



Windows Embedded POSReady 7: Addressing Common Retail and OEM Scenarios

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Windows® Embedded POSReady 7

Windows Embedded POSReady 7 is an operating system that is optimized for point-of-service (POS) solutions and that uses the power of the Windows 7 platform to deliver attractive and compelling user experiences, simplify POS device management and deployment, and provide an easy connection to the familiar world of Windows. Windows Embedded POSReady 7, which succeeds Windows Embedded POSReady 2009, evolves the usefulness of traditional POS devices. It enables such devices to go beyond inventory tracking and tendering to help provide comprehensive information access to in-store staff and assistance to retailers who deal with today's challenges while preparing for tomorrow's opportunities. Windows Embedded POSReady 7 provides strong integration with your existing Microsoft® and Windows ecosystems and provides tools that enable compliance with Payment Card Industry (PCI) Security Standards Council guidelines.

This white paper presents common retail and OEM scenarios that are addressed by Windows Embedded POSReady 7 and the methods that the operating system uses to address each scenario. The methods that other Windows Embedded products (in particular Windows Embedded POSReady 2009) use to address these same scenarios are also described.

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Introduction

Windows® Embedded POSReady 7 is an operating system that is optimized for point-of-service (POS) solutions and that uses the power of the Windows 7 platform to deliver attractive and compelling user experiences, simplify POS device management and deployment, and provide an easy connection to the familiar world of Windows. Windows Embedded POSReady 7 is the next generation of Windows Embedded POSReady 2009, and it evolves the usefulness of traditional POS devices. It provides such devices with the ability to go beyond inventory tracking and tendering to help provide comprehensive information access to in-store staff and assistance to retailers who deal with today's challenges while preparing for tomorrow's opportunities.

Windows Embedded POSReady 7 does more than bring the latest Windows 7 innovations to retailers and OEMs. It also provides integration into existing asset infrastructures, management practices, business intelligence, and emerging cloud services. You can incorporate POS devices into existing Windows domains while using Active Directory® Domain Services (AD DS) to apply Group Policy. Management and administration of POS devices can be incorporated directly into practices that manage and administer computer desktops, mobile devices, and servers. Windows Embedded POSReady 7 provides strong integration with your existing Microsoft® and Windows ecosystems and provides tools that enable compliance with Payment Card Industry (PCI) Security Standards Council guidelines.

For retail and OEM businesses that want to increase customer satisfaction, loyalty, and staff productivity while reducing in-store operational costs, Windows Embedded POSReady 7 builds on the substantial investments that Microsoft has made in Windows 7 and delivers an optimized operating system for both industries.

Windows Embedded POSReady 7 provides:

- A high-confidence platform and operating system that are optimized for retail and hospitality performance, address primary compliance needs, and simplify deployment and management. These capabilities are provided by:
 - Maintaining control over store-level IT and POS devices.
 - In-store device security and transparent operation to comply with government and private industry regulations, and that help prevent attackers from obtaining access to sensitive customer or corporate information.
 - Cutting costs through greater device and IT automation.
 - Retaining audit trails.
- Endless POS device possibilities that help you undertake vital transaction processing while also enhancing customer service and building core business relationships. These capabilities are provided by:



- The ability to build devices that interoperate with many common industry standards, as well as with multiple Microsoft desktop and server technologies.
- Better information gathering capabilities for both customer transactions and business performance.
- Added flexibility, reduced costs, and increased staff productivity.
- Revenue growth through competitive advantages.
- Connection to the familiar world of Windows.

This white paper presents common retail and OEM scenarios that are addressed by Windows Embedded POSReady 7 and the methods that Windows Embedded POSReady 7 uses to address each scenario. The means and methods that other Windows Embedded products, Windows Embedded POSReady 2009, Windows Embedded Standard 7, and Windows Embedded Enterprise: Windows 7 (for Embedded Systems), use to address these same scenarios are also described.

