
TWL-System

NITRO-Player User Manual

2009/07/08

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Revision History

Revision Date	Description
2009/07/08	<p>Corrected a mistake where places that should have read "TWL" in "Starting IS-TWL-DEBUGGER Hardware (Red Box) and IS-TWL-MIDI" mistakenly read "DS."</p> <p>Added a description of "Starting IS-NITRO-EMULATOR Hardware (Blue Box) and IS-TWL-MIDI."</p> <p>Added mention of IS-TWL-MIDI to section 10.1 Real-Time MIDI Playback.</p>
2009/02/18	<p>Added explanation regarding IS-TWL-MIDI.</p> <p>Corrected the error in the path notation for <code>NitroPlayer.srl</code>.</p> <p>Added description regarding the required <code>NitroPlayerUIC.srl</code> when running the combination of Nintendo DS system and IS-NITRO-UIC.</p>
2008/08/04	<p>Revisions resulting from NITRO-System name change (updating to TWL-System).</p> <p>Added information specific to IS-TWL-DEBUGGER.</p>
2008/04/08	<p>Changed the format of the Revision History.</p> <p>Revised page headers.</p>
2007/03/14	Added a description of the feature for specifying an option and converting.
2005/09/01	Added a description of the MIDI reset feature.
2005/03/28	<p>Added a description of the hard disk recording feature.</p> <p>Added a description of sequence skip playback.</p>
2005/01/31	<p>Added a description of the heap simulation feature.</p> <p>Added a description of the player window.</p> <p>Added a description of the sequence variable panel.</p> <p>Added the hardware connection figure.</p> <p>Made the classification of the startup method description more detailed.</p> <p>Changed "NITRO" to "Nintendo DS."</p>
2004/12/06	Added a description of sorting in the List window.
2004/11/10	First version.

1 Introduction

1.1 About NITRO-Player

NITRO-Player is a tool that supports the creation of sound data for the TWL and Nintendo DS system (hereafter referred to as DS). It allows playing the sound data created for NITRO-Composer on the TWL and DS, making it possible for users to hear their creations.

With NITRO-Player, a user can play and stop sounds and perform other operations using a PC mouse and keyboard. Because playback is routed through the TWL or DS, a user can check how sounds will play once they are incorporated into a game. For parameters that can be changed while the game is playing, such as tempo and volume, NITRO-Player can also be used to check and adjust settings in real time.

1.2 About This Manual

This manual reviews the fundamentals of using NITRO-Player and its frequently used features. It details basic NITRO-Player components, steps for configuration, and preparation for use, and provides examples of NITRO-Player features.

This manual provides you with the NITRO-Player basics. To make full use of the program, you must be familiar with NITRO-Composer. We recommend that you read the *NITRO-Composer Overview* manual before using the NITRO-Player.

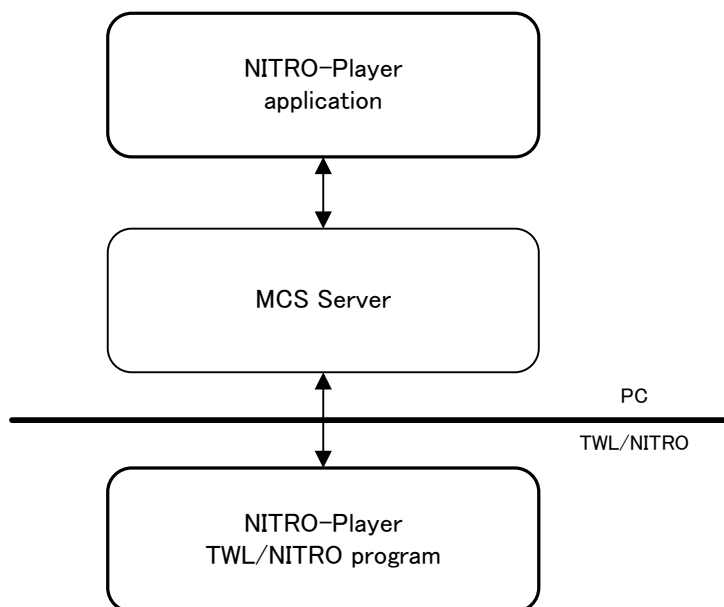
2 Preparing NITRO-Player

2.1 Composition

2.1.1 Schematic Diagram

NITRO-Player consists of the components shown in Figure 2-1.

Figure 2-1 NITRO-Player Schematic



2.1.2 Software

2.1.2.1 NITRO-Player Application

The purpose of this Microsoft Windows application is to load the sound data and to play and stop sound playback. This application is referred to as *NITRO-Player* unless otherwise noted.

2.1.2.2 MCS Server

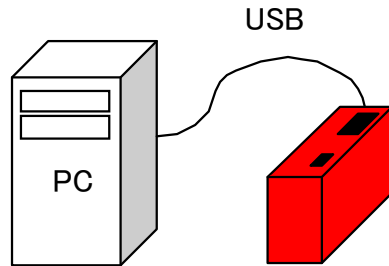
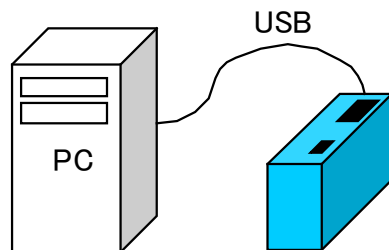
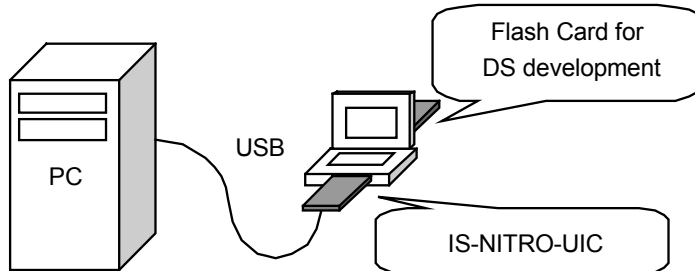
This Windows application is essential for communication between the PC and the TWL or Nintendo DS.

2.1.2.3 NITRO-Player TWL/Nintendo DS System Program

This sound-playing program runs on a TWL or Nintendo DS system.

2.1.3 Hardware

To use NITRO-Player on the TWL or Nintendo DS hardware, connect to a PC as shown in Figure 2-2, Figure 2-3, or Figure 2-4.

Figure 2-2 Connection with the IS-TWL-DEBUGGER Hardware (Red Box)**Figure 2-3 Connection with the IS-NITRO-EMULATOR Hardware (Blue Box)****Figure 2-4 Connection with the IS-NITRO-UIC and the Nintendo DS System with a Flash Card**

To use the playback features on a MIDI device, use one of the configurations shown below.

