Lesson 2

Working with DirectMusic Components

音楽編集ソフトウェア

Lesson2　添削課題

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Working with DirectMusic Components

You produce a DirectMusic score by first creating DirectMusic components with DirectMusic Producer, and then saving the components in a number of working files. When you are ready to hand-off the components to the application developer, you convert the working files into run time files. The developer then writes the code that incorporates the files and plays the components contained in them.

The main DirectMusic components are styles, DLS collections, and segments.

- Styles contain basic musical sequences or patterns.
- DLS collections contain wave samples and other information used by the synthesizer to create instrument timbres and other sounds.
- Segments contain an assemblage of components, and they are used by an application to play a DirectMusic score.

The following sections describe the components in more detail. You will learn more about the components as you work with them in the tutorial. The tutorial does not cover every feature of the components, but the basic concepts you learn will help you expand your knowledge with the online Help and with experimentation after you finish the tutorial and move ahead with DirectMusic Producer.

Styles

Styles are building blocks containing basic musical sequences and information that can be used to create many different pieces of music.

A style contains the following elements:

- **Patterns.** A pattern consists of musical phrases—sequences of MIDI notes and controller data—with one or more instrument parts. A style normally has multiple

patterns that are each labeled to serve a different role in an interactive score.

- **Motifs.** If you want to play a musical phrase with or on top of a pattern, you create a motif. For example, you could create a short French horn motif that synchronized with a game event and played on top of a background pattern. The construction of a motif is very similar to that of a pattern.
- **Bands.** A band is a set of instruments, along with their assignments and properties. The instruments are assigned to performance channels (PChannels), which are similar in concept to MIDI channels. They are also given volume and stereo pan positions. A band can contain any available instrument, including the General MIDI (GM/GS) set that is provided with DirectMusic and instruments collections that you create.
- **Global style settings**. These include time signature and tempo.

Synthesis and Downloadable Sounds

Most consumer computers play MIDI sequences through synthesizers contained in sound cards or other dedicated hardware modules. Though these synthesizers are based on the General MIDI (GM) sound standard, the sounds vary significantly from model to model. For example, a high-end sound card may produce a very realistic violin sound, where a low-end card may produce a sound that is nothing like a violin.

On the other hand, DirectMusic Producer itself, and most applications that use DirectMusic to play content, use the Microsoft Synthesizer, which synthesizes sounds with software. The main advantage of software synthesis is that the sound of a MIDI score is not dependent on the MIDI sounds included in a user's sound card. A violin sound, for example, sounds the same regardless of the quality of the computer or sound card.

The synthesizer uses sound samples that conform to the DLS Level 2 standard, created by the MIDI Manufacturers Association. A sample might represent the timbre of a particular musical instrument at a given pitch or within a range of pitches; it might represent a non-musical sound effect; or it might even consist of a complete musical phrase.

The synthesizer can modify samples according to supplied parameters, which include pitch and articulation settings. Even sound effects included as audio files, also known as wave files or waves, can be modified in this way. You could create a segment based on a wave sample of an airplane, for example. The application using the sound could apply pitch bend at run time to reflect the changing speed of the airplane.

Segments

Segments are the basic components played by an interactive application. You can think of a segment as a workspace where you assemble components and instructions on a timeline to compose your non-linear score. A segment consists of tracks into which you place elements such as DirectMusic components (including styles and bands), imported MIDI sequences and sound files, and time-based instructions (such as chord and style changes). For example, you can use a style track to play patterns in a style, a chord track to change the chord and scale of the music over time, and a band track to associate a set of instruments with a segment.

A segment contains sequential data and can be played linearly from beginning to end. However, the same data is not necessarily played each time the segment is played, because a segment can contain multiple variations. In addition, transitions between segments can be initiated at any time by an application, and you can design how the transitions are handled so the music sounds continuous.

There are two types of segments: primary and secondary. One segment is played as the primary segment, and any number of segments can be played along with it as secondary segments. One segment is designated as the controlling segment, and it controls global parameters such as tempo and chords. Usually, this is the primary segment.

When a segment contains one or more styles, the labels that you apply to the patterns in the style are used to create a continuous piece of music based on data, settings, and rules that you apply. For example, a pattern might be designated as an introduction or ending, or it might be assigned a certain level of complexity or groove range. In addition, pattern parts can have variations that are selected randomly during playback. For example, you can create a violin part in a pattern that has up to 32 variations.