



Microsoft Windows Server IoT “Special IoT Editions” Licensing Guide: IoT & Dedicated-Purpose Servers

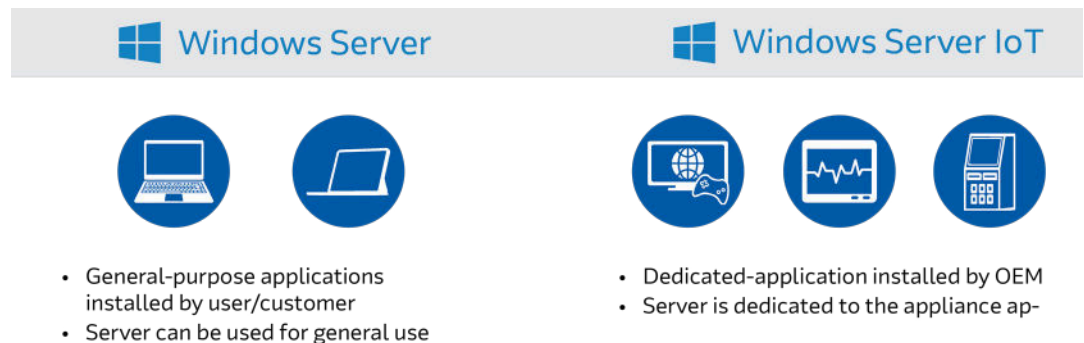
Licensing Guide



Microsoft Windows Server IoT "Special IoT Editions" Licensing Guide: IoT & Dedicated-Purpose Servers

Dedicated-purpose (or fixed-function) servers are built to perform a pre-defined set of tasks. They are preloaded and delivered with the operating system and the application. They typically have special requirements like longer lifecycles, controlled Windows updates, global deployment capabilities, etc. To support these requirements, Microsoft created the "IoT" family of products and offers very specific IoT Server license options intended for special vertical industries including telecommunications, minimum essential servers, and NAS (Network Attached Storage) devices. This licensing guide covers these special IoT Server licenses in detail.

Figure 1:
General Purpose Servers vs
Dedicated-Purpose Servers



Windows Server IoT Overview

Windows Server IoT delivers enterprise manageability and security to IoT solutions. Windows Server IoT allows OEMs to build fixed-purpose, industry-specific solutions for security, retail, manufacturing, healthcare, and more, with specific allowances and restrictions in the license agreement. Windows Server IoT is a binary equivalent to Windows Server. However, for licensing and distribution, the general-purpose version and IoT versions differ.

Microsoft offers six Windows Server IoT editions. The two most popular are Standard and Datacenter and were covered in detail in the Windows Server Licensing Guide.

Table 1:
 Standard and Datacenter
 Versions of the Windows
 Server IoT

“Editions”	Purpose/Description	Representative Part Number	Part Number Description
Windows Server IoT 2022 Standard	A Dedicated Server With the Need for Active Directory Integration (File, Print, Networking Services) With Some Virtualization.	6FA-00554-1P	Windows Server Embedded Std IoT 2022 MultiLang ESD 16 Core Std
Windows Server IoT 2022 Datacenter	Turnkey Solution That May Require Storage Spaces Direct or Be for Highly Virtualized Datacenters or Cloud Environments Which Consolidate Several Complex Functions Into a Single Server Appliance.	9ZU-00157-1P	Windows Server Embedded Datacenter 2022 MultiLang ESD OLC 16 Core

For this “Special IoT Editions” Server licensing guide, the focus is completely on the other 4 “special” editions. One important licensing feature common to all four special editions is that CALs are not required. Not having to include or sell Client Access Licenses with appliances can make a big difference in the overall pricing. Here are the four special-edition IoT server license options:

