

DS-MRC

Instruction Manual

Version 1.5.0

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Revision History

Version	Revision Date	Description
1.5.0	2011/09/06	Fixed incorrect sizes for the unavailable regions in the description of the 4-Gbit ROM capacity limit. (See “11. Device Size” in section 3.2 Block B (Device Information).)
1.4.0	2011/08/31	Added support for the 4-Gbit ROM capacity limit. (See “11. Device Size” in section 3.2 Block B (Device Information).)
1.3.0	2007/04/06	- Added support for 2 Gbit ROM capacity restrictions. (Refer to “11. Device Size” in 3.2 Block B (Device Information).) - Added support for “NITRO-DWC-DL” version display. (Refer to “23. Middleware” in 3.5 Block E (Library Information).)□
1.2.0	2006/12/04	3.2 Block B (Device Information)—Added a warning display for when the device volume is set to an invalid value in the ROM volume. (See “11. Device Volume” .) 3.2 Block B (Device Information)—Changed heading “Actual ROM Size” to “Actual File Size.” 3.3 Block C (Reserved Regions)—Added support for Korean applications.
1.1.0	2006/06/29	3.1 Block A (Basic ROM Data Information) “5. File Name” – Added a cautionary note asking users to use all capital letters for file names. 3.5 Block E (Library Information) “ 22. SDK Version” – Added terminology descriptions.
1.0.0	2006/06/16	Initial Version.

1 Introduction

DS-MRC (DS Master ROM Checker) is a tool that checks whether there are inconsistencies in ROM registration data or other settings before master ROMs are submitted.

This tool must be used before submitting master ROMs because only it displays data that must be entered on the master ROM submission form.

Note: There is no guarantee that problems with ROM registration data or other settings can be completely avoided. For details on ROM registration data, see the *Nintendo DS Game Card Manual*.

2 Using the DS-MRC Software

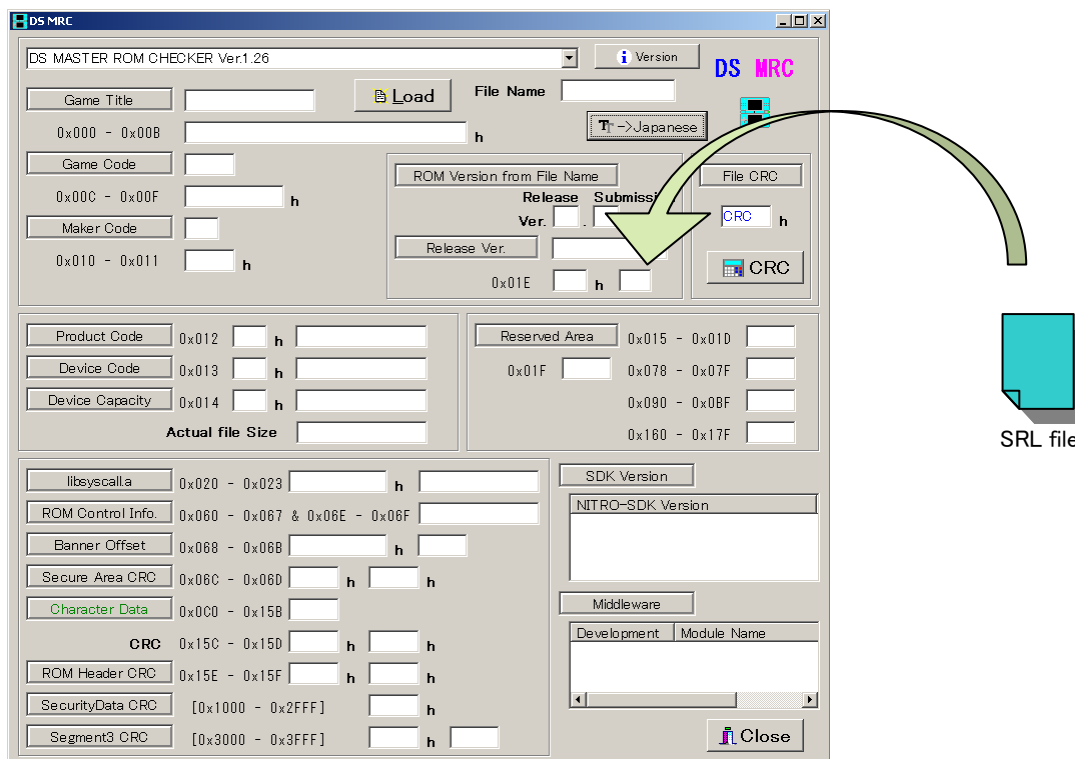
2.1 Loading SRL Files

There are two methods of loading SRL files into DS-MRC, as described in this section.