Scenarios and Product Comparisons

The following tables describe common retail and OEM scenarios, and how Windows Embedded POSReady 7 and other comparable products such as Windows Embedded POSReady 2009 address each of these scenarios in terms of their capabilities.

Table 1: Retailer Scenarios, Capabilities, and Product Comparisons

Scenario	Capability	Windows Embedded POSReady 7	Windows Embedded POSReady 2009	Windows 7 Professional	Windows 7 Ultimate
Easy setup experience with automated enterprise deployment	Latest setup wizard	●	◐	●	●
	Familiar administration tools	●	◐	●	●
Enhanced security features	Latest Windows Firewall	●	◐	●	●
	Microsoft® BitLocker® and BitLocker To Go™	●	N/A	N/A	●
	Microsoft AppLocker™	●	N/A	N/A	●

Scenario	Capability	Windows Embedded POSReady 7	Windows Embedded POSReady 2009	Windows 7 Professional	Windows 7 Ultimate
	Enhanced Write Filter	●	N/A	N/A	N/A
	File-Based Write Filter	●	●	N/A	N/A
	Registry filter	●	●	N/A	N/A
	Keyboard filter	●	N/A	N/A	N/A
	Peripheral port disabling	●	◐	●	●
Easy end-to-end device management	Microsoft System Center Configuration Manager 2007	●	●	●	●
	Windows Server® Update Services	●	●	●	●
	Windows Update	●	●	●	●
	Security updates	●	●	●	●
Familiar Windows 7 technologies	Windows Touch	●	N/A	●	●
	BitLocker and BitLocker To Go	●	N/A	N/A	●
	AppLocker	●	N/A	N/A	●
	Microsoft BranchCache™	●	N/A	N/A	●
	DirectAccess	●	N/A	N/A	●
	Enhanced multiple monitor support	●	◐	●	●
	Enhanced power management	●	◐	●	●



Scenario	Capability	Windows Embedded POSReady 7	Windows Embedded POSReady 2009	Windows 7 Professional	Windows 7 Ultimate
	32-bit and 64-bit integration	●	◐	●	●
Application compatibility	Win32 applications	●	●	●	●
	Microsoft .NET applications	●	●	●	●
Localization and multilingual user interface (MUI) support	Latest MUI	●	◐	N/A	●
	Latest language packs	●	◐	N/A	●
Unified point-of-service (POS) peripheral management	Microsoft POS for.NET	●	●	N/A	N/A

Table 2: OEM Scenarios, Capabilities, and Product Comparisons

Scenario	Capability	Windows Embedded POSReady 7	Windows Embedded POSReady 2009	Windows Embedded Standard 7	Windows 7 Professional	Windows 7 Ultimate
Easy setup experience with automated enterprise deployment	Latest setup wizard	●	◐	●	●	●
	Familiar administration tools	●	◐	●	●	●
Enhanced security features	Latest Windows Firewall	●	◐	●	●	●
	BitLocker and BitLocker To Go	●	N/A	●	N/A	●
	AppLocker	●	N/A	●	N/A	●



Scenario	Capability	Windows Embedded POSReady 7	Windows Embedded POSReady 2009	Windows Embedded Standard 7	Windows 7 Professional	Windows 7 Ultimate
	Enhanced Write Filter	●	N/A	●	N/A	N/A
	File-Based Write Filter	●	●	●	N/A	N/A
	Registry filter	●	●	●	N/A	N/A
	Keyboard filter	●	N/A	N/A	N/A	N/A
	Peripheral port disabling	●	◐	●	●	●
Easy end-to-end device management	Microsoft System Center Configuration Manager 2007	●	●	●	●	●
	Windows Server Update Services	●	●	●	●	●
	Windows Update	●	●	●	●	●
	Security updates	●	●	●	●	●
Familiar Windows 7 technologies	Windows Touch	●	N/A	●	●	●
	BitLocker and BitLocker To Go	●	N/A	●	N/A	●
	AppLocker	●	N/A	●	N/A	●
	BranchCache	●	N/A	●	N/A	●
	DirectAccess	●	N/A	●	N/A	●



