User's Manual

CS+

Integrated Development Environment

User's Manual: CC-RL Build Tool Operation

Target Device

RL78 Family

Target Version

V3.00.00 or higher

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How to Use This Manual

This manual describes the role of the CS+ integrated development environment for developing applications and systems for RL78 family, and provides an outline of its features.

CS+ is an integrated development environment (IDE) for RL78 family, integrating the necessary tools for the development phase of software (e.g. design, implementation, and debugging) into a single platform.

By providing an integrated environment, it is possible to perform all development using just this product, without the need to use many different tools separately.

Readers	This manual is intended for users who wish to understand the functions of the CS+ and design software and hardware application systems.
Purpose	This manual is intended to give users an understanding of the functions of the CS+ to use for reference in developing the hardware or software of systems using these devices.
Organization	This manual can be broadly divided into the following units. 1.GENERAL 2.FUNCTIONS A.WINDOW REFERENCE
How to Read This Manual	It is assumed that the readers of this manual have general knowledge of electricity, logic circuits, and microcontrollers.

Conventions

Data significance:	Higher digits on the left and lower digits on the right
Active low representation:	XXX (overscore over pin or signal name)
Note:	Footnote for item marked with Note in the text
Caution:	Information requiring particular attention
Remarks:	Supplementary information
Numeric representation:	Decimal ... XXXX Hexadecimal ... 0xXXXX

TABLE OF CONTENTS

1. GENERAL

This chapter explains the overview of the build tool plug-in of CC-RL.

1.1 Overview

The build tool plug-in can be used to set build options for creating load modules or user libraries.

1.2 Features

The features of the build tool plug-in are shown below.

- Build option setting
  Most build options can be set via the graphical user interface (GUI).
- Speeding-up of build
  Two types of facilities are provided to speed up build: simultaneous build and parallel build.
  The build time can be shortened in simultaneous build by simultaneously compiling or assembling the files with a single call of the build command and in parallel build by executing multiple build commands in parallel.

2. FUNCTIONS

This chapter describes the build procedure using CS+ and about the main build functions.

2.1 Overview

This section describes how to create a load module and user library.

2.1.1 Create a load module

The procedure for creating a load module is shown below.

Remark See "CS+ Integrated Development Environment User's Manual: Project Operation" for details about (1), (2), (3), (8), and (9).

(1) Create or load a project
Create a new project, or load an existing one.

(2) Set a build target project
Set a build target project.

(3) Set build target files
Add or remove build target files and update the dependencies.

(4) Set speeding-up of build
Set a build speed-up facility as required (see "2.2Speeding-up of Build").

(5) Set the type of the output file
Select the type of the load module to be generated (see "2.3Set the Type of the Output File").

(6) Set build options
Set the options for the compiler, assembler, linker, and the like (see "2.4Set Compile Options", "2.5Set Assemble Options", "2.6Set Link Options", and the like).

(7) Set the update method of the I/O header file
Update the I/O header file in accordance with the update of the device file (see "2.12Automatically Update the I/O Header File").

(8) Run a build
Run a build.

Remark If there are any commands you wish to run before or after the build process, on the Property panel, from the [Common Options] tab, in the [Others] category, set the [Commands executed before build processing] and [Commands executed after build processing] properties.
If there are any commands you wish to run before or after the build process at the file level, you can set them from the [Individual Compile Options(C)] tab (for a C source file), [Individual Compile Options(C++)] tab (for a C++ source file) and [Individual Assemble Options] tab (for an assembly source file).

(9) Save the project
Save the setting contents of the project to the project file.

2.1.2 Create a user library

The procedure for creating a user library is shown below.

Remark See "CS+ Integrated Development Environment User's Manual: Project Operation" for details about (1), (2), (3), (6), and (7).

(1) Create or load a project
Create a new project, or load an existing one.
When you create a new project, set a library project.

(2) Set a build target project
Set a build target project.

(3) Set build target files
Add or remove build target files and update the dependencies.

(4) Set speeding-up of build
Set a build speed-up facility as required (see "2.2Speeding-up of Build").

(5) Set build options
Set the options for the compiler, assembler, librarian, and the like (see "2.4Set Compile Options", "2.5Set Assemble Options", "2.8Set Create Library Options").

(6) Run a build
Run a build.

Remark If there are any commands you wish to run before or after the build process, on the Property panel, from the [Common Options] tab, in the [Others] category, set the [Commands executed before build processing] and [Commands executed after build processing] properties.
If there are any commands you wish to run before or after the build process at the file level, you can set them from the [Individual Compile Options(C)] tab (for a C source file), [Individual Compile Options(C++)] tab (for a C++ source file) and [Individual Assemble Options] tab (for an assembly source file).

(7) Save the project
Save the setting contents of the project to the project file.

2.2 Speeding-up of Build

The build speed-up facilities of this build tool are described here.

There are the following types of build speed-up facilities.

Simultaneous build	Multiple files are simultaneously passed by a single call of the build command. See "2.2.1Running simultaneous build" for details about simultaneous build.
Parallel build	Multiple build commands are executed in parallel. See "2.2.2Running parallel build" for details about parallel build.

2.2.1 Running simultaneous build

Simultaneous build is a facility to simultaneously compile or assemble the files with a single call of the ccrl command when there are multiple files to be built.

An image of calling the ccrl command is shown below.

Example When build target files are aaa.c, bbb.c, and ccc.c

- When a build is run simultaneously

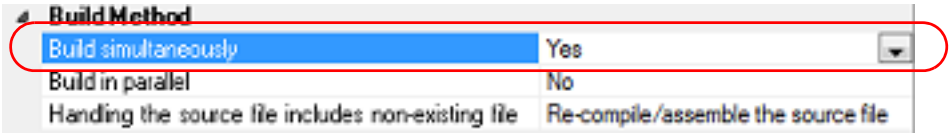
```
>ccrl aaa.c bbb.c ccc.c        <- "aaa.obj", "bbb.obj", and "ccc.obj" are
                                  generated.
>rlink aaa.obj bbb.obj ccc.obj <- "aaa.abs" is generated.
```

- When a build is not run simultaneously

```
>ccrl aaa.c                    <- "aaa.obj" is generated.
>ccrl bbb.c                    <- "bbb.obj" is generated.
>ccrl ccc.c                    <- "ccc.obj" is generated.
>rlink aaa.obj bbb.obj ccc.obj <- "aaa.abs" is generated.
```

Whether to run a build simultaneously is made with the property.
Select the build tool node on the project tree and select the [Common Options] tab on the Property panel.
Select [Yes] in the [Build simultaneously] property in the [Build Method] category.

Figure 2.1 [Build simultaneously] Property



Remark 1. The files with the individual build options and files to be executed prior to the build are excluded from running build simultaneously.
A build of the file that is not targeted for a simultaneous build is run separately.

Remark 2. If the source file is older than the generated object module file or related properties and project or the like, the object module file will be used for the build instead of the source file.

Another facility to speed up build is parallel build.
See "2.2.2Running parallel build" for details about parallel build.

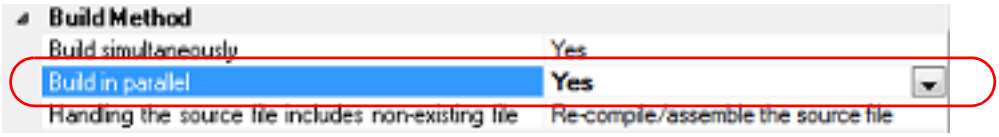
2.2.2 Running parallel build

Parallel build is a facility to build multiple source files in parallel at build in order to reduce the build time.
In parallel build, since build is performed simultaneously for the number of logical CPUs in the host machine, the effect is greater in a machine with a large number of CPU cores.

There are two types of parallel build facilities. Each processing and its setting method are given below.

(1) Parallel build between source files
When running parallel build between multiple source files registered in a project, make the setting in the [Build in parallel] property in the [Common Options] tab on the Property panel.

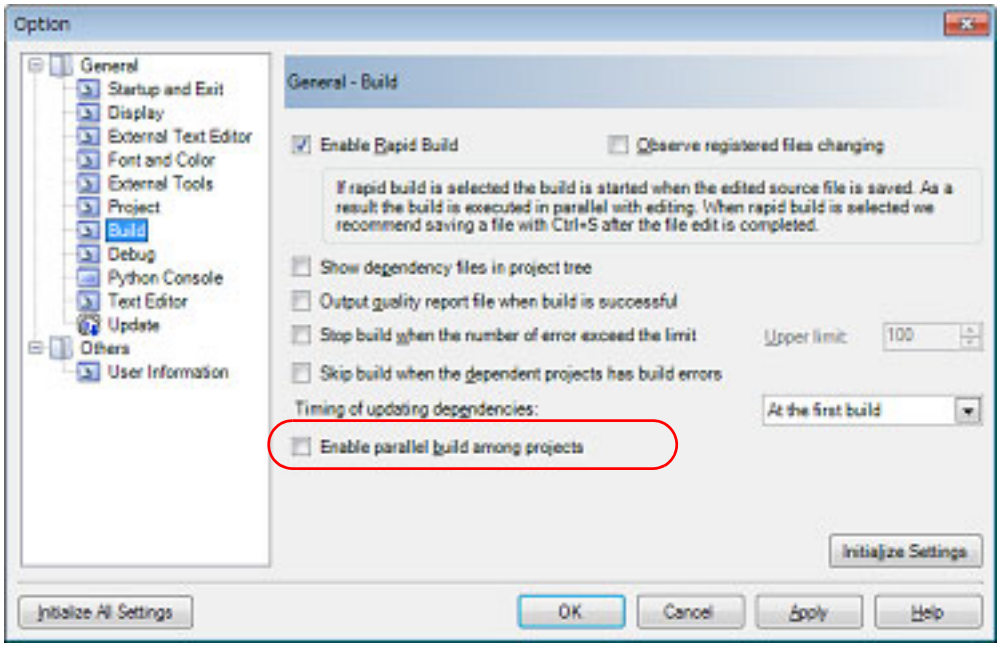
Figure 2.2 [Build in parallel] Property



Remark Another facility to speed up build is simultaneous build.
Simultaneous build is a facility to process the build command for multiple source files at once, and specifying it simultaneously with parallel build has no effect due to its nature. Generally, the more CPU cores there are in the host machine in use or the more source files there are registered in a project, parallel build is faster than simultaneous build.
However, as there are properties that need to be used together with simultaneous build, such as inter-module optimization, use the suitable facility for the situation.
See "2.2.1Running simultaneous build" for details about simultaneous build.

(2) Parallel build between projects
When running parallel build between the main project and subprojects, make the setting in [Enable parallel build among projects] of the [General - Build] category of the Option dialog box.

Figure 2.3 Option Dialog Box ([General - Build] Category)



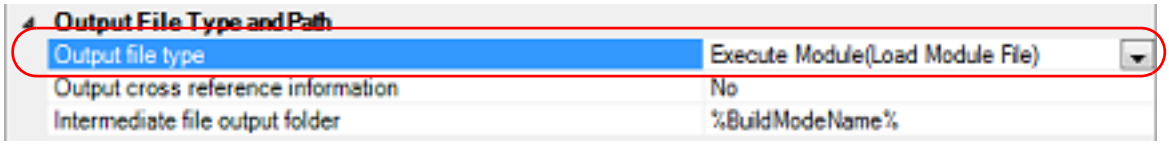
In addition, select [Yes] in the [Build in parallel] property in the [Common Options] tab on the Property panel.

Remark When there are dependencies between projects, set the dependencies between the projects correctly before using the parallel build facility. If a parallel build is performed for the main project and subprojects without the dependencies being set, build is performed in parallel regardless of the build order of the projects.
For details on setting the dependencies between projects, see "CS+ Integrated Development Environment User's Manual: Project Operation".

2.3 Set the Type of the Output File

Set the type of the file to be output as the product of the build.
Select the build tool node on the project tree and select the [Common Options] tab on the Property panel.
Select the file type in the [Output file type] property in the [Output File Type and Path] category.

Figure 2.4 [Output file type] Property



(1) When [Execute Module(Load Module File)] is selected (Default)
The load module file will be the debug target.

(2) When [Execute Module(Hex File)] is selected
The hex file will be the debug target.

Caution For the library project, this property is always [Library] and cannot be changed.

2.3.1 Change the output file name

The names of the load module file, hex file, and library file output by the build tool are set as follows by default.

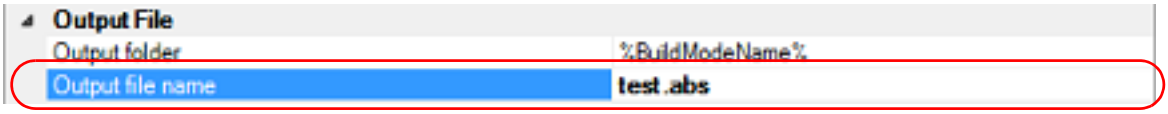
Load module file name: %ProjectName%.abs
Hex file name: %ProjectName%.mot
Library file name: %ProjectName%.lib

Remark "%ProjectName%" is a placeholder. It is replaced with the project name.

The method to change these file names is shown below.

(1) When changing the load module file name
Select the build tool node on the project tree and select the [Link Options] tab on the Property panel.
Enter the file name to be changed to in the [Output file name] property in the [Output File] category.

Figure 2.5 [Output file name] Property



This property supports the following placeholders.
%ActiveProjectName%: Replaces with the active project name.
%MainProjectName%: Replaces with the main project name.
%ProjectName%: Replaces with the project name.

Remark You can also change the option in the same way with the [Output file name] property in the [Frequently Used Options(for Link)] category on the [Common Options] tab.

(2) When changing the hex file name
Select the build tool node on the project tree and select the [Hex Output Options] tab on the Property panel.
Enter the hex file name to be changed to in the [Output file name] property in the [Output File] category.

Figure 2.6 [Output file name] Property

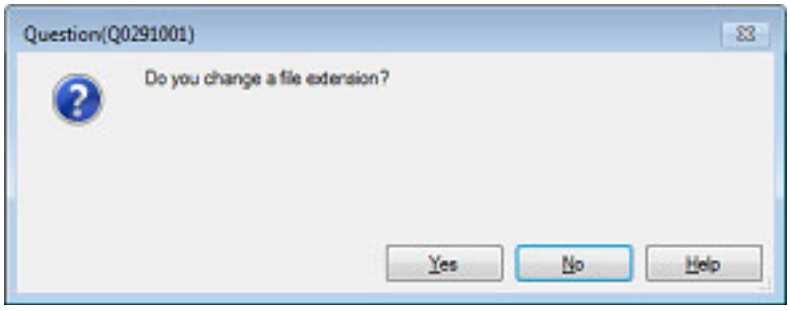
This property supports the following placeholders.

%ActiveProjectName%: Replaces with the active project name.
%MainProjectName%: Replaces with the main project name.
%ProjectName%: Replaces with the project name.

Remark You can also change the option in the same way with the [Output file name] property in the [Frequently Used Options(for Hex Output)] category on the [Common Options] tab.

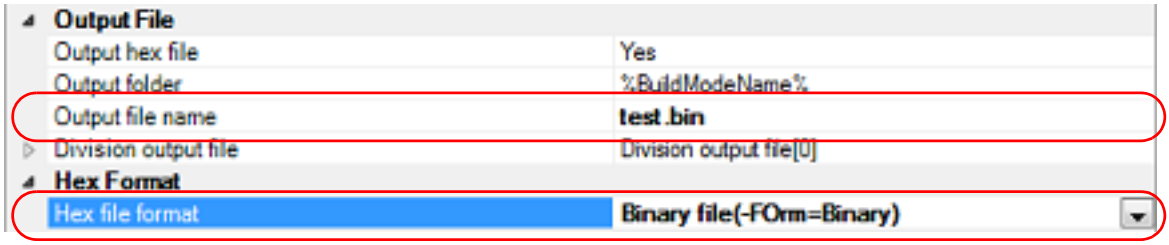
If the [Hex file format] property in the [Hex Format] category is changed, the following message dialog box will open.

Figure 2.7 Message Dialog Box



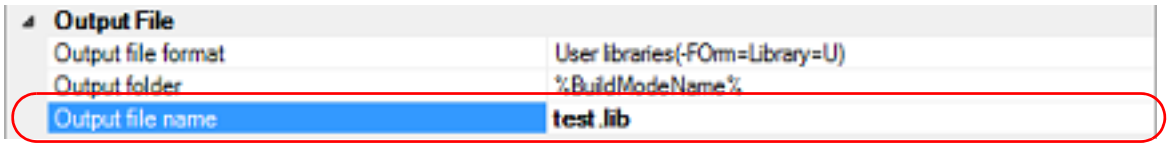
When [Yes] is selected in the dialog box, the extension of the output file name is changed according to the format selected in the [Hex file format] property.

Figure 2.8 [Output file name] and [Hex file format] Property



(3) When changing the library file name
Select the build tool node on the project tree and select the [Create Library Options] tab on the Property panel.
Enter the library file name to be changed to on the [Output file name] property in the [Output File] category.

Figure 2.9 [Output file name] Property

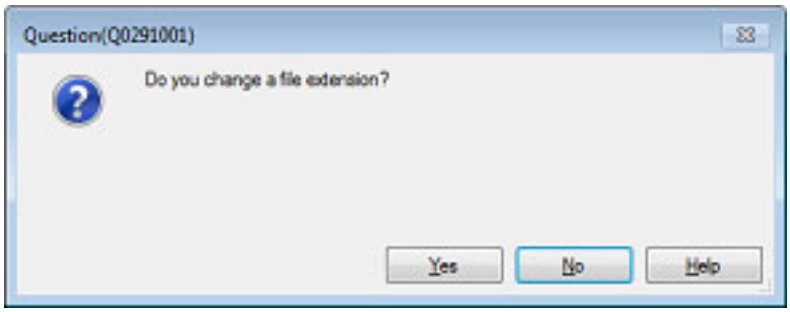


This property supports the following placeholders.
%ActiveProjectName%: Replaces with the active project name.
%MainProjectName%: Replaces with the main project name.
%ProjectName%: Replaces with the project name.

Remark You can also change the option in the same way with the [Output file name] property in the [Frequently Used Options(for Create Library)] category on the [Common Options] tab.

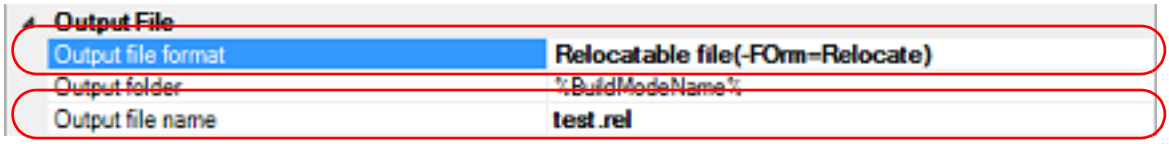
If the [Output file format] property is changed, the following message dialog box will open.

Figure 2.10 Message Dialog Box



When [Yes] is selected in the dialog box, the extension of the output file name is changed according to the format selected in the [Output file format] property.

Figure 2.11 [Output file format] and [Output file name] Property



2.3.2 Output an assemble list

The assemble list (the code of the assemble result) is output to the assemble list file.
Select the build tool node on the project tree and select the [Compile Options] tab on the Property panel.
To output the assemble list file, select [Yes(-asm_option=-prn_path)] in the [Output assemble list file] property in the [Assemble List] category.

Figure 2.12 [Output assemble list file] Property

When outputting the assemble list file, you can set the output folder and output file name.

(1) Set the output folder
Setting the output folder is made with the [Output folder for assemble list file] property by directly entering in the text box or by the [...] button.
This property supports the following placeholder.
%BuildModeName%: Replaces with the build mode name.
"%BuildModeName%" is set by default.

The file name will be the source file name with the extension replaced by ".prn".

Remark See "CC-RL Compiler User's Manual" for details about the assemble list file.

2.3.3 Output map information

The map information (the information of the link result) is output to the link map file.
Select the build tool node on the project tree and select the [Link Options] tab on the Property panel.
To output the link map file, set the [Output link map file] property in the [List] category.

(1) Output information according to the output format
Select [Yes(List contents=not specify)(-LISt -SHow)] or [Yes(List contents=ALL)(-LISt -SHow=ALL)] in the [Output link map file] property.

Figure 2.13 [Output link map file] Property (When Information According To Output Format Is Output)

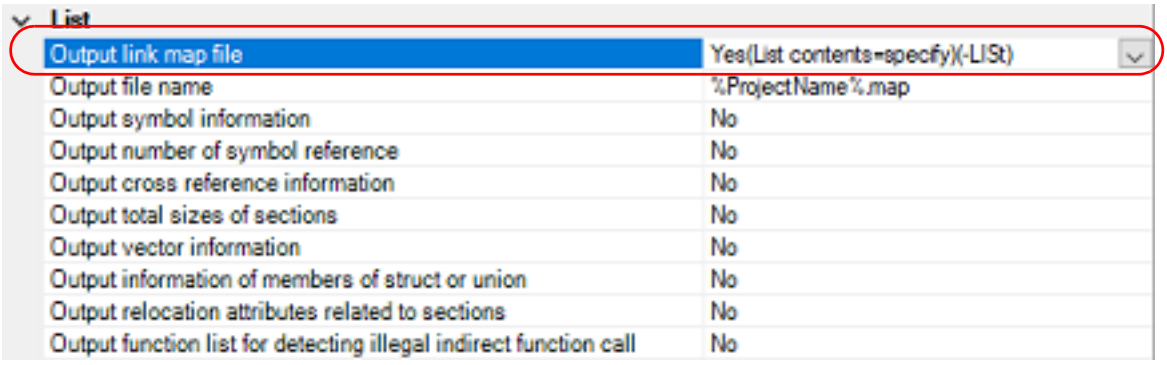
Remark See "CC-RL Compiler User's Manual" for differences between the -SHow and -SHow=ALL options.

(2) Specify information to be output
Select [Yes(List contents=specify)(-LISt)] in the [Output link map file] property. The following property will be displayed.

- [Output symbol information] property
- [Output number of symbol reference] property
- [Output cross reference information] property
- [Output total sizes of sections] property
- [Output vector information] property
- [Output information of members of struct or union] property
- [Output relocation attributes related to sections] property
- [Output function list for detecting illegal indirect function call] property

Select [Yes] for each output information property.

Figure 2.14 [Output link map file] Property (When Information To Be Output Is Specified)



The link map file is output to the folder specified in the [Output folder] property in the [Output File] category.
It is also shown on the project tree, under the Build tool generated files node.
Specify the file name in the [Output file name] property.

Remark See "CC-RL Compiler User's Manual" for details about the link map file.

2.3.4 Output library information

The library information (information from the library creation result) is output to the library list file.
Select the build tool node on the project tree and select the [Create Library Options] tab on the Property panel.
To output the library list file, set the [Output link map file] property in the [List] category.

(1) Output information according to the output format
Select [Yes(List contents=not specify)(-LISt -SHow)] or [Yes(List contents=ALL)(-LISt -SHow=ALL)] in the [Output link map file] property.

Figure 2.15 [Output link map file] Property (When Information According To Output Format Is Output)

Remark See "CC-RL Compiler User's Manual" for differences between the -SHow and -SHow=ALL options.

(2) Specify information to be output
Select [Yes(List contents=specify)(-LISt)] in the [Output link map file] property. The following property will be displayed.

- [Output symbol information] property

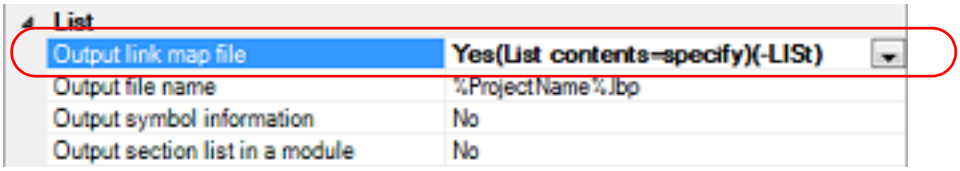
- [Output section list in a module] property[Note 1]
- [Output cross reference information] property[Note 2]
- [Output total sizes of sections] property[Note 2]

Note 1. This property is displayed only when [User libraries(-FOrm=Library=U)] or [System libraries(-FOrm=Library=S)] in the [Output file format] property in the [Output File] category is selected.

Note 2. This property is displayed only when [Relocate file(-FOrm=Relocate)] in the [Output file format] property in the [Output File] category is selected.

Select [Yes] for each output information property.

Figure 2.16 [Output link map file] Property (When Information To Be Output Is Specified)



The library list file is output to the project folder.
It is also shown on the project tree, under the Build tool generated files node.
Specify the file name in the [Output file name] property.

Remark See "CC-RL Compiler User's Manual" for details about the library list file.

2.4 Set Compile Options

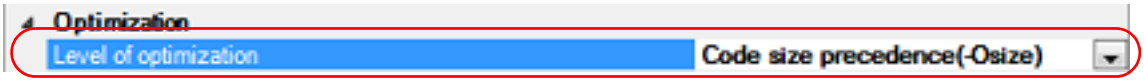
To set options for the compile phase, select the Build tool node on the project tree and select the [Compile Options] tab on the Property panel.
You can set the various compile options by setting the necessary properties in this tab.

Remark Often used options have been gathered under the [Frequently Used Options(for Compile)] category on the [Common Options] tab.

2.4.1 Perform optimization with the code size precedence

Select the build tool node on the project tree and select the [Compile Options] tab on the Property panel.
To perform optimization with the code size precedence, select [Code size precedence(-Osize)] in the [Level of optimization] property in the [Optimization] category.

Figure 2.17 [Level of optimization] Property (Code Size Precedence)

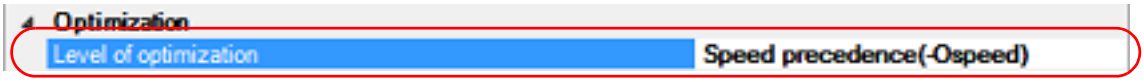


Remark You can also set the option in the same way with the [Level of optimization] property in the [Frequently Used Options(for Compile)] category on the [Common Options] tab.

2.4.2 Perform optimization with the execution speed precedence

Select the build tool node on the project tree and select the [Compile Options] tab on the Property panel.
To perform optimization with the execution speed precedence, select [Speed precedence(-Ospeed)] in the [Level of optimization] property in the [Optimization] category.

Figure 2.18 [Level of optimization] Property (Execution Speed Precedence)



Remark You can also set the option in the same way with the [Level of optimization] property in the [Frequently Used Options(for Compile)] category on the [Common Options] tab.

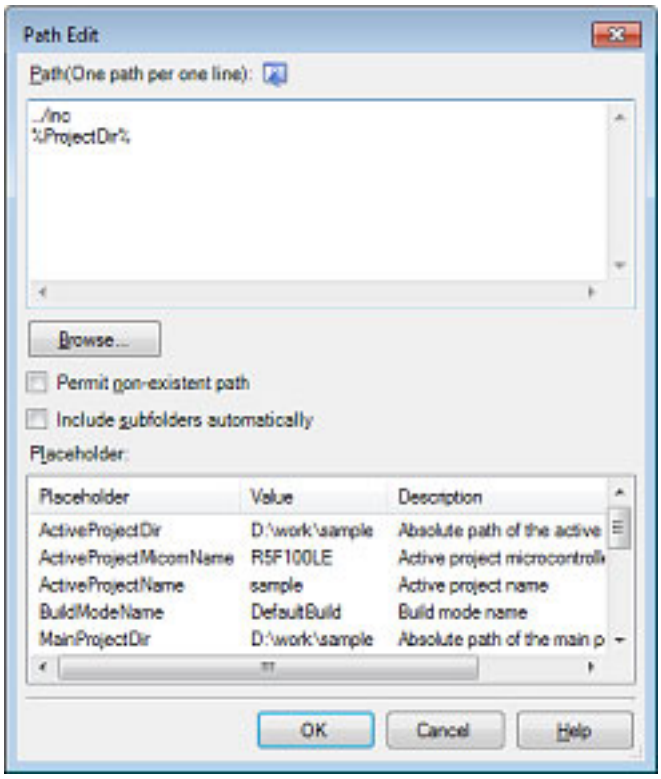
2.4.3 Add an include path

Select the build tool node on the project tree and select the [Compile Options] tab on the Property panel.
The include path setting is made with the [Additional include paths] property in the [Preprocess] category.

Figure 2.19 [Additional include paths] Property

If you click the [...] button, the Path Edit dialog box will open.

Figure 2.20 Path Edit Dialog Box



Enter the include path per line in [Path(One path per one line)].
You can specify up to 247 characters per line, up to 256 lines.

Remark 1. This property supports placeholders.
If a line is double clicked in [Placeholder], the placeholder will be reflected in [Path(One path per one line)].

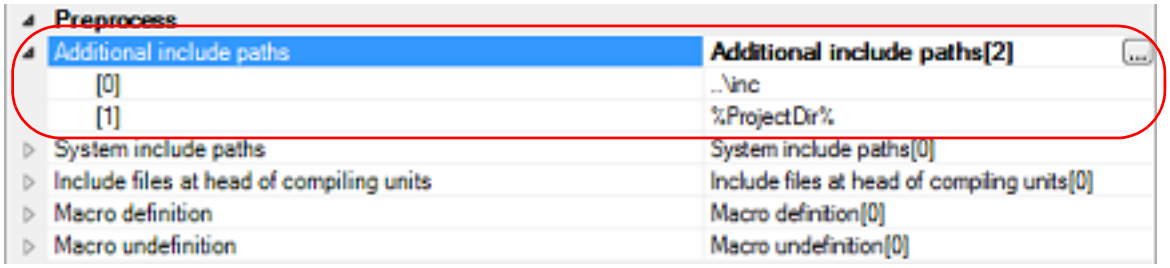
Remark 2. You can also specify the include path by one of the following procedures.

- Drag and drop the folder using such as Explorer.
- Click the [Browse...] button, and then select the folder in the Browse For Folder dialog box.
- Double click a row in [Placeholder].

Remark 3. Select the [Include subfolders automatically] check box before clicking the [Browse...] button to add all paths under the specified one (down to 5 levels) to [Path(One path per one line)].

If you click the [OK] button, the entered include paths are displayed as subproperties.

Figure 2.21 [Additional include paths] Property (After Adding Include Paths)



To change the include paths, you can use the [...] button or enter the path directly in the text box of the subproperty.
When the include path is added to the project tree, the path is added to the top of the subproperties automatically.

Remark You can also set the option in the same way with the [Additional include paths] property in the [Frequently Used Options(for Compile)] category on the [Common Options] tab.

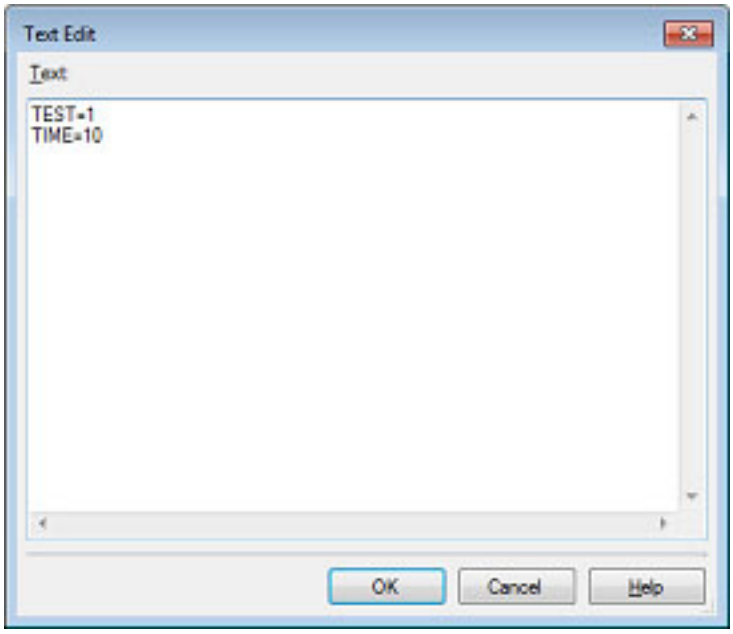
2.4.4 Set a macro definition

Select the build tool node on the project tree and select the [Compile Options] tab on the Property panel.
The macro definition setting is made with the [Macro definition] property in the [Preprocess] category.

Figure 2.22 [Macro definition] Property

If you click the [...] button, the Text Edit dialog box will open.

Figure 2.23 Text Edit Dialog Box



Enter the macro definition in [Text] in the format of "*macro name=defined value*", with one macro name per line.
You can specify up to 256 characters per line, up to 256 lines.
The "=*defined value*" part can be omitted, and in this case, "1" is used as the defined value.
If you click the [OK] button, the entered macro definitions are displayed as subproperties.

Figure 2.24 [Macro definition] Property (After Setting Macros)

To change the macro definitions, you can use the [...] button or enter the path directly in the text box of the subproperty.

Remark You can also set the option in the same way with the [Macro definition] property in the [Frequently Used Options(for Compile)] category on the [Common Options] tab.

2.5 Set Assemble Options

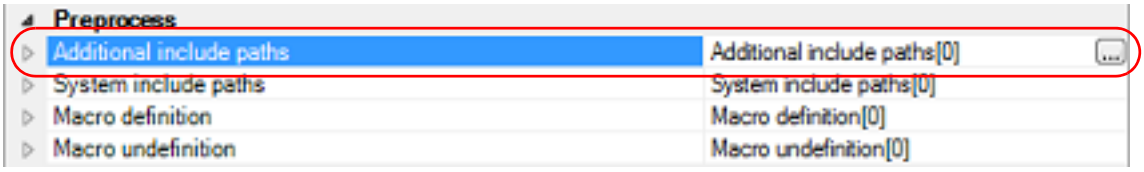
To set options for the assemble phase, select the Build tool node on the project tree and select the [Assemble Options] tab on the Property panel.
You can set the various assemble options by setting the necessary properties in this tab.

Remark Often used options have been gathered under the [Frequently Used Options(for Assemble)] category on the [Common Options] tab.

2.5.1 Add an include path

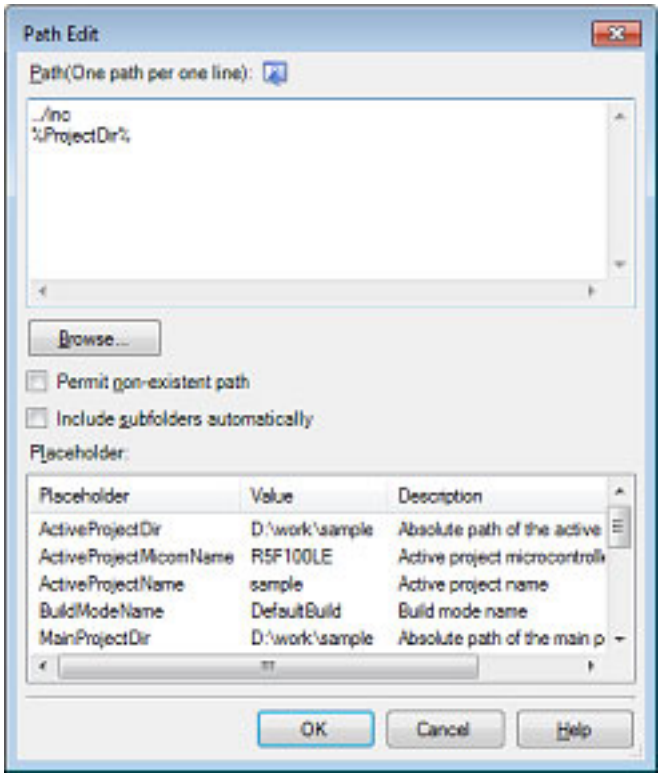
Select the build tool node on the project tree and select the [Assemble Options] tab on the Property panel.
The include path setting is made with the [Additional include paths] property in the [Preprocess] category.

Figure 2.25 [Additional include paths] Property



If you click the [...] button, the Path Edit dialog box will open.

Figure 2.26 Path Edit Dialog Box



Enter the include path per line in [Path(One path per one line)].
You can specify up to 247 characters per line, up to 256 lines.

Remark 1. This property supports placeholders.
If a line is double clicked in [Placeholder], the placeholder will be reflected in [Path(One path per one line)].

Remark 2. You can also specify the include path by one of the following procedures.

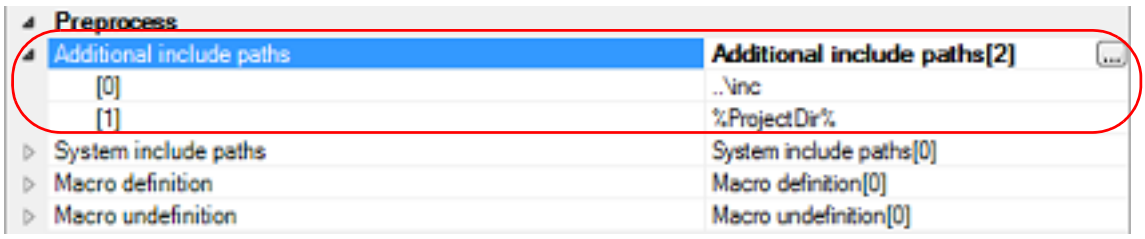
- Drag and drop the folder using such as Explorer.
- Click the [Browse...] button, and then select the folder in the Browse For Folder dialog box.

- Double click a row in [Placeholder].

Remark 3. Select the [Include subfolders automatically] check box before clicking the [Browse...] button to add all paths under the specified one (down to 5 levels) to [Path(One path per one line)].

If you click the [OK] button, the entered include paths are displayed as subproperties.

Figure 2.27 [Additional include paths] Property (After Adding Include Paths)



To change the include paths, you can use the [...] button or enter the path directly in the text box of the subproperty. When the include path is added to the project tree, the path is added to the top of the subproperties automatically.

Remark You can also set the option in the same way with the [Additional include paths] property in the [Frequently Used Options(for Assemble)] category on the [Common Options] tab.

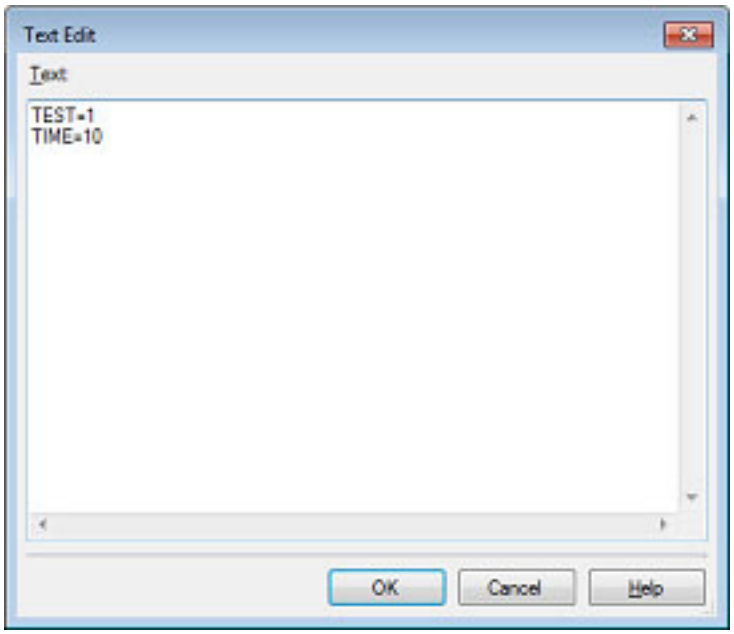
2.5.2 Set a macro definition

Select the build tool node on the project tree and select the [Assemble Options] tab on the Property panel. The macro definition setting is made with the [Macro definition] property in the [Preprocess] category.

Figure 2.28 [Macro definition] Property

If you click the [...] button, the Text Edit dialog box will open.

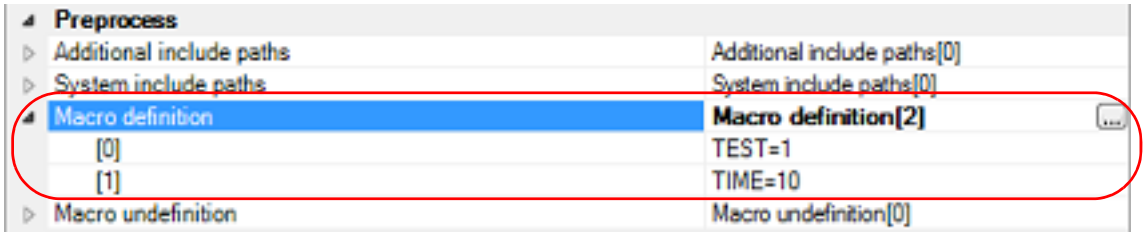
Figure 2.29 Text Edit Dialog Box



Enter the macro definition in [Text] in the format of "*macro name=defined value*", with one macro name per line. You can specify up to 256 characters per line, up to 256 lines.

The "=*defined value*" part can be omitted, and in this case, "1" is used as the defined value.
If you click the [OK] button, the entered macro definitions are displayed as subproperties.

Figure 2.30 [Macro definition] Property (After Setting Macros)



To change the macro definitions, you can use the [...] button or enter the path directly in the text box of the subproperty.

Remark You can also set the option in the same way with the [Macro definition] property in the [Frequently Used Options(for Assemble)] category on the [Common Options] tab.

2.6 Set Link Options

To set options for the link phase, select the Build tool node on the project tree and select the [Link Options] tab on the Property panel.

You can set the various link options by setting the necessary properties in this tab.

Caution This tab is not displayed for the library project.

Remark Often used options have been gathered under the [Frequently Used Options(for Link)] category on the [Common Options] tab.

2.6.1 Add a user library

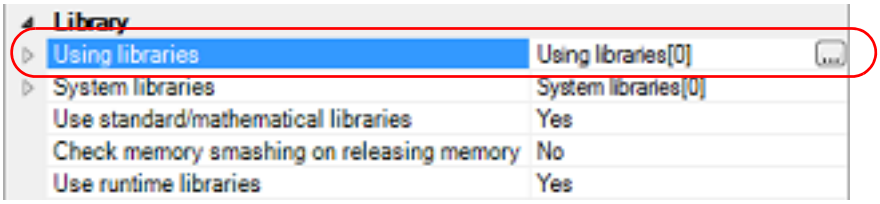
Adding a user library is made with the property or on the project tree.

(1) Addition using the property

Select the build tool node on the project tree and select the [Link Options] tab on the Property panel.

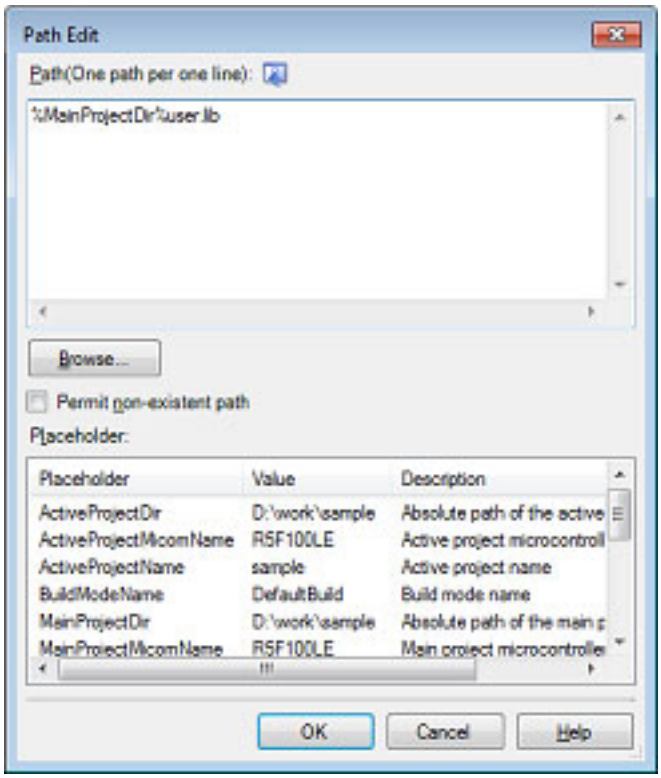
Adding a user library is made with the [Using libraries] property in the [Library] category.

Figure 2.31 [Using libraries] Property



If you click the [...] button, the Path Edit dialog box will open.

Figure 2.32 Path Edit Dialog Box



Enter the library file (including the path) per line in [Path(One path per one line)].

You can specify up to 259 characters per line, up to 65536 lines.

Remark 1. This property supports placeholders.

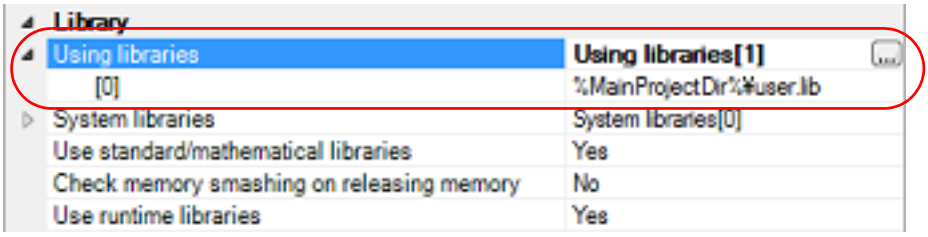
If a line is double clicked in [Placeholder], the placeholder will be reflected in [Path(One path per one line)].

Remark 2. You can also specify the library file by one of the following procedures.

- Drag and drop the folder using such as Explorer.
- Click the [Browse...] button, and then select the folder in the Specify Using Library File dialog box.
- Double click a row in [Placeholder].

If you click the [OK] button, the entered library files are displayed as subproperties.

Figure 2.33 [Using libraries] Property (After Setting Library Files)



To change the library files, you can use the [...] button or enter the path directly in the text box of the subproperty.

Remark You can also set the option in the same way with the [Using libraries] property in the [Frequently Used Options(for Link)] category on the [Common Options] tab.

(2) Addition from the project tree
Adding a library file to the project tree is performed from the Add Existing File dialog box.
Dropping a library file in the project tree is also possible.
When a library file is added from the project tree, it is subject to timestamp comparison with the load module at build, and the link processing is executed when the added library file is updated.

2.6.2 Prepare for using the overlaid section selection function

The optimizing linker (rlink) used by CC-RL can allocate multiple sections defined in a program to the same address. The sections allocated in this way are called "overlaid sections".

The debug tool provides a function to select the debug target section from the overlaid sections (priority sections) allocated to the same address. The function is called "overlaid section selection function".

A load module using overlaid sections can be debugged with switching of the priority section before program execution.

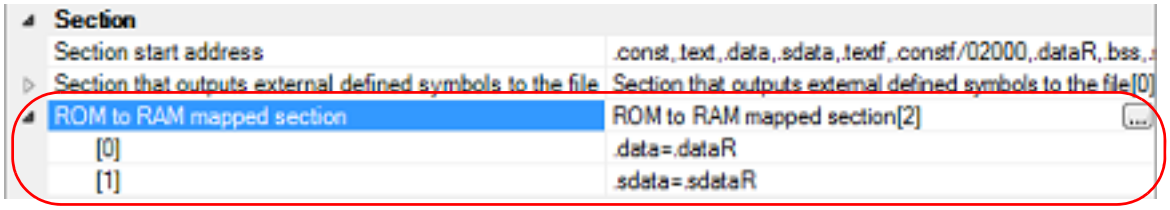
The method for generating a load module to use the overlaid section selection function is shown below.

(1) Copy the ROM area contents to RAM
Copy the ROM area contents to the RAM area to expand the code and data in the RAM.

(2) Set build options
Set the ROM-to-RAM mapped sections and overlaid sections to use the overlaid section selection function.
Select the build tool node on the project tree and select the [Link Options] tab on the Property panel.

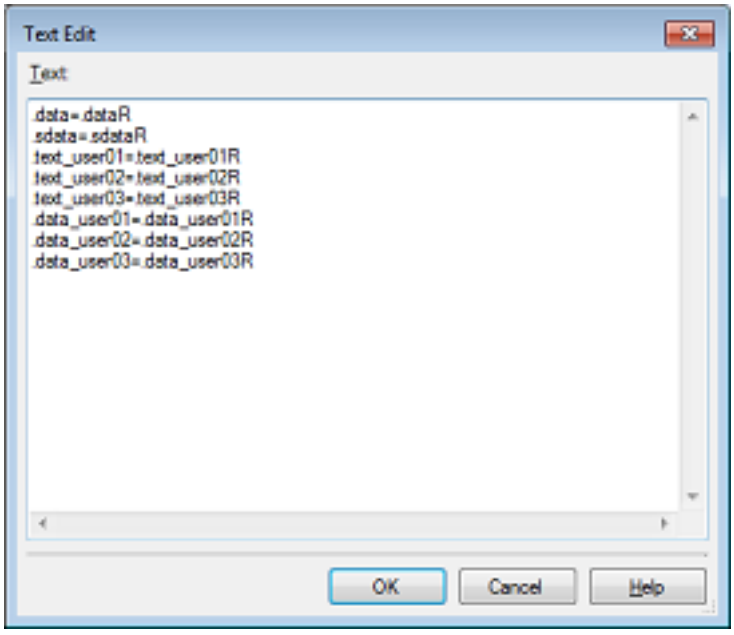
(a) Set ROM-to-RAM mapped sections
Setting the ROM-to-RAM mapped sections is made with the [ROM to RAM mapped section] property in the [Section] category.
This reserves the RAM section with the same size as that of the ROM section and relocates the symbols defined in the ROM section to addresses in the RAM section.

Figure 2.34 [ROM to RAM mapped section] Property



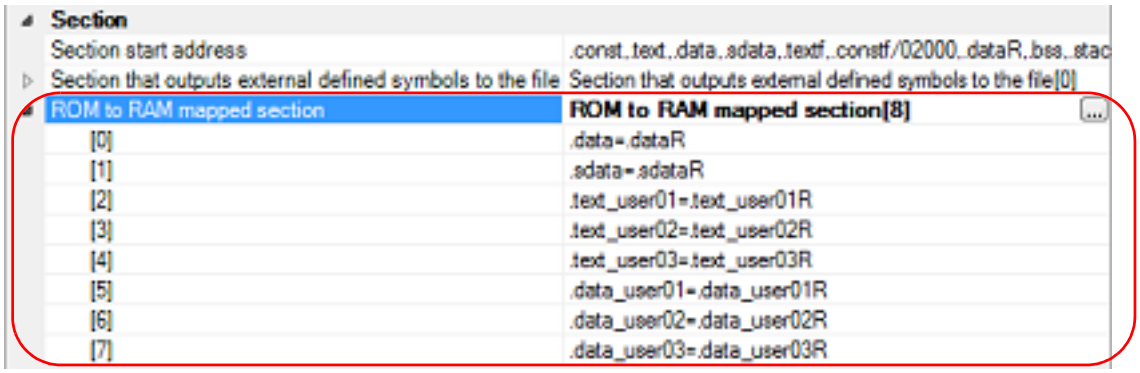
If you click the [...] button, the Text Edit dialog box will open.

Figure 2.35 Text Edit Dialog Box



Enter the section name in [Text] in the format of "*ROM section name=RAM section name*", with one section name per line.
You can specify up to 32767 characters per line, up to 65535 lines.
If you click the [OK] button, the entered section names are displayed as subproperties.

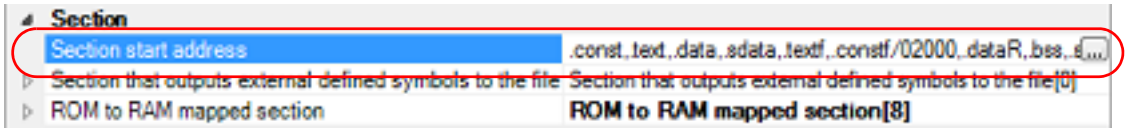
Figure 2.36 [ROM to RAM mapped section] Property (After Setting Sections)



To change the section names, you can use the [...] button or enter them directly in the text box of the subproperty.

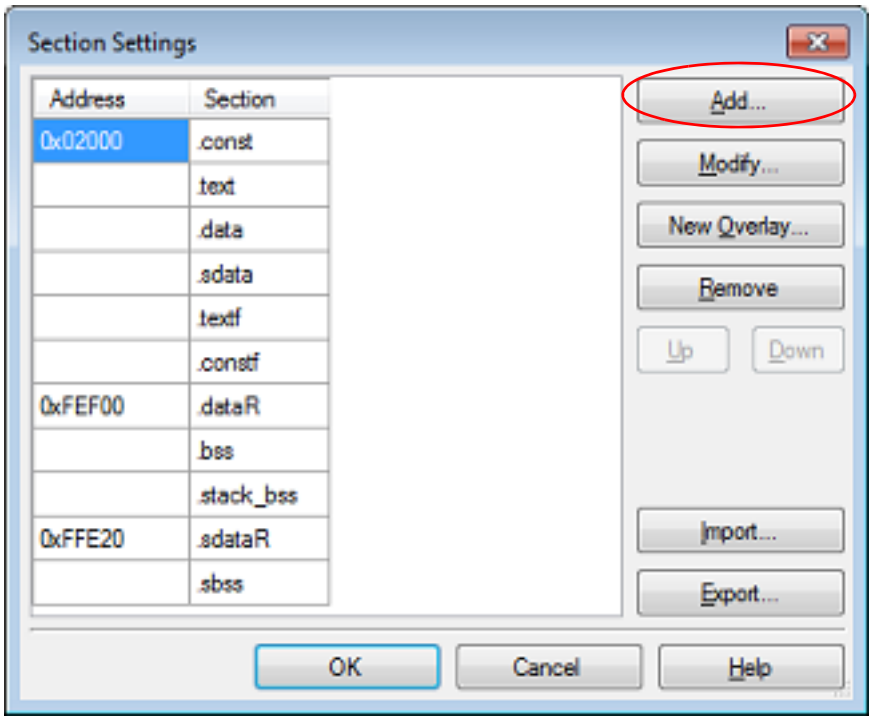
(b) Set ROM sections and RAM sections (overlaid sections)
Setting the sections is made with the [Section start address] property in the [Section] category.

Figure 2.37 [Section start address] Property



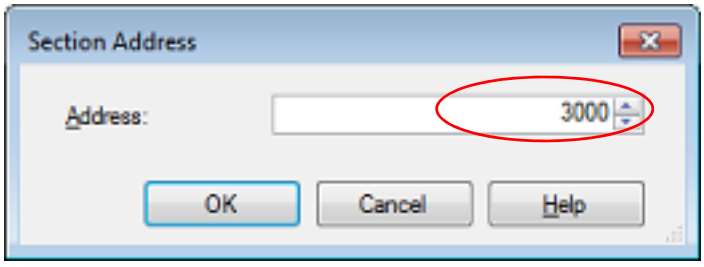
<1> Set ROM sections
If you click the [...] button, the Section Settings dialog box will open.

