Technical Note - TN1005
Synchronizing Graphics and Sound

Scope

This technical note applies to all v3.1 and later Music Ace products running on Windows or Macintosh systems.

Overview

In order for your Music Ace program to operate correctly, the displayed graphics and the generated sounds must be perfectly synchronized. Music Ace is generally able to synchronize the graphics and sound by determining the type of sound generation hardware that is installed on your computer. However, the program cannot always determine this information. As a result the graphics and sound may not be perfectly synchronized. In this case, you will observe a delay between the presentation of the graphics on the screen (i.e. a note singing, an instrument playing, etc.) and the associated sound. Lack of graphics and sound synchronization can make many of the exercises very difficult. This is particularly true for the rhythm exercises. **If you are having difficulty performing well on the rhythm exercises you will want to be sure that the graphics and sound are perfectly synchronized.**

To achieve synchronization of graphics and sound, the Music Ace program delays its graphics (animations) to keep them synchronized with the sound. To know exactly how much to delay the graphics, the program needs to know how much latency there is. You will need to help the Music Ace program determine this information by performing a quick exercise or two. If you are not sure whether or not your computer has latency, use this exercise to find out if it does.

Latency Calibration Procedure for Windows Computers

This section describes the procedure for calibrating latency (synchronizing graphics and sound) on Windows computers. If you have a Macintosh computer see the procedure below.

The procedure used for most computers is described in the next section. If you have a Dell computer you should use the procedure described in "**Specific Procedure for Dell Computers**".

General Procedure

1. Start the Music Ace program.

2. At the top-right of the Main Menu screen **click the Preferences button**

3. To begin latency calibration, click **MIDI Output Driver**.

4. Next, click the **Calibrate Latency** button.

   Note: If this button is grayed out, the MIDI output driver you have selected does not need to be calibrated for latency. You have the option of using the driver currently selected or choosing another driver, which may need to be calibrated for latency.

5. Follow the on-screen instructions for calibrating latency. You should see—and hear—a bouncing ball. In the white box is a slider control. Begin with the slider moved all the way to the left (i.e. latency = 0). Drag the slider slowly to the right until the ball-bounce is synchronized with the click. In other words, adjust the slider until the audible click is exactly synchronized with the

bouncing ball, i.e. the audible click is heard exactly when the ball contacts the platform. This may take a little experimenting to get exactly right.

Generally, you should never need to move the slider beyond a value of 150. For most computers a value of 130 or less is appropriate.

6. Click **OK** when you are finished.

7. The program now shows you a MIDI song that lets you to see whether or not the graphics line up with the sound. Watch the notes as they sing. Their mouths should open in synchronization with the sound. If this looks right to you, then you are finished with the MIDI latency calibration. Click **Yes** and then click **OK**. If the notes' mouths open too early or too late, you need to fine-tune the MIDI latency calibration some more. Click **NO**. Adjust the latency slider and then check it again using the MIDI song. You can do this as many times as you like until you get it just right.

8. When you are finished, click **OK** to return to the Preferences Menu and then click **Return to Main Menu**.

Specific Procedure for Dell Computers

1. Start the Music Ace program.

2. At the top-right of the Main Menu screen **click the Preferences button**. You will see a window like that shown below.

3. Next click **MIDI Output Driver**.

4. Select the driver called **Microsoft Direct Music**. Do not use the **Calibrate Latency** button. Leave the latency value at the default value.

5. Click **OK**.

6. The program now shows you a MIDI song that lets you to see whether or not the graphics line up with the sound. Simply Click **Yes** and then click **OK**.

7. Click **OK** to return to the Preferences Menu and then click **Return to Main Menu**.

Latency Calibration Procedure for Macintosh Computers

1. Start the Music Ace program.

2. At the top-right of the Main Menu screen **click the Preferences button**. You will see a window like that shown below.

3. To begin MIDI sound latency calibration, click **MIDI Output Driver**.

4. Next, click the **Calibrate Latency** button.

Note: If this button is grayed out, the MIDI output driver you have selected does not need to be calibrated for latency. You have the option of using the driver currently selected or choosing another driver, which may need to be calibrated for latency.

5. Follow on-screen instructions for calibrating latency. You should see—and hear—a bouncing ball. In the white box is a slider control. Begin with the slider moved all the way to the left (i.e. latency = 0). Drag the slider slowly to the right until the ball-bounce is synchronized with the click. In other words, adjust the slider until the audible click is exactly synchronized with the bouncing ball, i.e. the audible click is heard exactly when the ball contacts the platform. This may take a little experimenting to get exactly right.

6. Click **OK** when you are finished.

7. The program now shows you a MIDI song that lets you to see whether or not the graphics line up with the sound. Watch the notes as they sing. Their mouths should open in synchronization with the sound. If this looks right to you, then you are finished with the MIDI latency calibration. Click **Yes**, click **OK**, and move on to setting the Wave latency. If the notes' mouths open too early or too late, you need to fine-tune the MIDI latency calibration some more. Click **NO**. Adjust the latency slider and then check it again using the MIDI song. You can do this as many times as you like until you get it just right.

8. Click **OK** to return to the Preferences Menu and then click **Return to Main Menu**.

