Windows Embedded 8.1

Microsoft

Windows Embedded

Agenda

Windows Embedded Roadmap

Windows Embedded 8.1 Industry Release Preview

Windows Embedded 8.1 Industry Technical Overview

Deployment, Upgrade, Activation
Apps
Management

Lockdown and Control

What is Windows 8.1?

New functionality for Windows 8

Designed to extend the Windows 8 experience

Positioned as an update to Windows 8

Available free through Windows Store for consumers
New Media for OEMs

Delivered for holiday 2013 season

Goal is to have new devices in market in Q4 CY 13

Windows Embedded Platform Roadmap

Windows Embedded 8 Standard

Componentized Windows 8 for x86, x64

Embedded extension ex. Write Filters

GA March 20, 2013

Current POR is to not update Standard on minor Windows releases

Windows Embedded 8 Pro

Full Windows 8 Professional with license restrictions

x86, x64 support

GA March 20, 2013

Windows Embedded 8.1 Pro

Full Windows 8.1 Pro with license restrictions

x86, x64 support

GA in Q4 2013

Windows Embedded 8 Industry

Fixed platform based on Windows 8 (WES 8) for Industry Devices

x86, x64 support

GA in April 2013

Windows Embedded 8.1 Industry

Full Windows 8.1 plus embedded lockdown technologies

x86, x64 support

GA in Q4 2013

Windows Server 2012 for Embedded Systems

Full Windows Server 2012 with license restrictions

Windows Server 2012 R2 for Embedded Systems

Full Windows Server 2012 R2 with license restrictions

GA in Q4 2013

Windows Embedded 8

Customer Benefits

Connected

Targeted

Rich Experience

Invest for the Future

Intelligent System Ready

Secure

Windows

Windows Embedded 8.1 SKU plan

SKUs and Licensing aligned to Embedded 8 wave

OEM

Windows Embedded 8.1 Industry Pro	Windows Embedded 8.1 Pro
Windows Embedded 8.1 Industry Pro (Retail)	

Upgrade and Update SKUs planned

Enterprise

Windows Embedded 8.1 Industry Pro	Windows Embedded 8.1 Pro Sideloading
Windows Embedded 8.1 Industry Pro Sideloading	
Windows Embedded 8.1 Industry Enterprise	

Windows Embedded 8.1 Milestone Preview

Public preview available June 26th

Only public release before GA
Aligned to Windows 8.1 Preview

Available only as a download

www.windowsembedded.com & Microsoft Connect
8 localized versions offered during preview

Technical Overview

Windows Embedded 8.1 Industry

Evolution of Windows Embedded Industry

Aligned with Windows 8.1 launch wave

Engineering focus areas that affect Embedded devices:

Install, OOBE and UI

Branded edition with lockdown functionality on top of full Windows 8.1

Same activation options as 8 Industry

Common Criteria and FIPS Certifications (TBD)

Windows 8.1 improvements including UX updates, charms, and improved Multi Monitor support

Application Development

Enhanced Application Certification

MSR and Barcode Scanner peripheral extensions for Windows 8 style apps

Device Lockdown and Security

Updates to Embedded 8 lockdown capabilities

New lockdown scenarios (USB devices)

Networking, Connectivity and Mobility

Roaming enhancements, Bluetooth 4.0 in-box, NFC Printer support

Rich LOB Experience

Delight your customers with smooth, responsive, immersive experiences, while preserving key investments in existing technology.

Touch First Ux

Multi Touch

Internet Explorer

Engineered for Performance

Windows 8 Apps

Win32 Desktop Apps

Peripheral support

Extended Snap View Support

Boot to Desktop

Desktop and Start Screen experience

Connected

Provide hours of power to go where your customers go while keeping them connected to the resources they need.