Table 2:
 Special editions of the
 Windows Server IoT

“Editions”	Purpose/Description	Representative Part Number	Part Number Description
Windows Server IoT 2019 Standard “Essential”	A Server Appliance for Edge Security Such as Anti-Virus Server, or an E-mail Filtering or Network Traffic Monitoring Server.	6FA-00436-1P	Windows Server Embedded Standard 2019 MultiLang ESD OLC 16 Core “Essentials”
Windows Server IoT 2022 Storage Standard	A Dedicated file Server, Network Attached Storage, Storage Area Network Gateway, or Another Storage Solution.	P2J-00007-1P	Windows Server Embedded Standard 2022 EMB MultiLang ESD OLC 16 Core
Windows Server IoT 2022 Storage Workgroup	A Storage Solution for Up to 50 Users That Does NOT Require Network Infrastructure Services (File, Print, etc.), Connected Keyboard, Monitor, or Mouse.	PEH-00004-1P	Windows Storage Server Workgroup 2022 EMB MultiLang ESD OLC 1 CPU
Windows Server IoT 2022 Telecommunications	Specialized Telecommunications Applications Such as PBX, IP PBX, Automated Attendant, Interactive Voice Response (IVR), or Teleconferencing.	6FA-00559-1P	WindowsServer Embedded Standard 2022 MultiLang ESD OLC 16 Core Telco

The table below shows the comparison of all six versions.

Table 3:
 Windows Server IoT Edition
 Comparison

Licensing Provisions	WS IoT Standard	WS IoT Essentials	WS IoT Datacenter	WS IoT Storage Standard	WS IoT Storage Workgroup	WS IoT Telecommunications
Preinstalled OS	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory
Embedded Application	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory
Line of Business Applications	No	No	No	No	No	No
Network Infrastructure Services	Yes	Restricted	Yes	Yes	No	Restricted
Remote Usage	Yes	Remote Management	Yes	Remote Management	Remote Management	Remote Management
Keyboard, Video & Mouse	Yes	No	Yes	No	No	No
File Service Over Network	Yes	No	Yes	Yes	Yes	No
Authentication Services	Yes	No	Yes	No	No	No
Client Access License (CAL) Required	Yes	No	Yes	No	No	No
Messaging or Enterprise Mail	Yes	POP3	Yes	No	No	No
Firewall, Anti Spam, VPN	Yes	Yes	Yes	Yes	Yes	No
Core based Licensing	Yes	Yes	Yes	Yes	No	Yes

Windows Server IoT Standard "Essentials" Edition

If the dedicated appliance can meet licensing terms for the "Standard Essentials" edition, OEMs save money on licensing costs. The name of "Essentials" can be confusing because Microsoft has used this name in other products. Specifically, in the general use OEM/Retail channel version, they offer a product called Windows Server 2019 Essentials. This general use version replaced the older "Small Business Server" product that has been around for many years. The Small Business Server was intended and targeted at small businesses that had less than 25 users. The 2019 Essentials Server is restricted to 25 users and 50 devices. The OEM/Retail general-purpose "Essentials" edition does not require Windows CALs and has other restrictions. Microsoft did not release an Essentials edition for the Server IoT 2022 family however the 2019 edition is available for many more years.

The Windows Server "IoT" 2019 Standard "Essentials" edition is based on the full Windows Server 2019 "Standard" edition with some IoT licensing restrictions. It is not capped at 25 users and 50 devices. There are no physical software limitations. All the product limitations are strictly licensing related and fall under the honor system. This product is intended for OEMs building focused and dedicated appliances such as an Anti-virus/Anti-malware server or an email filtering server as an example.

Table 4:
 Windows Server IoT
 Standard "Essentials"
 Edition

"Editions"	Purpose/Description	Representative Part Number	Part Number Description
Windows Server IoT 2019 Standard "Essential"	A Server Appliance for Edge Security Such as Anti-Virus Server, or an E-mail Filtering or Network Traffic Monitoring Server.	6FA-00436-1P	Windows Server Embedded Standard 2019 MultiLang ESD OLC 16 Core "Essentials"

Restrictions include:

- Excludes use as a Primary Domain Controller.
- Excludes Network Infrastructure Services including RRAS, DNS, and WINS.
- Excludes printing services. This includes print spoolers, drivers, and related files that enable a printer.
- Excludes Terminal Services except for remote administration purposes.

