Windows® 10 Enterprise LTSC 2019 – First Look for Device Manufacturers

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Windows 10 Version 17763 Build 1809

As we discussed in a previous article on Windows as a Service, Microsoft has a plan to release long-term supported Windows releases every 3 to 5 years. It has been three years since Windows 10 Enterprise LTSB 2016 (version 14393, build 1607) was released, and a new long-term support release is now here: **Windows 10 Enterprise LTSC 2019 (version 17763, build 1809)**. This release includes many of the security and feature updates that have been included in the quarterly releases since version 14393 was released. In this paper, we will cover the changes and project migration issues for device manufacturers creating custom images.

The Basic Information

If you followed our book, *Starter Guide for Windows® 10 IoT Enterprise*, to build the custom answer file / configuration set using System Image Manager (SIM), the development process is the same. A new catalog file will have to be generated from the new install.wim. The new catalog contains several changes. For the most part you can reuse your project files (distribution share and answer file) from the 14393 version, but there are some changes to be made to the answer file, which we will cover in the next section.

The final installation size of the OS without updates is about the same ~16.3 GB, and in our testing, the boot time appears to be the same. Cortana and Edge appear to still not be available, but most of our clients are not using these features. Device Guard for application integrity has been added.

Besides the Windows installer ISO, you will need the following:

1. to create the custom answer files, download the Windows Assessment and Deployment Kit (Windows ADK) which includes the SIM tool.
2. For application development in Visual Studio, download the Windows Software Development Kit (SDK).
3. It has been brought to Microsoft's attention that all of these new features increase the size of the OS. For those hoping to return to the package selection of WES7, rather than creating a componentized OS version, these new features are made available in the Features on Demand ISO, of which there are now two containing many CAB files. The features include OneCore features, Active Directory Tools, BitLocker Recovery Tools, DHCP and DNS tools, GroupPolicy Management Tools, .NET Framework 3.0, Holographic Desktop, basic language features, text-to-speech, handwriting recognition, networking tools, and much more. Please contact your distributor or search in your Visual Studio subscription for these ISOs.
4. There are ~38 language packages available in a separate ISO. Please contact your distributor or search in your Visual Studio subscription for these ISOs.

Components and Packages

The new catalog has changes in the components, packages, and settings so the answer file from version 14393 will have to be updated for 17763. As of this writing, the Microsoft Docs have not been updated to provide the details of these changes. It might be easier to just recreate or copy over the information from one answer file to a new one, but if you want to simply adjust the answer file as is, this section covers some of the changes. First there are two new components centered around security:

- Microsoft-Windows-CodeIntegrity
- Microsoft-Windows-TMP-Tasks

The following SNMP component has been removed as the SNMP support package is in the Features on Demand ISO:

- Microsoft-Windows-SNMP-Agent-Service – removed in 2019

For the 64-bit support, the components that had x86_ in the name have been renamed to the more appropriate wow64 to align with the other wow64 components:

- wow64-Microsoft-Windows-Audio-VolumeControl
- wow64-Microsoft-Windows-Deployment
- wow64-Microsoft-Windows-HelpandSupport
- wow64-Microsoft-Windows-IE-ClientNetworkProtocolImplementation
- wow64-Microsoft-Windows-Inernational-Core-WinPE
- wow64-Microsoft-Windows-powercpl
- wow64-Microsoft-Windows-Security-SPP-UX
- wow64-Microsoft-Windows-Setup
- wow64-Microsoft-Shell-Setup
- wow64-Microsoft-shwebsvc
- wow64-Microsoft-SQKApi
- wow64-Microsoft-Stobject
- wow64-Microsoft-WinRE-RecoveryAgent

There are some additional settings in a few components. From what we were able to see so far, Microsoft-Windows-Audio-Core and Microsoft-Windows-TwinUI have some additional settings.

