Nintendo DS Master ROM Submission Guidelines

Version 1.61a

The contents in this document are highly
confidential and should be handled accordingly.

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Revision History

Version	Date	Description
1.61a	04/24/2007	-1.2.2 Changed address and fax/phone numbers
1.61	12/11/2006	- 1.1 Added info concerning pre-submission and Wi-Fi Titles. - 1.1.4 Added additional explanation. - Added 1.18 (Backup Data Memory Map) - 1.1.9 Added remark concerning additional info for re-submissions - 2.2 Added simple example. - 2.2.1 Renamed to "Remaster Version" - 2.2.2 Renamed to "Submission Version" - 2.2.3 Renamed to "Notation Example" - 2.3 Rewritten for easier understanding. - 2.3.2 Added comment how to obtain Game Codes. - 2.3.4. Renamed to "Product Code" - 2.3.7 Cosmetic Changes - 2.5. Rewrote last paragraph for better understanding. - 2.8 Added info where to obtain digital signatures - 2.9 Added info where to obtain DS MRC. - Added Paragraph 4 (Electronic Submission) - 5.3 Removed redundant information covered by 5.4 - 5.7 Rewritten to match new Specification Sheet - 5.9.4 Added info concerning the last 20 MB of 1 GB size ROMs. - 5.9.6 Added sentence concerning multiple SDK versions. - 5.12 Added more explanation
1.41	04/21/2006	- 4.4 - Removed "Overseas Version" and added "IPL Language Setting" instead -Added 4.13.4
1.4	11/15/2005	- Added detailed explanation to 4.13.5
1.3	09/22/2005	- Updated 4.3 - Items 4.9 and up reorganized to properly correspond to the new Submission Sheet version.
1.2	03/21/2005	- Added 1.1.3.4 - Additional explanatory text added to 2.3.1 - Added Note to 2.3.6 - Rephrased 2.7 - Rephrased 4.15

		- Amended 4.15.5
		- Changed 4.15.8
		- Added 4.15.9
1.1	01/12/2005	- Added 1.4
		- Added 4.7
		- Added Remark regarding LC Fonts to 4.12
1.0	12/20/2004	Initial Release Version
		- Removed 1.1.4
		- Added new items 1.1.4 -1.1.7
		- Added more detailed explanations to 2.4
0.0	10/04/2004	Initial Preliminary Version

1   Introduction

This document covers the information necessary for submitting a Nintendo DS Master ROM to Nintendo. This section contains an overview. Section 2 explains terminology. The subsequent sections explain in detail each item to be submitted.

1.1   What to Submit

Prepare the items listed in this section.
It applies for pre-release versions as well as for final release versions.
If your game is Nintendo WFC compatible, you will need to submit additional documentation separately.

1.1.1   Master ROM

Submissions should be on media specified by Nintendo.
For details, see Section 3 - Saving Data to Media.

1.1.2   Nintendo DS Master ROM Submission Sheet

See Section 5 - Filling out the Nintendo DS Master ROM Submission Sheet for instructions on filling out the form.

1.1.3   Nintendo DS Checklists

Submit the necessary checklists as required.
Refer to each checklist for a description of when it is necessary to submit that checklist.

1.1.3.1   Nintendo DS Wireless Communication Support Checklist

1.1.3.2   Nintendo DS Microphone Support Checklist

1.1.3.3   Nintendo DS GBA Game Pak/DS Accessory Support Checklist

1.1.3.4   Nintendo DS Unsupported Characters List

1.1.4   Nintendo DS Lotcheck List

   See "Nintendo DS Lot Check Instructions". Use the version of the "Nintendo DS Lot Check Instructions" that is the same version as the Nintendo DS Lot Check Checklist. This document is merely a tool to assist you in testing Lotcheck Standards. It is not required to actually submit this document. However if your software obviously fails to satisfy any of the check items, be sure to submit information explaining the reasons for this.

1.1.5   Declaration of Age Rating

Submit a statement declaring the expected PEGI rating.

1.1.6   User's Manual

If the official version of the User's Manual is not yet completed, a preliminary version is acceptable. When submitting a previous version (intermediate version), also submit a list of known bugs.

