

# Windows 10 IoT

## Embedded Operation System

### Windows 10 IoT

### Features

- Universal Windows apps (UAP)
- Consistent Device Management
- Enterprise Grade Security
- Advanced Lockdown
- Interoperability across Devices
- Microsoft Azure IoT Services

## Introduction

Windows 10 IoT is a family of Windows 10 editions targeted towards a wide range of intelligent devices, from small industrial gateways to larger, more complex devices like point of sales terminals and ATMs. Combined with the latest Microsoft development tools and Azure IoT services, partners can gather, store and process data, creating actionable business intelligence that affects business outcomes. Partners building solutions based on Windows 10 IoT will realize expanded opportunities when they harness the full breadth of Microsoft technologies to offer end-to-end solutions.

## Feature Details

### Universal Windows apps (UAP)

Leverage the same code to deliver an intuitive experience across a wide range of Windows 10 devices. Tools like Visual Studio work across all Windows 10 editions and Azure to help reduce the time and complexities of building IoT solutions for the enterprise.

### Consistent Device Management

Reduce complexities with a consistent device management approach across PCs, phones, and IoT devices. A modern device management stack based on industry standards enables enterprise mobility and support for first and third party management solutions.

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

### Enterprise Grade Security

With security threats on the rise, Windows 10 delivers entirely new ways to protect your systems and data. Windows 10 has built-in defenses to help protect your critical business information from leaks or theft. Technologies like Secure Boot, BitLocker, Device Guard and Credential Guard help ensure your devices are protected, from power-on to power-off.

- Advanced Device Security
  - Only allows 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

### Advanced Lockdown

Additional capabilities help create a purpose-built device experience for business applications. Whether it's booting to a desired Universal app and/or locking down access to unauthorized USB peripherals, Windows 10 IoT provides these capabilities and more to help create a dedicated device experience.

- 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 and control process permissions
- MDM & Group Policies
  - Suppress toast notifications
  - Restrict USB devices / peripherals on the 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

### Interoperability across Devices

Windows 10 enables open device interoperability and communication across a range of devices regardless of connection specifics and OS platform. Creating a complex mesh of connected devices need not be a difficult task. With open device interoperability standards build into Windows 10, you can reduce complexities and simplify connectivity to a mesh of devices as part of your overall IoT solution.

### Microsoft Azure IoT Services

Windows 10 IoT is designed to work with Microsoft Azure IoT services, so you can monitor assets in the cloud to improve efficiencies, drive operational performance to enable innovation, and leverage advanced data analytics to transform your company.

### Activation

- Deferred activation
- No activation required
- Online activation

### Tools

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

## Windows 10 IoT

### Specifications and Versions

#### Windows 10 IoT Enterprise

Windows 10 IoT Enterprise brings the capabilities of Windows 10 Enterprise to a wide range of industry devices across retail, manufacturing, health, finance and other industries. Windows 10 IoT Enterprise devices run powerful line-of-business applications and perform a specialized function in a secure, reliable, and streamlined way to support mission critical industry devices.

Windows 10 IoT Enterprise supports both Universal Windows apps and Classic Windows applications plus a host of innovative capabilities: advanced protection against modern security threats, full flexibility of deployment, updating and support options, and comprehensive infrastructure, device, and app management features. Companies that require manageability, consistency, and predictability choose Windows 10 IoT Enterprise and Windows 10 Enterprise.

The table below is the new model to be released by Microsoft for responding the IoT market expands. The new released model is shifted from category-based offering to a value-based model, in which silicon (included processor) is a proxy for the hardware computing capability. This list contains the Windows 10 IoT value-based pricing silicon placemat for Embedded audiences, which included the addition of new silicon by product offering across Entry, Value and High-end Windows 10 IoT Enterprise products.

Supported Processor	Windows 10 IoT Enterprise Entry	Windows 10 IoT Enterprise Value	Windows 10 IoT Enterprise High End
Intel: <ul style="list-style-type: none"> <li>Selected Pentium (N3540, J2900, J2850, A1020, N3700, N3710, J3710, N4200, J4205)</li> <li>Selected Celeron (N2805, N2810, N2815, N2817, N2820, N2910, N2940, N2930, N2920, N2830, N2808, N2807, J1900, J1800, J1850, N2806, N2840, N3000, N3010, N3050, N3060, N3150, N3160, J1750, J3160, J3060, J3010, N3350, N3450, J3455, J3355, N3510, N3520, N3530, G1820TE)</li> <li>Rest of Atom</li> <li>Core 2 Duo</li> </ul> VIA: All AMD: E1, E2, E-350, A4, A6, G-Series	√	√	√
Intel: <ul style="list-style-type: none"> <li>Rest of Pentium</li> <li>Rest of Celeron</li> <li>Selected Atom (C2750, C2730, C2550, C2530, C2350, C3338, S1260, S1240, S1220)***</li> <li>Core i3, Core i5, Core M</li> </ul> AMD: R-Series, A10, A8, Rest of FX Models		√	√
Intel: Core i7, Xeon AMD: Selected FX models (FX 7500, FX 9370, FX 9590, FX 7600P) All other non-specified CPUs			√

#### Windows 10 IoT Mobile Enterprise

Windows 10 IoT Mobile Enterprise brings the capabilities of Windows 10 Mobile Enterprise to line-of-business mobile devices that are looking for a natural user experience with enterprise grade security and manageability. Instantaneous application access, native support for barcode scanning and other peripherals, as well as a secure device experience, enhance productivity for a variety of mobile scenarios.