Power Management
Low Power Hardware
NFC Tap-to-pair Printing
Networking
Workplace Join
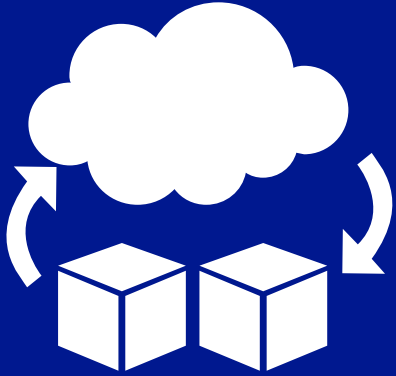**Mobility/ VPN/ Mobile Broadband**
Bluetooth
Open MDM
Mobile Device Management
RDS Enhancements

Intelligent Systems Ready

Build powerful enterprise-class solutions that easily capitalize on existing enterprise investments.

Deployment
Management
Identity and Access
IT & Cloud Integration
Servicing
Remote Access
VPN, Mobile Broadband, Auto-Triggered VPN

Secure

Protect the device, data, and network to keep business running smoothly.

Trusted Boot

System Center Endpoint Protection

Malware Resistance

BitLocker

VPN/SSL

Authentication

Improved Biometrics

Internet Explorer 11

Targeted

Deliver a targeted experience and consistent configuration to meet the line of business needs of your customers.

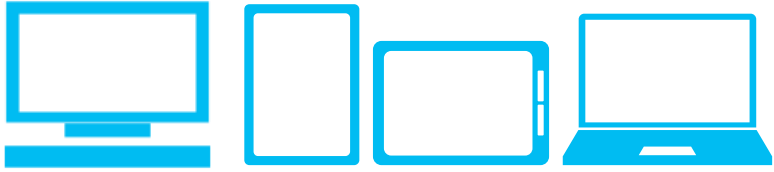Unified Write Filter
Gesture Filter
App Launcher
Hardware Filter
USB Filter
Embedded Lockdown Manager

Device Lockdown

Windows Client Assigned Access

A new feature offered in:
    Windows 8.1 RT
    Windows 8.1 Pro
    Windows 8.1 Enterprise
Boot to a single Windows Store app experience
Windows 8 Modern Apps only

Windows Embedded Features

Deeper lockdown control beyond traditional Group Policy features

Gesture, Hardware, Dialog Filters

Enhanced Base Write Filter
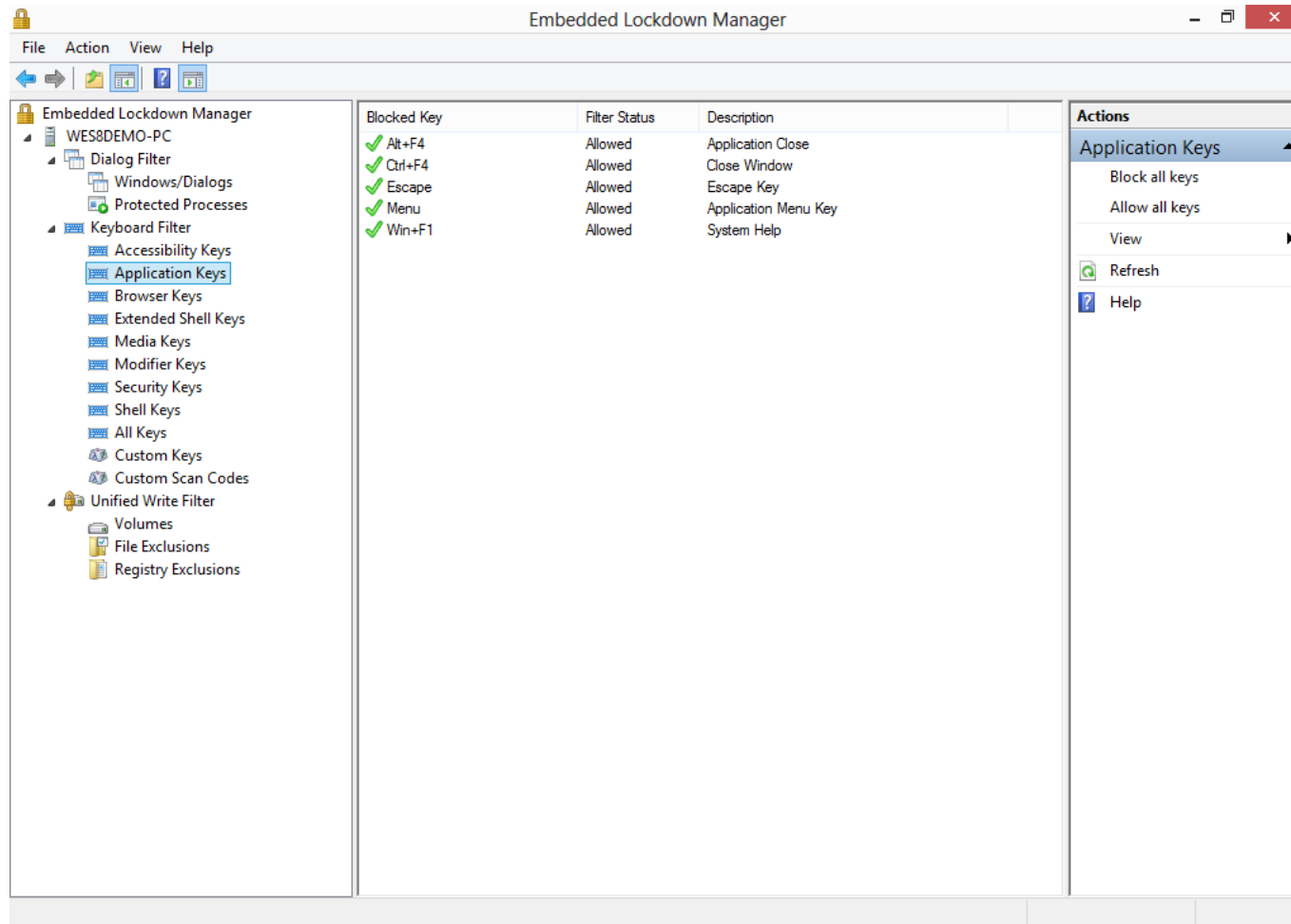File Based Write Filter
Unified Write Filter