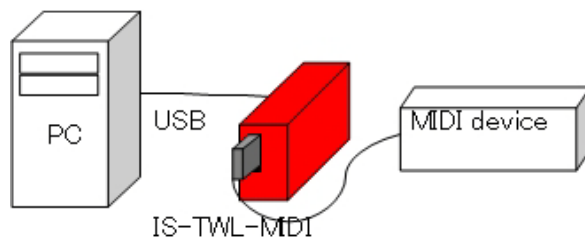
Figure 2-5 Connection with the IS-TWL-DEBUGGER (Red Box) and IS-TWL-MIDI

Figure 2-6 Connection with the IS-NITRO-EMULATOR (Blue Box) and the IS-NITRO-UIC MIDI (or IS-AGB-MIDI)

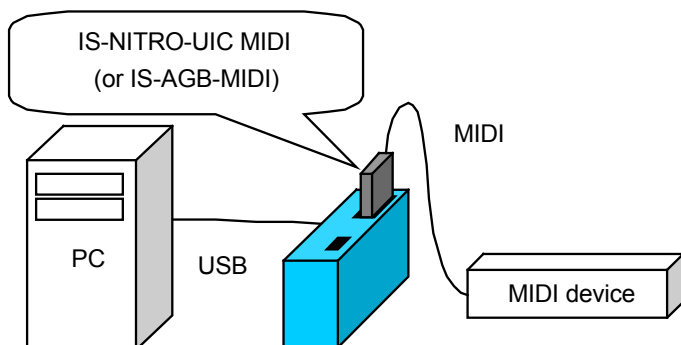


Figure 2-7 Connection with the IS-NITRO-EMULATOR (Blue Box) and the IS-NITRO-TWL MIDI

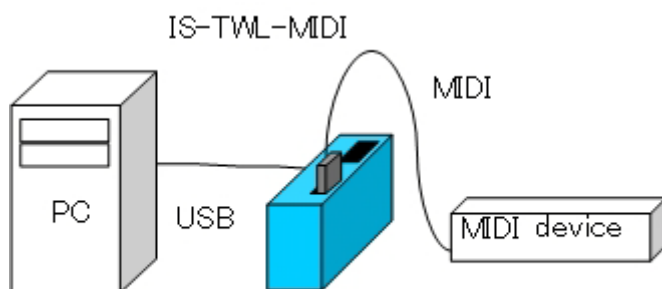
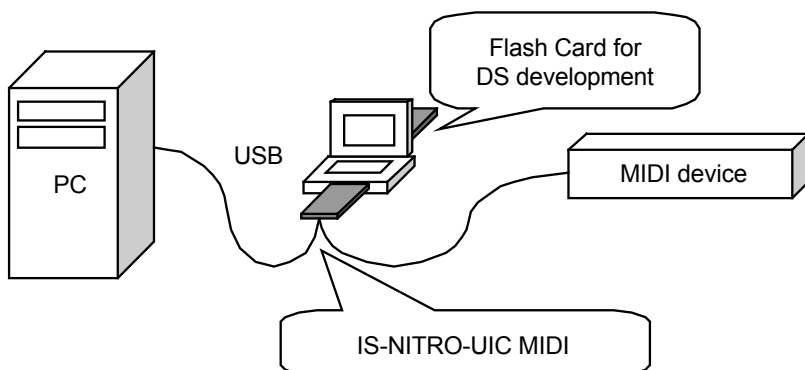


Figure 2-8 Connection with the IS-NITRO-UIC MIDI and a DS System with a Flash Card



2.2 Setup

NITRO-Player is included with TWL-System. When TWL-System is set up, NITRO-Player is ready to use.

Sections 2.2.1 Extract the Package and 2.2.2 Set Environment Variable describe the basic system configuration for TWL-System. If TWL-System is already set up, no additional configuration is required. For more details, read the TWL-System documentation.

2.2.1 Extract the Package

To uncompress the TWL-System package, use a file extraction utility.

2.2.2 Set Environment Variable

Set the environment variable `TWLSYSTEM_ROOT` to the absolute path for the extracted directory `TwlSystem`. Hereafter, this directory is indicated by `$TwlSystem`.

2.3 NitroPlayer Directory

Files associated with NITRO-Player are stored in the `NitroPlayer` directory. The path to the `NitroPlayer` directory is `$TwlSystem\tools\NitroPlayer`. This directory is hereafter indicated by `$NitroPlayer\`.

3 Basic Operations

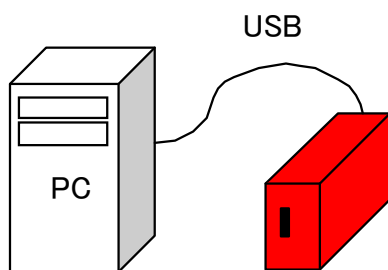
3.1 Starting NITRO-Player

There are a number of ways to start NITRO-Player, and the methods vary depending on the hardware configuration. Select the appropriate configuration based on your hardware.

- IS-TWL-DEBUGGER hardware (red box)
- IS-TWL-DEBUGGER hardware (red box) and IS-TWL-MIDI
- IS-NITRO-EMULATOR hardware (blue box)
- IS-NITRO-UIC and the Nintendo DS system
- IS-NITRO-EMULATOR hardware (blue box) and IS-NITRO-UIC MIDI (or IS-AGB-MIDI)
- IS-NITRO-EMULATOR hardware (blue box) and IS-TWL-MIDI
- IS-NITRO-UIC MIDI and the Nintendo DS system with a Flash Card

3.1.1 Starting IS-TWL-DEBUGGER Hardware (Red Box)

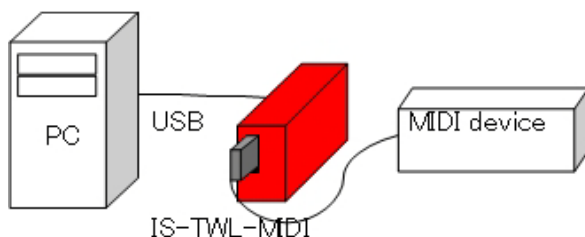
Figure 3-1 Connection with IS-TWL-DEBUGGER Hardware (Red Box)



1. Verify that the IS-TWL- DEBUGGER (red box) hardware is correctly connected to the PC. If other applications connected to the IS-TWL-DEBUGGER hardware are running, exit those applications before proceeding.
2. Start MCS Server (`$NitroPlayer\mcsserv_TWL`) from the PC. When MCS Server starts, NITRO-Player starts automatically on the TWL. Wait for the NITRO-Player logo to appear on the screen.
3. Start the NITRO-Player application from the PC by running `$NitroPlayer\NitroPlayer.exe`.

3.1.2 Starting IS-TWL-DEBUGGER Hardware (Red Box) and IS-TWL-MIDI

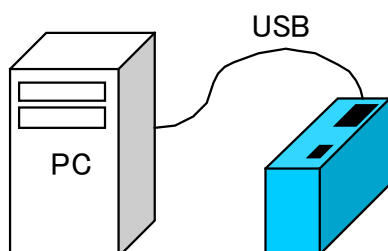
Figure 3-2 Connection with IS- TWL-DEBUGGER Hardware (Red Box) and IS-TWL-MIDI



1. Verify that the IS-TWL-DEBUGGER (red box) hardware is connected to the PC correctly. If other applications connected to the IS-TWL-DEBUGGER hardware are running, exit those applications before proceeding.
2. Insert IS-TWL-MIDI in the IS-TWL-DEBUGGER DS Card slot.
3. Start MCS Server (`$NitroPlayer\mcsserv_TWL`) from the PC. When MCS Server starts, NITRO-Player starts automatically on the TWL. Wait for the NITRO-Player logo to appear on the screen.
4. Start the NITRO-Player application from the PC by running `$NitroPlayer\NitroPlayer.exe`.

3.1.3 Starting IS-NITRO-EMULATOR Hardware (Blue Box)

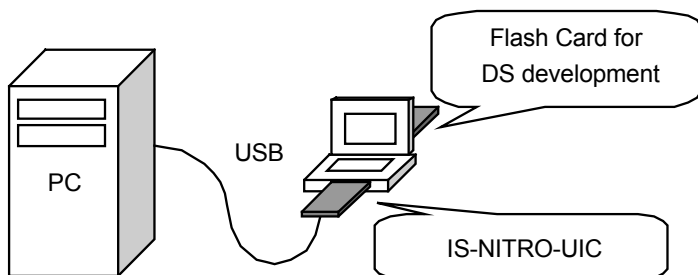
Figure 3-3 Connection with IS-NITRO-EMULATOR Hardware (Blue Box)



1. Check that the IS-NITRO-EMULATOR hardware (blue box) is correctly connected to the PC. If another application is running on the blue box, you must shut it down before starting NITRO-Player.
2. Start MCS Server (`$NitroPlayer\mcsserv_EMU`) from the PC. When MCS Server starts, NITRO-Player starts automatically on the DS. Wait for the NITRO-Player logo to appear on the screen.
3. Start the NITRO-Player application from the PC by running `$NitroPlayer\NitroPlayer.exe`.