The Mobile Enterprise editions also offer capabilities like multiple user profiles and advanced lockdown to enable mobile line-of-business scenarios across retail, healthcare, manufacturing and other vertical industries.

#### Windows 10 IoT Core

Windows 10 IoT Core is an edition of Windows 10 that is optimized for smaller and lower-cost industry devices. Built to power devices like IoT gateways or micro-kiosks, it's designed to run a single line-of-business application. Windows 10 IoT Core runs Universal Windows app and utilizes the same development, configuration and management tools as the other Windows 10 editions making it easy to integrate into IoT scenarios and leverage existing resources.

There is an SKU 'Windows 10 IoT Core' available at no royalty cost for all our device makers that enables automatic OS updates via Windows Update when connected to the internet.

In addition, we also have an OEM exclusive SKU 'Windows 10 IoT Core Pro' which provides an ability to defer and control updates. This SKU can be licensed via distributors. Except for the servicing model difference, the features are the same for the two SKUs, Windows 10 IoT Core and IoT Core Pro.

### Ordering information

Win10 IoT Ent LTSB 2016 MultiLang OEI High End (ESD)  
 Win10 IoT Ent LTSB 2016 MultiLang OEI High End EPKEA (ESD)  
 Win10 IoT Ent LTSB 2016 MultiLang OEI Value (ESD)  
 Win10 IoT Ent LTSB 2016 MultiLang OEI Value EPKEA (ESD)  
 Win10 IoT Ent LTSB 2016 MultiLang OEI Entry (ESD)  
 Win10 IoT Ent LTSB 2016 MultiLang OEI Entry EPKEA (ESD)

Win10 IoT Ent CBB MultiLang OEI High End (ESD)  
 Win10 IoT Ent CBB MultiLang OEI High End EPKEA (ESD)  
 Win10 IoT Ent CBB MultiLang OEI Value (ESD)  
 Win10 IoT Ent CBB MultiLang OEI Value EPKEA (ESD)  
 Win10 IoT Ent CBB MultiLang OEI Entry (ESD)  
 Win10 IoT Ent CBB MultiLang OEI Entry EPKEA (ESD)

## Current Branch for Business vs. Long Term Servicing Branch

### CBB: Current Branch for Business New version upgrade must be installed twice a year (March and September)

Technical support 18 months for one version. New version upgrade is required after 18 months.

### LTSB: Long Term Servicing Branch New version releases every 2-3 years

New version are available but customer don't need to install them 10 years security updates and patches without version upgrade required. Technical support for 10 years.

Capabilities	Current Branch for Business (CBB)	Long Term Servicing Branch (LTSB)
Recommended IoT use scenario	Modern UWP device experiences	Traditional embedded devices with Win32
Value of the latest features as they are released	✓	
Several months to consume feature updates	✓	
1 <sup>st</sup> party browsing choices	Microsoft Edge, IE 11	IE 11
Support for Cortana and some 1 <sup>st</sup> party Universal apps	✓	
Ability to load universal apps	✓	✓
Support for Microsoft Store	✓	
Ongoing security updates for the lifetime of the branch	✓	✓
Security updates without version upgrade required	18 Months	10 Years
10-year product availability	TBD	10 Years

Features	Window10 IoT Enterprise	Window10 IoT Core
Main difference	<ul style="list-style-type: none"> <li>- Full version Windows w/ advanced lockdown capabilities.</li> <li>- Win32 and UAP support</li> </ul>	<ul style="list-style-type: none"> <li>- Target IoT gateway device</li> <li>- Single Universal App experience</li> <li>- Universal App &amp; Driver support</li> </ul>
Activation	<ul style="list-style-type: none"> <li>- Activation works both online and offline</li> <li>- OA3.0</li> <li>- 5x5 Single/ Multi Activation key</li> </ul>	No Activation Requirement
Lockdown Features	<ul style="list-style-type: none"> <li>- EWF &amp; Overlays</li> <li>- USB filter</li> <li>- Dialog and Notice filters</li> <li>- Input Filter</li> <li>- AppLocker and Layout Control</li> <li>- Shell and App Launcher</li> </ul>	<ul style="list-style-type: none"> <li>- USB filter</li> <li>- Shell and App</li> <li>- Launcher</li> </ul>
Processor	x86	x86 and ARM, 400MHz or faster
SOC support	Intel, AMD	Intel, Qualcomm, Broadcom
RAM	1GB for 32-bit processor 2GB for 64-bit processors	256MB for 32-bit processors 512MB for modern UI support
Storage	16GB for 32-bit processor 20GB for 64-bit processors SD card = Optional	Flash = 2GB (4GB for modern UI support) SD card = Optional
Display	XGA (1024 x 768) or higher with 32 bits of color per pixel (1024 x 600 scaling in driver layer)	None or Frame buffer graphics and 2D optional (720p HDMI / 1080p+ HDMI / 3D GPU optional for modern UI support)
Min. CPU power	Dual Core, 1GHz	Single Core, 400 MHz
Modern Shell	Yes	-
Mobile Voice	-	-
Classic Win Application support	Yes	-
Universal Windows App support	Yes	Yes
Target Devices	<ul style="list-style-type: none"> <li>- Industrial/Medical/ATM</li> <li>- Thin Client</li> <li>- Traditional POS</li> <li>- Industrial Tablet</li> <li>- Digital Signage/Kiosk</li> </ul>	<ul style="list-style-type: none"> <li>- IoT Gateway</li> </ul>