Figure 2.38 Section Settings Dialog Box



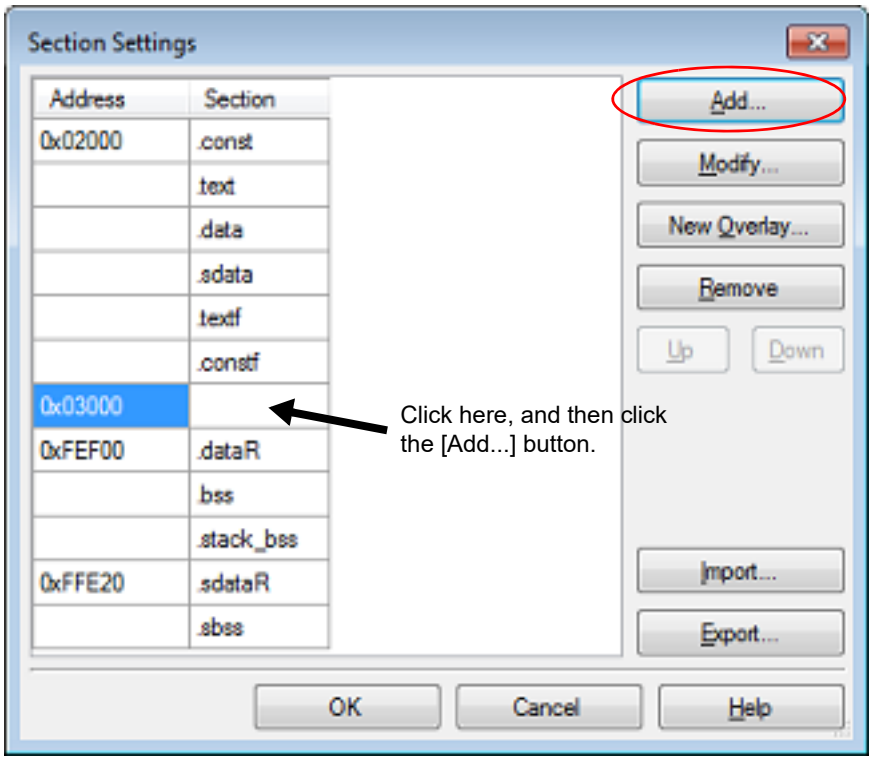
If you click the [Add...] button, the Section Address dialog box will open.

Figure 2.39 Section Address Dialog Box



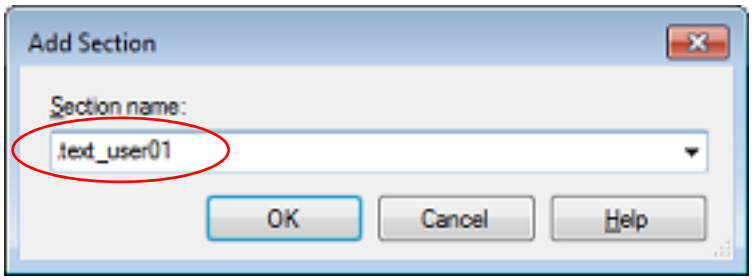
Enter in [Address] the address of the ROM section to be added and click the [OK] button to add the entered address to [Address] in the Section Settings dialog box.

Figure 2.40 Section Settings Dialog Box (After ROM Section Addresses Are Added)



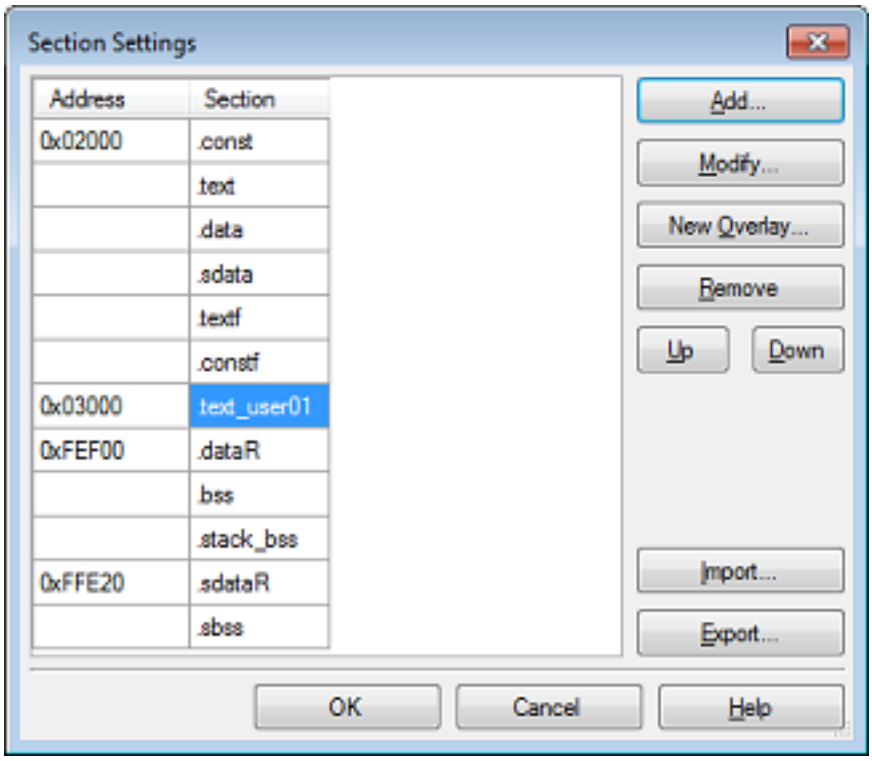
Click the Section column on the added address row and click the [Add...] button to open the Add Section dialog box.

Figure 2.41 Add Section Dialog Box



Enter in [Section name] the name of the ROM section to be added and click the [OK] button to add the entered section to [Section] in the Section Settings dialog box.

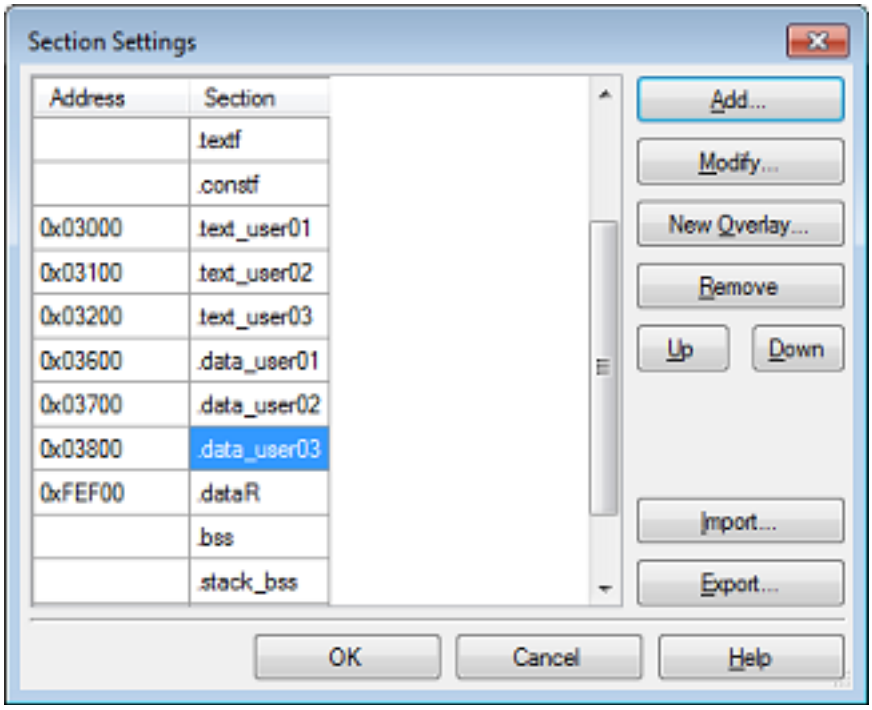
Figure 2.42 Section Settings Dialog Box (After ROM Sections Are Added)



For other ROM sections, set addresses and section names in the same way.

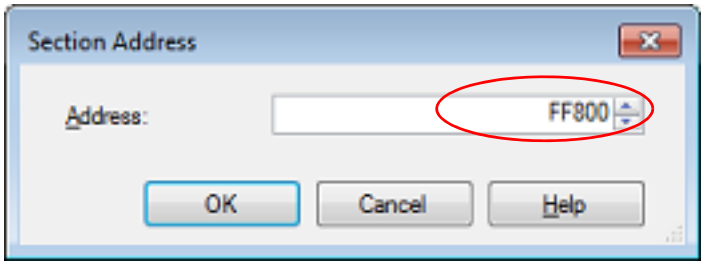
Remark Click the Address column and click the [Add...] button to open the Section Address dialog box, allowing you to add a new address.

Figure 2.43 Section Settings Dialog Box (After Multiple ROM Sections Are Added)



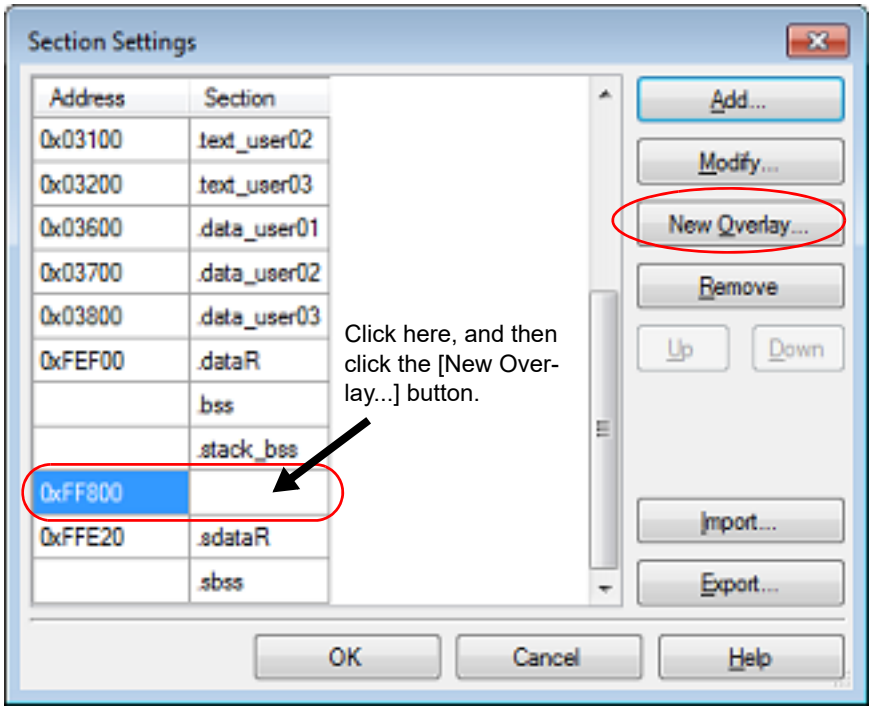
<2> Set RAM sections (overlaid sections)
Click an added address and click the [Add...] button to open the Section Address dialog box.

Figure 2.44 Section Address Dialog Box



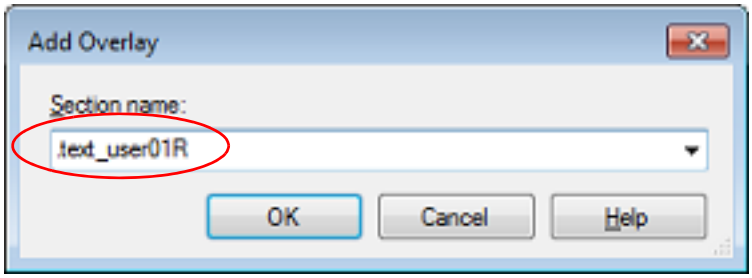
Enter in [Address] the address of the RAM section to be added and click the [OK] button to add the entered address to [Address] in the Section Settings dialog box.

Figure 2.45 Section Settings Dialog Box (After RAM Section Addresses Are Added)



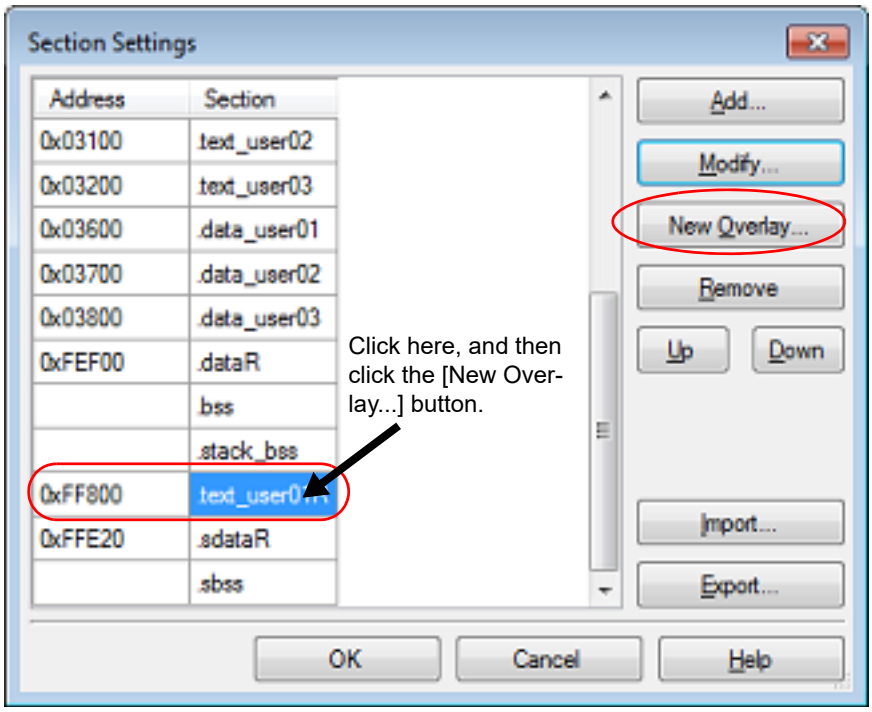
Click the added address row (Address column or Section column) and click the [New Overlay...] button to open the Add Overlay dialog box.

Figure 2.46 Add Overlay Dialog Box



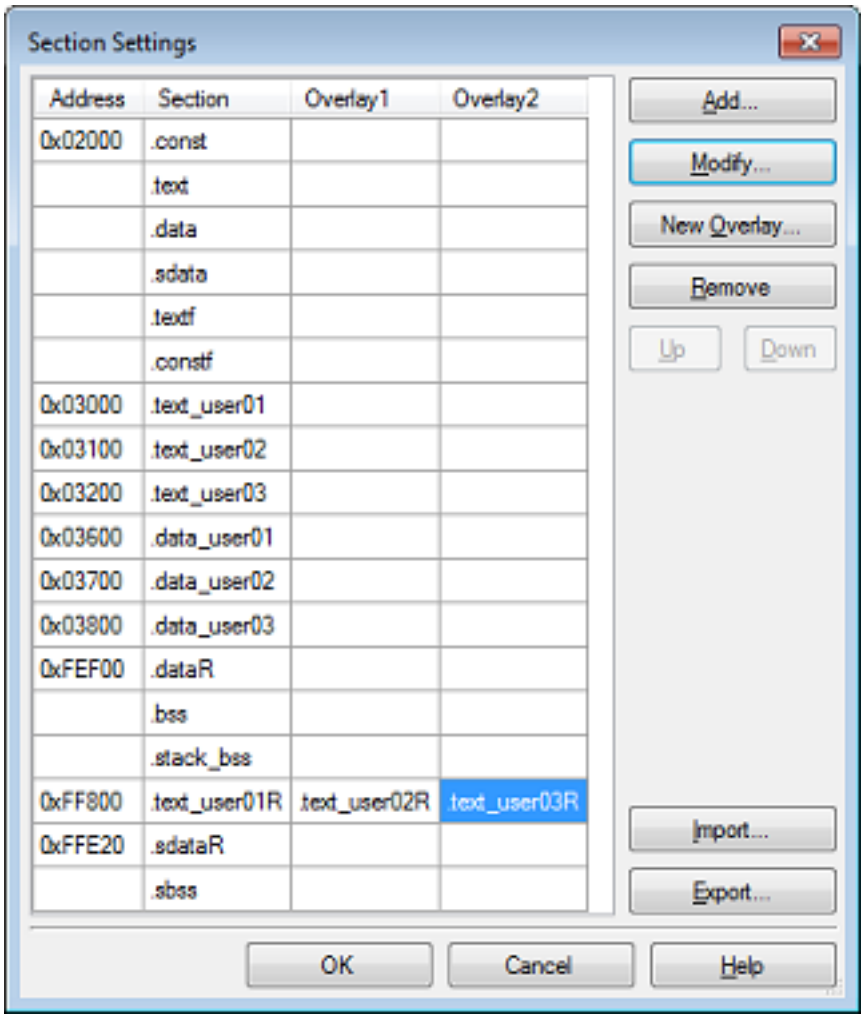
Enter in [Section name] the name of the RAM section to be added and click the [OK] button to add the entered section to [Section] in the Section Settings dialog box.

Figure 2.47 Section Settings Dialog Box (After RAM Sections Are Added)



Add the sections to be allocated to the same address by using the [New Overlay...] button in the same way. The added sections are displayed under [Overlay *n*] (*n*: number starting with "1").

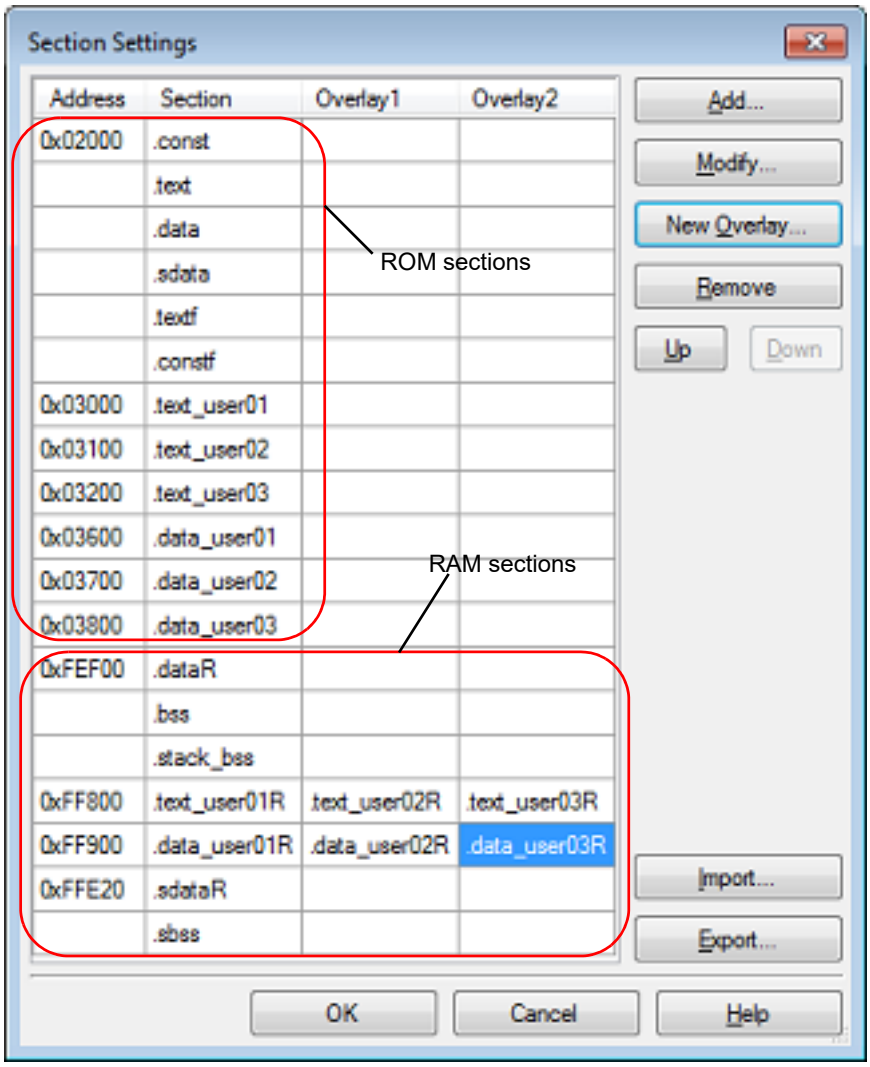
Figure 2.48 Section Settings Dialog Box (After Overlaid Sections Are Added)



For other RAM sections, set addresses and section names in the same way.

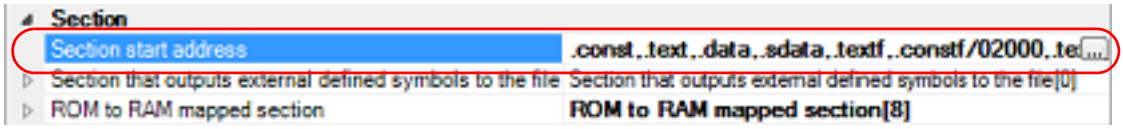
Remark Click the Address column and click the [Add...] button to open the Section Address dialog box, allowing you to add a new address.

Figure 2.49 Section Settings Dialog Box (After Multiple RAM Sections Are Added)



Click the [OK] button. The specified ROM sections and RAM sections (overlaid sections) will be displayed in the text boxes.

Figure 2.50 [Section start address] Property (After Setting Sections)



(3) Run a build of the project
Run a build of the project.
A load module file to use the overlaid section selection function is generated.

2.7 Set Hex Output Options

To set options for the hex output phase, select the Build tool node on the project tree and select the [Hex Output Options] tab on the Property panel.
You can set the various hex output options by setting the necessary properties in this tab.

Caution This tab is not displayed for the library project.

Remark Often used options have been gathered under the [Frequently Used Options(for Hex Output)] category on the [Common Options] tab.

2.7.1 Set the output of a hex file

Select the build tool node on the project tree and select the [Hex Output Options] tab on the Property panel.

(1) Set the output of a hex file
The setting to output a hex file is made with the [Output hex file] property in the [Output File] category.
To output a hex file, select [Yes], to not output a hex file, select [No].

Figure 2.51 [Output hex file] Property

When outputting a hex file, you can set the output folder and output file name.

(a) Set the output folder
Setting the output folder is made with the [Output folder] property by directly entering to the text box or by the [...] button.
Up to 247 characters can be specified in the text box.
This property supports the following placeholder.

%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.

"%BuildModeName%" is set by default.

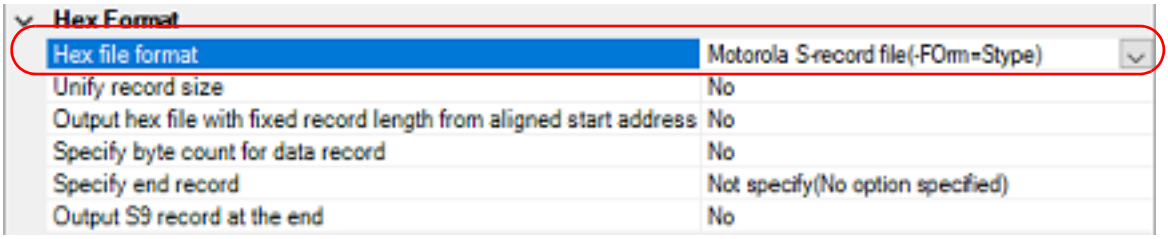
(b) Set the output file name
Setting the output file is made with the [Output file name] property by directly entering to the text box.
Up to 259 characters can be specified in the text box.
This property supports the following placeholders.

%ActiveProjectName%: Replaces with the active project name.
%MainProjectName%: Replaces with the main project name.
%ProjectName%: Replaces with the project name.

"%ProjectName%.mot" is set by default.

(2) Set the hex file format
Select the format in the [Hex file format] property in the [Hex Format] category.

Figure 2.52 [Hex file format] Property



You can select any of the formats below.

Format	Configuration
Intel HEX file(-FOrm=Hexadecimal)	Outputs an Intel HEX file.
Motorola S-record file(-FOrm=Stype)	Outputs a Motorola S-record file.
Binary file(-FOrm=Binary)	Outputs a binary file.

Remark See "CC-RL Compiler User's Manual" for details about the Intel Hex file and Motorola S-record file.

2.7.2 Fill the vacant area

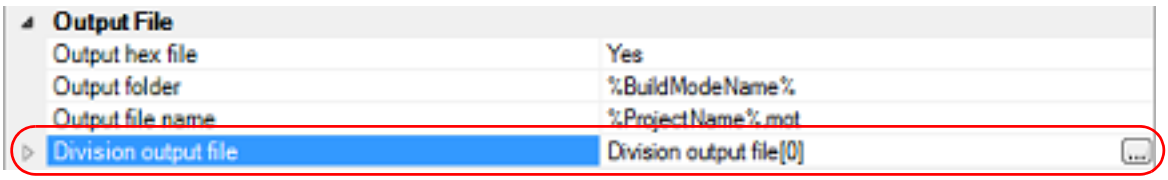
You need to set the hex file output range to fill the vacant area. The property to fill the vacant area is displayed after setting the hex file output range.
The procedure for the setting is shown below.

- Set the hex file output range
- Set the method for filling the vacant area

Select the build tool node on the project tree and select the [Hex Output Options] tab on the Property panel.

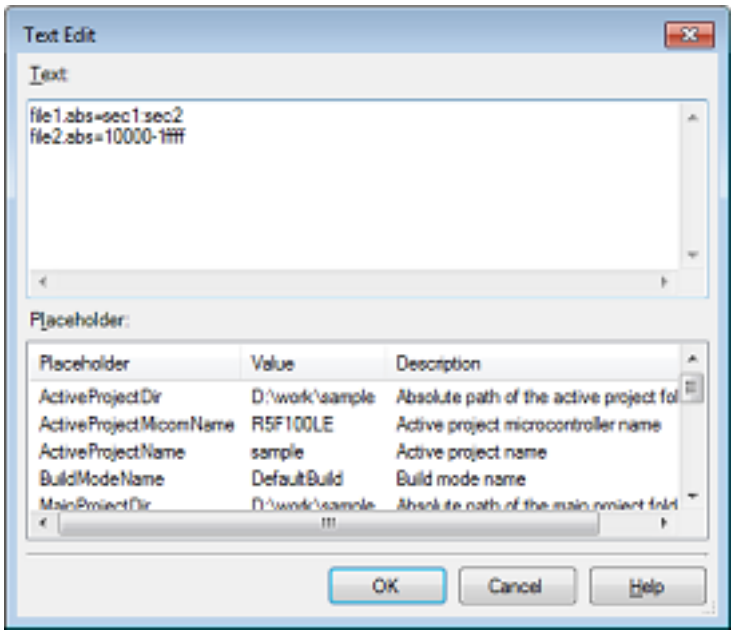
(1) Set the hex file output range
The setting of the hex file output range is made with the [Division output file] property in the [Output File] category.

Figure 2.53 [Division output file] Property



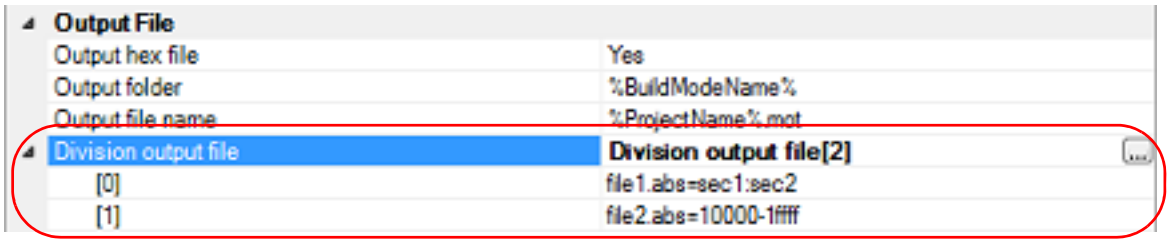
If you click the [...] button, the Text Edit dialog box will open.

Figure 2.54 Text Edit Dialog Box



Specify the division output file name in [Text] in the format of "*file name=start address-end address*" (*start address*, *end address*: The start address and end address of the output range) or "*file name=section name*" (*section name*: The name of the output section), with one file name per line.
If multiple section names are specified, delimit them with a colon as in "*file name=section name*:*section name*".
Specify the start address and end address in hexadecimal.
You can specify up to 259 characters per line, up to 65535 lines.
If you click the [OK] button, the entered division output file names are displayed as subproperties.

Figure 2.55 [Division output file] Property (After Setting Division Output File Names)

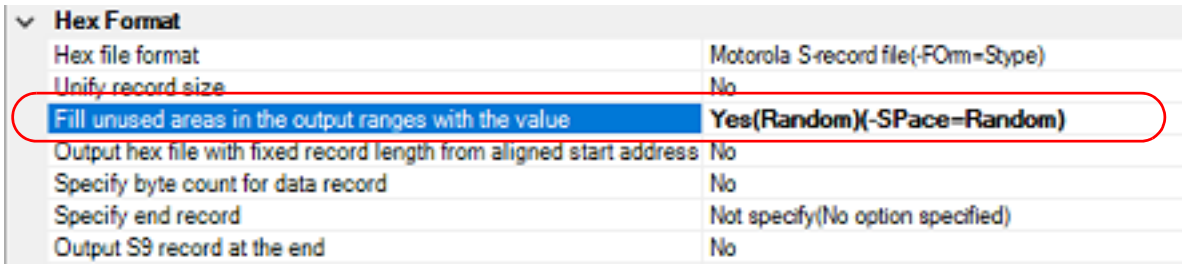


To change the division output file names, you can use the [...] button or enter them directly in the text box of the subproperty.

(2) Set the method for filling the vacant area
Set the method for filling the vacant area in the output range.

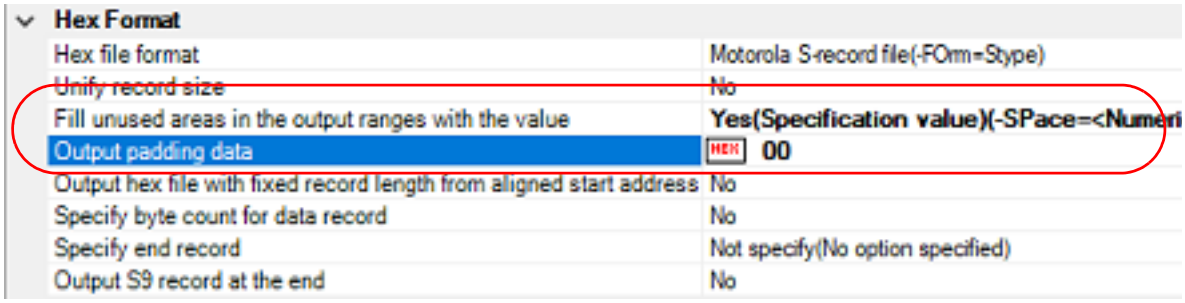
(a) Fill the vacant area with random numbers
Select [Yes(Random)(-SPace=Random)] in the [Fill unused areas in the output ranges with the value] property in the [Hex Format] category.

Figure 2.56 [Fill unused areas in the output ranges with the value] Property



(b) Specify data to fill the vacant area
Select [Yes(Specification value)(-SPace=<Numerical value>)] in the [Fill unused areas in the output ranges with the value] property in the [Hex Format] category. The [Output padding data] property will be displayed.

Figure 2.57 [Fill unused areas in the output ranges with the value] and [Output padding data] Property



Enter the fill value for the vacant area directly in the text box.
The range that can be specified for the value is 00 to FFFFFFFF (hexadecimal number).
"FF" is set by default.

2.8 Set Create Library Options

To set options for the librarian, select the Build tool node on the project tree and select the [Create Library Options] tab on the Property panel.
You can set the various create library options by setting the necessary properties in this tab.

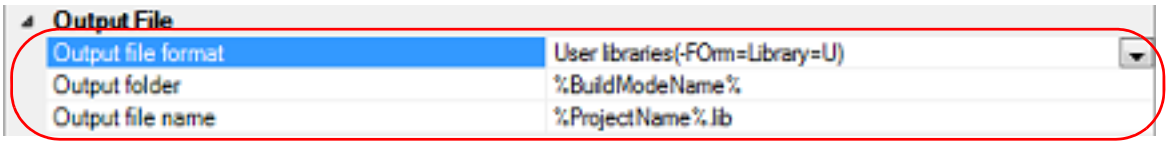
Caution This tab is displayed for the library project.

Remark Often used options have been gathered under the [Frequently Used Options(for Create Library)] category on the [Common Options] tab.

2.8.1 Set the output of a library file

Select the build tool node on the project tree and select the [Create Library Options] tab on the Property panel.
The setting to output a library file is made with the [Output File] category.

Figure 2.58 [Output File] Category



(1) Set the output format
Select the format in the [Output file format] property.
You can select any of the formats below.

Format	Configuration
User libraries(-FOrm=Library=U)	Outputs a user library file.
System libraries(-FOrm=Library=S)	Outputs a system library file. The system library file is linked after the user library file. Select this item to create a library that is to be linked after the user library file.
Relocatable file(-FOrm=Relocate)	Outputs a relocatable file.

(2) Set the output folder
Setting the output folder is made with the [Output folder] property by directly entering to the text box or by the [...] button.
Up to 247 characters can be specified in the text box.
This property supports the following placeholder.

%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.

"%BuildModeName%" is set by default.

(3) Set the output file name
Setting the output file is made with the [Output file name] property by directly entering to the text box.
If the extension is omitted, it is automatically added according to the selection in the [Output file format] property.

When [User libraries(-FOrm=Library=U)] is selected: .lib
When [System libraries(-FOrm=Library=S)] is selected: .lib
When [Relocatable file(-FOrm=Relocate)] is selected: .rel

Up to 259 characters can be specified in the text box.
This property supports the following placeholders.

%ActiveProjectName%: Replaces with the active project name.
%MainProjectName%: Replaces with the main project name.
%ProjectName%: Replaces with the project name.

"%ProjectName%.lib" is set by default.

2.9 Set Standard Library Generate Options

To set options for the library generator, select the Build tool node on the project tree and select the [Standard Library Generate Options] tab on the Property panel.

You can set the various library generate options by setting the necessary properties in this tab.

Caution This tab is displayed in the following cases.

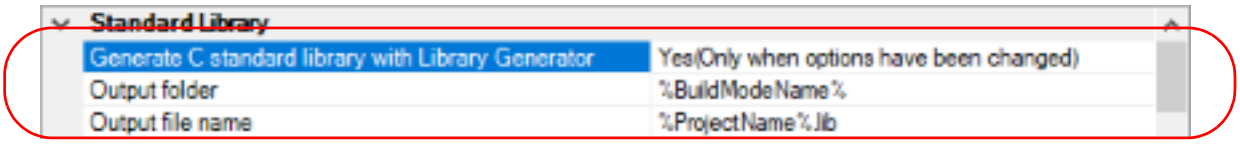
- The project is for the other than library project.
- [Always latest version which was installed] or V1.13.00 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.13.00 or a later version of the CC-RL compiler has been installed

2.9.1 Set the output of the standard library file

Select the build tool node on the project tree and select the [Standard Library Generate Options] tab on the Property panel.

The setting to output the standard library file is made with the [Standard Library] category.

Figure 2.59 [Standard Library] Category



(1) Set the output folder

Setting the output folder is made with the [Output folder] property by directly entering to the text box or by the [...] button.

Up to 247 characters can be specified in the text box.

This property supports the following placeholder.

%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.

"%BuildModeName%" is set by default.

(2) Set the output file name

Setting the output file is made with the [Output file name] property by directly entering to the text box.

Up to 259 characters can be specified in the text box.

This property supports the following placeholders.

%ActiveProjectName%: Replaces with the active project name.
%MainProjectName%: Replaces with the main project name.
%ProjectName%: Replaces with the project name.

"%ProjectName%.lib" is set by default.

2.10 Set Build Options Separately

Build options are set at the project or file level.

Project level: See "2.10.1Set build options at the project level"
File level: See "2.10.2Set build options at the file level"

2.10.1 Set build options at the project level

To set options for build options for the project (main project or subproject), select the Build tool node on the project tree to display the Property panel.
Select the phase tab and set build options by setting the necessary properties.

Compile phase: [Compile Options] tab
Assemble phase: [Assemble Options] tab
FAA Assemble phase: [FAA Assemble Options] tab
SMS Assemble phase: [SMS Assemble Options] tab
Link phase: [Link Options] tab
Hex output phase: [Hex Output Options] tab
Create library phase: [Create Library Options] tab
I/O header file generation tool: [I/O Header File Generation Options] tab

Remark [FAA Assemble Options] tab is displayed when the microcontroller has a FAA. [SMS Assemble Options] tab is displayed when the microcontroller has a SMS.

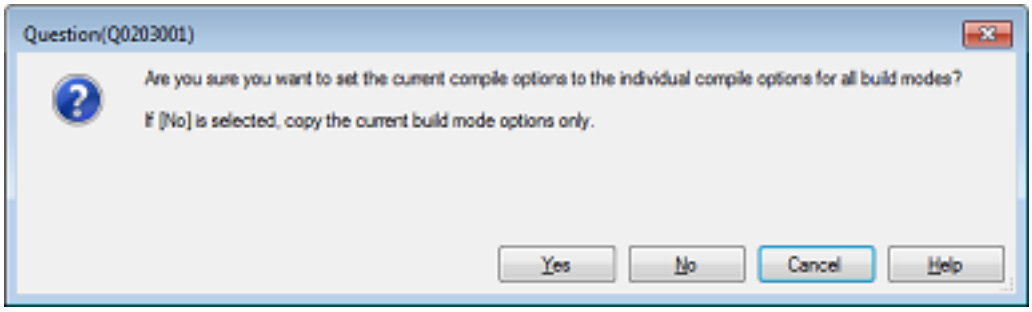
2.10.2 Set build options at the file level

You can individually set compile and assemble options for each source file added to the project.

(1) When setting compile options for a C source file
Select the C source file on the project tree and select the [Build Settings] tab on the Property panel.
Select [Yes] in the [Set individual compile option] property in the [Build] category. The Message Dialog Box will open.

Figure 2.60 [Set individual compile option] Property

Figure 2.61 Message Dialog Box



Click [Yes] in the dialog box. The [Individual Compile Options(C)] tab will be displayed.
You can set compile options for the C source file by setting the necessary properties in this tab.

Note that this tab takes over the settings of the [Common Options] tab and [Compile Options] tab by default except the properties shown below.

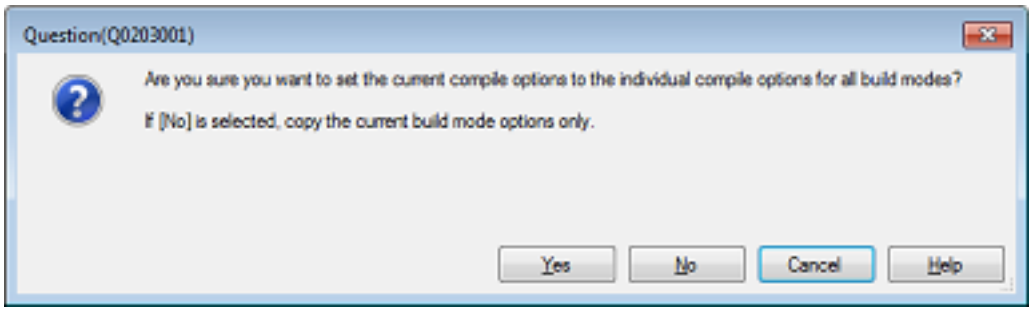
- [Additional include paths] and [Use whole include paths specified for build tool] in the [Preprocess] category
- [Object module file name] in the [Output File] category

(2) When setting compile options for a C++ source file

Select the C++ source file on the project tree and select the [Build Settings] tab on the Property panel.
Select [Yes] in the [Set individual compile option] property in the [Build] category. The Message Dialog Box will open.

Figure 2.62 [Set individual compile option] Property

Figure 2.63 Message Dialog Box



Click [Yes] in the dialog box. The [Individual Compile Options(C++)] tab will be displayed.
You can set compile options for the C++ source file by setting the necessary properties in this tab.

Note that this tab takes over the settings of the [Common Options] tab and [Compile Options] tab by default except the properties shown below.

- [Additional include paths] and [Use whole include paths specified for build tool] in the [Preprocess] category
- [Object module file name] in the [Output File] category

(3) When setting assemble options for an assembly source file
Select the assembly source file on the project tree and select the [Build Settings] tab on the Property panel.
Select [Yes] in the [Set individual assemble option] property in the [Build] category. The Message Dialog Box will open.

Figure 2.64 [Set individual assemble option] Property

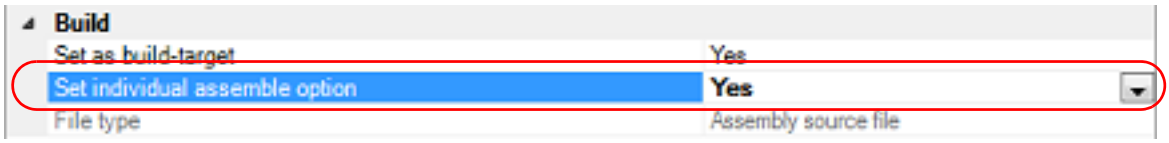
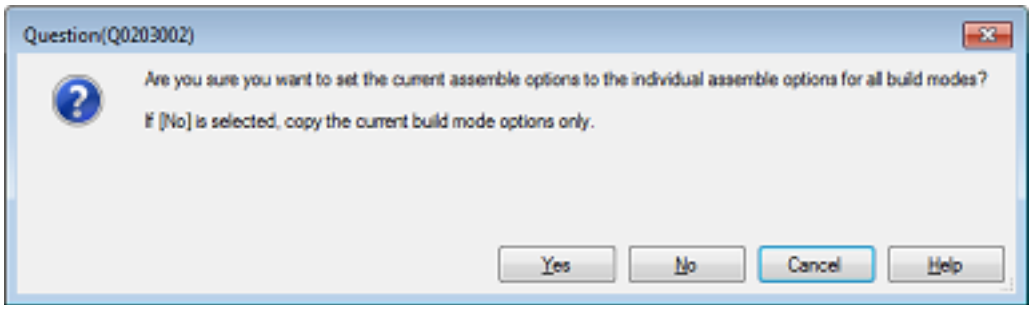


Figure 2.65 Message Dialog Box



Click [Yes] in the dialog box. The [Individual Assemble Options] tab will be displayed.
You can set assemble options for the assembly source file by setting the necessary properties in this tab.

Note that this tab takes over the settings of the [Common Options] tab and [Compile Options] tab/[Assemble Options] tab by default except the properties shown below.

- [Additional include paths] and [Use whole include paths specified for build tool] in the [Preprocess] category

- [Object module file name] in the [Output File] category

(4) When setting FAA assemble options for an FAA assembly source file
Select the FAA assembly source file on the project tree and select the [Build Settings] tab on the Property panel. Select [Yes] in the [Set individual FAA assemble option] property in the [Build] category. The Message Dialog Box will open.

Figure 2.66 [Set individual FAA assemble option] Property

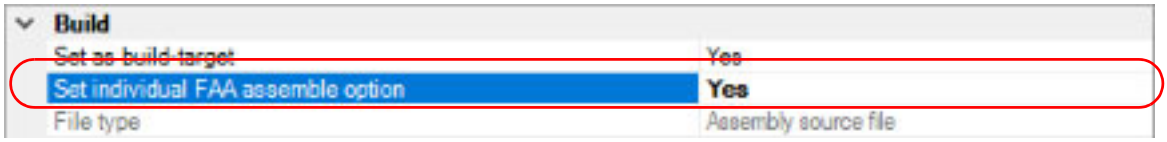
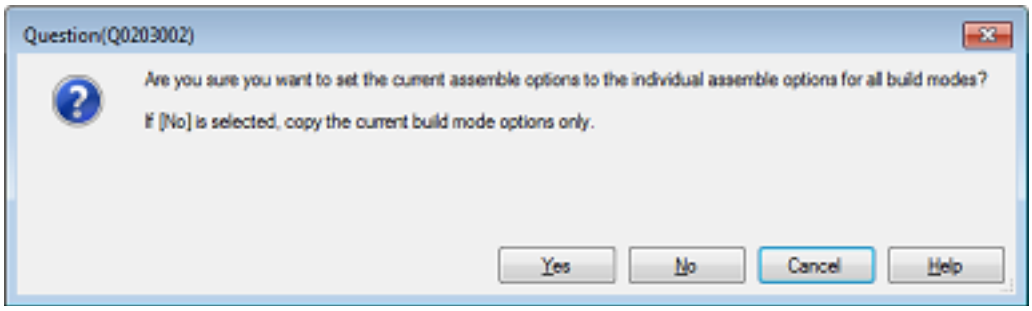


Figure 2.67 Message Dialog Box



Click [Yes] in the dialog box. The [Individual FAA Assemble Options] tab will be displayed.
You can set FAA assemble options for the FAA assembly source file by setting the necessary properties in this tab.

Note that this tab takes over the settings of the [Common Options] tab and [FAA Assemble Options] tab by default except the properties shown below.

- [Output folder] in the [Output File] category

2.11 Efficiently Allocate Variables and Functions

Generate and use the variables/functions information header file to efficiently allocate variables and functions. A variables/functions information header file (header file used to efficiently assign the saddr area and callt area based on the number of times and order in which the variables and functions are referenced) is generated by setting the [Output variables/functions information header file] property from the [Link Options] tab on the Property panel. Variables will be allocated to the saddr area, and functions to the callt area by performing compilation using that file.

The procedures for performing this operation are described below.

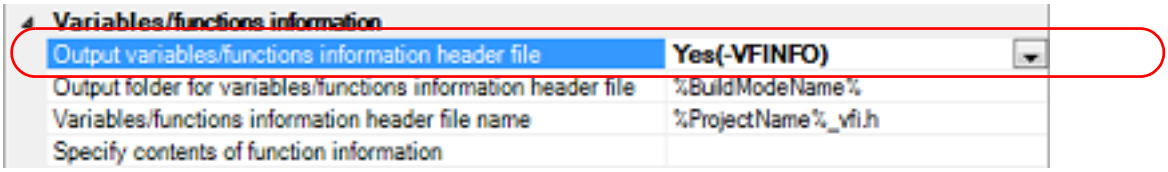
- Generating a variables/functions information header file automatically and allocating variables and functions
- Editing and using an auto-generated variables/functions information header file

Make sure to confirm that build has completed successfully and a load module file has been generated before using this function.

(1) Generating a variables/functions information header file automatically and allocating variables and functions
Below is the procedure for generating a variables/functions information header file automatically and using that file to allocate variables and functions, via one build.

(a) Set the generation of the variables/functions information header file
Select the build tool node on the project tree and select the [Link Options] tab on the Property panel.
Set the [Output variables/functions information header file] property to [Yes] to generate an empty variables/functions information header file, and add it to the project (it will also appear in the File node of the project tree).
The output destination is the file set in the [Output folder for variables/functions information header file] property and the [Variables/functions information header file name] property.

Figure 2.68 [Output variables/functions information header file] Property



The settings of the output folder and file of the variables/functions information header file are can be changed.

<1> Set the output folder
Setting the output folder is made with the [Output folder for variables/functions information header file] property by directly entering to the text box or by the [...] button.
Up to 247 characters can be specified in the text box.
This property supports the following placeholders.

%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.

"%BuildModeName%" is set by default.
If this property is changed, an empty variables/functions information header file is generated and added to the project (it will also appear in the File node of the project tree).

<2> Set the output file name
Setting the output file is made with the [Variables/functions information header file name] property by directly entering to the text box.
Up to 259 characters can be specified in the text box.
This property supports the following placeholders.

%ActiveProjectName%: Replaces with the active project name.
%MainProjectName%: Replaces with the main project name.

%ProjectName%: Replaces with the project name.
"%ProjectName%_vfi.h" is set by default.

If this property is changed, an empty variables/functions information header file is generated and added to the project (it will also appear in the File node of the project tree).

(b) Run a build of the project
Run a build of the project.
A variables/functions information header file is generated. It will be included in the C source automatically and a rebuild will be executed again.

Remark The variables/functions information header file in "(a)Set the generation of the variables/functions information header file" is overwritten by running a build.

If the build completes successfully, a load module file is generated with the variables and functions allocated.

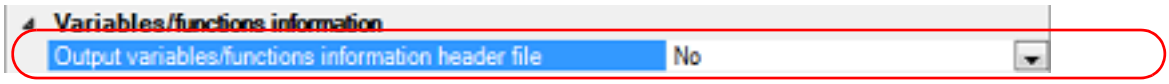
(2) Editing and using an auto-generated variables/functions information header file
Users can edit a variables/functions information header file.
Below is the procedure for editing the generated variables/functions information header file in "(1)Generating a variables/functions information header file automatically and allocating variables and functions" by the user and using that file to allocate variables and functions.

(a) Edit the variables/functions information header file
Edit the variables/functions information header file generated automatically in "(1)Generating a variables/functions information header file automatically and allocating variables and functions".

Remark See "CC-RL Compiler User's Manual" for details about the format of the auto-generated variables/functions information header file.

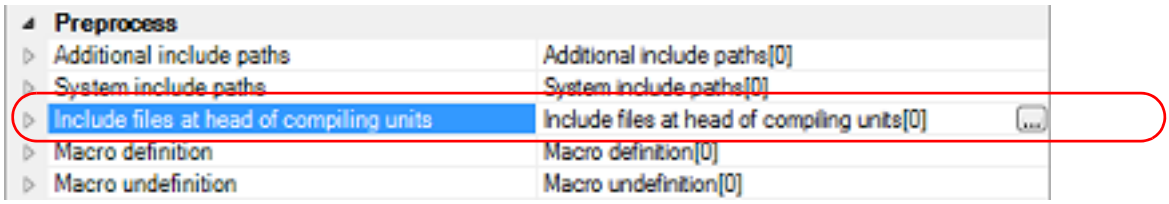
(b) Set the generation of the variables/functions information header file
Select the build tool node on the project tree and select the [Link Options] tab on the Property panel.
Select [No] on the [Output variables/functions information header file] property.

Figure 2.69 [Output variables/functions information header file] Property



Next, select the [Compile Options] tab.
Specify the edited variables/functions information header file on the [Include files at head of compiling units] property.

Figure 2.70 [Include files at head of compiling units] Property



(c) Run a build of the project
Run a build of the project.
A load module file is generated with the variables and functions allocated as specified in the variables/functions information header file.

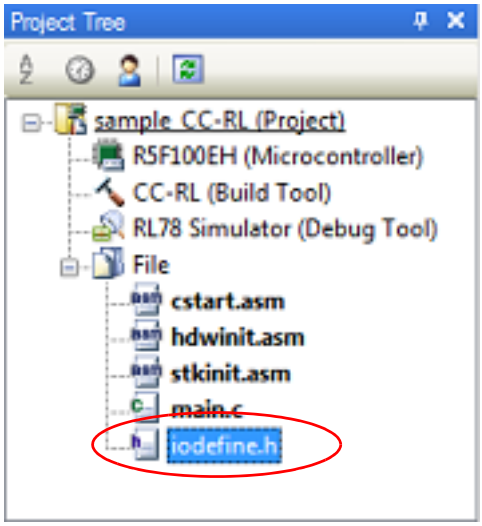
2.12 Automatically Update the I/O Header File

When an application project is newly created, an I/O header file corresponding to the selected device is automatically generated.

If the I/O header file needs to be automatically updated in response to the update of the device file, use the following update method.

The I/O header file is automatically generated as "iodefine.h" when an application project is newly created and it is registered in the project tree.

Figure 2.71 I/O Header File (iodefine.h)



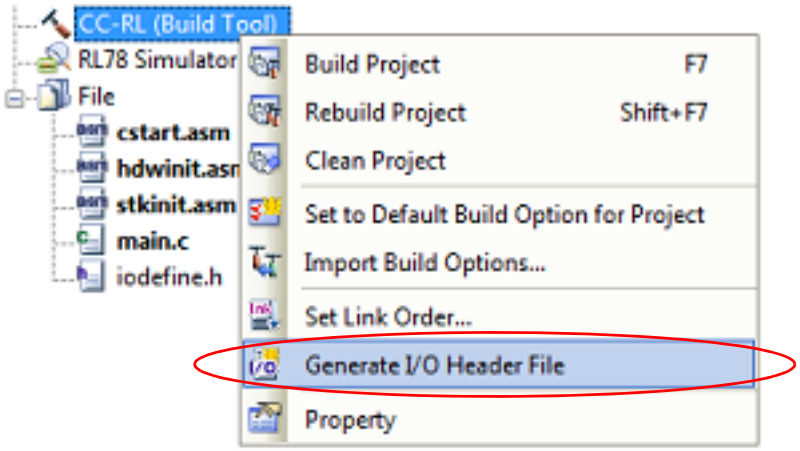
Remark 1. The I/O header file is generated in the same folder containing the project file. If a file with the same name already exists, the existing file is renamed as "iodefine.bak" as a backup.

Remark 2. If the selected microcontroller incorporates a flexible application accelerator (FAA), the iodefine include file (iodefine_faa.inc) for the FAA is also output at the same time. The backup processing is the same as that for the I/O header file when an output folder and file with the same name already exists.

The timing to update the I/O header file and the update method are shown below.

- At opening of the project
  CS+ checks the version of the device file when a project is opened.
  If the device file has been updated and there is a possibility that the I/O header file needs to be updated, a message is displayed on the Output panel. Update the I/O header file with the method below as required.
  - On the Project Tree panel, select the Build tool node, and then select [Generate I/O Header File] from the context menu

Figure 2.72 [Generate I/O Header File] Item



Remark When you have selected multiple build tool nodes for projects in the same device family, you can simultaneously update the I/O header files.

- At build

The I/O header file can be updated automatically when the build process is performed and immediately before build. Set the [Update I/O header file on build] property of the [I/O Header File Generation Options] tab in the Property panel. The update conditions can also be changed in the property of the same category.

Figure 2.73 [Update I/O header file on build] Property

Remark The [Generate iodefine include file for FAA] property specifies whether to output the iodefine include file (iodefine_faa.inc) for the FAA at the same time if the selected microcontroller incorporates an FAA. The timing of output is the same as that for the I/O header file.

2.13 Estimate the Stack Capacity

To estimate the stack capacity, use Call Walker.

Call Walker performs a static analysis, and displays the symbols and their callers in a tree format, as well as stack information for each symbol (symbol name, attribute, address, size, stack size, and file name) in list format.

To start Call Walker, select [Tool] menu >> [Startup Stack Usage Tracer].

To exit from Call Walker, select Call Walker [File] menu >> [Exit].

See Call Walker [Help] menu >> [Help Topics] for Call Walker operations.

A. WINDOW REFERENCE

This appendix explains panels/dialog boxes used in the build tool.

A.1 Description

The following lists the panels/dialog boxes used in the build tool.