3.1.4 Starting IS-NITRO-UIC and a Nintendo DS System with a Flash Card

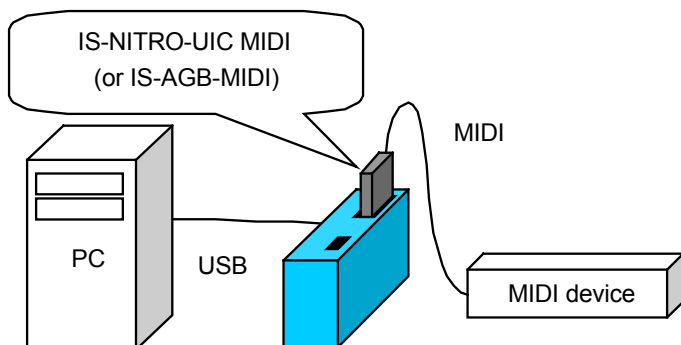
Figure 3-4 Connection with the IS-NITRO-UIC and a Nintendo DS System with a Flash Card



1. To start NITRO-Player on a Nintendo DS system, you must first write the NITRO-Player DS program to a DS Flash Card used for development. The executable file to write is `$NitroPlayer\bin\NitroPlayerUIC.srl`.
2. Check that the PC and the DS are connected via IS-NITRO-UIC. If another application is running on the DS, you must shut it down before starting NITRO-Player.
3. Turn on the DS power and start the NITRO-Player DS program. Wait for the NITRO-Player logo to appear on the screen.
4. Start MCS Server (`$NitroPlayer\mcsserv_UIC`) on the PC.
5. Start the NITRO-Player application on the PC by running `$NitroPlayer\NitroPlayer.exe`.

3.1.5 Starting IS-NITRO-EMULATOR Hardware (Blue Box) and IS-NITRO-UIC MIDI (or IS-AGB-MIDI)

Figure 3-5 Connection with the IS-NITRO-EMULATOR (Blue Box) and IS-NITRO-UIC MIDI (or IS-AGB-MIDI)



1. Check that the IS-NITRO-EMULATOR hardware (blue box) is correctly connected to the PC. If another application that connects to the IS-NITRO-EMULATOR hardware (blue box) is running, you must shut it down before starting NITRO-Player.
2. Insert IS-NITRO-UIC MIDI (or IS-AGB-MIDI) into the GBA Game Pak slot of the IS-NITRO-EMULATOR.
3. Start MCS Server (`$NitroPlayer\mcsserv_EMU_MIDI`) on the PC. When MCS Server starts, the NITRO-Player program starts automatically on the DS. Wait for the NITRO-Player logo to appear on

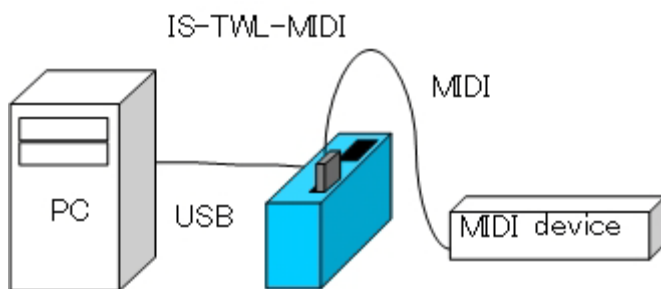
the screen.

4. Start the NITRO-Player application on the PC by running `$NitroPlayer\NitroPlayer.exe`.

Note: Do not remove a Game Pak or insert it into the GBA Game Pak slot of the IS-NITRO-EMULATOR hardware while MCS Server is running. First, make sure MCS Server has stopped.

3.1.6 Starting IS-NITRO-EMULATOR Hardware (Blue Box) and IS-TWL-MIDI

Figure 3-6 Connection with the IS- NITRO-EMULATOR Hardware (Blue Box) and IS-TWL-MIDI

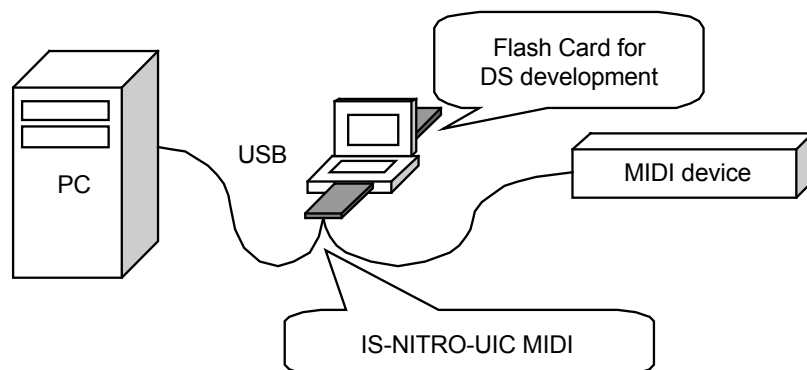


1. Check that the IS-NITRO-EMULATOR hardware (blue box) is correctly connected to the PC. If another application that connects to the IS-NITRO-EMULATOR hardware (blue box) is running, you must shut it down before starting NITRO-Player.
2. Insert IS-TWL-MIDI into the DS cartridge slot of the IS-NITRO-EMULATOR.
3. Start MCS Server (`$NitroPlayer\mcsserv_TWL_MIDI`) on the PC. When MCS Server starts, the NITRO-Player program starts automatically on the DS. Wait for the NITRO-Player logo to appear on the screen.
4. Start the NITRO-Player application on the PC by running `$NitroPlayer\NitroPlayer.exe`.

Note: Do not remove a Game Pak or insert it into the DS Game Pak slot of the IS-NITRO-EMULATOR while MCS Server is running. First, make sure MCS Server has stopped.

