

# ArcGIS 10.8 System Requirements



## Content

ArcGIS Desktop 10.8 system requirements .....	2
ArcGIS Pro 2.5 system requirements .....	9
ArcGIS Server 10.8 system requirements .....	16
Portal for ArcGIS 10.8 system requirements.....	20
ArcGIS Data Store 10.8 system requirements.....	24
ArcGIS Web Adaptor 10.8 system requirements .....	28
ArcGIS Notebook Server 10.8 system requirements.....	31
Microsoft SQL Server database requirements for ArcGIS 10.8 .....	34
Oracle database requirements for ArcGIS 10.8 .....	36
PostgreSQL database requirements for ArcGIS 10.8.....	38

# ArcGIS 10.8 System Requirements



## ArcGIS Desktop 10.8 system requirements

- **Supported Platforms**

Supported operating systems *	Latest update or service pack tested
Windows 10 Home, Pro and Enterprise (64 bit [EM64T])	Nov 2019 Updates
Windows 8.1 Basic, Pro, and Enterprise (32 bit and 64 bit [EM64T])	Nov 2019 Updates
Windows Server 2019 Standard and Datacenter (64 bit [EM64T])	Nov 2019 Updates
Windows Server 2016 Standard and Datacenter (64 bit [EM64T])	Nov 2019 Updates
Windows Server 2012 R2 Standard and Datacenter (64 bit [EM64T])	Nov 2019 Updates
Windows Server 2012 Standard and Datacenter (64 bit [EM64T])	Nov 2019 Updates

**Note:**

Prior and future updates or service packs on these operating systems are supported unless otherwise stated. The operating system version and updates must also be supported by the operating system provider.

# ArcGIS 10.8 System Requirements



## ArcGIS Desktop 10.8 system requirements

- **Virtualized Environments**

ArcMap is supported in various on-premises and cloud environments.

On-premises virtual desktop infrastructure (VDI)	Notes
<b>Citrix:</b>	
Citrix XenDesktop 7.6 CU6	
Citrix XenDesktop 7.11	
Citrix XenDesktop 7.12	
Citrix XenDesktop 7.13	Use the latest Citrix and NVIDIA drivers. Refer to the Citrix and NVIDIA GRID websites for the most current driver versions.
Citrix XenDesktop 7.14	
Citrix XenDesktop 7.15 CU4	
Citrix Virtual Apps and Virtual Desktop v 7.1906	
<b>Microsoft:</b>	
Microsoft Hyper-V Server 2012 R2	Microsoft VDI certified with RemoteFX vGPU Windows Device Driver Model (WDDM) 1.2.
Microsoft Hyper-V Server 2016	
Microsoft Hyper-V Server 2019	

# ArcGIS 10.8 System Requirements



## ArcGIS Desktop 10.8 system requirements

<b>VMware:</b>	
VMware vSphere/ESXi 6.5	Use VMware Horizon View 7.0.3 and later only.
VMware vSphere/ESSi 6.7	
VMware Horizon 7.X (currently v 9)	Use the latest VMware and NVIDIA drivers. Refer to the VMware and NVIDIA GRID websites for the most current driver versions.

On-premises application streaming and virtualizing	Notes
Citrix XenApps 7.6 LTSR CU7	Hosted OS: Windows Server 2012 R2 (April 2019 updates or later)
Citrix XenApp 7.11	Windows Server 2016
Citrix XenApp 7.12	Windows Server 2016
Citrix XenApp 7.13	Windows Server 2016
Citrix XenApp 7.14	Windows Server 2016
Citrix XenApp 7.15 LTSR CU4	Windows Server 2016
Citrix Virtual Apps v7.1906	Windows Server 2016

# ArcGIS 10.8 System Requirements



## ArcGIS Desktop 10.8 system requirements

Cloud environments*	Notes
Amazon WorkSpaces Graphics Bundle	ArcGIS works well in Amazon WorkSpaces and Azure instances that have: <ul style="list-style-type: none"> <li>■ Supported operating systems</li> <li>■ Adequate number of processing cores for the workload</li> <li>■ Adequate amount of memory for the workload</li> </ul>
Azure NV6-Series VMs	

ArcGIS Desktop will provide adequate performance and usability in many of the cloud environments. The cloud instance must have adequate CPU, Memory and Disk storage resources to support ArcMap.