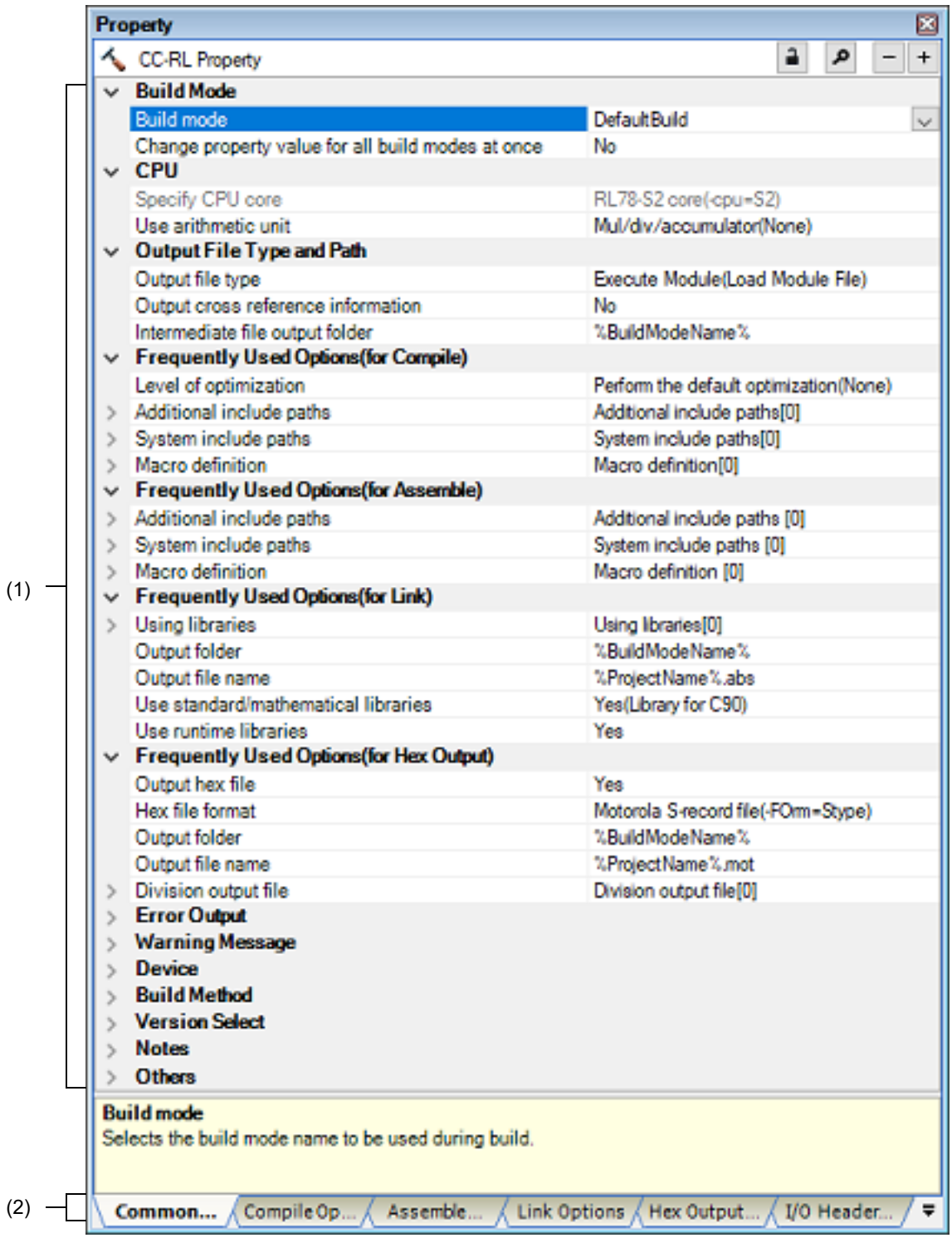
Table A.1 List of Panels/Dialog Boxes

Panel/Dialog Box Name	Function Description
Property panel	This panel is used to display the detailed information on the Build tool node or file that is selected on the Project Tree panel and change the settings of the information.
System Include Path Order dialog box	This dialog box is used to refer the system include paths specified for the compiler and set their specified sequence.
Specify Rule Number dialog box	This dialog box is used to select the number of the MISRA-C rule and set it to the area that this dialog box is called from.
Section Settings dialog box	This dialog box is used to add, modify, or delete sections.
Add Section dialog box Modify Section dialog box Add Overlay dialog box	These dialog boxes are used to set a section name when adding, modifying, or overlaying a section, respectively.
Section Address dialog box	This dialog box is used to set an address when adding or modifying a section.
Unassigned Section dialog box	This dialog box is used to delete sections.
Specify Contents of Function Information dialog box	This dialog box is used to select the contents of function information and set it to the area that this dialog box is called from.
CRC Operations dialog box	This dialog box is used to add, modify, or delete CRC operation settings.

Property panel

This panel is used to display the detailed information on the Build tool node or file that is selected on the Project Tree panel by every category and change the settings of the information.

Figure A.1 Property Panel



The following items are explained here.

- [How to open]
- [Description of each area]
- [[Edit] menu (only available for the Property panel)]
- [Context menu]

[How to open]

- On the Project Tree panel, select the Build tool node or file and then select [Property] from the [View] menu or [Property] from the context menu.

Remark When either one of the Build tool node or file on the Project Tree panel is selected while the Property panel has been opened, the detailed information of the selected item is displayed.

[Description of each area]

(1) Detailed information display/change area
In this area, the detailed information on the Build tool node or file that is selected on the Project Tree panel is displayed by every category in the list. And the settings of the information can be changed directly.
Mark indicates that all the items in the category are expanded. Mark indicates that all the items are collapsed. You can expand/collapse the items by clicking these marks or double clicking the category name.
Mark HEX indicates that only a hexadecimal number is allowed to input in the text box.
See the section on each tab for the details of the display/setting in the category and its contents.

(2) Tab selection area
Categories for the display of the detailed information are changed by selecting a tab.
In this panel, the following tabs are contained (see the section on each tab for the details of the display/setting on the tab).

Remark When multiple components are selected on the Project Tree panel, only the tab that is common to all the components is displayed.
If the value of the property is modified, that is taken effect to the selected components all of which are common to all.

(a) When the Build tool node is selected on the Project Tree panel

- [Common Options] tab
- [Compile Options] tab
- [Assemble Options] tab
- [FAA Assemble Options] tab
- [SMS Assemble Options] tab
- [Link Options] tab
- [Hex Output Options] tab
- [Create Library Options] tab
- [Standard Library Generate Options] tab
- [I/O Header File Generation Options] tab

Remark The [FAA Assemble Options] tab is displayed when the microcontroller has a FAA. The [SMS Assemble Options] tab is displayed when the microcontroller has a SMS.

(b) When a file is selected on the Project Tree panel

- [Build Settings] tab (for C source file, assembly source file, object file, and library file)
- [Individual Compile Options(C)] tab (for C source file)
- [Individual Compile Options(C++)] tab (for C++ source file)
- [Individual Assemble Options] tab (for assembly source file)
- [Individual FAA Assemble Options] tab (for FAA assembly source file)

- [File Information] tab[Note]

Note See "CS+ Integrated Development Environment User's Manual: Project Operation" for details about the [File Information] tab.

[[Edit] menu (only available for the Property panel)]

Undo	Cancels the previous edit operation of the value of the property.
Cut	While editing the value of the property, cuts the selected characters and copies them to the clipboard.
Copy	Copies the selected characters of the property to the clipboard.
Paste	While editing the value of the property, inserts the contents of the clipboard.
Delete	While editing the value of the property, deletes the selected characters.
Select All	While editing the value of the property, selects all the characters of the selected property.

[Context menu]

Undo	Cancels the previous edit operation of the value of the property.
Cut	While editing the value of the property, cuts the selected characters and copies them to the clipboard.
Copy	Copies the selected characters of the property to the clipboard.
Paste	While editing the value of the property, inserts the contents of the clipboard.
Delete	While editing the value of the property, deletes the selected characters.
Select All	While editing the value of the property, selects all the characters of the selected property.
Reset to Default	Restores the configuration of the selected item to the default configuration of the project. For the [Individual Compile Options(C)] tab, [Individual Compile Options(C++)] tab, [Individual Assemble Options] tab and [Individual FAA Assemble Options] tab restores to the configuration of the general option.
Reset All to Default	Restores all the configuration of the current tab to the default configuration of the project. For the [Individual Compile Options(C)] tab, [Individual Compile Options(C++)] tab, [Individual Assemble Options] tab and [Individual FAA Assemble Options] tab restores to the configuration of the general option.

[Common Options] tab

This tab shows the detailed information on the build tool categorized by the following and the configuration can be changed.

Remark If the property in the [Frequently Used Options] category is changed, the value of the property having the same name contained in the corresponding tab will be changed accordingly.

Category from [Common Options] Tab	Corresponding Tab
[Frequently Used Options(for Compile)] category	[Compile Options] tab
[Frequently Used Options(for Assemble)] category	[Assemble Options] tab
[Frequently Used Options(for Link)] category	[Link Options] tab
[Frequently Used Options(for Hex Output)] category	[Hex Output Options] tab
[Frequently Used Options(for Create Library)] category	[Create Library Options] tab

[Description of each category]

(1) [Build Mode]
The detailed information on the build mode is displayed and the configuration can be changed.

Build mode	Select the build mode to be used during a build. Note that this property is not applied to [Reset All to Default] from the context menu.		
	Default	DefaultBuild	
	How to change	Select from the drop-down list.	
	Restriction	DefaultBuild	Runs a build with the default build mode that is set when a new project is created.
		Build mode that is added to the project	Runs a build with the build mode that is added to the project (other than Default-Build).

Change property value for all build modes at once	Select whether to reflect the value newly set to all build modes when a value is set in this property. Be careful since the value set may not be an appropriate value for other build modes.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Reflects the value newly set to all build modes when a value is set in this property.
		No	Does not reflect the value newly set to all build modes when a value is set in this property.

(2) [CPU]
The detailed information on CPU is displayed and the configuration can be changed.

Specify CPU core	The core of the device selected in the project is displayed. This property corresponds to the -cpu option of the ccrl command.		
	Default	*Core of the device selected in the project*	
	How to change	Changes not allowed	
Use arithmetic unit	Specify whether to use the arithmetic unit. This property corresponds to the -use_mda option of the ccrl command. This property is displayed only when [RL78-S2 core(-cpu=S2)] in the [Specify CPU core] property is selected.		
	Default	Mul/div/accumulator(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Not use(-use_mda=not_use)	Generates a code that does not use the arithmetic unit.
		Mul/div/accumulator(No option specified)	Generates a code that uses the arithmetic unit.
Use MACH or MACHU instruction for multiply-accumulate operation	Specify whether to use the MACH/MACHU instruction for multiply-accumulate operation. This property corresponds to the -use_mach option of the ccrl command. This property is displayed in the following cases. - When [Always latest version which was installed] or V1.11.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category in an environment where V1.11.00 or a later version of the CC-RL compiler has been installed - When [RL78-S3 core(-cpu=S3)] in the [Specify CPU core] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-use_mach=mach)	Uses the MACH or MACHU instruction for multiply-accumulate operation
		No	Does not use the MACH or MACHU instruction for multiply-accumulate operation

(3) [Output File Type and Path]
The detailed information on output file types and paths is displayed and the configuration can be changed.

Output file type	The file type set here will be the debug target for other than the library project. For other than library projects, only [Execute Module(Load Module File)] and [Execute Module(Hex File)] are displayed. For the library project, only [Library] is displayed.		
	Default	- For other than the library project Execute Module(Load Module File) - For the library project Library	
	How to change	Select from the drop-down list.	
	Restriction	Execute Module(Load Module File)	Generates a load module file during a build. The load module file will be the debug target.
		Execute Module(Hex File)	Generates a hex file during a build. The hex file will be the debug target. This item is displayed only when [Yes] in the [Output hex file] property in the [Output File] category from the [Hex Output Options] tab is selected.
		Library	Generates a library file during a build.
Output cross reference information	Select whether to output the cross reference information to a file. The file is output to the folder specified in the [Output folder] property in the [Output File] category from the [Link Options] tab. The file is output under the C source file name with the extension replaced by ".cref". However, if the [Object file name] property in the [Output File] category from the [Individual Compile Options(C)] tab is specified, the file is output under the file name specified in the property with the extension replaced by ".cref". This property is changed to [Yes(-cref)] when [Yes] in the [Compulsorily output cross reference file] property of the analyze tool is selected. If this property is changed to [No] when [Yes] in the [Compulsorily output cross reference file] property is selected, this property will be changed to [Yes(-cref)] during a build. This property corresponds to the -cref option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-cref)	Outputs the cross reference information. The build processing speed slows down, but "jump to function" can be used.
		No	Does not output the cross reference information.

<table>
<tr><td>Intermediate file output folder</td><td>Specify the folder which the intermediate file is output.
If a relative path is specified, the reference point of the path is the main project or subproject folder.
If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different).
The following placeholder is supported.
%BuildModeName%: Replaces with the build mode name.
If this is blank, it is assumed that the project folder has been specified.
This property corresponds to the -obj_path option or -o option of the ccrl command.
Specify the folder which the intermediate file is output.
If a relative path is specified, the reference point of the path is the main project or subproject folder.
If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different).
The following placeholder is supported.
%BuildModeName%: Replaces with the build mode name.
If this is blank, it is assumed that the project folder has been specified.
This property corresponds to the -obj_path option or -o option of the ccrl command.
The setting of this property affects the destination of output for the following files.
- Object file (*.obj)
- Subcommand file for the compiler (*.ccr)
- Subcommand file for the assembler (*.cas)
- Subcommand file for the optimizing linker (For other than the library project) (*.clnk)
- Subcommand file for the optimizing linker (For the library project) (*.ccl)

The subcommand file for the compiler or assembler lists the compiler or assembler options delimited with a space. This is output only when the command line of the compiler or assembler is long.
The subcommand file for the optimizing linker lists the optimizing linker options delimited with CR+LF.
Subcommand files are used internally by CS+, and they will be overwritten when there are already existing files at the time of building.
<table>
<tr><td>Default</td><td>%BuildModeName%</td></tr>
<tr><td>How to change</td><td>Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.</td></tr>
<tr><td>Restriction</td><td>Up to 247 characters</td></tr>
</table>
</td></tr>
</table>

(4) [Frequently Used Options(for Compile)]
The detailed information on frequently used options during compilation is displayed and the configuration can be changed.

<table>
<tr><td rowspan="6">Level of optimization</td><td colspan="3">Select the level of the optimization for compiling.
This property corresponds to the -O option of the ccrl command.</td></tr>
<tr><td>Default</td><td colspan="2">Perform the default optimization(No option specified)</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="3">Restriction</td><td>Perform the default optimization(No option specified)</td><td>Performs optimization that is effective for both the object size and execution speed.</td></tr>
<tr><td>Code size precedence(-Osize)</td><td>Performs optimization with the object size precedence.
Regards reducing the ROM/RAM usage as important and performs the maximum optimization that is effective for general programs.</td></tr>
<tr><td>Speed precedence(-Ospeed)</td><td>Performs optimization with the execution speed precedence.
Regards shortening the execution speed as important and performs the maximum optimization that is effective for general programs.</td></tr>
<tr><td rowspan="4">Additional include paths</td><td colspan="3">Specify the additional include paths during compiling.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
The specified include path is searched with higher priority than the standard include file folder of CC-RL.
The reference point of the path is the project folder.
When this property is omitted, only the standard folder of CC-RL is searched.
This property corresponds to the -I option of the ccrl command.
The specified include path is displayed as the subproperty.
When the include path is added to the project tree, the path is added to the top of the subproperties.
Uppercase characters and lowercase characters are not distinguished for the include paths.</td></tr>
<tr><td>Default</td><td colspan="2">Additional include paths[number of defined items]</td></tr>
<tr><td>How to change</td><td colspan="2">Edit by the Path Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td colspan="2">Up to 259 characters
Up to 256 items can be specified.</td></tr>
</table>

<table>
<tr><td>System include paths</td><td colspan="2">Change the specified order of the include paths which the system set during compiling.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
The system include path is searched with lower priority than the additional include path.
The reference point of the path is the project folder.
This property corresponds to the -I option of the ccrl command.
The include path is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>System include paths[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the System Include Path Order dialog box which appears when clicking the [...] button.</td></tr>
<tr><td></td><td>Restriction</td><td>Changes not allowed (Only the specified order of the include paths can be changed.)</td></tr>
<tr><td>Macro definition</td><td colspan="2">Specify the name of the macro to be defined.
Specify in the format of "macro name=defined value", with one macro name per line.
The "=defined value" part can be omitted, and in this case, "1" is used as the defined value.
This property corresponds to the -D option of the ccrl command.
The specified macro is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>Macro definition[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 256 characters
Up to 256 items can be specified.</td></tr>
</table>

(5) [Frequently Used Options(for Assemble)]
The detailed information on frequently used options during assembling is displayed and the configuration can be changed.

<table>
<tr><td>Additional include paths</td><td colspan="2">Specify the additional include paths during assembling.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
The specified include path is searched with higher priority than the standard include file folder of CC-RL.
The reference point of the path is the project folder.
When this property is omitted, only the standard folder of CC-RL is searched.
This property corresponds to the -I option of the ccrl command.
The specified include path is displayed as the subproperty.
When the include path is added to the project tree, the path is added to the top of the subproperties.
Uppercase characters and lowercase characters are not distinguished for the include paths.</td></tr>
<tr><td></td><td>Default</td><td>Additional include paths[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Path Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 259 characters
Up to 256 items can be specified.</td></tr>
<tr><td>System include paths</td><td colspan="2">Change the specified order of the include paths which the system set during assembling.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
The system include path is searched with lower priority than the additional include path.
The reference point of the path is the project folder.
This property corresponds to the -I option of the ccrl command.
The include path is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>System include paths[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the System Include Path Order dialog box which appears when clicking the [...] button.</td></tr>
<tr><td></td><td>Restriction</td><td>Changes not allowed (Only the specified order of the include paths can be changed.)</td></tr>
</table>

Macro definition	Specify the name of the macro to be defined. Specify in the format of "*macro name*=*defined value*", with one macro name per line. The "=*defined value*" part can be omitted, and in this case, "1" is used as the defined value. This property corresponds to the -asmopt=-define option of the ccrl command. The specified macro is displayed as the subproperty.	
	Default	Macro definition[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.

(6) [Frequently Used Options(for Link)]

The detailed information on frequently used options during linking is displayed and the configuration can be changed.

This category is not displayed for the library project.

Using libraries	Specify the library files to be used. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. This property corresponds to the -LIBrary option of the rlink command. The library file name is displayed as the subproperty.	
	Default	Using libraries[*number of defined items*]
	How to change	Edit by the Path Edit dialog box which appears when clicking the [...] button. -> Edit by the Specify Using Library File dialog box which appears when clicking the [Browse...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 259 characters Up to 65536 items can be specified.

Output folder	Specify the output folder. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. If this is blank, it is assumed that the project folder has been specified. This property corresponds to the -OUtput option of the rlink command.		
	Default	%BuildModeName%	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	
Output file name	Specify the output file name. If the extension is omitted, ".abs" is automatically added. The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. This property corresponds to the -OUtput option of the rlink command.		
	Default	%ProjectName%.abs	
	How to change	Directly enter in the text box.	
	Restriction	Up to 259 characters	
Use standard/mathematical libraries	Select whether to use the standard/mathematical libraries provided by the compiler. This property corresponds to the -LIBrary option of the rlink command. [Yes(Library for C99)] is displayed when [Always latest version which was installed] or V1.07.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category in an environment where V1.07.00 or a later version of the CC-RL compiler has been installed.		
	Default	Yes(Library for C90)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(Library for C90)	Uses the standard/mathematical libraries for C90.
		Yes(Library for C99)	Uses the standard/mathematical libraries for C99.
		No	Does not use the standard/mathematical libraries.

Use runtime libraries	Select whether to use the runtime libraries provided by the compiler. This property corresponds to the -LIBrary option of the rlink command.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Uses the runtime libraries.
		No	Does not use the runtime libraries.

(7) [Frequently Used Options(for Hex Output)]
The detailed information on frequently used options during hex outputting is displayed and the configuration can be changed.
This category is not displayed for the library project.

Output hex file	Select whether to output the hex file. This property corresponds to the -FOrm option of the rlink command.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Outputs the hex file.
	Default	No	Does not output the hex file.
Hex file format	Select the format of the hex file to be output. This property corresponds to the -FOrm option of the rlink command. This property is displayed only when [Yes] in the [Output hex file] property is selected.		
	Default	Motorola S-record file(-FOrm=Stype)	
	How to change	Select from the drop-down list.	
	Restriction	Intel HEX file(-FOrm=Hexa-decimal)	Outputs an Intel HEX file.
		Motorola S-record file(-FOrm=Stype)	Outputs a Motorola S-record file.
		Binary file(-FOrm=Binary)	Outputs a binary file.

<table>
<tr><td>Output folder</td><td colspan="2">Specify the folder which the hex file is output.
If a relative path is specified, the reference point of the path is the main project or sub-project folder.
If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
If this is blank, it is assumed that the project folder has been specified.
This property corresponds to the -OUtput option of the rlink command.
This property is displayed only when [Yes] in the [Output hex file] property is selected.</td></tr>
<tr><td></td><td>Default</td><td>%BuildModeName%</td></tr>
<tr><td></td><td>How to change</td><td>Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 247 characters</td></tr>
<tr><td>Output file name</td><td colspan="2">Specify the hex file name.
If the extension is omitted, it is automatically added according to the selection in the [Hex file format] property.
When [Intel HEX file(-FOrm=Hexadecimal)] is selected: .hex
When [Motorola S-record file(-FOrm=Stype)] is selected: .mot
When [Binary file(-FOrm=Binary)] is selected: .bin
The following placeholders are supported.
%ActiveProjectName%: Replaces with the active project name.
%MainProjectName%: Replaces with the main project name.
%ProjectName%: Replaces with the project name.
This property corresponds to the -OUtput option of the rlink command.
This property is displayed only when [Yes] in the [Output hex file] property is selected.</td></tr>
<tr><td></td><td>Default</td><td>%ProjectName%.mot</td></tr>
<tr><td></td><td>How to change</td><td>Directly enter in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

Division output file	Specify the division output files. Specify in the format of "*file name=start address-end address*" or "*file name=section name*", with one entry per line. If multiple section names are specified, delimit them with a colon as in "*file name=section name*:*section name*" (example: file1.mot=sec1:sec2). Specify the address in hexadecimal (example: file2.mot=400-4ff). If the extension is omitted, it is automatically added according to the selection in the [Hex file format] property. When [Intel HEX file(-FOrm=Hexadecimal)] is selected: .hex When [Motorola S-record file(-FOrm=Stype)] is selected: .mot When [Binary file(-FOrm=Binary)] is selected: .bin The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. This property corresponds to the -OUtput option of the rlink command. The division output file name is displayed as the subproperty. This property is displayed only when [Yes] in the [Output hex file] property is selected.	
	Default	Division output file[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 259 characters Up to 65535 items can be specified.

(8) [Frequently Used Options(for Create Library)]

The detailed information on frequently used options during library generation is displayed and the configuration can be changed.

This category is displayed only for the library project.

Output file format	Select the format of the output file. This property corresponds to the -FOrm option of the rlink command.		
	Default	User libraries(-FOrm=Library=U)	
	How to change	Select from the drop-down list.	
	Restriction	User libraries(-FOrm=Library=U)	Outputs a user library file.
		System libraries(-FOrm=Library=S)	Outputs a system library file.
		Relocatable file(-FOrm=Relocate)	Outputs a relocatable file.

Output folder	Specify the output folder. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. If this is blank, it is assumed that the project folder has been specified. This property corresponds to the -OUtput option of the rlink command.		
	Default	%BuildModeName%	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	
Output file name	Specify the output file name. If the extension is omitted, it is automatically added according to the selection in the [Hex file format] property. When [User libraries(-FOrm=Library=U)] is selected: .lib When [System libraries(-FOrm=Library=S)] is selected: .lib When [Relocatable file(-FOrm=Relocate)] is selected: .rel The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. This property corresponds to the -OUtput option of the rlink command.		
	Default	%ProjectName%.lib	
	How to change	Directly enter in the text box.	
	Restriction	Up to 259 characters	
Use standard/mathematical libraries	Select whether to use the standard/mathematical libraries provided by the compiler. This property corresponds to the -LIBrary option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Uses the standard/mathematical libraries.
		No	Does not use the standard/mathematical libraries.
Use runtime libraries	Select whether to use the runtime libraries provided by the compiler. This property corresponds to the -LIBrary option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Uses the runtime libraries.
		No	Does not use the runtime libraries.

(9) [Error Output]
The detailed information on the error output is displayed and the configuration can be changed.

Merge error message file	Select whether to merge the error message file. This property corresponds to the -error_file option of the ccrl command. Error messages are displayed on the Output panel regardless of this property's . This property is displayed only when [No] in the [Build in parallel] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-error_file)	Merges the error message file.
		No	Does not merge the error message file.
Merged error message file output folder	Specify the folder which the merged error message file is output. If a relative path is specified, the reference point of the path is the main project or sub-project folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This property corresponds to the -error_file option of the ccrl command. This property is displayed only when [Yes(-error_file)] in the [Output error message file] property is selected.		
	Default	%BuildModeName%	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	
Merged error message file name	Specify the merged error message file name. The extension can be freely specified. The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. If this is blank, it is assumed that "%ProjectName%.err" has been specified. This property corresponds to the -error_file option of the ccrl command. This property is displayed only when [Yes(-error_file)] in the [Output error message file] property is selected.		
	Default	%ProjectName%.err	
	How to change	Directly enter in the text box.	
	Restriction	Up to 259 characters	

(10) [Warning Message]
The detailed information on warning messages is displayed and the configuration can be changed.

Undisplayed warning message	Specify the number of the warning message of compiler / assembler not to be displayed. If multiple message numbers are specified, delimit them with "," (comma) (example: 20009,20011). Also, the range can be set using "-" (hyphen) (example: 20000-20100,20300-20500). This property corresponds to the -no_warning option of the ccrl command.	
	Default	Blank
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.
	Restriction	Up to 2048 characters
Displayed warning message	Specify the number of the warning message of assembler to be always displayed. If multiple message numbers are specified, delimit them with "," (comma) (example: 50001,50011). Also, the range can be set using "-" (hyphen) (example1: 50010-50013 example2: 50010-50013,50019). If the same number is specified in the [Undisplayed warning message] property and this property, the number specified in the [Displayed warning message] property takes precedence. This corresponds to the -asmopt=-warning option of the ccrl command. This property is displayed when the [Undisplayed warning message] property is not empty.	
	Default	Blank
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.
	Restriction	Up to 2048 characters

(11) [Device]
The detailed information on device is displayed and the configuration can be changed.

Specify mirror area	Select the area to allocate the segment that is mirrored in the RAM space. This property corresponds to the -asmopt=-mirror_source option of the ccrl command.		
	Default	MAA=0(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	MAA=0(No option specified)	Specifies the mirror source section to be allocated at address 0x0xxxx.
		MAA=1(-asmopt=-mirror_source=1)	Specifies the mirror source section to be allocated at address 0x1xxxx. This item is displayed only when [RL78-S2 core(-cpu=S2)] or [RL78-S3 core(-cpu=S3)] in the [Specify CPU core] property in the [CPU] category is selected.
		Common(-asmopt=-mirror_source=common)	Does not support reference to symbols allocated to the mirror source area and does not perform mirror conversion of the mirror source address.

Security ID	Specify the security ID of an on-chip flash memory device. Enter a value in hexadecimal. This property corresponds to the -SECURITY_ID option of the rlink command.	
	Default	0
	How to change	Directly enter in the text box.
	Restriction	- For ID authentication of 20 digits 00000000000000000000 to FFFFFFFFFFFFFFFFFFFE (hexadecimal number) or blank - For ID authentication of 32 digits 00000000000000000000000000000000 to FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFE (hexadecimal number) or blank
Serial Programming Security ID	Specify the serial programming security ID. Enter a value in hexadecimal. This property corresponds to the -FLASH_SECURITY_ID option of the rlink command. This property is displayed only in the following cases. - When [Always latest version which was installed] or V1.12.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.12.00 or a later version of the CC-RL compiler has been installed - When the device has the serial programming security ID function.	
	Default	FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF
	How to change	Directly enter in the text box.
	Restriction	00000000000000000000000000000000 to FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF (hexadecimal number) or blank

(12) [Build Method]
The detailed information on the build method is displayed and the configuration can be changed.

Build simultaneously	Select whether to generate the load module file by compiling/assembling/linking multiple files simultaneously. The files with the individual build options and files to be executed prior to the build are excluded from running a build simultaneously. See "2.2.1Running simultaneous build" for details about running a build simultaneously.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Compiles, assembles, and links multiple files simultaneously. The assembly source file (except the file with the individual options) is assembled using the settings of the [Compile Options] tab.
		No	Compiles, assembles, and links for each file.

Build in parallel	Select whether to enable the parallel build facility. The parallel build facility enables CS+ to compile/assemble multiple source files in parallel using all processors mounted on the computer. This speeds up compilation/assemble. In addition, parallel build between projects can be set by selecting [Tool] menu >> [Option] and then making a setting in the [General - Build] category of the Option dialog box. See "2.2.2Running parallel build" for details about parallel build.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Enables the parallel build facility.
		No	Disables the parallel build facility.
Group messages by each source file/target in the parallel build	Select whether to group messages by each source file/target in the parallel build. When [Yes] is selected, CS+ synchronizes the output timing of messages with the end timing of compile/assemble, etc. for each source file. This property is displayed when [Yes] is selected for the [Build in parallel] property. **Caution** Messages are not grouped if [Enable parallel build among projects] in the [General - Build] category is selected in the Option dialog box.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Groups messages by each source file/target in the parallel build.
		No	Does not group messages by each source file/target in the parallel build.
Handling the source file includes unfound file	Select whether to recompile/assemble the source file if it includes a file that is not found in the standard and additional include paths.		
	Default	Re-compile/assemble the source file	
	How to change	Select from the drop-down list.	
	Restriction	Re-compile/assemble the source file	Recompiles/assembles the source file if it includes a file that is not found.
		Ignore re-compiling/assembling the source file	Does not recompile/assemble the source file even if it includes a file that is not found.

(13) [Version Select]
The detailed information on the build tool version is displayed and the configuration can be changed.

Using compiler package install folder	The folder in which the compiler package to be used is installed is displayed.	
	Default	*Install folder name*
	How to change	Changes not allowed

Using compiler package version	Select the version of the compiler package to be used. This setting is common to all the build modes.		
	Default	Always latest version which was installed	
	How to change	Select from the drop-down list.	
	Restriction	Always latest version which was installed	Uses the latest version in the installed compiler packages.
		Versions of the installed compiler packages	Uses the selected version in the compiler package.
Latest compiler package version which was installed	The version of the compiler package to be used when [Always latest version which was installed] is selected in the [Using compiler package version] property is displayed. This setting is common to all the build modes. This property is displayed only when [Always latest version which was installed] in the [Using compiler package version] property is selected.		
	Default	*Latest version of the installed compiler packages*	
	How to change	Changes not allowed	

(14) [Path to Tools]
The detailed information on the path to tools is displayed and the configuration can be changed.
This tab is displayed when the microcontroller has a FAA.

Using DSP assembler install folder	The folder in which the DSP assembler to be used is installed is displayed.		
	Default	*Install folder name*	
	How to change	Changes not allowed	
Using DSP assembler version	Specify the version of the DSP assembler to be used. This is common to all the build modes.		
	Default	(The latest installed version on creating project)	
	How to change	Select from the drop-down list.	
	Restriction	*Versions of the installed DSP assmblers*	Uses the selected version in the DSP assembler.

(15) [Notes]
The detailed information on notes is displayed and the configuration can be changed.

Memo	Add memos to the build tool. Add one item in one line. This setting is common to all the build modes. The specified memo is displayed as the subproperty.	
	Default	Memo[*number-of-items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.

(16) [Others]
Other detailed information on the build tool is displayed and the configuration can be changed.

<table>
<tr><td rowspan="5">Output message format</td><td colspan="3">Specify the format of the message under build execution.
This applies to the messages output by the build tool to be used, and commands added by plugins.
It does not apply to the output messages of commands specified in the [Commands executed before build processing] or [Commands executed after build processing] property.
The following placeholders are supported.
%Options%: Replaces with the command line option under build execution.
%Program%: Replaces with the program name under execution.
%TargetFiles%: Replaces with the file name being compile/assemble or making link.
If this is blank, "%Program% %Options%" will be set automatically.</td></tr>
<tr><td>Default</td><td colspan="2">%TargetFiles%</td></tr>
<tr><td>How to change</td><td colspan="2">Directly enter in the text box (up to 256 characters) or select from the drop-down list.</td></tr>
<tr><td rowspan="3">Restriction</td><td>%TargetFiles%</td><td>Displays the file name in the output message.</td></tr>
<tr><td>%TargetFiles%: %Options%</td><td>Displays the file name and command line options in the output message.</td></tr>
<tr><td>%Program% %Options%</td><td>Displays the program name and command line options in the output message.</td></tr>
<tr><td rowspan="4">Format of build option list</td><td colspan="3">Specify the display format of the build option list.
This applies to the options of the build tool to be used, and commands added by plugins.
It does not apply to the options of commands specified in the [Commands executed before build processing] or [Commands executed after build processing] property.
The following placeholders are supported.
%Options%: Replaces with the command line option under build execution.
%Program%: Replaces with the program name under execution.
%TargetFiles%: Replaces with the file name being compile/assemble or making link.
If this is blank, "%TargetFiles% : %Program% %Options%" will be set automatically.</td></tr>
<tr><td>Default</td><td colspan="2">%TargetFiles% : %Program% %Options%</td></tr>
<tr><td>How to change</td><td colspan="2">Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.</td></tr>
<tr><td>Restriction</td><td colspan="2">Up to 256 characters</td></tr>
</table>

<table>
<tr><td>Commands executed before build processing</td><td colspan="2">Specify the command to be executed before build processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed before build processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>Commands executed before build processing[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
<tr><td>Commands executed after build processing</td><td colspan="2">Specify the command to be executed after build processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed after build processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>Commands executed after build processing[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
</table>

Other additional options	Input the option to be added additionally. The options set here are added at the end of the ccrl options group.	
	Default	Blank
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters

[Compile Options] tab

This tab shows the detailed information on the compile phase categorized by the following and the configuration can be changed.

[Description of each category]

(1) [Debug Information]
The detailed information on debug information is displayed and the configuration can be changed.

Add debug information	Select whether to generate the debug information. It is possible to perform source debugging with the debugger by outputting information for source debugging to the output file. This property corresponds to the -g option of the ccrl command.		
	Default	Yes(-g)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-g)	Generates the debug information.
		No	Does not generate the debug information.
Enhance debug information with optimization	Select whether to enhance debug information at optimization. This property corresponds to the -g_line option of the ccrl command. This property is displayed in the following cases. - When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RL compiler has been installed - When [Yes(-g)] in the [Add debug information] property is selected		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-g_line)	Enhances debug information at optimization.
		No	Does not enhance debug information at optimization.

(2) [Optimization]
The detailed information on the optimization is displayed and the configuration can be changed.

Level of optimization	Select the level of the optimization for compiling. This property corresponds to the -O option of the ccrl command. [Partial optimization(-Olite)] is displayed when [Always latest version which was installed] or V1.12.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.12.00 or a later version of the CC-RL compiler has been installed		
	Default	Perform the default optimization(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Perform the default optimization(No option specified)	Performs optimization that is effective for both the object size and execution speed.
		Code size precedence(-Osize)	Performs optimization with the object size precedence. Regards reducing the ROM/RAM usage as important and performs the maximum optimization that is effective for general programs.
		Speed precedence(-Ospeed)	Performs optimization with the execution speed precedence. Regards shortening the execution speed as important and performs the maximum optimization that is effective for general programs.
		Partial optimization(-Olite)	Performs partial optimization that will not strongly affect the debug functions.
		Debug precedence(-Onothing)	Performs optimization with the debug precedence. Regards debugging as important and suppresses all optimization including default optimization.

(3) [Optimization(Details)]
The detailed information on the optimization is displayed and the configuration can be changed.

Maximum number of loop expansions	Specify the maximum number of times to expand the loops such as "for" and "while". If 0 or 1 is specified, expansion is suppressed. If this is blank, the -Ounroll option is not added to the command line. In this case, a value in accordance with the selection of the [Level of optimization] property is used by the compiler. This property corresponds to the -Ounroll option of the ccrl command. This property is displayed only when [Perform the default optimization(No option specified)], [Code size precedence(-Osize)] or [Speed precedence(-Ospeed)] in the [Level of optimization] property is selected.	
	Default	Blank
	How to change	Directly enter in the text box.
	Restriction	0 to 999 (decimal number) or blank

Remove unused static functions	Select whether to remove the static functions which are not called. This property corresponds to the -Odelete_static_func option of the ccrl command.		
	Default	To adjust the level of optimization(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(-Odelete_static_func)	Removes the unused static functions which are not called.
		No(-Odelete_static_func=off)	Does not remove the unused static functions which are not called.
Perform inline expansion	Specify whether to perform inline expansion at the location calling functions. This property corresponds to the -Oinline_level option of the ccrl command. This property is displayed only when [Perform the default optimization(No option specified)], [Code size precedence(-Osize)], [Speed precedence(-Ospeed)] or [Partial optimization(-Olite)] in the [Level of optimization] property is selected. *1 When [Always latest version which was installed] or V1.12.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.12.00 or a later version of the CC-RL compiler has been installed.		
	Default	To adjust the level of optimization(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(Only specified functions)(-Oinline_level=1)	Performs inline expansion at the location calling the function for which #pragma inline is specified.
		Yes(Auto-detect, to specify maximum increasing rate)(-Oinline_level=2 -Oinline_size)	Distinguishes the function that is the target of inline expansion automatically and expands it. Specify the maximum rate of increase.
		Yes(Auto-detect, maximum increasing rate : to adjust the level of optimization)(-Oinline_level=2)	Distinguishes the function that is the target of inline expansion automatically and expands it. The compiler takes a value that suits the optimization level as the maximum rate of increase.
		Yes(Auto-detect without code size increase)(-Oinline_level=3)	Distinguishes the function that is the target of inline expansion automatically and expands it, while minimizing the increase in code size.
		No(-Oinline_level=0)	Suppresses all inline expansion including the function for which "#pragma inline" is specified.

<table>
<tr><td rowspan="4">Maximum increasing rate of inline expansion size</td><td colspan="3">Specify the maximum increasing rate (%) of the code size up to which inline expansion is performed. (Example: When "100" is specified, inline expansion will be applied until the code size increases by 100% (becomes twice the initial size).)
This property corresponds to the -Oinline_size option of the ccrl command.
This property is displayed when [Yes(Auto-detect, to specify maximum increasing rate)(-Oinline_level=2 -Oinline_size)] in the [Perform inline expansion] property is selected, or when [To adjust the level of optimization(No option specified)] in the [Perform inline expansion] property and [Speed precedence(-Ospeed)] in the [Level of optimization] property are selected.</td></tr>
<tr><td>Default</td><td colspan="2">100</td></tr>
<tr><td>How to change</td><td colspan="2">Directly enter in the text box.</td></tr>
<tr><td>Restriction</td><td colspan="2">0 to 65535 (decimal number)</td></tr>
<tr><td rowspan="5">Perform pipeline optimization</td><td colspan="3">Select whether to improve the program's execution performance by reordering instructions at the machine-language level.
This property corresponds to the -Opipeline option of the ccrl command.
- This property is displayed only in the following cases.
When [Always latest version which was installed] or V1.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.03.00 or a later version of the CC-RL compiler has been installed.
- When other than [Debug precedence(-Onothing)], [Partial optimization(-Olite)] in the [Level of optimization] property is selected.</td></tr>
<tr><td>Default</td><td colspan="2">To adjust the level of optimization(No option specified)</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="3">Restriction</td><td>To adjust the level of optimization(No option specified)</td><td>Performs optimization according to the [Level of optimization] property.</td></tr>
<tr><td>Yes(-Opipeline)</td><td>Performs pipeline optimization.</td></tr>
<tr><td>No(-Opipeline=off)</td><td>Does not perform pipeline optimization.</td></tr>
<tr><td rowspan="5">Use br instruction to call a function at the end of the function</td><td colspan="3">Select whether to give precedence to using br instructions in the place of call instructions when the function ends with a function call.
This property corresponds to the -Otail_call option of the ccrl command.</td></tr>
<tr><td>Default</td><td colspan="2">To adjust the level of optimization(No option specified)</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="3">Restriction</td><td>To adjust the level of optimization(No option specified)</td><td>Performs optimization according to the [Level of optimization] property.</td></tr>
<tr><td>Yes(-Otail_call)</td><td>Gives precedence to using br instructions in the place of call instructions when the function ends with a function call.
The code size can be reduced by removing the ret instruction.
However, some debug functions cannot be used.</td></tr>
<tr><td>No(-Otail_call=off)</td><td>Uses call instructions when the function ends with a function call.</td></tr>
</table>

Perform inter-module optimization	Specify the level of inter-module optimization (such as function merging). Only [Yes(Level 1)(Perform)(-Xintermodule)] and [No] are displayed when [No] in the [Build simultaneously] property in the [Build Method] category from the [Common Options] tab is selected. This property corresponds to the -Owhole_program, -Omerge_files, and -Ointermodule options of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(Level 3)(Perform with assuming it the whole program)(-Owhole_program)	Performs inter-module optimization assuming that the source files comprise the entire program. However, operation is not guaranteed if the preconditions are not met. See "CC-RL Compiler User's Manual" for details about the preconditions.
		Yes(Level 2)(Perform with merging files)(-Omerge_files, -Ointermodule)	Merges two or more C source files and performs inter-module optimization. This item is displayed only when two or more source files are added to the project.
		Yes(Level 1)(Perform)(-Ointermodule)	Performs inter-module optimization for each file.
		No	Does not perform inter-module optimization.
Perform optimization considering type of data indicated by pointer	Select whether to perform optimization with consideration for the type of the data indicated by the pointer, based on the ANSI standard. This property corresponds to the -Oalias option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Oalias=ansi)	Performs optimization with consideration for the type of the data indicated by the pointer. In general, this option improves the object performance, but the execution result may differ from the case when [No] is selected.
		No	Does not perform optimization with consideration for the type of the data indicated by the pointer.

<table>
<tr><td rowspan="5">Create subroutine for same instruction sequence</td><td colspan="3">Select whether to create a subroutine for the same instruction sequence.
This property corresponds to the -Osame_code option of the ccrl command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RL compiler has been installed
- When [Perform the default optimization(No option specified)], [Code size precedence(-Osize)] or [Speed precedence(-Ospeed)] in the [Level of optimization] property is selected</td></tr>
<tr><td>Default</td><td colspan="2">To adjust the level of optimization(No option specified)</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="3">Restriction</td><td>To adjust the level of optimization(No option specified)</td><td>Performs optimization according to the [Level of optimization] property.</td></tr>
<tr><td>Yes(-Osame_code)</td><td>Creates a subroutine for the same instruction sequence.</td></tr>
<tr><td>No(-Osame_code=off)</td><td>Does not create a subroutine for the same instruction sequence.</td></tr>
<tr><td rowspan="5">Reduce code size of relative branch instructions</td><td colspan="3">Select whether to reduce the code size of the relative branch instructions.
This property corresponds to the -Obranch_chaining option of the ccrl command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V1.10.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.10.00 or a later version of the CC-RL compiler has been installed
- When [Perform the default optimization(No option specified)] or [Code size precedence(-Osize)] in the [Level of optimization] property is selected</td></tr>
<tr><td>Default</td><td colspan="2">To adjust the level of optimization(No option specified)</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="3">Restriction</td><td>To adjust the level of optimization(No option specified)</td><td>Performs optimization according to the [Level of optimization] property.</td></tr>
<tr><td>Yes(-Obranch_chaining)</td><td>Rreduces the code size of the relative branch instructions..</td></tr>
<tr><td>No(-Obranch_chaining=off)</td><td>Does not reduce the code size of the relative branch instructions.</td></tr>
</table>

<table>
<tr><td>Perform optimization by changing alignment conditions</td><td colspan="3">Select whether to proceed with optimization through a change of the alignment conditions.
This property corresponds to the -Oalign option of the ccrl command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V1.10.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.10.00 or a later version of the CC-RL compiler has been installed
- When other than [Debug precedence(-Onothing)], [Partial optimization(-Olite)] in the [Level of optimization] property is selected
- When [No] in the [Allocate uninitialized variables in sections according to number of alignments] property is selected
- When [No] in the [Allocate initialized variables in sections according to number of alignments] property is selected
- When [No] in the [Allocate const qualified variables in sections according to number of alignments] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">To adjust the level of optimization(No option specified)</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="3">Restriction</td><td>To adjust the level of optimization(No option specified)</td><td>Performs optimization according to the [Level of optimization] property.</td></tr>
<tr><td>Yes(-Oalign)</td><td>Performs optimization through a change of the alignment conditions.</td></tr>
<tr><td>No(-Oalign=off)</td><td>Does not perform optimization through a change of the alignment conditions.</td></tr>
<tr><td>Outputs additional information for inter-module optimization</td><td colspan="3">Select whether to output additional information for inter-module optimization.
At linkage, inter-module optimization is applied to files for which this option has been specified.
This property corresponds to the -goptimize option of the ccrl command.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="2">Restriction</td><td>Yes(-goptimize)</td><td>Outputs additional information for inter-module optimization.</td></tr>
<tr><td>No</td><td>Does not outputs additional information for inter-module optimization.</td></tr>
</table>

(4) [Preprocess]
The detailed information on preprocessing is displayed and the configuration can be changed.

<table>
<tr><td>Additional include paths</td><td colspan="2">Specify the additional include paths during compiling.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
The specified include path is searched with higher priority than the standard include file folder of CC-RL.
The reference point of the path is the project folder.
When this property is omitted, only the standard folder of CC-RL is searched.
This property corresponds to the -I option of the ccrl command.
The specified include path is displayed as the subproperty.
When the include path is added to the project tree, the path is added to the top of the subproperties.
Uppercase characters and lowercase characters are not distinguished for the include paths.</td></tr>
<tr><td></td><td>Default</td><td>Additional include paths[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Path Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 247 characters
Up to 256 items can be specified.</td></tr>
<tr><td>System include paths</td><td colspan="2">Change the specified order of the include paths which the system set during compiling.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
The system include path is searched with lower priority than the additional include path.
The reference point of the path is the project folder.
This property corresponds to the -I option of the ccrl command.
The include path is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>System include paths[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the System Include Path Order dialog box which appears when clicking the [...] button.</td></tr>
<tr><td></td><td>Restriction</td><td>Changes not allowed (Only the specified order of the include paths can be changed.)</td></tr>
</table>

Include files at head of compiling units	Specify the file that is included at the top of the compilation unit. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. The reference point of the path is the project folder. This property corresponds to the -preinclude option of the ccrl command. The specified include file name is displayed as the subproperty.	
	Default	Include files at head of compiling units[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 247 characters Up to 256 items can be specified.
Macro definition	Specify the name of the macro to be defined. Specify in the format of "*macro name*=*defined value*", with one macro name per line. The "=*defined value*" part can be omitted, and in this case, "1" is used as the defined value. This property corresponds to the -D option of the ccrl command. The specified macro is displayed as the subproperty.	
	Default	Macro definition[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.
Macro undefinition	Specify the macro name to be undefined. Specify in the format of "*macro name*", with one macro name per line. This property corresponds to the -U option of the ccrl command. The specified macro is displayed as the subproperty.	
	Default	Macro undefinition[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.

Output C source comments to preprocessed file	Select whether to output the comments of the C source to the preprocessed file. This property corresponds to the -preprocess option of the ccrl command. This property is displayed only when [Yes(-P)] in the [Output preprocessed source file] property in the [Output File] category is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-preprocess=comment)	Outputs the comments of the C source to the preprocessed file.
		No	Does not output the comments of the C source to the preprocessed file.
Output line number information to preprocessed file	Select whether to output the line number information of the C source to the preprocessed file. This property corresponds to the -preprocess option of the ccrl command. This property is displayed only when [Yes(-P)] in the [Output preprocessed source file] property in the [Output File] category is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-preprocess=line)	Outputs the line number information of the C source to the preprocessed file.
		No	Does not output the line number information of the C source to the preprocessed file.

(5) [Source]
The detailed information on the source is displayed and the configuration can be changed.

Language of the C source file	Select the language of the C source file. This property corresponds to the -lang option of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RL compiler has been installed. **Caution** You need to set this property in synchronization with the [Use standard/ mathematical libraries] property under the [Library] category on the [Link Options] tab. If the C99 source code calls the C90 standard library and a C99 specific functionality is used in the source code, the program results in illegal operation.		
	Default	C(C90)(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	C(C90)(No option specified)	Compilation will proceed in compliance with the C90 standard.
		C99(-lang=c99)	Compilation will proceed in compliance with the C99 standard.

Language of the C++ source file	The language of the C++ source file. This property corresponds to the -lang option of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.12.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.12.00 or a later version of the CC-RL compiler has been installed.	
	Default	C++14(-lang=cpp14)
	How to change	Changes not allowed

(6) [Quality Improvement]
The detailed information on the quality improvement is displayed and the configuration can be changed.

Detect stack smashing	Select whether to detect the stack smashing. This property is usable only in the Professional Edition. Detection of stack smashing is a feature for writing a value outside the valid stack area before entering a function and checking whether that value is rewritten before exiting the function. Upon detection, the user-defined __stack_chk_fail() function is called. See "CC-RL Compiler User's Manual" about the difference between [Yes(-stack_protector)] and [Yes(All)(-stack_protector_all)]. This property corresponds to the -stack_protector and -stack_protector_all options of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RL compiler has been installed.		
	Default	No(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-stack_protector)	Detects the stack smashing.
		Yes(All)(-stack_protector_all)	Detects the stack smashing for all functions.
		No(No option specified)	Does not detect the stack smashing.
Value to be embedded for detecting stack smashing	Specify the value to be embedded for detecting the stack smashing. This property is usable only in the Professional Edition. This property corresponds to the -stack_protector and -stack_protector_all options of the ccrl command. This property is displayed in the following cases. - When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RL compiler has been installed - When other than [No(No option specified)] in the [Detect stack smashing] property is selected		
	Default	Blank	
	How to change	Directly enter in the text box.	
	Restriction	0 to 65535 (decimal number)	

Detect illegal indirect function call	Select whether to output code for detecting illegal indirect function calls. Enable this facility to check the destination addresses of branches caused by each indirect function call. The output code will call the user-defined __control_flow_chk_fail() function in response to the detection of a problem. This property is usable only in the Professional Edition. This property corresponds to the -control_flow_integrity option of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RL compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-control_flow_integrity)	Outputs code for detecting illegal indirect function calls.
		No	Does not output code for detecting illegal indirect function calls.

(7) [Memory Model]
The detailed information on the memory model is displayed and the configuration can be changed.

Memory model	Specify the type of memory model. This property corresponds to the -memory_model option of the ccrl command.		
	Default	Auto(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Auto(No option specified)	Automatically interprets the value of the [Specify CPU core] property in the [CPU] category in the [Common Options] tab (small when -cpu=S1 is selected, medium when -cpu=S2 or -cpu=S3 is selected).
		Small model(-memory_model=small)	Specifies the small model(Code 64 K bytes/Data 64 K bytes) as the memory model.
		Medium model(-memory_model=medium)	Specifies the medium model(Code 1 M bytes/Data 64 K bytes) as the memory model.
Locate ROM data to far area	Specify the allocation destination of ROM data. This property corresponds to the -far_rom option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	No	Allocates ROM data depending on the value of the [Memory Model] property.
		Yes(-far_rom)	Allocates ROM data to the far area.

(8) [C Language]
The detailed information on C language is displayed and the configuration can be changed.

Compile strictly according to ANSI standards	Select whether to process as making C source program comply strictly with the ANSI standard and output an error or warning for a specification that violates the standard. This property corresponds to the -ansi option of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.05.00 or an earlier version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.05.00 or an earlier version of the CC-RL compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-ansi)	Processes as making C source program comply strictly with the ANSI standard and outputs an error or warning for a specification that violates the standard.
		No	Compatibility with the conventional C language specifications is conferred and processing continues after warning is output.
Compile strictly according to the standards	Select whether to process as making C source program comply strictly with the C90 or C99 standard and output an error or warning for a specification that violates the standard. This property corresponds to the -strict_std option of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RL compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-strict_std)	Processes as making C source program comply strictly with the C90 or C99 standard and outputs an error or warning for a specification that violates the standard.
		No	Compatibility with the conventional C language specifications is conferred and processing continues after warning is output.
Check function without prototype declaration	Select whether to generate an error when using a function whose prototype declaration was not made in advance or a function without a prototype declaration. This property corresponds to the -refs_without_declaration option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-refs_without_declaration)	Checks functions without prototype declarations.
		No	Does not check functions without prototype declarations.

Set 0xffff bytes to maximum variable size	Select whether to increase the maximum variable size from 0x7fff to 0xffff. This property corresponds to the -large_variable option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-large_variable)	Increases the maximum variable size.
		No	Does not increase the maximum variable size.
Allow nested comments	Select whether to allow the nest use of comments ("/*... */"). This property corresponds to the -nest_comment option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-nest_comment)	Allows the nest use of comments.
		No	Does not allow the nest use of comments.

(9) [Character Encoding]
The detailed information on character encoding is displayed and the configuration can be changed.

Character encoding of the C source file	Select the character code to be used for Japanese/Chinese comments and character strings in the C source file. This property corresponds to the -character_set option of the ccrl command.		
	Default	Auto(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Auto(No option specified)	Interprets the Japanese character codes in the source file as SJIS on Japanese OS. On other than Japanese OS, does not interpret the character code in the source file.
		SJIS(-character_set=sjis)	Interprets the Japanese character codes in the source file as SJIS.
		EUC(-character_set=euc_jp)	Interprets the Japanese character codes in the source file as EUC.
		UTF-8(-character_set=utf8)	Interprets the Japanese character codes in the source file as UTF-8.
		Big5(-character_set=big5)	Interprets the Chinese character codes in the source file as Traditional Chinese.
		GBK(-character_set=gbk)	Interprets the Chinese character codes in the source file as Simplified Chinese.
		No-process(-character_set=none)	Does not interpret the Japanese/Chinese character codes in the source file.

Character encoding of the C++ source file	The character encoding to be used for Japanese/Chinese comments and character strings in the C++ source file. This property corresponds to the -character_set option of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.12.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.12.00 or a later version of the CC-RL compiler has been installed.		
	Default	UTF-8(No option specified)	
	How to change	Changes not allowed	

(10) [Output Code]
The detailed information on output code is displayed and the configuration can be changed.

Process double type / long double type as float type	Select whether to handle the double or long double type as the float type. This property corresponds to the -dbl_size option of the ccrl command.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Processes the double or long double type as the float type.
		No(-dbl_size=8)	Does not process the double or long double type as the float type.
Sign of the char type	Select sign of the char type with no sign specification. This property corresponds to the -signed_char option of the ccrl command.		
	Default	Handles as unsigned char(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Handles as signed char(-signed_char)	Handles the char type as signed char.
		Handles as unsigned char(No option specified)	Handles the char type as unsigned char.
Sign of the bit-field type	Select sign of the bit-field type with no sign specification. This property corresponds to the -signed_bitfield option of the ccrl command.		
	Default	Handles as unsigned(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Handles as signed(-signed_bitfield)	Handles the bit-field type as signed.
		Handles as unsigned(No option specified)	Handles the bit-field type as unsigned.

Structure packing	Select whether to perform structure packing. This property corresponds to the -pack option of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.01.00 or a later version of the CC-RL compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-pack)	Performs alignment of members in a structure in 1-byte units instead of performing alignment according to the member type.
		No	Performs alignment of members in a structure according to the member type.
Handle external variables as if they are volatile qualified	Select whether to handle all external variables and variables specified with #pragma address as if they are volatile qualified. This property corresponds to the -volatile option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-volatile)	Handles all external variables and variables specified with #pragma address as if they are volatile qualified.
		No	Optimizes external variables that are not volatile qualified.

Output code of switch statement	Select the code output mode for switch statements in programs. This property corresponds to the -switch option of the ccrl command.		
	Default	Auto(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Auto(No option specified)	The ccrl selects the optimum output format.
		if-else(-switch=ifelse)	Outputs the switch statements in the same format as the if-else statement along a string of case statements in programs. Select this item if the case statements are written in the order of frequency or if only a few labels are used. Because the case statements are compared starting from the top, unnecessary comparison can be reduced and the execution speed can be increased if the case statement that most often matches is written first.
		Binary search(-switch=binary)	Outputs the code in the binary search format for switch statements in programs. Searches for a matching case statement by using a binary search algorithm. If this item is selected when many labels are used, any case statement can be found at almost the same speed.
		Table jump(absolute)(-switch=abs_table)	Outputs the code in the table jump format (absolute branch) for switch statements in programs. References a table indexed on the values in the case statements, and selects and processes case labels from the switch statement values. The code will branch to all the case statements with about the same speed. However, if case values are not used in succession, an unnecessary area will be created.
		Table jump(relative)(-switch=rel_table)	Outputs the code in the table jump format (relative branch) for switch statements in programs. References a table indexed on the values in the case statements, and selects and processes case labels from the switch statement values. The code will branch to all the case statements with about the same speed. However, if case values are not used in succession, an unnecessary area will be created.

