

# TWL-System NITRO-Composer

## Quick Start Guide

2009/02/18

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## Revision History

Revision Date	Description
2009/02/18	Revised the sample data directory path.
2008/05/30	Made revisions in line with the NITRO-System name change (from NITRO-System to TWL-System).
2008/04/08	Changed the format of the Revision History. Changed page headers.
2005/01/31	Added a description related to the NITRO-Player. Replaced the SoundPlayer screen.
2004/09/16	Unified the name of SADL files as "sound label files."
2004/09/02	Replaced the SoundPlayer screen.
2004/08/10	Added an explanation of stream playback.
2004/07/20	<code>SoundPlayer.bin</code> changed to <code>SoundPlayer.srl</code> .
2004/06/01	Made revisions associated with changes in the SoundPlayer development environment. Revised the explanation of sound data.
2004/04/01	Made corrections associated with changes to directory organization. Made additions about general flow of sound data. Deleted "Feature Overview." Added information about "Sound System Manual."
2004/03/01	Initial version.

# 1 Introduction

This document explains how to use NITRO-Composer to start developing sound.

## 2 Quick Start

### 2.1 Preparing the Development Tool

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NITRO-Composer is part of the TWL-System. To use NITRO-Composer, you must set up the TWL-System environment.

### 2.2 Setting Up TWL-System

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A simple explanation of setting up TWL-System is provided. For more information, see the TWL-System documentation.

#### 2.2.1 Extracting the Package

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Get the TWL-System package and extract it with a decompression tool.

#### 2.2.2 Setting Up Environment Variables

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Set the absolute path to the directory in which `TwlSystem` was expanded in the environment variable, `TWLSYSTEM_ROOT`. This directory will be referred to as `$TwlSystem` from this point.

### 2.3 Using the SoundPlayer

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SoundPlayer is a development environment that enables you to convert sound data and check sound using NITRO-Composer. SoundPlayer is used to create sound data. This section explains how to use the SoundPlayer.

#### 2.3.1 Converting the Sample Data

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A demo using SoundPlayer is located in `$TwlSystem/tools/SoundPlayer/sample`. Double-click `MakeSound.bat` in the `sample` directory to execute.

If conversion is successful, a window appears and then closes immediately. If an error occurs, the window remains open, and the system displays an error message.

#### 2.3.2 Executing SoundPlayer

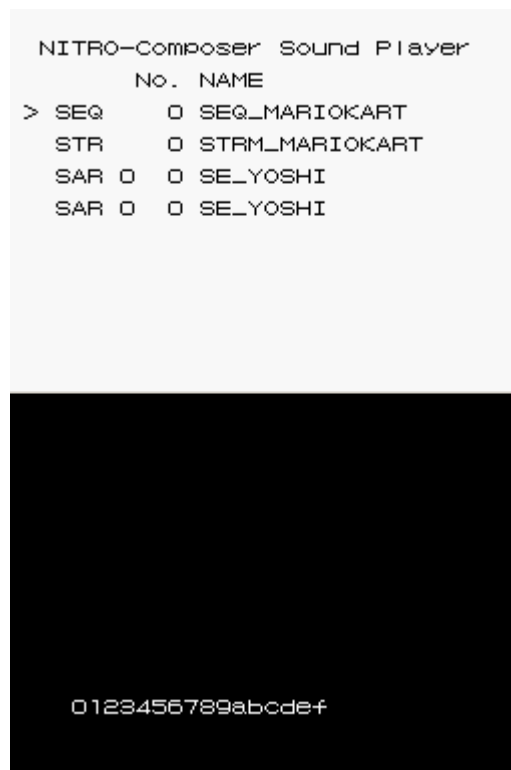
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If conversion is successful, SoundPlayer will generate a `SoundPlayer.srl` file in the `sample` directory. To execute this file, load the file into IS-TWL-DEBUGGER or IS-NITRO-DEBUGGER.

#### 2.3.3 Playing Back the Sound

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If the SoundPlayer is used correctly, the screens in Figure 2-1 appear.

**Figure 2-1 SoundPlayer Screens**

The first screen displays the operations menu, while the second screen displays the playback state.

Play back a sequence using the up and down keys on the +Control Pad to align the cursor with `SEQ` and pressing the A Button. You can select sequences using the Left and Right keys on the +Control Pad. In Figure 2-1, only one data sequence has been registered, so selection of other sequences is not possible.

Stream data can be played back by using the up and down keys on the +Control Pad to align the cursor with `SAR` and pressing the A Button. Two stream data sets can be selected by using the Left and Right keys on the +Control Pad.

A sequence in the sequence archive can be played back by aligning the cursor with `SAR` and pressing the A Button. Multiple sequences can be selected using the Left and Right keys on the +Control Pad. (The sequence archive is described in section 2.4.1.1 Sequence Archives.)

The B Button stops the playback of the sound.

See the *NITRO-Composer Sound Designer Guide* ([NITRO\\_Composer\\_SoundDesignerGuide.pdf](#)) for more information about using the SoundPlayer.