Scenario	Capability	Windows Embedded POSReady 7	Windows Embedded POSReady 2009	Windows Embedded Standard 7	Windows 7 Professional	Windows 7 Ultimate
	Enhanced multiple monitor support	●	◐	●	●	●
	Enhanced power management	●	◐	●	●	●
	32-bit and 64-bit integration	●	◐	●	●	●
Application compatibility	Win32 applications	●	●	●	●	●
	Microsoft .NET applications	●	●	●	●	●
Localization and multilingual user interface (MUI) support	Latest MUI	●	◐	●	N/A	●
	Latest language packs	●	◐	●	N/A	●
Unified point-of-service (POS) peripheral management	Microsoft POS for .NET	●	●	N/A	N/A	N/A

Legend:

● – Scenario is entirely addressed with the associated capabilities of the product.

◐ – Scenario is partially addressed with the associated capabilities of the product or by other means (see the following descriptions for additional details).

N/A – Not applicable.

How Windows Embedded POSReady 7 Addresses Common Scenarios

The following sections describe how Windows Embedded POSReady 7 addresses the requirements of five common scenarios.

Note These scenario descriptions are specific to the important notable differences between the products listed in the tables and the scenarios they address. In cases where the functionality is the same across all products, no scenario description is provided.

Scenario: Easy Setup Experience with Automated Enterprise Deployment

This scenario details how Windows Embedded POSReady 7 addresses the requirements for an easy setup experience and offers automated deployment for enterprise environments.

Windows Embedded POSReady 7 provides:

- **Latest setup wizard.** A Windows 7–style setup wizard provides a quick, easy, and seamless way to install or upgrade. Installation is fast and can be automated and deployed in enterprise environments.
- **Familiar administration tools.** Windows Embedded POSReady 7 comes with familiar administration tools, such as the Sysprep tool, which prepares an installation of Windows for duplication, auditing, and customer delivery. Another included tool is ImageX, which enables OEMs and organizations to capture, modify, and apply file-based disk images for rapid deployment.

Windows Embedded POSReady 2009 provides:

- **Setup wizard.** Windows Embedded POSReady 2009 uses a custom Microsoft® .NET setup wizard.
- **Familiar administration tools.** Windows Embedded POSReady 2009 uses FBReSeal, a utility that can be used to reseat a customized installation and run it from a command line.

Windows Embedded Standard 7 provides:

- **Setup wizard.** Windows Embedded Standard 7 uses an Image Builder Wizard (IBW), which runs on the device interactively and is suitable for fast prototyping or situations that require minimal customization. It presents a set of wizard pages from which developers can select features and drivers.

Scenario: Enhanced Security Features

This scenario details how enhanced security features in Windows Embedded POSReady 7 provide significant advantages for your business.

Windows Embedded POSReady 7 provides:



- **Latest Windows Firewall.** Windows Firewall with Advanced Security in Windows 7 is a stateful, host-based firewall that filters incoming and outgoing connections based on its configuration.
- **BitLocker and BitLocker To Go.** Windows 7 BitLocker Drive Encryption (BitLocker) helps prevent attackers who boot from another operating system or run a software hacking tool from breaking Windows 7 file and system protections, performing offline viewing of files stored on the protected drive, or accessing device data if the device is stolen. BitLocker To Go gives administrators control over how removable storage devices can be used within their environments and strengthens the protection of such devices.
- **AppLocker.** This feature helps prevent unwanted and unknown applications from executing within an organization's network while providing security, operational, and compliance benefits.
- **Enhanced Write Filter (EWF).** This feature allows Windows Embedded POSReady 7 to protect device media at the volume level. For example, EWF is typically used with kiosks.
- **File-Based Write Filter (FBWF).** This feature allows Windows Embedded POSReady 7 to protect device media at the file system level. For example, FBWF is typically used with media jukeboxes.
- **Registry filter.** This feature monitors all writes to the registry and stores these changes in a separate layer that is discarded when the POS device restarts.
- **Keyboard filter.** This new feature allows an administrator to configure specific key combinations to be suppressed for a device keyboard. When configured to do so, key combinations such as CTL+ALT+Delete, ALT+F4, or Windows+L remain inactive and perform no action when pressed.
- **Peripheral port disabling.** This feature allows a Group Policy option to manage a plug-and-play device. For example, the Group Policy option can prevent a cash register from recognizing a flash drive and therefore prevent information from being accessed or left behind (such as a virus or other malicious code from an attacker).

