Windows
Windows 10 IoT Platform Overview

Opportunities and Challenges

Technology is transforming the way we work, play, and live in a positive way: services in the Cloud provide almost limitless compute power and networks provide nearly ubiquitous and instant access to these services. Devices are getting smarter, more connected, and central to all this transformation. The Internet of Things (IoT) provides a major opportunity for device manufacturers to transform their businesses as well by creating new device types and formats, new revenue streams through services, and by differentiating their offerings through innovation.

With this opportunity comes challenges as well: device developers must innovate in functionality and servicing models in order to stay competitive; new device form-factors, multiple development platforms, and disparate tools increase complexity; and with exponential growth in the number of things connected to the internet, security challenges are paramount.

Windows 10 IoT, Microsoft gives you the technology to make IoT real. Microsoft is a proven leader in the Enterprise space with a complete stack of enabling productivity, analytics, infrastructure, and Cloud technologies. Microsoft has a rich ecosystem and is already bringing real IoT solutions to market.

One Windows Platform

- Windows 10 IoT provides a consistent user experience across industry devices as it scales from an ATM to a handheld to a maker board.
- Helps streamline IT operations and save on IT costs through one management & deployment approach – the same for PCs as for phones.
- Allows businesses to save on app investments with a Universal Windows Platform that enables the same app to run across device types.
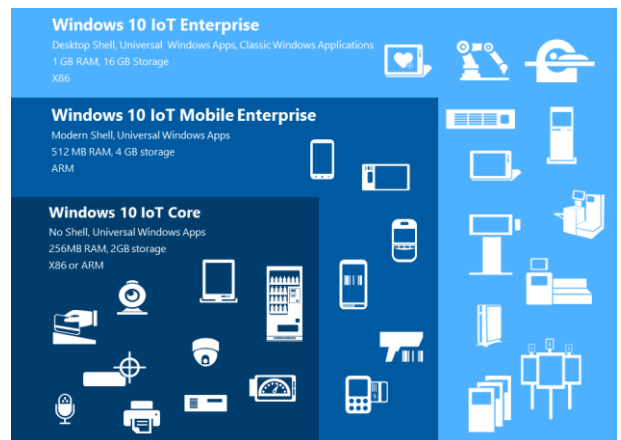
Secure

- Enterprises can rely on Windows 10 IoT's Enterprise-grade security to help protect user identity through two-factor authentication; protect sensitive information through device data encryption; and protect unauthorized access through secured remote access.
- Businesses can further lock down their devices for specific industry scenarios using Windows 10 IoT's advanced lockdown capabilities.

Connected

- Businesses will able to use more retail peripherals with UWP apps in Windows 10 IoT, while developers will have access to additional industry-standard networking and GPIO support in building IoT devices.
- Businesses will be able to connect Windows 10 IoT devices to Azure Cloud services as well as other industry-standard Cloud service providers.

The Microsoft Windows 10 IoT family

Windows 10 IoT Enterprise
Desktop Shell, Universal Windows Apps, Classic Windows Applications
1 GB RAM, 16 GB Storage
X86

Windows 10 IoT Mobile Enterprise
Modern Shell, Universal Windows Apps
512 MB RAM, 4 GB storage
ARM

Windows 10 IoT Core
No Shell, Universal Windows Apps
256MB RAM, 2GB storage
X86 or ARM

Enter-prise	Full version of Windows 10 with advanced lockdown capabilities; intended to run LOB applications and perform specialized functions in a secure, reliable and streamlined way on mission critical devices.
Mobile Enter-prise	Next generation platform for line-of-business mobile devices built on Windows 10; Windows 10 IoT Mobile Enterprise incorporates and extends the capabilities of Windows 10 Mobile, enabling a variety of mobile scenario for the Enterprise.
Core	A version of Windows optimized for devices that are cost and resource constrained such as IoT gateways, enabling specific industry scenarios and extending the flexibility of Windows 10 offerings to a wider range of specialized devices.