1.1.7   Save data

If there are any special features in the game that would require playing for more than 30 minutes, then advanced save data is required for testing. It should be sent as binary file along with the Master data.

1.1.8   Backup Data Memory Map

If using backup memory, submit a simple document that shows the structure of the backup data. For an example of memory maps, see the file "sample_memmap.txt".

1.1.9   Additional Information

This includes any additional information needed to test key features of the game (passwords, cheat codes, etc). In case of a re-submission, make sure to also send feedback concerning bugs that we reported for the previous game version and explain which issues have been addressed and which are meant to be specifications.

1.2   Submission Address

1.2.1   Electronic Submission

Uploads can be done via https, sftp or ftp. For details see section 4 and/or contact datacenter@nintendo.de .

1.2.2   Physical Submission

Send submissions to the following address.

    Nintendo of Europe GmbH
    Attn: NOE Lotcheck
    Eschersheimer Landstrasse 223
    60320 Frankfurt a. M.
    Germany
    Phone: +49 162-2662-700
    or :   +49 162-2662-702
    Fax: +49 69- 56004739

2   Explanation of Terms

2.1   Hexadecimal Notation

When hexadecimal is used in this document and in materials used for submitting master ROM, an "h" is added to the end to distinguish from decimal notation. Also, be sure to use uppercase characters when writing A through F.

2.2   ROM Versions

The version number for the master ROM is made up of the version numbers of the remaster and submission versions connected with a period (.). For example "0.0".

2.2.1   Remaster Version

Use 0 for the initial submission. When resubmitting due to program changes after mass production, increase the version number (1, 2, 3, etc.) for each resubmission. Use E for pre-release versions.

2.2.2   Submission Version

For each resubmission of the remastered version, use 0 when submitting initial version. When there are changes in content but no updates to the remastered version, increment the this version number. Use A, B, C, etc., when you go over 9.

2.2.3   Notation Examples

	1st time	2nd time	3rd time		4th time	5th time	…
Remaster version	0	0	0	Changes after mass production	1	1	…
Submission version	0	1	2		0	1	…
ROM version	0.0	0.1	0.2		1.0	1.1	…

2.3   ROM Internal Registration Data

For Nintendo DS programs, it is necessary to set the information such as card specifications, the software title in the prescribed address in ROM.
To set the registration data in the Master ROM, you must insert the proper

`rom_header_****.template.sbin` file provided by Nintendo by specifying it in makerom settings. The `****` in the file name represents the Game Code assigned by Nintendo. Security information is included in this file, so do not edit it with a binary editor, but specify the items you want to set in the makerom setting file.

Also, use the DS Master ROM Checker (MRC) to verify the ROM internal registration data.

The following sections explain items in registration data in ROM that are related to master ROM submission.

2.3.1   Software Titles (000h - 00Bh: 12 bytes)

Stores this product's software title in ASCII code. Enter 20h (space) in empty spaces in the software title, and enter 00h in the unused section. The software title should be as similar to the actual title of the marketed product as possible or be identifiable as the product. The following is a list of characters that can be used:

	00	10	20	30	40	50	60	…	F0
0			SP	0	@	P			
1			!	1	A	Q			
2			"	2	B	R			
3			#	3	C	S			
4			$	4	D	T			
5			%	5	E	U			
6			&	6	F	V			
7			'	7	G	W			
8			(	8	H	X			
9			)	9	I	Y			
A			*	:	J	Z			
B			+	;	K	[			
C			,	<	L	¥			
D			-	=	M	]			
E			.	>	N	^			
F			/	?	O	_			

The gray parts cannot be used. "SP" indicates a space. Katakana and lowercase characters cannot be used.

2.3.2   Game Code (00Ch - 00Fh: 4 bytes)

Stores the four-digit ASCII code specified for each game. (Note: Before you submit software for testing, you need to obtain a Game Code from Nintendo by submitting a Code Request). The characters that can be used are the same as those for software titles (see 2.3.1).

2.3.3   Maker Code (010h - 011h: 2 bytes)

Stores the two-digit ASCII code determined when a license contract with Nintendo is made.
The characters that can be used are the same as those for software titles (see 2.3.1).

2.3.4   Product Code (012h: 1 byte)

Stores the code of the device that the product targets.