Perform indirect referencing in 1-byte units	Select whether to perform indirect referencing in 1-byte units. This property corresponds to the -unaligned_pointer_for_ca78k0r option of the ccrl command. When [Yes(-unaligned_pointer_for_ca78k0r)] is selected, if there is a possibility that a pointer to a type having a 2-byte alignment condition without volatile keyword points to an odd address, code for indirect reference in 1-byte units are generated. This property is displayed when [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RL compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-unaligned_pointer_for_ca78k0r)	Performs indirect referencing in 1-byte units.
		No	Does not perform indirect referencing in 1-byte units.
Output comment to assembly source file	Select whether to output a C/C++ source program as a comment to the assembly source file to be output. This property corresponds to the -pass_source option of the ccrl command. This property is displayed only when [Yes(-asm_path)] in the [Output assembly source file] property in the [Output File] category is selected or when [Yes(-asmopt=-prn_path)] in the [Output assemble list file] property in the [Assemble List] category is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-pass_source)	Outputs a C/C++ source program as a comment to the assembly source file.
		No	Does not output a C/C++ source program as a comment to the assembly source file.
Merge string literals	When the same string literals exist in the source file, specify whether to merge them and allocate to the one area. This property corresponds to the -merge_string option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-merge_string)	Merges the same string literals exist in the source file and allocates to the one area.
		No	Each allocates the same string literals exist in the source file to separate areas.

Allocate uninitialized variables in sections according to number of alignments	Select whether to allocate the uninitialized variables to sections in accord with their alignment sizes. This property corresponds to the -stuff option of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.10.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.10.00 or a later version of the CC-RL compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-stuff=bss)	Allocates the uninitialized variables to sections in accord with their alignment sizes.
		No	Does not allocate the uninitialized variables to sections in accord with their alignment sizes.
Allocate initialized variables in sections according to number of alignments	Select whether to allocate the initialized variables to sections in accord with their alignment sizes. This property corresponds to the -stuff option of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.10.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.10.00 or a later version of the CC-RL compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-stuff=data)	Allocates the initialized variables to sections in accord with their alignment sizes.
		No	Does not allocate the initialized variables to sections in accord with their alignment sizes.
Allocate const qualified variables in sections according to number of alignments	Select whether to allocate the const qualified variables to sections in accord with their alignment sizes. This property corresponds to the -stuff option of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.10.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.10.00 or a later version of the CC-RL compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-stuff=const)	Allocates the const qualified variables to sections in accord with their alignment sizes.
		No	Does not allocate the const qualified variables to sections in accord with their alignment sizes.

Use NOP instruction insertion for measuring current consumption	Select whether to use the NOP instruction insertion for measuring current consumption. This property corresponds to the -insert_nop_with_label option of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.05.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.05.00 or a later version of the CC-RL compiler has been installed. **Caution** If you select [Yes(-insert_nop_with_label)] but the current setting for the [Add debug information] property in the [Debug Information] category is [No], a warning is output and the -g option enabled automatically. To suppress the output of the warning, select [Yes(-g)] in the [Add debug information] property.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-insert_nop_with_label)	Enables the NOP instruction insertion for measuring current consumption.
		No	Disables the NOP instruction insertion for measuring current consumption.
Parameters of NOP instruction insertion for measuring current consumption	The parameters of NOP instruction insertion for measuring current consumption are displayed. Set the position where NOP is output in the Editor panel. Note that this property is not applied to [Reset All to Default] from the context menu. This property corresponds to the -insert_nop_with_label option of the ccrl command. This property is displayed only in the following cases. - When [Always latest version which was installed] or V1.05.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.05.00 or a later version of the CC-RL compiler has been installed - When [Yes(-insert_nop_with_label)] in the [Use NOP instruction insertion for measuring current consumption] property is selected		
	Default	Parameters of Use NOP instruction insertion for measuring current consumption[*number of defined items*]	
	How to change	Changes not allowed	

(11) [Output File]
The detailed information on output files is displayed and the configuration can be changed.

Output assembly source file	Select whether to output the assembly source file of the compile result for the C/C++ source. This property corresponds to the -asm_path option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-asm_path)	Outputs the assembly source file of the compile result for the C/C++ source.
		No	Does not output the assembly source file of the compile result for the C/C++ source.

Output folder for assembly source file	Specify the folder which the assembly source file is output. If a relative path is specified, the reference point of the path is the main project or subproject folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. The assembly source file is saved under the C/C++ source file name with the extension replaced by ".asm". If this is blank, it is assumed that the project folder has been specified. This property corresponds to the -asm_path option of the ccrl command. This property is displayed only when [Yes(-asm_path)] in the [Output assembly source file] property is selected.		
	Default	%BuildModeName%	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	
Output preprocessed source file	Select whether to output the execution result of preprocessing for the source file to a file. This property corresponds to the -P option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-P)	Outputs the execution result of preprocessing for the source file to a file.
		No	Does not output the execution result of preprocessing for the source file to a file.
Output folder for preprocessed source file	Specify the folder which the preprocessed source file is output. The file is output under the source file name with the extension replaced by ".i". If a relative path is specified, the reference point of the path is the main project or subproject folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This property corresponds to the -prep_path option of the ccrl command. This property is displayed only when [Yes(-P)] in the [Output preprocessed source file] property is selected.		
	Default	%BuildModeName%	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	

(12) [Assemble List]
The detailed information on the assemble list is displayed and the configuration can be changed.

Output assemble list file	Select whether to output the assemble list file. This property corresponds to the -asmopt=-prn_path option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-asmopt=-prn_path)	Outputs the assemble list file.
		No	Does not output the assemble list file.
Output folder for assemble list file	Specify the folder which the assemble list file is output. The assemble list file is output under the source file name with the extension replaced by ".prn". If a relative path is specified, the reference point of the path is the main project or subproject folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This property corresponds to the -asmopt=-prn_path option of the ccrl command. This property is displayed only when [Yes(-asmopt=-prn_path)] in the [Output assemble list file] property is selected.		
	Default	%BuildModeName%	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	

(13) [MISRA-C Rule Check]
The detailed information on the MISRA-C rule check are displayed and the configuration can be changed.
20*XX* in the following table corresponds to 2012 or 2004 in particular.

MISRA-C specification	Select the MISRA-C specification. This property is usable only in the Professional Edition. This property is displayed when [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RL compiler has been installed.		
	Default	MISRA-C 2012	
	How to change	Select from the drop-down list.	
	Restriction	MISRA-C 2012	Settings for MISRA-C 2012 are made in the subsequent properties.
		MISRA-C 2004	Settings for MISRA-C 2004 are made in the subsequent properties.

<table>
<tr><td>Apply rule</td><td colspan="3">Select the MISRA-C rules to be applied.
This property is usable only in the Professional Edition.
This property corresponds to the -misra20XX option of the ccrl command.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Not apply rule(No option specified)</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td>Restriction</td><td>Apply all rules(-misra20XX=all)</td><td>Checks the source code against all of the rules which are supported.</td></tr>
<tr><td></td><td></td><td>Apply specified rule number(-misra20XX=apply)</td><td>Checks the source code against the rules with the specified numbers among the rules which are supported.</td></tr>
<tr><td></td><td></td><td>Ignore specified rule number(-misra20XX=ignore)</td><td>Checks the source code against the rules that do not match the specified numbers among the rules which are supported.</td></tr>
<tr><td></td><td></td><td>Apply rules that are classified as "required"(-misra20XX=required)</td><td>Checks the source code against the rules of the "required" type.</td></tr>
<tr><td></td><td></td><td>Apply rules that are classified as "required" and specified rule number(-misra20XX=required_add)</td><td>Checks the source code against the rules of the "required" type and the rules with the specified numbers among the rules which are supported.</td></tr>
<tr><td></td><td></td><td>Ignore specified rule number from rules that are classified as "required"(-misra20XX=required_remove)</td><td>Checks the source code against the rules of the "required" type except for the rules with the specified numbers among the rules which are supported.</td></tr>
<tr><td></td><td></td><td>Apply rules that are described in the specified file(-misra20XX=<file name>)</td><td>Checks the source code against the rules with the numbers described in specified file among the rules which are supported.</td></tr>
<tr><td></td><td></td><td>Not apply rule(No option specified)</td><td>Does not apply the MISRA-C rules.</td></tr>
<tr><td>Rule number description file</td><td colspan="3">Specify the rule number description file (MISRA-C rule file).
This property is usable only in the Professional Edition.
When misra2012 is selected, the CC-RL compiler always checks the code against rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.04.00 or later, 12.5 and 21.13 if the compiler is V1.05.00 or later, and 17.6 if the compiler is V1.06.00 or later) regardless of which rule numbers have been specified through the properties setting.
The following placeholders are supported.
%BuildModeName%: Replaces with the build mode name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectName%: Replaces with the project name.
This property corresponds to the -misra20XX option of the ccrl command.
This property is displayed only when [Apply rules that are described in the specified file(-misra20XX=<file name>)] in the [Apply rule] property is selected.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Blank</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Directly enter in the text box or edit by the Specify MISRA-C Rule File dialog box which appears when clicking the [...] button.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">Up to 259 characters</td></tr>
</table>

Rule number	Specify the rule number to be checked. This property is usable only in the Professional Edition. When misra2012 is selected, the CC-RL compiler always checks the code against rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.04.00 or later, 12.5 and 21.13 if the compiler is V1.05.00 or later, and 17.6 if the compiler is V1.06.00 or later) regardless of which rule numbers have been specified through the properties setting. Specify at least one rule number in decimal. This property corresponds to the -misra20*XX* option of the ccrl command. This property is displayed only when [Apply specified rule number(-misra20*XX*=apply)] in the [Apply rule] property is selected.	
	Default	Blank
	How to change	Directly enter in the text box or edit by the Specify Rule Number dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters
Exclusion rule number	Specify the rule number to be excluded from the check. This property is usable only in the Professional Edition. When misra2012 is selected, the CC-RL compiler always checks the code against rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.04.00 or later, 12.5 and 21.13 if the compiler is V1.05.00 or later, and 17.6 if the compiler is V1.06.00 or later) regardless of which rule numbers have been specified through the properties setting. Specify at least one rule number in decimal. This property corresponds to the -misra20*XX* option of the ccrl command. This property is displayed only when [Ignore specified rule number(-misra20*XX*=ignore)] in the [Apply rule] property is selected.	
	Default	Blank
	How to change	Directly enter in the text box or edit by the Specify Rule Number dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters
Check rule number besides required rule	Specify the rule number to be checked besides the required rules. This property is usable only in the Professional Edition. When misra2012 is selected, the CC-RL compiler always checks the code against rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.04.00 or later, 12.5 and 21.13 if the compiler is V1.05.00 or later, and 17.6 if the compiler is V1.06.00 or later) regardless of which rule numbers have been specified through the properties setting. Specify at least one rule number in decimal. This property corresponds to the -misra20*XX* option of the ccrl command. This property is displayed only when [Apply rules that are classified as "required" and specified rule number(-misra20*XX*=required_add)] in the [Apply rule] property is selected.	
	Default	Blank
	How to change	Directly enter in the text box or edit by the Specify Rule Number dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters

<table>
<tr><td>Exclusion rule number from required rule</td><td colspan="2">Specify the required rule number to be excluded from the check.
This property is usable only in the Professional Edition.
When misra2012 is selected, the CC-RL compiler always checks the code against rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.04.00 or later, 12.5 and 21.13 if the compiler is V1.05.00 or later, and 17.6 if the compiler is V1.06.00 or later) regardless of which rule numbers have been specified through the properties setting.
Specify at least one rule number in decimal.
This property corresponds to the -misra20XX option of the ccrl command.
This property is displayed only when [Ignore specified rule number from rules that are classified as "required"(-misra20XX=required_remove)] in the [Apply rule] property is selected.</td></tr>
<tr><td></td><td>Default</td><td>Blank</td></tr>
<tr><td></td><td>How to change</td><td>Directly enter in the text box or edit by the Specify Rule Number dialog box which appears when clicking the [...] button.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 259 characters</td></tr>
<tr><td>Rule check exclusion file</td><td colspan="2">Specify files that will not be checked against the MISRA-C rules.
This property is usable only in the Professional Edition.
The following placeholders are supported.
%BuildModeName%: Replaces with the build mode name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectName%: Replaces with the project name.
This property corresponds to the -ignore_files_misra option of the ccrl command.
This property is displayed only in the following cases.
- When [Apply all rules] is selected in the [Apply rule] property
- When [Apply rules that are classified as "required"] is selected in the [Apply rule] property
- When [Apply specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Rule number] property
- When [Ignore specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Rule number] property
- When [Apply rules that are classified as "required" and specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Check rule number besides required rule] property
- When [Ignore specified rule number from rules that are classified as "required"] is selected in the [Apply rule] property and a rule number is specified in the [Exclusion rule number from required rule] property
- When [Apply rules that are described in the specified file] is selected in the [Apply rule] property and a rule number description file is specified in the [Rule number description file] property</td></tr>
<tr><td></td><td>Default</td><td>Rule check exclusion file[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Path Edit dialog box which appears when clicking the [...] button.
-> Edit by the Add Excluding File dialog box which appears when clicking the [Browse...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

<table>
<tr><td>Output message of the enhanced key word and extended specifications</td><td colspan="3">Select whether to output the message of the enhanced key word and extended specifications.
This property is usable only in the Professional Edition.
This property corresponds to the -check_language_extention option of the ccrl command.
This property is displayed only in the following cases.
- When [Apply all rules] is selected in the [Apply rule] property
- When [Apply rules that are classified as "required"] is selected in the [Apply rule] property
- When [Apply specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Rule number] property
- When [Ignore specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Rule number] property
- When [Apply rules that are classified as "required" and specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Check rule number besides required rule] property
- When [Ignore specified rule number from rules that are classified as "required"] is selected in the [Apply rule] property and a rule number is specified in the [Exclusion rule number from required rule] property
- When [Apply rules that are described in the specified file] is selected in the [Apply rule] property and a rule number description file is specified in the [Rule number description file] property</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="2">Restriction</td><td>Yes(-check_language_extension)</td><td>Enables MISRA-C rule check and outputs messages when the rule check is partially suppressed by the unique language specifications extended from the C language standard.</td></tr>
<tr><td></td><td>No</td><td>Disables MISRA-C rule check is disabled, which are partially suppressed by the extended language specifications.</td></tr>
</table>

Enable checking that spans files	Select whether to enable checking that spans files. This property is usable only in the Professional Edition. This property corresponds to the -misra_intermodule option of the ccrl command. This property is displayed only in the following cases. - When [Always latest version which was installed] or V1.08.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.08.00 or a later version of the CC-RL compiler has been installed - When [MISRA-C 2012] in the [MISRA-C specification] property is selected - When other than [Not apply rule(No option specified)] in the [Apply rule] property is selected **Caution** If the C source files of the project are removed or renamed while [Yes(-misra_intermodule)] is selected, information on checking that spans files will be cleared. Rebuild the project to obtain correct checking of files on this point.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-misra_intermodule)	Enables checking that spans files.
		No	Does not enable checking that spans files.

(14) [Message]
The detailed information on messages is displayed and the configuration can be changed.

Change warning message to error message	Select whether to change the type of warning messages to error. This property corresponds to the -change_message option of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RL compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-change_message=error)	Changes the type of all warning messages to error.
		Yes(Specify message number)(-change_message=error=<Message number>)	Specifies the number of warning message of which type is to be changed to error.
		No	Does not change the type of warning messages.

Number of warning message	Specify the number of the warning message. If multiple message numbers are specified, delimit them with "," (comma) (example: 23028,23086). Also, a range of message numbers can be specified using "-" (hyphen) (example:23028-23086). This property corresponds to the -change_message option of the ccrl command. This property is displayed only in the following cases. - When [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RL compiler has been installed - When [Yes(Specify message number)(-change_message=error=<Message number>)] in the [Change warning message to error message] property is selected	
	Default	Blank
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.
	Restriction	Up to 32767 characters

(15) [Others]
Other detailed information on compilation is displayed and the configuration can be changed.

Use support for porting from other compiler	Select whether to use support for porting from other compilers. This property corresponds to the -convert_cc option of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.01.00 or a later version of the CC-RL compiler has been installed.		
	Default	No(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(CA78K0R)(-convert_cc=ca78k0r)	Uses support for porting from the CA78K0R compiler.
		Yes(NC30)(-convert_cc=nc30)	Uses support for porting from the NC30 compiler.
		Yes(IAR)(-convert_cc=iar)	Uses support for porting from the IAR compiler.
		No(No option specified)	Uses support for porting from other compiler.

<table>
<tr><td rowspan="4">Commands executed before compile processing</td><td colspan="2">Specify the command to be executed before compile processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%CompiledFile%: Replaces with the absolute path of the output file under compiling.
%InputFile%: Replaces with the absolute path of the file to be compiled (except in case of simultaneous building).
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed before compile processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td>Default</td><td>Commands executed before compile processing[number of defined items]</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
</table>

<table>
<tr><td rowspan="4">Commands executed after compile processing</td><td colspan="2">Specify the command to be executed after compile processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%CompiledFile%: Replaces with the absolute path of the output file under compiling.
%InputFile%: Replaces with the absolute path of the file to be compiled (except in case of simultaneous building).
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed after compile processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td>Default</td><td>Commands executed after compile processing[number of defined items]</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
<tr><td rowspan="4">Other additional options</td><td colspan="2">Input the compile option to be added additionally.
The options set here are added at the end of the compile options group.</td></tr>
<tr><td>Default</td><td>Blank</td></tr>
<tr><td>How to change</td><td>Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.</td></tr>
<tr><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

[Assemble Options] tab

This tab shows the detailed information on the assemble phase categorized by the following and the configuration can be changed.

[Description of each category]

(1) [Debug Information]
The detailed information on debug information is displayed and the configuration can be changed.

Add debug information	Select whether to generate the debug information. It is possible to perform source debugging with the debugger by outputting information for source debugging to the output file. This property corresponds to the -g option of the ccrl command.		
	Default	Yes(-g)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-g)	Generates the debug information.
		No	Does not generate the debug information.

(2) [Optimization]
The detailed information on the optimization is displayed and the configuration can be changed.

Outputs additional information for inter-module optimization	Select whether to output additional information for inter-module optimization. At linkage, inter-module optimization is applied to files for which this option has been specified. This property corresponds to the -goptimize option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-goptimize)	Outputs additional information for inter-module optimization.
		No	Does not outputs additional information for inter-module optimization.

(3) [Preprocess]
The detailed information on preprocessing is displayed and the configuration can be changed.

<table>
<tr><td>Additional include paths</td><td colspan="2">Specify the additional include paths during assembling.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
The specified include path is searched with higher priority than the standard include file folder of CC-RL.
The reference point of the path is the project folder.
When this property is omitted, only the standard folder of CC-RL is searched.
This property corresponds to the -I option of the ccrl command.
The specified include path is displayed as the subproperty.
When the include path is added to the project tree, the path is added to the top of the subproperties.
Uppercase characters and lowercase characters are not distinguished for the include paths.</td></tr>
<tr><td></td><td>Default</td><td>Additional include paths[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Path Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 247 characters
Up to 256 items can be specified.</td></tr>
<tr><td>System include paths</td><td colspan="2">Change the specified order of the include paths which the system set during assembling.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
The system include path is searched with lower priority than the additional include path.
The reference point of the path is the project folder.
This property corresponds to the -I option of the ccrl command.
The include path is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>System include paths[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the System Include Path Order dialog box which appears when clicking the [...] button.</td></tr>
<tr><td></td><td>Restriction</td><td>Changes not allowed (Only the specified order of the include paths can be changed.)</td></tr>
</table>

Macro definition	Specify the name of the macro to be defined. Specify in the format of "*macro name*=*defined value*", with one macro name per line. The "=*defined value*" part can be omitted, and in this case, "1" is used as the defined value. This property corresponds to the -asmopt=-define option of the ccrl command. The specified macro is displayed as the subproperty.	
	Default	Macro definition[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.
Macro undefinition	Specify the macro name to be undefined. Specify in the format of "*macro name*", with one macro name per line. This property corresponds to the -asmopt=-undefine option of the ccrl command. The specified macro is displayed as the subproperty.	
	Default	Macro undefinition[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.

(4) [Character Encoding]
The detailed information on character encoding is displayed and the configuration can be changed.

Character encoding	Select the character code to be used for comments and character strings in the source file. This property corresponds to the -character_set option of the ccrl command.		
	Default	Auto(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Auto(No option specified)	Interprets the Japanese character codes in the source file as SJIS on Japanese OS. On other than Japanese OS, does not interpret the character code in the source file.
		SJIS(-character_set=sjis)	Interprets the Japanese character codes in the source file as SJIS.
		EUC(-character_set=euc_jp)	Interprets the Japanese character codes in the source file as EUC.
		UTF-8(-character_set=utf8)	Interprets the Japanese character codes in the source file as UTF-8.
		Big5(-character_set=big5)	Interprets the Chinese character codes in the source file as Traditional Chinese.
		GB2312(-character_set=gbk)	Interprets the Chinese character codes in the source file as Simplified Chinese.
		No-process(-character_set=none)	Does not interpret the Japanese/Chinese character codes in the source file.

Format of numerical constant	Specify the representation format of the base number of numerical constants. example) Prefix format: 0xFFFF, Suffix format: FFFFH This property corresponds to the -asmopt=-base_number option of the ccrl command.		
	Default	Prefix format(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Prefix format(No option specified)	Handles numerical constants in the Prefix format.
		Suffix format(-asmopt=-base_number=suffix)	Handles numerical constants in the Suffix format.

(5) [Assemble List]
The detailed information on the assemble list is displayed and the configuration can be changed.

Output assemble list file	Select whether to output the assemble list file. This property corresponds to the -asmopt=-prn_path option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-asmopt=-prn_path)	Outputs the assemble list file.
		No	Does not output the assemble list file.
Output folder for assemble list file	Specify the folder which the assemble list file is output. The assemble list file is output under the source file name with the extension replaced by ".prn". If a relative path is specified, the reference point of the path is the main project or sub-project folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This property corresponds to the -asmopt=-prn_path option of the ccrl command. This property is displayed only when [Yes(-asmopt=-prn_path)] in the [Output assemble list file] property is selected.		
	Default	%BuildModeName%	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	

(6) [Others]
Other detailed information on assembly is displayed and the configuration can be changed.

Use support for porting from assembler of CA78K0R	Select whether to use support for porting from the CA78K0R assembler. This property corresponds to the -asmopt=-convert_asm option of the ccrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-asmopt=-convert_asm)	Uses support for porting from the CA78K0R assembler.
		No	Does not use support for porting from the CA78K0R assembler.

<table>
<tr><td>Commands executed before assemble processing</td><td colspan="2">Specify the command to be executed before assemble processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%AssembledFile%: Replaces with the absolute path of the output file under assembling.
%BuildModeName%: Replaces with the build mode name.
%InputFile%: Replaces with the absolute path of the file to be assembled (except in case of simultaneous building).
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed before assemble processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>Commands executed before assemble processing[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
</table>

<table>
<tr><td rowspan="4">Commands executed after assemble processing</td><td colspan="2">Specify the command to be executed after assemble processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%AssembledFile%: Replaces with the absolute path of the output file under assembling.
%BuildModeName%: Replaces with the build mode name.
%InputFile%: Replaces with the absolute path of the file to be assembled (except in case of simultaneous building).
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed after assemble processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td>Default</td><td>Commands executed after assemble processing[number of defined items]</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
<tr><td rowspan="4">Other additional options</td><td colspan="2">Input the assemble option to be added additionally.
The assembler is executed via ccrl.exe. Add -asmopt= as required.
The options set here are added at the end of the assemble options group.</td></tr>
<tr><td>Default</td><td>Blank</td></tr>
<tr><td>How to change</td><td>Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.</td></tr>
<tr><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

[FAA Assemble Options] tab

This tab shows the detailed information on the assemble phase categorized by the following and the configuration can be changed.
This tab is displayed when the microcontroller has a FAA.

[Description of each category]

(1) [Debug Information]
The detailed information on debug information is displayed and the configuration can be changed.

Add debug information	Select whether to generate the debug information. This property corresponds to the -no_debug_info option of the dspasm command.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Generates the debug information.
		No(-no_debug_info)	Does not generate the debug information.

(2) [Preprocess]
The detailed information on preprocessing is displayed and the configuration can be changed.

Include paths	Specify the include paths during FAA assembling. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. The reference point of the path is the project folder. This property corresponds to the -inc_dir option of the dspasm command. The specified include path is displayed as the subproperty. Uppercase characters and lowercase characters are not distinguished for the include paths.	
	Default	Include paths[*number of defined items*]
	How to change	Edit by the Path Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 247 characters Up to 256 items can be specified.

First character of text macro	Specify the first character of the text macro. This property corresponds to the -text_macro option of the dspasm command.		
	Default	Blank	
	How to change	Directly enter in the text box.	
	Restriction	One of the following letters: # (sharp) ' (apostrophe) ` (accent grave) @ (at mark) _ (underscore)	
Text macro definition	Specify the text macro to be defined in the format of "(macro name)#(defined value)", with one macro name per line. This option corresponds to the -define option of the dspasm command. The specified macro is displayed as the subproperty.		
	Default	Text macro definition[*number of defined items*]	
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.	
	Restriction	Up to 256 characters Up to 256 items can be specified.	
Allow to redefine text macro	Specify whether to allow to redefine a text macro. This option corresponds to the -allow_text_macro_redefine option of the dspasm command.		
	Default	Yes(-allow_text_macro_redefine)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-allow_text_macro_redefine)	Allows to redefine text macro.
		No	Does not allow to redefine text macro.
Method for recognizing the text macros	Specify the method for recognizing the macro when a text macro is to be replaced. This option corresponds to the -macro_identify option of the dspasm command.		
	Default	Forward	
	How to change	Select from the drop-down list.	
	Restriction	Forward	The forward-matching method is used to recognize the text macro.
		Exact(-macro_identify exact)	The word-matching method is used to recognize the text macro.

(3) [Output Code]
The detailed information on output code is displayed and the configuration can be changed.

Version of FAA core	Specify the version of the FAA core. This option corresponds to the -core_version option of the dspasm command.		
	Default	Auto(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	V2 core(-core_version 2)	Assembles for V2 core.
		V3 core(No option specified)	Assembles for V3 core.
Start address of section of code	Specify the start address of the section of code in hexadecimal without 0x. This corresponds to the -code_section_start option of the dspasm command.		
	Default	Blank	
	How to change	Directly enter in the text box.	
	Restriction	- When the value of the [Version of FAA core] property is [V2 core(-core_version 2)]: 0 to FFF - When the value of the [Version of FAA core] property is [V3 core(No option specified)]: 0 to 3FFF	
Start address of section of data	Specify the start address of the section of data in hexadecimal without 0x. This corresponds to the -data_section_start option of the dspasm command.		
	Default	Blank	
	How to change	Directly enter in the text box.	
	Restriction	- When the value of the [Version of FAA core] property is [V2 core(-core_version 2)]: 0 to FFF - When the value of the [Version of FAA core] property is [V3 core(No option specified)]: 0 to 1FFF	

(4) [Output file]
The detailed information on the assemble list is displayed and the configuration can be changed.

Output assembly source file	Select whether to output the assembly source file. This option corresponds to the -format option of the dspasm command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-format ASM)	Outputs the assembly source file.
		No	Does not output the assembly source file.
Output VERILOG file	Select whether to output the VERILOG file. This option corresponds to the -format option of the dspasm command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-format VERILOG)	Outputs the VERILOG file.
		No	Does not output the VERILOG file.

Output result of pre-processing to file	Select whether to output the result of preprocessing to a file. This option corresponds to the -E option of the dspasm command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-E)	Outputs the result of preprocessing to a file.
		No	Does not output the result of prepro-cessing to a file.
Output list file	Select whether to output the list file. This option corresponds to the -list option of the dspasm command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-list)	Outputs the list file.
		No	Does not output the list file.

(5) [Others]
Other detailed information on assembly is displayed and the configuration can be changed.

Commands executed before FAA assemble processing	Specify the command to be executed before FAA assemble processing. Use the call instruction to specify a batch file (example: call a.bat). The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %AssembledFile%: Replaces with the absolute path of the output file under FAA assembling. %BuildModeName%: Replaces with the build mode name. %InputFile%: Replaces with the absolute path of the file to be FAA assembled. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %Options%: Replaces with the command line option under build execution. %OutputDir%: Replaces with the absolute path of the output folder. %OutputFile%: Replaces with the absolute path of the output file. %Program%: Replaces with the program name under execution. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed before FAA assemble processing. The placeholders can be described in the script. The specified command is displayed as the subproperty.	
	Default	Commands executed before FAA assemble processing[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 1023 characters Up to 64 items can be specified.

<table>
<tr><td rowspan="4">Commands executed after FAA assemble processing</td><td colspan="2">Specify the command to be executed after FAA assemble processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%AssembledFile%: Replaces with the absolute path of the output file under FAA assembling.
%BuildModeName%: Replaces with the build mode name.
%InputFile%: Replaces with the absolute path of the file to be FAA assembled (except in case of simultaneous building).
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed after FAA assemble processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td>Default</td><td>Commands executed after FAA assemble processing[number of defined items]</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
<tr><td rowspan="4">Other additional options</td><td colspan="2">Input the FAA assemble option to be added additionally.
The options set here are added at the end of the FAA assemble options group.</td></tr>
<tr><td>Default</td><td>Blank</td></tr>
<tr><td>How to change</td><td>Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.</td></tr>
<tr><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

[SMS Assemble Options] tab

This tab shows the detailed information on the SMS assemble phase categorized by the following and the configuration can be changed.

This tab is displayed when the microcontroller has a SMS.

See “SMS Assembler Users Manual” in the “Renesas Electronics Utilities” of the start menu for details about the SMS assembler.

Caution The output file of the SMS assembler is
the file name: <*Input file name without extension*>.h
the folder: the value of the [Intermediate file output folder] property of the [Output File Type and Path] category in the [Common Options] tab.
Use it by including with a C source.

[Description of each category]

(1) [Preprocess]

The detailed information on preprocessing is displayed and the configuration can be changed.

Additional include paths	Specify the additional include paths during the SMS assembling. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. The reference point of the path is the project folder. This property corresponds to the -I option of the smsasm command. The specified include path is displayed as the subproperty. Uppercase characters and lowercase characters are not distinguished for the include paths.	
	Default	Additional include paths[*number of defined items*]
	How to change	Edit by the Path Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 247 characters Up to 256 items can be specified.

Macro definition	Specify the name of the macro to be defined. Specify in the format of "*macro name*=*defined value*", with one macro name per line. The "=*defined value*" part can be omitted, and in this case, "1" is used as the defined value. This property corresponds to the -D option of the smsasm command. The specified macro is displayed as the subproperty.	
	Default	Macro definition[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.
Macro undefinition	Specify the macro name to be undefined. Specify in the format of "*macro name*", with one macro name per line. This property corresponds to the -U option of the smsasm command. The specified macro is displayed as the subproperty.	
	Default	Macro undefinition[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.

(2) [Character Encoding]
The detailed information on character encoding is displayed and the configuration can be changed.

Character encoding	Select the character code to be used for comments and character strings in the source file. This property corresponds to the -character_set option of the smsasm command.		
	Default	No-process(-character_set=none)	
	How to change	Select from the drop-down list.	
	Restriction	SJIS(-character_set=sjis)	Interprets the Japanese character codes in the source file as SJIS.
		EUC(-character_set=euc_jp)	Interprets the Japanese character codes in the source file as EUC.
		UTF-8(-character_set=utf8)	Interprets the Japanese character codes in the source file as UTF-8.
		Big5(-character_set=big5)	Interprets the Chinese character codes in the source file as Traditional Chinese.
		GB2312(-character_set=gb2312)	Interprets the Chinese character codes in the source file as Simplified Chinese.
		No-process(-character_set=none)	Does not interpret the Japanese/Chinese character codes in the source file.

(3) [Warning Message]

The detailed information on warning messages is displayed and the configuration can be changed.

Undisplayed warning message	Specify the number of the warning message not to be displayed. If multiple message numbers are specified, delimit them with "," (comma) (example: 550001,550005). Also, the range can be set using "-" (hyphen) (example: 550001-550003). This property corresponds to the -no_warning option of the smsasm command.	
	Default	Blank
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.
	Restriction	Up to 2048 characters

(4) [Others]
Other detailed information on SMS assembly is displayed and the configuration can be changed.

Commands executed before SMS assemble processing	Specify the command to be executed before SMS assemble processing. Use the call instruction to specify a batch file (example: call a.bat). The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %AssembledFile%: Replaces with the absolute path of the output file under assembling. %BuildModeName%: Replaces with the build mode name. %InputFile%: Replaces with the absolute path of the file to be assembled (except in case of simultaneous building). %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %Options%: Replaces with the command line option under build execution. %OutputDir%: Replaces with the absolute path of the output folder. %OutputFile%: Replaces with the absolute path of the output file. %Program%: Replaces with the program name under execution. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed before assemble processing. The placeholders can be described in the script. The specified command is displayed as the subproperty.	
	Default	Commands executed before SMS assemble processing[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 1023 characters Up to 64 items can be specified.

<table>
<tr><td rowspan="4">Commands executed after SMS assemble processing</td><td colspan="2">Specify the command to be executed after SMS assemble processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%AssembledFile%: Replaces with the absolute path of the output file under assembling.
%BuildModeName%: Replaces with the build mode name.
%InputFile%: Replaces with the absolute path of the file to be assembled (except in case of simultaneous building).
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed after assemble processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td>Default</td><td>Commands executed after SMS assemble processing[number of defined items]</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
<tr><td rowspan="4">Other additional options</td><td colspan="2">Input the SMS assemble option to be added additionally.
The options set here are added at the end of the SMS assemble options group.</td></tr>
<tr><td>Default</td><td>Blank</td></tr>
<tr><td>How to change</td><td>Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.</td></tr>
<tr><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

[Link Options] tab

This tab shows the detailed information on the link phase categorized by the following and the configuration can be changed.

Caution This tab is not displayed for the library project.

[Description of each category]

(1) [Debug Information]
The detailed information on debug information is displayed and the configuration can be changed.

Output debug information	Select whether to output debug information. This property corresponds to the -DEBug and -NODEBug options of the rlink command.		
	Default	Yes(Output to the output file)(-DEBug)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(Output to the output file)(-DEBug)	Outputs debug information.
		No(-NODEBug)	Does not output debug information.
Compress debug information	Select whether to compress debug information. This property corresponds to the -COmpress and -NOCOmpress options of the rlink command. This property is displayed only when [Yes(Output to the output file)(-DEBug)] in the [Output debug information] property is selected.		
	Default	No(-NOCOmpress)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-COmpress)	Compresses debug information. The loading speed of the debugger will be improved.
		No(-NOCOmpress)	Does not compress the debug information. The link time will be shortened.

Delete local symbol name information	Select whether to delete local symbol name information. This property corresponds to the -Hide option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Hide)	Deletes information of the local symbol name.
		No	Does not delete information of the local symbol name.

(2) [Optimization]
The detailed information on the optimization is displayed and the configuration can be changed.

Optimization type	Select optimization type. Inter-module optimization is performed for modules to which -goptimize was added at compilation or assemble. This property corresponds to the -NOOPtimize and -OPtimize option of the rlink command. [Speed-oriented optimization(-OPtimize=SPeed)] and [Safe optimization(-OPtimize=SAFe)] are displayed when [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RL compiler has been installed. Remark To apply optimization at the time of linkage, select [Yes (-goptimize)] for the [Outputs additional information for inter-module optimization] property described under category (3)[Optimization(Details)] in the section on the [Compile Options] tab and under category (2)[Optimization] in the section on the [Assemble Options] tab before compiling or assembling the files. This can also be done by using the same property on the [Individual Compile Options] and [Individual Assemble Options] tabs.		
	Default	No optimize(-NOOPtimize)	
	How to change	Select from the drop-down list.	
	Restriction	No optimize(-NOOPtimize)	Does not execute optimization for a module.
		All(-OPtimize)	Provides all optimizations.
		Speed-oriented optimization(-OPtimize=SPeed)	Performs optimization with emphasis on execution speed.
		Safe optimization(-OPtimize=SAFe)	Performs safe optimization.
		Custom	Performs optimization for the specified options.

<table>
<tr><td rowspan="5">Deletes variables/ functions that are not referenced</td><td colspan="3">Select whether to delete symbols that are not referenced.
This property corresponds to the -OPtimize=SYmbol_delete option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RL compiler has been installed
- When [Custom] in the [Optimization type] property is selected</td></tr>
<tr><td>Default</td><td colspan="2">No</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="2">Restriction</td><td>Yes(-OPtimize=SYmbol_delete)</td><td>Deletes symbols that are not referenced.</td></tr>
<tr><td>No</td><td>Does not delete symbols that are not referenced.</td></tr>
<tr><td rowspan="5">Optimizes branch instruction size</td><td colspan="3">Select whether to optimize the branch instruction size based on the program allocation information.
This property corresponds to the -OPtimize=Branch option of the rlink command.
This property is displayed only when [Custom] in the [Optimization type] property is selected.</td></tr>
<tr><td>Default</td><td colspan="2">No</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="2">Restriction</td><td>Yes(-OPtimize=Branch)</td><td>Optimizes the branch instruction size.</td></tr>
<tr><td>No</td><td>Does not optimize the branch instruction size.</td></tr>
</table>

<table>
<tr><td>Optimizes area allocated before execution start symbol</td><td colspan="3">Select whether to optimize the area allocated before the execution start symbol.
The area allocated to lower addresses than the symbol specified with the -ENTRY option is to be optimized. When the address has been specified with the -ENTRY option, this option is disabled.
This property corresponds to the -ALLOW_OPTIMIZE_ENTRY_BLOCK option of the rlink command.
This property is displayed only when in the following cases.
- When [Always latest version which was installed] or V1.13.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.13.00 or a later version of the CC-RL compiler has been installed.
- When other than [No optimize(-NOOPtimize)] in the [Optimization type] property is selected
- When [Yes(-ENTry)] in the [Specify execution start address] property is selected
- When [Execution start address] property is not blank</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="2">Restriction</td><td>Yes(-ALLOW_OPTIMIZE_ENTRY_BLOCK)</td><td>Optimizes the area allocated before the execution start symbol</td></tr>
<tr><td></td><td>No</td><td>Does not optimize the area allocated before the execution start symbol</td></tr>
<tr><td>Symbols excluded from optimization of unreferenced symbol deletion</td><td colspan="3">Specify unreferenced symbols that you do not wish to be deleted by optimization.
Specify in the format of "symbol name", with one specification on one line.
This option corresponds to the -Symbol_forbid option of the linker.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RL compiler has been installed
- When other than [No optimize(-NOOPtimize)] in the [Optimization type] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Symbols excluded from optimization of unreferenced symbol deletion[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">Up to 32767 characters
Up to 65536 items can be specified.</td></tr>
</table>

Section to disable optimization	Specify sections that you do not wish to be optimized in the format of "*file name*|*module name*](*section name*[,...])", with one specification on one line. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. This property corresponds to the -SEction_forbid option of the rlink command. This property is not displayed when [No optimize (-NOOPtimize)] in the [Optimization type] property is selected.	
	Default	Section to disable optimization[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 32767 characters Up to 65535 items can be specified.
Address range to disable optimization	Specify the address range in which to suppress optimization in the format of "*address*[+ *size*]", with one specification on one line. This property corresponds to the -Absolute_forbid option of the rlink command. This property is not displayed when [No optimize (-NOOPtimize)] in the [Optimization type] property is selected.	
	Default	Address range to disable optimization[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 32767 characters Up to 65535 items can be specified.

(3) [Input File]
The detailed information on input files is displayed and the configuration can be changed.

<table>
<tr><td>Object file</td><td>Specify the object files.
Specify in the format of "library(module)", with one entry name per line.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
This property corresponds to the -Input option of the rlink command.
The object file name is displayed as the subproperty.
<table>
<tr><td>Default</td><td>Object file[number of defined items]</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 1024 characters
Up to 256 items can be specified.</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><td>Binary file</td><td colspan="2">Specify the binary files.
Specify in the format of "file name(section name[:number of alignment][/section attribute][,symbol name])", with one entry per line.
[:number of alignment], [/section attribute], and [,symbol name] can be omitted.
The value that can be specified for number of alignment is 1, 2, 4, 8, 16, or 32.
If the specification is omitted, it is assumed that 1 has been specified.

The following value can be specified as section attribute.
- CC-RL V1.04.00 or earlier
CODE, DATA
- CC-RL V1.05.00 or later
CALLT0, CODE, TEXT, TEXTF, TEXTF_UNIT64KP, CONST, CONSTF, SDATA, DATA, DATAF, OPT_BYTE, SECUR_ID

If the specification is omitted, all attributes such as the ability to write, read, and execute, will be all valid.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
This property corresponds to the -Binary option of the rlink command.
The binary file name is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>Binary file[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 1024 characters
Up to 256 items can be specified.</td></tr>
<tr><td>Symbol definition</td><td colspan="2">Define the symbols.
Specify in the format of "symbol name=symbol name" or "symbol name=numerical value", with one entry name per line.
Specify the numerical value in hexadecimal without 0x.
This property corresponds to the -DEFine option of the rlink command.
The symbol name is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>Symbol definition[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 256 characters
Up to 256 items can be specified.</td></tr>
</table>

(4) [Output File]
The detailed information on output files is displayed and the configuration can be changed.

Output folder	Specify the output folder. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. If this is blank, it is assumed that the project folder has been specified. This property corresponds to the -OUtput option of the rlink command.	
	Default	%BuildModeName%
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.
	Restriction	Up to 247 characters
Output file name	Specify the output file name. If the extension is omitted, ".abs" is automatically added. The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. This property corresponds to the -OUtput option of the rlink command.	
	Default	%ProjectName%.abs
	How to change	Directly enter in the text box.
	Restriction	Up to 259 characters

(5) [Library]
The detailed information on the library is displayed and the configuration can be changed.

Using libraries	Specify the library files to be used. If a relative path is specified, it is converted into an absolute path using the main project or subproject folder as the reference point of the path. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. This property corresponds to the -LIBrary option of the rlink command. The library file name is displayed as the subproperty.		
	Default	Using libraries[*number of defined items*]	
	How to change	Edit by the Path Edit dialog box which appears when clicking the [...] button. -> Edit by the Specify Using Library File dialog box which appears when clicking the [Browse...] button. For the subproperty, you can enter directly in the text box.	
	Restriction	Up to 259 characters Up to 65536 items can be specified.	
System libraries	The system library files are displayed. If a relative path is specified, it is converted into an absolute path using the main project or subproject folder as the reference point of the path. This property corresponds to the -LIBrary option of the rlink command. The system library file name is displayed as the subproperty.		
	Default	System libraries[*number of defined items*]	
	How to change	Changes not allowed	
Use standard/mathematical libraries	Select whether to use the standard/mathematical libraries provided by the compiler. This property corresponds to the -LIBrary option of the rlink command. [Yes(Library for C99)] is displayed when [Always latest version which was installed] or V1.07.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RL compiler has been installed. [Yes(Library for C++)] is displayed when [Always latest version which was installed] or V1.12.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.12.00 or a later version of the CC-RL compiler has been installed.		
	Default	Depends on the project type on creating project	
	How to change	Select from the drop-down list.	
	Restriction	Yes(Library for C90)	Uses the standard/mathematical libraries for C90.
		Yes(Library for C99)	Uses the standard/mathematical libraries for C99.
		Yes(Library for C++)	Uses the standard/mathematical libraries for C++.
		No	Does not use the standard/mathematical libraries.

Check memory smashing on releasing memory	Select whether to check memory smashing on releasing the memory. This property is usable only in the Professional Edition. The user-defined __heap_chk_fail() function is called if an illegal address has been specified or an address outside the allocated memory area has been written to when the memory that was dynamically allocated by malloc or another function is released or re-allocated by this function. See "CC-RL Compiler User's Manual" for details. This property corresponds to the -LIBrary option of the rlink command. This property is displayed only in the following cases. - When [Always latest version which was installed] or V1.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.03.00 or a later version of the CC-RL compiler has been installed - When [Yes] in the [Use standard/mathematical libraries] property is selected		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Checks memory smashing on releasing the memory.
		No	Does not check memory smashing on releasing the memory.
Use runtime libraries	Select whether to use the runtime libraries provided by the compiler. This property corresponds to the -LIBrary option of the rlink command.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Uses the runtime libraries.
		No	Does not use the runtime libraries.

(6) [Device]
The detailed information on the device is displayed and the configuration can be changed.

Set enable/disable on-chip debug by link option	Select whether to set enabling/disabling the on-chip debug by the link option. This property corresponds to the -OCDBG option of the rlink command. Be sure to set the control value of the on-chip debug option byte. To set it, select [Yes] and specify the control value of the on-chip debug option byte on the [Option byte values for OCD] property. Or, set the control value of the on-chip debug option byte by using an assembler source file. The control value for the on-chip debug option byte depends on the device in use. See the user's manual of the device for the value to be specified. This property is not displayed when the device does not have an on-chip debug function.		
	Default	Yes(-OCDBG)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-OCDBG)	Sets the control value of the on-chip debug.
		No	Does not set the control value of the on-chip debug.

<table>
<tr><td>Option byte values for OCD</td><td colspan="3">Specify the control value of the on-chip debug option byte in hexadecimal without 0x.
This property corresponds to the -OCDBG option of the rlink command.
Be sure to set the control value for the on-chip debug option byte by using this property or an assembler source file.
The control value for the on-chip debug option byte depends on the device in use. If an incorrect setting is made, flash serial programming operation may be disabled and changing the value may become impossible.
See the user's manual of the device for the value to be specified.
This property is not displayed when the device does not have an on-chip debug function and when [No] in the [Set enable/disable on-chip debug by link option] property is selected.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Blank</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Directly enter in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">0 to FF (hexadecimal number without 0x)</td></tr>
<tr><td>Set security option byte</td><td colspan="3">Specify when setting a value to security option byte.
This property corresponds to the -SECURITY_OPT_BYTE option of the rlink command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] or V1.12.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.12.00 or a later version of the CC-RL compiler has been installed
- When the device has a security option byte function.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="2">Restriction</td><td>Yes(-SECURITY_OPT_BYTE)</td><td>Sets the control value of the security option byte.</td></tr>
<tr><td>No</td><td>Does not set the control value of the security option byte.</td></tr>
<tr><td>Security option byte value</td><td colspan="3">Specify the control value of security option byte in hexadecimal without 0x.
This property corresponds to the -SECURITY_OPT_BYTE option of the rlink command. See the user's manual of the device for the value to be specified.
This property is not displayed when [No] in the [Set security option byte] property is selected.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Blank</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Directly enter in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">0 to FF (hexadecimal number without 0x. The range that can be specified depends on the selected device.)</td></tr>
</table>

Set debug monitor area	Select whether to set the debug monitor area. This property corresponds to the -DEBUG_MONITOR option of the rlink command. This property is displayed when [Always latest version which was installed] or V1.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.01.00 or a later version of the CC-RL compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-DEBUG_MONITOR)	Specifies the debug monitor area within the default range.
		Yes(Specify address range)(-DEBUG_MONITOR=<Address range>)	Specifies the address range of the debug monitor area.
		No	Does not set the debug monitor area.
Range of debug monitor area	Specify the range of the debug monitor area in the format of "*start address-end address*". This property corresponds to the -DEBUG_MONITOR option of the rlink command. See "CC-RL Compiler User's Manual" for details about the option. This property is displayed only in the following cases. - When [Always latest version which was installed] or V1.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.01.00 or a later version of the CC-RL compiler has been installed - When [Yes(Specify address range)(-DEBUG_MONITOR=<Address range>)] in the [Set debug monitor area] property is selected		
	Default	*The peculiar value for the target device*	
	How to change	Directly enter in the text box.	
	Restriction	0 to FFFFF (hexadecimal number without 0x)	
Set user option byte	Select whether to set the user option byte. This property corresponds to the -USER_OPT_BYTE option of the rlink command. Be sure to set the user option byte value. To set it, select [Yes] and specify the user option byte value on the [User option byte value] property. Or, set the user option byte value by using an assembler source file. The user option byte value depends on the device in use. See the user's manual of the device for the value to be specified.		
	Default	Yes(-USER_OPT_BYTE)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-USER_OPT_BYTE)	Sets a value to the user option byte. However, if the [User option byte value] property is blank, the user option byte is not set.
		No	Does not set a value to the user option byte.

<table>
<tr><td>User option byte value</td><td colspan="3">Specify the user option byte value in hexadecimal without 0x.
From the MSB side of the user option byte, specify the value in byte units, in order of 0xC0 -> 0xC2.
This property corresponds to the -USER_OPT_BYTE option of the rlink command.
Be sure to set the user option byte value by using this property or an assembler source file.
The user option byte value depends on the device in use.
See the user's manual of the device for the value to be specified.
This property is not displayed when [No] in the [Set user option byte] property is selected.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Blank</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Directly enter in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">Hexadecimal number without 0x (The range that can be specified depends on the selected device)</td></tr>
<tr><td>Control allocation to self RAM area</td><td colspan="3">Select whether to control the section allocation to the self RAM area.
This property corresponds to the -SELF/-SELFW/-STRIDE_SELF_AREA/-AVOID_SADDR_STACK option of the rlink command.

[Yes(Exclude self RAM area, SADDR area)(-STRIDE_SELF_AREA -AVOID_SADDR_STACK)] is displayed when [Always latest version which was installed] or V1.15.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.15.00 or a later version of the CC-RL compiler has been installed.

This property is displayed only in the following cases.
- When [Always latest version which was installed] or V1.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.01.00 or a later version of the CC-RL compiler has been installed
- For a device in which allocation to the self RAM area is controllable</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="4">Restriction</td><td>Yes(Error message)(-SELF)</td><td>Allocates a section except for the self RAM area and sets a stack area except for the SADDR area.</td></tr>
<tr><td>Yes(Warning message)(-SELFW)</td><td>Outputs a warning when section allocating to the self RAM area and sets a stack area except for the SADDR area.</td></tr>
<tr><td>Yes(Exclude self RAM area, SADDR area)(-STRIDE_SELF_AREA -AVOID_SADDR_STACK)</td><td>Allocates a section striding over the self RAM area and sets a stack area except for the SADDR area.</td></tr>
<tr><td>No</td><td>Uses the self RAM area as the internal RAM area. An error or warning is not displayed.</td></tr>
</table>

<table>
<tr><td rowspan="6">Control allocation to trace RAM area</td><td colspan="3">Select whether to control the section allocation to the trace RAM, self RAM area. This property corresponds to the -OCDTR/-OCDTRW/-STRIDE_OCDTR_AREA option of the rlink command.

[Yes(Exclude trace RAM area)(-STRIDE_OCDTR_AREA)] is displayed when [Always latest version which was installed] or V1.15.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.15.00 or a later version of the CC-RL compiler has been installed.

This property is displayed only in the following cases.
- When [Always latest version which was installed] or V1.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.01.00 or a later version of the CC-RL compiler has been installed
- For a device in which allocation to the trace RAM area is controllable</td></tr>
<tr><td>Default</td><td colspan="2">No</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="4">Restriction</td><td>Yes(Error message)(-OCDTR)</td><td>Allocates a section except for the trace RAM, self RAM area and sets a stack area except for the SADDR area.</td></tr>
<tr><td>Yes(Warning message)(-OCDTRW)</td><td>Outputs a warning when section allocating to the trace RAM area and sets a stack area except for the SADDR area.</td></tr>
<tr><td>Yes(Exclude trace RAM area)(-STRIDE_OCDTR_AREA)</td><td>Allocates a section striding over the trace RAM area.</td></tr>
<tr><td>No</td><td>Uses the trace RAM area as the internal RAM area. An error or warning is not displayed.</td></tr>
</table>

<table>
<tr><td>Control allocation to hot plug-in RAM area</td><td colspan="3">Select whether to control the section allocation to the hot plug-in RAM, trace RAM, self RAM area.
This property corresponds to the -OCDHPI/-OCDHPIW/-STRIDE_OCDHPI_AREA option of the rlink command.

[Yes(Exclude hot plug-in RAM area)(-STRIDE_OCDHPI_AREA)] is displayed when [Always latest version which was installed] or V1.15.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.15.00 or a later version of the CC-RL compiler has been installed.

This property is displayed only in the following cases.
- When [Always latest version which was installed] or V1.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.01.00 or a later version of the CC-RL compiler has been installed
- For a device in which allocation to the hot plug-in RAM area is controllable</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="4">Restriction</td><td>Yes(Error message)(-OCDHPI)</td><td>Allocates a section except for the hot plug-in RAM, trace RAM, self RAM area and sets a stack area except for the SADDR area.</td></tr>
<tr><td></td><td>Yes(Warning message)(-OCDHPIW)</td><td>Outputs a warning when section allocating to the hot plug-in RAM area and sets a stack area except for the SADDR area.</td></tr>
<tr><td></td><td>Yes(Exclude hot plug-in RAM area)(-STRIDE_OCDHPI_AREA)</td><td>Allocates a section striding over the hot plug-in RAM area.</td></tr>
<tr><td></td><td>No</td><td>Uses the hot plug-in RAM area as the internal RAM area. An error or warning is not displayed.</td></tr>
</table>

<table>
<tr><td>Reserve working memory for RRM/ DMM function</td><td colspan="3">Select whether to reserve a 4-byte memory as the work area for the RRM/DMM function.
This property corresponds to the -RRM option of the rlink command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] or V1.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.01.00 or a later version of the CC-RL compiler has been installed
- When the device has the RRM function
- When [Yes(-DEBUG_MONITOR)] in the [Set debug monitor area] property is selected
- When a value is specified in the [Range of debug monitor area] property</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="2">Restriction</td><td>Yes(-RRM)</td><td>Reserves a 4-byte memory as the work area for the RRM/DMM function.</td></tr>
<tr><td></td><td>No</td><td>Does not reserve the work area for the RRM/DMM function.</td></tr>
<tr><td>Start address of working memory for RRM/ DMM function</td><td colspan="3">Specify the start address of the work area for the RRM/DMM function in hexadecimal without 0x.
Four bytes starting from the specified address in the internal RAM area are reserved as the work area for the RRM/DMM function.
This property corresponds to the -RRM option of the rlink command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] or V1.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.01.00 or a later version of the CC-RL compiler has been installed
- When [Yes(-RRM)] in the [Reserve working memory for RRM/DMM function] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Blank</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Directly enter in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">Even address from the lowest address up to the highest address minus 3 in the internal RAM area (in hexadecimal)
However, if the internal RAM area includes the area for general-purpose registers, the overlapped area is not specifiable.</td></tr>
</table>

(7) [Output Code]
The detailed information on output code is displayed and the configuration can be changed.

