



Windows Server IoT for Virtualization

ADVANTECH

Enabling an Intelligent Planet



Enabling Edge Intelligence with Windows Server IoT

Advantech delivers integrated Windows Server IoT solutions that enable secure, stable, and intelligent operations at the edge. By aligning with Microsoft's long-term servicing model and leveraging enterprise-grade features, Advantech helps customers meet the demands of regulated and fixed-purpose applications. As an authorized Windows IoT distributor, Advantech offers software reliability, licensing flexibility, and value added services, to support OEMs and solution providers in building robust, scalable systems across diverse IoT environments.

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Windows Server IoT at a Glance

Windows Server IoT is a specialized edition of Microsoft's trusted server operating system, designed specifically for fixed-function devices and edge solutions. It delivers the robust infrastructure and enterprise-grade capabilities of Windows Server, while enabling OEMs and solution providers to build secure, scalable, and intelligent IoT applications at the edge.



Windows Server IoT Application Scenarios

Windows Server IoT is designed for fixed-purpose embedded systems in sectors like manufacturing, parking, hospitals, ATMs, and ect. It supports secure, stable, and long-life operations at the edge—ideal for medical devices, factory controllers, and self-service kiosks that require local processing.



Manufacturing

Managing devices and processing data in real time can be challenging in factory automation. Windows Server IoT offers centralized control, real-time monitoring, and secure management, improving efficiency, reducing downtime, and enabling predictive maintenance.





Hospitals

Hospitals securely upload patient data to a central system, enabling real-time access for authorized facilities. Windows Server IoT ensures data security, scalability, and compliance, providing reliable and efficient medical data sharing across hospitals.



Parking

In parking management, tracking vehicle entry/exit and controlling gate operations are essential. Windows Server IoT offers real-time monitoring, automated gate control, and secure data management, improving efficiency and reducing manual intervention.



ATMs

Secure transactions and real-time monitoring are important for ATM networks. Windows Server IoT offers enterprise-level security, centralized management, and scalability, ensuring secure data processing and minimizing downtime across ATM networks.

Windows Server IoT 2025 Editions

At Advantech, we understand that every application has different requirements. That's why we offer the full range of Windows Server IoT 2025 editions, so you can select the version that best fits your needs.

Windows Server IoT 2025 Edition		Core-based licensing	VM Rights	Client Access License (CAL) Required*
Standard	A dedicated server with Active Directory integration (file, print, networking services) or those requiring a connected keyboard, monitor or mouse to perform its dedicated purpose.	Yes	2	Yes
Datacenter	A turnkey solution for highly virtualized datacenters or cloud environments that can consolidate several complex functions into a single server appliance. The solution may require Storage Spaces Direct.	Yes	Unlimited	Yes
Storage Standard	A dedicated file server appropriate for Network Attached Storage, Storage Area Network Gateway or another storage solution.	Yes	2	No
Storage Workgroup	A small storage solution (for 50 users or less) that does NOT require network infrastructure services (file, print, etc.) or a connected keyboard, monitor or mouse.	No	1	No
Telecommunications	A specialized telecommunications application such as PBX, IP PBX, Automated Attendant, Interactive Voice Response (IVR) or teleconferencing.	Yes	2	No

*Client Access Licenses (CALs) apply to server products licensed under the Server/CAL and Per Core/CAL licensing models. Information is subject to change. Please refer to [About Windows Server IoT | Microsoft Learn](#) for more information.

Windows Server IoT Editions and Licensing Model



Windows Server IoT uses a core-based licensing model with edition-specific virtualization rights, giving customers the flexibility to match their server resources and workloads.

- Servers are licensed based on the number of processor cores in the physical server. A minimum of 8 core licenses is required for each physical processor. A minimum of 16 core licenses is required for each server.
- Standard edition also covers 2 virtual machine license on a single server; Datacenter edition covers unlimited virtual machine license.