### Caution:

Licensing for ArcGIS Desktop may display instability when running in the cloud. It is recommended to use concurrent use licensing for software authorization, where the ArcGIS License Manager is running on a host that is guaranteed to have an immutable hardware configuration. [Download the PDF White Paper Licensing ArcGIS Desktop in Cloud Environments for more information.](#)

### • Hardware requirements

	Supported and Recommended
CPU speed	2.2 GHz minimum; Hyper-threading (HHT) or Multi-core recommended
Platform	x86 or x64 with SSE2 extensions
Memory/RAM	Minimum: 4 GB  Recommended: 8 GB or higher  ArcGlobe may require 8 GB minimum when used.
Display properties	24-bit color depth Also see Video/Graphics adapter requirements below.*
Screen resolution	1024x768 recommended minimum at normal size (96 dpi)

# ArcGIS 10.8 System Requirements



## ArcGIS Desktop 10.8 system requirements

- **Hardware requirements**

Disk space	<p>Minimum: 4 GB</p> <p>Recommended: 6 GB or higher</p> <p>ArcGlobe creates cache files when used. If using ArcGlobe, additional disk space may be required.</p>
Video/Graphics adapter	<p>64 MB RAM minimum; 256 MB RAM or higher recommended. NVIDIA, ATI, and Intel chipsets supported.</p> <p>24-bit capable graphics accelerator</p> <p>OpenGL version 2.0 runtime minimum is required, and Shader Model 3.0 or higher is recommended.</p> <p>Be sure to use the latest available drivers.</p>

# ArcGIS 10.8 System Requirements



## ArcGIS Desktop 10.8 system requirements

- **Software requirements**

	Description
Python requirement	<p>ArcGIS requires Python 2.7.16 and Numerical Python 1.9.3 to be installed. If the ArcGIS setup does not find either Python 2.7.16 or Numerical Python (NumPy) 1.9.3 installed on the target computer, Python 2.7.16 and Numerical Python 1.9.3 will be installed during a complete installation of ArcMap. You can choose a Custom installation to unselect the Python feature and avoid installing it. Additionally, if the Python setup is executed during the ArcMap installation, you will be provided with the opportunity to choose its installation location. The Python installation location should not include spaces.</p> <p>ArcGIS requires Python 2.7.16 and Numerical Python (NumPy) 1.9.3 to be installed. If the ArcGIS setup does not find either Python 2.7.16 or Numerical Python (NumPy) 1.9.3 installed on the target computer, Python 2.7.16 and Numerical Python 1.9.3 will be installed during a complete installation.</p>
Microsoft .NET Framework requirement	Microsoft .NET Framework 4.5.2 or higher must be installed prior to installing ArcMap.
Browser requirement	Microsoft Internet Explorer (minimum IE 11) must be installed prior to installing ArcMap.

- **Printer support**

ArcMap supports printing to any Microsoft certified Windows printer using the native driver in ArcGIS. Note that some printer drivers do not support complex maps, and the ArcPress printer driver or additional hardware may be needed for these complex maps.

**Note:**

The following configuration is recommended when printing large maps with the ArcPress printer drivers:

- If large complex maps do not print, reboot the computer to ensure the pagefile system is cleared. If the pagefile system is not a dedicated drive or partition, make sure the drive does not need to be defragmented.
- Disk Space: At least 10 GB of free space is required on the drive where %TEMP% is located, as potentially large temporary files will be written there while ArcPress is processing a map for printing

# ArcGIS 10.8 System Requirements



## ArcGIS Desktop 10.8 system requirements

- **Software required to connect to a DBMS**

Your client machine (for example, the one running ArcGIS Pro, ArcMap, or ArcGIS Server) must have the appropriate database client files installed for the RDBMS you are using. These client files are available from their respective RDBMS vendors. See Database clients for more information.

- **SDK requirements**

SDK	Supported and Recommended IDE(s)	Requirements
ArcObjects SDK		<a href="#">ArcObjects SDK requirements</a>

**Note:**

At the ArcGIS Desktop 10.5 release, Microsoft Visual Basic for Applications (VBA) Compatibility is no longer included. The VBA Compatibility setup in prior versions can still be installed, but its usage is not supported and may result in software errors or crashes. It is recommended that existing Microsoft VBA users continue to use ArcGIS Desktop 10.2.2 or earlier, or migrate VBA customizations to ArcMap add-ins, ArcPy scripts, or ArcGIS Pro add-ins built with the Pro SDK for .NET



## ArcGIS Pro 2.5 system requirements

- **Supported Platforms**

ArcGIS Pro is supported on the operating systems listed below, given the operating system is also currently supported by its provider for general or public use. Prior and future updates or service packs on these operating systems are supported unless otherwise stated.

Operating system	Latest update or service pack tested
Windows 10 Home, Pro, and Enterprise (64 bit)	November 2019 update
Windows 8.1 Pro and Enterprise (64 bit)	November 2019 update
Windows Server 2019 Standard and Datacenter (64 bit)	November 2019 update
Windows Server 2016 Standard and Datacenter (64 bit)	November 2019 update
Windows Server 2012 R2 Standard and Datacenter (64 bit)	November 2019 update
Windows Server 2012 Standard and Datacenter (64 bit)	November 2019 update

# ArcGIS 10.8 System Requirements



## ArcGIS Pro 2.5 system requirements

- **Hardware requirements**

Item	Supported and recommended
CPU speed	Minimum: 2 cores, hyperthreaded*
	Recommended: 4 cores
	Optimal: 10 cores
Platform	x64 with SSE2 extensions
Memory/RAM	Minimum: 4 GB
	Recommended: 8 GB
	Optimal: 16 GB or more
Display properties	24-bit color depth  Also see <a href="#">Video/Graphics adapter requirements</a> below.
Screen resolution	1024x768 or higher at normal size
Visualization cache	The temporary visualization cache for ArcGIS Pro can consume up to 32 GB of space, if available, in the user-selected location. By default, the visualization cache is written to the user profile.**
Storage	Minimum: 32 GB of free space
	Recommended: 32 GB or more of free space on a solid-state drive (SSD)

\*Hyperthreaded CPUs typically feature two threads per core. A hyperthreaded 2-core CPU will have four threads available for processing, while a hyperthreaded 6-core CPU will have 12 threads available for processing.