Windows Embedded POSReady 2009 provides:

- **Windows Firewall.** Uses the Windows XP Firewall.
- **Peripheral port disabling.** This feature is applied on a per operating system basis. An administrator uses Group Policy to configure a setting that is applied through Active Directory Domain Services (AD DS) to devices that run either Windows XP or Windows Vista®.



Scenario: Familiar Windows 7 Technologies

This scenario details how Windows Embedded POSReady 7 provides familiar Windows 7 technologies for your POS devices to address network concerns.

Windows Embedded POSReady 7 provides:

- **Windows Touch.** This feature allows users to directly manipulate their POS device through multitouch capabilities, which makes users' daily device activities easier, faster, and more convenient. Touch embodies both pointing and clicking in one movement and enables mouse-free computing, which is especially helpful in mobility-based scenarios, such as moving between meetings or traveling on an airplane.
- **BitLocker and BitLocker To Go.** BitLocker drive encryption helps prevent attackers who boot from another operating system or run a software hacking tool from breaking Windows 7 file and system protections or performing offline viewing of files that are stored on the protected drive. BitLocker To Go gives administrators control over how removable storage devices can be used within their environments, and strengthens the protection of such devices.
- **AppLocker.** This feature helps prevent unwanted and unknown applications from executing within an organization's network while providing security, operational, and compliance benefits.
- **BranchCache.** This feature helps enhance the performance of centralized applications when they are accessed through the network from remote offices. It provides users in branch offices with a more efficient way to get their work done while maintaining network connectivity.
- **DirectAccess.** This new feature provides users with the experience of being seamlessly and securely connected to an organization's network any time they have Internet access to such resources as email servers, shared folders, or intranet websites.
- **Enhanced multiple monitor support.** Windows Embedded POSReady 7 can detect multiple device monitors in terms of span and resolution, providing a better user experience as a result.
- **Enhanced power management.** This feature improves the user-device experience through performance optimization, idle resource utilization, and device power management and features in the Windows 7 power management stack.
- **32-bit and 64-bit integration.** Windows Embedded POSReady 7 supports both 32-bit and 64-bit hardware and software.

Windows Embedded POSReady 2009 provides:

- **Multiple monitor support.** Uses Windows XP multiple monitor capabilities, which are based on OEM-supplied drivers.



- **Power management.** Uses Windows XP power management and features in the Windows XP power management stack.
- **32-bit and 64-bit integration.** Windows Embedded POSReady 2009 only supports 32-bit hardware and software. You can install a 32-bit operating system on a 64-bit capable system, but it is not able to take full advantage of the device's capabilities.

Scenario: Localization and Multilingual User Interface Support

This scenario details how Windows Embedded POSReady 7 provides stronger and more flexible multilingual user interface (MUI) support.

Windows Embedded POSReady 7 provides:

- **Latest MUI.** The Windows 7 MUI architecture provides the ability to separate the language resources for the user interface (UI) from the binary code of the operating system. This separation makes it possible to change languages completely without changing the core binaries of Windows Embedded POSReady 7, or to have multiple languages installed on the same device.
- **Latest language packs.** The Windows 7 MUI architecture also provides the ability to apply language packs that contain the required resources for localizing part or all of the UI in Windows Embedded POSReady 7.