2.1.1 Loading Files by Dragging and Dropping

Double-click `DS_MRC.exe`, or a shortcut to the executable to start the DS-MRC software. You can then drag and drop the SRL file to the DS_MRC application window. It is also possible to open an SRL file by dragging and dropping it directly to `DS_MRC.exe` or its shortcut icon.

Figure 2-1 Loading an SRL File



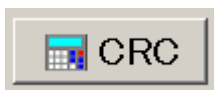
2.1.2 Loading Files Using the Load Button

SRL files can also be loaded by clicking Load.



2.2 CRC Calculation

Clicking the CRC button performs a CRC calculation for the entire SRL file.



2.3 Viewing the Results Display

If no problems are found, "There are no inconsistencies" is displayed in the message box. If there is an error, the corresponding item is displayed in red text, and details regarding the error are shown in the message box.

2.4 Other Features

2.4.1 Version Button

Click Version to check the version of DS-MRC.



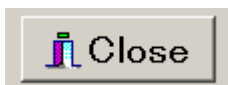
2.4.2 Japanese Language Toggle Button

Click this button to toggle between Japanese and English language display when using DS-MRC



2.4.3 Close Button

Click Close to close DS-MRC.



3 Description of Items

3.1 Block A (Basic ROM Data Information)

This section describes the on-screen configuration of DS-MRC.

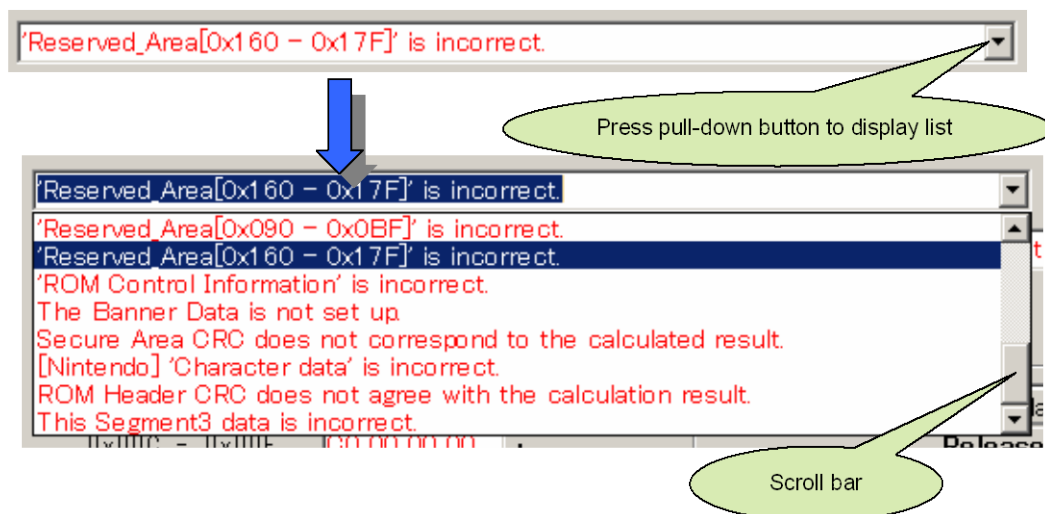
Figure 3-1 Screen Configuration (Top)



1. Message Box

Displays error details in a list. Click the pull-down to display more lines of the list, and use the scrollbar to scroll through the message list.

Figure 3-2 Message Box



2. Game Title

The upper section displays the game title of the game software, and the lower section displays the associated binary code.

When using ASCII code characters between 0x20 and 0x5F, an error results unless 0x20 is used for the space code and 0x00 is used for the unused section code.

Katakana and lower-case characters cannot be used.

Always enter a title name specific to the software. (Do not use a generic description, such as "ACTION GAME.")

3. Game Code

The upper section displays the game code, and the lower section displays the associated binary code.

Available characters are the same as for Game Title.

4. Maker Code

The upper section displays the maker code, and the lower section displays the associated binary code.

Available characters are the same as for Game Title.

5. File Name

Displays the Windows file name for the loaded file.