The following code can be used.

Code	Target product
00h	Nintendo DS

Note: Currently, only 00h is used.

2.3.5   Device Type (013h: 1 byte)

Stores the code of the device type used by the card.

The following code can be used.

Code	Device type
00h	Normal

Note: Currently, only 00h is used.

2.3.6   Device Capacity (014h: 1 byte)

Stores the code of the device capacity of the Game Card.

The following codes can be used.

Code	Device capacity	Code	Device capacity
00h	1 Mbits	08h*	256 Mbits
01h	2 Mbits	09h*	512 Mbits
02h	4 Mbits	0Ah	1 Gbits
03h	8 Mbits	0Bh	2 Gbits
04h	16 Mbits	0Ch	4 Gbits
05h	32 Mbits	0Dh	8 Gbits
06h*	64 Mbits	0Eh	16 Gbits
07h*	128 Mbits	0Fh	32 Gbits

Note: Currently, only device capacities identified with an asterisk (*) can be selected.

2.3.7   Remaster Version (01Eh: 1 byte)

Store the remaster version number.

Store 00h, 01h, 02h, etc., corresponding to 0, 1, 2, etc., in the remaster version.

Store E0h for Pre-Lotcheck versions.

2.4   System Call Library

Data made with the system call library (`libsyscall.a`) included with the NITRO-SDK cannot be run on the master ROM. Be sure to link the system call library that is distributed by Nintendo.

Note that system call libraries only operate in 1-to-1 combination with the `rom_header_****.template.sbin` files sent with them.

You can determine whether they are used in the correct combination by satisfying both of these conditions: (1) no warning is displayed by DS MRC, and (2) it writes to flash card and is operating normally.

In order to obtain these files, please contact NOE Lotcheck (email: lotcheck@nintendo.de) specifying the Game Code of the game as well as a single contact person. The files will then be posted at https://www.noeplts.de for download by the designated contact person.

2.5   IPL

The IPL (Initial Program Loader) is the program installed in the Nintendo DS that performs the processing from when the power is turned on to the Nintendo DS up to the point when control is transferred to the game program.

When displaying menus, it is possible to display the icons in the game program, as well as names of the game software corresponding to the various languages. Therefore, you need to prepare this data (banner data). However, translating into each language is not an absolute requirement. For details see "DS Programming Guidelines".

Set banner data by inserting the file created with makebanner. Also, you can confirm with DS MRC that the data is included in the master ROM. When supporting DS Single-Card Play, you can decide what icon and name to display on the download menu screen depending on DS language setting. Therefore you need to prepare that data for each possible language setting.

2.6   CRC

CRC (cyclic redundancy check) checks whether there are errors in the data.

You can calculate the CRC value of the submission file using DS MRC.

2.7   GGID

The GGID is an ID that is used to identify the parent communication type during wireless communication. Unless you are communicating with your company's existing game, you need to use the value that is assigned by Nintendo for that game. To request a GGID for your title, e-mail lotcheck@nintendo.de . Games that support wireless communication usually need to get at least one GGID. You may also get multiple GGIDs if multiple IDs are needed, such as when multiple communication modes are supported.

2.8   Electronic Signatures

This data validates the sent and received game program during wireless communication.
For DS Single-Card Play, an electronic signature is required for program data that is first downloaded from the parent device to the child device. Electronic signatures can be requested via https://www.warioworld.com .

2.9   DS MRC

This tool is used to check the ROM internal registration data in the Master ROM. For details see the `readme.txt` file that comes with DS MRC. Before submitting Master ROM, always use this tool to confirm that there are no conflicts. The tool can be downloaded from https://www.warioworld.com .
Make sure to always use the latest program version of DS MRC.

3   Saving Data to Media

This section explains the important points when storing data to media.

3.1   Media

Use DVD-R discs or CD-R discs.
As a general rule, save in a format that can be loaded in Windows XP.

3.2   Data Format

Use the binary (ROM image) format for file data, and do not compress the data.
The file size should match the mask ROM size, for example when ordering 64-megabit mask ROM match the file size exactly to 64 megabits.
Size may be adjusted with special tools, but you can also set it so as to create a ROM image of the specified size using the makerom setting file.

