <value_of_MsnDeviceName>Path</value_of_MsnDeviceName>
</DEVICE-FILE-PATH>
</PATH-DETAILS>
```

- ## Configuration XML File

Configuration XML File content format shall be given as mentioned below:

```
<?xml version=”1.0” encoding="UTF-8"?>
-->
<!--
None of the tag from this XML should be renamed or deleted.
-->
<XML>
  <!-- Supported Command Line options<OPTION>
    <!-- Only ON or OFF should be provided. -->
    <HELP>ON/OFF</HELP>

    <!-- Only ON or OFF should be provided. -->
    <LOG>ON/OFF</LOG>

    <!-- Only ON or OFF should be provided. -->
    <DRYRUN>ON/OFF</DRYRUN>

    <!-- Only ON or OFF should be provided. -->
    <OUTPUT>OFF</OUTPUT>

    <!-- Name of output directory -->
    <OUTPUT-PATH>Path</OUTPUT-PATH>
  </OPTION>

  <!-- To provide input files. If multiple input files need to be
       provided then each file should be separated with ",". -->
  <INPUT-FILE>Path</INPUT-FILE>
</XML>
```

• PerlCtrl Template

Module Specific dll can be created by using PerlCtrl utility. PerlCtrl accepts the perl scripts which consists implementation of generating module specific configuration files with correct perlCtrl template.

PerlCtrl Template content shall be given as mentioned below:

```
=pod

=begin PerlCtrl

      %TypeLib = (
         PackageName     => 'MsnCtrl',
         TypeLibGUID     => '{52093072-B5B3-413B-B4CF-
ACD3E3AAFE7A}', # do NOT edit this line
         ControlGUID     => '{1D887D1B-E692-4F8B-8552-F6957BB8B834}',
# do NOT edit this line either
         DispInterfaceIID=> '{CFC0FF40-EAE4-49C8-8720-
850170DB1ADD}', # or this one
         ControlName     => 'MsnVeryOwnControl',
         ControlVer      => 1,  # increment if new object with same ProgID
                            # create new GUIDs as well
         ProgID          => 'MsnCtrl.Control',
         DefaultMethod   => 'main',
         Methods         => {
            'main' => {
                  DocString          => "The main() method",
                  HelpContext        => 10,
                  RetType            =>  VT_I4,
                  TotalParams        =>  1,
                  NumOptionalParams  =>  0,
                  ParamList          =>[ 'cmd_input' => VT_BSTR ]
               },
            },  # end of 'Methods'
         Properties      => {
            },  # end of 'Properties'
         );  # end of %TypeLib

=end PerlCtrl

=cut
```

Revision History

Sl.No.	Description	Version	Date
1	Initial Version	1.0.0	7-Nov-2015
2	Section 3.1 and 8.1 are updated as per the new enhancement feature requirements (EAAR_PN0089_FR_0018, EAAR_PN0089_FR_0019, EAAR_PN0089_NR_0010).	1.1.0	12-Dec-2015
3	Reference section is updated with correct document name.	1.1.1	7-Apr-2016
4	R-Number corrected for the document	1.1.2	13-Jul-2016

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