Specify execution start address	Select whether to specify the execution start address with the external defined symbol or address. This property corresponds to the -ENTry option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-ENTry)	Specifies the execution start address with the external defined symbol or address.
		No	Does not specify the execution start address with the external defined symbol or address.
Execution start address	Specify the execution start address. Specify in the format of "*symbol name*" or "*address*". Specify the address in hexadecimal without 0x. This property corresponds to the -ENTry option of the rlink command. The execution start address is displayed as the subproperty. This property is displayed only when [Yes(-ENTry)] in the [Specify execution start address] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 32767 characters	
Fill with padding data at the end of a section	Select whether to fill with padding data at the end of a section. This property corresponds to the -PADDING option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-PADDING)	Fills in data at the end of a section so that the section size is a multiple of the alignment of the section.
		No	Does not fill with padding data at the end of a section.
Address setting for specified area of vector table	Specify an address value to be set for a specific address in the vector table in the format of "*vector table address*={*symbol*|*address*}", with one specification on one line. Specify the vector table address as a hexadecimal value within the range between 0 and 7E. Specify *symbol* using an external name of the target function. Specify the address in hexadecimal without 0x. This property corresponds to the -VECTN option of the rlink command.		
	Default	Address setting for specified area of vector table[*number of defined items*]	
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.	
	Restriction	Up to 32767 characters Up to 65535 items can be specified.	

Address setting for unused vector area	Specify the address of the empty area in the vector table in the format of "{*symbol*|*address*}". Specify the address in hexadecimal without 0x. This property corresponds to the -VECT option of the rlink command.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 32767 characters	
Generate function list used for detecting illegal indirect function call	Select whether to generate a list of functions that are safe in terms of the detection of illegal indirect function calls. This property is changed to [Yes(-CFI)] when [Yes(-control_flow_integrity)] in the [Detect illegal indirect function call] property in the [Quality Improvement] category from the [Compile Options] tab is selected. This property is usable only in the Professional Edition. This property corresponds to the -CFI option of the rlink command. This property is displayed when [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RL compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-CFI)	Generates a list of functions that are safe in terms of the detection of illegal indirect function calls.
		No	Does not generate a list of functions that are safe in terms of the detection of illegal indirect function calls.

<table>
<tr><td>Additional function symbols or addresses to function list</td><td colspan="2">Specify the symbols or addresses of functions that you wish to add to the list of functions that are safe in terms of the detection of illegal indirect function calls.
In the process of detecting illegal indirect function calls, the linker generates a list of safe functions and embeds this list in the load module. Then the code output by the compiler with [Detect illegal indirect function call] enabled will refer to the list while the user-created application is running. Use this property if you wish to add any symbols or addresses of functions to the list, which is otherwise automatically configured based on the information input to the linker.
Specify in the format of "function symbol|address[,...]", with one function name per line.
This property is usable only in the Professional Edition.
This property corresponds to the -CFI_ADD_Func option of the rlink command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RL compiler has been installed
- When [Yes(-CFI)] in the [Generate function list used for detecting illegal indirect function call] property is selected</td></tr>
<tr><td></td><td>Default</td><td>Additional function symbols or addresses to function list[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Path Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 32767 characters
Up to 65536 items can be specified.</td></tr>
<tr><td>Excluded modules from function list</td><td colspan="2">Specify modules that you wish to exempt from the list of functions that are safe in terms of the detection of illegal indirect function calls.
In the process of detecting illegal indirect function calls, the linker generates a list of safe functions and embeds this list in the load module. Then the code output by the compiler with [Detect illegal indirect function call] enabled will refer to the list while the user-created application is running. Use this property if you wish to exempt all functions of any modules from the list, which is otherwise automatically configured based on the information input to the linker.
Specify in the format of "<i>object file name</i>[,...]" or "<i>library file name</i>[(<<i>module name in library</i>>[,<<i>module name in library</i>>]...)][,...]", with one file name per line.
The library file name can be specified only when the CC-RL compiler is V1.07.00 or later.
All functions in the specified module are excluded from the function list.
This property is usable only in the Professional Edition.
This property corresponds to the -CFI_IGNORE_Module option of the rlink command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RL compiler has been installed
- When [Yes(-CFI)] in the [Generate function list used for detecting illegal indirect function call] property is selected</td></tr>
<tr><td></td><td>Default</td><td>Excluded modules from function list[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Path Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 32767 characters
Up to 65536 items can be specified.</td></tr>
</table>

Split vector table sections	Select whether the vector table sections are to be separately generated by vector table address. This property corresponds to the -SPLIT_VECT option of the rlink command. This property is displayed only in the following cases. - When [Always latest version which was installed] or V1.07.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RL compiler has been installed - When the [Address setting for unused vector area] property is blank		
	Default	Yes(-SPLIT_VECT)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-SPLIT_VECT)	Splits vector table sections.
		No	Does not split vector table sections.

(8) [List]
The detailed information on the list is displayed and the configuration can be changed.

Output link map file	Select whether to output the link map file. This property corresponds to the -LISt and -SHow options of the rlink command.		
	Default	Yes(List contents=specify)(-LISt)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(List contents=not specify)(-LISt -SHow)	Outputs information according to the output format to the link map file.
		Yes(List contents=ALL)(-LISt -SHow=ALL)	Outputs all information according to the output format to the link map file.
		Yes(List contents=specify)(-LISt)	Outputs the specified information to the link map file.
		No	Does not output the link map file.
Output file name	Specify the name of the link map file. If the extension is omitted, ".map" is automatically added. The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. This property corresponds to the -LISt option of the rlink command. This property is displayed when other than [No] in the [Output link map file] property is selected.		
	Default	%ProjectName%.map	
	How to change	Directly enter in the text box.	
	Restriction	Up to 259 characters	

Output symbol information	Select whether to output the symbol information (symbol address, size, type, and optimization contents). This property corresponds to the -SHow=SYmbol option of the rlink command. This property is displayed only when [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected.		
	Default	Yes(-SHow=SYmbol)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-SHow=SYmbol)	Outputs the symbol information.
		No	Does not output the symbol information.
Output number of symbol reference	Select whether to output the number of symbol references. This property corresponds to the -SHow=Reference option of the rlink command. This property is displayed only when [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-SHow=Reference)	Outputs the number of symbol references.
		No	Does not output the number of symbol references.
Output cross reference information	Select whether to output the cross reference information. This property corresponds to the -SHow=XReference option of the rlink command. This property is displayed only when [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-SHow=Xreference)	Outputs the cross reference information.
		No	Does not output the cross reference information.
Output total sizes of sections	Select whether to output the total size of sections. This property corresponds to the -SHow=Total_size option of the rlink command. This property is displayed only when [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected.		
	Default	Yes(-SHow=Total_size)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-SHow=Total_size)	Outputs the total sizes of sections separately for ROM-allocated sections and RAM-allocated sections.
		No	Does not output the total size of sections.

<table>
<tr><td rowspan="5">Output vector information</td><td colspan="3">Select whether to output the vector information.
This property corresponds to the -SHow=VECTOR option of the rlink command.
This property is displayed only when [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected.</td></tr>
<tr><td>Default</td><td colspan="2">No</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="2">Restriction</td><td>Yes(-SHow=VECTOR)</td><td>Outputs vector information to the linkage list file.</td></tr>
<tr><td>No</td><td>Does not output vector information to the linkage list file.</td></tr>
<tr><td rowspan="5">Output information of members of struct or union</td><td colspan="3">Select whether to output the member information of the structure or union.
To output it, specify the -g option when compiling.
This property corresponds to the -SHow=STRUCT option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V1.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.01.00 or a later version of the CC-RL compiler has been installed
- When [No(-NOCOmpress)] in the [Compress debug information] property in the [Debug Information] category is selected
- When [No] in the [Delete local symbol name information] property in the [Debug Information] category is selected
- When [No optimize(-NOOPtimize)] or [Safe optimization(-OPtimize=SAFe)] in the [Optimization type] property in the [Optimization] category is selected, or when [Custom] in the [Optimization type] property and [No] in the [Optimization type] property are selected
- When [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected</td></tr>
<tr><td>Default</td><td colspan="2">No</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="2">Restriction</td><td>Yes(-SHow=STRUCT)</td><td>Outputs the member information of the structure or union.</td></tr>
<tr><td>No</td><td>Does not output the member information of the structure or union.</td></tr>
</table>

<table>
<tr><td>Output relocation attributes related to sections</td><td colspan="3">Select whether to output relocation attributes related to sections.
This property corresponds to the -SHow=RELOCATION_ATTRIBUTE option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V1.05.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.05.00 or a later version of the CC-RL compiler has been installed
- When [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="2">Restriction</td><td>Yes(-SHow=RELOCATION_ATTRIBUTE)</td><td>Outputs relocation attributes related to sections.</td></tr>
<tr><td></td><td>No</td><td>Does not output relocation attributes related to sections.</td></tr>
<tr><td>Output function list for detecting illegal indirect function call</td><td colspan="3">Select whether to output a list of functions that are safe in terms of the detection of illegal indirect function calls.
This property corresponds to the -SHow=CFI option of the rlink command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RL compiler has been installed
- When [Yes(-CFI)] in the [Generate function list used for detecting illegal indirect function call] property in the [Output Code] category is selected
- When [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="2">Restriction</td><td>Yes(-SHow=CFI)</td><td>Outputs a list of functions that are safe in terms of the detection of illegal indirect function calls.</td></tr>
<tr><td></td><td>No</td><td>Does not output a list of functions that are safe in terms of the detection of illegal indirect function calls.</td></tr>
</table>

(9) [Variables/functions information]
The detailed information on variables/functions is displayed and the configuration can be changed.

<table>
<tr><td>Output variables/functions information header file</td><td colspan="3">Select whether to output the variables/functions information header file.
If [Yes(-VFINFO)] is selected, commands are called in the following order. Compiler and assembler commands will be called twice in a single build processing.
1. Compiler (CC-RL)
2. Assembler (CC-RL)
3. Optimizing linker (rlink) -VFINFO
4. Compiler (CC-RL) -preinclude=variables/functions information header file
5. Assembler (CC-RL)
6. Optimizing linker (rlink)
To edit the variables/functions information header file which has been output when using it, change this property to [No] and specify the edited file in the [Include files at head of compiling units] property of the [Compile Options] tab.
The variables/functions information header file is registered in the File node of the project tree under the file name specified in the [Variables/functions information header file name] property. However, if a file with the same name has already been registered, this file is not registered.
The variables/functions information header file of the project tree is not affected by the -preinclude option of the [Include files at head of compiling units] property at build, and the file specified by the [Variables/functions information header file name] property will be specified.
This property corresponds to the -VFINFO option of the rlink command.
This property is displayed when [Always latest version which was installed] or V1.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.01.00 or a later version of the CC-RL compiler has been installed.</td></tr>
<tr><td>Default</td><td colspan="2">No</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="2">Restriction</td><td>Yes(-VFINFO)</td><td>Outputs the variables/functions information header file.</td></tr>
<tr><td>No</td><td>Does not output the variables/functions information header file.</td></tr>
</table>

<table>
<tr><td>Output folder for variables/functions information header file</td><td colspan="2">Specify the folder for saving the variables/functions information header file.
If a relative path is specified, the reference point of the path is the main project or subproject folder.
If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
If this is blank, it is assumed that the project folder has been specified.
This property corresponds to the -VFINFO option of the rlink command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] or V1.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.01.00 or a later version of the CC-RL compiler has been installed
- When [Yes(-VFINFO)] in the [Output variables/functions information header file] property is selected</td></tr>
<tr><td></td><td>Default</td><td>%BuildModeName%</td></tr>
<tr><td></td><td>How to change</td><td>Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 247 characters</td></tr>
<tr><td>Variables/functions information header file name</td><td colspan="2">Specify the variables/functions information header file name.
If the extension is omitted, ".h" is automatically added.
The following placeholders are supported.
%ActiveProjectName%: Replaces with the active project name.
%MainProjectName%: Replaces with the main project name.
%ProjectName%: Replaces with the project name.
This property corresponds to the -VFINFO option of the rlink command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] or V1.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.01.00 or a later version of the CC-RL compiler has been installed
- When [Yes(-VFINFO)] in the [Output variables/functions information header file] property is selected</td></tr>
<tr><td></td><td>Default</td><td>%ProjectName%_vfi.h</td></tr>
<tr><td></td><td>How to change</td><td>Directly enter in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

Specify contents of function information	Specify the contents of function information. This property corresponds to the -VFINFO option of the rlink command. This property is displayed when [Always latest version which was installed] or V1.05.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.05.00 or a later version of the CC-RL compiler has been installed.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Specify Contents of Function Information dialog box which appears when clicking the [...] button.	
	Restriction	Characters	

(10) [Section]
The detailed information on the section is displayed and the configuration can be changed.

Layout sections automatically	Select whether to allocate sections automatically. This property corresponds to the -AUTO_SECTION_LAYOUT option of the rlink command. This property is displayed when [Always latest version which was installed] or V1.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.01.00 or a later version of the CC-RL compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-AUTO_SECTION_LAYOUT)	Allocates sections automatically.
	Default	No	Does not allocate sections automatically.
Automatically allocate sections per module	Select whether to automatically allocate sections per module. This property corresponds to the -SPLIT_SECTION option of the rlink command. This property is displayed only in the following cases. - When [Always latest version which was installed] or V1.12.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.12.00 or a later version of the CC-RL compiler has been installed - When [Yes(-AUTO_SECTION_LAYOUT)] in the [Layout sections automatically] property is selected. - When other than [Yes(Automatically allocate sections by striding FAA memory area)] in the [Allocate FAA memory area automatically] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-SPLIT_SECTION)	Automatically allocates sections per module
		No	Does not automatically allocate sections per module

Section start address	Specify the start address of the section. This property corresponds to the -STARt option of the rlink command.	
	Default	- When [Yes(-AUTO_SECTION_LAYOUT)] in the [Layout sections automatically] property is selected Blank - Other than above *The peculiar value for the target device*
	How to change	Directly enter in the text box or edit by the Section Settings dialog box which appears when clicking the [...] button.
	Restriction	Up to 32767 characters
Section that outputs external defined symbols to the file	Specify the section whose external defined symbols are output to a file. Specify one section name per line. This property corresponds to the -FSymbol option of the rlink command. The section name is displayed as the subproperty.	
	Default	Section that outputs external defined symbols to the file[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 32767 characters Up to 65535 items can be specified.
ROM to RAM mapped section	Specify the section that maps symbols from ROM to RAM. Specify in the format of "*ROM section name=RAM section name*", with one section name per line. This property corresponds to the -ROm option of the rlink command. The section name is displayed as the subproperty.	
	Default	ROM to RAM mapped section[*number of defined items*] ".data=.data.R" and ".sdata=.sdata.R" are specified in the subproperty.
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 32767 characters Up to 65535 items can be specified.

Allocate FAA memory area automatically	This option specifies the allocation method of FAA memory area and RAM area. This option corresponds to the -dsp_memory_area, -stride_dsp_memory_area, and -ram_init_table_section options of the rlink command When [Yes] is specified, -dsp_memory_area is passed to the linker only. When [Yes(Automatically allocate sections by striding FAA memory area)] is specified, the all above options and -define= __USE_RAM_INIT_TABLE option of the assembler are passed to the commands for building. This property is displayed only in the following cases. - When [Always latest version which was installed] or V1.12.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.12.00 or a later version of the CC-RL compiler has been installed - When the microcontroller has a FAA.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Allocates the FAA memory area.
		Yes(Automatically allocate sections by striding FAA memory area)	Allocates the FAA memory area by using RAM that spans the FAA areas with the initialization table lookup method.
		No	Does not aAllocates the FAA memory area.

(11) [Verify]
The detailed information on verification is displayed and the configuration can be changed.

Check section larger than specified range of address	Select whether to check the consistency of the address to which the section is allocated. This property corresponds to the -CPu option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-CPu)	Checks the consistency of the address to which the section is allocated.
	Default	No	Does not check the consistency of the address to which the section is allocated.

Address range of memory type	Specify the address range of the memory type. Specify in the format of "*memory type=start address-end address*", with one entry per line. Any of "ROm", "RAm", or "FIX" can be specified as *memory type*. Specify *start address* and *end address* in hexadecimal without 0x. This property corresponds to the -CPu option of the rlink command. The address range of the memory type is displayed as the subproperty. This property is displayed only when [Yes(-CPu)] in the [Check section larger than specified range of address] property is selected.		
	Default	Address range of memory type[*number of defined items*]	
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.	
	Restriction	Up to 32767 characters Up to 65535 items can be specified.	
Check specifications of device	Select whether to check the specification of the device file. This property corresponds to the -CHECK_DEVICE option of the rlink command. This property is displayed when [Always latest version which was installed] or V1.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.01.00 or a later version of the CC-RL compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-CHECK_DEVICE)	Checks whether the device file is the same using the device file when an input file was generated and the option for specifying the device file.
		No	Does not check the specification of the device file.
Suppress checking section allocation that crosses (64KB-1) boundary	Select whether to suppress checking section allocation that crosses the (64 Kbytes - 1) boundary. Section allocation that crosses the (64 Kbytes - 1) boundary means that the lower 16 bits of the address of the section exceeds 0xFFFE and continues to 0xFFFF. This property corresponds to the -CHECK_64K_ONLY option of the rlink command. This property is displayed when [Always latest version which was installed] or V1.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.01.00 or a later version of the CC-RL compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-CHECK_64K_ONLY)	Suppresses checking section allocation that crosses the (64 Kbytes - 1) boundary.
		No	Does not suppress checking section allocation that crosses the (64 Kbytes - 1) boundary.

Do not check memory allocation of sections	Select whether to link without checking memory allocation of sections. This property corresponds to the -NO_CHECK_SECTION_LAYOUT option of the rlink command. This property is displayed when [Always latest version which was installed] or V1.01.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.01.00 or a later version of the CC-RL compiler has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-NO_CHECK_SECTION_LAYOUT)	Does not check memory allocation of sections.
		No	Checks memory allocation of sections.

(12) [Message]
The detailed information on messages is displayed and the configuration can be changed.

Enable information message output	Select whether to enable the output of information messages. This property corresponds to the -Message and -NOMessage options of the rlink command.		
	Default	No(-NOMessage)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Message)	Outputs information messages.
		No(-NOMessage)	Suppresses the output of information messages.
Suppress number of information message	Specify the number of the information message of which output is to be suppressed. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This property corresponds to the -NOMessage option of the rlink command. This property is displayed when [No(-NOMessage)] in the [Enable information message output] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	

Notify unused symbol	Select whether to notify the defined symbol that is not referenced. This property corresponds to the -MSg_unused option of the rlink command. This property is displayed only when [Yes(-Message)] in the [Enable information message output] property is selected or the [Suppress number of information message] property is specified.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-MSg_unused)	Notifies the defined symbol that is not referenced.
		No	Does not notify the defined symbol that is not referenced.
Change warning and error message to information message	Select whether to change the type of warning and error messages to information. This property corresponds to the -CHange_message option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-CHange_message=Information)	Changes the type of all warning and error messages to information.
		Yes(Specify message number)(-CHange_message=Information=<Message number>)	Specifies the number of warning and error message of which type is to be changed to information.
		No	Does not change the type of warning and error messages.
Number of warning and error message	Specify the number of the warning and error message. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This property corresponds to the -CHange_message option of the rlink command. This property is displayed only when [Yes(Specify message number)(-CHange_message=Information=<Message number>)] in the [Change warning and error message to information message] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	

Change information and error message to warning message	Select whether to change the type of information and error messages to warning. This property corresponds to the -CHange_message option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-CHange_message=Warning)	Changes the type of all information and error messages to warning.
		Yes(Specify message number)(-CHange_message=Warning=<Message number>)	Specifies the number of information and error message of which type is to be changed to warning.
		No	Does not change the type of information and error messages.
Number of information and error message	Specify the number of the information and error message. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This property corresponds to the -CHange_message option of the rlink command. This property is displayed only when [Yes(Specify message number)(-CHange_message=Warning=<Message number>)] in the [Change information and error message to warning message] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	
Change information and warning message to error message	Select whether to change the type of information and warning messages to error. This property corresponds to the -CHange_message option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-CHange_message=Error)	Changes the type of all information and warning messages to error.
		Yes(Specify message number)(-CHange_message=Error=<Message number>)	Specifies the number of information and warning message of which type is to be changed to error.
		No	Does not change the type of information and warning messages.

Number of information and warning message	Specify the number of the information and warning message. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This property corresponds to the -CHange_message option of the rlink command. This property is displayed only when [Yes(Specify message number)(-CHange_message=Error=<Message number>)] in the [Change information and warning message to error message] property is selected.	
	Default	Blank
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.
	Restriction	Up to 2048 characters

(13) [Others]
Other detailed information on linking is displayed and the configuration can be changed.

Output stack information file	Select whether to output the stack information file. This property corresponds to the -STACk option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-STACk)	Outputs the stack information file.
		No	Does not output the stack information file.

Reduce memory occupancy of linker	Select whether to reduce the memory usage of the linker.
	This property corresponds to the -MEMory option of the rlink command.
	This property is displayed only in the following cases.
	- When [No(-NODEBug)] in the [Output debug information] property or [No(-NOCOmpress)] in the [Compress debug information] property in the [Debug Information] category is selected
	- When any one of the conditions below is met.
	  - When [No] in the [Output link map file] property in the [List] category is selected
	  - When [Yes(List contents=not specify)(-LISt -SHow)] in the [Output link map file] property in the [List] category is selected
	  - When [Yes(List contents=specify)(-LISt)] in the [Output link map file] property, [No] in the [Output number of symbol reference] property, [No] in the [Output cross reference information] property, and [No] in the [Output information of members of struct or union] property in the [List] category are selected
	- When [No] in the [Output stack information file] property is selected		

	Default	No(-MEMory=High)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-MEMory=Low)	Reduces the memory usage of the linker. Select this item if processing is slow because a large project is linked and the memory size occupied by the linker exceeds the available memory in the PC used.
		No(-MEMory=High)	Executes the same processing as usual.

Display total size of sections	Select whether to display the total size of sections after the linking. This property corresponds to the -Total_size option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Total_size)	Displays the total size of sections after the linking.
		No	Does not display the total size of sections after the linking.
Display copyright information	Select whether to display copyright information. This property corresponds to the -LOgo and -NOLOgo options of the rlink command.		
	Default	No(-NOLOgo)	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Displays copyright information.
		No(-NOLOgo)	Suppresses the output of copyright information.
Commands executed before link processing	Specify the command to be executed before link processing. Use the call instruction to specify a batch file (example: call a.bat). The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %LinkedFile%: Replaces with the absolute path of the output file under link processing. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %Options%: Replaces with the command line option under build execution. %OutputDir%: Replaces with the absolute path of the output folder. %OutputFile%: Replaces with the absolute path of the output file. %Program%: Replaces with the program name under execution. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed before link processing. The placeholders can be described in the script. The specified command is displayed as the subproperty. This property is displayed only when [No] in the [Build simultaneously] property in the [Build Method] category from the [Common Options] tab is selected.		
	Default	Commands executed before link processing[*number of defined items*]	
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.	
	Restriction	Up to 1023 characters Up to 64 items can be specified.	

<table>
<tr><td rowspan="4">Commands executed after link processing</td><td colspan="2">Specify the command to be executed after link processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%LinkedFile%: Replaces with the absolute path of the output file under link processing.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed after link processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.
This property is displayed only when [No] in the [Build simultaneously] property in the [Build Method] category from the [Common Options] tab is selected.</td></tr>
<tr><td>Default</td><td>Commands executed after link processing[number of defined items]</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
<tr><td rowspan="4">Other additional options</td><td colspan="2">Input the link option to be added additionally.
The options set here are added at the end of the link options group.</td></tr>
<tr><td>Default</td><td>Blank</td></tr>
<tr><td>How to change</td><td>Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.</td></tr>
<tr><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

[Hex Output Options] tab

This tab shows the detailed information on the Hex output phase categorized by the following and the configuration can be changed.

Caution This tab is not displayed for the library project.

[Description of each category]

(1) [Output File]
The detailed information on output files is displayed and the configuration can be changed.

Output hex file	Select whether to output the hex file. This property corresponds to the -FOrm option of the rlink command.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Outputs the hex file.
	Default	No	Does not output the hex file.
Output folder	Specify the folder which the hex file is output. If a relative path is specified, the reference point of the path is the main project or sub-project folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. If this is blank, it is assumed that the project folder has been specified. This property corresponds to the -OUtput option of the rlink command. This property is displayed only when [Yes] in the [Output hex file] property is selected.		
	Default	%BuildModeName%	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	

Output file name	Specify the hex file name. Be sure to specify this property. If the extension is omitted, it is automatically added according to the selection in the [Hex file format] property in the [Hex Format] category. When [Intel HEX file(-FOrm=Hexadecimal)] is selected: .hex When [Motorola S-record file(-FOrm=Stype)] is selected: .mot When [Binary file(-FOrm=Binary)] is selected: .bin The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. This property corresponds to the -OUtput option of the rlink command. This property is displayed only when [Yes] in the [Output hex file] property is selected.	
	Default	%ProjectName%.mot
	How to change	Directly enter in the text box.
	Restriction	Up to 259 characters
Load address	Specify the load address of the hex file in hexadecimal. This property corresponds to the -OUtput option of the linker. This property is displayed only in the following cases. - When [Always latest version which was installed] or V1.07.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RL compiler has been installed - When a choice other than [Binary file (-FOrm=Binary)] was made in the [Hex file format] property under the [Hex Format] category	
	Default	Blank
	How to change	Directly enter in the text box.
	Restriction	0 to FFFFF (hexadecimal number) or blank

Division output file	Specify the division output files. Specify in the format of "*file name=start address-end address*[/*load address*]" (*start address*, *end address*: The start address and end address of the output range) or "*file name=section name*[/*load address*]" (*section name*: The name of the output section), with one entry per line. If multiple section names are specified, delimit them with a colon as in "*file name=section name*:*section name*" (example: file1.mot=sec1:sec2). [/*load address*] can be specified only when the CC-RL compiler is V1.07.00 or later and when a choice other than [Binary file (-FOrm=Binary)] was made in the [Hex file format] property in the [Hex Format] category. Specify the address in hexadecimal without 0x (example: file2.mot=400-4ff). If the extension is omitted, it is automatically added according to the selection in the [Hex file format] property in the [Hex Format] category. When [Intel HEX file(-FOrm=Hexadecimal)] is selected: .hex When [Motorola S-record file(-FOrm=Stype)] is selected: .mot When [Binary file(-FOrm=Binary)] is selected: .bin The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. This property corresponds to the -OUtput option of the rlink command. The division output file name is displayed as the subproperty. This property is displayed only when [Yes] in the [Output hex file] property is selected. **Caution** If you prefer the output of a single file and thus need not enter the start and end addresses or section names, delete the setting of this property and use the [Output folder] and [Output file name] properties instead.	
	Default	Division output file[*number of defined items*]
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 259 characters Up to 65535 items can be specified.

(2) [Hex Format]

The detailed information on the hex format is displayed and the configuration can be changed.
This category is displayed only when [Yes] in the [Output hex file] property in the [Output File] category is selected.

Hex file format	Select the format of the hex file to be output. This property corresponds to the -FOrm option of the rlink command.		
	Default	Motorola S-record file(-FOrm=Stype)	
	How to change	Select from the drop-down list.	
	Restriction	Intel HEX file(-FOrm=Hexadecimal)	Outputs an Intel HEX file.
		Motorola S-record file(-FOrm=Stype)	Outputs a Motorola S-record file.
		Binary file(-FOrm=Binary)	Outputs a binary file.

Unify record size [Intel HEX file]	Select whether to output a specified data record regardless of the address range. This property corresponds to the -RECord option of the rlink command. This property is displayed only when [Intel HEX file(-FOrm=Hexadecimal)] in the [Hex file format] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(Intel hex record)(-REcord=H16)	Outputs the Intel hex record.
		Yes(Intel expanded hex record)(-REcord=H20)	Outputs the Intel expanded hex record.
		Yes(Intel 32-bit hex record)(-REcord=H32)	Outputs the Intel 32-bit hex record.
		No	Outputs various data records according to each address.
Unify record size [Motorola S-record file]	Select whether to output a specified data record regardless of the address range. This property corresponds to the -RECord option of the rlink command. This property is displayed only when [Motorola S-record file(-FOrm=Stype)] in the [Hex file format] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(S1 record)(-REcord=S1)	Outputs the S1 record.
		Yes(S2 record)(-REcord=S2)	Outputs the S2 record.
		Yes(S3 record)(-REcord=S3)	Outputs the S3 record.
		No	Outputs various data records according to each address.
Fill unused areas in the output ranges with the value	Select whether to fill the vacant area of the output range with data. This property corresponds to the -SPace option of the rlink command. This property is displayed in any one of the following cases. - When a file is specified in the [Division output file] property in the [Output File] category. - When [Yes(-FIX_RECORD_LENGTH_AND_ALIGN)] in the [Output hex file with fixed record length from aligned start address] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(Random)(-SPace=Random)	Fills the vacant area with random numbers.
		Yes(Specification value)(-SPace=<Numerical value>)	Fills the vacant area with the specified hexadecimal value.
		No	Does not fill the vacant area.

Output padding data	Specify the hexadecimal value to fill the vacant area. This property corresponds to the -SPace option of the rlink command. This property is displayed only when [Yes(Specification value)(-SPace=<Numerical value>)] in the [Fill unused areas in the output ranges with the value] property is selected.		
	Default	FF	
	How to change	Directly enter in the text box.	
	Restriction	0 to FFFFFFFF (hexadecimal number)	
Output hex file with fixed record length from aligned start address	Select whether to output the hex file with the fixed record length from an aligned start address. This property corresponds to the -FIX_RECORD_LENGTH_AND_ALIGN of the rlink command. This property is displayed only in the following cases. - When [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RL compiler has been installed - When other than [Binary file(-FOrm=Binary)] in the [Hex file format] property is selected		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-FIX_RECORD_LENGTH_AND_ALIGN)	Outputs the hex file with the fixed record length from an aligned start address.
		No	Does not output the hex file with the fixed record length from an aligned start address.
Alignment of start address	Specify the alignment of the start address. You can enter 1 or a greater value for the alignment. This property corresponds to the -FIX_RECORD_LENGTH_AND_ALIGN option of the rlink command. This property is displayed only when [Yes(-FIX_RECORD_LENGTH_AND_ALIGN)] in the [Output hex file with fixed record length from aligned start address] property is selected.		
	Default	1	
	How to change	Directly enter to the text box.	
	Restriction	1 or a greater Hexadecimal number	

<table>
<tr><td>Specify byte count for data record</td><td colspan="3">Select whether to specify the maximum byte count for a data record.
This property corresponds to the -BYte_count option of the rlink command.
This property is displayed only in either of the following cases.
- When [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RL compiler has been installed
- When other than [Binary file(-FOrm=Binary)] in the [Hex file format] property is selected
- Other than above
- When [Intel HEX file(-FOrm=Hexadecimal)] in the [Hex file format] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="2">Restriction</td><td>Yes(-BYte_count)</td><td>Specifies the maximum byte count for a data record.</td></tr>
<tr><td></td><td>No</td><td>Specifies 0xFF as the maximum byte count for a data record.</td></tr>
<tr><td>Maximum byte count for data record</td><td colspan="3">Specify the maximum byte count for a data record.
This property corresponds to the -BYte_count option of the rlink command.
This property is displayed only when [Yes(-BYte_count)] in the [Specify byte count for data record] property is selected.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">- When [Intel HEX file(-FOrm=Hexadecimal)] in the [Hex file format] property is selected
FF
- When [Motorola S-record file(-FOrm=Stype)] in the [Hex file format] property is selected
10</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Directly enter to the text box.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">1 to FF (hexadecimal number)</td></tr>
</table>

Specify end record	Select the end record of the Motorola S-record file. This property corresponds to the -END_RECORD option of the rlink command. This property is displayed in the following cases. - When [Always latest version which was installed] or V1.05.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.05.00 or a later version of the CC-RL compiler has been installed - When [Motorola S-record file(-FOrm=Stype)] in the [Hex file format] property is selected		
	Default	Not specify(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	S7(-END_RECORD=S7)	Outputs the end record as a 32-bit S-record file.
		S8(-END_RECORD=S8)	Outputs the end record as a 24-bit S-record file.
		S9(-END_RECORD=S9)	Outputs the end record as a 16-bit S-record file.
		Not specify(No option specified)	Outputs the end record to suit the address of the entry point.
Output S9 record at the end	Select whether to output the S9 record at the end. This property corresponds to the -S9 option of the rlink command. This property is displayed only when [Motorola S-record file(-FOrm=Stype)] in the [Hex file format] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-S9)	Outputs the S9 record at the end.
		No	Does not output the S9 record at the end.

(3) [CRC Operation]
The detailed information on CRC operation is displayed and the configuration can be changed.
This category is displayed in any one of the following cases.

- When other than [Binary file(-FOrm=Binary)] is selected in the [Hex file format] property in the [Hex Format] category
- When [Always latest version which was installed] or V1.07.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RL compiler has been installed

CRC operations	Show and set the settings of one or more CRC operations. This property corresponds to the -CRc option of the rlink command. This property is displayed only when [Always latest version which was installed] or V1.12.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.12.00 or a later version of the CC-RL compiler has been installed When versions of CC-RL are earlier than V1.12.00, the existing -CRc-related properties are displayed. Note If a project in which two or more -CRc options have been specified is opened and saved in CS+ V8.09.00 or a previous version, the settings of the second and subsequent -CRc options will be deleted.		
	Default	CRC operations[*number of defined items*]	
	How to change	Edit by the CRC Operations dialog box which appears when clicking the [...] button.	
Outputs the calculation result of CRC	Select whether to perform the CRC (Cyclic Redundancy Check) operation. This property corresponds to the -CRc option of the rlink command. This property is displayed when [Always latest version which was installed] or a version number earlier than V1.12.00 is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where a version of the CC-RL compiler earlier than V1.12.00 has been installed.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-CRc)	The CRC operation is performed on the hex-format objects in the specified range, from low address to high address, and the results of the operation are output to the specified address.
		No	The CRC operation and outputting the result are not performed.
Output address	Specify the address that the result of the CRC operation is output in hexadecimal without 0x (example: FFF00). Be sure to specify this property. This property corresponds to the -CRc option of the rlink command. This property is displayed in the following cases. - When [Always latest version which was installed] or a version number earlier than V1.12.00 is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where a version of the CC-RL compiler earlier than V1.12.00 has been installed - When [Yes(-CRc)] in the [Outputs the calculation result of CRC] property is selected		
	Default	0	
	How to change	Directly enter in the text box.	
	Restriction	0 to FFFFF (hexadecimal number)	

<table>
<tr><td>Target range</td><td colspan="2">Specify the CRC calculation range in the format of "start address - end address" or "section name". However, "section name" can be specified in only CC-RL V1.02.00 or higher version.
Specify the address in hexadecimal without 0x.
The range of specifiable address values is 0 to FFFFF.
This property corresponds to the -CRc option of the rlink command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or a version number earlier than V1.12.00 is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where a version of the CC-RL compiler earlier than V1.12.00 has been installed
- When [Yes(-CRc)] in the [Outputs the calculation result of CRC] property is selected</td></tr>
<tr><td></td><td>Default</td><td>Blank</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 32767 characters
Up to 65535 items can be specified.</td></tr>
</table>

<table>
<tr><td>Type of CRC</td><td colspan="3">Select the method of CRC operation.
See the user's manual of the device and "CC-RL Compiler User's Manual" for details about each operation.
[CRC-CCITT(MSB,LITTLE,4 bytes) type] corresponds to [CRC-CCITT(MSB) type] in CS+ V3.01.00.
This property corresponds to the -CRc option of the rlink command.
See [Remark] for the correspondence with the [Type of CRC] property of CA78K0R.
This property is displayed in the following cases.
- When [Always latest version which was installed] or a version number earlier than V1.12.00 is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where a version of the CC-RL compiler earlier than V1.12.00 has been installed
- When [Yes(-CRc)] in the [Outputs the calculation result of CRC] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">CRC-CCITT(MSB,LITTLE,4 bytes) type (High-speed CRC)</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="9">Restriction</td><td>CRC-CCITT(MSB,LITTLE,4 bytes) type (High-speed CRC)</td><td>Outputs the calculation result of CRC-16-CCITT-MSB first operation with the input specified as 4-byte units in little-endian mode.</td></tr>
<tr><td>SENT(MSB) type (General-purpose CRC(SENT))</td><td>Outputs the calculation result of operation conforming to SENT.</td></tr>
<tr><td>CRC-CCITT(LSB) type (General-purpose CRC)</td><td>Outputs the calculation result of CRC-16-CCITT-LSB first operation.</td></tr>
<tr><td>CCITT type</td><td>Outputs the calculation result of CRC-16-CCITT-MSB first operation with an initial value of 0xffff and inverse of XOR.</td></tr>
<tr><td>CRC-CCITT(MSB) type</td><td>Outputs the calculation result of CRC-16-CCITT-MSB first operation.</td></tr>
<tr><td>CRC-CCITT(MSB,LITTLE,2 bytes) type</td><td>Outputs the calculation result of CRC-16-CCITT-MSB first operation with the input specified as 2-byte units in little-endian mode.</td></tr>
<tr><td>16</td><td>Outputs the calculation result of CRC-16-LSB first operation.</td></tr>
<tr><td>32-ETHERNET type</td><td>Outputs the calculation result of CRC-32-ETHERNET operation.</td></tr>
</table>

Initial value	Specify the initial value for the CRC operation in the format of "*initial value*". This property corresponds to the -CRc option of the rlink command. This property is displayed in the following cases. - When [Always latest version which was installed] or a version number earlier than V1.12.00 is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where a version of the CC-RL compiler earlier than V1.12.00 has been installed - When [Yes(-CRc)] in the [Outputs the calculation result of CRC] property is selected		
	Default	Blank	
	How to change	Directly enter to the text box.	
	Restriction	- When other than [32-ETHERNET type] is selected in the [Type of CRC] property 0 to FFFF (hexadecimal number) - When [32-ETHERNET type] is selected in the [Type of CRC] property 0 to FFFFFFFF (hexadecimal number)	
Endian	Select the endian for CRC output. This property corresponds to the -CRc option of the rlink command. This property is displayed in the following cases. - When [Always latest version which was installed] or a version number earlier than V1.12.00 is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where a version of the CC-RL compiler earlier than V1.12.00 has been installed - When [Yes(-CRc)] in the [Outputs the calculation result of CRC] property is selected		
	Default	Little endian	
	How to change	Select from the drop-down list.	
	Restriction	Little endian	Outputs the value in little-endian mode.
		Big endian	Outputs the value in big-endian mode.
Output size	Specify the output size for the CRC code. This property corresponds to the -CRc option of the rlink command. This property is displayed in the following cases. - When [Always latest version which was installed] or a version number earlier than V1.12.00 is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where a version of the CC-RL compiler earlier than V1.12.00 has been installed - When [Yes(-CRc)] in the [Outputs the calculation result of CRC] property is selected		
	Default	Blank	
	How to change	Directly enter to the text box.	
	Restriction	2, 4, or blank	

Displays the result of CRC calculation and output address	Select whether to display the results of CRC calculation and the output address in the Output panel. This property corresponds to the -VERBOSE option of the rlink command. This property is displayed in the following cases. - When [Always latest version which was installed] or V1.12.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.12.00 or a later version of the CC-RL compiler has been installed - When [Always latest version which was installed] or V1.10.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.10.00 or a later version of the CC-RL compiler has been installed and, when [Yes(-CRc)] in the [Outputs the calculation result of CRC] property is selected		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-VERBOSE=CRC)	Displays the results of CRC calculation and the output address.
		No	Does not display the results of CRC calculation and the output address.

Remark The correspondence between the [Type of CRC] property of CA78K0R and the [Type of CRC] property of CC-RL is as follows.

CA78K0R	CC-RL
High-speed CRC(CRC-16-CCITT)	CRC-CCITT(MSB,LITTLE,4 bytes) type (High-speed CRC)
High-speed CRC(SENT)	SENT(MSB) type (General-purpose CRC(SENT))
General-purpose CRC	CRC-CCITT(LSB) type (General-purpose CRC)

(4) [Verify]
The detailed information on verification is displayed and the configuration can be changed.
This category is displayed in the following cases.

- When other than [Binary file(-FOrm=Binary)] is selected in the [Hex file format] property in the [Hex Format] category
- When [Always latest version which was installed] or V1.07.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RL compiler has been installed

Check that output address is in internal ROM and data flash	Select whether to check that the output address is in the internal ROM and data flash. This property corresponds to the -CHECK_OUTPUT_ROM_AREA option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-CHECK_OUTPUT_ROM_AREA)	Checks that the output address is in the internal ROM and data flash.
		No	Does not check that the output address is in the internal ROM and data flash.

(5) [Message]
The detailed information on messages is displayed and the configuration can be changed.
This category is displayed only when [Yes] in the [Output hex file] property in the [Output File] category is selected.

Use same message-related settings as Link Options tab	Select whether to make the message-related settings the same as those of the [Link Options] tab.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Makes the message-related settings the same as those of the [Link Options] tab.
		No	Makes the message-related settings in the property of the [Hex Output Options].
Enable information message output	Select whether to enable the output of information messages. This property corresponds to the -Message and -NOMessage options of the rlink command. This property is displayed only when [No] in the [Use same message-related settings as Link Options tab] property is selected.		
	Default	No(-NOMessage)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Message)	Outputs information messages.
		No(-NOMessage)	Suppresses the output of information messages.
Suppress number of information message	Specify the number of the information message of which output is to be suppressed. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This property corresponds to the -NOMessage option of the rlink command. This property is displayed only when [No] in the [Use same message-related settings as Link Options tab] property is selected and when [No(-NOMessage)] in the [Enable information message output] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	

Change warning and error message to information message	Select whether to change the type of warning and error messages to information. This property corresponds to the -CHange_message option of the rlink command. This property is displayed only when [No] in the [Use same message-related settings as Link Options tab] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-CHange_message=Information)	Changes the type of all warning and error messages to information.
		Yes(Specify message number)(-CHange_message=Information=<Message number>)	Specifies the number of warning and error message of which type is to be changed to information.
		No	Does not change the type of warning and error messages.
Number of warning and error message	Specify the number of the warning and error message. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This property corresponds to the -CHange_message option of the rlink command. This property is displayed only when [No] in the [Use same message-related settings as Link Options tab] property is selected and when [Yes(Specify message number)(-CHange_message=Information=<Message number>)] in the [Change warning and error message to information message] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	
Change information and error message to warning message	Select whether to change the type of information and error messages to warning. This property corresponds to the -CHange_message option of the rlink command. This property is displayed only when [No] in the [Use same message-related settings as Link Options tab] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-CHange_message=Warning)	Changes the type of all information and error messages to warning.
		Yes(Specify message number)(-CHange_message=Warning=<Message number>)	Specifies the number of information and error message of which type is to be changed to warning.
		No	Does not change the type of information and error messages.

Number of information and error message	Specify the number of the information and error message. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This property corresponds to the -CHange_message option of the rlink command. This property is displayed only when [No] in the [Use same message-related settings as Link Options tab] property is selected and when [Yes(Specify message number)(-CHange_message=Warning=<Message number>)] in the [Change information and error message to warning message] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	
Change information and warning message to error message	Select whether to change the type of information and warning messages to error. This property corresponds to the -CHange_message option of the rlink command. This property is displayed only when [No] in the [Use same message-related settings as Link Options tab] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-CHange_message=Error)	Changes the type of all information and warning messages to error.
		Yes(Specify message number)(-CHange_message=Error=<Message number>)	Specifies the number of information and warning message of which type is to be changed to error.
		No	Does not change the type of information and warning messages.
Number of information and warning message	Specify the number of the information and warning message. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This property corresponds to the -CHange_message option of the rlink command. This property is displayed only when [No] in the [Use same message-related settings as Link Options tab] property is selected and when [Yes(Specify message number)(-CHange_message=Error=<Message number>)] in the [Change information and warning message to error message] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	

(6) [Others]
Other detailed information on the hex output is displayed and the configuration can be changed.
This category is displayed only when [Yes] in the [Output hex file] property in the [Output File] category is selected.

Other additional options	Input the hex output options to be added additionally. The options set here are added at the end of the hex output options group.	
	Default	Blank
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters

[Create Library Options] tab

This tab shows the detailed information on the create library phase categorized by the following and the configuration can be changed.

Caution This tab is displayed for the library project.

[Description of each category]

(1) [Debug Information]
The detailed information on debug information is displayed and the configuration can be changed.

Output debug information	Select whether to output debug information. This property corresponds to the -DEBug and -NODEBug options of the rlink command. This property is displayed only when [Relocatable file(-FOrm=Relocate)] in the [Output file format] property in the [Output File] category.		
	Default	Yes(Output to the output file)(-DEBug)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(Output to the output file)(-DEBug)	Outputs debug information.
		No	Does not output debug information.
Delete local symbol name information	Select whether to delete local symbol name information. This property corresponds to the -Hide option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Hide)	Deletes information of the local symbol name.
		No	Does not delete information of the local symbol name.

(2) [Input File]
The detailed information on input files is displayed and the configuration can be changed.

<table>
<tr><td>Object file</td><td colspan="2">Specify the object files.
Specify in the format of "library(module)", with one entry name per line.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
This property corresponds to the -Input option of the rlink command.
The object file name is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>Object file[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 1024 characters
Up to 256 items can be specified.</td></tr>
<tr><td>Binary file</td><td colspan="2">Specify the binary files.
Specify in the format of "file name(section name[:number of alignment][/section attribute][,symbol name])", with one entry per line.
[:number of alignment], [/section attribute], and [,symbol name] can be omitted.
The value that can be specified for number of alignment is 1, 2, 4, 8, 16, or 32.
If the specification is omitted, it is assumed that 1 has been specified.
"CODE" or "DATA" can be specified as section attribute.
If the specification is omitted, all attributes such as the ability to write, read, and execute, will be all valid.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
This property corresponds to the -Binary option of the rlink command.
The binary file name is displayed as the subproperty.
This property is displayed only when [Relocatable file(-FOrm=Relocate)] in the [Output file format] property in the [Output File] category.</td></tr>
<tr><td></td><td>Default</td><td>Binary file[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 1024 characters
Up to 256 items can be specified.</td></tr>
</table>

(3) [Output File]

The detailed information on output files is displayed and the configuration can be changed.

Output file format	Select the format of the output file. This property corresponds to the -FOrm option of the rlink command.		
	Default	User libraries(-FOrm=Library=U)	
	How to change	Select from the drop-down list.	
	Restriction	User libraries(-FOrm=Library=U)	Outputs a user library file.
		System libraries(-FOrm=Library=S)	Outputs a system library file.
		Relocatable file(-FOrm=Relocate)	Outputs a relocatable file.
Output folder	Specify the output folder. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. If this is blank, it is assumed that the project folder has been specified. This property corresponds to the -OUtput option of the rlink command.		
	Default	%BuildModeName%	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	
Output file name	Specify the output file name. If the extension is omitted, it is automatically added according to the selection in the [Output file format] property. When [User libraries(-FOrm=Library=U)] is selected: .lib When [System libraries(-FOrm=Library=S)] is selected: .lib When [Relocatable file(-FOrm=Relocate)] is selected: .rel The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. This property corresponds to the -OUtput option of the rlink command.		
	Default	%ProjectName%.lib	
	How to change	Directly enter in the text box.	
	Restriction	Up to 259 characters	

(4) [Library]
The detailed information on the library is displayed and the configuration can be changed.

<table>
<tr><td>Using libraries</td><td colspan="3">Specify the library files to be used.
If a relative path is specified, the reference point of the path is the main project or subproject folder.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
This property corresponds to the -LIBrary option of the rlink command.
The library file name is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Using libraries[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Edit by the Path Edit dialog box which appears when clicking the [...] button.
-> Edit by the Specify Using Library File dialog box which appears when clicking the [Browse...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">Up to 259 characters
Up to 65536 items can be specified.</td></tr>
<tr><td>System libraries</td><td colspan="3">The system library files are displayed.
For the relative path, the reference point of the path is the main project or subproject folder.
This property corresponds to the -LIBrary option of the rlink command.
The system library file name is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">System libraries[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Changes not allowed</td></tr>
<tr><td>Use standard/mathematical libraries</td><td colspan="3">Select whether to use the standard/mathematical libraries provided by the compiler.
This property corresponds to the -LIBrary option of the rlink command.
[Yes(Library for C99)] is displayed when [Always latest version which was installed] or V1.07.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.07.00 or a later version of the CC-RL compiler has been installed.
[Yes(Library for C++)] is displayed when [Always latest version which was installed] or V1.12.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.12.00 or a later version of the CC-RL compiler has been installed.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="4">Restriction</td><td>Yes(Library for C90)</td><td>Uses the standard/mathematical librariesfor C90.</td></tr>
<tr><td></td><td>Yes(Library for C99)</td><td>Uses the standard/mathematical librariesfor C99.</td></tr>
<tr><td></td><td>Yes(Library for C++)</td><td>Uses the standard/mathematical librariesfor C++.</td></tr>
<tr><td></td><td>No</td><td>Does not use the standard/mathematical libraries.</td></tr>
</table>

<table>
<tr><td>Check memory smashing on releasing memory</td><td colspan="3">Select whether to check memory smashing on releasing the memory.
This property is usable only in the Professional Edition.
The user-defined __heap_chk_fail() function is called if an illegal address has been specified or an address outside the allocated memory area has been written to when the memory that was dynamically allocated by malloc or another function is released or re-allocated by this function. See "CC-RL Compiler User's Manual" for details.
This property corresponds to the -LIBrary option of the rlink command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] or V1.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.03.00 or a later version of the CC-RL compiler has been installed
- When [Yes] in the [Use standard/mathematical libraries] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="2">Restriction</td><td>Yes</td><td>Checks memory smashing on releasing the memory.</td></tr>
<tr><td></td><td>No</td><td>Does not check memory smashing on releasing the memory.</td></tr>
<tr><td>Use runtime libraries</td><td colspan="3">Select whether to use the runtime libraries provided by the compiler.
This property corresponds to the -LIBrary option of the rlink command.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="2">Restriction</td><td>Yes</td><td>Uses the runtime libraries.</td></tr>
<tr><td></td><td>No</td><td>Does not use the runtime libraries.</td></tr>
<tr><td>Allow duplicate module names</td><td colspan="3">Select whether to allow the specification of input files having the same module names during the generation of a library.
This property corresponds to the -ALLOW_DUPLICATE_MODULE_NAME option of the rlink command.
This property is displayed when [Always latest version which was installed] or V1.09.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.09.00 or a later version of the CC-RL compiler has been installed.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="2">Restriction</td><td>Yes (-ALLOW_DUPLICATE_MODULE_NAME)</td><td>Allows duplicate module names.</td></tr>
<tr><td></td><td>No</td><td>Does not allow duplicate module names.</td></tr>
</table>

(5) [List]
The detailed information on the list is displayed and the configuration can be changed.

Output link map file	Select whether to output the library list file. This property corresponds to the -LISt and -SHow options of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(List contents=not specify)(-LISt -SHow)	Outputs information according to the output format to the library list file.
		Yes(List contents=ALL)(-LISt -SHow=ALL)	Outputs all information according to the output format to the library list file.
		Yes(List contents=specify)(-LISt)	Outputs the specified information to the library list file.
		No	Does not output the library list file.
Output file name	Specify the name of the link map file. If the extension is omitted, it is automatically added according to the selection in the [Output file format] property in the [Output File] category. When [User libraries(-FOrm=Library=U)] is selected: .lbp When [System libraries(-FOrm=Library=S)] is selected: .lbp When [Relocatable file(-FOrm=Relocate)] is selected: .map The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. This property corresponds to the -LISt option of the rlink command. This property is displayed when other than [No] in the [Output link map file] property is selected.		
	Default	%ProjectName%.lbp	
	How to change	Directly enter in the text box.	
	Restriction	Up to 259 characters	
Output symbol information	Select whether to output the symbol information (symbol names within a module). This property corresponds to the -SHow=SYmbol option of the rlink command. This property is displayed only when [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-SHow=SYmbol)	Outputs the symbol information.
		No	Does not output the symbol information.

Output section list in a module	Select whether to output the list of the section names within the module. This property corresponds to the -SHow=SEction option of the rlink command. This property is displayed only when [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected and [User libraries(-FOrm=Library=U)] or [System libraries(-FOrm=Library=S)] in the [Output file format] property in the [Output File] category is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-SHow=SEction)	Outputs the list of the section names within the module.
		No	Does not output the list of the section names within the module.
Output cross reference information	Select whether to output the cross reference information. This property corresponds to the -SHow=XReference option of the rlink command. This property is displayed only when [Yes(List contents=specify)(-LISt)] in the [Output link map file] property and [Relocatable file(-FOrm=Relocate)] in the [Output file format] property in the [Output File] category are selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-SHow=Xreference)	Outputs the cross reference information.
		No	Does not output the cross reference information.
Output total sizes of sections	Select whether to output the total size of sections. This property corresponds to the -SHow=Total_size option of the rlink command. This property is displayed only when [Yes(List contents=specify)(-LISt)] in the [Output link map file] property and [Relocatable file(-FOrm=Relocate)] in the [Output file format] property in the [Output File] category are selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-SHow=Total_size)	Outputs the total sizes of sections separately for ROM-allocated sections and RAM-allocated sections.
		No	Does not output the total size of sections.

(6) [Message]
The detailed information on messages is displayed and the configuration can be changed.

Enable information message output	Select whether to enable the output of information messages. This property corresponds to the -Message and -NOMessage options of the rlink command.		
	Default	No(-NOMessage)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Message)	Outputs information messages.
		No(-NOMessage)	Suppresses the output of information messages.
Suppress number of information message	Specify the number of the information message of which output is to be suppressed. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This property corresponds to the -NOMessage option of the rlink command. This property is displayed when [No(-NOMessage)] in the [Enable information message output] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	
Change warning and error message to information message	Select whether to change the type of warning and error messages to information. This property corresponds to the -CHange_message option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-CHange_message=Information)	Changes the type of all warning and error messages to information.
		Yes(Specify message number)(-CHange_message=Information=<Message number>)	Specifies the number of warning and error message of which type is to be changed to information.
		No	Does not change the type of warning and error messages.
Number of warning and error message	Specify the number of the warning and error message. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This property corresponds to the -CHange_message option of the rlink command. This property is displayed only when [Yes(Specify message number)(-CHange_message=Information=<Message number>)] in the [Change warning and error message to information message] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	

Change information and error message to warning message	Select whether to change the type of information and error messages to warning. This property corresponds to the -CHange_message option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-CHange_message=Warning)	Changes the type of all information and error messages to warning.
		Yes(Specify message number)(-CHange_message=Warning=<Message number>)	Specifies the number of information and error message of which type is to be changed to warning.
		No	Does not change the type of information and error messages.
Number of information and error message	Specify the number of the information and error message. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This property corresponds to the -CHange_message option of the rlink command. This property is displayed only when [Yes(Specify message number)(-CHange_message=Warning=<Message number>)] in the [Change information and error message to warning message] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	
Change information and warning message to error message	Select whether to change the type of information and warning messages to error. This property corresponds to the -CHange_message option of the rlink command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-CHange_message=Error)	Changes the type of all information and warning messages to error.
		Yes(Specify message number)(-CHange_message=Error=<Message number>)	Specifies the number of information and warning message of which type is to be changed to error.
		No	Does not change the type of information and warning messages.