Can be customized

Granular control, not just 'on or off' feature
Shell Launcher for Win32 apps
App Launcher for Modern Windows 8 apps

Embedded Lockdown Manager

No change for Windows Embedded 8.1

Remotely configure lockdown on a device

Simplify device lockdown configuration

Export configuration setting to PowerShell scripts

Write Filters

Protect system against write operations

Easily create read only devices

Improve system up-time

	Enhance Base Write Filter	File Based Write Filter	Unified Write Filter
	Windows Embedded 8 Standard	Windows Embedded 8 Standard	Windows Embedded 8 Standard
			Windows Embedded 8 Industry Pro
FILE / FOLDER EXCLUSIONS		■	■
REGISTRY KEY EXCLUSIONS	■	■	■
SECTOR-BASED FILTERING	■		■
SUPPORT FOR HIBERNATE ONCE/RESUME MANY (HORM)			■
RAM-BASED OVERLAY	■	■	■
PROVIDERS FOR WMI VERSION 2			■
DISK BASED OVERLAY			■
COMMIT VOLUME	■		
COMMIT FILE		■	■

The Full Power of Windows

By building on top of full Windows you have a standards-ready platform to develop and deploy your system quickly and easily.

Industry Standards

Compatibility

Familiar Tools

Time to Market

Reliability

Apps

Deployment

Upgrade

Activation

Windows Deployment: Improved alignment

Windows Deployment AIK

Microsoft Deployment Toolkit 2012/2013

System Center Configuration Manager

Parity means

Tools support
Release Timeline

Activation with Windows 8.1

No change from Windows 8 for any Windows Embedded product

Activation is 'Online'

Online activation is required for all Windows 8 products

What does this mean

Devices must boot, connect online, and activate
If the Microsoft servers are not contacted, the device will not be activated

How it works

To complete activation a device must contact MS Activation infrastructure across a secure web connection