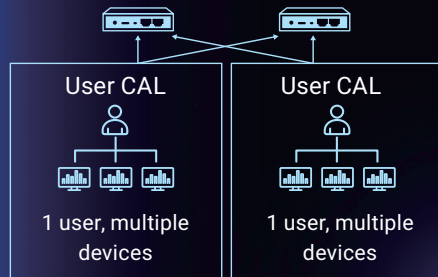
Editions	License Type	Features	Virtualization Rights	
			Two OR four Virtual Instances	Unlimited
Windows Server IoT offered in two editions (Standard, Datacenter) differentiated only by virtualization rights	Each license covers up to 16 or 20 or 24 cores	Provided all the capabilities to enable any server appliance		
Standard For non-virtualized or lightly virtualized environments	0	0	0	–
Datacenter For highly-virtualized private cloud environments	0	0	–	0

CAL (Client Access License) Licensing Model

User CALs

Single user with unlimited devices

Per User
(2 User CALs)



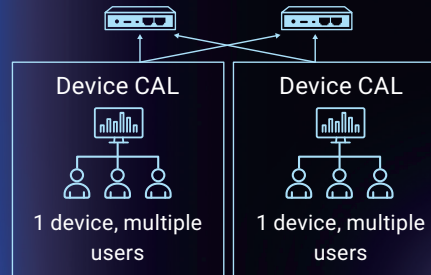
Client access license based on user

Ideal for companies with employee who need to have roaming access to the corporate network using multiple devices, as well as from unknown devices.

Device CALs

Single device with unlimited users

Per Device
(2 Device CALs)



Client access license based on device

Ideal for companies with multiple user for one device, such as shift workers.

RDS CALs

Required for remote desktop access

Two Types of RDS CAL:

- RDS Per User CALs
- RDS Per Device CALs

Ideal for companies with users who need to access the full desktop remotely.

Note: Remote Desktop Services access requires both a Windows Server CAL and an RDS CAL for each user or device.

Windows Server CAL-less Program

Each CAL is 10% of Standard Embedded Server cost

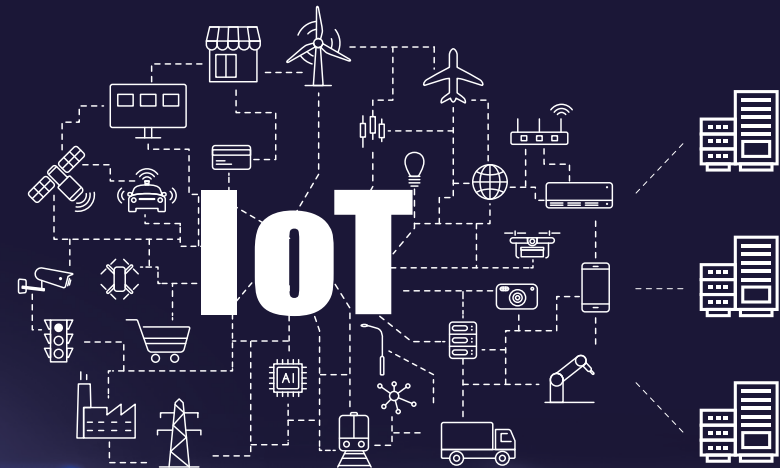
CAL cost becomes a blocker for adoption of Windows Server over Linux in many IoT scenarios

Windows Server CAL-Less Program

- The partner pays a 30% higher royalty for Windows Server Embedded/IoT Standard edition with no CAL requirement.
- The demand for CAL over 10, it is advisable to consider offering the CLA-Less Program.

Category	Detail
Qualifying OS	Windows Server IoT 2016, 2019, 2022, 2025 (Standard version only)
Exclusion	RDS and SQL IoT are excluded

If solution is applicable to participate in CAL-less program, no CALs are required with an additional 30% royalty on the server



Windows Server IoT for Virtualization

Windows Server IoT is built to handle large-scale compute, connectivity, and storage workloads at the edge, addressing latency, bandwidth, cost, data residency, and privacy needs. Since it shares the same foundation as Windows Server, you can continue using the familiar development and management tools you already know.

