CUSTOM SHELL IN WINDOWS EMBEDDED STANDARD 7

Custom Shell is a new feature family in Windows Embedded Standard 7. This whitepaper provides an introduction to these features.

Contents

Introduction

Embedded systems differ from the desktop computer experience in many ways. One such difference is around customization and branding. An embedded device typically does not show any branding other than that of the OEM. This requirement has always been a pain point for OEMs that select Windows Embedded Standard. In our newest release, Windows Embedded Standard 7, we tried to solve some of these problems by introducing several new features to help with branding and message blocking. These features include the following:

- Unbranded Startup Screens
- Custom Logon Desktop Background Images
- Message Box Default Reply (also in Windows Embedded Standard 2009)
- Dialog Box Filter
- Dialog Box Filter configuration utility – A friendly GUI tool to configure dialog filter.
- Shell Launcher
- Credential provider samples that show you how to customize the logon experience.
- Hide Boot Screens package.

Unbranded Startup Screens

The goal of this package is to remove the Windows logo from the bottom of all the Windows startup screens. When it is added, Windows will no longer show the Windows logo on any of the startup screens. This feature is nonfunctional when you use an evaluation license because the logo is used to show that the system is in evaluation mode.

Custom Logon Desktop Background Images

The Windows default background is a straight giveaway that the underlying operating system is Windows based. This package lets you replace the logon desktop background images. Using this package with the Unbranded Startup Screens package offers a comprehensive method of rebranding Windows startup.
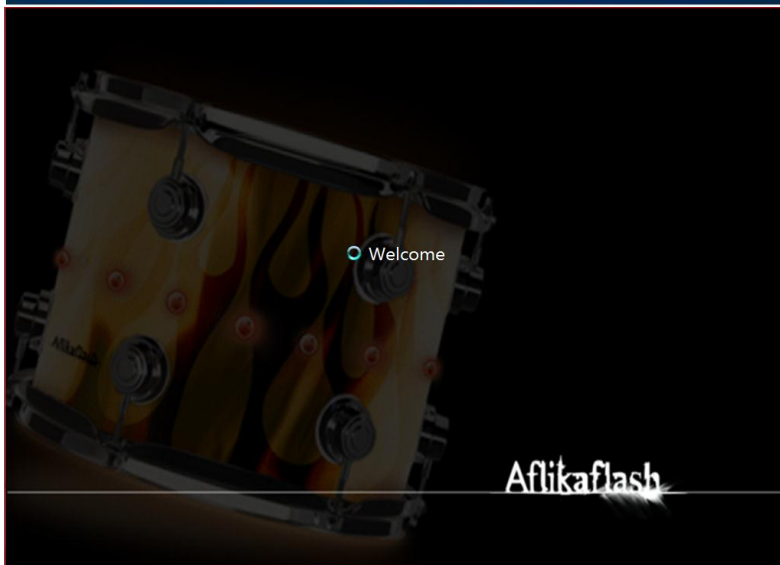

Figure 1- Windows 7 Branding

Figure 2- Windows Embedded Standard 7 Branding

Message Box Default Reply

This package is identical to the Windows Embedded Standard 2009 version. As soon as started it will block all message Windows created by using the Message Box APIs from appearing and automatically call their default action. This reduces the need to deal with rogue message boxes that are opened by the operating system or third-party applications. Be aware that this does not work for 64 bit implementations.

Dialog Box Filter

Message Box Default Reply provides a complete solution for all message boxes. However, after Windows XP the use of the Message Box API has decreased significantly and today most dialog boxes shown by the operating system are no longer message box based. Dialog Box Filter was created in Windows Embedded Standard 7 to provide a method to handle any dialog that may appear during the operation of an embedded system.

Dialog Box Filter enables you to hide any dialog that you predefine in a configuration file. Any button can be chosen for an action as long as it is guaranteed to close the dialog box. Actions are performed off screen or in a user-defined area in order to eliminate flicker, especially useful in public displays. Through the standard Windows Event Log service, administrators can enable logging which will provide notification of Windows that are shown or acted upon. Each log entry contains XML code that can be inserted directly into the configuration file.

Dialog Box Filter can be configured by using the Dialog Filter Editor which is installed on the computer where the Windows Embedded Standard 7 tools are installed. The editor lets you select any visible window and gives you a choice of actions that can be configured for that window. The editor may be copied to a Windows Embedded Standard 7 installation if you want to configure Dialog Box Filter on your embedded device.