OEM Upgrade Routes

Windows Embedded 8 Standard

OA 3.0 (Direct OEM only)
Embedded PKEA

No upgrade to Windows 8.1

Windows Embedded 8 Pro

OA 3.0 (Direct OEM only)
PKEA

Windows Embedded 8.1 Pro

New 8.1 PID Required
Activated License data can not be migrated

Windows Embedded 8 Industry

OA 3.0 (Direct OEM only)
Embedded PKEA

Windows Embedded 8.1 Industry

New 8.1 PID Required
Activated License data can not be migrated

8.1 Deployment

Deploy via 'wipe and load' not "in place" upgrade

All Windows 8.1 installations require Activation

Reapplication of Activation Data between 8.0 and 8.1 devices is not supported

Windows 8.1 Activation Options

Activating a Connected Device

Devices that have access to internet

Activate Device Through a Proxy

Devices that have network capability but not connected to public internet

Activating Disconnected Device

Devices that have network capability but not connected to public internet

Reactivating a Device in the Field

Apps

Applications on Windows Embedded 8.1

Win32 Apps

Supported for all Windows Embedded 8 platforms
No change from Windows Embedded 7 app dev investment
Shell launcher must be enabled to boot to Win32 app as custom shell
App Certification not required

Modern Apps

Supported for all Windows Embedded 8 products
Touch support recommended (THQA not required for modern app touch experiences, however recommended)
Modern desktop experience required, including App Launcher enablement
App Certification required (otherwise sideloading process utilized)

Certification

Required for Modern Apps
ACPWE program available for OEMs, ISVs and Enterprise to certify apps, manage certificates and more

Updated App Launcher

Enables a single Windows Store application experience on device

Monitors app process and can be configured to take action of the app exits

App Launcher can now be configured to completely disable the Start screen (new)

Management

Managing Embedded Scenarios

Managing through Filters and Lockdown

Important to have a strategy for Embedded devices

Ability to now manage the state of a device yet remain locked down

Shell Launcher and App Launcher new to Embedded 8 & 8.1 from previous versions

Important to consider Patch and Security Updates

Management

Technologies traditionally known in the Enterprise now available

System Center 2012 Configuration Manager Service Pack 1

System Center 2012 Configuration Manager Service Pack 1 R2

In-Box Capabilities to support:

Thin Clients
POS
Digital Signage
Kiosks
Thin PCs

Manage additional devices

Additional software not required

Management

Native Support for Embedded Scenarios

Write Filter orchestration

Maintenance Windows

Opportunistic and forced persistence

SCEP client installation

SCEP updates

Manage through Embedded Filters

Forced persistence option

Applications

Packages & programs

Software Updates

Task sequences

Persisted opportunistically

Client agent settings

Settings management (aka DCM set)

Power management

Supported Write Filters with System Center

File Based Write Filters (FBWF)

Redirects all writes targeted for protected volumes to overlay
Folder/file exclusions can be used

Enhanced Write Filters (EWF) RAM

Stores overlay information in RAM
Information on overlay discarded on reboot

Unified Write Filters (UWF)

Sector-based write filter to protect storage media
Use Hibernate Once/Resume Many (HORM) or file and registry filtering exclusions
Servicing mode via the UWF WMI provider
ELM outside of Configuration Manager

Management Capabilities Overview

Windows Embedded 8 Standard with Write Filter enabled

Management Capability	Write Filter Awareness	Maintenance Windows + Policy
OS Deployment	X	
Software Update Management	X	
Application Management	X	
Setting Configuration Management		X
Monitoring / Reporting	X	X
Endpoint Protection	X	

What can be forced to persist?

Forced persistence option

Applications
Packages & programs
Software Updates
Task sequences

Opportunistic persistence

Client agent settings
Settings management (aka DCM set)
Power management

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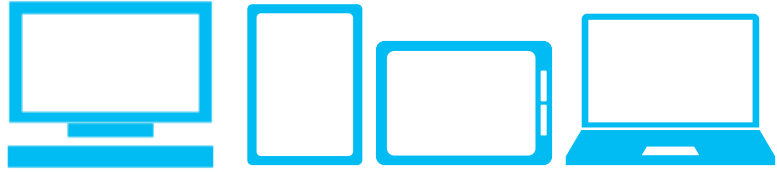
Lockdown Control