Number of information and warning message	Specify the number of the information and warning message. If multiple message numbers are specified, delimit them with "," (comma) (example: 4,200). Also, a range of message numbers can be specified using "-" (hyphen) (example:4,200-203,1300). This property corresponds to the -CHange_message option of the rlink command. This property is displayed only when [Yes(Specify message number)(-CHange_message=Error=<Message number>)] in the [Change information and warning message to error message] property is selected.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 2048 characters	

(7) [Others]
Other detailed information on creating a library is displayed and the configuration can be changed.

Reduce memory occupancy	Select whether to reduce the memory usage. This property corresponds to the -MEMory option of the rlink command. This property is displayed only in the following cases. - When [No] in the [Delete local symbol name information] property in the [Debug Information] category is selected - When [User libraries(-FOrm=Library=U)] or [System libraries(-FOrm=Library=S)] in the [Output file format] property in the [Output File] category is selected		
	Default	No(-MEMory=High)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-MEMory=Low)	Reduces the memory usage. Select this item if processing is slow because a large project is linked and the memory size occupied by the linker exceeds the available memory in the machine used.
		No(-MEMory=High)	Executes the same processing as usual.
Display total size of sections	Select whether to display the total size of sections after the linking. This property corresponds to the -Total_size option of the rlink command. This property is displayed only when [Relocatable file(-FOrm=Relocate)] in the [Output file format] property in the [Output File] category.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Total_size)	Displays the total size of sections after the linking.
		No	Does not display the total size of sections after the linki4ng.

<table>
<tr><td rowspan="4">Display copyright information</td><td colspan="3">Select whether to display copyright information.
This property corresponds to the -LOgo and -NOLOgo options of the rlink command.</td></tr>
<tr><td>Default</td><td colspan="2">No(-NOLOgo)</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="2">Restriction</td><td>Yes</td><td>Displays copyright information.</td></tr>
<tr><td>No(-NOLOgo)</td><td>Suppresses the output of copyright information.</td></tr>
<tr><td rowspan="4">Commands executed before create library processing</td><td colspan="3">Specify the command to be executed before library generation processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%LibraryFile%: Replaces with the absolute path of the output file under the library generation processing.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed before library generation processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.
This property is displayed only when [No] in the [Build simultaneously] property in the [Build Method] category from the [Common Options] tab is selected.</td></tr>
<tr><td>Default</td><td colspan="2">Commands executed before library generate processing[number of defined items]</td></tr>
<tr><td>How to change</td><td colspan="2">Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td colspan="2">Up to 1023 characters
Up to 64 items can be specified.</td></tr>
</table>

<table>
<tr><td rowspan="4">Commands executed after create library processing</td><td colspan="2">Specify the command to be executed after library generation processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%LibraryFile%: Replaces with the absolute path of the output file under the library generation processing.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed after library generation processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.
This property is displayed only when [No] in the [Build simultaneously] property in the [Build Method] category from the [Common Options] tab is selected.</td></tr>
<tr><td>Default</td><td>Commands executed after library generate processing[number of defined items]</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
<tr><td rowspan="4">Other additional options</td><td colspan="2">Input the create library options to be added additionally.
The options set here are added at the end of the create library options group.</td></tr>
<tr><td>Default</td><td>Blank</td></tr>
<tr><td>How to change</td><td>Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.</td></tr>
<tr><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

[Standard Library Generate Options] tab

This tab shows the detailed information on the library generate phase to generate standard library categorized by the following and the configuration can be changed.

(1)[Standard Library]
(2)[Optimization]
(3)[Optimization(Details)]
(4)[Output Code]
(5)[Others]

Caution This tab is displayed in the following cases

- When the project is other than library project.
- When [Always latest version which was installed] or V1.13.00 or a later version for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.13.00 or a later version of the CC-RL compiler has been installed

[Description of each category]

(1) [Standard Library]
The detailed information on standard library are displayed and the configuration can be changed.

<table>
<tr><td rowspan="5">Generate C standard library with Library Generator</td><td colspan="3">Select whether to generate C standard library with Library Generator.</td></tr>
<tr><td>Default</td><td colspan="2">- When the project is created as other than the [C++ Application(CC-RL)]
Yes(Only when options have been changed)
- When the project is created as [C++ Application(CC-RL)]
No</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="3">Restriction</td><td>Yes(Every time generate)</td><td>Generates C standard library with Library Generator at every time of building</td></tr>
<tr><td>Yes(Only when options have been changed)</td><td>Generates C standard library with Library Generator only when build after options have been changed</td></tr>
<tr><td>No</td><td>Does not generates C standard library with Library Generator</td></tr>
</table>

<table>
<tr><td>Output folder</td><td colspan="3">Specify path of the output folder.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
If a relative path is specified, the reference point of the path is the project folder.
This property corresponds to the -output option of the lbgrl command.
This property is displayed only when other than [No] in the [Generate C standard library with Library Generator] property is selected.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">%BuildModeName%</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">Up to 247 characters</td></tr>
<tr><td>Output file name</td><td colspan="3">Specify the output file name.
The following placeholders are supported.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectName%: Replaces with the main project name.
%ProjectName%: Replaces with the project name.
This property corresponds to the -output option of the lbgrl command.
This property is displayed only when other than [No] in the [Generate C standard library with Library Generator] property is selected.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">%ProjectName%.lib</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Directly enter to the text box.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">Up to 259 characters</td></tr>
<tr><td>Library configuration</td><td colspan="3">Select the library configuration
This property corresponds to the -lang option of the lbgrl command.
This property is displayed only when other than [No] in the [Generate C standard library with Library Generator] property is selected.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Apply compiler option setting</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="3">Restriction</td><td>Apply compiler option setting</td><td>Applies the value of [Language of the C source file] property in the [Compile Options] tab.</td></tr>
<tr><td></td><td>C90(No option specified)</td><td>The C standard library is configured only with functions that are compliant with C90.</td></tr>
<tr><td></td><td>C90 and C99(-lang=c99)</td><td>The C standard library is configured with functions that are compliant with C90 and C99.</td></tr>
</table>

Check memory smashing on releasing memory	Select whether to check memory smashing on releasing the memory. This property is usable only in the Professional Edition. The user-defined __heap_chk_fail() function is called if an illegal address has been specified or an address outside the allocated memory area has been written to when the memory that was dynamically allocated by malloc or another function is released or re-allocated by this function. See "CC-RL Compiler User's Manual" for details. This property corresponds to the -secure_malloc option of the lbgrl command. This property is displayed only when other than [No] in the [Generate C standard library with Library Generator] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-secure_malloc)	Checks memory smashing on releasing the memory.
		No	Does not check memory smashing on releasing the memory.
Library to be built	Select the library to be built. This property corresponds to the -head option of the lbgrl command. This property is displayed only when other than [No] in the [Generate C standard library with Library Generator] property is selected.		
	Default	All(-head=all)	
	How to change	Select from the drop-down list.	
	Restriction	All(-head=all)	Specifies all library functions and runtime library.
		Custom(-head=<SubOption>)	Specifies a configuration library.
runtime: Runtime routines	Select whether to enable runtime routines. This property corresponds to the -head option of the lbgrl command. This property is displayed in the following cases. - When other than [No] in the [Generate C standard library with Library Generator] property is selected - When [Custom(-head=<SubOption>)] in the [Library to be built] property is selected		
	Default	Yes (-head=runtime)	
	How to change	Changes not allowed	
	Restriction	Yes (-head=runtime)	Enables the runtime routines.

ctype.h: Functions used for character classification	Select whether to enable ctype.h: functions used for character classification. This property corresponds to the -head option of the lbgrl command. This property is displayed in the following cases. - When other than [No] in the [Generate C standard library with Library Generator] property is selected - When [Custom(-head=<SubOption>)] in the [Library to be built] property is selected		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes (-head=ctype)	Enables functions used for character classification.
		No	Disables functions used for character classification.
math.h: Double-precision floating-point math functions	Select whether to enable math.h: double-precision floating-point math functions. This property corresponds to the -head option of the lbgrl command. This property is displayed in the following cases. - When other than [No] in the [Generate C standard library with Library Generator] property is selected - When [Custom(-head=<SubOption>)] in the [Library to be built] property is selected		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes (-head=math)	Enables double-precision floating-point math functions.
		No	Disables double-precision floating-point math functions.
mathf.h: Single-precision floating-point math functions	Select whether to enable mathf.h: single-precision floating-point math functions. This property corresponds to the -head option of the lbgrl command. This property is displayed in the following cases. - When other than [No] in the [Generate C standard library with Library Generator] property is selected - When [Custom(-head=<SubOption>)] in the [Library to be built] property is selected		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes (-head=mathf)	Enables single-precision floating-point math functions.
		No	Disables single-precision floating-point math functions.

<table>
<tr><td>stdio.h: Stream input/ output functions</td><td colspan="3">Select whether to enable stdio.h: stream input/output functions.
This property corresponds to the -head option of the lbgrl command.
This property is displayed in the following cases.
- When other than [No] in the [Generate C standard library with Library Generator] property is selected
- When [Custom(-head=<SubOption>)] in the [Library to be built] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="2">Restriction</td><td>Yes (-head=stdio)</td><td>Enables stream input/output functions.</td></tr>
<tr><td></td><td>No</td><td>Disables stream input/output functions.</td></tr>
<tr><td>stdlib.h: General utility functions</td><td colspan="3">Select whether to enable stdlib.h: general utility functions.
This property corresponds to the -head option of the lbgrl command.
This property is displayed in the following cases.
- When other than [No] in the [Generate C standard library with Library Generator] property is selected
- When [Custom(-head=<SubOption>)] in the [Library to be built] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="2">Restriction</td><td>Yes (-head=stdlib)</td><td>Enables general utility functions.</td></tr>
<tr><td></td><td>No</td><td>Disables general utility functions.</td></tr>
<tr><td>string.h: String operation functions</td><td colspan="3">Select whether to enable string.h: string operation functions.
This property corresponds to the -head option of the lbgrl command.
This property is displayed in the following cases.
- When other than [No] in the [Generate C standard library with Library Generator] property is selected
- When [Custom(-head=<SubOption>)] in the [Library to be built] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">No</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="2">Restriction</td><td>Yes (-head=string)</td><td>Enables string operation functions.</td></tr>
<tr><td></td><td>No</td><td>Disables string operation functions.</td></tr>
</table>

inttypes.h: C99 integer type format operation functions	Select whether to enable inttypes.h: C99 integer type format operation functions. This property corresponds to the -head option of the lbgrl command. This property is displayed in the following cases. - When other than [No] in the [Generate C standard library with Library Generator] property is selected - When [Custom(-head=<SubOption>)] in the [Library to be built] property is selected - Any one of the conditions below - When [C90 and C99(-lang=c99)] in the [Library configuration] property is selected - When [Apply compiler option setting] in the [Library configuration] property is selected and [C99(-lang=c99)] in the [Standard of C language] property in the [Compile Options] tab is selected		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes (-head=inttypes)	Enables C99 integer type format operation functions.
		No	Disables C99 integer type format operation functions.

(2) [Optimization]
The detailed information on the optimization is displayed and the configuration can be changed.
This category is displayed when other than [No] in the [Generate C standard library with Library Generator] property in the [Standard Library] category is selected.

Apply optimization option settings of compiler	Select whether to apply optimization option settings in the [Compile Options] tab.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Applies optimization option settings in the [Compile Options] tab.
		No	Does not apply optimization option settings in the [Compile Options] tab.

Level of optimization	Select the level of the optimization. This property corresponds to the -optimize option of the lbgrl command. This property is displayed only when [No] in the [Apply optimization option settings of compiler] property is selected.		
	Default	Perform the default optimization(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	Perform the default optimization(No option specified)	Performs optimization that is effective for both the object size and execution speed.
		Code size precedence(-Osize)	Performs optimization with the object size precedence. Regards reducing the ROM/RAM usage as important and performs the maximum optimization that is effective for general programs.
		Speed precedence(-Ospeed)	Performs optimization with the execution speed precedence. Regards shortening the execution speed as important and performs the maximum optimization that is effective for general programs.
		Partial optimization(-Olite)	Performs partial optimization that will not strongly affect the debug functions.
		Debug precedence(-Onothing)	Performs optimization with the debug precedence. Regards debugging as important and suppresses all optimization including default optimization.

(3) [Optimization(Details)]
The detailed information on the optimization is displayed and the configuration can be changed.
This category is displayed in following cases.

- When other than [No] in the [Generate C standard library with Library Generator] property in the [Standard Library] category is selected
- When [No] in the [Apply optimization option settings of compiler] property is selected

Maximum number of loop expansions	Specify the maximum number of times to expand the loops such as "for" and "while". If 0 or 1 is specified, expansion is suppressed. If this is blank, the -Ounroll option is not added to the command line. In this case, a value in accordance with the selection of the [Level of optimization] property is used by the compiler. This property corresponds to the -Ounroll option of the lbgrl command. This property is displayed only when [Perform the default optimization(No option specified)], [Code size precedence(-Osize)] or [Speed precedence(-Ospeed)] in the [Level of optimization] property is selected.	
	Default	Blank
	How to change	Directly enter in the text box.
	Restriction	0 to 999 (decimal number) or blank

Remove unused static functions	Select whether to remove the static functions which are not called. This property corresponds to the -Odelete_static_func option of the lbgrl command.		
	Default	To adjust the level of optimization(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(-Odelete_static_func)	Removes the unused static functions which are not called.
		No(-Odelete_static_func=off)	Does not remove the unused static functions which are not called.
Perform inline expansion	Specify whether to perform inline expansion at the location calling functions. This property corresponds to the -Oinline_level option of the lbgrl command. This property is displayed only when [Perform the default optimization(No option specified)], [Code size precedence(-Osize)], [Speed precedence(-Ospeed)] or [Partial optimization(-Olite)] in the [Level of optimization] property is selected.		
	Default	To adjust the level of optimization(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(Only specified functions)(-Oinline_level=1)	Performs inline expansion at the location calling the function for which #pragma inline is specified.
		Yes(Auto-detect, to specify maximum increasing rate)(-Oinline_level=2 -Oinline_size)	Distinguishes the function that is the target of inline expansion automatically and expands it. Specify the maximum rate of increase.
		Yes(Auto-detect, maximum increasing rate : to adjust the level of optimization)(-Oinline_level=2)	Distinguishes the function that is the target of inline expansion automatically and expands it. The compiler takes a value that suits the optimization level as the maximum rate of increase.
		Yes(Auto-detect without code size increase)(-Oinline_level=3)	Distinguishes the function that is the target of inline expansion automatically and expands it, while minimizing the increase in code size.
		No(-Oinline_level=0)	Suppresses all inline expansion including the function for which "#pragma inline" is specified.

Maximum increasing rate of inline expansion size	Specify the maximum increasing rate (%) of the code size up to which inline expansion is performed. (Example: When "100" is specified, inline expansion will be applied until the code size increases by 100% (becomes twice the initial size).) This property corresponds to the -Oinline_size option of the lbgrl command. This property is displayed when [Yes(Auto-detect, to specify maximum increasing rate)(-Oinline_level=2 -Oinline_size)] in the [Perform inline expansion] property is selected, or when [To adjust the level of optimization(No option specified)] in the [Perform inline expansion] property and [Speed precedence(-Ospeed)] in the [Level of optimization] property are selected.		
	Default	100	
	How to change	Directly enter in the text box.	
	Restriction	0 to 65535 (decimal number)	
Perform pipeline optimization	Select whether to improve the program's execution performance by reordering instructions at the machine-language level. This property corresponds to the -Opipeline option of the lbgrl command. This property is displayed only when other than [Debug precedence(-Onothing)], [Partial optimization(-Olite)] in the [Level of optimization] property is selected.		
	Default	To adjust the level of optimization(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(-Opipeline)	Performs pipeline optimization.
		No(-Opipeline=off)	Does not perform pipeline optimization.
Use br instruction to call a function at the end of the function	Select whether to give precedence to using br instructions in the place of call instructions when the function ends with a function call. This property corresponds to the -Otail_call option of the lbgrl command.		
	Default	To adjust the level of optimization(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(-Otail_call)	Gives precedence to using br instructions in the place of call instructions when the function ends with a function call. The code size can be reduced by removing the ret instruction.
		No(-Otail_call=off)	Uses call instructions when the function ends with a function call.

Perform optimization considering type of data indicated by pointer	Select whether to perform optimization with consideration for the type of the data indicated by the pointer, based on the ANSI standard. This property corresponds to the -Oalias option of the lbgrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Oalias=ansi)	Performs optimization with consideration for the type of the data indicated by the pointer. In general, this option improves the object performance, but the execution result may differ from the case when [No] is selected.
		No	Does not perform optimization with consideration for the type of the data indicated by the pointer.
Create subroutine for same instruction sequence	Select whether to create a subroutine for the same instruction sequence. This property corresponds to the -Osame_code option of the lbgrl command. This property is displayed only when [Perform the default optimization(No option specified)], [Code size precedence(-Osize)] or [Speed precedence(-Ospeed)] in the [Level of optimization] property is selected.		
	Default	To adjust the level of optimization(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(-Osame_code)	Creates a subroutine for the same instruction sequence.
		No(-Osame_code=off)	Does not create a subroutine for the same instruction sequence.
Reduce code size of relative branch instructions	Select whether to reduce the code size of the relative branch instructions. This property corresponds to the -Obranch_chaining option of the lbgrl command. This property is displayed only when [Perform the default optimization(No option specified)] or [Code size precedence(-Osize)] in the [Level of optimization] property is selected		
	Default	To adjust the level of optimization(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(-Obranch_chaining)	Reduces the code size of the relative branch instructions..
		No(-Obranch_chaining=off)	Does not reduce the code size of the relative branch instructions.

Perform optimization by changing alignment conditions	Select whether to proceed with optimization through a change of the alignment conditions. This property corresponds to the -Oalign option of the lbgrl command. This property is displayed in the following cases. - When other than [Debug precedence(-Onothing)], [Partial optimization(-Olite)] in the [Level of optimization] property is selected - When [No] in the [Allocate uninitialized variables in sections according to number of alignments] property is selected - When [No] in the [Allocate initialized variables in sections according to number of alignments] property is selected - When [No] in the [Allocate const qualified variables in sections according to number of alignments] property is selected		
	Default	To adjust the level of optimization(No option specified)	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(-Oalign)	Performs optimization through a change of the alignment conditions.
		No(-Oalign=off)	Does not perform optimization through a change of the alignment conditions.
Outputs additional information for inter-module optimization	Select whether to output additional information for inter-module optimization. At linkage, inter-module optimization is applied to files for which this option has been specified. This property corresponds to the -goptimize option of the lbgrl command.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-goptimize)	Outputs additional information for inter-module optimization.
		No	Does not outputs additional information for inter-module optimization.

(4) [Output Code]
The detailed information on output code is displayed and the configuration can be changed.
This category is displayed when other than [No] in the [Generate C standard library with Library Generator] property in the [Standard Library] category is selected.

Apply output-code option settings of compiler	Select whether to apply output-code option settings in the [Compile Options] tab.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Applies the output-code option settings in the [Compile Options] tab.
		No	Does not apply the output-code option settings in the [Compile Options] tab.

Allocate uninitialized variables in sections according to number of alignments	Select whether to allocate the uninitialized variables to sections in accord with their alignment sizes. This property corresponds to the -stuff option of the lbgrl command. This property is displayed only when [No] in the [Apply output-code option settings of compiler] property is selected		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-stuff=bss)	Allocates the uninitialized variables to sections in accord with their alignment sizes.
		No	Does not allocate the uninitialized variables to sections in accord with their alignment sizes.
Allocate initialized variables in sections according to number of alignments	Select whether to allocate the initialized variables to sections in accord with their alignment sizes. This property corresponds to the -stuff option of the lbgrl command. This property is displayed only when [No] in the [Apply output-code option settings of compiler] property is selected		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-stuff=data)	Allocates the initialized variables to sections in accord with their alignment sizes.
		No	Does not allocate the initialized variables to sections in accord with their alignment sizes.
Allocate const qualified variables in sections according to number of alignments	Select whether to allocate the const qualified variables to sections in accord with their alignment sizes. This property corresponds to the -stuff option of the lbgrl command. This property is displayed only when [No] in the [Apply output-code option settings of compiler] property is selected		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-stuff=const)	Allocates the const qualified variables to sections in accord with their alignment sizes.
		No	Does not allocate the const qualified variables to sections in accord with their alignment sizes.

(5) [Others]
Other detailed information on library generators are displayed and the configuration can be changed.
This category is displayed when other than [No] in the [Generate C standard library with Library Generator] property in the [Standard Library] category is selected.

<table>
<tr><td rowspan="4">Display copyright information</td><td colspan="3">Select whether to display copyright information.
This property corresponds to the -nologo option of the lbgrl command.</td></tr>
<tr><td>Default</td><td colspan="2">No (-nologo)</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td>Restriction</td><td>Yes</td><td>Outputs the copyright.</td></tr>
<tr><td></td><td>No (-nologo)</td><td>Disables output of the copyright.</td></tr>
<tr><td rowspan="4">Commands executed before library generate processing</td><td colspan="3">Specify the command to be executed before library generate processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%LibraryFile%: Replaces with the absolute path of the output file under the library generate processing.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the file name of the running program.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed before library generator processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td>Default</td><td colspan="2">Commands executed before library generate processing[number of defined items]</td></tr>
<tr><td>How to change</td><td colspan="2">Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can use the text box directly enter the text.</td></tr>
<tr><td>Restriction</td><td colspan="2">Up to 1023 characters
Up to 64 items can be specified.</td></tr>
</table>

<table>
<tr><td rowspan="4">Commands executed after library generate processing</td><td colspan="2">Specify the command to be executed after library generate processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%LibraryFile%: Replaces with the absolute path of the output file under the library generator processing.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the file name of the running program.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed after library generator processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td>Default</td><td>Commands executed after library generate processing[number of defined items]</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can use the text box directly enter the text.</td></tr>
<tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
<tr><td rowspan="4">Other additional options</td><td colspan="2">Input the library generate options to be added additionally.
The options set here are added at the end of the library generate options group.</td></tr>
<tr><td>Default</td><td>Blank</td></tr>
<tr><td>How to change</td><td>Directly enter to the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.</td></tr>
<tr><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

[I/O Header File Generation Options] tab

This tab shows the detailed information on the I/O header file generation tool categorized by the following and the configuration can be changed.

[Description of each category]

(1) [I/O Header File]
The detailed information on the I/O header file is displayed and the configuration can be changed.

Update I/O header file on build	Select whether to update the I/O header file at build. The I/O header file is updated when the device file is newer than that at generation of the I/O header file or properties related to generation of the I/O header file have been updated. Update is performed by automatic overwriting and a backup file with the bak extension is created. This contents are common to all the build modes.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(Checking the device file)	Updates the I/O header file when the device file has been updated at build.
		Yes(Checking the property)	Updates the I/O header file when the properties have been updated at build.
		Yes(Checking the device file and the property)	Updates the I/O header file when the device file or properties have been updated at build.
		No	Does not update the I/O header file at build.
Device file on generating I/O header file	The file name and version of the device file when the I/O header file was generated are displayed. Note that this property is displayed only when a choice other than [No] was made in the [Update I/O header file on build] property.		
	Default	*The file name and version of the device file when the I/O header file was generated*	
	How to change	Changes not allowed	
Current device file	The file name and version of the device file which is installed in the running CS+ environment are displayed. Note that this property is displayed only when a choice other than [No] was made in the [Update I/O header file on build] property.		
	Default	*Current device file*	
	How to change	Changes not allowed	

Output 1bit access	Select whether to output the 1-bit macro definition for IOR access in the I/O header file. This contents are common to all the build modes.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Outputs 1-bit access.
		No	Does not output 1-bit access.
Enable MISRA-C option	Select whether to output an I/O header file compatible with the MISRA-C rules. This contents are common to all the build modes.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-misra_c=on)	Outputs an I/O header file compatible with the MISRA-C rules.
		No	The MISRA-C rules are not considered.
Output macro definition of device file name	Select whether to output the following macro definition (macro indicating the target CPU) that is treated as predefined macro names in CA78K0R. #define *Macro of device file name* 1		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-ca78k0r=on)	Outputs the macro definition of the device file name.
		No	Does not output the macro definition of the device file name.
Generate iodefine include file for FAA	Select whether to generate iodefine include file for FAA. When the file is to be generated, the timing of generation is the same as that for generating the I/O header file. The iodefine include file is generated by overwriting the existing file and a backup file with the bak extension is created. This property is displayed when the microcontroller has a FAA. This is common to all the build modes.		
	Default	Yes(-faa_inc)	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-faa_inc)	Generates iodefine include file for FAA.
		No	Does not generate iodefine include file for FAA.

(2) [Others]
Other detailed information on the I/O header file is displayed and the configuration can be changed.

Other additional options	Input the I/O header file options to be added additionally. The options set here are added at the end of the I/O header file generation options group.	
	Default	Blank
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters

[Build Settings] tab

This tab shows the detailed information on each C source file, C++ source file, assembly source file, FAA assembly source file, SMS assembly source file, object file, and library file categorized by the following and the configuration can be changed.

(1)[Build]

[Description of each category]

(1) [Build]
The detailed information on the build is displayed and the configuration can be changed.

Set as build-target	Select whether to run a build of the selected file.		
	Default	Yes	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Runs a build of the selected file.
		No	Does not run a build of the selected file.
Set individual compile option	Select whether to set the compile option that differs from the project settings to the selected C or C++ source file. If [Yes(Level 3)(Perform with assuming it the whole program)(-Owhole_program)] is selected in the [Perform inter-module optimization] property in the [Optimization(Details)] category from the [Compile Options] tab, this property will be grayed out and changed to [No]. This property is displayed only when a C/C++ source file is selected on the project tree and [Yes] in the [Set as build-target] property is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Sets the option that differs from the project settings to the selected C/C++ source file.
		No	Does not set the option that differs from the project settings to the selected C/C++ source file.
Set individual assemble option	Select whether to set the assemble option that differs from the project settings to the selected assembly source file. If [Yes(Level 3)(Perform with assuming it the whole program)(-Owhole_program)] is selected in the [Perform inter-module optimization] property in the [Optimization(Details)] category from the [Compile Options] tab, this property will be grayed out and changed to [No]. This property is displayed only when the assembly source file is selected on the project tree and [Yes] in the [Set as build-target] property tab is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Sets the option that differs from the project settings to the selected assembly source file.
		No	Does not set the option that differs from the project settings to the selected assembly source file.

Set individual FAA assemble option	Select whether to set the FAA assemble option that differs from the project settings to the selected FAA assembly source file. This property is displayed only when the FAA assembly source file is selected on the project tree and [Yes] in the [Set as build-target] property tab is selected.		
	Default	No	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Sets the option that differs from the project settings to the selected FAA assembly source file.
		No	Does not set the option that differs from the project settings to the selected FAA assembly source file.
File type	The type of the selected file is displayed.		
	Default	C source file (when the C source file is selected) C++ source file (when the C++ source file is selected) Assembly source file (when the assembly source file is selected or the FAA assembly source file is selected) SMS assembly source file (when the SMS assembly source file is selected) Object file (when the object file is selected) Library file (when the library file is selected)	
	How to change	Changes not allowed	

[Individual Compile Options(C)] tab

This tab shows the detailed information on a C source file categorized by the following and the configuration can be changed.

Note that this tab takes over the settings of the [Common Options] tab and [Compile Options] tab.

When the settings are changed from these tabs, the properties are displayed in boldface.

Remark This tab is displayed only when [Yes] in the [Set individual compile option] property in the [Build] category from the [Build Settings] tab is selected.

[Description of each category]

(1) [Debug Information]

The detailed information on debug information is displayed and the configuration can be changed.

Add debug information	Select whether to generate the debug information. It is possible to perform source debugging with the debugger by outputting information for source debugging to the output file. This property corresponds to the -g option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-g)	Generates the debug information.
		No	Does not generate the debug information.
Enhance debug information with optimization	Select whether to enhance debug information at optimization. This property corresponds to the -g_line option of the ccrl command. This property is displayed in the following cases. - When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RL compiler has been installed - When [Yes(-g)] in the [Add debug information] property is selected		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-g_line)	Enhances debug information at optimization.
		No	Does not enhance debug information at optimization.

(2) [Optimization]
The detailed information on the optimization is displayed and the configuration can be changed.

Level of optimization	Select the level of the optimization for compiling. This property corresponds to the -O option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Perform the default optimization(No option specified)	Performs optimization that is effective for both the object size and execution speed.
		Code size precedence(-Osize)	Performs optimization with the object size precedence. Regards reducing the ROM/RAM usage as important and performs the maximum optimization that is effective for general programs.
		Speed precedence(-Ospeed)	Performs optimization with the execution speed precedence. Regards shortening the execution speed as important and performs the maximum optimization that is effective for general programs.
		Partial optimization(-Olite)	Performs partial optimization that will not strongly affect the debug functions.
		Debug precedence(-Onothing)	Performs optimization with the debug precedence. Regards debugging as important and suppresses all optimization including default optimization.

(3) [Optimization(Details)]
The detailed information on the optimization is displayed and the configuration can be changed.

Maximum number of loop expansions	Specify the maximum number of times to expand the loops such as "for" and "while". If 0 or 1 is specified, expansion is suppressed. If this is blank, the -Ounroll option is not added to the command line. In this case, a value in accordance with the selection of the [Level of optimization] property is used by the compiler. This property corresponds to the -Ounroll option of the ccrl command. This property is displayed only when [Perform the default optimization(No option specified)], [Code size precedence(-Osize)] or [Speed precedence(-Ospeed)] in the [Level of optimization] property is selected.	
	Default	*Configuration of the compile option*
	How to change	Directly enter in the text box.
	Restriction	0 to 999 (decimal number) or blank

Remove unused static functions	Select whether to remove the static functions which are not called. This property corresponds to the -Odelete_static_func option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(-Odelete_static_func)	Removes the unused static functions which are not called.
		No(-Odelete_static_func=off)	Does not remove the unused static functions which are not called.
Perform inline expansion	Specify whether to perform inline expansion at the location calling functions. This property corresponds to the -Oinline_level option of the ccrl command. This property is displayed only when [Perform the default optimization(No option specified)], [Code size precedence(-Osize)], [Speed precedence(-Ospeed)] or [Partial optimization(-Olite)] in the [Level of optimization] property is selected. *1 When [Always latest version which was installed] or V1.12.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.12.00 or a later version of the CC-RL compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(Only specified functions)(-Oinline_level=1)	Performs inline expansion at the location calling the function for which #pragma inline is specified.
		Yes(Auto-detect, to specify maximum increasing rate)(-Oinline_level=2 -Oinline_size)	Distinguishes the function that is the target of inline expansion automatically and expands it. Specify the maximum rate of increase.
		Yes(Auto-detect, maximum increasing rate : to adjust the level of optimization)(-Oinline_level=2)	Distinguishes the function that is the target of inline expansion automatically and expands it. The compiler takes a value that suits the optimization level as the maximum rate of increase.
		Yes(Auto-detect without code size increase)(-Oinline_level=3)	Distinguishes the function that is the target of inline expansion automatically and expands it, while minimizing the increase in code size.
		No(-Oinline_level=0)	Suppresses all inline expansion including the function for which "#pragma inline" is specified.

<table>
<tr><td rowspan="4">Maximum increasing rate of inline expansion size</td><td colspan="3">Specify the maximum increasing rate (%) of the code size up to which inline expansion is performed. (Example: When "100" is specified, inline expansion will be applied until the code size increases by 100% (becomes twice the initial size).)
This property corresponds to the -Oinline_size option of the ccrl command.
This property is displayed when [Yes(Auto-detect, to specify maximum increasing rate)(-Oinline_level=2 -Oinline_size)] in the [Perform inline expansion] property is selected, or when [To adjust the level of optimization(No option specified)] in the [Perform inline expansion] property and [Speed precedence(-Ospeed)] in the [Level of optimization] property are selected.</td></tr>
<tr><td>Default</td><td colspan="2">Configuration of the compile option</td></tr>
<tr><td>How to change</td><td colspan="2">Directly enter in the text box.</td></tr>
<tr><td>Restriction</td><td colspan="2">0 to 65535 (decimal number)</td></tr>
<tr><td rowspan="5">Perform pipeline optimization</td><td colspan="3">Select whether to improve the program's execution performance by reordering instructions at the machine-language level.
This property corresponds to the -Opipeline option of the ccrl command.
This property is displayed only in the following cases.
- When [Always latest version which was installed] or V1.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.03.00 or a later version of the CC-RL compiler has been installed.
- When other than [Debug precedence(-Onothing)], [Partial optimization(-Olite)] in the [Level of optimization] property is selected.</td></tr>
<tr><td>Default</td><td colspan="2">Configuration of the compile option</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="3">Restriction</td><td>To adjust the level of optimization(No option specified)</td><td>Performs optimization according to the [Level of optimization] property.</td></tr>
<tr><td>Yes(-Opipeline)</td><td>Performs pipeline optimization.</td></tr>
<tr><td>No(-Opipeline=off)</td><td>Does not perform pipeline optimization.</td></tr>
<tr><td rowspan="5">Use br instruction to call a function at the end of the function</td><td colspan="3">Select whether to give precedence to using br instructions in the place of call instructions when the function ends with a function call.
This property corresponds to the -Otail_call option of the ccrl command.</td></tr>
<tr><td>Default</td><td colspan="2">Configuration of the compile option</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="3">Restriction</td><td>To adjust the level of optimization(No option specified)</td><td>Performs optimization according to the [Level of optimization] property.</td></tr>
<tr><td>Yes(-Otail_call=on)</td><td>Gives precedence to using br instructions in the place of call instructions when the function ends with a function call.
The code size can be reduced by removing the ret instruction.
However, some debug functions cannot be used.</td></tr>
<tr><td>No(-Otail_call=off)</td><td>Uses call instructions when the function ends with a function call.</td></tr>
</table>

Perform inter-module optimization	Specify the level of inter-module optimization (such as function merging). This property corresponds to the -Ointermodule option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(Level 1)(Perform)(-Ointermodule)	Performs inter-module optimization for each file.
		No	Does not perform inter-module optimization.
Perform optimization considering type of data indicated by pointer	Select whether to perform optimization with consideration for the type of the data indicated by the pointer, based on the ANSI standard. This property corresponds to the -Oalias option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-Oalias=ansi)	Performs optimization with consideration for the type of the data indicated by the pointer. In general, this option improves the object performance, but the execution result may differ from the case when [No] is selected.
		No	Does not perform optimization with consideration for the type of the data indicated by the pointer.
Create subroutine for same instruction sequence	Select whether to create a subroutine for the same instruction sequence. This property corresponds to the -Osame_code option of the ccrl command. This property is displayed in the following cases. - When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RL compiler has been installed - When [Perform the default optimization(No option specified)], [Code size precedence(-Osize)] or [Speed precedence(-Ospeed)] in the [Level of optimization] property is selected		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(-Osame_code)	Creates a subroutine for the same instruction sequence.
		No(-Osame_code=off)	Does not create a subroutine for the same instruction sequence.

<table>
<tr><td rowspan="5">Reduce code size of relative branch instructions</td><td colspan="3">Select whether to reduce the code size of the relative branch instructions.
This property corresponds to the -Obranch_chaining option of the ccrl command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V1.10.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.10.00 or a later version of the CC-RL compiler has been installed
- When [Perform the default optimization(No option specified)] or [Code size precedence(-Osize)] in the [Level of optimization] property is selected</td></tr>
<tr><td>Default</td><td colspan="2">Configuration of the compile option</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="3">Restriction</td><td>To adjust the level of optimization(No option specified)</td><td>Performs optimization according to the [Level of optimization] property.</td></tr>
<tr><td>Yes(-Obranch_chaining)</td><td>Reduces the code size of the relative branch instructions..</td></tr>
<tr><td>No(-Obranch_chaining=off)</td><td>Does not reduce the code size of the relative branch instructions.</td></tr>
<tr><td rowspan="5">Perform optimization by changing alignment conditions</td><td colspan="3">Select whether to proceed with optimization through a change of the alignment conditions.
This property corresponds to the -Oalign option of the ccrl command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V1.10.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.10.00 or a later version of the CC-RL compiler has been installed
- When other than [Debug precedence(-Onothing)], [Partial optimization(-Olite)] in the [Level of optimization] property is selected
- When [No] in the [Allocate uninitialized variables in sections according to number of alignments] property is selected
- When [No] in the [Allocate initialized variables in sections according to number of alignments] property is selected
- When [No] in the [Allocate const qualified variables in sections according to number of alignments] property is selected</td></tr>
<tr><td>Default</td><td colspan="2">Configuration of the compile option</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="3">Restriction</td><td>To adjust the level of optimization(No option specified)</td><td>Performs optimization according to the [Level of optimization] property.</td></tr>
<tr><td>Yes(-Oalign)</td><td>Performs optimization through a change of the alignment conditions.</td></tr>
<tr><td>No(-Oalign=off)</td><td>Does not perform optimization through a change of the alignment conditions.</td></tr>
</table>

Outputs additional information for inter-module optimization	Select whether to output additional information for inter-module optimization. At linkage, inter-module optimization is applied to files for which this option has been specified. This property corresponds to the -goptimize option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-goptimize)	Outputs additional information for inter-module optimization.
		No	Does not outputs additional information for inter-module optimization.

(4) [Preprocess]
The detailed information on preprocessing is displayed and the configuration can be changed.

Additional include paths	Specify the additional include paths during compiling. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. The specified include path is searched with higher priority than the standard include file folder of CC-RL. The reference point of the path is the project folder. When this property is omitted, only the standard folder of CC-RL is searched. This property corresponds to the -I option of the ccrl command. The specified include path is displayed as the subproperty. Uppercase characters and lowercase characters are not distinguished for the include paths.	
	Default	Additional include paths[*number of defined items*]
	How to change	Edit by the Path Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 247 characters Up to 256 items can be specified.

<table>
<tr><td>Use whole include paths specified for build tool</td><td colspan="3">Select whether to compile using the include path specified in the [Additional include paths] property in the [Preprocess] category from the [Compile Options] tab of the build tool to be used.
The include paths are added by the following procedure.
- Paths specified in the [Additional include paths] property from this tab
- Paths specified in the [Additional include paths] property from the [Compile Options] tab
- Paths displayed in the [System include paths] property from the [Compile Options] tab
This property corresponds to the -I option of the ccrl command.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Yes</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="2">Restriction</td><td>Yes</td><td>Compiles using the include path specified in the property of the build tool to be used.</td></tr>
<tr><td></td><td>No</td><td>Does not use the include path specified in the property of the build tool to be used.</td></tr>
<tr><td>Include files at head of compiling units</td><td colspan="3">Specify the file that is included at the top of the compilation unit.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
The reference point of the path is the project folder.
This property corresponds to the -preinclude option of the ccrl command.
The specified include file name is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Configuration of the compile option</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">Up to 259 characters
Up to 256 items can be specified.</td></tr>
<tr><td>Macro definition</td><td colspan="3">Specify the name of the macro to be defined.
Specify in the format of "macro name=defined value", with one macro name per line.
The "=defined value" part can be omitted, and in this case, "1" is used as the defined value.
This property corresponds to the -D option of the ccrl command.
The specified macro is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Configuration of the compile option</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">Up to 256 characters
Up to 256 items can be specified.</td></tr>
</table>

Macro undefinition	Specify the macro name to be undefined. Specify in the format of "*macro name*", with one macro name per line. This property corresponds to the -U option of the ccrl command. The specified macro is displayed as the subproperty.		
	Default	*Configuration of the compile option*	
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.	
	Restriction	Up to 256 characters Up to 256 items can be specified.	
Output C source comments to preprocessed file	Select whether to output the comments of the C source to the preprocessed file. This property corresponds to the -preprocess option of the ccrl command. This property is displayed only when [Yes(-P)] in the [Output preprocessed source file] property in the [Output File] category is selected.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-preprocess=comment)	Outputs the comments of the C source to the preprocessed file.
		No	Does not output the comments of the C source to the preprocessed file.
Output line number information to preprocessed file	Select whether to output the line number information of the C source to the preprocessed file. This property corresponds to the -preprocess option of the ccrl command. This property is displayed only when [Yes(-P)] in the [Output preprocessed source file] property in the [Output File] category is selected.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-preprocess=line)	Outputs the line number information of the C source to the preprocessed file.
		No	Does not output the line number information of the C source to the preprocessed file.

(5) [Source]
The detailed information on the source is displayed and the configuration can be changed.

Language of the C source file	Select the language of the C source file. This property corresponds to the -lang option of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RL compiler has been installed. **Caution** You need to set this property in synchronization with the [Use standard/ mathematical libraries] property under the [Library] category on the [Link Options] tab. If the C99 source code calls the C90 standard library and a C99 specific functionality is used in the source code, the program results in illegal operation.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	C(C90)(No option specified)	Compilation will proceed in compliance with the C90 standard.
		C99(-lang=c99)	Compilation will proceed in compliance with the C99 standard.

(6) [Quality Improvement]
The detailed information on the quality improvement is displayed and the configuration can be changed.

Detect stack smashing	Select whether to detect the stack smashing. This property is usable only in the Professional Edition. Detection of stack smashing is a feature for writing a value outside the valid stack area before entering a function and checking whether that value is rewritten before exiting the function. Upon detection, the user-defined __stack_chk_fail() function is called. See "CC-RL Compiler User's Manual" about the difference between [Yes(-stack_protector)] and [Yes(All)(-stack_protector_all)]. This property corresponds to the -stack_protector and -stack_protector_all options of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RL compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-stack_protector)	Detects the stack smashing.
		Yes(All)(-stack_protector_all)	Detects the stack smashing for all functions.
		No(No option specified)	Does not detect the stack smashing.

Value to be embedded for detecting stack smashing	Specify the value to be embedded for detecting the stack smashing. This property is usable only in the Professional Edition. This property corresponds to the -stack_protector and -stack_protector_all options of the ccrl command. This property is displayed in the following cases. - When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RL compiler has been installed - When other than [No(No option specified)] in the [Detect stack smashing] property is selected		
	Default	*Configuration of the compile option*	
	How to change	Directly enter in the text box.	
	Restriction	0 to 65535 (decimal number)	
Detect illegal indirect function call	Select whether to output code for detecting illegal indirect function calls. Enable this facility to check the destination addresses of branches caused by each indirect function call. The output code will call the user-defined __control_flow_chk_fail() function in response to the detection of a problem. This property is usable only in the Professional Edition. This property corresponds to the -control_flow_integrity option of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RL compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-control_flow_integrity)	Outputs code for detecting illegal indirect function calls.
		No	Does not output code for detecting illegal indirect function calls.

(7) [C Language]
The detailed information on C language is displayed and the configuration can be changed.

Compile strictly according to ANSI standards	Select whether to process as making C source program comply strictly with the ANSI standard and output an error or warning for a specification that violates the standard. This property corresponds to the -ansi option of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.05.00 or an earlier version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.05.00 or an earlier version of the CC-RL compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-ansi)	Processes as making C source program comply strictly with the ANSI standard and outputs an error or warning for a specification that violates the standard.
		No	Compatibility with the conventional C language specifications is conferred and processing continues after warning is output.
Compile strictly according to the standards	Select whether to process as making C source program comply strictly with the C90 or C99 standard and output an error or warning for a specification that violates the standard. This property corresponds to the -strict_std option of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RL compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-strict_std)	Processes as making C source program comply strictly with the C90 or C99 standard and outputs an error or warning for a specification that violates the standard.
		No	Compatibility with the conventional C language specifications is conferred and processing continues after warning is output.
Check function without prototype declaration	Select whether to generate an error when using a function whose prototype declaration was not made in advance or a function without a prototype declaration. This property corresponds to the -refs_without_declaration option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-refs_without_declaration)	Checks functions without prototype declarations.
		No	Does not check functions without prototype declarations.

Set 0xffff bytes to maximum variable size	Select whether to increase the maximum variable size from 0x7fff to 0xffff. This property corresponds to the -large_variable option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-large_variable)	Increases the maximum variable size.
		No	Does not increase the maximum variable size.
Allow nested comments	Select whether to allow the nest use of comments ("/**/"). This property corresponds to the -nest_comment option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-nest_comment)	Allows the nest use of comments.
		No	Does not allow the nest use of comments.

(8) [Character Encoding]
The detailed information on character encoding is displayed and the configuration can be changed.

Character encoding of the C source file	Select the character code to be used for Japanese/Chinese comments and character strings in the C source file. This property corresponds to the -character_set option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Auto(No option specified)	Interprets the Japanese character codes in the source file as SJIS on Japanese OS. On other than Japanese OS, does not interpret the character code in the source file.
		SJIS(-character_set=sjis)	Interprets the Japanese character codes in the source file as SJIS.
		EUC(-character_set=euc_jp)	Interprets the Japanese character codes in the source file as EUC.
		UTF-8(-character_set=utf8)	Interprets the Japanese character codes in the source file as UTF-8.
		Big5(-character_set=big5)	Interprets the Chinese character codes in the source file as Traditional Chinese.
		GBK(-character_set=gbk)	Interprets the Chinese character codes in the source file as Simplified Chinese.
		No-process(-character_set=none)	Does not interpret the Japanese/Chinese character codes in the source file.

(9) [Output Code]
The detailed information on output code is displayed and the configuration can be changed.

Handle external variables as if they are volatile qualified	Select whether to handle all external variables and variables specified with #pragma address as if they are volatile qualified. This property corresponds to the -volatile option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-volatile)	Handles all external variables and variables specified with #pragma address as if they are volatile qualified.
		No	Optimizes external variables that are not volatile qualified.

Output code of switch statement	Select the code output mode for switch statements in programs. This property corresponds to the -switch option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Auto(No option specified)	The ccrl selects the optimum output format.
		if-else(-switch=ifelse)	Outputs the switch statements in the same format as the if-else statement along a string of case statements in programs. Select this item if the case statements are written in the order of frequency or if only a few labels are used. Because the case statements are compared starting from the top, unnecessary comparison can be reduced and the execution speed can be increased if the case statement that most often matches is written first.
		Binary search(-switch=binary)	Outputs the code in the binary search format for switch statements in programs. Searches for a matching case statement by using a binary search algorithm. If this item is selected when many labels are used, any case statement can be found at almost the same speed.
		Table jump(absolute)(-switch=abs_table)	Outputs the code in the table jump format (absolute branch) for switch statements in programs. References a table indexed on the values in the case statements, and selects and processes case labels from the switch statement values. The code will branch to all the case statements with about the same speed. However, if case values are not used in succession, an unnecessary area will be created.
		Table jump(relative)(-switch=rel_table)	Outputs the code in the table jump format (relative branch) for switch statements in programs. References a table indexed on the values in the case statements, and selects and processes case labels from the switch statement values. The code will branch to all the case statements with about the same speed. However, if case values are not used in succession, an unnecessary area will be created.

Perform indirect referencing in 1-byte units	Select whether to perform indirect referencing in 1-byte units. This property corresponds to the -unaligned_pointer_for_ca78k0r option of the ccrl command. When [Yes(-unaligned_pointer_for_ca78k0r)] is selected, if there is a possibility that a pointer to a type having a 2-byte alignment condition without volatile keyword points to an odd address, code for indirect reference in 1-byte units are generated. This property is displayed when [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RL compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-unaligned_pointer_for_ca78k0r)	Performs indirect referencing in 1-byte units.
		No	Does not perform indirect referencing in 1-byte units.
Output comment to assembly source file	Select whether to output a C source program as a comment to the assembly source file to be output. This property corresponds to the -pass_source option of the ccrl command. This property is displayed only when [Yes(-asm_path)] in the [Output assembly source file] property in the [Output File] category is selected or when [Yes(-asmopt=-prn_path)] in the [Output assemble list file] property in the [Assemble List] category is selected.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-pass_source)	Outputs a C source program as a comment to the assembly source file.
		No	Does not output a C source program as a comment to the assembly source file.
Merge string literals	When the same string literals exist in the source file, specify whether to merge them and allocate to the one area. This property corresponds to the -merge_string option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-merge_string)	Merges the same string literals exist in the source file and allocates to the one area.
		No	Each allocates the same string literals exist in the source file to separate areas.

Allocate uninitialized variables in sections according to number of alignments	Select whether to allocate the uninitialized variables to sections in accord with their alignment sizes. This property corresponds to the -stuff option of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.10.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.10.00 or a later version of the CC-RL compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-stuff=bss)	Allocates the uninitialized variables to sections in accord with their alignment sizes.
		No	Does not allocate the uninitialized variables to sections in accord with their alignment sizes.
Allocate initialized variables in sections according to number of alignments	Select whether to allocate the initialized variables to sections in accord with their alignment sizes. This property corresponds to the -stuff option of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.10.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.10.00 or a later version of the CC-RL compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-stuff=data)	Allocates the initialized variables to sections in accord with their alignment sizes.
		No	Does not allocate the initialized variables to sections in accord with their alignment sizes.
Allocate const qualified variables in sections according to number of alignments	Select whether to allocate the const qualified variables to sections in accord with their alignment sizes. This property corresponds to the -stuff option of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.10.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.10.00 or a later version of the CC-RL compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-stuff=const)	Allocates the const qualified variables to sections in accord with their alignment sizes.
		No	Does not allocate the const qualified variables to sections in accord with their alignment sizes.

(10) [Output File]
The detailed information on output files is displayed and the configuration can be changed.

Object file name	Specify the name of the object file generated after compilation. The extension other than ".obj" cannot be specified. If the extension is omitted, ".obj" is automatically added. If this is blank, the file name will be the source file name with the extension replaced by ".obj". This property corresponds to the -o option of the ccrl command.		
	Default	Blank	
	How to change	Directly enter in the text box.	
	Restriction	Up to 259 characters	
Output assembly source file	Select whether to output the assembly source file of the compile result for the C source. This property corresponds to the -asm_path option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-asm_path)	Outputs the assembly source file of the compile result for the C source.
		No	Does not output the assembly source file of the compile result for the C source.
Output folder for assembly source file	Specify the folder which the assembly source file is output. If a relative path is specified, the reference point of the path is the main project or sub-project folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. The assembly source file is saved under the C source file name with the extension replaced by ".asm". If this is blank, it is assumed that the project folder has been specified. This property corresponds to the -asm_path option of the ccrl command. This property is displayed only when [Yes(-asm_path)] in the [Output assembly source file] property is selected.		
	Default	*Configuration of the compile option*	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	
Output preprocessed source file	Select whether to output the execution result of preprocessing for the source file to a file. This property corresponds to the -P option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-P)	Outputs the execution result of preprocessing for the source file to a file.
		No	Does not output the execution result of preprocessing for the source file to a file.

Output folder for pre-processed source file	Specify the folder which the preprocessed source file is output. The file is output under the source file name with the extension replaced by ".i". If a relative path is specified, the reference point of the path is the main project or sub-project folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This property corresponds to the -prep_path option of the ccrl command. This property is displayed only when [Yes(-P)] in the [Output preprocessed source file] property is selected.	
	Default	*Configuration of the compile option*
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.
	Restriction	Up to 247 characters

(11) [Assemble List]
The detailed information on the assemble list is displayed and the configuration can be changed.

Output assemble list file	Select whether to output the assemble list file. This property corresponds to the -asmopt=-prn_path option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-asmopt=-prn_path)	Outputs the assemble list file.
		No	Does not output the assemble list file.
Output folder for assemble list file	Specify the folder which the assemble list file is output. The assemble list file is output under the source file name with the extension replaced by ".prn". If a relative path is specified, the reference point of the path is the main project or sub-project folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This property corresponds to the -asmopt=-prn_path option of the ccrl command. This property is displayed only when [Yes(-asmopt=-prn_path)] in the [Output assemble list file] property is selected.		
	Default	*Configuration of the compile option*	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog Box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	

(12) [MISRA-C Rule Check]
The detailed information on the MISRA-C rule check are displayed and the configuration can be changed.
20*XX* in the following table corresponds to 2012 or 2004 in particular.

MISRA-C specification	Select the MISRA-C specification. This property is usable only in the Professional Edition. This property is displayed when [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RL compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	MISRA-C 2012	Settings for MISRA-C 2012 are made in the subsequent properties.
		MISRA-C 2004	Settings for MISRA-C 2004 are made in the subsequent properties.
Apply rule	Select the MISRA-C rules to be applied. This property is usable only in the Professional Edition. This property corresponds to the -misra20*XX* option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Apply all rules(-misra20*XX*=all)	Checks the source code against all of the rules which are supported.
		Apply specified rule number(-misra20*XX*=apply)	Checks the source code against the rules with the specified numbers among the rules which are supported.
		Ignore specified rule number(-misra20*XX*=ignore)	Checks the source code against the rules that do not match the specified numbers among the rules which are supported.
		Apply rules that are classified as "required"(-misra20*XX*=required)	Checks the source code against the rules of the "required" type.
		Apply rules that are classified as "required" and specified rule number(-misra20*XX*=required_add)	Checks the source code against the rules of the "required" type and the rules with the specified numbers among the rules which are supported.
		Ignore specified rule number from rules that are classified as "required"(-misra20*XX*=required_remove)	Checks the source code against the rules of the "required" type except for the rules with the specified numbers among the rules which are supported.
		Apply rules that are described in the specified file(-misra20*XX*=<file name>)	Checks the source code against the rules with the numbers described in specified file among the rules which are supported.
		Not apply rule(No option specified)	Does not apply the MISRA-C rules.

