

TWL-System

g2dcvtr Manual

Using the G2D Converter

2009/02/12

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Revision History

Revision Date	Description
2009/02/12	Revised the description of the <code>-bmp</code> option.
2008/05/30	<ul style="list-style-type: none"> Made revisions in line with the NITRO-System name change (from NITRO-System to TWL-System) Deleted section 4 How to Use Output Files (C Source File Format).
2008/04/08	<ul style="list-style-type: none"> Changed the format of the Revision History. Added support for TWL-SDK.
2007/11/26	Fixed a bug of the <code>-afs</code> option.
2007/04/05	Implemented a feature that checks for illegal character numbers within cells (added the <code>-cic</code> option).
2007/03/14	Added the <code>-cza</code> option.
2006/05/29	<ul style="list-style-type: none"> Fixed a problem with the border radius calculation. Added the <code>-afs</code> option.
2005/12/26	<ul style="list-style-type: none"> Corrected a problem related to the VRAM transfer information. Made changes such that when the cell's region information is calculated, the same data is output for OBJ set to double-size affine mode as for OBJ not set to this mode.
2005/09/01	<ul style="list-style-type: none"> Added the <code>-cr</code> option. Corrected a problem concerning an excessive output of VRAM transfer information. Added the <code>-rtp</code> option. Added the <code>-oua</code> option.
2005/06/06	<ul style="list-style-type: none"> Added warning about 1D mapping character data with invalid size. Added the <code>-ncn</code> option, which uses <code>nce</code> file titles as output NCGR and NCBR file names.
2005/01/31	<ul style="list-style-type: none"> Fixed the bug that caused file conversion to fail when the related file path information used absolute path names. Applied the extended comment information to the label definition header file. Fixed the bug that caused the cell animation playback mode information to be set incorrectly when converting multi-cell data. Deleted the source file format output feature.
2004/12/06	Added the <code>-aXXX</code> options (specification of animation element types).
2004/10/12	<ul style="list-style-type: none"> Changed the specifications for output messages. Added the control option (<code>-v</code>). Added the <code>-pcm</code> option to output palette compression format data. Added the <code>-br</code> option to output cell rectangle area information data. Added a description of converter return values.
2004/09/16	Implemented the BG screen data conversion feature.
2004/09/02	<ul style="list-style-type: none"> Corrected typos. Added command line examples. Described the feature for replacing incorrect scale parameters.

Revision Date	Description
2004/08/10	<ul style="list-style-type: none">• Added the <code>-bg</code> option.• Added the <code>-lbl</code> option.• Added the sections on using label definition header files and converting character files.
2004/08/02	<ul style="list-style-type: none">• Changed the names of the converter and manual.• Added support for the 8/2 version.• Added an option.
2004/07/20	Added support for the 8/20 version.
2004/06/22	Added support for the 6/22 version.
2004/06/10	Added support for the 6/10 version. Corrected errors.
2004/05/10	Initial version.

1 Introduction

This document describes how to use the g2dcvtr program (`g2dcvtr.exe`). G2DConv is a Microsoft Windows application that converts the intermediate binary format, output by NITRO-CHARACTER, to the runtime binary format used by the TWL-System G2D runtime library.

2 Use

```
g2dcvtr.exe [filename] [-m] [-bmp] ...
```

If the output is successful, a value of 0 is returned. If the output fails, a non-zero value is returned.