Agenda

Assigned Access
Device Lockdown
Windows Embedded

What's new in Lockdown
What's updated in Lockdown

Windows Device Lockdown

Windows Client Assigned Access

A new feature offered in:
>   Windows 8.1 RT
>   Windows 8.1 Pro
>   Windows 8.1 Enterprise

Boot to a single Windows Store app experience

Windows 8 Modern Apps only

Windows Embedded Features

Deeper lockdown control beyond traditional Group Policy features

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Can be customized

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High Level

Windows Client Assigned Access

Available 8.1 RT, Pro and Enterprise editions

Basic lockdown functionality, single user, single Windows Store App experience, Pre-defined set of filters

Embedded Industry (flexible & robust lockdown capabilities)

Granular lockdown, multiple users & roles, tighter lockdown options, advanced lockdown configurations & tools

Assigned Access can still be used

Assigned Access

Assigned Access

New feature for Windows 8.1 Client

Users can lock down a device into an single modern app experience

Accessed through PC Settings

Single user/Single app only

Select single Windows Store app to automatically launch upon login of selected user account

Pre-defined set of filters to block Keyboard, Gestures, Hardware Buttons and System Toast Notifications

Assigned Access

Windows Embedded

What's new for Embedded

Updated

App Launcher

Gesture Filter

Keyboard Filter

Write Filter

Embedded Lockdown Manager

New

Breakout Mode

USB Filter

System Toast Notification Filter

Lockdown Baseline Tool

Updated App Launcher

Enables a single Windows Store application experience on device

Monitors app process and can be configured to take action of the app exits

App Launcher can now be configured to completely disable the Start screen (new)

Updated Gesture Filter Configuration

Gesture Filter configuration Settings now provide runtime configuration; settings take effect w/o reboot of devices

Enable/Disable configuration (new)

Appbar Exclusion configuration (new)

WES & Industry 8, Gesture Filter was a global setting implemented through a registry key

Now configurable through WMI (Gesture Filter WMI provider was not available in 8) (new)

Role-based filtering now supported (applies to non-admin accounts)

On Windows Client Edition, Gesture Filter only applies to "KioskUser" role;

On Windows Industry Edition, Gesture Filter is a global setting for all "Non-admin" Users

Enable role-based filtering (admin/non admin)

On Windows Client 8.1, Gesture Filter only applies to Assigned Access user

On Windows Embedded Industry 8.1, Gesture Filter can be applied to all 'Non-Admin' Users, or Groups

Updated Keyboard Filter

8.1 Keyboard Filter extends the WE8 functionality in the following areas:

Supports Hardware button filtering on Windows 8.1 based devices

When 'Breakout' mode is enabled, the keyboard filter also provides the ability to breakout from kiosk mode

Keyboard filter monitors the state of the Windows key

Breakout Mode (New)

Provides a way for device administrators to access standard Windows Logon screen

Administrators can do local servicing of a device running in kiosk mode

Only Administrators can enable/disable Breakout capability

Hardware key can be configured to unlock device

For example: Assigned Access is configured to 5 Windows key strikes

With Industry, the hardware key can be disabled or changed from the default to a preferred button (for example: Volume Down 4 times)

Admin has limited number of attempts to enter correct pwd; prompt goes away if failed

Configurable number of attempts per hour (default 3)

USB Filter (New)

Allow trusted USB devices to connect to a system

USB filter intercepts device connect requests and only allows USB devices with:

Matching device product ID (eg; Seagate DataTraveler 111)
Device vendor ID (eg; Seagate)
Device class ID (eg; removable storage)

Three permission levels

Port level, allows any device on that port
Class level, allows devices of specific class
Device level, allows devices of specific product ID, vendor ID and Class ID

WMI interface available for local or remote configuration

Configuration requires Administrator elevation

Supported across USB 1.1, 2.0 and 3.0

Works side by side with:

Embedded lockdown features like UWF*
Windows features like Bit Locker, SafeMode, Power Management, Assigned Access, etc*