Beyond dedicated servers, Windows Server IoT provides built-in virtualization, allowing multiple operating systems or workloads to run securely and independently on a single device. By running multiple virtual machines (VMs) on one hardware platform, you can reduce hardware footprint, improve resource efficiency, and manage workloads more flexibly.

Why “virtualization” matters for industrial & edge computing?

- ✓ Lower Total Cost of Ownership (TCO)
- ✓ Consolidation of legacy systems into virtual environments
- ✓ Easier deployment and rollback of software
- ✓ Enhanced system isolation and security
- ✓ Disaster recovery and backup flexibility



Smart Factory Scenario

In smart factory production lines, machines often rely on separate devices for applications like scheduling, material tracking, line monitoring, and quality inspection. This approach traditionally requires multiple physical systems, driving up infrastructure costs and maintenance effort.

With Windows Server IoT virtualization, multiple VMs can run independently on a single device. Each VM handles a different application, ensuring workload separation while reducing hardware costs and simplifying management.



With Windows Server IoT virtualization, a single device can host multiple VMs—reducing hardware investment, simplifying management, and ensuring secure, independent operations.

Before enabling virtualization
One server runs only one application, resulting in low utilization and higher costs.

Before

After enabling virtualization
A single server can run multiple virtual machines and applications simultaneously via a hypervisor.

After

Frequently Asked Questions

Windows Server IoT

Does Windows Server IoT have LTSC or non-LTSC versions?	Windows Server IoT is an LTSC version, providing long-term support with a lifecycle of up to ten years. The LTSC version features fixed functionality and is specifically optimized for embedded and IoT devices.
Does Windows Server IoT have functional differences compared to general-purpose Windows Server?	Windows Server IoT and general-purpose Windows Server are essentially the same in terms of core functionality, as Windows Server IoT is a full version of Windows Server tailored for IoT environments. Both share the same binary code, and you can use the same development and management tools for both.
What is a Client Access License (CAL)?	CAL is a license that grants a user or device the right to access the server software. It is not the server software itself but a separate license that allows access to it.
What types of CALs are available for Windows Server IoT and?	<p>There are two main types of CALs:</p> <ul style="list-style-type: none">• User CAL: With a User CAL, you purchase a CAL for every user who accesses the server to use services such as file storage or printing, regardless of the number of devices they use. Purchasing a User CAL may be more suitable if your employees need roaming access to the corporate network from multiple devices or unknown devices, or if there are more devices than users in your organization.• Device CAL: With a Device CAL, you purchase a CAL for every device that accesses the server, regardless of how many users use that device. Device CALs may be more economical and administratively efficient if your company has workers who share devices, such as across different work shifts. <p>If you require remote connection functionality, you will also need to purchase RDS CALs (Remote Desktop Services Client Access Licenses). RDS CALs are a type of Client Access License that allows users or devices to access Remote Desktop Services (RDS) on Windows Server. There are two types of RDS CALs:</p> <ul style="list-style-type: none">• RDS Per User CAL: This license allows a specific user to access Remote Desktop Services from any device.• RDS Per Device CAL: This license allows any device to connect to Remote Desktop Services, regardless of how many users use that device.
When purchasing Server IoT, is it necessary to also purchase CALs?	<p>Yes, when purchasing Server IoT, it is generally necessary to also purchase CALs. CALs are required to legally access and use the server software.</p> <p>For Server IoT, you need to purchase CALs for users or devices that will access the server.</p>

Frequently Asked Questions

Windows Server IoT for Virtualization

How many virtual machines does Windows Server IoT support?

