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[Notes]

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C Compiler Package for R32C Series,

C Compiler Package for M32C Series,

and C/C++ Compiler Package for M16C Series and R8C Families

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## Overview

When using any of the products in the title, note the following point.

1. Initializing an array with a wide string literal or simple string literal

## 1. Initializing an array with a wide string literal or simple string literal

### 1.1 Applicable Products

C compiler package for R32C series V.1.01 Release 00 to V.1.02 Release 01

C compiler package for M32C series V.5.00 Release 1 to V.5.42 Release 00

C/C++ compiler package for M16C series and R8C families V.5.00 Release 1 to V.6.00 Release 00

### 1.2 Description

When initializing an array with a wide string literal or simple string literal, an undefined value may be stored after the terminating NULL character. The undefined value may be stored in the following addresses:

- For a wide string literal:

An undefined value is stored in the two-byte addresses immediately after NULL.

- For a simple string literal:

An undefined value is stored in the following addresses:

- If the size of the simple string literal is even:

Two bytes immediately after NULL

- If the size of the simple string literal is odd:

Two bytes of the NULL address +2 and +3

### 1.3 Conditions

This problem may arise if all of the conditions from (1) to (3) are met.

- (1) An array has a two-byte element type <sup>(Note 1)</sup>.
- (2) A wide string literal or simple string literal is specified as a initial value for the array in condition (1).
- (3) The relationship between the size (in bytes) of the array (1) and the size (in bytes) of the string literal (2) is one of the following <sup>(Note 2)</sup>.
  - (3-1) When (2) is a wide string literal:  
The size of the array (1) > The size of the wide string literal (2)
  - (3-2) When (2) is a simple string literal and the size is even:  
The size of the array (1) > The size of the simple string literal (2)
  - (3-3) When (2) is a simple string literal and the size is odd:  
The size of the array (1) > The size of the simple string literal (2) + 1 byte

(Note 1): In the case of C compiler package for R32C series, this includes an int type when the compilation option -fint\_16 is specified.

(Note 2): The size of the string literal includes the NULL character.

### 1.4 Example

Below is an example of the error.

```
/* tp.c */
const unsigned short array[6] = L"abc";
```

array[4] might be an undefined value.

### 1.5 Workarounds

You can avoid this problem by one of the following methods:

- (1) Fill the end of the initial value with '¥0' to make the initial value size equal to the array size.  
Example: `const unsigned short array[6] = L"abc¥0¥0";`
- (2) Adjust the array size to match the size of initial value.  
Example: `const unsigned short array[4] = L"abc";`
- (3) Avoid specifying the array size.  
Example: `const unsigned short array[] = L"abc";`
- (4) Change the array type to a type that is not covered by condition (1).
- (5) Separate the array declaration and value assignment.

### 1.6 Permanent Measure

We do not plan to fix it.

**Revision History**

Rev.	Date	Description	
		Page	Summary
1.00	Jun.01.21	-	First edition issued

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**Corporate Headquarters**

TOYOSU FORESIA, 3-2-24 Toyosu,  
Koto-ku, Tokyo 135-0061, Japan  
[www.renesas.com](http://www.renesas.com)

**Contact information**

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