3.1.7 Starting IS-NITRO-UIC MIDI and the Nintendo DS System

Figure 3-7 Connection with the IS-NITRO-UIC MIDI and Nintendo DS System

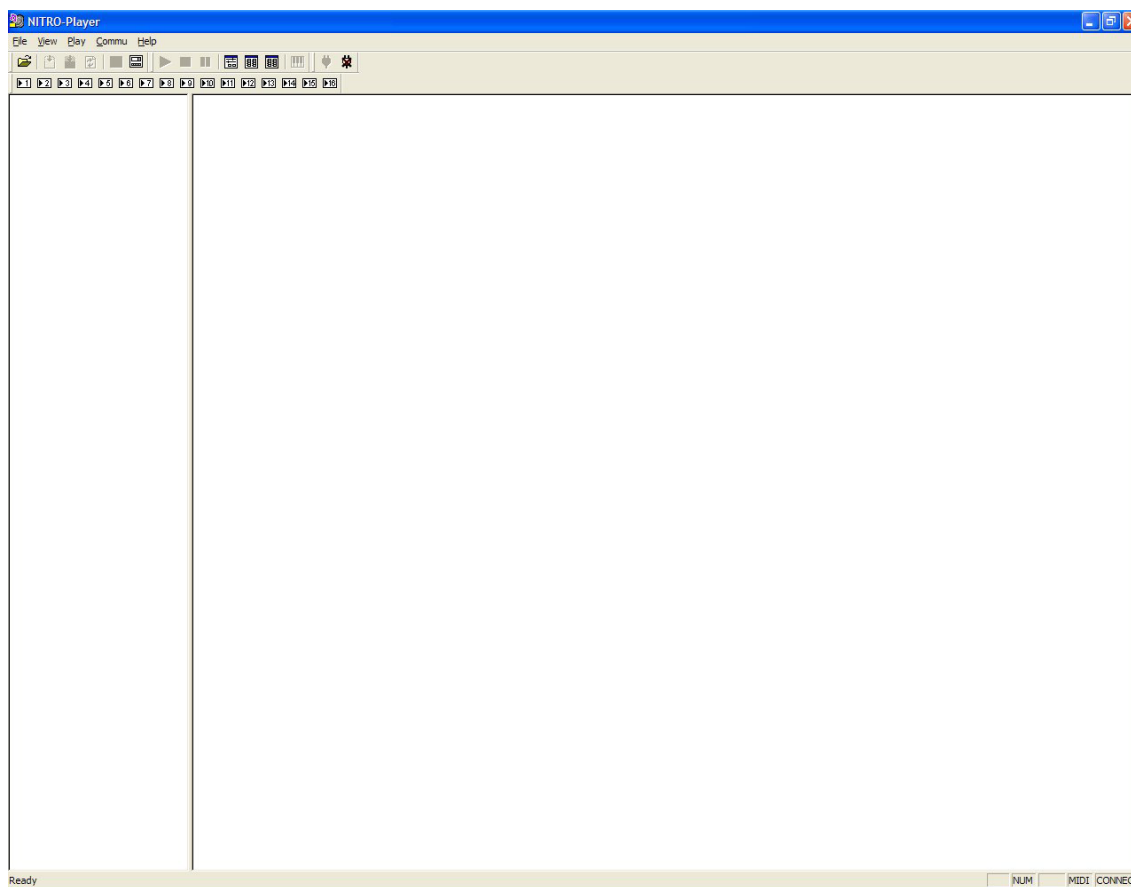


1. To start NITRO-Player on the DS, you must first load the NITRO-Player DS program to the Flash Card for DS development. Load the executable file `$NitroPlayer/bin/NitroPlayerUIC.srl`.
2. Confirm that the PC and the DS are connected via IS-NITRO-UIC MIDI. Any other applications running on the Nintendo DS must first be shut down.
3. Turn on the DS power and run the NITRO-Player DS program. Wait for the NITRO-Player logo to appear on the screen.
4. Start the MCS server (`$NitroPlayer/mcsserv_UIC`) on the PC.
5. Start the NITRO-Player application from the PC by running `$NitroPlayer/NitroPlayer.exe`.

3.2 Start Window

If NITRO-Player has started correctly, the window shown in Figure 3-7 appears.

Figure 3-8 NITRO-Player Start Window



If NITRO-Player is properly connected to a TWL or Nintendo DS system, the status bar indicates the connection as shown in Figure 3-8.

Figure 3-9 Connection Indicator

If CONNECT does not appear, a connection with the TWL or DS has not been established. Check the connection for any problems.

When MIDI is displayed to the left of CONNECT on the status bar, the real-time MIDI playback feature is enabled. If MIDI is not displayed, the real-time MIDI playback feature is disabled.

3.3 Opening Sound Data

With NITRO-Player running, the next step is to load sound data. Open the sound data in the file `$TwlSystem\tools\SoundPlayer\data\sound_data.sarc`. There are different ways to open the file.

- From the **File** menu, select **Open** and choose the file from the dialog box.
- Drag and drop the file into the NITRO-Player window.

When the file is opened, a window is displayed. This window remains displayed during the conversion of the sound data and closes when the conversion is complete. When the conversion completes successfully, the window shown in Figure 3-9 appears.

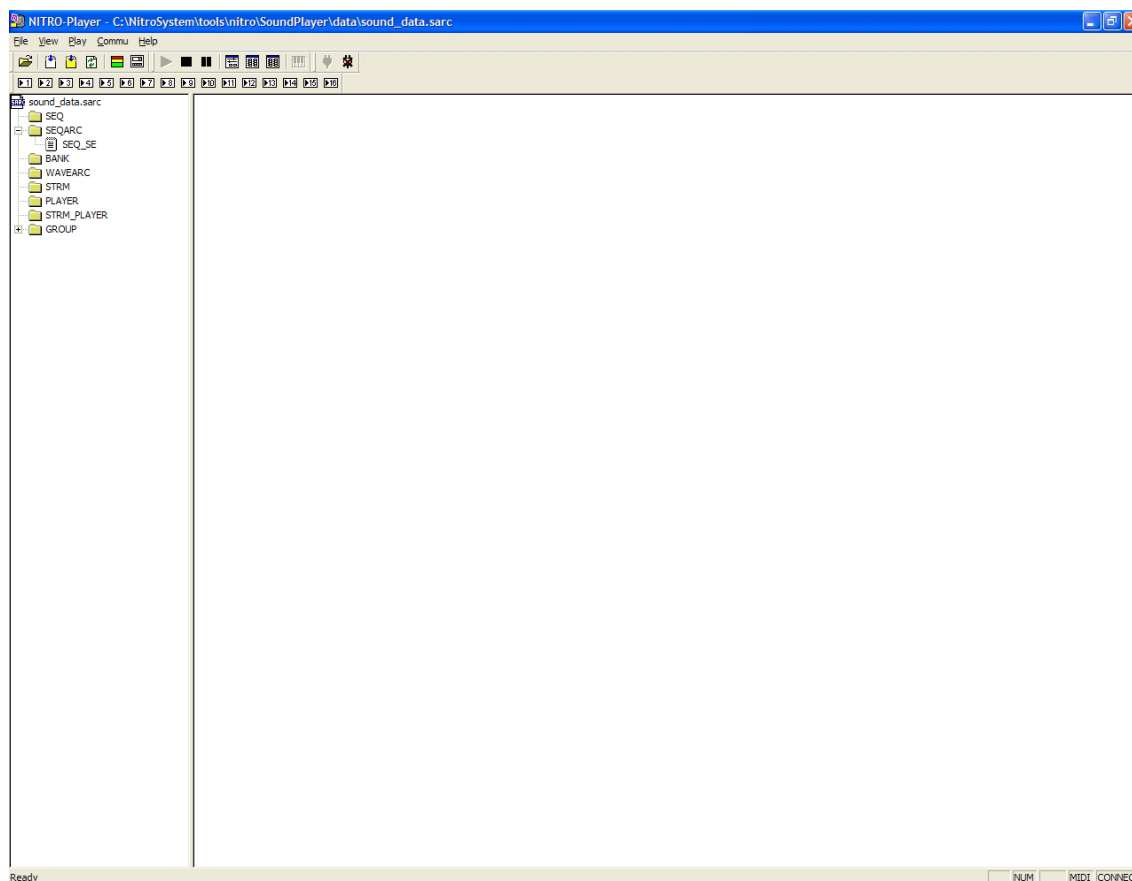
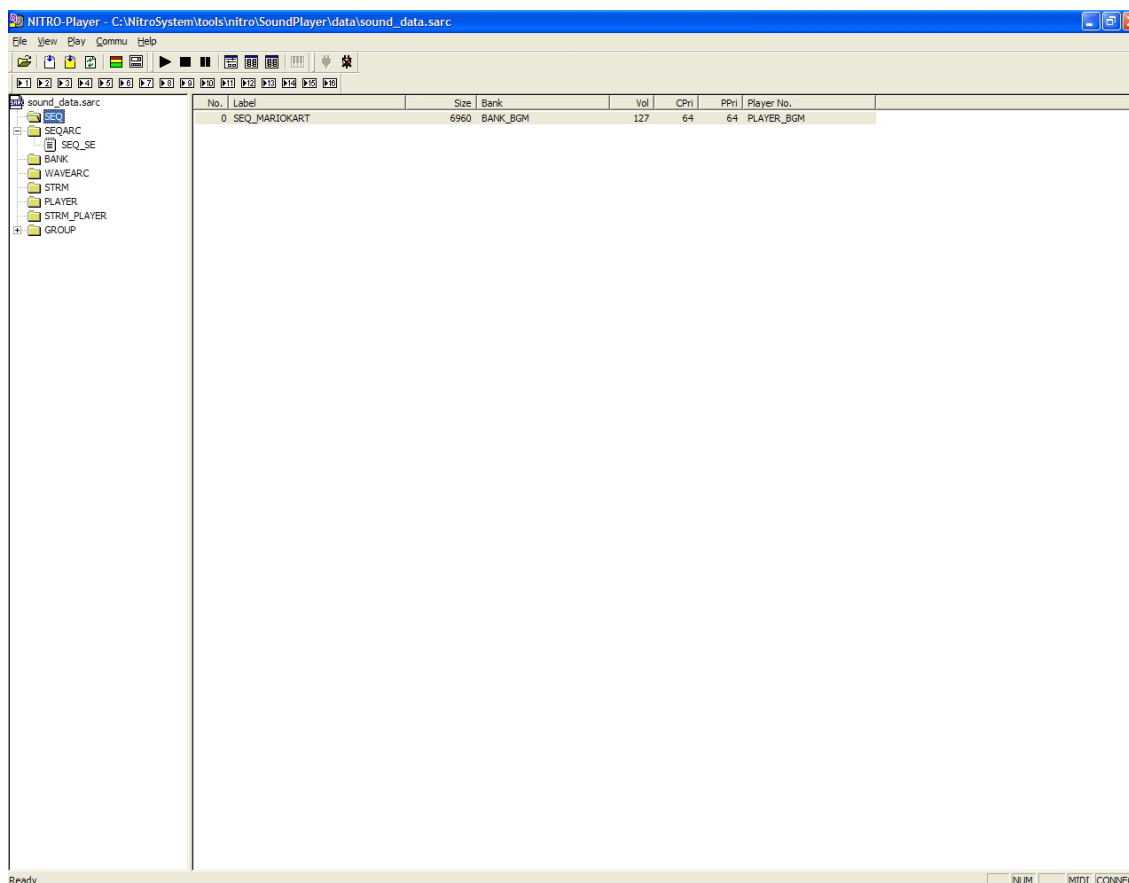
Figure 3-10 Opened Sound Data