May not be used to run or support:

- Active Directory Services (But can join a Domain).
- Database Software such as SQL Server unless the database is integrated as part of the Solution.
- Enterprise resource planning software, messaging, or enterprise mail.
- Web-based time management applications that address appointments, meetings, calendars.
- Office automation such as word processing, spreadsheets, network browsing or personal finance"

Here are the actual license terms from the Microsoft End-User License Agreement (EULA):

"Software Use Limits. You are not licensed to use any of the following functions of the server software, except as described below:

Domain Controller. Any use of the server software as a domain controller or any other use of DCPromo.exe.

- Network Infrastructure Services. You may not use any functions of the server software necessary to support a server network infrastructure. For example, you may not use Routing and Remote Access Service, Domain Name System or Windows Internet Name Service. You may, however, use Dynamic Host Configuration Protocol functions.
- Printing Services. These include print spoolers, drivers, and related files in the server software that enable the operation of a printer.
- Terminal Services. This function enables devices to use server software or other software used with the server software to provide similar services. Terminal Services may be used only to the extent required to manage the server software in Remote Administration Mode.
- Limits on Functions Supported by the Software. The manufacturer licenses you to use the server software to support only the base functions as provided and installed on this server. You are not licensed to use the server software to run or support.
 - directory services (such as Microsoft Active Directory, except that the server may be a member of a domain),
 - enterprise database software (such as Microsoft SQL Server), except non-enterprise engines such as Microsoft SQL Server Desktop Engine and Microsoft SQL Server 2005 Express Edition. The server software also may run or support enterprise database engines (including Microsoft SQL Server) that are integrated into and used only to support the server software as part of the specific use for which the manufacturer designed this server,
 - enterprise resource planning software,
 - messaging or enterprise mail (except POP3 mail),
 - collaboration software,
 - web-based time management applications that address appointments, meetings and other calendar items
 - any office automation or personal computing function (such as word processing, spreadsheets, network browsing, or personal finance), except functions included with this server. You must use those functions only as part of the specific use for which your manufacturer or installer designed this server."

If the OEM dedicated appliance server can meet the license terms and restrictions listed above, the Windows Server IoT 2019 Standard "Essentials" edition can be used. It has a lower price and it does not require CALs, which can save additional money.

Windows Server IoT "Storage Standard" Edition

With the 2019 and 2022 release of the Storage Standard Server product, Microsoft made the product 100% bit-for-bit the same as regular Windows Server IoT 2022 Standard. Both products use the same OPK media kit. Previous editions of Storage Server had their own media and included several features but with 2019 and 2022, the products share the same storage features. However, the licensing terms are very different. The product is intended for OEMs to build their own NAS appliance and the product must be focused and dedicated to a NAS.

Table 5:
 Windows Server IoT Standard
 "Storage" Edition

"Editions"	Purpose/Description	Representative Part Number	Part Number Description
Windows Server IoT 2022 Storage Standard	A Dedicated File Server, Network Attached Storage, Storage Area Network Gateway, or Another Storage Solution.	P2J-00007-1P	Windows Server Embedded Standard EMB MultiLang ESD OLC 16 Core

"Storage Standard" Server edition is based on Windows Server IoT Standard; however, it includes the following license restrictions:

- May not be used to run or support:
- "Database Software such as SQL Server unless the database is integrated as part of the Solution.
- Enterprise resource planning software,
- Messaging or enterprise mail, Exchange Server or SharePoint Portal Server,
- Team Collaboration software,
- Web-based time management applications that address appointments, meetings, calendars."

Here are the actual license terms from the EULA:

"Limitation on Functions Supported by the Software. The manufacturer or installer licenses you to use the server software to support only the base functions as provided and installed on this server. You are not licensed to use the server to run or support:

- Enterprise database software (such as Microsoft SQL Server), except non-enterprise engines such as Microsoft SQL Server Express Edition. The server software also may run or support enterprise database engines (including Microsoft SQL Server) that are integrated in and used only to support the server software as part of the specific use for which the manufacturer or installer designed this server,
- Enterprise resource planning (ERP) software,
- Messaging or enterprise mail,
- Microsoft Exchange or Microsoft SharePoint Portal Server,
- Team collaboration software,
- Web-based time management applications that address appointment, meeting and other calendar items"

The "Storage Standard" edition allows unlimited users, supports virtualization and allows VMs, and allows an unlimited number of disks. One benefit of the Storage Server is that no CALs are required, saving OEMs licensing costs. The license terms state:

"No Windows Server CALs Required. Servers that access or use functions of Windows Storage Server software licensed under these license terms do not require a client access license (CAL) for Windows Server. Obtaining a CAL for any Microsoft product does not grant you the rights to use functions of the server software not licensed under these license terms."