Rule number description file	Specify the rule number description file (MISRA-C rule file). This property is usable only in the Professional Edition. When misra2012 is selected, the CC-RL compiler always checks the code against rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.04.00 or later, 12.5 and 21.13 if the compiler is V1.05.00 or later, and 17.6 if the compiler is V1.06.00 or later) regardless of which rule numbers have been specified through the properties setting. The following placeholders are supported. %BuildModeName%: Replaces with the build mode name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectName%: Replaces with the project name. This property corresponds to the -misra20*XX* option of the ccrl command. This property is displayed only when [Apply rules that are described in the specified file(-misra20*XX*=<file name>)] in the [Apply rule] property is selected.	
	Default	*Configuration of the compile option*
	How to change	Directly enter in the text box or edit by the Specify MISRA-C Rule File dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters
Rule number	Specify the rule number to be checked. This property is usable only in the Professional Edition. When misra2012 is selected, the CC-RL compiler always checks the code against rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.04.00 or later, 12.5 and 21.13 if the compiler is V1.05.00 or later, and 17.6 if the compiler is V1.06.00 or later) regardless of which rule numbers have been specified through the properties setting. Specify at least one rule number in decimal. This property corresponds to the -misra20*XX* option of the ccrl command. This property is displayed only when [Apply specified rule number(-misra20*XX*=apply)] in the [Apply rule] property is selected.	
	Default	*Configuration of the compile option*
	How to change	Directly enter in the text box or edit by the Specify Rule Number dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters
Exclusion rule number	Specify the rule number to be excluded from the check. This property is usable only in the Professional Edition. When misra2012 is selected, the CC-RL compiler always checks the code against rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.04.00 or later, 12.5 and 21.13 if the compiler is V1.05.00 or later, and 17.6 if the compiler is V1.06.00 or later) regardless of which rule numbers have been specified through the properties setting. Specify at least one rule number in decimal. This property corresponds to the -misra20*XX* option of the ccrl command. This property is displayed only when [Ignore specified rule number(-misra20*XX*=ignore)] in the [Apply rule] property is selected.	
	Default	*Configuration of the compile option*
	How to change	Directly enter in the text box or edit by the Specify Rule Number dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters

Check rule number besides required rule	Specify the rule number to be checked besides the required rules. This property is usable only in the Professional Edition. When misra2012 is selected, the CC-RL compiler always checks the code against rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.04.00 or later, 12.5 and 21.13 if the compiler is V1.05.00 or later, and 17.6 if the compiler is V1.06.00 or later) regardless of which rule numbers have been specified through the properties setting. Specify at least one rule number in decimal. This property corresponds to the -misra20*XX* option of the ccrl command. This property is displayed only when [Apply rules that are classified as "required" and specified rule number(-misra20*XX*=required_add)] in the [Apply rule] property is selected.	
	Default	*Configuration of the compile option*
	How to change	Directly enter in the text box or edit by the Specify Rule Number dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters
Exclusion rule number from required rule	Specify the required rule number to be excluded from the check. This property is usable only in the Professional Edition. When misra2012 is selected, the CC-RL compiler always checks the code against rule numbers 13.6, 17.3, and 17.4 (as well as 9.1 if the compiler is V1.04.00 or later, 12.5 and 21.13 if the compiler is V1.05.00 or later, and 17.6 if the compiler is V1.06.00 or later) regardless of which rule numbers have been specified through the properties setting. Specify at least one rule number in decimal. This property corresponds to the -misra20*XX* option of the ccrl command. This property is displayed only when [Ignore specified rule number from rules that are classified as "required"(-misra20*XX*=required_remove)] in the [Apply rule] property is selected.	
	Default	*Configuration of the compile option*
	How to change	Directly enter in the text box or edit by the Specify Rule Number dialog box which appears when clicking the [...] button.
	Restriction	Up to 259 characters

<table>
<tr><td>Rule check exclusion file</td><td colspan="2">Specify files that will not be checked against the MISRA-C rules.
This property is usable only in the Professional Edition.
The following placeholders are supported.
%BuildModeName%: Replaces with the build mode name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectName%: Replaces with the project name.
This property corresponds to the -ignore_files_misra option of the ccrl command.
This property is displayed only in the following cases.
- When [Apply all rules] is selected in the [Apply rule] property
- When [Apply rules that are classified as "required"] is selected in the [Apply rule] property
- When [Apply specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Rule number] property
- When [Ignore specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Rule number] property
- When [Apply rules that are classified as "required" and specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Check rule number besides required rule] property
- When [Ignore specified rule number from rules that are classified as "required"] is selected in the [Apply rule] property and a rule number is specified in the [Exclusion rule number from required rule] property
- When [Apply rules that are described in the specified file] is selected in the [Apply rule] property and a rule number description file is specified in the [Rule number description file] property</td></tr>
<tr><td></td><td>Default</td><td>Configuration of the compile option</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Path Edit dialog box which appears when clicking the [...] button.
-> Edit by the Add Excluding File dialog box which appears when clicking the [Browse...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

<table>
<tr><td>Output message of the enhanced key word and extended specifications</td><td colspan="3">Select whether to output the message of the enhanced key word and extended specifications.
This property is usable only in the Professional Edition.
This property corresponds to the -check_language_extention option of the ccrl command.
This property is displayed only in the following cases.
- When [Apply all rules] is selected in the [Apply rule] property
- When [Apply rules that are classified as "required"] is selected in the [Apply rule] property
- When [Apply specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Rule number] property
- When [Ignore specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Rule number] property
- When [Apply rules that are classified as "required" and specified rule number] is selected in the [Apply rule] property and a rule number is specified in the [Check rule number besides required rule] property
- When [Ignore specified rule number from rules that are classified as "required"] is selected in the [Apply rule] property and a rule number is specified in the [Exclusion rule number from required rule] property
- When [Apply rules that are described in the specified file] is selected in the [Apply rule] property and a rule number description file is specified in the [Rule number description file] property</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Configuration of the compile option</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="2">Restriction</td><td>Yes(-check_language_extension)</td><td>Enables MISRA-C rule check and outputs messages when the rule check is partially suppressed by the unique language specifications extended from the C language standard.</td></tr>
<tr><td></td><td>No</td><td>Disables MISRA-C rule check is disabled, which are partially suppressed by the extended language specifications.</td></tr>
</table>

Enable checking that spans files	Select whether to enable checking that spans files. This property is usable only in the Professional Edition. This property corresponds to the -misra_intermodule option of the ccrl command. This property is displayed only in the following cases. - When [Always latest version which was installed] or V1.08.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.08.00 or a later version of the CC-RL compiler has been installed - When [MISRA-C 2012] in the [MISRA-C specification] property is selected - When other than [Not apply rule(No option specified)] in the [Apply rule] property is selected **Caution** If the C source files of the project are removed or renamed while [Yes(-misra_intermodule)] is selected, information on checking that spans files will be cleared. Rebuild the project to obtain correct checking of files on this point.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-misra_intermodule)	Enables checking that spans files.
		No	Does not enable checking that spans files.

(13) [Error Output]
The detailed information on the error output is displayed and the configuration can be changed.

Output error message file	Select whether to output the error message file. This property corresponds to the -error_file option of the ccrl command. Error messages are displayed on the Output panel regardless of this property's. This property is displayed only when [No] in the [Build in parallel] property in the [Build Method] category from the [Common Options] tab is selected		
	Default	*Configuration of the common option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-error_file)	Outputs the error message file.
		No	Does not output the error message file.
Error message file output folder	Specify the folder which the error message file is output. If a relative path is specified, the reference point of the path is the main project or subproject folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This property corresponds to the -error_file option of the ccrl command. This property is displayed only when [Yes(-error_file)] in the [Output error message file] property is selected.		
	Default	*Configuration of the common option*	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	

Error message file name	Specify the error message file name. The extension can be freely specified. The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. If this is blank, it is assumed that "%ProjectName%.err" has been specified. This property corresponds to the -error_file option of the ccrl command. This property is displayed only when [Yes(-error_file)] in the [Output error message file] property is selected.	
	Default	*Configuration of the common option*
	How to change	Directly enter in the text box.
	Restriction	Up to 259 characters

(14) [Warning Message]
The detailed information on warning messages is displayed and the configuration can be changed.

Undisplayed warning message	Specify the number of the warning message not to be displayed. If multiple message numbers are specified, delimit them with "," (comma) (example: 20009,20011). Also, the range can be set using "-" (hyphen) (example: 20000-20100,20300-20500). This property corresponds to the -no_warning option of the ccrl command.	
	Default	*Configuration of the common option*
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.
	Restriction	Up to 2048 characters

(15) [Message]
The detailed information on messages is displayed and the configuration can be changed.

Change warning message to error message	Select whether to change the type of warning messages to error. This property corresponds to the -change_message option of the ccrl command. This property is displayed when [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RL compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(All)(-change_message=error)	Changes the type of all warning messages to error.
		Yes(Specify message number)(-change_message=error=<Message number>)	Specifies the number of warning message of which type is to be changed to error.
		No	Does not change the type of warning messages.

Number of warning message	Specify the number of the warning message. If multiple message numbers are specified, delimit them with "," (comma) (example: 23028,23086). Also, a range of message numbers can be specified using "-" (hyphen) (example:23028-23086). This property corresponds to the -change_message option of the ccrl command. This property is displayed only in the following cases. - When [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RL compiler has been installed - When [Yes(Specify message number)(-change_message=error=<Message number>)] in the [Change warning message to error message] property is selected	
	Default	*Configuration of the compile option*
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.
	Restriction	Up to 32767 characters

(16) [Others]
Other detailed information on compilation is displayed and the configuration can be changed.

Commands executed before compile processing	Specify the command to be executed before compile processing. Use the call instruction to specify a batch file (example: call a.bat). The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %CompiledFile%: Replaces with the absolute path of the output file under compiling. %InputFile%: Replaces with the absolute path of the file to be compiled (except in case of simultaneous building). %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %Options%: Replaces with the command line option under build execution. %OutputDir%: Replaces with the absolute path of the output folder. %OutputFile%: Replaces with the absolute path of the output file. %Program%: Replaces with the program name under execution. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed before compile processing. The placeholders can be described in the script. The specified command is displayed as the subproperty.	
	Default	*Configuration of the compile option*
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 1023 characters Up to 64 items can be specified.

<table>
<tr><td rowspan="4">Commands executed after compile processing</td><td colspan="2">Specify the command to be executed after compile processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%CompiledFile%: Replaces with the absolute path of the output file under compiling.
%InputFile%: Replaces with the absolute path of the file to be compiled (except in case of simultaneous building).
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed after compile processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td>Default</td><td>Configuration of the compile option</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
<tr><td rowspan="4">Other additional options</td><td colspan="2">Input the compile option to be added additionally.
The options set here are added at the end of the compile options group.</td></tr>
<tr><td>Default</td><td>Configuration of the compile option</td></tr>
<tr><td>How to change</td><td>Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.</td></tr>
<tr><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

[Individual Compile Options(C++)] tab

This tab shows the detailed information on a C++ source file categorized by the following and the configuration can be changed.

Note that this tab takes over the settings of the [Common Options] tab and [Compile Options] tab.

When the settings are changed from these tabs, the properties are displayed in boldface.

Remark This tab is displayed only in the following cases

- When [Yes] in the [Set individual compile option] property in the [Build] category from the [Build Settings] tab is selected
- When [Always latest version which was installed] or V1.12.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.12.00 or a later version of the CC-RL compiler has been installed

[Description of each category]

(1) [Debug Information]

The detailed information on debug information is displayed and the configuration can be changed.

Add debug information	Select whether to generate the debug information. It is possible to perform source debugging with the debugger by outputting information for source debugging to the output file. This property corresponds to the -g option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-g)	Generates the debug information.
		No	Does not generate the debug information.

<table>
<tr><td rowspan="4">Enhance debug information with optimization</td><td colspan="3">Select whether to enhance debug information at optimization.
This property corresponds to the -g_line option of the ccrl command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RL compiler has been installed
- When [Yes(-g)] in the [Add debug information] property is selected</td></tr>
<tr><td>Default</td><td colspan="2">Configuration of the compile option</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="2">Restriction</td><td>Yes(-g_line)</td><td>Enhances debug information at optimization.</td></tr>
<tr><td>No</td><td>Does not enhance debug information at optimization.</td></tr>
</table>

(2) [Optimization]
The detailed information on the optimization is displayed and the configuration can be changed.

Level of optimization	Select the level of the optimization for compiling. This property corresponds to the -O option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Perform the default optimization(No option specified)	Performs optimization that is effective for both the object size and execution speed.
		Code size precedence(-Osize)	Performs optimization with the object size precedence. Regards reducing the ROM/RAM usage as important and performs the maximum optimization that is effective for general programs.
		Speed precedence(-Ospeed)	Performs optimization with the execution speed precedence. Regards shortening the execution speed as important and performs the maximum optimization that is effective for general programs.
		Partial optimization(-Olite)	Performs partial optimization that will not strongly affect the debug functions.
		Debug precedence(-Onothing)	Performs optimization with the debug precedence. Regards debugging as important and suppresses all optimization including default optimization.

(3) [Optimization(Details)]
The detailed information on the optimization is displayed and the configuration can be changed.

Maximum number of loop expansions	Specify the maximum number of times to expand the loops such as "for" and "while". If 0 or 1 is specified, expansion is suppressed. If this is blank, the -Ounroll option is not added to the command line. In this case, a value in accordance with the selection of the [Level of optimization] property is used by the compiler. This property corresponds to the -Ounroll option of the ccrl command. This property is displayed only when [Perform the default optimization(No option specified)], [Code size precedence(-Osize)] or [Speed precedence(-Ospeed)] in the [Level of optimization] property is selected.	
	Default	*Configuration of the compile option*
	How to change	Directly enter in the text box.
	Restriction	0 to 999 (decimal number) or blank

Remove unused static functions	Select whether to remove the static functions which are not called. This property corresponds to the -Odelete_static_func option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(-Odelete_static_func)	Removes the unused static functions which are not called.
		No(-Odelete_static_func=off)	Does not remove the unused static functions which are not called.
Perform inline expansion	Specify whether to perform inline expansion at the location calling functions. This property corresponds to the -Oinline_level option of the ccrl command. This property is displayed only when [Perform the default optimization(No option specified)], [Code size precedence(-Osize)], [Speed precedence(-Ospeed)] or [Partial optimization(-Olite)] in the [Level of optimization] property is selected. *1 When [Always latest version which was installed] or V1.12.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.12.00 or a later version of the CC-RL compiler has been installed.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(Only specified functions)(-Oinline_level=1)	Performs inline expansion at the location calling the function for which #pragma inline is specified.
		Yes(Auto-detect, to specify maximum increasing rate)(-Oinline_level=2 -Oinline_size)	Distinguishes the function that is the target of inline expansion automatically and expands it. Specify the maximum rate of increase.
		Yes(Auto-detect, maximum increasing rate : to adjust the level of optimization)(-Oinline_level=2)	Distinguishes the function that is the target of inline expansion automatically and expands it. The compiler takes a value that suits the optimization level as the maximum rate of increase.
		Yes(Auto-detect without code size increase)(-Oinline_level=3)	Distinguishes the function that is the target of inline expansion automatically and expands it, while minimizing the increase in code size.
		No(-Oinline_level=0)	Suppresses all inline expansion including the function for which "#pragma inline" is specified.

Maximum increasing rate of inline expansion size	Specify the maximum increasing rate (%) of the code size up to which inline expansion is performed. (Example: When "100" is specified, inline expansion will be applied until the code size increases by 100% (becomes twice the initial size).) This property corresponds to the -Oinline_size option of the ccrl command. This property is displayed when [Yes(Auto-detect, to specify maximum increasing rate)(-Oinline_level=2 -Oinline_size)] in the [Perform inline expansion] property is selected, or when [To adjust the level of optimization(No option specified)] in the [Perform inline expansion] property and [Speed precedence(-Ospeed)] in the [Level of optimization] property are selected.		
	Default	*Configuration of the compile option*	
	How to change	Directly enter in the text box.	
	Restriction	0 to 65535 (decimal number)	
Perform pipeline optimization	Select whether to improve the program's execution performance by reordering instructions at the machine-language level. This property corresponds to the -Opipeline option of the ccrl command. This property is displayed only in the following cases. - When [Always latest version which was installed] or V1.03.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.03.00 or a later version of the CC-RL compiler has been installed. - When other than [Debug precedence(-Onothing)], [Partial optimization(-Olite)] in the [Level of optimization] property is selected.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(-Opipeline)	Performs pipeline optimization.
		No(-Opipeline=off)	Does not perform pipeline optimization.
Use br instruction to call a function at the end of the function	Select whether to give precedence to using br instructions in the place of call instructions when the function ends with a function call. This property corresponds to the -Otail_call option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	To adjust the level of optimization(No option specified)	Performs optimization according to the [Level of optimization] property.
		Yes(-Otail_call=on)	Gives precedence to using br instructions in the place of call instructions when the function ends with a function call. The code size can be reduced by removing the ret instruction. However, some debug functions cannot be used.
		No(-Otail_call=off)	Uses call instructions when the function ends with a function call.

<table>
<tr><td rowspan="5">Create subroutine for same instruction sequence</td><td colspan="3">Select whether to create a subroutine for the same instruction sequence.
This property corresponds to the -Osame_code option of the ccrl command.
This property is displayed in the following cases.
- When [Always latest version which was installed] or V1.02.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.02.00 or a later version of the CC-RL compiler has been installed
- When [Perform the default optimization(No option specified)], [Code size precedence(-Osize)] or [Speed precedence(-Ospeed)] in the [Level of optimization] property is selected</td></tr>
<tr><td>Default</td><td colspan="2">Configuration of the compile option</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="3">Restriction</td><td>To adjust the level of optimization(No option specified)</td><td>Performs optimization according to the [Level of optimization] property.</td></tr>
<tr><td>Yes(-Osame_code)</td><td>Creates a subroutine for the same instruction sequence.</td></tr>
<tr><td>No(-Osame_code=off)</td><td>Does not create a subroutine for the same instruction sequence.</td></tr>
<tr><td rowspan="5">Reduce code size of relative branch instructions</td><td colspan="3">Select whether to reduce the code size of the relative branch instructions.
This property corresponds to the -Obranch_chaining option of the ccrl command.
This property is displayed only when [Perform the default optimization(No option specified)] or [Code size precedence(-Osize)] in the [Level of optimization] property is selected.</td></tr>
<tr><td>Default</td><td colspan="2">Configuration of the compile option</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="3">Restriction</td><td>To adjust the level of optimization(No option specified)</td><td>Performs optimization according to the [Level of optimization] property.</td></tr>
<tr><td>Yes(-Obranch_chaining)</td><td>Reduces the code size of the relative branch instructions..</td></tr>
<tr><td>No(-Obranch_chaining=off)</td><td>Does not reduce the code size of the relative branch instructions.</td></tr>
</table>

<table>
<tr><td rowspan="5">Perform optimization by changing align-ment conditions</td><td colspan="3">Select whether to proceed with optimization through a change of the alignment condi-tions.
This property corresponds to the -Oalign option of the ccrl command.
This property is displayed in the following cases.
- When other than [Debug precedence(-Onothing)], [Partial optimization(-Olite)] in the [Level of optimization] property is selected
- When [No] in the [Allocate uninitialized variables in sections according to number of alignments] property is selected
- When [No] in the [Allocate initialized variables in sections according to number of alignments] property is selected
- When [No] in the [Allocate const qualified variables in sections according to number of alignments] property is selected</td></tr>
<tr><td>Default</td><td colspan="2">Configuration of the compile option</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="3">Restriction</td><td>To adjust the level of optimization(No option specified)</td><td>Performs optimization according to the [Level of optimization] property.</td></tr>
<tr><td>Yes(-Oalign)</td><td>Performs optimization through a change of the alignment conditions.</td></tr>
<tr><td>No(-Oalign=off)</td><td>Does not perform optimization through a change of the alignment conditions.</td></tr>
<tr><td rowspan="4">Outputs additional information for inter-module optimization</td><td colspan="3">Select whether to output additional information for inter-module optimization.
At linkage, inter-module optimization is applied to files for which this option has been specified.
This property corresponds to the -goptimize option of the ccrl command.</td></tr>
<tr><td>Default</td><td colspan="2">Configuration of the compile option</td></tr>
<tr><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td rowspan="2">Restriction</td><td>Yes(-goptimize)</td><td>Outputs additional information for inter-module optimization.</td></tr>
<tr><td>No</td><td>Does not outputs additional information for inter-module optimization.</td></tr>
</table>

(4) [Preprocess]
The detailed information on preprocessing is displayed and the configuration can be changed.

<table>
<tr><td>Additional include paths</td><td colspan="3">Specify the additional include paths during compiling.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
The specified include path is searched with higher priority than the standard include file folder of CC-RL.
The reference point of the path is the project folder.
When this property is omitted, only the standard folder of CC-RL is searched.
This property corresponds to the -I option of the ccrl command.
The specified include path is displayed as the subproperty.
Uppercase characters and lowercase characters are not distinguished for the include paths.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Additional include paths[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Edit by the Path Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">Up to 247 characters
Up to 256 items can be specified.</td></tr>
<tr><td>Use whole include paths specified for build tool</td><td colspan="3">Select whether to compile using the include path specified in the [Additional include paths] property in the [Preprocess] category from the [Compile Options] tab of the build tool to be used.
The include paths are added by the following procedure.
- Paths specified in the [Additional include paths] property from this tab
- Paths specified in the [Additional include paths] property from the [Compile Options] tab
- Paths displayed in the [System include paths] property from the [Compile Options] tab
This property corresponds to the -I option of the ccrl command.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Yes</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="2">Restriction</td><td>Yes</td><td>Compiles using the include path specified in the property of the build tool to be used.</td></tr>
<tr><td></td><td>No</td><td>Does not use the include path specified in the property of the build tool to be used.</td></tr>
</table>

Include files at head of compiling units	Specify the file that is included at the top of the compilation unit. The following placeholders are supported. %ActiveProjectDir%: Replaces with the absolute path of the active project folder. %ActiveProjectName%: Replaces with the active project name. %BuildModeName%: Replaces with the build mode name. %MainProjectDir%: Replaces with the absolute path of the main project folder. %MainProjectName%: Replaces with the main project name. %MicomToolPath%: Replaces with the absolute path of the install folder of this product. %ProjectDir%: Replaces with the absolute path of the project folder. %ProjectName%: Replaces with the project name. %TempDir%: Replaces with the absolute path of the temporary folder. %WinDir%: Replaces with the absolute path of the Windows system folder. The reference point of the path is the project folder. This property corresponds to the -preinclude option of the ccrl command. The specified include file name is displayed as the subproperty.	
	Default	*Configuration of the compile option*
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 259 characters Up to 256 items can be specified.
Macro definition	Specify the name of the macro to be defined. Specify in the format of "*macro name=defined value*", with one macro name per line. The "=*defined value*" part can be omitted, and in this case, "1" is used as the defined value. This property corresponds to the -D option of the ccrl command. The specified macro is displayed as the subproperty.	
	Default	*Configuration of the compile option*
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.
Macro undefinition	Specify the macro name to be undefined. Specify in the format of "*macro name*", with one macro name per line. This property corresponds to the -U option of the ccrl command. The specified macro is displayed as the subproperty.	
	Default	*Configuration of the compile option*
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.

(5) [Source]
The detailed information on the source is displayed and the configuration can be changed.

Language of the C++ source file	The language of the C source file. This property corresponds to the -lang option of the ccrl command.	
	Default	C++14(-lang=cpp14)
	Restriction	Changes not allowed.

(6) [Character Encoding]
The detailed information on character encoding is displayed and the configuration can be changed.

Character encoding of the C++ source file	The character encoding to be used for Japanese/Chinese comments and character strings in the C++ source file. This property corresponds to the -character_set option of the ccrl command.	
	Default	UTF-8(No option specified)
	Restriction	Changes not allowed.

(7) [Output Code]
The detailed information on output code is displayed and the configuration can be changed.

Output code of switch statement	Select the code output mode for switch statements in programs. This property corresponds to the -switch option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Auto(No option specified)	The ccrl selects the optimum output format.
		if-else(-switch=ifelse)	Outputs the switch statements in the same format as the if-else statement along a string of case statements in programs. Select this item if the case statements are written in the order of frequency or if only a few labels are used. Because the case statements are compared starting from the top, unnecessary comparison can be reduced and the execution speed can be increased if the case statement that most often matches is written first.
		Binary search(-switch=binary)	Outputs the code in the binary search format for switch statements in programs. Searches for a matching case statement by using a binary search algorithm. If this item is selected when many labels are used, any case statement can be found at almost the same speed.
		Table jump(absolute)(-switch=abs_table)	Outputs the code in the table jump format (absolute branch) for switch statements in programs. References a table indexed on the values in the case statements, and selects and processes case labels from the switch statement values. The code will branch to all the case statements with about the same speed. However, if case values are not used in succession, an unnecessary area will be created.
		Table jump(relative)(-switch=rel_table)	Outputs the code in the table jump format (relative branch) for switch statements in programs. References a table indexed on the values in the case statements, and selects and processes case labels from the switch statement values. The code will branch to all the case statements with about the same speed. However, if case values are not used in succession, an unnecessary area will be created.

Output comment to assembly source file	Select whether to output a C++ source program as a comment to the assembly source file to be output. This property corresponds to the -pass_source option of the ccrl command. This property is displayed only when [Yes(-asm_path)] in the [Output assembly source file] property in the [Output File] category is selected or when [Yes(-asmopt=-prn_path)] in the [Output assemble list file] property in the [Assemble List] category is selected.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-pass_source)	Outputs a C++ source program as a comment to the assembly source file.
		No	Does not output a C++ source program as a comment to the assembly source file.

(8) [Output File]
The detailed information on output files is displayed and the configuration can be changed.

Object file name	Specify the name of the object file generated after compilation. The extension other than ".obj" cannot be specified. If the extension is omitted, ".obj" is automatically added. If this is blank, the file name will be the source file name with the extension replaced by ".obj". This property corresponds to the -o option of the ccrl command.		
	Default	Blank	
	How to change	Directly enter in the text box.	
	Restriction	Up to 259 characters	
Output assembly source file	Select whether to output the assembly source file of the compile result for the C++ source. This property corresponds to the -asm_path option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-asm_path)	Outputs the assembly source file of the compile result for the C++ source.
		No	Does not output the assembly source file of the compile result for the C++ source.

Output folder for assembly source file	Specify the folder which the assembly source file is output. If a relative path is specified, the reference point of the path is the main project or subproject folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. The assembly source file is saved under the C++ source file name with the extension replaced by ".asm". If this is blank, it is assumed that the project folder has been specified. This property corresponds to the -asm_path option of the ccrl command. This property is displayed only when [Yes(-asm_path)] in the [Output assembly source file] property is selected.		
	Default	*Configuration of the compile option*	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	
Output preprocessed source file	Select whether to output the execution result of preprocessing for the source file to a file. This property corresponds to the -P option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-P)	Outputs the execution result of preprocessing for the source file to a file.
		No	Does not output the execution result of preprocessing for the source file to a file.
Output folder for preprocessed source file	Specify the folder which the preprocessed source file is output. The file is output under the source file name with the extension replaced by ".i". If a relative path is specified, the reference point of the path is the main project or subproject folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This property corresponds to the -prep_path option of the ccrl command. This property is displayed only when [Yes(-P)] in the [Output preprocessed source file] property is selected.		
	Default	*Configuration of the compile option*	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	

(9) [Assemble List]
The detailed information on the assemble list is displayed and the configuration can be changed.

Output assemble list file	Select whether to output the assemble list file. This property corresponds to the -asmopt=-prn_path option of the ccrl command.		
	Default	*Configuration of the compile option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-asmopt=-prn_path)	Outputs the assemble list file.
		No	Does not output the assemble list file.
Output folder for assemble list file	Specify the folder which the assemble list file is output. The assemble list file is output under the source file name with the extension replaced by ".prn". If a relative path is specified, the reference point of the path is the main project or subproject folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This property corresponds to the -asmopt=-prn_path option of the ccrl command. This property is displayed only when [Yes(-asmopt=-prn_path)] in the [Output assemble list file] property is selected.		
	Default	*Configuration of the compile option*	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog Box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	

(10) [Error Output]
The detailed information on the error output is displayed and the configuration can be changed.

Output error message file	Select whether to output the error message file. This property corresponds to the -error_file option of the ccrl command. Error messages are displayed on the Output panel regardless of this property's. This property is displayed only when [No] in the [Build in parallel] property in the [Build Method] category from the [Common Options] tab is selected		
	Default	*Configuration of the common option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-error_file)	Outputs the error message file.
		No	Does not output the error message file.

Error message file output folder	Specify the folder which the error message file is output. If a relative path is specified, the reference point of the path is the main project or subproject folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This property corresponds to the -error_file option of the ccrl command. This property is displayed only when [Yes(-error_file)] in the [Output error message file] property is selected.	
	Default	*Configuration of the common option*
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.
	Restriction	Up to 247 characters
Error message file name	Specify the error message file name. The extension can be freely specified. The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. If this is blank, it is assumed that "%ProjectName%.err" has been specified. This property corresponds to the -error_file option of the ccrl command. This property is displayed only when [Yes(-error_file)] in the [Output error message file] property is selected.	
	Default	*Configuration of the common option*
	How to change	Directly enter in the text box.
	Restriction	Up to 259 characters

(11) [Warning Message]
The detailed information on warning messages is displayed and the configuration can be changed.

Undisplayed warning message	Specify the number of the warning message not to be displayed. If multiple message numbers are specified, delimit them with "," (comma) (example: 20009,20011). Also, the range can be set using "-" (hyphen) (example: 20000-20100,20300-20500). This property corresponds to the -no_warning option of the ccrl command.	
	Default	*Configuration of the common option*
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.
	Restriction	Up to 2048 characters

(12) [Message]
The detailed information on messages is displayed and the configuration can be changed.

<table>
<tr><td>Change warning message to error message</td><td colspan="3">Select whether to change the type of warning messages to error.
This property corresponds to the -change_message option of the ccrl command.
This property is displayed when [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RL compiler has been installed.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Configuration of the compile option</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="3">Restriction</td><td>Yes(All)(-change_message=error)</td><td>Changes the type of all warning messages to error.</td></tr>
<tr><td></td><td>Yes(Specify message number)(-change_message=error=<Message number>)</td><td>Specifies the number of warning message of which type is to be changed to error.</td></tr>
<tr><td></td><td>No</td><td>Does not change the type of warning messages.</td></tr>
<tr><td>Number of warning message</td><td colspan="3">Specify the number of the warning message.
If multiple message numbers are specified, delimit them with "," (comma) (example: 23028,23086).
Also, a range of message numbers can be specified using "-" (hyphen) (example:23028-23086).
This property corresponds to the -change_message option of the ccrl command.

This property is displayed only in the following cases.
- When [Always latest version which was installed] or V1.06.00 or a later version is selected for the [Using compiler package version] property under the [Version Select] category on the [Common Options] tab in an environment where V1.06.00 or a later version of the CC-RL compiler has been installed
- When [Yes(Specify message number)(-change_message=error=<Message number>)] in the [Change warning message to error message] property is selected</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Configuration of the compile option</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">Up to 32767 characters</td></tr>
</table>

(13) [Others]
Other detailed information on compilation is displayed and the configuration can be changed.

<table>
<tr><td>Commands executed before compile processing</td><td>Specify the command to be executed before compile processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%CompiledFile%: Replaces with the absolute path of the output file under compiling.
%InputFile%: Replaces with the absolute path of the file to be compiled (except in case of simultaneous building).
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed before compile processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.
<table><tr><td>Default</td><td>Configuration of the compile option</td></tr><tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr><tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr></table></td></tr>
</table>

<table>
<tr><td rowspan="4">Commands executed after compile processing</td><td colspan="2">Specify the command to be executed after compile processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%CompiledFile%: Replaces with the absolute path of the output file under compiling.
%InputFile%: Replaces with the absolute path of the file to be compiled (except in case of simultaneous building).
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed after compile processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td>Default</td><td>Configuration of the compile option</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
<tr><td rowspan="4">Other additional options</td><td colspan="2">Input the compile option to be added additionally.
The options set here are added at the end of the compile options group.</td></tr>
<tr><td>Default</td><td>Configuration of the compile option</td></tr>
<tr><td>How to change</td><td>Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.</td></tr>
<tr><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

[Individual Assemble Options] tab

This tab shows the detailed information on an assemble source file categorized by the following and the configuration can be changed.

Note that this tab takes over the settings of the [Common Options] tab, [Compile Options] tab, and [Assemble Options] tab.

When the settings are changed from these tabs, the properties are displayed in boldface.

Remark This tab is displayed only when [Yes] in the [Set individual assemble option] property in the [Build] category from the [Build Settings] tab is selected.

[Description of each category]

(1) [Debug Information]

The detailed information on debug information is displayed and the configuration can be changed.

Add debug information	Select whether to generate the debug information. It is possible to perform source debugging with the debugger by outputting information for source debugging to the output file. This property corresponds to the -g option of the ccrl command.		
	Default	*Configuration of the assemble option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-g)	Generates the debug information.
		No	Does not generate the debug information.

(2) [Optimization]

The detailed information on the optimization is displayed and the configuration can be changed.

Outputs additional information for inter-module optimization	Select whether to output additional information for inter-module optimization. At linkage, inter-module optimization is applied to files for which this option has been specified. This property corresponds to the -goptimize option of the ccrl command.		
	Default	*Configuration of the assemble option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-goptimize)	Outputs additional information for inter-module optimization.
		No	Does not outputs additional information for inter-module optimization.

(3) [Preprocess]

The detailed information on preprocessing is displayed and the configuration can be changed.

<table>
<tr><td>Additional include paths</td><td colspan="3">Specify the additional include paths during assembling.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
The specified include path is searched with higher priority than the standard include file folder of CC-RL.
The reference point of the path is the project folder.
When this property is omitted, only the standard folder of CC-RL is searched.
This property corresponds to the -I option of the ccrl command.
The specified include path is displayed as the subproperty.
Uppercase characters and lowercase characters are not distinguished for the include paths.</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Additional include paths[number of defined items]</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Edit by the Path Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td colspan="2">Up to 247 characters
Up to 256 items can be specified.</td></tr>
<tr><td>Use whole include paths specified for build tool</td><td colspan="3">Select whether to assemble using the include path specified in the [Additional include paths] property in the [Preprocess] category from the [Assemble Options] tab of the build tool to be used.
The setting of the [Compile Options] tab is used when [Yes] in the [Build simultaneously] property in the [Build Method] category from the [Common Options] tab is selected.
This property corresponds to the -I option of the ccrl command.
- Paths specified in the [Additional include paths] property from this tab
- Paths specified in the [Additional include paths] property from the [Assemble Options] tab
- Paths displayed in the [System include paths] property from the [Assemble Options] tab</td></tr>
<tr><td></td><td>Default</td><td colspan="2">Yes</td></tr>
<tr><td></td><td>How to change</td><td colspan="2">Select from the drop-down list.</td></tr>
<tr><td></td><td rowspan="2">Restriction</td><td>Yes</td><td>Assembles using the include path specified in the property of the build tool to be used.</td></tr>
<tr><td></td><td>No</td><td>Does not use the include path specified in the property of the build tool to be used.</td></tr>
</table>

Macro definition	Specify the name of the macro to be defined. Specify in the format of "*macro name*=*defined value*", with one macro name per line. The "=*defined value*" part can be omitted, and in this case, "1" is used as the defined value. This property corresponds to the -asmopt=-define option of the ccrl command. The specified macro is displayed as the subproperty.	
	Default	*Configuration of the assemble option*
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.
Macro undefinition	Specify the macro name to be undefined. Specify in the format of "*macro name*", with one macro name per line. This property corresponds to the -asmopt=-undefine option of the ccrl command. The specified macro is displayed as the subproperty.	
	Default	*Configuration of the assemble option*
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 256 characters Up to 256 items can be specified.

(4) [Character Encoding]
The detailed information on character encoding is displayed and the configuration can be changed.

Format of numerical constant	Specify the representation format of the base number of numerical constants. Example) Prefix format: 0xFFFF, Suffix format: FFFFH This property corresponds to the -asmopt=-base_number option of the ccrl command.		
	Default	*Configuration of the assemble option*	
	How to change	Select from the drop-down list.	
	Restriction	Prefix format(No option specified)	Handles numerical constants in the Prefix format.
		Suffix format(-asmopt=-base_number=suffix)	Handles numerical constants in the Suffix format.

Character encoding	Select the character code to be used for Japanese comments and character strings in the source file. This property corresponds to the -character_set option of the ccrl command.		
	Default	*Configuration of the assemble option*	
	How to change	Select from the drop-down list.	
	Restriction	Auto(No option specified)	Interprets the Japanese character codes in the source file as SJIS on Japanese OS. On other than Japanese OS, does not interpret the character code in the source file.
		SJIS(-character_set=sjis)	Interprets the Japanese character codes in the source file as SJIS.
		EUC(-character_set=euc_jp)	Interprets the Japanese character codes in the source file as EUC.
		UTF-8(-character_set=utf8)	Interprets the Japanese character codes in the source file as UTF-8.
		Big5(-character_set=big5)	Interprets the Chinese character codes in the source file as Traditional Chinese.
		GB2312(-character_set=gb2312)	Interprets the Chinese character codes in the source file as Simplified Chinese.
		No-process(-character_set=none)	Does not interpret the Japanese/Chinese character codes in the source file.

(5) [Output File]
The detailed information on output files is displayed and the configuration can be changed.

Object file name	Specify the name of the object file generated after assembling. The extension other than ".obj" cannot be specified. If the extension is omitted, ".obj" is automatically added. If this is blank, the file name will be the source file name with the extension replaced by ".obj". This property corresponds to the -o option of the ccrl command.	
	Default	Blank
	How to change	Directly enter in the text box.
	Restriction	Up to 259 characters

(6) [Assemble List]
The detailed information on the assemble list is displayed and the configuration can be changed.

Output assemble list file	Select whether to output the assemble list file. This property corresponds to the -asmopt=-prn_path option of the ccrl command.		
	Default	*Configuration of the assemble option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-asmopt=-prn_path)	Outputs the assemble list file.
		No	Does not output the assemble list file.

Output folder for assemble list file	Specify the folder which the assemble list file is output. The assemble list file is output under the source file name with the extension replaced by ".prn". If a relative path is specified, the reference point of the path is the main project or subproject folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This property corresponds to the -asmopt=-prn_path option of the ccrl command. This property is displayed only when [Yes(-asmopt=-prn_path)] in the [Output assemble list file] property is selected.	
	Default	*Configuration of the assemble option*
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.
	Restriction	Up to 247 characters

(7) [Error Output]
The detailed information on the error output is displayed and the configuration can be changed.

Output error message file	Select whether to output the error message file. This property corresponds to the -error_file option of the ccrl command. Error messages are displayed on the Output panel regardless of this property's. This property is displayed only when [No] in the [Build in parallel] property in the [Build Method] category from the [Common Options] tab is selected		
	Default	*Configuration of the common option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-error_file)	Outputs the error message file.
		No	Does not output the error message file.
Error message file output folder	Specify the folder which the error message file is output. If a relative path is specified, the reference point of the path is the main project or subproject folder. If an absolute path is specified, the reference point of the path is the main project or subproject folder (unless the drives are different). The following placeholder is supported. %BuildModeName%: Replaces with the build mode name. If this is blank, it is assumed that the project folder has been specified. This property corresponds to the -error_file option of the ccrl command. This property is displayed only when [Yes(-error_file)] in the [Output error message file] property is selected.		
	Default	*Configuration of the common option*	
	How to change	Directly enter in the text box or edit by the Browse For Folder dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	

Error message file name	Specify the error message file name. The extension can be freely specified. The following placeholders are supported. %ActiveProjectName%: Replaces with the active project name. %MainProjectName%: Replaces with the main project name. %ProjectName%: Replaces with the project name. If this is blank, it is assumed that "%ProjectName%.err" has been specified. This property corresponds to the -error_file option of the ccrl command. This property is displayed only when [Yes(-error_file)] in the [Output error message file] property is selected.	
	Default	*Configuration of the common option*
	How to change	Directly enter in the text box.
	Restriction	Up to 259 characters

(8) [Warning Message]
The detailed information on warning messages is displayed and the configuration can be changed.

Undisplayed warning message	Specify the number of the warning message not to be displayed. If multiple message numbers are specified, delimit them with "," (comma) (example: 20009,20011). Also, the range can be set using "-" (hyphen) (example: 20000-20100,20300-20500). This property corresponds to the -no_warning option of the ccrl command.	
	Default	*Configuration of the common option*
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.
	Restriction	Up to 2048 characters
Displayed warning message	Specify the number of the warning message to be always displayed. If multiple message numbers are specified, delimit them with "," (comma) (example: 50001,50011). Also, the range can be set using "-" (hyphen) (example1: 50010-50013 example2: 50010-50013,50019). If the same number is specified in the [Undisplayed warning message] property and this property, the number specified in the [Displayed warning message] property takes precedence. This corresponds to the -asmopt=-warning option of the ccrl command. This property is displayed when the [Undisplayed warning message] property is not empty.	
	Default	*Configuration of the common option*
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.
	Restriction	Up to 2048 characters

(9) [Others]
Other detailed information on assembly is displayed and the configuration can be changed.

<table>
<tr><td>Commands executed before assemble processing</td><td>Specify the command to be executed before assemble processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%AssembledFile%: Replaces with the absolute path of the output file under assembling.
%BuildModeName%: Replaces with the build mode name.
%InputFile%: Replaces with the absolute path of the file to be assembled (except in case of simultaneous building).
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed before assemble processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.
<table><tr><td>Default</td><td>Configuration of the assemble option</td></tr><tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr><tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr></table></td></tr>
</table>

<table>
<tr><td rowspan="4">Commands executed after assemble processing</td><td colspan="2">Specify the command to be executed after assemble processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%AssembledFile%: Replaces with the absolute path of the output file under assembling.
%BuildModeName%: Replaces with the build mode name.
%InputFile%: Replaces with the absolute path of the file to be assembled (except in case of simultaneous building).
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed after assemble processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td>Default</td><td>Configuration of the assemble option</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
<tr><td rowspan="4">Other additional options</td><td colspan="2">Input the assemble option to be added additionally.
The options set here are added at the end of the assemble options group.</td></tr>
<tr><td>Default</td><td>Configuration of the assemble option</td></tr>
<tr><td>How to change</td><td>Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.</td></tr>
<tr><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

[Individual FAA Assemble Options] tab

This tab shows the detailed information on an FAA assemble source file categorized by the following and the configuration can be changed.

Note that this tab takes over the settings of the [Common Options] tab and [FAA Assemble Options] tab.

When the settings are changed from these tabs, the properties are displayed in boldface.

Remark This tab is displayed only in the following cases

- When [Yes] in the [Set individual FAA assemble option] property in the [Build] category from the [Build Settings] tab is selected
- When the microcontroller has a FAA.

[Description of each category]

(1) [Debug Information]

The detailed information on debug information is displayed and the configuration can be changed.

Add debug information	Select whether to generate the debug information. This property corresponds to the -no_debug_info option of the dspasm command.		
	Default	*Configuration of the FAA assemble option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes	Generates the debug information.
		No(-no_debug_info)	Does not generate the debug information.

(2) [Preprocess]

The detailed information on preprocessing is displayed and the configuration can be changed.

<table>
<tr><td>Include paths</td><td colspan="2">Specify the include paths during FAA assembling.
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%BuildModeName%: Replaces with the build mode name.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
The reference point of the path is the project folder.
This property corresponds to the -inc_dir option of the dspasm command.
The specified include path is displayed as the subproperty.
Uppercase characters and lowercase characters are not distinguished for the include paths.</td></tr>
<tr><td></td><td>Default</td><td>Configuration of the FAA assemble option</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Path Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 247 characters
Up to 256 items can be specified.</td></tr>
<tr><td>First character of text macro</td><td colspan="2">Specify the first character of the text macro.
This property corresponds to the -text_macro option of the dspasm command.</td></tr>
<tr><td></td><td>Default</td><td>Configuration of the FAA assemble option</td></tr>
<tr><td></td><td>How to change</td><td>Directly enter in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>One of the following letters:
(sharp) ' (apostrophe) ` (accent grave) @ (at mark) _ (underscore)</td></tr>
<tr><td>Text macro definition</td><td colspan="2">Specify the text macro to be defined in the format of "(macro name)#(defined value)", with one macro name per line.
This option corresponds to the -define option of the dspasm command.
The specified macro is displayed as the subproperty.</td></tr>
<tr><td></td><td>Default</td><td>Configuration of the FAA assemble option</td></tr>
<tr><td></td><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td></td><td>Restriction</td><td>Up to 256 characters
Up to 256 items can be specified.</td></tr>
</table>

Allow to redefine text macro	Specify whether to allow to redefine a text macro. This option corresponds to the -allow_text_macro_redefine option of the dspasm command.		
	Default	*Configuration of the FAA assemble option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-allow_text_macro_redefine)	Allows to redefine text macro.
		No	Does not allow to redefine text macro.
Method for recognizing the text macros	Specify the method for recognizing the macro when a text macro is to be replaced. This option corresponds to the -macro_identify option of the dspasm command.		
	Default	*Configuration of the FAA assemble option*	
	How to change	Select from the drop-down list.	
	Restriction	Forward	The forward-matching method is used to recognize the text macro.
		Exact(-macro_identify exact)	The word-matching method is used to recognize the text macro.

(3) [Output Code]
The detailed information on output code is displayed and the configuration can be changed.

Start address of section of code	Specify the start address of the section of code in hexadecimal without 0x. This corresponds to the -code_section_start option of the dspasm command.	
	Default	*Configuration of the FAA assemble option*
	How to change	Directly enter in the text box.
	Restriction	- When the value of the [Version of FAA core] property is [V2 core(-core_version 2)]: 0 to FFF - When the value of the [Version of FAA core] property is [V3 core(No option specified)]: 0 to 3FFF
Start address of section of data	Specify the start address of the section of data in hexadecimal without 0x. This corresponds to the -data_section_start option of the dspasm command.	
	Default	*Configuration of the FAA assemble option*
	How to change	Directly enter in the text box.
	Restriction	- When the value of the [Version of FAA core] property is [V2 core(-core_version 2)]: 0 to FFF - When the value of the [Version of FAA core] property is [V3 core(No option specified)]: 0 to 1FFF

(4) [Output file]
The detailed information on the assemble list is displayed and the configuration can be changed.

Output folder	Specify the folder name of the object file to be generated after FAA assembling. If this is blank, the object file is outputted to the folder specified by the [Intermediate file output folder] property in the [Common Options] tab. This property corresponds to the -output option of the dspasm command.		
	Default	Blank	
	How to change	Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.	
	Restriction	Up to 247 characters	
Output assembly source file	Select whether to output the assembly source file. This option corresponds to the -format option of the dspasm command.		
	Default	*Configuration of the FAA assemble option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-format ASM)	Outputs the assembly source file.
		No	Does not output the assembly source file.
Output VERILOG file	Select whether to output the VERILOG file. This option corresponds to the -format option of the dspasm command.		
	Default	*Configuration of the FAA assemble option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-format VERILOG)	Outputs the VERILOG file.
		No	Does not output the VERILOG file.
Output result of preprocessing to file	Select whether to output the result of preprocessing to a file. This option corresponds to the -E option of the dspasm command.		
	Default	*Configuration of the FAA assemble option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-E)	Outputs the result of preprocessing to a file.
		No	Does not output the result of preprocessing to a file.
Output list file	Select whether to output the list file. This option corresponds to the -list option of the dspasm command.		
	Default	*Configuration of the FAA assemble option*	
	How to change	Select from the drop-down list.	
	Restriction	Yes(-list)	Outputs the list file.
		No	Does not output the list file.

(5) [Others]
Other detailed information on assembly is displayed and the configuration can be changed.

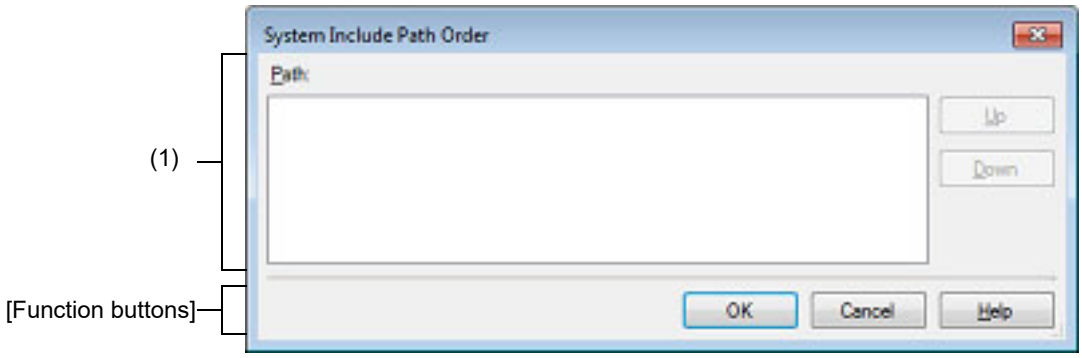
<table>
<tr><td rowspan="4">Commands executed before FAA assemble processing</td><td colspan="2">Specify the command to be executed before FAA assemble processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%AssembledFile%: Replaces with the absolute path of the output file under FAA assembling.
%BuildModeName%: Replaces with the build mode name.
%InputFile%: Replaces with the absolute path of the file to be FAA assembled.
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed before FAA assemble processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td>Default</td><td>Configuration of the FAA assemble option</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
</table>

<table>
<tr><td rowspan="4">Commands executed after FAA assemble processing</td><td colspan="2">Specify the command to be executed after FAA assemble processing.
Use the call instruction to specify a batch file (example: call a.bat).
The following placeholders are supported.
%ActiveProjectDir%: Replaces with the absolute path of the active project folder.
%ActiveProjectName%: Replaces with the active project name.
%AssembledFile%: Replaces with the absolute path of the output file under FAA assembling.
%BuildModeName%: Replaces with the build mode name.
%InputFile%: Replaces with the absolute path of the file to be FAA assembled (except in case of simultaneous building).
%MainProjectDir%: Replaces with the absolute path of the main project folder.
%MainProjectName%: Replaces with the main project name.
%MicomToolPath%: Replaces with the absolute path of the install folder of this product.
%Options%: Replaces with the command line option under build execution.
%OutputDir%: Replaces with the absolute path of the output folder.
%OutputFile%: Replaces with the absolute path of the output file.
%Program%: Replaces with the program name under execution.
%ProjectDir%: Replaces with the absolute path of the project folder.
%ProjectName%: Replaces with the project name.
%TempDir%: Replaces with the absolute path of the temporary folder.
%WinDir%: Replaces with the absolute path of the Windows system folder.
When "#!python" is described in the first line, the contents from the second line to the last line are regarded as the script of the Python console, and then executed after FAA assemble processing.
The placeholders can be described in the script.
The specified command is displayed as the subproperty.</td></tr>
<tr><td>Default</td><td>Configuration of the FAA assemble option</td></tr>
<tr><td>How to change</td><td>Edit by the Text Edit dialog box which appears when clicking the [...] button.
For the subproperty, you can enter directly in the text box.</td></tr>
<tr><td>Restriction</td><td>Up to 1023 characters
Up to 64 items can be specified.</td></tr>
<tr><td rowspan="4">Other additional options</td><td colspan="2">Input the FAA assemble option to be added additionally.
The options set here are added at the end of the FAA assemble options group.</td></tr>
<tr><td>Default</td><td>Configuration of the FAA assemble option</td></tr>
<tr><td>How to change</td><td>Directly enter in the text box or edit by the Character String Input dialog box which appears when clicking the [...] button.</td></tr>
<tr><td>Restriction</td><td>Up to 259 characters</td></tr>
</table>

System Include Path Order dialog box

This dialog box is used to refer the system include paths specified for the compiler and set their specified sequence.

Figure A.2 System Include Path Order Dialog Box



The following items are explained here.

- [How to open]
- [Description of each area]
- [Function buttons]

[How to open]

- On the Property panel, select the following properties, and then click the [...] button.
  - From the [Common Options] tab, [System include paths] in the [Frequently Used Options(for Compile)] category, and [System include paths] in the [Frequently Used Options(for Assemble)] category
  - From the [Compile Options] tab, [System include paths] in the [Preprocess] category
  - From the [Assemble Options] tab, [System include paths] in the [Preprocess] category

[Description of each area]

(1) Path list display area
This area displays the list of the system include paths specified for the compiler.

(a) [Path]
This area displays the list of the system include paths in the specified sequence for the compiler.
The default order is the order that the files are registered to the project.
By changing the display order of the paths, you can set the specified order of the paths to the compiler.
To change the display order, use the [Up] and [Down] buttons, or drag and drop the path names.

Remark 1. Move the mouse cursor over a file name to display a tooltip with the absolute path of that file.

Remark 2. Newly added system include paths are added next to the last path of the list.

Remark 3. When the path names are dragged and dropped, the multiple path names which are next to each other can be selected together.

(b) Button

Up	Moves the selected path to up.
Down	Moves the selected path to down.

Remark Note that above buttons are disabled when any path is not selected.

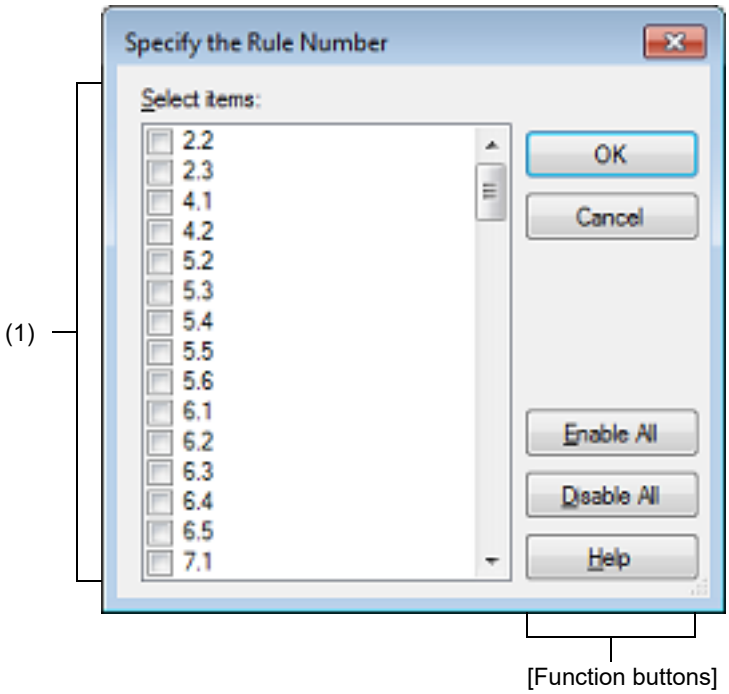
[Function buttons]

Button	Function
OK	Sets the specified order of the paths to the compiler as the display order in the Path list display area and closes this dialog box.
Cancel	Cancels the specified order of the paths and closes the dialog box.
Help	Displays the help of this dialog box.

Specify Rule Number dialog box

This dialog box is used to select the number of the MISRA-C rule and set it to the area that this dialog box is called from.

Figure A.3 Specify Rule Number Dialog Box



The following items are explained here.

- [How to open]
- [Description of each area]
- [Function buttons]

[How to open]

- On the Property panel, select the following properties, and then click the [...] button.
  - From the [Compile Options] tab, [Rule number], [Exclusion rule number], [Check rule number besides required rule], [Exclusion rule number from required rule] in the [MISRA-C Rule Check] category
  - From the [Individual Compile Options(C)] tab, [Rule number], [Exclusion rule number], [Check rule number besides required rule] [Exclusion rule number from required rule] in the [MISRA-C Rule Check] category

[Description of each area]

(1) [Select items]
The list of the MISRA-C rule numbers which can be specified for the area that this dialog box is called from is displayed (ascending order).
Select the check boxes to set the rule number.

Remark In the area that this dialog box is called from, if a rule number is already set, the check box for that rule number will be selected by default.