### 2.3.4 About NITRO-Player

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NITRO-Player, like SoundPlayer, is a tool used to check the sound data playback.

Unlike SoundPlayer, NITRO-Player can perform operations such as sequence playback in Windows. SoundPlayer cannot be used for customized playback, but NITRO-Player can be used for customized playback, such as changing playback tempo or muting selected tracks.

Although the easy-to-use SoundPlayer is introduced in this section, it is recommended that sound designers who repeatedly check playback should use NITRO-Player. After gaining an understanding of how NITRO-Composer works, try using NITRO-Player.

The documents for NITRO-Player are in the `$TwlSystem/docs/NitroPlayer` directory.

## 2.4 Sound Playback Method

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There are two main methods for playing back sound data: sequence playback and stream playback.

### 2.4.1 Sequence Playback

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Three types of data are required for a sequence playback. The following three types of data must be loaded into main memory before you can play a sequence.

- Sequence data
- Bank data
- Waveform data

Sequence data corresponds to sheet music and contains information about the order in which the notes are played and the pitch of those notes. The file is stored in the `sample/mid` directory.

Bank data is similar to a set of musical instruments. The bank data only contains information about instrument types. The instrument voices are in waveform data. The sequence data uses the bank data to play sounds. Bank data are in the `sample/bnk` directory, and waveform data are in the `sample/aif` directory.

#### 2.4.1.1 Sequence Archives

A sequence archive is a single file that contains the sequence data sets. Sequence archives permit multiple sequences to be played from a single data set and are used primarily for creating sound effects sequences. Sequence data sets for sound effects are usually small but diverse in form. Because it is inefficient to handle sequence data of sound effects as separate data sets, data sets are consolidated into a sequence archive.

Sequence archives are stored in the `sample/mus` directory.

### 2.4.2 Stream Playback

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For stream playback, only the waveform data is needed. When playback starts, the selected waveform data is simply played back, as is. The waveform data for stream playback is in the `sample/strm` directory.



Unlike sequence playback, stream playback does not require that the waveform data be loaded into main memory in advance. Because small portions of the waveform data are loaded during playback, a waveform that extends over a long time can be played back using a minimal amount of memory.

For the proper use of sequence playback and stream playback, see the *NITRO-Composer Sound System Manual*.

## 2.5 Sound Archives

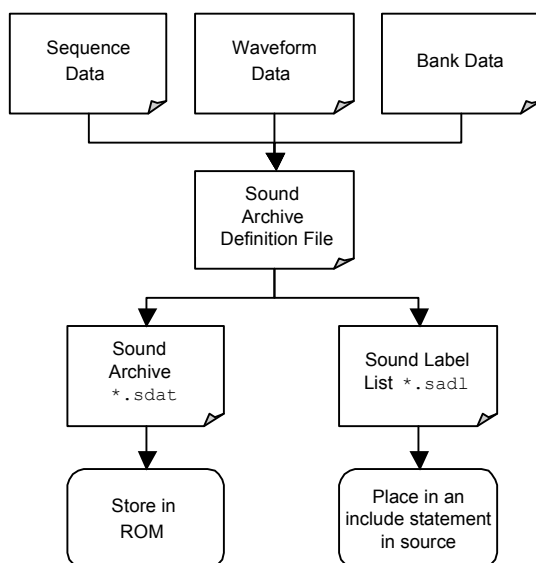
Sound data is composed of various types of data, but each data set is ultimately consolidated into a single sound archive file. Consolidating it into a single file makes collaboration between sound designers and programmers easier and improves program efficiency.

The sound archive is called `sample/sound_data.sdat` and stored in the `data` directory. The sound designer uses the sound archive definition file `sample/sound_data.sarc` in the `data` directory to define the sound data types to include in the sound archive.

### 2.5.1 Flow of Sound Data Creation

Figure 2-2 depicts the creation of the sound data.

**Figure 2-2 Flow of How Sound Data Is Created**



When using the Sound Archiver `sndarc` tool to convert the sound archive definition file, the generated sound archive contains the grouped sets of sound data. To perform this operation, double-click `MakeSound.bat` to convert the sample data.

This sound archive is stored in ROM until it is loaded and played back. The sound label file is output at the same time as the sound archive. The sound label file has the `.sdl` file extension and assigns the sequence numbers as labels. By including this file in an include statement, the sound programmer can specify sequences using labels instead of numbers.

## 3 The Next Step

To learn the basics about NITRO-Composer, see the *NITRO-Composer Sound System Manual* (NITRO\_Composer\_SoundSystemManual.pdf).

To learn how to create sound data, see the *NITRO-Composer Sound Designer Guide* (NITRO\_Composer\_SoundDesignerGuide.pdf).

To learn how to create a program using sound data, see the *NITRO-Composer Sound Programmer Guide* (NITRO\_Composer\_SoundProgrammerGuide.pdf).

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