

# Introduction to Microsoft on-premises products and their licensing

## Introduction: a client server network

In a business environment, you would expect to find a "client server network" where the users' computers (the clients) are connected to a server (or servers) in order to allow for file sharing, sharing of resources (such as printers), email, and centralized management and security. The client machines need a client operating system (such as Microsoft® Windows 11), and then any required client applications (such as Microsoft® Outlook®). Similarly, each server needs a server operating system (Windows Server®) and then any required server applications (such as Microsoft® SQL Server®).



*This reference card is not a complete list of all the Microsoft technologies, but just the more common ones. Unless otherwise stated, you can assume that each license is a separate purchase. More detailed licensing information is available in other reference documents in this series.*

## Client operating systems

Windows 11 is the latest version of Microsoft's client operating system, replacing Windows 10. There are several editions of Windows 11. Businesses would normally use either **Windows 11 Pro** or **Windows 11 Enterprise**.

**Windows 11 Pro** is licensed by device. This means that a license must be acquired for each device on or from which the software is used or accessed (locally or remotely over a network).

**Windows 11 Enterprise** may be licensed by device or user. See the Windows 11 handout in this series for further details on user licensing.



## Client applications

The most common client applications used in a business (such as Microsoft® Word and Outlook) are most likely to be licensed as a Microsoft Office suite rather than as individual applications. Several different Microsoft Office 2021 suites are available (containing different individual Office applications) but **Office 2021 Professional Plus** and **Office 2021 Standard** are the editions most likely to be found in a business environment.

Office 2021 is licensed by device. This means that a license must be acquired for each device on or from which the software is used or accessed (locally or remotely over a network).



## Server operating system

All server machines must have a server operating system installed on them. The latest version of Microsoft's server operating system is Windows Server 2022. There are two principal editions of Windows Server 2022 for businesses: Standard and Datacenter.

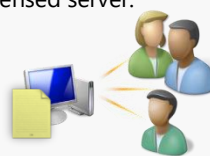
**Windows Server 2022 Standard** and **Windows Server 2022 Datacenter** are licensed through the Per Core and CAL licensing model (see right).

## Windows Server

### Per Core and CAL licensing

Purchase Core licenses for each physical core in the server with a minimum of 8 Core licenses per processor and 16 Core licenses per server, and then purchase Windows Server 2022 Client Access Licenses (CALs) for either users or devices. A Client Access License (CAL) allows the client to access the services of any licensed server.

*A Device CAL is assigned to the device and allows multiple users to use that device*



*A User CAL is assigned to the user and allows that user to use multiple devices*



## Licensing virtualized server solutions

IT professionals often implement virtualized server solutions to ease management and to reduce hardware costs. Windows Server 2022 Standard and Windows Server 2022 Datacenter include Hyper-V to allow server virtualization. Note that virtualizing is not a way of reducing licenses purchased, and different versions and different editions of different products may have different virtualization rights. For example:

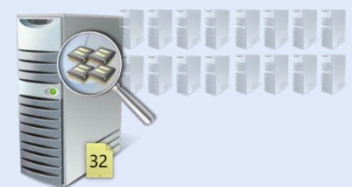
### Windows Server 2022 Standard

When licensing a server completely with Windows Server 2022 **Standard** Core licenses, 2 virtual machines are allowed



### Windows Server 2022 Datacenter

When licensing a server completely with Windows Server 2022 **Datacenter** Core licenses, unlimited virtual machines are allowed



## Server applications

### Microsoft® Exchange Server 2019

There are a variety of ways for users to access their mailbox:



Exchange Server 2019 is licensed through the Server and CAL licensing model (see right). Standard and Enterprise CALs are available depending on the functionality required by the users.

### Microsoft SharePoint Server 2019

SharePoint® Server 2019 facilitates business collaboration by providing an enterprise portal (or intranet) with the ability to search, manage content and processes, and deliver solutions involving business forms and reports.

SharePoint Server 2019 is licensed through the Server and CAL licensing model (see above right). Standard and Enterprise CALs are available depending on the functionality required by the users.

SharePoint

### Microsoft Skype for Business Server 2019

In conjunction with the client application Skype for Business, Skype for Business Server provides: secure instant messaging; integrated presence; audio, video and web conferencing; and enterprise voice capabilities.

Skype for Business Server 2019 is licensed through the Server and CAL licensing model (see above right). Standard, Enterprise and Plus CALs are available depending on the functionality required by the users.

Skype for Business

### Microsoft SQL Server 2019

SQL Server 2019 is a relational database including services such as Microsoft® SQL Server® Analysis Services for analysis and Microsoft® SQL Server® Reporting Services for reporting. SQL Server is at the heart of Microsoft's Business Intelligence solution and is required in solutions containing Microsoft SharePoint Server, Microsoft Skype for Business Server and the Microsoft System Center products.

Some editions of SQL Server 2019 are licensed through the Server and CAL licensing model and some editions are licensed through a model which counts processor cores. See the SQL Server handout in this series for further details on licensing SQL Server 2019.



### Server and CAL licensing

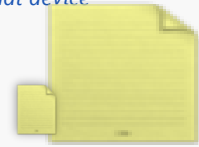
Purchase a Server license for each server, and then purchase Client Access Licenses (CALs) for either users or devices:



A User CAL is assigned to the user and allows that user to use multiple devices



A Device CAL is assigned to the device and allows multiple users to use that device



### Standard and Enterprise CALs

Some server applications offer different levels of functionality, and there are corresponding CALs.

The core functionality (depicted by the blue shading) is linked to a Standard CAL (depicted by the blue license) assigned to a user or device.



If the extended functionality (depicted by the red shading) is utilized, then the purchase of an Enterprise CAL is required (depicted by the red license) **in addition to** the Standard CAL.



Note that Skype for Business Server 2019 also has a Plus CAL available which must be purchased in addition to the Standard CAL.

### Microsoft System Center 2019

Microsoft® System Center is a comprehensive management platform that enables IT Professionals to more easily and efficiently manage IT environments, including the server infrastructure and client devices.



System Center 2019 is licensed by purchasing a Management License (ML) for each endpoint being managed. Managed clients need **Client MLs** and managed servers need **Server MLs**. Server MLs are licensed with the Per Core model: assign one Core ML for each physical core, with a minimum of 8 Core MLs per processor and 16 Core MLs per server.

Further Microsoft licensing handouts and exams: [GetLicensingReady.com](http://GetLicensingReady.com)