Windows Embedded POSReady 2009 provides:

- **MUI.** Supports Windows XP MUI, which allows the use of multiple languages.
- **Language packs.** Supports Windows Language Interface Pack (LIP) packs, which allows for support of multiple languages.

Scenario: Unified Point-of-Service Peripheral Management

This scenario details how Windows Embedded POSReady 7 provides a unified peripheral management solution for your POS devices.

Windows Embedded POSReady 7 provides:

- **Microsoft POS for.NET.** This set of tools and class libraries allows Microsoft .NET applications to easily integrate with POS peripheral devices. POS for.NET provides an open device driver architecture that is based on the Unified POS industry standard. POS for.NET allows for quick deployment of POS device peripherals using plug-and-play and easier peripheral updates, and lowers system support costs through streamlined integration. POSExplorer provides POS device applications with information about what POS devices are available on the system and instantiates service objects for devices that are requested by applications.



Windows Embedded POSReady 7 and PCI Compliance

The PCI Security Standards Council posts 12 guidelines for businesses to manage and secure consumer account data through application development and management best practices. Businesses can take advantage of Windows Embedded POSReady 7 to extend and enhance their compliance efforts with new features not available in previous versions. The following table lists these new features and the benefit each brings to PCI compliance.

Table 3: Windows Embedded POSReady 7 PCI Compliance-related Features and Benefits

Feature	Benefit
Integration with System Center Configuration Manager 2007	The ability to incorporate embedded devices into existing domain and System Center Configuration Manager 2007 management practices already in place. Embedded devices are inventoried into collections and treated no differently than currently managed desktop, laptop, and server assets.
Keyboard filter	The ability to reduce data and device attack points by suppressing explicit key combinations that grant access to the operating system, such as CTRL+ALT+Delete, ALT+F4, CTRL+C, Shift+PrtScn, ALT+PrtScn, and so on.
BitLocker	A strong “Trusted Platform” feature that encrypts entire volumes with a passkey. Volumes are not usable without the passkey, even if the drive is removed from the device.
AppLocker	The ability to white-box executable files such that they do not run on a corporate network. Restrictions can be customized to the publisher and version number revision level.
Add / Remove operating system components	The ability to remove unneeded operating system components using a command line utility as well as the matching ability to add those components back in at any time. This reduces the deployed image footprint and enhances security by reducing the attack surface area.
Enhanced Write Filter and File Based Write Filter	These features guarantee image fidelity through the prevention of writes to permanent media. Critical exceptions can be made that permit transaction log updates, as well as permitting updates to installed virus protection, firewall, and anti-malware programs.

Conclusion

Windows Embedded POSReady 7 is an operating system that is optimized for POS solutions and that uses the power of the Windows 7 platform to deliver attractive and compelling user experiences, simplify POS device management and deployment, and provide an easy connection to the familiar world of Windows. Windows Embedded POSReady 7 evolves the usefulness of traditional POS devices, going beyond inventory tracking and tendering to help provide comprehensive information access to in-store staff and assistance to retailers who deal with today's challenges while preparing for tomorrow's opportunities.

Windows Embedded POSReady 7 does more than bring the latest Windows 7 innovations to retailers and OEMs. It also provides integration into existing asset infrastructures, management practices, business intelligence, and emerging cloud services. Windows Embedded POSReady 7 provides strong integration with existing Microsoft and Windows ecosystems and provides tools that enable compliance with PCI Security Standards Council guidelines.