3.3   Filenames

Use the following format for filenames.

N * * * * * * . S R L

                       ROM Version (2 digits)

                       Game Code (4 digits)

Here, the ROM version is used with the period (.) omitted.
Example: When the game code is "ATHP" and the ROM version is "0.2", the filename will be
`NATHP02.SRL`.
See Section 2.2 - ROM Versions for information on ROM versions.

3.4   Label

Write the following information on the media.

- company name   (Example: Nintendo of Europe)
- product name   (Example: Table Hockey)
- product code   (Example: NTR-P-ATHP (EUR))
- file name   (Example: NATHP02.SRL)
- CRC   (Example: ABCD h)
- date   (Example:12/24/2004)

To prevent the label from coming off in the drive when using DVD-R or CD-R discs, either use a

DVD/CD-specific label, or write directly on the disc.

4   Electronic Submission

This section describes the important points when transferring data to NOE.

4.1   Data Format

For basic information see section 3.2.
In addition you need to encrypt your data before you send it. See the "GC Uploads" page at
https://www.noeplts.de for details.

4.2   File Name

See section 3.3 for details.

4.3   Transfer Protocol

Possible transfer protocols are ftps and https.
See the "GC Uploads" page at https://www.noeplts.de for details.

4.4   How to obtain an account

In order to get access to the ftps server and/or https://www.noeplts.de you need to have a valid login and
password. You can obtain this by sending a corresponding request email to datacenter@nintendo.de.
Do not forget to specify your full name and the name of the publisher you're working for and whether you
need access to the noeplts webpage, the ftps server or both.

5   Filling out the Nintendo DS Master ROM Submission Sheet

Follow the procedures below when filling out the Master ROM Submission Sheet.

5.1   Game Title

Fill in the planned game title.

5.2   Game Code

Fill in the game code for this product.
To request a game code for your title, please fill the code request form and e-mail to lotcheck@nintendo.de or visit the code request section on https://www.noeplts.de.

5.3   Language

Indicate the language(s) supported for in-game text and/or speech.

5.4   IPL Language Configuration

If you use the language setup registered in IPL on the system to set up the language used within a game, select "References". It the IPL's language setup is not used, select "Does Not Reference".

5.5   Submission Date and Method

Fill in the submission date and method for the master ROM.

5.6   Scheduled Launch

Fill in the scheduled release date of this product.

5.7   Use

Select the appropriate option and fill in information about the use of the current product. The following is a description of the options that can be selected.

5.7.1   General Sales

Select this option if your purpose is to sell the product by retail, direct sales, or mail order.

5.7.2   Kiosk Version

Select this option if your purpose is to use the product for promotion, events, or test play.

5.7.3   Data Release Version

Select this option if your product is not meant f or sales, but used to setup a communication based service at retail outlets and/or trade shows and special events.
Distribution of demo version through DS Download Play, Chance Encounter Relay Stations and game data distribution fall under this category.

5.7.4   Other

Select this option if your purpose is to include the product with a different Game Code. Fill this out together with the game code of the product that is packaged with this product.

5.8   Contact Information

Include the contact information for this product.
If one person is sufficient, you do not need to include a second contact.

5.9   Information About the Submission File

5.9.1   Remaster Version

Enter the remaster version of the current master ROM. If there is no applicable item, check [_] and enter the number. This is also written in the ROM Registration data. Use DS MRC to confirm that there are no errors in the information. See 2.2, ROM Versions, for information about the version.

5.9.2   Submission Version

Fill in the ROM version of the current master ROM.
When there is no corresponding item, check the blank line (___), and write in the number.
See 2.2, ROM Versions, for information about ROM versions.

5.9.3   ROM Type Version

Enter the setting of the current master ROM (mask ROM or one-time PROM).

5.9.4   ROM Capacity (Device Capacity)

Enter the ROM capacity that is used. Only if "1GB" was selected, you must also enter the state of the last 20 Mb. As a rule, this should be "FF h", but if (for any reason) the state is different, enter information describing the deviating value(s). Anyway for such cases you should contact lotcheck@nintendo.de in advance.

ROM capacity is also written in the ROM Registration data. Use DS MRC to confirm that there are no mistakes.