* Requires testing

Updated Unified Write Filter

Unified Write Filter

Write Filter solution that combines the capabilities of the older filters

Enhanced configuration framework

Configuration via WMI Interfaces (for local and remote scripting)
Command line configuration utility
Integration with UCT (Unified Configuration Tool)

Improved robustness

Better handling in memory exhaustion scenarios

Servicing UI improvements (new)

Better integration with Windows UI

System Toast Notification Filter (New)

Allow OEM/ISV to:

block all system toast notifications

configure toast setting offline

configure toast suppression setting remotely at run time for device servicing

configure toast suppression setting based on user account
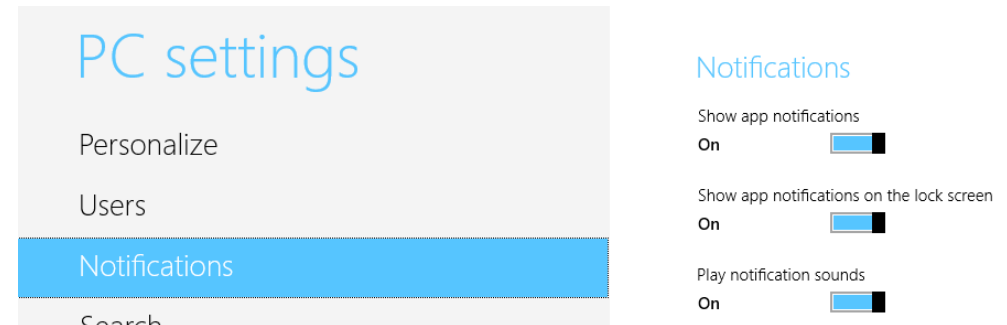
2 Types of 'Toast'

App Notification – Twitter popping notification to user (also known as App Notifications)

System Notification – OS popping a balloon to inform of a system event (battery low, lost network connection)

Windows 8 and 8.1 Enterprise and Pro

Support suppression of App Notifications

Embedded does not integrate at this level

PC settings

Personalize

Users

Notifications

Search

Notifications

Show app notifications
On

Show app notifications on the lock screen
On

Play notification sounds
On

Lockdown Baseline Tool (New)

The Lockdown Baseline tool (LabBaselineGenerator.exe) captures lockdown and branding features (LBT)

This tool creates PowerShell scripts of the settings for the following features:

Unified Write Filter

Dialog Filter

Keyboard Filter

Toast Filter

Gesture Filter

Application Launcher

Shell Launcher

USB Filter

Composite WMI Provider

Saves settings in a configuration file

Intended for use with SCCM

Dialog Filter

No new features

Same features as Industry 8.0

Capture and suppress any system dialog

Embedded Lockdown Manager (ELM)

No new features

ELM automatically detects which lockdown features are installed on the device and displays config options. Uses WMI to detect and change advanced config settings

ELM is a snap-in to the MMC.

Supports local or remote usage

Embedded Logon

No new features

Embedded Logon can be used to suppress the following UI elements:

Power Button UI anchor (prevents users from shutting down or suspending a device)

Input Method Selector UI anchor (restricts access to Windows IMEs)
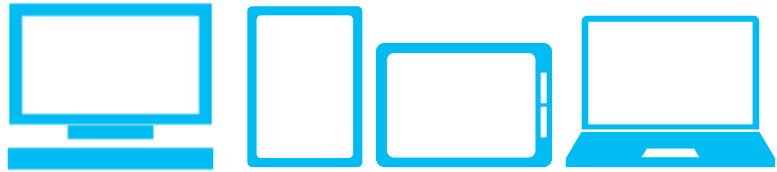
Ease of Access UI anchor (restricts access to Windows Accessibility components)

Name of Windows Edition and logo

Status messages (for example, "Welcome", "Signing out", "Restarting" and "Shutting down" messages)

Transition animations (spinning donut progress indicator) during logon, logoff, restart, and shutdown process.

Device Lockdown

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Conclusion

Conclusion

There is a version of Windows for every solution

Use case of device may dictate lockdown strategy

Windows Client Assigned Access

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