Figure 3-9 shows an opened sound archive definition (SARC) file, but you can also open a sound archive (SDAT) file. If a sound archive is opened, conversion is not performed during loading.

3.4 Displaying Sound Data

Opening the sound data displays the structure of the sound archive data in the left pane. Each item that has a folder icon corresponds to a section. Select the **SEQ** folder to display its contents.

Figure 3-11 Selected SEQ Sequence



As shown in Figure 3-10, the contents of the folder selected in the folder pane (left) appear in the content pane (right) of the NITRO-Player window. In this case, a list of sequence data appears in the content pane. The data size and information about the bank being used are also shown.

Click on other folders in the folder pane to display their contents.

3.4.1 Sorting Items

Click on column headers in the content pane to sort and order the content. Clicking the header twice toggles the order between ascending and descending.

3.5 Start/Stop Sequence

To play the sequence, select the SEQ folder. Select the sequence in the content pane, then from the **Play** menu select **Playback**. The requested data is transferred and played on the TWL or DS.

To stop playback, from the **Play** menu select **Stop**. To pause the sound, from the **Play** menu select **Pause**. To resume playback, select **Pause** again. If a sequence is paused and **Playback** is selected, the sequence will play from the beginning.

Note: For sequence playback, the sound data is sent from the PC to the TWL or Nintendo DS as necessary. This can result in a delay between the time Play is selected and the time the actual playback begins.

3.6 Quitting NITRO-Player

To quit the application, reverse the startup procedure.

1. Quit NITRO-Player.
2. Quit MCS Server.
3. If necessary, turn the TWL/DS power off.

4 Player Window

4.1 About the Player Window

In the main application window, you can perform operations such as starting or stopping sequence playback. However, to play multiple sequences at the same time, you must use the **Player** window, which is shown in Figure 4-1.

Figure 4-1 Player Window

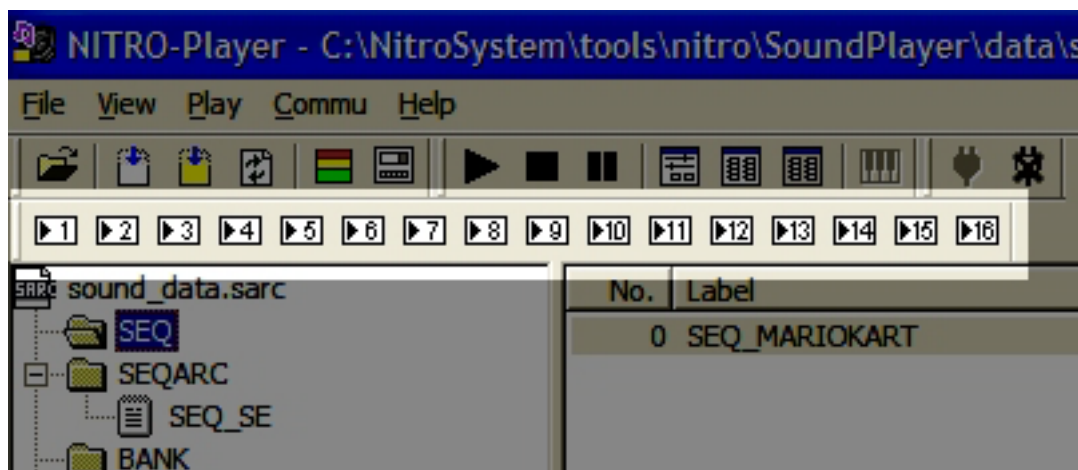


Sequences can also be played back and stopped in this window.

4.2 Opening a Player Window

As shown in Figure 4-2, each of the 16 numbered buttons in a row on the toolbar correspond to a **Player** window.

Figure 4-2 Player List Toolbar

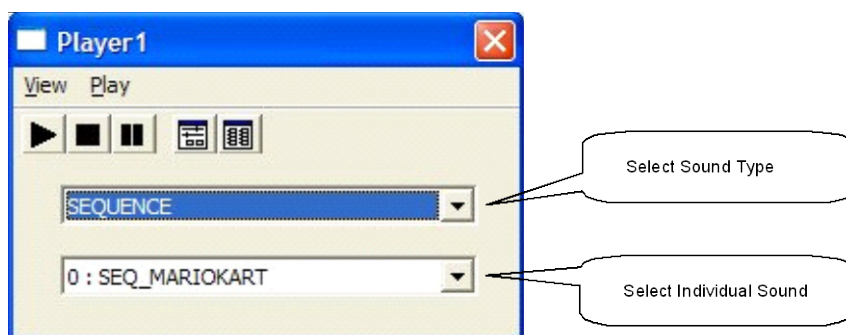


Click one of these buttons to open a **Player** window. Clicking the same button toggles display of the **Player** window. At most, 16 **Player** windows can be displayed at one time.

4.3 Playback Method

Use the two drop-down list boxes shown in Figure 4-3 to select the sound you want to play.

Figure 4-3 Player Window (Sound Selection)



The **Select Sound Type** list determines the type of playback sound. The three available sound type options are: **Sequence**, **Stream**, and **Sequence Archive**. If you choose **Sequence Archive**, any sequence archive can be selected. The **Select Individual Sound** list allows you to select the sequence or stream to be played back.

After selecting the settings, the sound can be played back from the **Player** window in the same way that it is played from the main application window. If you use shortcut keys for playback, the sound in the active window is controlled.