Dialog Box Filter has an advanced feature that enables you to create a custom filter to supply specific functionality not supported by the default implementation. A sample implementation is provided in the Samples directory on the computer where the Windows Embedded Standard 7 tools are installed. API documentation can be found in the tools Help file.
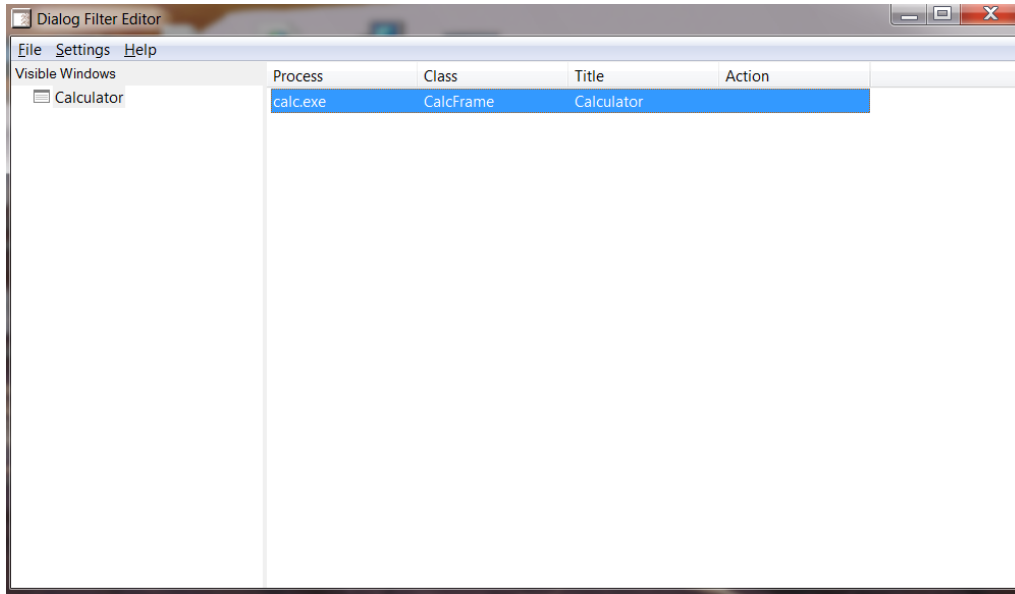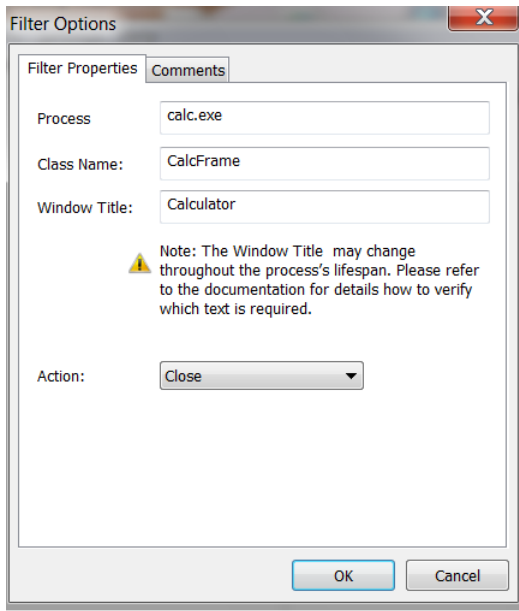
Figure 3- Dialog Filter Editor main menu

Figure 4- Dialog Filter Editor filter option menu

Shell Launcher

Shell Launcher lets you seamlessly replace the Windows Shell with your own custom shell. The Shell Launcher maintains typical initialization running including executing RunOnce Registry keys. It can also be configured to restart your shell if it closes unexpectedly.

Hide Boot Screens

The Windows boot and resume process contain animations and messages shown by the Windows Kernel. These messages and animations can be removed by adding the Hide Boot Screens. After it is installed, no messages or animations are shown and the screen remains black until the startup screens are displayed. It is currently not possible to replace the black screen with a custom OEM image.

Figure 5- Windows Firefly boot animation

Credential Provider Samples

Another area where a customer can clearly determine if a system is a Windows based system is during the logon process. Windows 7 no longer supports custom Gina which provided a solution when using Windows XP. To assist customers we created several sample credential providers that are installed on the computer that the Windows Embedded Standard 7 tools are installed. These samples can be used to create a custom logon experience. A detailed white paper is included that explains how you can do this and what you have to consider when planning a credential provider.

Summary

Although the solution is incomplete, it is a large step toward achieving the goal of having a complete custom experience using Windows Embedded Standard 7. Many areas still require our attention. The most pressing of these is the ability to remove the texts and icons shown during Windows startup and shutdown. In the upcoming months we will continue to evaluate our customer needs and evaluate how we can continue to expand the customization and branding experience in Windows Embedded Standard 7. If you have any suggestions please e-mail us at wecrt@microsoft.com .