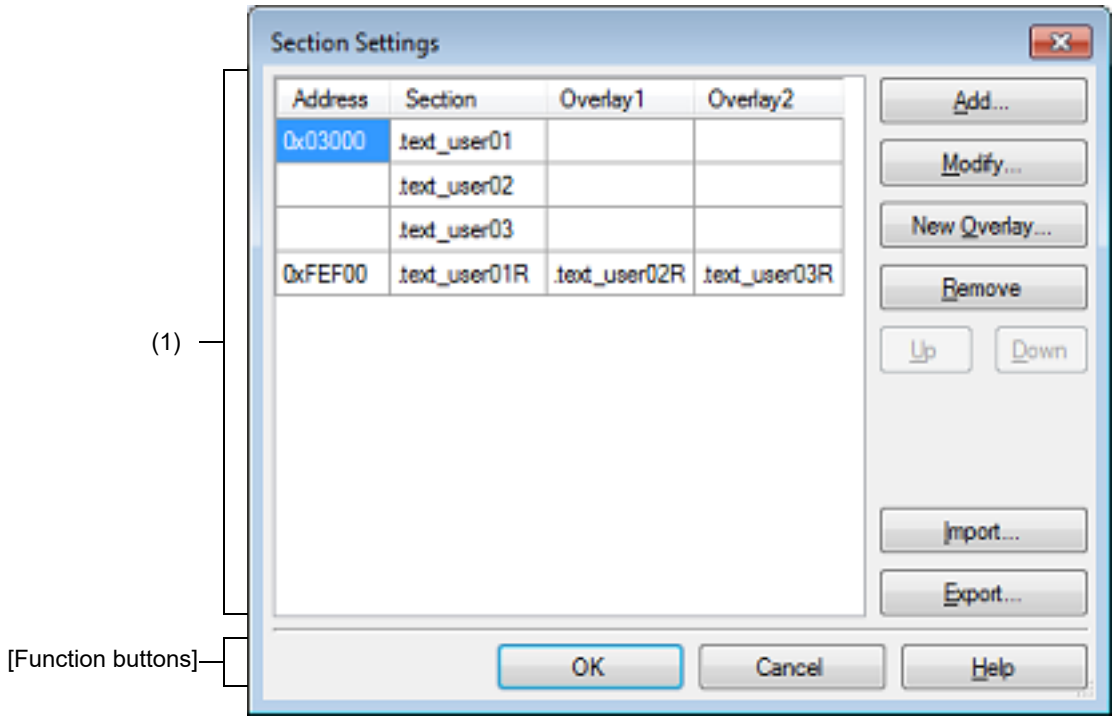
[Function buttons]

Button	Function
OK	Closes this dialog box and sets the selected rule number to the area that this dialog box is called from.
Cancel	Cancels the rule number selecting and closes the dialog box.
Enable All	Selects all the check boxes in [Select items].
Disable All	Clears all the check boxes in [Select items].
Help	Displays the help of this dialog box.

Section Settings dialog box

This dialog box is used to add, modify, or delete sections.

Figure A.4 Section Settings Dialog Box



The following items are explained here.

- [How to open]
- [Description of each area]
- [Function buttons]

[How to open]

- On the Property panel, select the following property, and then click the [...] button.
  - From the [Link Options] tab, [Section start address] in the [Section] category

[Description of each area]

(1) Address-section area
This area displays the list of currently configured section allocations.

(a) [Address]
This area displays the start addresses of the sections.

(b) [Section]
This area displays the names of the sections.

(c) [Overlay*n*]
This area displays the names of the sections to be overlaid (*n*: number starting with "1").

(d) Button

Add...	- When selecting an address in this area Opens the Section Address dialog box. Adds the address specified in the dialog box to this area so that the addresses are listed in the ascending order (the section column remains empty). - When selecting a section in this area Opens the Add Section dialog box. Adds the section specified in the dialog box to this area. When there is no empty column in the section group (an address and the sections allocated to the address) where the specified section is to be included, a new section row is added to the bottom of the section group. When there is an empty column, the section is added there.
Modify...	- When selecting an address in this area Opens the Section Address dialog box. Moves the section group according to the address specified in the dialog box so that the addresses are listed in the ascending order in this area. - When selecting a section in this area Opens the Modify Section dialog box. Replaces the section name selected in this area with the one specified in the dialog box. Note that this button is disabled when the selected sell is blank.
New Overlay...	Opens the Add Overlay dialog box. Adds the [Overlay*n*] column in this area and sets the section specified in the dialog box in the column that corresponds to the selected section group.
Remove	- When selecting an address in this area Opens the Unassigned Section dialog box. Deletes the section selected in the dialog box from this area. If no sections are left in the section group, the section group itself is deleted. - When selecting a section in this area Deletes the selected section from this area. If no sections are left in the section group, the section group itself is deleted. If no section names are left in the [Overlay*n*] column, the column itself is deleted. Note that this button is disabled when the selected sell is blank.
Up	Moves up the selected section. However, if the column above the selected section is blank, no move can be made. Input in advance a section name to the above column. Note that this button is disabled when an address is selected or a blank section column is selected.
Down	Moves down the selected section. However, if the column below the selected section is blank, no move can be made. Input in advance a section name to the column below. Note that this button is disabled when an address is selected or a blank section column is selected.
Import...	Opens the Select Import File dialog box. Acquires the section settings from the file specified in the dialog box and updates this area to reflect the acquired settings.
Export...	Opens the Select Export File dialog box. Outputs the contents of this area to the file specified in the dialog box.

[Function buttons]

Button	Function
OK	Reflects the specified section to the text box that opened this dialog box and closes this dialog box.
Cancel	Cancels the settings and closes this dialog box.
Help	Displays the help of this dialog box.

Add Section dialog box
Modify Section dialog box
Add Overlay dialog box

These dialog boxes are used to set a section name when adding, modifying, or overlaying a section, respectively.

Figure A.5 Add Section Dialog Box

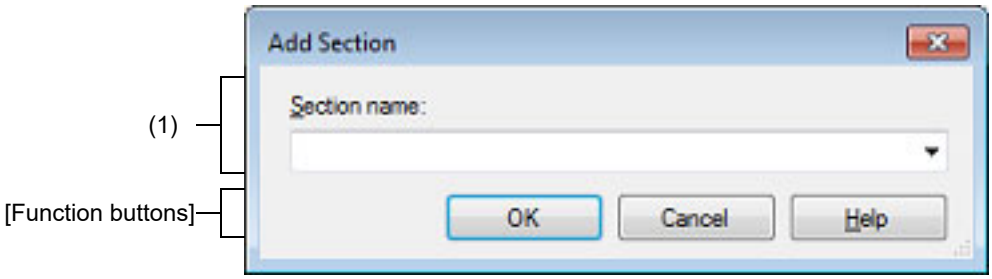


Figure A.6 Modify Section Dialog Box

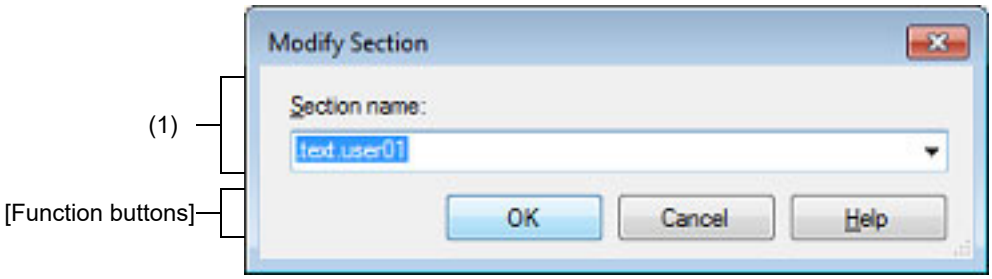
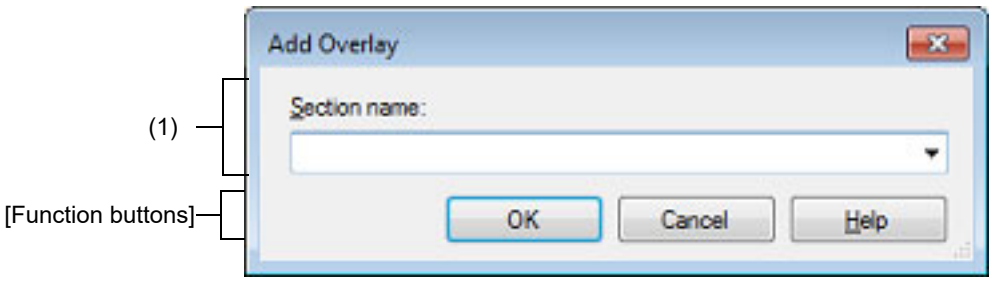


Figure A.7 Add Overlay Dialog Box



The following items are explained here.

- [How to open]
- [Description of each area]
- [Function buttons]

[How to open]

- Add Section dialog box
  - On the Section Settings dialog box, select a section in the address-section area, and then click the [Add...] button.
- Modify Section dialog box
  - On the Section Settings dialog box, select a section in the address-section area, and then click the [Modify...] button.
- Add Overlay dialog box
  - On the Section Settings dialog box, click the [New Overlay...] button.

[Description of each area]

(1) [Section name]
Specify the section name.
Directly enter the section name in the text box or select from the drop-down list.
The following characters can be used only: A-Z, a-z, 0-9, @, _, *, dot(.).
Wildcard characters (*) can also be used.
Note that numeric characters (0 to 9) and dot(.) cannot be used at the beginning of a section name.
The following reserved sections are set in the drop-down list.
.bss, .const, .data, .text

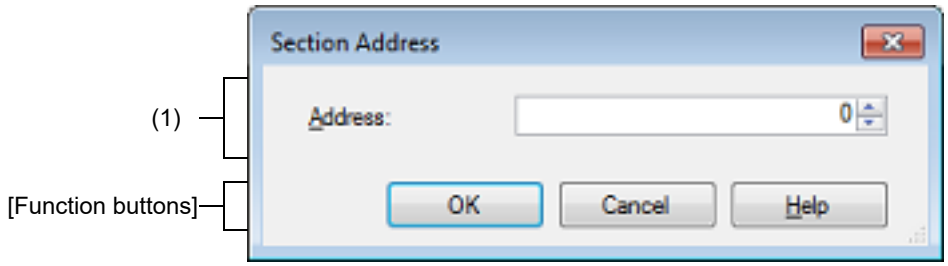
[Function buttons]

Button	Function
OK	- Add Section dialog box Closes this dialog box and adds the specified section to the address-section area in the Section Settings dialog box. When there is no empty column in the section group (an address and the sections allocated to the address) where the specified section is to be included, a new section row is added to the bottom of the section group. When there is an empty column, the section is added there. - Modify Section dialog box Closes this dialog box and replaces the section name selected in the address-section area in the Section Settings dialog box with the one specified. - Add Overlay dialog box Closes this dialog box and adds the [Overlay*n*] column (*n*: number starting with "1") to the address-section area in the Section Settings dialog box. Sets the specified section in the column that corresponds to the selected section group.
Cancel	Cancels the settings and closes this dialog box.
Help	Displays the help of this dialog box.

Section Address dialog box

This dialog box is used to set an address when adding or modifying a section.

Figure A.8 Section Address Dialog Box



The following items are explained here.

- [How to open]
- [Description of each area]
- [Function buttons]

[How to open]

- On the Section Settings dialog box, select an address in the address-section area, and then click the [Add...] or [Modify...] button.

[Description of each area]

(1) [Address]
Specify the start address of the section.
Directly enter the address in the text box or select from the button.
The range that can be specified for the value is 0 to FFFFF (hexadecimal number) (default: 0).

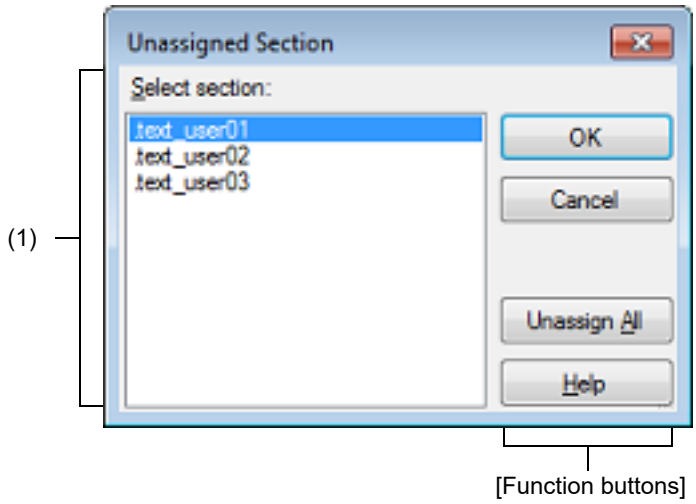
[Function buttons]

Button	Function
OK	- When opening from the [Add...] button in the Section Settings dialog box Closes this dialog box and adds the specified address to an appropriate location in the address-section area in the Section Settings dialog box (the section column remains empty). - When opening from the [Modify...] button in the Section Settings dialog box Closes this dialog box and moves the section group (an address and the sections allocated to the address) to an appropriate location in the address-section area in the Section Settings dialog box.
Cancel	Cancels the settings and closes this dialog box.
Help	Displays the help of this dialog box.

Unassigned Section dialog box

This dialog box is used to delete sections.

Figure A.9 Unassigned Section Dialog Box



The following items are explained here.

- [How to open]
- [Description of each area]
- [Function buttons]

[How to open]

- On the Section Settings dialog box, select an address in the address-section area, and then click the [Remove] button.

[Description of each area]

(1) [Select sections]
This area displays the name of all sections allocated to the address selected in the Section Settings dialog box.
Select sections to be deleted by clicking their names.
You can select multiple sections by left clicking while holding down the [Ctrl] or [Shift] key.

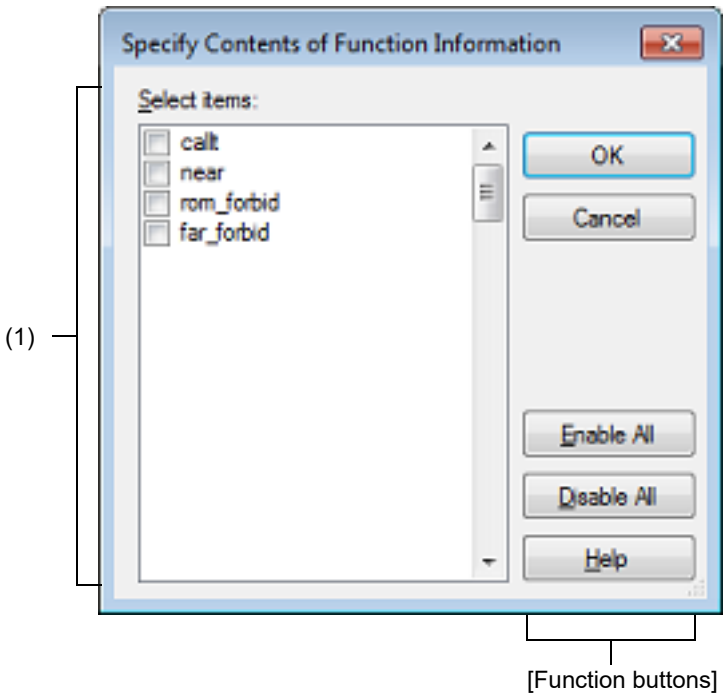
[Function buttons]

Button	Function
OK	Closes this dialog box and deletes the selected section from the address-section area in the Section Settings dialog box. Deletes the section group when the section group (an address and the sections allocated to the address) includes no section. If no sections are left in the [Overlay*n*] column in the address-section area, the column itself is deleted.
Cancel	Cancels the settings and closes this dialog box.
Unassign All	Closes this dialog box and deletes all the sections (the section group selected in the address-section area in the Section Settings dialog box).
Help	Displays the help of this dialog box.

Specify Contents of Function Information dialog box

This dialog box is used to select the contents of function information and set it to the area that this dialog box is called from.

Figure A.10 Specify Contents of Function Information Dialog Box



The following items are explained here.

- [How to open]
- [Description of each area]
- [Function buttons]

[How to open]

- On the Property panel, select the following properties, and then click the [...] button.
  - From the [Link Options] tab, [Specify contents of function information] in the [Variables/functions information] category

[Description of each area]

(1) [Select items]
The list of the contents of function information which can be specified for the area that this dialog box is called from is displayed.
Select the check boxes to specify the contents.

Item	Description
callt	#pragma callt is output for frequently called functions for the amount of surplus space remaining in the callt entry or near area.
near	#pragma near is output for frequently called functions for the amount of surplus space remaining in the near area.
rom_forbid	#pragma callt or #pragma near will not be output for functions in the section specified by the ROM option.

Item	Description
far_forbid	#pragma callt or #pragma near will not be output for functions in an absolute address section or a section specified as a far area by the -start option.

For details about each item, see the description of link option "-VFINFO" of "CC-RL Compiler User's Manual".

Remark In the area that this dialog box is called from, if the contents is already set, the check box for that contents will be selected by default.

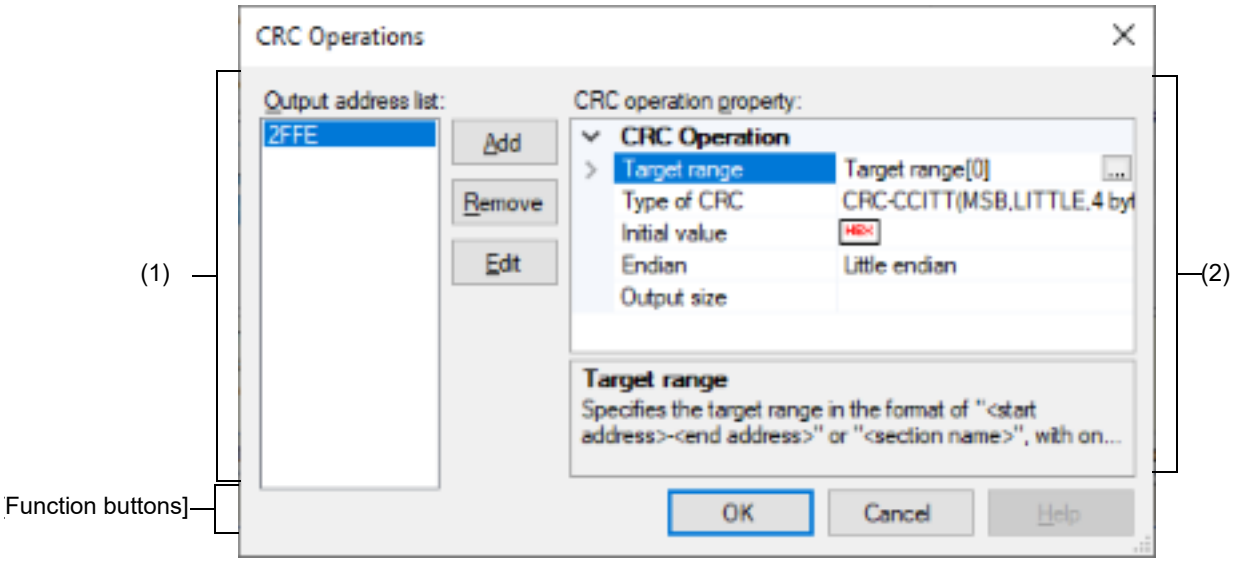
[Function buttons]

Button	Function
OK	Closes this dialog box and sets the selected contents to the area that this dialog box is called from.
Cancel	Cancels the contents selecting and closes the dialog box.
Enable All	Selects all the check boxes in [Select items].
Disable All	Clears all the check boxes in [Select items].
Help	Displays the help of this dialog box.

CRC Operations dialog box

This dialog box is used to set the CRC operation.

Figure A.11 CRC Operations Dialog Box



The following items are explained here.

- [How to open]
- [Description of each area]
- [Function Buttons]

[How to open]

- On the Property panel, select the following property, and then click the [...] button.
  - From the [Hex Output Options] tab, [CRC Operations] in the [CRC Operation] category

[Description of each area]

(1) Output address list area

(a) Output address list
A list of output addresses is displayed.
The output address is a key for recognizing multiple CRC operation settings.

(b) Button

Add	Opens the Character String Input dialog box. The address specified in the dialog box is appended to the end of a list of output addresses. The address is entered as a hexadecimal value from 0 to FFFFE.
Remove	Deletes the selected output address from the list.
Edit	Opens the Character String Input dialog box to change the output address selected in the list. The address is entered as a hexadecimal value from 0 to FFFFE.

(2) [CRC operation property] area

Displays and sets the properties of the CRC operation for the output address selected in the Output address list area.

(a) [CRC Operations]

The detailed information on CRC operation is displayed and the configuration can be changed.

Target range	Specify the CRC calculation range in the format of "*start address* - *end address*" or "*section name*". Specify the address in hexadecimal without 0x. The range of specifiable address values is 0 to FFFFF. This property corresponds to the -CRc option of the rlink command.	
	Default	Blank
	How to change	Edit by the Text Edit dialog box which appears when clicking the [...] button. For the subproperty, you can enter directly in the text box.
	Restriction	Up to 32767 characters Up to 65535 items can be specified.

Type of CRC	Select the method of CRC operation. See the user's manual of the device and "CC-RL Compiler User's Manual" for details about each operation. [CRC-CCITT(MSB,LITTLE,4 bytes) type] corresponds to [CRC-CCITT(MSB) type] in CS+ V3.01.00. This property corresponds to the -CRc option of the rlink command. See [Remark] for the correspondence with the [Type of CRC] property of CA78K0R.		
	Default	CRC-CCITT(MSB,LITTLE,4 bytes) type (High-speed CRC)	
	How to change	Select from the drop-down list.	
	Restriction	CRC-CCITT(MSB,LITTLE,4 bytes) type (High-speed CRC)	Outputs the calculation result of CRC-16-CCITT-MSB first operation with the input specified as 4-byte units in little-endian mode.
		SENT(MSB) type (General-purpose CRC(SENT))	Outputs the calculation result of operation conforming to SENT.
		CRC-CCITT(LSB) type (General-purpose CRC)	Outputs the calculation result of CRC-16-CCITT-LSB first operation.
		CCITT type	Outputs the calculation result of CRC-16-CCITT-MSB first operation with an initial value of 0xffff and inverse of XOR.
		CRC-CCITT(MSB) type	Outputs the calculation result of CRC-16-CCITT-MSB first operation.
		CRC-CCITT(MSB,LITTLE,2 bytes) type	Outputs the calculation result of CRC-16-CCITT-MSB first operation with the input specified as 2-byte units in little-endian mode.
		16	Outputs the calculation result of CRC-16-LSB first operation.
		32-ETHERNET type	Outputs the calculation result of CRC-32-ETHERNET operation.
Initial value	Specify the initial value for the CRC operation in the format of "*initial value*". This property corresponds to the -CRc option of the rlink command.		
	Default	Blank	
	How to change	Directly enter to the text box.	
	Restriction	- When other than [32-ETHERNET type] is selected in the [Type of CRC] property 0 to FFFF (hexadecimal number) - When [32-ETHERNET type] is selected in the [Type of CRC] property 0 to FFFFFFFF (hexadecimal number)	

Endian	Select the endian for CRC output. This property corresponds to the -CRc option of the rlink command.		
	Default	Little endian	
	How to change	Select from the drop-down list.	
	Restriction	Little endian	Outputs the value in little-endian mode.
		Big endian	Outputs the value in big-endian mode.
Output size	Specify the output size for the CRC code. This property corresponds to the -CRc option of the rlink command.		
	Default	Blank	
	How to change	Directly enter to the text box.	
	Restriction	2, 4, or blank	

[Function Buttons]

Button	Function
OK	Reflects the settings to the property that opened this dialog box and closes this dialog box.
Cancel	Cancels the settings and closes this dialog box.
Help	Displays the help of this dialog box.

Revision Record

Rev.	Date	Description	
		Page	Summary
1.00	Feb 01, 2015	-	First Edition issued

Rev.	Date	Description	
		Page	Summary
1.01	Aug 01, 2015	13	"Figure 2.4 Option Dialog Box ([General - Build] Category)" is replaced.
		17	The description of the link map file name in "2.4.3 Output map information" is amended.
		18	The description of the link map file name in "2.4.4 Output library information" is amended.
		19	"Figure 2.18 Property Panel: [Compile Options] Tab" is replaced.
		20	"Figure 2.19 [Level of optimization] Property (Code Size Precedence)" is replaced.
		20	"Figure 2.20 [Level of optimization] Property (Execution Speed Precedence)" is replaced.
		44	"Figure 2.67 Property Panel: [Individual Compile Options] Tab" is replaced.
		49	"Figure 2.76 [Update I/O header file on build] Property" is replaced.
		51	The description of "Specify Rule Number dialog box" in table A.1 is amended.
		52	"Figure A.1 Property Panel" is replaced.
		56	"Figure A.2 Property Panel: [Common Options] Tab" is replaced.
		57	The following property is added to "(1) [Build Mode]". Change property value for all build modes at once
		58	The description of the [Output file type] property in "(3) [Output File Type and Path]" is amended.
		59	The Restriction values of the [Level of optimization] property in "(3) [Frequently Used Options(for Compile)]" are amended. Default Optimization(None) -> Perform the default optimization(None) Code Size Precedence(-Osize) -> Code size precedence(-Osize) Speed Precedence(-Ospeed) -> Speed precedence(-Ospeed) Debug Precedence(-Onothing) -> Debug precedence(-Onothing)
		63	The display condition is deleted from the description of the [Output folder] property in "(6) [Frequently Used Options(for Link)]".
		63	The display condition is deleted from the description of the [Output file name] property in "(6) [Frequently Used Options(for Link)]".
		75	The list of category names on the [Compile Options] tab is amended.
		75	"Figure A.3 Property Panel: [Compile Options] Tab" is replaced.
		76	The following property is added to "(1) [Debug Information]". Enhance debug information with optimization
		77	The Restriction values of the [Level of optimization] property in "(3) [Frequently Used Options(for Compile)]" are amended. Default Optimization(None) -> Perform the default optimization(None) Code Size Precedence(-Osize) -> Code size precedence(-Osize) Speed Precedence(-Ospeed) -> Speed precedence(-Ospeed) Debug Precedence(-Onothing) -> Debug precedence(-Onothing)
		80	The following property is added to "(3) [Optimization(Details)]". Create subroutine for same instruction sequence

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		83-84	The following category is added to the [Compile Options] tab. (5) [Quality Improvement]
		87	The Restriction value of the [Structure packing] property in "(9) [Output Code]" is amended. No(None) -> No
		91	The category name of (12) is amended as shown below. [MISRA-C:2004 Rule Check] → [MISRA-C Rule Check] A sentence at the beginning is amended.
		91	The following property is added to "(12) [MISRA-C Rule Check]". MISRA-C specification
		92-95	The fact that properties are usable only in the Professional Edition is added to the description of all properties in "(12) [MISRA-C Rule Check]". The following amendments are made in the description and Restriction. -Xmisra2004 -> -Xmisra20*XX* MISRA-C:2004 -> MISRA-C
		102	The Restriction value of the [Use support for porting from assembler of CA78K0R] property in "(6) [Others]" is amended. No(None) -> No
		107	The display condition for Restriction is added to the description of the [Optimization type] property in "(2) [Optimization]". The followings are added to Restriction. Speed-oriented optimization(-OPtimize=SPeed) Safe optimization(-OPtimize=SAFe)
		107, 108	The following properties are added to "(2) [Optimization]". Deletes variables/functions that are not referenced Unreferenced symbol that disables deletion by optimization
		108	The default of the [Section to disable optimization] property in "(2) [Optimization]" is amended.
		108	The default of the [Address range to disable optimization] property in "(2) [Optimization]" is amended.
		121	In the description of the [Variables/functions information header file name] property in "(9) [Variables/functions information]", the description on the case where the extension was omitted is amended.
		124	The name of the [Check allocation that crosses 64KB boundary] property in "(11) [Verify]" is amended. Check allocation that crosses 64KB boundary -> Suppress checking section allocation that crosses (64KB-1) boundary In accordance with the above change, the description of the property and the description of the Restriction values are amended.
		135	The description of the [Target range] property in "(3) [CRC Operation]" is amended.
		136	The description of the [Type of CRC] property in "(3) [CRC Operation]" is amended. The followings are added to Restriction. CCITT type CRC-CCITT(MSB,LITTLE,4 bytes) type CRC-CCITT(MSB,LITTLE,2 bytes) type 16 32-ETHERNET type
		136	The Restriction values of the [Initial value] property in "(3) [CRC Operation]" are amended.

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		152	"Figure A.8 Property Panel: [I/O Header File Generation Options] Tab" is replaced.
		152	The description of the following Restriction values of the [Update I/O header file on build] property in "(1) [I/O Header File]" is amended. Yes(Checking the device file) Yes(Checking the property) Yes(Checking the device file and the property)
		153	The display condition is deleted from the description of the [Output 1bit access] property in "(1) [I/O Header File]".
		153	The following property is added to "(1) [I/O Header File]". Enable MISRA-C option
		157	The list of category names on the [Individual Compile Options] tab is amended.
		158	"Figure A.13 Property Panel: [Individual Compile Options] Tab" is replaced.
		159	The following property is added to "(1) [Debug Information]". Enhance debug information with optimization
		159	The Restriction values of the [Level of optimization] property in "(2) [Optimization]" are amended. Default Optimization(None) -> Perform the default optimization(None) Code Size Precedence(-Osize) -> Code size precedence(-Osize) Speed Precedence(-Ospeed) -> Speed precedence(-Ospeed) Debug Precedence(-Onothing) -> Debug precedence(-Onothing)
		162	The following property is added to "(3) [Optimization(Details)]". Create subroutine for same instruction sequence
		165-166	The following category is added to the [Individual Compile Options] tab. (5) [Quality Improvement]
		171	The category name of (11) is amended as shown below. [MISRA-C:2004 Rule Check] -> [MISRA-C Rule Check] A sentence at the beginning is amended.
		171	The following property is added to "(11) [MISRA-C Rule Check]". MISRA-C specification
		172-175	The fact that properties are usable only in the Professional Edition is added to the description of all properties in "(11) [MISRA-C Rule Check]". The following amendments are made in the description and Restriction. -Xmisra2004 -> -Xmisra20*XX* MISRA-C:2004 -> MISRA-C
		190	The following amendment is made throughout the description of the Specify Rule Number dialog box. MISRA-C:2004 -> MISRA-C
1.02	Mar 01, 2016	16, 17	"Figure 2.14 [Output link map file] Property (When Information According To Output Format Is Output)" and "Figure 2.15 [Output link map file] Property (When Information To Be Output Is Specified)" are replaced.
		17	The description of the link map file name in "2.4.3 Output map information" is amended.
		17, 18	"Figure 2.16 [Output link map file] Property (When Information According To Output Format Is Output)" and "Figure 2.17 [Output link map file] Property (When Information To Be Output Is Specified)" are replaced.

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		18	The description of the link map file name in "2.4.4 Output library information" is amended.
		26	"Figure 2.34 Property Panel: [Link Options] Tab" is replaced.
		27, 28	"Figure 2.35 [Using libraries] Property" and "Figure 2.37 [Using libraries] Property (After Setting Library Files)" are replaced.
		68	The name of the [Output error message file] property in "(9) [Error Output]" is amended. Output error message file -> Merge error message file In accordance with the above change, the description of the property and the description of the Restriction values are amended.
		68	The name of the [Error message file output folder] property in "(9) [Error Output]" is amended. Error message file output folder -> Merged error message file output folder In accordance with the above change, the description of the property and the description of the Restriction values are amended.
		68	The name of the [Error message file name] property in "(9) [Error Output]" is amended. Error message file name -> Merged error message file name In accordance with the above change, the description of the property and the description of the Restriction values are amended.
		78	The following property is added to "(3) [Optimization(Details)]". Perform pipeline optimization
		83-84	The following expression is changed in "(5) [Quality Improvement]". stack overflow -> stack smashing
		105	"Figure A.5 Property Panel: [Link Options] Tab" is replaced.
		108	The name of the [Unreferenced symbol that disables deletion by optimization] property in "(2) [Optimization]" is amended. Unreferenced symbol that disables deletion by optimization -> Symbols excluded from optimization of unreferenced symbol deletion
		112	The following property is added to "(5) [Library]". Check memory smashing on releasing memory
		118	The following property is added to "(8) [List]". Output file name
		136, 137	The default and Restriction values of the [Type of CRC] property in "(3) [CRC Operation]" is amended. CRC-CCITT(MSB,LITTLE,4 bytes) type -> CRC-CCITT(MSB,LITTLE,4 bytes) type (High-speed CRC) SENT(MSB) type -> SENT(MSB) type (General-purpose CRC(SENT)) CRC-CCITT(LSB) type -> CRC-CCITT(LSB) type (General-purpose CRC) The CC-RL column in the table in "Remark" is amended.
		146	The following property is added to "(4) [Library]". Check memory smashing on releasing memory
		147	The following property is added to "(5) [List]". Output file name
		154	"Figure A.8 Property Panel: [I/O Header File Generation Options] Tab" is replaced.
		155	The following property is added to "(1) [I/O Header File]". Output definitions regarding µITRON

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		Page	Summary
		164	The following property is added to "(3) [Optimization(Details)]". Perform pipeline optimization
		169	The following expression is changed in "(5) [Quality Improvement]". stack overflow -> stack smashing
1.03	Dec 01, 2016	6	"- Project conversion" is deleted from "1.2 Features".
		7	The remark is deleted from "(1) Create or load a project".
		8	The remark is deleted from "(1) Create or load a project".
		9-11	"2.2 Convert a CA78K0R project into a CC-RL project" is deleted.
		11	The default library file name in "2.3.1 Change the output file name" is amended.
		14	The output destination of the link map file name in "2.3.3 Output map information" is amended.
		20	The caution is deleted from "2.5 Set Assemble Options".
		46	"Figure 2.75 [Update I/O header file on build] Property" is replaced.
		89-91	The descriptions of the following properties in "(12) [MISRA-C Rule Check]" are amended. Rule number description file Rule number Exclusion rule number Check rule number besides required rule Exclusion rule number from required rule
		117	The display conditions are amended in the description of the [Output information of members of struct or union] property in "(8) [List]".
		125	The display condition is amended in the description of the [Reduce memory occupancy of linker] property in "(13) [Others]".
		134	The description of the [Type of CRC] property in "(3) [CRC Operation]" is amended.
		134	The order of Restriction values of the [Type of CRC] property in "(3) [CRC Operation]" is changed.
		152	"Figure A.8 Property Panel: [I/O Header File Generation Options] Tab" is replaced.
		153	The following property is deleted from "(1) [I/O Header File]". Output definitions regarding µITRON
		153	The following property is added to "(1) [I/O Header File]". Output macro definition of device file name
		174-176	The descriptions of the following properties in "(11) [MISRA-C Rule Check]" are amended. Rule number description file Rule number Exclusion rule number Check rule number besides required rule Exclusion rule number from required rule
1.04	Jun 01, 2017	14	In "(2) Specify information to be output", properties displayed when [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected are added.
		14	"Figure 2.14 [Output link map file] Property (When Information To Be Output Is Specified)" is replaced.

Rev.	Date	Description	
		Page	Summary
		34	"Figure 2.54 Property Panel: [Hex Output Options] Tab" is replaced.
		35	"Figure 2.56 [Hex file format] Property" is replaced.
		36, 37	The following figures are replaced. Figure 2.60 [Fill unused areas in the output ranges with the value] Property Figure 2.61 [Fill unused areas in the output ranges with the value] and [Output padding data] Property
		43, 44	The following figures are replaced. Figure 2.70 [Output variables/functions information header file] Property Figure 2.71 [Output variables/functions information header file] Property
		48	The following dialog box is added to "Table A.1 List of Panels/Dialog Boxes". Specify Contents of Function Information dialog box
		86-87	The following properties are added to "(9) [Output Code]". Use NOP instruction insertion for measuring current consumption Parameters of NOP instruction insertion for measuring current consumption
		90-92	The descriptions of the following properties in "(12) [MISRA-C Rule Check]" are amended. Rule number description file Rule number Exclusion rule number Check rule number besides required rule Exclusion rule number from required rule
		108	The description of the [Binary file] property in "(3) [Input File]" is amended.
		119	The following property is added to "(8) [List]". Output relocation attributes related to sections
		122	The following property is added to "(9) [Variables/functions information]". Specify contents of function information
		131	"Figure A.6 Property Panel: [Hex Output Options] Tab" is replaced.
		136	The following property is added to "(2) [Hex Format]". Specify end record
		136	The display condition for the category is added to the description directly under "(3) [CRC Operation]".
		178-180	The descriptions of the following properties in "(11) [MISRA-C Rule Check]" are amended. Rule number description file Rule number Exclusion rule number Check rule number besides required rule Exclusion rule number from required rule
		205-206	The following dialog box is added. Specify Contents of Function Information dialog box
1.05	Nov 01, 2017	14	In "(2) Specify information to be output", properties displayed when [Yes(List contents=specify)(-LISt)] in the [Output link map file] property is selected are added.
		14	"Figure 2.14 [Output link map file] Property (When Information To Be Output Is Specified)" is replaced.
		16	"Figure 2.17 Property Panel: [Compile Options] Tab" is replaced.
		23	"Figure 2.33 Property Panel: [Link Options] Tab" is replaced.

Rev.	Date	Description	
		Page	Summary
		33	"Figure 2.54 Property Panel: [Hex Output Options] Tab" is replaced.
		34	In "2.7.2 Fill the vacant area", a sentence at the beginning is amended.
		40	"Figure 2.66 Property Panel: [Individual Compile Options] Tab" is replaced.
		71	The list of category names on the [Compile Options] tab is amended.
		71	"Figure A.3 Property Panel: [Compile Options] Tab" is replaced.
		80	The following property is added to "(5) [Quality Improvement]". Detect invalid indirect function call
		81, 82	The following properties are added to "(7) [C Language]". Standard of C language Compile strictly according to the standards
		82	The display condition is added in the description of the [Compile strictly according to ANSI standards] property in "(7) [C Language]".
		87	The following property is added to "(9) [Output Code]". Perform indirect referencing in 1-byte units
		91-93	The descriptions of the following properties in "(12) [MISRA-C Rule Check]", the descriptions on the case when misra2012 is selected are amended. Rule number description file Rule number Exclusion rule number Check rule number besides required rule Exclusion rule number from required rule
		94-95	The following category is added to the [Compile Options] tab. (13) [Message]
		105	"Figure A.5 Property Panel: [Link Options] Tab" is replaced.
		119-120	The following properties are added to "(7) [Output Code]". Generate function list used for detecting invalid indirect function call Additional function symbols or addresses to function list Excluded modules from function list
		123	The following property is added to "(8) [List]". Output function list for detecting invalid indirect function call
		129-130	The names and descriptions of the following properties in "(12) [Message]" are amended. Change warning message to information message -> Change warning and error message to information message Number of warning message -> Number of warning and error message Change information message to warning message -> Change information and error message to warning message Number of information message -> Number of information and error message
		135	"Figure A.6 Property Panel: [Hex Output Options] Tab" is replaced.
		137	A caution is added to the description of the [Division output file] property in "(1) [Output File]".

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		139	The following properties are added to "(2) [Hex Format]". Output hex file with fixed record length from aligned start address Alignment of start address
		140	The display condition is amended in the description of the [Specify byte count for data record] property in "(2) [Hex Format]".
		140	The default of the following property in "(2) [Hex Format]" is amended. Maximum byte count for data record
		145-146	The names and descriptions of the following properties in "(4) [Message]" are amended. Change warning message to information message -> Change warning and error message to information message Number of warning message -> Number of warning and error message Change information message to warning message -> Change information and error message to warning message Number of information message -> Number of information and error message
		156-157	The names and descriptions of the following properties in "(6) [Message]" are amended. Change warning message to information message -> Change warning and error message to information message Number of warning message -> Number of warning and error message Change information message to warning message -> Change information and error message to warning message Number of information message -> Number of information and error message
		167	The list of category names on the [Individual Compile Options] tab is amended.
		168	"Figure A.13 Property Panel: [Individual Compile Options] Tab" is replaced.
		177	The following property is added to "(5) [Quality Improvement]". Detect invalid indirect function call
		177, 178	The following properties are added to "(6) [C Language]". Standard of C language Compile strictly according to the standards
		178	The display condition is added in the description of the [Compile strictly according to ANSI standards] property in "(6) [C Language]".
		182	The following property is added to "(8) [Output Code]". Perform indirect referencing in 1-byte units
		190-191	The following category is added to the [Individual Compile Options] tab. (14) [Message]
		214-215	The descriptions of the check boxes (callt, near, rom_forbid, and far_forbid) in "(1) [Select items]" are added.

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1.06	Jun 01, 2018	14	The following item in "(2) Specify information to be output" is amended. - [Output function list for detecting invalid indirect function call] property -> - [Output function list for detecting illegal indirect function call] property
		14	"Figure 2.14 [Output link map file] Property (When Information To Be Output Is Specified)" is replaced.
		16	"Figure 2.17 Property Panel: [Compile Options] Tab" is replaced.
		23	"Figure 2.33 Property Panel: [Link Options] Tab" is replaced.
		33	"Figure 2.54 Property Panel: [Hex Output Options] Tab" is replaced.
		40	"Figure 2.66 Property Panel: [Individual Compile Options] Tab" is replaced.
		52	"Figure A.1 Property Panel" is replaced.
		56	"Figure A.2 Property Panel: [Common Options] Tab" is replaced.
		60	The display condition is added in the description of the [Use standard/mathematical libraries] property in "(6) [Frequently Used Options(for Link)]". Restriction is amended. The default is also amended. Yes -> Yes(Library for C90), Yes(Library for C99)
		71	"Figure A.3 Property Panel: [Compile Options] Tab" is replaced.
		73	The description for Restriction [Perform the default optimization(None)] is amended in the [Level of optimization] property in "(2) [Optimization]".
		80	The name of the following property in "(5) Quality Improvement" is amended. Detect invalid indirect function call -> Detect illegal indirect function call
		96-97	The description of the "%InputFile%" placeholder is amended in the description of the following properties in "(14) [Others]". Commands executed before compile processing Commands executed after compile processing
		103-104	The description of the "%InputFile%" placeholder is amended in the description of the following properties in "(6) [Others]". Commands executed before assemble processing Commands executed after assemble processing
		105	"Figure A.5 Property Panel: [Link Options] Tab" is replaced.
		112	The display condition is added in the description of the [Use standard/mathematical libraries] property in "(5) [Library]". Restriction is amended. The default is also amended. Yes -> Yes(Library for C90), Yes(Library for C99)
		119	The name of the following property in "(7) [Output Code]" is amended. Generate function list used for detecting invalid indirect function call -> Generate function list used for detecting illegal indirect function call
		120	The description of the specification format is amended in the description of the [Excluded modules from function list] property in "(7) [Output Code]".
		120	The following property is added to "(7) [Output Code]". Split vector table sections
		124	The name of the following property in "(8) [List]" is amended. Output function list for detecting invalid indirect function call -> Output function list for detecting illegal indirect function call
		136	The list of category names on the [Hex Output Options] tab is amended.

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		136	"Figure A.6 Property Panel: [Hex Output Options] Tab" is replaced.
		138	The following property is added to "(1) [Output File]". Load address
		138	The description of the specification format is amended in the description of the [Division output file] property in "(1) [Output File]".
		142	The display condition for the category is amended in the description directly under "(3) [CRC Operation]".
		145	The following category is added to the [Hex Output Options] tab. (4) [Verify]
		170	"Figure A.13 Property Panel: [Individual Compile Options] Tab" is replaced.
		171	The description for Restriction [Perform the default optimization(None)] is amended in the [Level of optimization] property in "(2) [Optimization]".
		179	The name of the following property in "(5) Quality Improvement" is amended. Detect invalid indirect function call -> Detect illegal indirect function call
		194-195	The description of the "%InputFile%" placeholder is amended in the description of the following properties in "(15) [Others]". Commands executed before compile processing Commands executed after compile processing
		203-204	The description of the "%InputFile%" placeholder is amended in the description of the following properties in "(9) [Others]". Commands executed before assemble processing Commands executed after assemble processing
1.07	Nov 01, 2018	11	"Figure 2.6 [Output file name] Property" is replaced.
		16	"Figure 2.17 Property Panel: [Compile Options] Tab" is deleted.
		19	"Figure 2.26 Property Panel: [Assemble Options] Tab" is deleted.
		22	"Figure 2.33 Property Panel: [Link Options] Tab" is deleted.
		32	"Figure 2.54 Property Panel: [Hex Output Options] Tab" is deleted.
		32, 33	The following figures are replaced. Figure 2.51 [Output hex file] Property Figure 2.52 [Hex file format] Property
		34, 35	The following figures are replaced. Figure 2.56 [Fill unused areas in the output ranges with the value] Property Figure 2.57 [Fill unused areas in the output ranges with the value] and [Output padding data] Property
		36	"Figure 2.62 Property Panel: [Create Library Options] Tab" is deleted.
		38-39	The following figures are deleted. Figure 2.66 Property Panel: [Individual Compile Options] Tab Figure 2.69 Property Panel: [Individual Assemble Options] Tab
		49	"Figure A.2 Property Panel: [Common options] Tab" is deleted.
		50-190	All Restriction values of the properties are amended. (None) -> (No option specified)
		68	"Figure A.3 Property Panel: [Compile Options] Tab" is deleted.

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		69	The description of the [Maximum number of loop expansions] property in "(3) [Optimization(Details)]" is amended.
		70-73	All Restriction values of the properties are amended. Yes(To adjust the level of optimization)(None) -> To adjust the level of optimization(No option specified)
		73	The following value is added to Restriction of the [Create subroutine for same instruction sequence] property in "(3) [Optimization(Details)]". To adjust the level of optimization(No option specified)
		73	The default of the [Create subroutine for same instruction sequence] property in "(3) [Optimization(Details)]" is amended. No(-Osame_code=off) -> To adjust the level of optimization(No option specified)
		73	The following property is added to "(3) [Optimization(Details)]". Output additional information for link-time optimization
		92	The following property is added to "(12) [MISRA-C Rule Check]". Enables checking that spans files
		96	"Figure A.4 Property Panel: [Assemble Options] Tab" is deleted.
		102	"Figure A.5 Property Panel: [Link Options] Tab" is deleted.
		132	"Figure A.6 Property Panel: [Hex Output Options] Tab" is deleted.
		146	"Figure A.7 Property Panel: [Create Library Options] Tab" is deleted.
		158	"Figure A.8 Property Panel: [I/O Header File Generation Options] Tab" is deleted.
		160	The following figures are deleted. Figure A.9 Property Panel: [Build Settings] Tab (When Selecting C Source File) Figure A.10 Property Panel: [Build Settings] Tab (When Selecting Assembly Source File) Figure A.11 Property Panel: [Build Settings] Tab (When Selecting Object File) Figure A.12 Property Panel: [Build Settings] Tab (When Selecting Library File)
		162	"Figure A.13 Property Panel: [Individual Compile Options] Tab" is deleted.
		163	The description of the [Maximum number of loop expansions] property in "(3) [Optimization(Details)]" is amended.
		164-166	All Restriction values of the properties are amended. Yes(To adjust the level of optimization)(None) -> To adjust the level of optimization(No option specified)
		166	The following value is added to Restriction of the [Create subroutine for same instruction sequence] property in "(3) [Optimization(Details)]". To adjust the level of optimization(No option specified)
		183	The following property is added to "(11) [MISRA-C Rule Check]". Enables checking that spans files
		187	"Figure A.14 Property Panel: [Individual Assemble Options] Tab" is deleted.
1.08	Nov 01, 2019	63	The default of the following properties in "(12) [Build Method]" are amended. Build simultaneously Build in parallel
		150	The following property is added to "(4) [Library]". Allow duplicate module names

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1.09	Nov 01, 2020	73, 74	The following property is added to "(3) [Optimization(Details)]". Reduce code size of relative branch instructions Perform optimization by changing alignment conditions
		86	The following property is added to "(9) [Output Code]". Allocate uninitialized variables in sections according to number of alignments Allocate initialized variables in sections according to number of alignments Allocate const qualified variables in sections according to number of alignments
		104-107	[SMS Assemble Options] tab is added.
		147	The following property is added to "(3) [CRC Operation]". Displays the result of CRC calculation and output address
		167	SMS assembly source files is added to the description.
		168	SMS assembly source files is added to [File Type] of the "(1) [Build]".
		174	The following property is added to "(3) [Optimization(Details)]". Reduce code size of relative branch instructions Perform optimization by changing alignment conditions
		185	The following property is added to "(8) [Output Code]". Allocate uninitialized variables in sections according to number of alignments Allocate initialized variables in sections according to number of alignments Allocate const qualified variables in sections according to number of alignments
1.10	Nov 01, 2021	52	The influence of the change of the value of the [Intermediate file output folder] property in "(3) [Output File Type and Path]" is added.
		63	The description and restriction of the [Security ID] property in "(11) [Device]" are amended.
		105	The description of the reference to the manual is added to the [SMS Assemble Options] tab.
		110	The remark is added to the [Optimization type] property in "(21) [Optimization]".
		144	The restriction of the [Alignment of start address] property in “(2) Hex Format” is amended.
1.11	Dec 01, 2022	7, 8	[Individual Compile Options(C++)] tab is added to the remark of “Run a build”.
		38	FAA Assemble phase and SMS Assemble phase are added. Below them, remark is added.
		38	“(2) When setting compile options for a C++ source file” is added.
		40	“(4) When setting FAA assemble options for an FAA assembly source file” is added.
		43	Changed from Remark to Remark 1. Remark2. is added.
		44	Remark is added.
		48	* “[FAA assemble Option] tab” is added to (2) (a) of [Description of each area]. * “[Individual Compile Options(C++)] tab” and “[Individual FAA Assemble Options] tab” are added to (2) (b) of [Description of each area].
		49	“[Individual Compile Options(C++)] tab” and “[Individual FAA Assemble Options] tab” are added to the description of the [Reset to Default] and the [Reset All to Default] in the [Context menu].

Rev.	Date	Description	
		Page	Summary
		50	Following category is added to the next to “(13) [Version select]” (14) Path to tools
		52	The description of the [Output cross reference information] property is changed.
		65	The following property is added to "(11) [Device]". Serial Programming Security ID
		66. 67	The following property is added to "(14) [Path of tools]" Using DSP assembler install folder Using DSP assembler version
		70	Following category is added to the next to “(4) [Preprocess]” (5)[Source]
		71	Following item is added to the restriction of the [Level of optimization] property. Partial optimization(-Olite)
		73, 76	The display condition of the [Perform pipeline optimization] property and the [Perform optimization by changing alignment conditions] of the “(3) [Optimization(Details)]” category are amended.
		79, 80	The following properties are added to "(5) [Source]" Language of the C source file Language of the C++ source file
		82	The following property is moved to the [Language of the C source file] property of the "(5) [Source]" category. Standard of C language
		83	The name of property is changed from [Character encoding] to [Character encoding of the C source file] in “(9) [Character Encoding]”.
		84	The following property is added to "(9) [Character Encoding]" Character encoding of the C++ source file
		107 ~110	[FAA Assemble Options] tab is added.
		122	The Restriction [Yes(Library for C++)] is added to the [Use standard/mathematical libraries] property in "(5) [Library]".
		124	The following properties are added to "(6) [Device]" Set security option byte Security option byte value
		128	The display condition of the [Reserve working memory for RRM/DMM function] property is amended in "(6) [Device]".
		138, 140	The following properties are added to "(10) [Section]" Automatically allocate sections per module Allocate FAA memory area automatically
		151	The display condition of the [Fill unused areas in the output ranges with the value] property in "(2) [Hex Format]" is amended.
		152	The restriction of the [Alignment of start address] property in "(2) [Hex Format]" is amended.
		166	The Restriction [Yes(Library for C++)] is added to the [Use standard/mathematical libraries] property in "(4) [Library]".
		176	The following properties are added to "(1) [I/O Header File]" Generate iodefine include file for FAA

Rev.	Date	Description	
		Page	Summary
		178	“C++ source file” and “FAA assmbly source files” are added to the description of the [Build Settings] tab.
		178 179	In the table of (1) [Build], * C++ source file is added to the description of the “Set individual compile option”. * The row of “Set individual FAA assemble option” is added. * Following are added to the description of the “File type”. C++ source file (when the C++ source file is selected) “or the FAA assembly source file is selected” to “Assembly source files”
		180	The tab name is changed to [Individual Compile Options(C)]
		180	Following category is added to the next to “(4) [Preprocess]” (5)[Source]
		181	Following item is added to the restriction of the [Level of optimization] property. Partial optimization(-Olite)
		183, 185	The display condition of the [Perform pipeline optimization] property and the [Perform optimization by changing alignment conditions] of the “(3) [Optimization(Details)]” category are amended.
		189	The following property is added to "(5) [Source]" Language of the C source file
		191	The following property is moved to the [Language of the C source file] property of the "(5) [Source]" category. Standard of C language
		192	The name of property is changed from [Character encoding] to [Character encoding of the C source file] in “(9) [Character Encoding]”.
		208~	[Individual Compile Options(C++)] tab is added.
		234~	[Individual FAA Assemble Options] tab is added.
1.12	Dec 01, 2023	38	Set Standard Library Generate Options is added.
		39	Description is changed as follows. the device has a FAA ->the microcontroller has a FAA the device has a SMS ->the microcontroller has a SMS (Change all similar parts of the entire file.)
		47	The following dialog box is added to "Table A.1 List of Panels/Dialog Boxes". CRC Operations dialog box
		49	The following tab is added to (2) (a) of [Description of each area]. [Standard Library Generate Options] tab
		52	The following property is added to "(2) [CPU]". Use MACH or MACHU instruction for multiply-saccumulate operation
		65	The following property is added to "(10) [Warning Message]". Displayed warning message
		120	The following property is added to "(2) [Optimization]". Optimizes area allocated before execution start symbol

Rev.	Date	Description	
		Page	Summary
		127	The description of the [Option byte values for OCD] property in "(6) [Device]" is amended.
		129	The description of the [User option byte value] property in "(6) [Device]" is amended.
		137	The display conditions are amended in the description of the [Output information of members of struct or union] property in "(8) [List]".
		158	The following property is added to "(3) [CRC Operation]". CRC Operations
		158 ~161	The display conditions are amended in the description of the properties below [Outputs the calculation result of CRC] property in "(3) [CRC Operation]".
		179 ~191	[Standard Library Generate Options] tab is added.
		193	The timing of generation in the description of the [Generate iodefine include file for FAA] property in "(1) [I/O Header File]" is amended.
		270 ~273	CRC Operations dialog box is added.
1.13	Nov 01, 2024	45	Add a note following Figure 2.73 on the previous page.
		65	The description of the [Undisplayed warning message] property in "(10) [Warning Message]" is amended.
		65	The description of the [Displayed warning message] property in "(10) [Warning Message]" is amended.
		67	The following property is added to "(12) [Build Method]". Group messages by each source file/target in the parallel build
		74, 199, 228	Items are added/changed to the restriction of the [Perform inline expansion] property. The display condition of the property is amended.
		75, 200, 229	The display condition of the [Maximum increasing rate of inline expansion size] property is amended.
		111	The following property is added to "(4) [Output file]". Output result of preprocessing to file
		127	The restriction of the [Security option byte value] property in "(6) [Device]" is amended.
		129~ 131	Items are added to the restriction and descriptions are amended in the following properties in "(6) [Device]". Control allocation to self RAM area Control allocation to trace RAM area Control allocation to hot plug-in RAM area
		132	The restriction of the [Start address of working memory for RRM/DMM function] property in "(6) [Device]" is amended.
		137	The default of the following properties in "(8) [List]" is amended. Output symbol information Output total sizes of sections
		180	The default of the [Generate C standard library with Library Generator] properties in "(1) [Standard Library]" is amended.

Rev.	Date	Description	
		Page	Summary
		187	Items are added/changed to the restriction of the [Perform inline expansion] property.
		188	The display condition of the [Maximum increasing rate of inline expansion size] property is amended.
		250	The description of the [Undisplayed warning message] property in "(10) [Warning Message]" is amended.
		250	The description of the [Displayed warning message] property in "(10) [Warning Message]" is added.
		256	The following property is added to "(4) [Output file]". Output result of preprocessing to file
1.14	Jun 01, 2025	136	The default of the [Split vector table sections] property in "(7) [Output Code]" is amended.

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