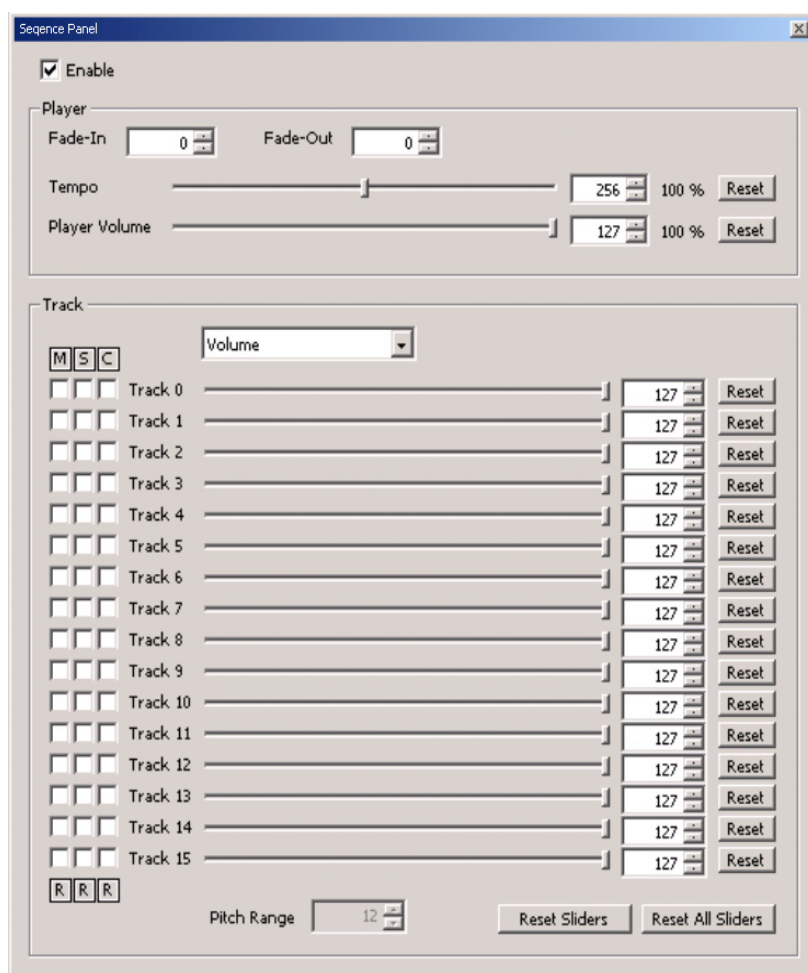
5 Sequence Panel

5.1 About Sequence Panel

The **Sequence Panel** dialog box allows you to re-create most of the operations that a game program can execute, such as muting and volume adjustment. For example, moving the Tempo slider while playing a sequence changes the tempo in real time.

To open the **Sequence Panel** dialog box, from the **View** menu select **Sequence Panel**. Figure 5-1 shows the **Sequence Panel** dialog box.

Figure 5-1 Sequence Panel



5.2 Sequence Panel Features

This section describes the features of the **Sequence Panel** dialog box introduced in the preceding section.

5.2.1 Enable Check Box

Clearing the **Enable** check box disables all of your configured settings and restores the default settings in **Sequence Panel**. Selecting the **Enable** check box again re-enables your configured settings.

5.2.2 Fade-In and Fade-Out

Set values for **Fade-In** and **Fade-Out** to fade in and out the sound when sequences begin and end. The unit value is one frame.

5.2.3 Skip

If **Skip** is given a value, playback starts from a designated position. The unit of measure is one tick.

A large number of skips increases the skip process and delays the start of playback. In some cases, additional sounds do not play correctly during the skip process.

5.2.4 Tempo

The tempo of the sequence can be changed by setting its percentage value. The value 256 represents full tempo (100%), or no change in tempo. Click **Reset** to revert to the initial value of 256.

5.2.5 Player Volume

Use this setting to change the player volume for the sequence. The value 127 represents full volume (100%), or no change in volume. Click **Reset** to revert to the initial value of 127.

5.2.6 Track Parameters

This set of 16 slider bars is associated with the 16 tracks in the sequence. Using the appropriate slider, adjust the three parameters, **Volume**, **Pitch**, and **Pan**, for each track. From the drop-down list box above the sliders, choose a parameter to set. The three parameters are described in Table 5-1.

Table 5-1 Meanings of the Track Parameter Values

Parameter	Meaning of the Values
Volume	Values are between 0 and 127, which corresponds to 0% to 100% of volume.
Pitch	Positive values raise the pitch; negative values lower the pitch. A value of 64 changes the pitch by a half-tone. (12 half-tones = 1 octave)
Pan	Positive values move pan (location) right; negative values move pan left. Pan = 0: sound is centered Pan = +64: output only from the right Pan = -64: output only from the left

Once a parameter has been changed, it remains in that state when you select another parameter. If you return a parameter to its original value, the slider also reverts to the original position. Each **Reset** button to the right of the slider restores the settings of the current parameter to its initial value. **Reset Sliders** restores the currently selected parameter to the initial values for all of the tracks. **Reset All Sliders** restores all parameters, including those that are not selected, for all of the tracks to their initial values.

5.2.7 Mute/Solo

There are columns of check boxes to the left of the sliders. The left column, marked **M**, represents *mute*, and the center column, marked **S**, represents *solo*. Each of the 16 check boxes in a column corresponds to each of the 16 tracks in **Sequence Panel**.

If an **M** check box is selected, the sound for that track is muted. If an **S** check box is selected, the sound will come only from that track. If an **S** check box is selected, any selected **M** check boxes are ignored.

Clicking the **M** or **S** button toggles the mute or solo status. Clicking the **R** button at the bottom of each column clears all the check boxes in that column.

5.2.8 Couple

The **C** column of check boxes is used to couple tracks together. When the **C** boxes for several tracks are selected, changing the position for one of the track sliders changes the slider positions for all of the selected tracks. The couple feature allows you to change parameters on multiple tracks at once.

Clicking the **C** button toggles the check status of the couple functionality. Clicking the **R** button at the bottom of this column clears all the check boxes in the column.

5.2.9 Pitch Range

The **Pitch Range** value can be modified when **Pitch** is selected from the drop-down list box above the sliders. The **Pitch Range** determines how much you can change the pitch of a track. The initial value is 12 and has a range of ± 12 half-tones. A smaller value narrows the pitch range but allows you to make high-precision adjustments. A larger value increases the pitch range, but reduces the adjustment precision.

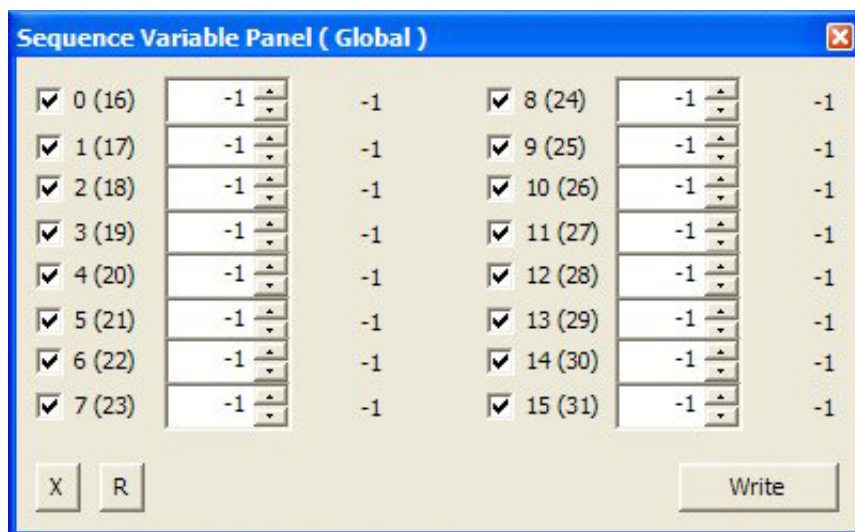
6 Sequence Variable Panel

6.1 About Sequence Variable Panel

The **Sequence Variable Panel** dialog box allows you to reference and write the sequence variable values that can be handled in the sequence data. The two types of sequence variables, local and global, can be accessed through this dialog box. Because the interface is the same for both types of variables, only one of them will be used as an illustration in this section.