Windows Server IoT 2022 "Storage Workgroup" Edition

Windows Server IoT 2022 "Storage Workgroup" Edition is intended for much smaller NAS appliances. The installation media is also 100% bit-for-bit based on Windows Server IoT 2022 Standard edition. All the product licensing restrictions are honor based limitations. The Storage Workgroup edition is restricted to a device with 1 physical processor and a maximum of 50 users. Microsoft also restricts the number of disks to a maximum of 6 disks. Storage Replica is prohibited, and virtualization is not allowed.

Table 6:
Windows Server IoT "Storage Workgroup" Edition

"Editions"	Purpose/Description	Representative Part Number	Part Number Description
Windows Server IoT 2022 Storage Workgroup	A Storage Solution for Up to 50 Users That Does NOT Require Network Infrastructure Services (File, Print, etc.), Connected keyboard, Monitor, or Mouse.	PEH-00004-1P	Windows Storage Server Workgroup 2022 EMB MultiLang ESD OLC 1 CPU

"Storage Workgroup" Server edition is based on Windows Server IoT 2022 Standard; however, it includes this additional license restrictions:

"May not be used to run or support:

- Database Software such as SQL Server unless the database is integrated as part of the Solution.
- Enterprise resource planning software,
- Messaging or enterprise mail, Exchange Server or SharePoint Portal Server,
- Team Collaboration software,
- Web-based time management applications that address appointments, meetings, calendars."

Additional Limitations on Functions for Windows Storage Server Workgroup over Standard

- "No more than 6 disk drives
- No NVMe-enabled hardware
- No external Serial Attached SCSI (SAS) interconnect."

Here are the actual license terms from the EULA:

"Limitation on Functions Supported by the Software. The manufacturer or installer licenses you to use the server software to support only the base functions as provided and installed on this server. You are not licensed to use the server to run or support:

Enterprise database software (such as Microsoft SQL Server), except non-enterprise engines such as Microsoft SQL Server Express Edition. The server software also may run or support enterprise database engines (including Microsoft SQL Server) that are integrated in and used only to support the server software as part of the specific use for which the manufacturer or installer designed this server,

- Enterprise resource planning (ERP) software,
- Messaging or enterprise mail,
- Microsoft Exchange or Microsoft SharePoint Portal Server,
- Team collaboration software,
- Web-based time management applications that address appointment, meeting and other calendar items"

Additional Limitations on Functions for Windows Storage Server Workgroup:

- "more than 6 disk drives,
- NVMe-enabled hardware, and/or
- the external Serial Attached SCSI (SAS) interconnect."

Table 7:
 Windows Server IoT Standard
 "Storage" Edition

	Windows Storage Server 2016		Windows Server IoT 2019/2022	
	Workgroup	Standard	Storage Workgroup	Storage Standard
Core Based Licensing	No	No	No	Yes
Client Access License (CAL) Required?	No	No	No	No
Maximum #CPU	1	2	1	n/a*
Virtual Machine Rights	No	2	No	2**
#Users	50	Unlimited	50	Unlimited
NVMe-Enabled Hardware	No	Yes	No	Yes
#Disks	6	Unlimited	6	Unlimited
External Serial Attached SCSI (SAS) Interconnect	No	Yes	No	Yes
Maximum Memory	32 GB	24 TB	24 TB	24 TB
Hardware RAID	Yes	Yes	Yes	Yes
Concurrent SMB Connections	250	Unlimited	Unlimited	Unlimited
File Sharing (SMB&NFS)	Yes	Yes	Yes	Yes
Online Backup	Yes	Yes	Yes	Yes
DFS Replication	Yes	Yes	Yes	Yes
Storage Replica	No	No	No	Yes
File Classification Infrastructure	Yes	Yes	Yes	Yes
File Server Resource Manager	Yes	Yes	Yes	Yes
Domain Join	Yes	Yes	Yes	Yes
Shared Block Storage (iSCSI Target + Boot)	Yes	Yes	Yes	Yes
OEM Customizable Out of Box Experience	Yes	Yes	Yes	Yes
Storage Spaces	Yes	Yes	Yes	Yes
Storage Spaces Direct/Volume Replication	No	No	No	No
Deduplication	No	Yes	No	Yes
BranchCache - Hosted Cache	No	Yes	No	Yes
Clustering (Including AD/DNS)	No	Yes	No	Yes
Simplified Cluster Setup	No	Yes	No	Yes
Networking Infra (DHCP, DNS & Wins)	No	Yes	No	Yes
AD Roles including Domain Controller (RODC)	No	No	No	No
Active Directory (Certificate Services, Domain Services, Federation Services, Lightweight Directory Services, Rights Management)	No	No	No	No
Application Server, Network Policy, Remote Desktop Broker, WDS and Fax Server	No	No	No	No

