DEMONSTRATION

Stopwatch Customized Gauge

This demonstration shows how to use the control editor to customize built-in LabVIEW controls to make them look more like real-world controls and indicators. The following instructions detail how to make a regular gauge indicator look like a photorealistic stopwatch and customize a standard display.

Demonstration Procedure

1. Open `Stopwatch - Original.vi` from the `<Exercises>\LabVIEW Core 3\ Demonstrations\Non-LabVIEW UI` directory. Review the front panel, shown in Figure 1.

Figure 1. Stopwatch - Original VI Front Panel
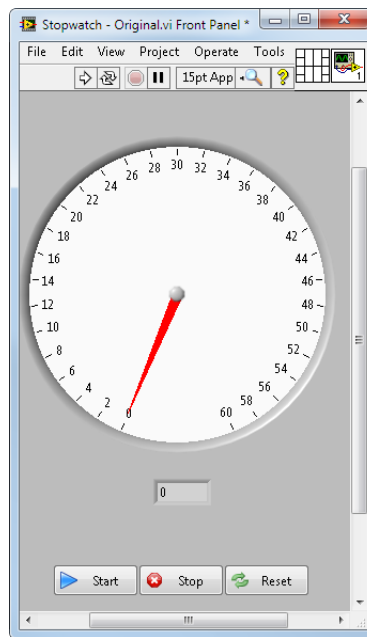
2. Run `Stopwatch-Original.vi`.

    Although the VI works like a stopwatch, it is not clear from the user interface that it is a stopwatch.
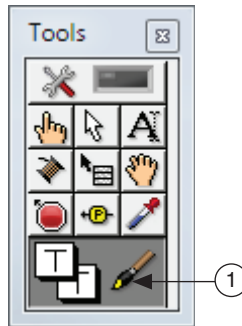
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Customize the Digital Display

Customize the numeric indicator to appear more like a digital stopwatch display.

1. Make the background and border of the numeric indicator transparent.

    ☐ Select the **Set Color** tool, as shown in Figure 2.

Figure 2. Select Coloring Tool

| 1 | Set Color Tool—Select this tool to set the background and border of the gauge indicator to transparent. |

    ☐ Right-click the center of the numeric indicator to set the color to transparent.

    ☐ Right-click the border of the numeric indicator to set both the primary and secondary colors to transparent.

Figure 3. Select Color
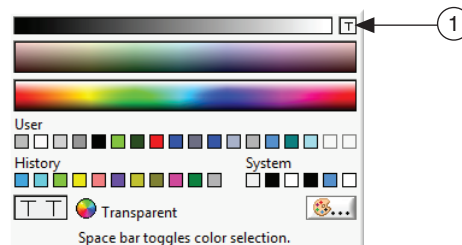
| 1 | Click the T to set the color to transparent |

💡 **Tip** Press the space bar to toggle between the primary and secondary colors.

2. Update the digital display to show minutes, seconds, and fractional seconds.

    ☐ Switch to the Automatic Tool Selection in the Tools Palette.

    ☐ Right-click the numeric indicator and select **Display Format** and set the Numeric Properties as shown in Figure 4.

Figure 4. Numeric Properties—Digital Display
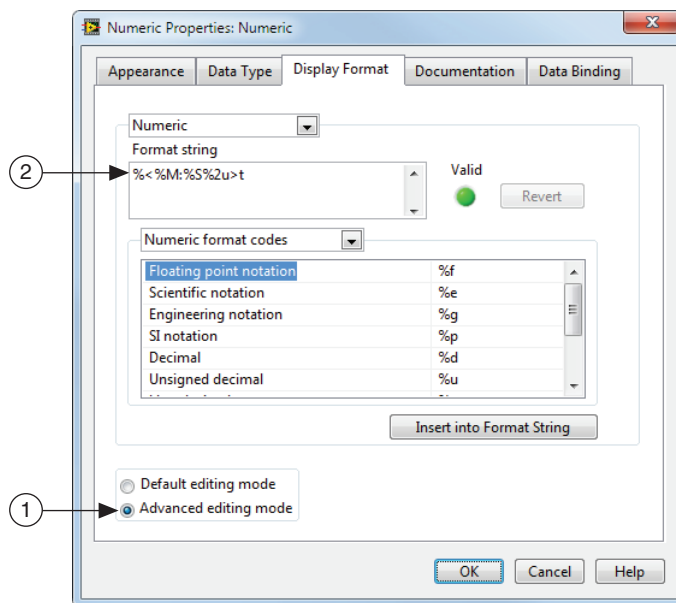
1   Advanced Editing Mode—Displays the text options that let you enter format strings directly to customize the numeric precision of the indicator.
2   Enter the format string, `%<%M:%S%2u>t`, to dispaly the value in minutes, seconds, and fractional seconds.
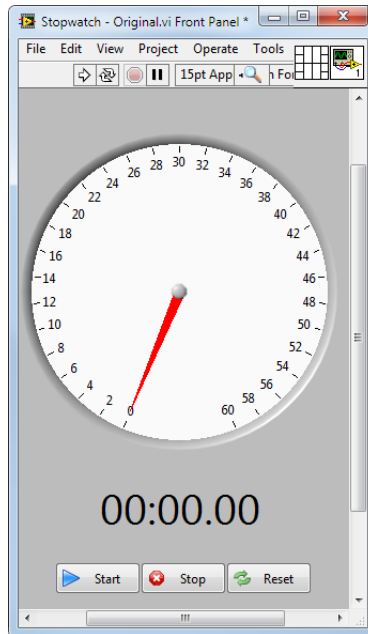
☐   Increase the font size.