Type	Required?	Description
[filename]	Required	<p>Specifies the path + filename + extension to be converted.</p> <p>g2dcvtr outputs the specified files and the files related to them in a chain. For example, when specified NCE, NCG, and NCL files are also output. If the file extension is omitted, output for path + filename + supported file extensions is attempted. In this case, related files are not output.</p>
[-bmp]	Optional	<p>Converts to and outputs bitmap format when there is a character file input. If software sprite rendering is used, bitmap format character data (=texture data) are required.</p> <p>Caution: If bitmap format data is used, it must be of a size that can be referenced as texture data. Take particular care not to create data that is too large when using custom characters.</p>
[-vta]	Optional	<p>Outputs the data into a VRAM transfer animation format.</p> <p>To be usable, the data must be output with the character compression mode set to OFF and in the 1D mapping mode.</p>
[-o/]	Optional	<p>Specifies the data output directory.</p> <p>Describe the path without leaving a blank space after -o/.</p> <p>If the specified directory does not exist, there will be no output.</p>
[-pcm]	Optional	<p>Extracts the used palette number parts from the palette data and outputs them as data.</p> <p>If all 16 colors of a 16-color palette are set to black (RBG(0,0,0)), or if all 256 colors of a 256-color extended palette are set to black, the palette number is treated as unused. This option is meaningless in the 256-color palette mode.</p> <p>To properly recover data output with this option, the data must be loaded using NNS_G2dLoadPaletteEx.</p>
[-bg]	Optional	<p>Converts the NCG character file to character data for BG.</p> <p>When converting the file as the OBJ character data without using the -bg option, the associated cell data is needed. This is automatically specified when converting an NCG file that is referenced from an NSC file as an associated file.</p>
[-v]	Optional	<p>Enables output of the detailed operation messages of the converter.</p> <p>If this option is not specified, error messages will output only when an error to the standard output has occurred. If this option is specified, detailed operation messages are output to the standard output.</p>
[-lbl]	Optional	<p>Outputs a header file which upon output defines another name for the animation sequence numbers.</p> <p>For details, see Chapter 4 How to Use the Label Definition Header File.</p>

Type	Required?	Description
<code>[-br]</code>	Optional	Outputs the cell information that includes rectangular area information. To use the data output specified by this option, you must use the October 12, 2004 version (or later) of the G2D Runtime Library.
<code>[-aXXX]</code>	Optional	Specifies the animation element type for the output animation data. The three options are <code>-ai</code> , <code>-aisrt</code> , and <code>-ait</code> . With <code>-ai</code> , output is the animation with only the index value. With <code>-aisrt</code> , output is the animation with index value + SRT (scale, rotate, translate) value. With <code>-ait</code> , output is the animation with index value + T value.
<code>[-ncn]</code>	Optional	Uses NCE file titles as the output NCGR (NCBR) file titles. Use this option when several 1D mapping format NCE files are referencing a single NCG file.
<code>-cr/ [XYWH]</code>	Optional	Defines the input rectangle used when converting NCG files. X and Y define the placement of the upper-left corner of the input rectangle of the character unit within the character data set. W and H specify the size of the character unit input rectangle. Specify each value so that the total character size is not exceeded. Currently, values for X and W are invalid. Regardless of the specified values, X=0 and W=(total character data width used).
<code>[-rtp]</code>	Optional	Removes transparent pixels from the boundary region when calculating boundary region information.
<code>[-oua]</code>	Optional	Extracts and outputs the comment characters in the extended comment field as the extended attribute information. For a detailed description see Chapter 5 Using the -oua Option.
<code>[-afs]</code>	Optional	Aligns the size of the output file to be a multiple of 4 bytes.
<code>[-cza]</code>	Optional	Checks for animation frames for which zero was specified as the number of displayed animation frames, and treats them as illegal data.
<code>[-cic]</code>	Optional	Checks if there is illegal data in the character number referenced by an OBJ in the cell. (This option is used to determine the cause of a problem, such as when the converter is forced to stop.)

Deleted Options

Type	Required?	Description
<code>[-src]</code>	Optional	Outputs the output data converted into C source file format.
<code>[-m]</code>	Optional	When there is animation input, forces the conversion of animation to multi-cell animation. This feature is provisional until multi-cell animation support becomes available with NITRO-CHARACTER.

Example:

```
>g2dcvtr.exe c:/data/test.nce -bmp
>g2dcvtr.exe c:/data/test.nce -o/d:/data
```


3 How to Use Output Files

Load each project with the TWL-SDK file system using the output file. For details, see the file system documentation. Most of the test programs in the `$(TWLSYSTEM_ROOT)/Build/Tests/g2d/` folder use the file system to load resources. Use these test programs as examples.