5.9.5   Backup Memory

Fill in the type of backup memory that is used.

5.9.6   SDK Used/License

Fill in the version of SDK used. Please include the full version name, including any patch information (such as "Plus 7") in the Nitro SDK field. The SDK version may be restricted depending on the backup media used. Therefore, use DS Programming Guidelines to confirm that you are using the correct version. You can confirm the Master ROM SDK version using DS MRC.

If multiple SDK versions are shown by DS MRC (version 1.13 or later), enter the SDK version shown in blue font.

5.9.7   Submitted File Name

Fill in the file name.

See Section 3.3 Filenames regarding file names.

5.9.8   The CRC

Enter the CRC value.

See Section 2.6 CRC for information on the CRC.

5.10   License Used

Indicate whether the licensed products listed in the chart are used. If licensed products are used, fill in the version information as well. However, there is no need to enter version information for LC fonts.

If there is no corresponding item, check "Other" and enter the name and version of the licensed products.

5.11   ROM Registration Data

Enter the contents stored at the prescribed address of the master ROM.

For more information on ROM registration data, see "2.3 ROM Internal Registration Data".

5.12   Banner Display on IPL screen (Three lines)

Enter the content of banner data set to display on the IPL screen divided into three lines separated by IPL language settings. Content mustbe netered for ALL languages, even if the game displays the same content for all language settings.
See Section 2.5 IPL for information on the IPL.

5.13   Program Specifications

Indicate whether the following program specifications are used.

5.13.1 DS Wireless Communication

Indicate whether DS Wireless Communication is used.
When using DS Wireless Communication, submit the separate "Nintendo DS Wireless Communication Support Checklist."

5.13.2 Microphone

Indicate whether the microphone is supported.
When using a microphone, submit the separate "Nintendo DS Microphone Support Checklist."

5.13.3 GBA Game Pak/DS Accessory

Indicate whether each of the following is supported: (1) Game Pak for use with Game Boy Advance, and (2) DS accessory for use with Nintendo DS.
When supporting Game Boy Advance Game Pak or Nintendo DS accessory, submit the separate "Nintendo DS GBA Game Pak/DS Accessory Support Checklist."

5.13.4 Nintendo Wi-Fi Connection Mode Support

Indicate whether there is support for Nintendo Wi-Fi Connection.
If Nintendo Wi-Fi Connection is supported, submit the "Check List for Nintendo DS Wi-Fi Connection Mode" separately.

5.13.5 Touch Screen

Indicate whether the Touch Screen is used.

5.13.6 RTC

Indicate whether the real-time clock (RTC) is used. This entry should only be marked "Yes" if clock settings actually affect the game (For example seasons being reflected in the game or special events happening at a specific time or date). If this entry is marked yes, the submission must also include additional information describing exactly how clock settings will affect the game.

5.13.7 Soft Reset

Indicate whether the soft reset feature is implemented.

5.13.8 Pictochat Search

Indicate whether the feature that searches for Pictochat has been implemented.

5.13.9 Auto LCD OFF

Indicate whether the time-set automatic LCD OFF feature is implemented.
When the automatic LCD OFF feature is implemented, indicate the maximum and minimum time
values that can be set.

5.13.10 Automatic Backlight-Off

Indicate whether the time-set automatic backlight-off feature is implemented.
If the automatic backlight-off feature is implemented, indicate the maximum and minimum time
values that can be set.

5.13.11 Sleep Mode Support

Indicate whether the DS system may enter Sleep Mode when the DS cover is closed.
Indicate if the DS system does not enter Sleep Mode (enters LCD OFF or backlight OFF) according to
the situation when the cover is closed. Describe the conditions for the cases when the DS does not
enter Sleep Mode.
Indicate if the RTC alarm is used to recover from Sleep Mode. If used, describe the process in the
"Remarks" section.

5.13.12 IPL User Name and Comment Use

Indicate if IPL-configurable User Names and User Comments are used in the game.
Describe the situations where these items are used. Also indicate whether all characters that can be
used in User Names and User Comments are displayed properly. If some characters cannot be
displayed (are displayed using substitute characters), submit the "Unsupported Characters List"
included with this package.

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