In the Packages section, there are some additional packages that include Windows Hello, OpenSSH client, and a few others. The following picture shows a side-by-side of the packages between the new and old catalogs.
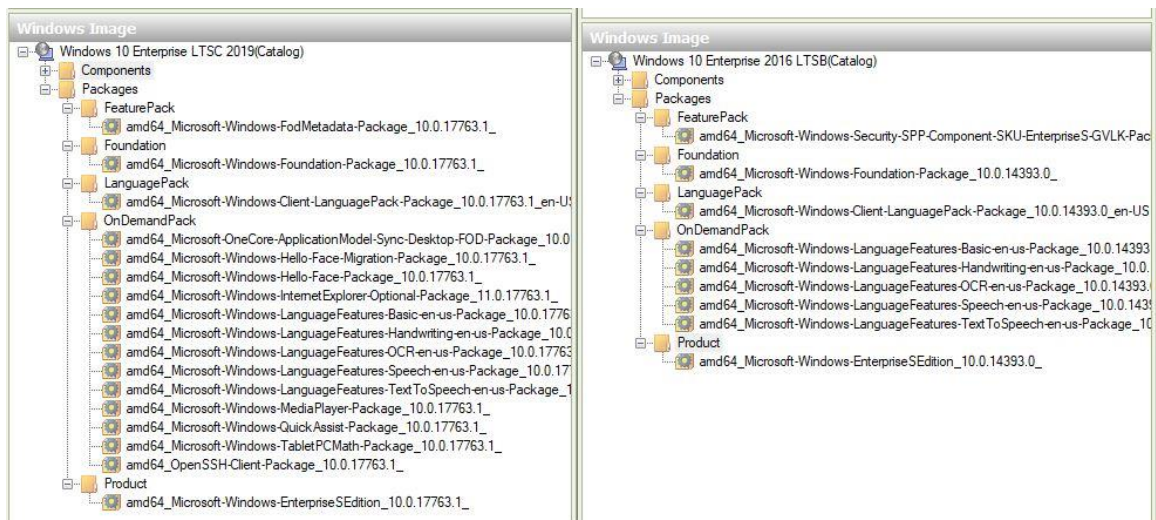
The Microsoft-Windows-Foundation-Package has the biggest change. The Foundation Package is used to enable and disable features to be included in the image. You will have to replace this package in your answer file with the new one. The following are the new features that can be enabled / disabled with links to the best description information available:

Windows Feature Selection	Description
Client-ProjFS	Windows Projected File System (aka GvFT)
Containers-DisposableCleintVM	Container Image Manager
HypervisorPlatform	Windows Hypervisor Platform
VirtualMachinePlatform	Virtual Machine Platform
Windows-Defender-ApplicationGuard	Windows Defender Application Guard
Windows-Defender-Default-Definitions	Windows Defender Default Definitions

The following feature selections were moved from the Microsoft-Windows-EnterpriseSEdition to the Microsoft-Windows-Foundation-Package:

- Microsoft-Windows-NetFx3-OC-Package
- Microsoft-Windows-NetFx3-WCF-OC-Package
- Microsoft-Windows-NetFx4-US-OC-Package
- Microsoft-Windows-NetFx3-WCF-US-OC-Package

The following feature selections have been removed from Microsoft-Windows-Foundation-Package:

- Hyper-V-Common-Drivers-packages
- Hyper-V-Guest-Integration-Driver-Package
- Microsoft-Windows-NetFx-VCRedist-Package
- RasCMAK
- RaspRip
- SNMP
- XPs-Foundation-XPS-viewer

The XPS and SNMP features are now in the features on demand ISOs. The CAB files can be added to the distribution share and then to the answer file.

Embedded / Device Lockdown Features and Available Utilities

When Windows 10 was first released, all the embedded features from previous Windows Embedded like Shell Launcher, Unified Write Filter, Keyboard Filter, and branding were included in the mainstream Windows release. In Windows Embedded 8.1 Industry, there were components in SIM that could be used to set up these features. With Windows 10, these components are still there, but the settings for Shell Launcher and Unified Write Filter never get applied to the image. We submitted the issue to the insider program a few years ago. Now with this new release, our testing shows…that nothing changed. For UWF, you can run a batch file calling uwfmgr.exe to setup UWF. A command line tool is not available for Shell Launcher, but we created several utilities based on the available WMI API sets to assist. These utilities are freely available from our website:

Device Lockdown Utility	Description
UWF GUI Utility	Provides a basic GUI interface for UWF. The utility is intended for diagnostics. The key feature is the ability to see what is in the overlay.
Shell Launcher Utilities	GUI and command line utilities for managing Shell Launcher
Keyboard Filter Utilities	GUI and command line utilities for managing Keyboard Filter

Summary

The 10-year support clock starts for a new released of Windows 10 Enterprise LTSC. The image development process stays the same, but care should be taken when migrating a version 14393 answer file to a version 17763 answer file. In our testing, migrating a basic answer file was straightforward. Simply replacing the Foundation package and re-enabling the settings was all that

is needed. A more complex answer file that used features on-demand packages might have to be recreated. This covers the image build issues. There might be more features and solutions in the new OS that might be helpful, and we will cover these as we dig into this new released.

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