* CPU no longer applies to Storage Standard **The number of Virtual Machines (VMs) allowed is based on the number of cores licensed on a physical server. There are minimum licensing requirements per server: 8 cores per processor and 16 cores per server. All cores on a physical server must be licensed to be compliant. VMs are based on the total licensed cores on the physical server. The minimum 16 cores qualify for 2 VMs.

Windows Server IoT 2022 "Telecommunications" Edition

For OEMs that focus on the telecommunications industry, this special edition of Windows Server IoT 2022 is intended to allow a dedicated appliance server that can act as a PBX, IP PBX, IVR and or teleconferencing server. The "Telecommunications" edition is also 100% bit for bit based on the Windows Server IoT 2022 Standard edition and just as the previous product, it is restricted with specific licensing terms directed at the telecommunications market. This special edition has the lowest price point out of all the editions covered in this document.

Table 8:
Windows Server IoT "Telecommunications" Edition

"Editions"	Purpose/Description	Representative Part Number	Part Number Description
Windows Server IoT 2022 Telecommunications	Specialized Telecommunications Applications Such as PBX, IP PBX, Automated Attendant, Interactive Voice Response (IVR), or Teleconferencing	6FA-00559-1P	Windows Server Embedded Standard 2022 MultiLang ESD OLC 16 Core Telco

"Telecommunications" Server edition is based on Windows Server IoT 2022 Standard; however, it includes this additional license restrictions:

"May not be used to run or support:

- Excludes use as a Primary Domain Controller.
- Active Directory Services (But can join a Domain).
- Excludes Network Infrastructure Services including RRAS, DNS and WINS.
- Excludes printing services including print spoolers, drivers and enabling a printer.
- Excludes Terminal Services except for remote administration purposes.
- Excludes IntelliMirror Services
- Excludes Volume Shadow Copy Services

You can run or support:

DHCP and DNS"

Here are the actual license terms for "Telecommunications" from the EULA:

"Software Use Limits. You are not licensed to use any of the following functions of the server software, except as described below:

- Active Directory and Authentication Service functions (i.e., directory and authentication services, including use of the server software as a domain controller or any other use of DCPromo.exe)
- IntelliMirror Services (i.e., the IntelliMirror management technologies of the server software)
- Network Infrastructure Services. These are functions of the server software necessary to support a server network infrastructure.
- You are licensed to use these functions only for:
 - Dynamic Host Configuration Protocol services for IP address assignment for functionality provided by the server; and
 - Domain Name System (DNS) service used for name resolution for functionality provided by the server, but only for a single domain name acting in primary mode (i.e., no secondary DNS for replication) and in standalone mode (i.e., not integrated with Active Directory domain controller). You may not use Routing and Remote Access Service or Windows Internet Name Service.
- Printing Services. These include print spoolers, drivers, and related files in the server software that enable operation of a printer. You are licensed to use these services only to generate and print reports concerning services provided by this server.
- Terminal Services (i.e., using the terminal services feature of the server software or using other software used with the server software to provide similar services). Authorized system administrators may access and use up to two connections solely for the purpose of administration (including remote administration) of the server software running on this server.
- Volume Shadow Copy Service (i.e., the feature in the Product, which enables point-in-time copying of files)."



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