Use the file name format required when submitting master ROMs (all upper-case characters). An error results if this format is not observed.

For details, see the *Nintendo DS Master ROM Submission Procedure Manual*.

6. ROM Version from File Name

The re-master version and submission version are obtained and displayed based on the file name format.

7. Re-master Version

The upper section displays the re-mastered version obtained from ROM registration data.

The lower section displays binary code on the left and the associated version as a decimal number on the right.

An error results if ASCII code is stored for the re-mastered version. Instead, store 0x00, 0x01, 0x02, and so forth (corresponding to 0, 1, 2,...) for the re-mastered version.

An error also results if this differs from the ROM version file name.

Store 0xE0 here for pre-lot check versions.

8. File CRC

This area displays the result of CRC calculations for the entire SRL file when you click CRC.

Enter this value in the CRC field of the master ROM submission check sheet.

3.2 Block B (Device Information)

Figure 3-3 Screen Configuration (Center Left)

9	Product Code	0x012	00	h	NINTENDO DS
10	Device Code	0x013	00	h	NORMAL
11	Device Capacity	0x014	07	h	128Mbit
12	Actual file Size				128Mbit

9. Product Code

Displays the binary code for the product code and the corresponding console name.

Currently, an error results if a value other than 0x00 appears here.

10. Device Code

Displays a code for the device type used in the card and the device type.

Currently, an error results if a value other than 0x00 appears here.

11. Device Capacity

Displays a code for the device capacity (ROM size) used in the card and the corresponding device capacity (ROM size).

Note: The last 20 Mbits of 1-Gbit (1024-Mbit) ROMs cannot be used by specification.
 The last 40 Mbits of 2-Gbit (2048-Mbit) ROMs cannot be used by specification.
 The last 83 Mbits of 4-Gbit (4096-Mbit) ROMs cannot be used by specification.
 An error results unless these unused areas are padded with 0xFF.

Note: If an invalid value is set in the ROM volume, a warning is displayed in the message box.

Example: A warning will display when setting the device volume to 512 megabits, even though the ROM file system takes up less than 256 megabits,

When the warning displays, check the size of the ROM file system on the Tools menu by selecting DS Flash Card under IS-NITRO-DEBUGGER.

12. Actual file Size

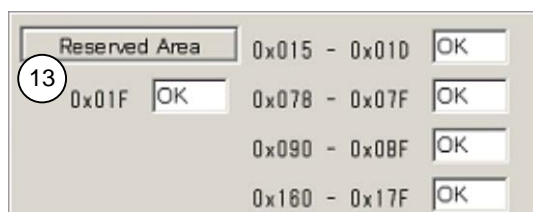
Displays the size of the SRL file.

An error results if this differs from the value specified for the device capacity (ROM size) setting. In other words, the file size of the SRL file must be the same as the **RomSize** property specified in the .rsf file.

To set the file size of the SRL file to that specified by **RomSize**, set the **RomFootPadding** property of the .rsf file to TRUE.

3.3 Block C (Reserved Area)

Figure 3-4 Screen Configuration (Center Right)



13. Reserved Area

An error normally results if a value other than 0x00 is entered here.

If **RomSpeedType** has not been correctly specified in the .rsf file at build time, a ROM access speed unset flag is set in the d6 bit of address 0x01F in the reserved area, and an error results.

RomSpeedType must be explicitly specified when this error occurs.

For more on **RomSpeedType**, see Step 15 ROM Control Information.

Furthermore, a Chinese version console support flag is set in [0x015 – 0x01D] of the reserved area for support of Chinese version systems when using .rsf files. If the Game Code in 3 (above) does not end with “C” (ASCII code 0x43), the reserved area [0x015 – 0x01D] causes an error.

Conversely, if the Game Code does not end with “C”, an error results even if the Chinese version console support flag is set.

Note: Support for Korean applications was added as of DS-MRC Version 1.2.0. A Korean version console support flag must be set and a “K” must be added at the end of the Game Code for applications created for the Korean market.