Tip   Select the indicator and press <Ctrl-=> to increase the font size.

☐   Resize the indicator to make all the digits visible.

☐   Center the text using the Text Settings. The front panel should now resemble Figure 5.

Figure 5. Stopwatch with Customized Digital Display

Customize the Gauge

Customize the gauge indicator to appear more like a stopwatch.

1.   Edit the indicator.

☐   Right-click the gauge and select **Advanced»Customize** to display the Control Editor window.

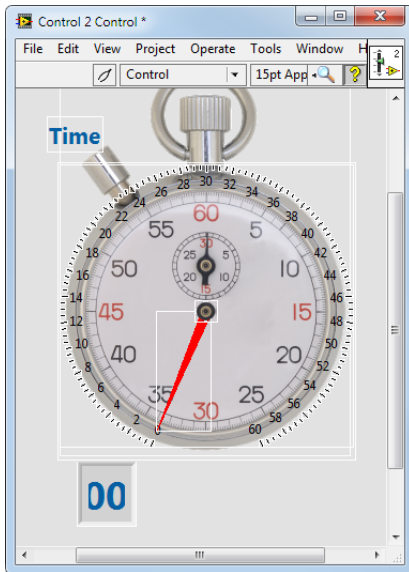☐   Click the **Change to Customize Mode** button.

2.   Import Stopwatch images.

☐   Right-click the frame of the gauge and select **Import from File** and select
     `<Exercises>\LabVIEW Core 3\Demonstrations\Non-LabVIEW`
     `UI\Stopwatch Background.png`.

☐   Right-click the center piece of the gauge and select **Import from File** and select
     `<Exercises>\LabVIEW Core 3\Demonstrations\Non-LabVIEW`
     `UI\Stopwatch Center Piece.png`.

☐   Use the **Set Color** tool to make the white display of the gauge transparent.

☐ Select the stopwatch background image and move it up until the center pieces are aligned.

At this point, your stopwatch should resemble Figure 6

Figure 6. Stopwatch with Imported Images

☐ Click the **Change to Edit Mode** button to continue editing the custom control.

☐ Right-click one of the numbers on the scale and select **Reverse Ticks**.

Note You will not display the numbers in the final version of the VI, but reversing the ticks makes the next step easier.

3. Align and then hide the scale on the gauge indicator and change the needle color.

The default configuration for a gauge indicator starts with 0 at the lower left, at approximately the 7:00 position on a clock face and sweeps clockwise to the lower right of the gauge, at approximately the 5:00 position. Because you want the user interface to look and behave like a stopwatch most people are familar with, you must realign the configuration to start at the 12:00 position.
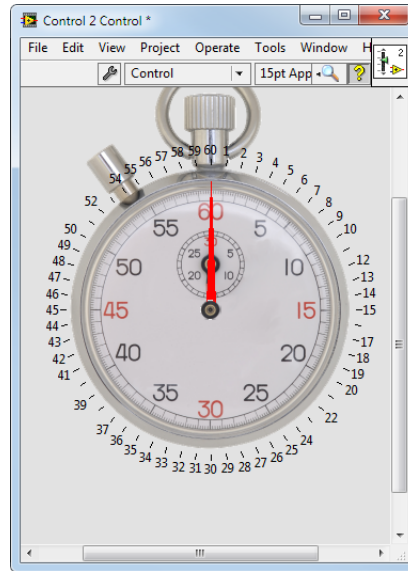
☐ Move your mouse over the **60** tick mark until the cursor changes into a circular arrow and then rotate the scale clockwise until 60 is in the 12:00 position.

Note When you rotate the scale clockwise, the 0 and 60 combine.

At this point, your stopwatch should resemble Figure 7

Figure 7. Stopwatch with Rotated Scale

☐ Right-click a number on the scale select **Style,** and then select the blank option.

☐ Select the **Set Color** tool and change the needle color to black.

☐ Close the control editor and replace the original gauge indicator with your new indicator and save the custom control as stopwatch.ctl.

Your indicator should now look like Figure 8.

Figure 8. Final Stopwatch VI