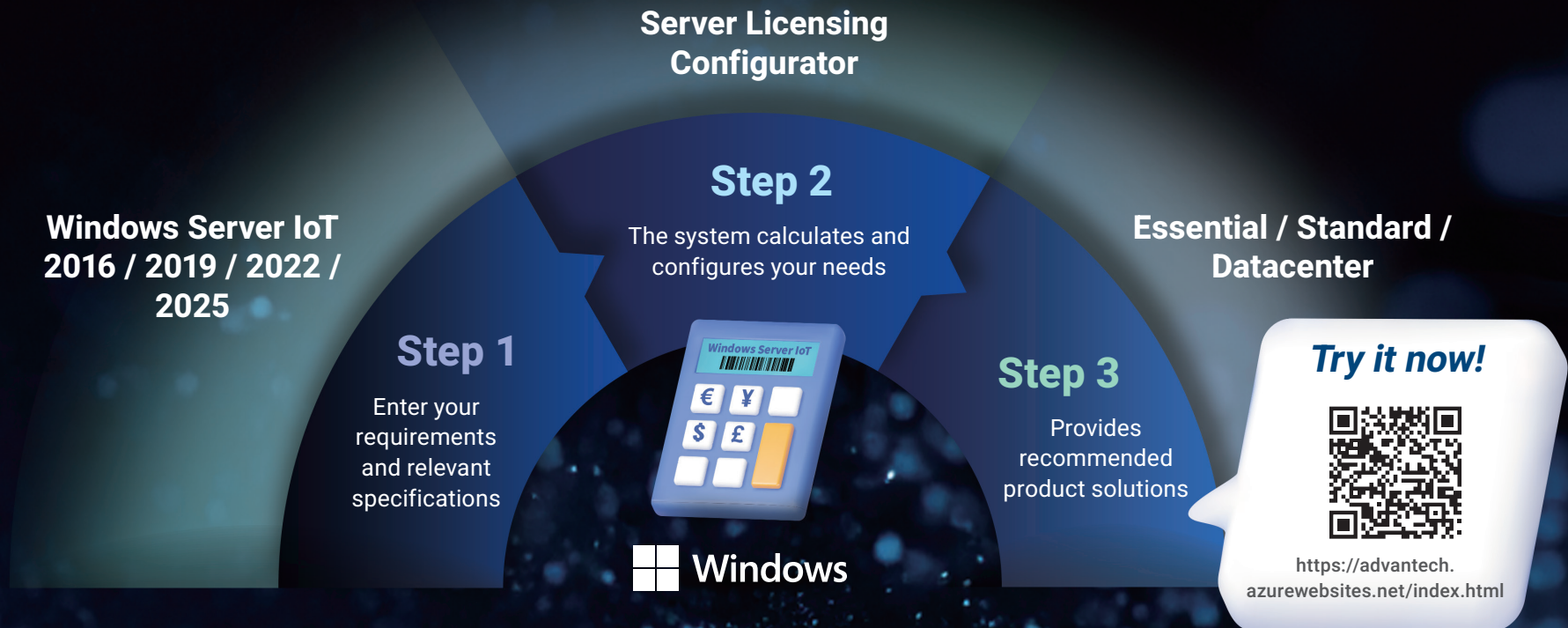
Each Windows Server IoT Standard Edition license supports up to 2 virtual machines, while each Windows Server IoT Datacenter Edition license allows an unlimited number of virtual machines.

Do virtual machines running on Windows Server IoT require separate OS licenses?

If the virtual machine is running a Server OS, it can be covered under the same Windows Server IoT OS license. However, if the VM is running Windows or Linux OS, a separate valid license must be purchased.

Advantech Value-added Tool: Windows Server IoT Licensing Configurator

Windows Server IoT is the core of high-performance computing environments for enterprises, but its complex licensing model requires consideration of processors, cores, and the number of connected users and devices. To help customers choose the right version, Advantech provides a dedicated tool – the Windows Server IoT Licensing Configurator*, which recommends the appropriate Windows Server IoT version and license based on physical cores and the number of virtual machines—completing the calculation in just three steps.



Advantech, Trusted AIoT Software Distributor

Advantech is a global leader in IoT solutions and an authorized Microsoft distributor. We deliver comprehensive IoT software solutions with enhanced security, backup, and recovery features tailored for embedded systems. With 200+ software experts and a worldwide network, we provide customization, implementation, and proprietary tools to meet the design and security needs of IoT applications.



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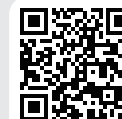
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