To open the **Sequence Variable Panel** dialog box, from the **View** menu select either **Sequence Variable Panel** or **Global Sequence Variable Panel**. Figure 6-1 shows the **Sequence Variable Panel** dialog box.

Figure 6-1 Sequence Variable Panel



6.2 Description of the Sequence Variable Panel Features

In the dialog box, each of the 16 items (numbered 0 to 15) corresponds to one of the 16 individual sequence variables.

6.2.1 Referencing Variables

The current value for each of the variables is displayed to the right of the combo box. For local variables, the value cannot be obtained if the sequence is not playing. If a value cannot be obtained, a dash is displayed.

6.2.2 Writing Variables

A variable's value can be written by entering a value in the combo box and clicking **Write** in the bottom-right corner.

The check boxes indicate whether the variable will be written. Variables that are not selected will not be rewritten when you click **Write**.

Clicking the **X** button toggles the box state. Clicking **R** clears the check boxes.

6.2.3 Writing During Sequence Playback

If you play back a sequence with the **Sequence Variable Panel** dialog box open for a local variable, the value of the variables in the dialog box is written at the same time the sequence is played back. However, values for the cleared check boxes are not written.

7 Sound System Settings

7.1 About Sound System Settings

Use the **Sound System Setting** toolbar to add effects to sounds and to play sequences with restricted channels. To make changes to the **Sound System Setting** toolbar, from the **View** menu select **Sound System Setting**. The toolbar, shown in Figure 7-1, appears in the NITRO-Player window.

Figure 7-1 Sound System Settings



7.2 Output Effect

Use the **Output Effect** drop-down box to choose the output effect you want to apply to sounds. Once the output effect is selected, it is immediately applied to the sound. Table 7-1 describes the output effects.

Table 7-1 Output Effects

Option	Description
Off	The Output Effect feature is not used (the default setting)
Normal	Normal (stereo) mode
Surround	Surround sound mode
Headphone	Headphone mode
Mono	Mono mode

Note: Channels 1 and 3 are used for output effects. Therefore, if you lock these channels using the feature for restricting sound channels (as explained below), you cannot select any output effect other than *Off*.

7.3 Restricting Sound Channels

Use **Channel Lock** to check the playback while restricting sound channels. Selected channels will not be used for sound. Use this to check the sound for high-priority sounds when playback is restricted.

The number above each check box corresponds to the channel numbers used in the TWL or DS sound circuit.

7.4 Hard Disk Recording Feature

The waveform data from the TWL or Nintendo DS sound output, captured with sound capture, can be recorded in real time to a PC hard disk. Because this feature uses sound capture, however, the output effects must be set in advance to any setting other than **off**.

To display the file dialog box, on the **Sound System Settings** toolbar, click **Record**. Enter a name for the output file. The waveform data is output in WAV format.

When recording is finished, a dialog box displays the recording results. If an error occurred, the recorded waveform data will have skips because the PC and the TWL or DS communication did not synchronize in time to record. See section 7.4.1 Avoiding Errors and re-record the data.

7.4.1 Avoiding Errors

Adhering to the following recommendations will help you avoid common errors.

- Set the MCS server *Interval for Obtaining Data from the DS* option as short as possible (16 ms is recommended). For further details, see the *MCS Server Manual*.
- During recording, avoid operations such as loading data. Loading data needed for playback ahead of time can reduce the frequency of errors.
- Avoid streaming playback. Errors are more likely to occur during streaming playback due to the increased communication burden between the PC and the TWL or DS.
- In general, avoid processes that place a burden on the PC during recording. This burden will slow down the MCS server and errors will occur more frequently.

8 Heap Simulation

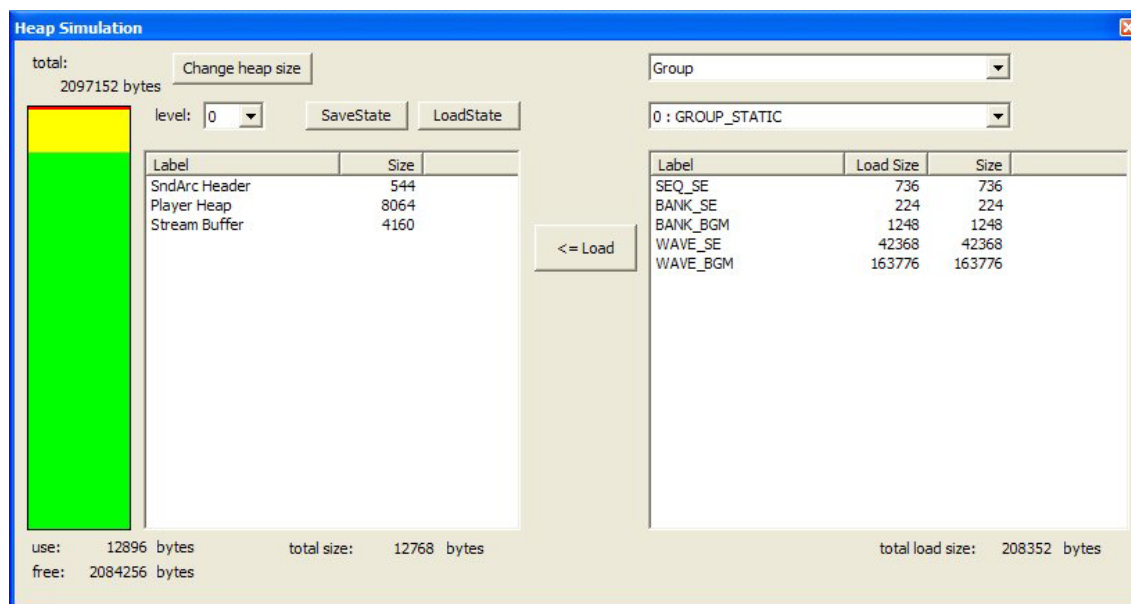
8.1 About Heap Simulation

The heap simulation feature allows you to check how the state of a given heap will change when data is loaded or deleted.

To perform a heap simulation, you must switch to the heap simulation mode. Data is loaded manually in the heap-simulation mode. Therefore, sequence playback will fail if the necessary data is not loaded.

To select heap-simulation mode, from the **View** menu select **Heap Simulation**. The **Heap Simulation** dialog box opens, as shown in Figure 8-1. When this dialog box is open, the heap-simulation mode is active. When you close the dialog box, you exit heap simulation.

Figure 8-1 The Heap Simulation Window



8.2 Heap Simulation Dialog Box

The **Heap Simulation** dialog box contains two large panes. The current heap state is displayed in the left pane and the data that you can select for loading is displayed in the right pane.

8.2.1 Heap Meter

The red, yellow, and green bar meter on the left side of the **Heap Simulation** dialog box displays how much of the overall heap is being used. The red color indicates that a region is in use. Yellow indicates the amount of memory the selected data will consume when loaded. Green indicates the unused region of the heap.

8.2.2 Heap List

The heap list pane on the left displays the contents of the data loaded to the heap.

To display the contents of the heap in the heap list, choose the hierarchy level using the **level** drop-down combo box. Changing the level value allow displays the contents of a different hierarchy level.

8.2.3 Load Data List

The load list pane on the right displays the contents of the data that will be loaded.

The two drop-down combo boxes above this pane allow you to select what you want to load. Select the data to be loaded from the combo box. If any data is already loaded, a 0 appears in the **Load Size** column and the entry is unavailable.