4 How to Use the Label Definition Header File

If you specify the `-lbl` option, the converter generates a header file that defines the label number alias based on the label character information in the animation data. Because the label number and the animation sequence number have a one-to-one correspondence, the alias can be used for the animation sequence number. The following naming conventions apply.

Filenames:

File title name_file extension_LBLDEFS.h

Aliases

File extension_File title name_Label name

The converter does not detect identical alias names. The user must deal with them to prevent issues.

Output Example: Label definition file output for data.NANR

Output file: data_NANR_LBLDEFS.h

Contents:

```
//-----  
// This file was generated by g2dcvtr.exe converter.  
// Avoid editing this file.  
// data ==> Thursday, August 05, 2004.  
//-----  
#define    NANR_data_walk1      // Extended comment information is inserted as  
                                // a comment statement.  
#define    NANR_data_walk2      // Comment not set  
#define    NANR_data_run        // Comment not set  
#define    NANR_data_stop       // Comment not set  
#define    NANR_data_sleep      // Comment not set  
#define    NANR_data_atack      // Comment not set
```

5 Using the `-oua` Option

Use the `-oua` option to output extended user attributes. It has been available since Version 2.8 of g2dcvtr.

If `-oua` is specified, the converter looks for the extended comment string and attempts to extract attribute data. Attributes within the extended comment appear as `<xxx>`, where `xxx` is a character string that can be interpreted as a 32-bit unsigned hexadecimal integer.

The extraction algorithm process is shown below.

1. The software searches within the extended comment for a character string that starts with `@A`.
2. If the string `@A<` is found, the software searches for `<`.
3. Once the character `<` is found, the character string between `@A<` and `<` is read as a 32-bit unsigned hexadecimal number.

Be sure to note the following points:

- If the search fails to find `@A<` or `<` within the extended comment string, the attribute value will be set to zero.
- `-oua` is supported by NCE version 1.04 and later files, generated by NITRO-CHARACTER versions 1.5 and later. If these conditions are not met, a warning is displayed and no attributes are output.

6 Other Features

6.1 Converting `ncg` (Character Data) Files

g2dcvtr is not allowed to perform binary conversions on unpaired NCG files used for OBJ character data. To be converted, each NCG file must be paired with an NCE file with cell definition data.

NCG and NCE files are associated with each other, and NCE data is required to correctly convert NCG data that uses the 1D mapping mode. Therefore, if the conversion of unpaired NCG files were permitted, invalid NCG files without the corresponding NCE files would be generated.

To indicate that the NCG file is for the BG character data, use the `-bg` option when converting unpaired NCG files.

Note that the conversion of an NCG file referenced by an NSC screen-data file is performed as if the `-bg` option is specified. Therefore, `-bg` does not need to be specified.

6.2 Replacing Incorrect Scale Parameters

When g2dcvtr finds an incorrect scale parameter in SRT (Scale, Rotate, and Translate) animation that is stored in the NCE or NMC file, the value is replaced with the default scale value (scale = 1.0). When g2dcvtr finds an `fx32` scale value with an absolute value smaller than 1/4096 (approximately 0.00024), it replaces the value with 1/4096 or -1/4096.

6.3 Data That Includes OBJs Set to Double-Size Affine Mode

Note the following points regarding data that contains OBJs set to double-size affine mode.

6.3.1 The Export Cell Region Information Option: `-br`

When you use the `-br` option to export cell region information, the converter outputs identical region information for all OBJs regardless of whether they are set to double-size affine mode.

The 2005/05/12 release (version 1.11.0006.0) and all subsequent versions of NITRO-CHARACTER are different. When you set double-size affine mode to ON, the OBJ positions are automatically adjusted to maintain the same cell images that existed before the setting change.

The converter uses the following procedure to calculate region information.

1. For OBJs set to double-size affine mode, the converter creates a copy of the data and discards the automatically-appended OBJ position adjustment data from the copy.
2. The converter then assumes that the OBJs set to double-size affine mode have the same size as normal OBJs, and uses the copied data to calculate region size.

Note: During this process, the converter processes double-size affine mode OBJs as if the position data still includes the adjustments. Data created with NITRO-CHARACTER prior to version 1.11.0006.0 may cause unintended results to be output.

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