3.4 Block D (ROM Control Information)

Figure 3-5 Screen Configuration (Lower Left)

14	libsycall.a	0x020 - 0x023	00 40 00 00	h	Security Version
15	ROM Control Info.	0x060 - 0x067 & 0x06E - 0x06F	MaskROM		
16	Banner Offset	0x068 - 0x06B	00 1E 11 00	h	OK
17	Secure Area CRC	0x06C - 0x06D	1C DB	h	DB1C h
18	Character Data	0x0C0 - 0x15B	OK		
	CRC	0x15C - 0x15D	56 CF	h	CF56 h
19	ROM Header CRC	0x15E - 0x15F	06 E0	h	E006 h
20	SecurityData CRC	[0x1000 - 0x2FFF]	7699	h	
21	Segment3 CRC	[0x3000 - 0x3FFF]	0254	h	OK

14. System Call Library

The field on the left displays the ARM9 resident module ROM offset value.

The field on the right displays the security version, as long as the system call library distributed by Nintendo for each game title is correctly linked.

If the system call library (`libsycall.a`) supplied with the SDK is used, the SDK version is displayed, and an error results.

15. ROM Control Information

Displays which ROM type—the mask ROM setting or the one-time PROM—is specified.

Setting the reserved area to 0x01F results in an error if `RomSpeedType` is not specified in the .rsf file.

For details on errors, see “13. Reserved Area.”

Note: One-time PROM type ROMs are not available in the 64-megabit size. Although it is possible to submit ROMs using a one-time PROM setting, there is no advantage in terms of earlier delivery because they are still produced using mask-ROM type ROMs. Furthermore, the transfer rate is the same as one-time PROM-setting type ROMs.

(If a one-time PROM has been set for a 64-megabit device, DS-MRC displays a warning in the message box.)

Note: Only the one-time PROM type is supported for 1-gigabit or larger ROMs. An error results if a mask ROM setting is used.

16. Banner Offset

Displays the ROM offset to the banner file displayed on the NITRO startup menu.

If the banner file does not exist, zero is stored, and an error results.

17. Secure Area CRC

Displays the CRC for the secure area of the ROM. The stored code is displayed on the left, and the results of recalculation are displayed on the right. An error results if these values do not match.

18. Character Data

“OK” is displayed in the upper section if Nintendo logo and character data has been stored correctly.

In the lower section, the value stored for the CRC (a fixed value) of Nintendo logo and character data is displayed on the left, and recalculated results are displayed on the right. An error results if these values do not match.

19. ROM Registration CRC

Displays the CRC for the area from 0x000 to 0x15C. The stored code is displayed on the left, and recalculated results are displayed on the right. An error results if these values do not match.

20. Security CRC

This value is used in Nintendo mass manufacturing.

21. Segment3 CRC

This is a fixed value used in Nintendo mass manufacturing.

3.5 Block E (Library Information)

Figure 3-6 Screen Configuration (Lower Right)



22. SDK Version

Displays the NITRO-SDK versions of the SRL file in a list.

The NITRO-SDK of the resident module is displayed in blue letters. Enter the SDK version that appears here in the SDK Version field on the master ROM submission check sheet.

The SDK version of DS download play child programs and the SDK version of child programs of moving Wi-Fi user information included in Wi-Fi connection settings are also displayed here.

The following table defines the terms for this section.

Term	Description
RELEASE	Official release version of SDK.
RC	Release candidate version. This is a early release version for final evaluation purpose before the official release.
PR	Pre-release version. This is released before the RC (release candidate) version to identify bugs.
plus	Plus patch.

23. Middleware

Displays the Middleware* developers and names in the SRL file in a list.

Note: This specifies licensed products, such as voice recognition engines. However, nothing is displayed about the LC font. Information on the NITRO-DWC library and NITRO-WiFi library are both displayed here.

The NITRO-DWC library, NITRO-WiFi library, and NITRO-DWC-DL library are also displayed here. (NITRO-DWC library and the NITRO-WiFi library display, is limited to ROM data which used official release Version 1.0 and later.)

If ROM data other than a FINALROM build is loaded, NINTENDO DEBUG appears in this list in red letters. (This is limited to ROM data which used NITRO-SDK 3.0 PR4 or later.) In this case, all programs including DS download child programs must be made into FINALROM build.

Note: When creating or editing an original linker command file (.lcf), the Middleware display does not appear correctly if there is no .version section description.

3.6 Other Errors

This section describes a special-case error display.

- Application final ROM offset [0x080 - 0x083] is not set:

When an SRL file is generated by IS-NITRO-DEBUGGER (Version 1.66 or earlier), this error may be generated because the SRL file is not fully compatible with the `makerom`.

When generating SRL files, always use files output by `makerom`.

Note: The function for generating SRL files has been removed from IS-NITRO-DEBUGGER Version 1.67 and later.

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