8.3 How to Operate Heap Simulation

8.3.1 Changing the Heap Size

The size of the sound heap must be configured. Click **Change heap size** to display a dialog box and then enter the heap size. After you enter the heap size, click **OK**.

8.3.2 Selecting the Data to Load

Use the two combo drop-down boxes above the load data list to select the data you want to load.

The first combo box allows you to select the type of data you want to load. Select from **Group**, **Sequence**, **Bank**, **WaveArc**, or **SeqArc**.

Individual data can be designated with the bottom combo box.

When your selection is complete, click **Load** and the data will load onto the heap.

8.3.3 Hierarchy Level Operations

The **SaveState** and **LoadState** operations can be performed on the heap.

Click **SaveState** to save the current heap state and to increase the hierarchy level by one.

Click **LoadState** to restore the current level to its initial state.

8.4 Cautions for Sequence Playback

When you are not in the heap-simulation mode, the sequence playback operations are the same. However, if the data needed to play back a sequence is not loaded in advance, the sequence cannot be played back.

If playback fails, an error message is output to the MCS server window. For more details about this error message, see in Appendix A Error Messages.

9 Conversion Feature

9.1 About the Conversion Feature

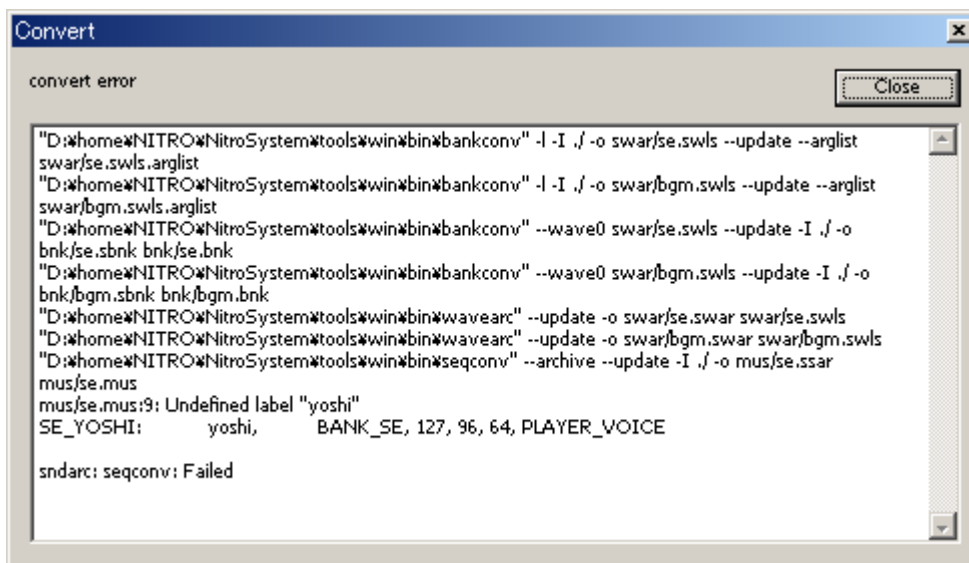
Once sound data has been updated, it can be converted in NITRO-Player. The results of the conversion are immediately reflected on NITRO-Player. However, to use the conversion feature, the sound archive definition (SARC) file must be loaded, not the sound archive (SDAT) file.

9.2 Explanation of Operation

To convert sound data, select **Convert** from the **File** menu. The dialog box shown in Figure 9-1 appears and stays open while data is being converted, and automatically closes when the conversion process ends normally. The content displayed on NITRO-Player is updated to the new sound data. You can then continue using NITRO-Player.

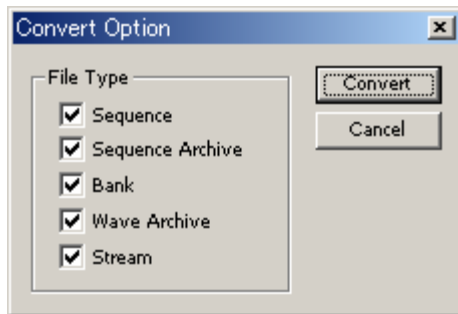
If an error is generated during the conversion process, the dialog box remains open and you are notified that an error has occurred. Read the error message and fix the sound data.

Figure 9-1 Conversion Errors



9.2.1 Specifying Options and Converting

To convert only specific file types, from the **File** menu select **Convert with Option** to display the **Convert Option** dialog box, shown in Figure 9-2. The benefit of using this command is, for example, if only the SMF files were edited, you can decrease the conversion time by specifying to convert only sequence files.

Figure 9-2 Specifying Conversion Options

Only the file types you select will be converted.

Note: Be absolutely sure to select all the file types of any edited files. If edited files are not converted, incorrect data may be created.

10 Other Features

10.1 Real-Time MIDI Playback

If the PC is connected to IS-TWL-MIDI, IS-NITRO-UIC MIDI, or IS-AGB-MIDI, you can listen to MIDI playback in real time. If the hardware is properly connected, MIDI is displayed on the status bar of the main application window, as shown in Figure 10-1.

Figure 10-1 MIDI Indicator



For real-time MIDI playback, you must set the bank that will be used for playback.

To set the bank:

1. Select the **BANK** folder from the folder pane, and then select the bank from the content pane.
2. To register the specified bank to use for MIDI playback, from the **Play** menu, select **MIDI bank**.

Once these steps are completed, the sound can be played by sending MIDI signals to the MIDI input of IS-TWL-MIDI, IS-NITRO-UIC MIDI or IS-AGB-MIDI.

10.1.1 MIDI Reset

If you want to reset the MIDI status, select **MIDI reset** from the **Play** menu.

Enabling a MIDI reset stops the sound played by real-time MIDI playback, and the control change value is reset to the default value.

10.2 Connecting and Disconnecting the TWL or Nintendo DS System

When NITRO-Player starts, it normally connects to the TWL or DS automatically. However, if the connection fails, NITRO-Player will start in the disconnected state. To connect with a DS system, from the **Communications** menu select **Connect**.

10.3 TWL or Nintendo DS Operations

When playback from the NITRO-Player application is possible, you can use the TWL or Nintendo DS interface to control playback.

The TWL and DS controls are exactly the same as those for the NITRO-Composer SoundPlayer. (See the NITRO-Composer documentation for more details.) However, TWL and Nintendo DS operations cannot be performed in heap-simulation mode.

Appendix A Error Messages

If a sequence fails to play back, an error message is displayed in the MCS server window. Table A-1 lists possible error messages.

Table A-1 List of Error Messages

Error Message	Description
Low Priority	Playback is not possible because a sequence with a higher priority is currently playing.
Invalid Seq No	Undefined sequence number.
Invalid SeqArc No	Undefined sequence archive number.
Invalid Bank No	Undefined bank number.
Invalid WaveArc No	Undefined waveform archive number.
Invalid Group No	Undefined group number.
Invalid SeqArc Index	Undefined sequence archive index.
Invalid Stream No	Undefined stream number.
Invalid Stream Player No	Undefined stream player number.
Memory Over	Insufficient memory. No more data can be loaded.
Too Large Data	Playback is not possible because the amount of data is too large.
Not Found Wave Data	Waveform data not found. (Heap Simulation Mode).
Not Found Bank Data	Bank data not found. (Heap Simulation Mode).
Not Found Seq Data	Sequence data not found. (Heap Simulation Mode).
Not Found SeqArc Data	Sequence archive data not found. (Heap Simulation Mode).
Not Enough Player Heap for Wave	The player heap is too small to load the waveform data.
Not Enough Player Heap for Bank	The player heap is too small to load the bank data.
Not Enough Player Heap for Seq	The player heap is too small to load the sequence data.

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