Windows Embedded POSReady 7 provides:

- A high-confidence platform and operating system that are optimized for retail and hospitality performance, that address primary compliance needs, and that simplify deployment and management. These capabilities are provided by:
 - Maintaining control over store-level IT and POS devices.
 - In-store device security and transparent operation to comply with government and private industry regulations and that help prevent attackers from obtaining access to sensitive customer or corporate information.
 - Cutting costs through greater device and IT automation.
 - Retaining audit trails.
- Endless POS device possibilities that help you undertake vital transaction processing while also enhancing customer service and building core business relationships. These capabilities are provided by:
 - The ability to build devices that interoperate with many common industry standards, as well as with multiple Microsoft desktop and server technologies.
 - Better information gathering capabilities for both customer transactions and business performance.
 - Added flexibility, reduced costs, and increased staff productivity.
 - Revenue growth through competitive advantages.
- Connection to the familiar world of Windows.



For more information about Windows Embedded POSReady 7, see:

Windows Embedded Web site: www.microsoft.com/windows/embedded/default.aspx



Additional Resources

The following resources are grouped according to the corresponding scenario along with PCI-specific resources.

Scenario — *Easy setup experience with automated enterprise deployment:*

- FBReseal tool: [http://technet.microsoft.com/en-us/library/dd458833\(WinEmbedded.20\).aspx](http://technet.microsoft.com/en-us/library/dd458833(WinEmbedded.20).aspx)
- Image Builder Wizard: <http://download.microsoft.com/download/8/3/8/8382E93C-4840-435F-B856-1D2672692DEB/Windows-Embedded-Standard-7-Technical-Overview.pdf>
- ImageX tool: [http://technet.microsoft.com/en-us/library/dd744298\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/dd744298(WS.10).aspx)
- Microsoft System Center Configuration Manager 2007 RC2: www.microsoft.com/systemcenter/en-us/configuration-manager.aspx
- System Preparation (Sysprep) tool: [http://technet.microsoft.com/en-us/library/dd799240\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/dd799240(WS.10).aspx)

Scenario — *Enhanced security features:*

- AppLocker: [http://technet.microsoft.com/en-us/library/dd548340\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/dd548340(WS.10).aspx)
- BitLocker and BitLocker To Go: [http://technet.microsoft.com/en-us/library/dd548341\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/dd548341(WS.10).aspx)
- Enhanced Write Filter (EWF): <http://technet.microsoft.com/en-us/library/bb932155.aspx>
- File-Based Write Filter (FBWF): <http://technet.microsoft.com/en-us/library/bb932155.aspx>
- Registry filter: <http://technet.microsoft.com/en-us/library/bb932155.aspx>
- Windows Firewall with Advanced Security: [http://technet.microsoft.com/en-us/library/cc748991\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/cc748991(WS.10).aspx)

Scenario — *Familiar Windows 7 technologies:*

- AppLocker: [http://technet.microsoft.com/en-us/library/dd548340\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/dd548340(WS.10).aspx)
- BitLocker and BitLocker To Go: [http://technet.microsoft.com/en-us/library/dd548341\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/dd548341(WS.10).aspx)
- BranchCache: <http://technet.microsoft.com/en-us/network/dd425028.aspx>
- DirectAccess: <http://technet.microsoft.com/en-us/network/dd420463.aspx>
- Enhanced Power Management: http://download.microsoft.com/download/8/5/4/854F66B6-8C09-4F8A-986E-38E9EBAC1677/Windows7_Power_Management_Whitepaper.pdf
- Windows Touch: www.microsoft.com/whdc/device/input/Win7_touch.msp

Scenario — *Localization and MUI support:*

- MUI: [http://technet.microsoft.com/en-us/library/cc721887\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/cc721887(WS.10).aspx)

Scenario — *Unified peripheral management solution:*

- Microsoft POS for Microsoft .NET: www.microsoft.com/windowseembedded/en-us/products/readyproducts/posready/overview.msp

PCI Resources:

- PCI Security Standards Council: <https://www.pcisecuritystandards.org>
- PCI SSC Data Security Standards Overview: https://www.pcisecuritystandards.org/security_standards/index.php

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