Learn more about the Windows 10 IoT family at:
www.windowsembedded.com

Windows 10 IoT Features at a Glance

Granular UX Control

Unified Write Filter
- Create Read-only devices
- Protect system against write operations

Assigned Access
- Block edge gestures, hotkeys and other key combinations
- Launch a Universal Windows app on login plus lock access to system
- Multi-user profiles for mobile with Application and Settings Allow Lists
- Button Remapping and Lockdown

AppLocker
- Eliminate unwanted/unknown applications
- Suppress system dialogs & control processes that can be run

MDM & Group Policies
- Suppress toast notifications
- Restrict USB devices / peripherals on system

Shell Launcher
- Launch a Classic Windows application on login
- Block hotkeys and other key combinations

Embedded Logon
- Suppress Windows UI elements displayed during Windows logon and shutdown
- Suppress Windows UI elements displayed during logon and logoff

Embedded Boot Experience / Unbranded Screens
- Custom brand a device by removing and/or replace Windows UI boot elements

Security
- Advanced Device Security
  - Only allow trusted peripherals
  - Secure IoT Devices with Trusted Platform Modules (TPM)
- Next Generation Credentials – two-factor authentication
- Device Guard - Run only trusted apps with Advanced Threat Resistance
- Windows Hello and Passport

Management
- MDM Enablement
- Ability to control and block modern app updates
- Ability to block un-enrollment
- Context Manager
- Bulk provisioning through Barcode/NFC/SD card

Servicing
- Current Branch (CB)
- Current Branch for Business (CBB)
- Long Term Servicing Branch (LTSB)

Activation
- Deferred activation
- No activation required
- Online activation

App Platform
- Universal Windows Platform (UWP) apps
- Classic Windows applications (Win 32/.NET)

Tools
- Converged toolset: Image Configuration Designer (ICD) in the Assessment & Deployment Kit (ADK)

Peripheral/Device Connectivity Support
- Retail Industry Peripherals supported in box by Enterprise (Barcode Scanner, Mag Stripe Reader, Receipt Printer, Cash Drawer , Payment Terminal)
- Access to standard busses (e.g. GPIO, I2C, PSI) and system settings (e.g. power state, radio control, Bluetooth) via UWP APIs
- Access to Windows Universal Driver (UD) Platform creates common & consistent device driver APIs
- AllJoyn is integrated into Windows 10 core framework, so its available to all Windows 10 devices

Windows 10 IoT Version Comparison

Version	Enterprise		Mobile Enterprise		Core	
What is it?	Full version of Windows 10 with advanced lockdown capabilities powering a range of industry devices across retail, manufacturing, health, government or any other industries.		Next generation platform for line-of-business mobile devices built on Windows 10.		An optimized version of Windows that enables building smaller footprint and lower cost devices but still delivers the same capabilities customers expect in Windows.	
Hardware	32-bit	64-bit	With UI	Without UI	All	
Processor	x86	x86	X86 (date TBD) and ARM ≥600MHz	X86 (date TBD) and ARM ≥400MHz	ARM + x86	
Minimum Memory	1GB	2GB	512MB	256MB	< 256mb	
Minimum Storage	16GB	20GB	2GB	2GB	<2GB	
Key Features	• Win32 and Universal App support • Advanced security threat protection • Same deployment, manageability and servicing as desktops • Advanced device lockdown capabilities		• All Windows 10 apps are compatible with Windows 10 Mobile and offer advanced lockdown features and multi-user support.		• No shell; UI customizable for your brand • Single application; Boot straight to application	
Usage Scenarios	• Industry tablets • POS • Kiosk • Digital signage	• ATM • Medical devices • Manufacturing devices • Thin client	• Mobile POS • Industry Hand-Held Terminal (HHT)		• Ultra-Thin Client • Digital Signage • Smart Building • IoT Gateway	• HMI • Smart Home Devices • Home Medical Devices
Product Lifecycle	• 15 years product availability • 10 years product support		• 5 years product availability • 5 years product support		• TBD • TBD	

Which Version to Choose?	Does the targeted device require desktop functionality or access to desktop apps (e.g. Win32, .NET, WPF)?	Does the targeted device require a shell experience, multiple applications, Windows first-party applications, touch, or mobile voice?	For devices that don't require any of these features, manufacturers should investigate using Core.

Microsoft