\*\*The cache is written by default to the user profile's \Local subfolder, so it does not roam with the user profile if roaming profiles are enabled by your system administrator.

## ArcGIS Pro 2.5 system requirements

- **Video/Graphics adapter requirements**

Refer to the video/graphics adapter requirements below for information on how to achieve the best graphics performance.

Item	Supported and recommended
DirectX*	Minimum: DirectX 11, feature level 11.0, Shader Model 5.0
	Recommended: DirectX 11, feature level 11.0, Shader Model 5.0
OpenGL*	Minimum: OpenGL 4.3 with the EXT_texture_compression_s3tc extension
	Recommended: OpenGL 4.5 with the ARB_shader_draw_parameters, EXT_swap_control, EXT_texture_compression_s3tc, and EXT_texture_filter_anisotropic extensions
Dedicated (not shared) graphics memory**	Recommended: 4 GB or more

\*ArcGIS Pro will automatically use OpenGL if DirectX requirements are not met. You can manually change to OpenGL if you suspect an issue with your driver.

\*\* If you're using a notebook computer with an integrated GPU, consider increasing the system RAM to compensate for the usage of shared memory.

## ArcGIS Pro 2.5 system requirements

- **Software requirements**

The following software must be installed before installing ArcGIS Pro:

Software	Requirement
.NET Framework	Microsoft .NET Framework 4.8 or later
Browser	Microsoft Internet Explorer 11

Three license types are available for ArcGIS Pro 2.5. Depending on the type you use, you may need additional software or access to ArcGIS Online:

- **Named User license**— ArcGIS Pro is licensed through an organizational account on ArcGIS Online or ArcGIS Enterprise. If the license is through ArcGIS Online (the default option), licensing software is not required because ArcGIS Online is a cloud-based service provided by Esri. If the license is through ArcGIS Enterprise, you must install one of the versions indicated in the table below, along with a corresponding supported version of ArcGIS License Manager.

ArcGIS Enterprise	ArcGIS License Manager
10.8	2019.2
10.7.1	2019.2
10.7	2019.2
10.6.1	2019.2
10.6	2019.2

- **Concurrent Use license**— ArcGIS License Manager 2019.2 or later is required to manage ArcGIS Pro 2.5 licenses.
- **Single Use license**—No additional software is required for licensing.

- **SDK requirements**

The minimum requirements to create add-ins using the ArcGIS Pro SDK for .NET are described in the SDK GitHub repository.

- **Virtualization**

In all environments, a GPU that is compatible with your virtualization platform is recommended for the best user experience.

**Note:**

The Virtualization section of the help provides additional information about setting up virtualization environments for ArcGIS Pro.

# ArcGIS 10.8 System Requirements



## ArcGIS Pro 2.5 system requirements

### On-premises virtual desktop infrastructure (VDI)

On-premises virtual desktop infrastructure (VDI)	Notes
Citrix XenDesktop 7.6 LTSR CU7	Use the latest Citrix and NVIDIA drivers. Refer to the Citrix and NVIDIA GRID websites for the most current driver versions.
Citrix XenDesktop 7.15 LTSR CU4	
Citrix Virtual Apps and Virtual Desktop 7 1808.2	
Microsoft Hyper-V Server 2012 R2	Microsoft VDI certified with RemoteFX vGPU Windows Device Driver Model (WDDM) 1.2.
Microsoft Hyper-V Server 2016	
Microsoft Hyper-V Server 2019	
VMware vSphere 6.5	Use VMware Horizon View 7.x and later only.
VMware vSphere 6.7	Use the latest VMware and NVIDIA drivers. Refer to the VMware and NVIDIA GRID websites for the most current driver versions.

# ArcGIS 10.8 System Requirements



## ArcGIS Pro 2.5 system requirements

### On-premises application streaming and virtualizing

On-premises application streaming and virtualizing	Notes
Citrix XenApps 7.6 LTSR CU7	Hosted OS: <ul style="list-style-type: none"><li>• Windows Server 2012 R2 (April 2019 update or later)</li></ul>
Citrix XenApp 7.15 LTSR CU4	Windows Server 2016
Citrix Virtual Apps and Virtual Desktop 7 1808.2	Windows Server 2016

### Note:

- ArcGIS Pro with Citrix XenApp is strongly discouraged because of poor XenApp session/server density. This is based on testing using Windows Server 2012 R2 and 2016.
- ArcGIS Pro provides a nominal level of functionality and performance in the following environments:
  - Microsoft App-V
  - VMware App Volumes

# ArcGIS 10.8 System Requirements



## ArcGIS Pro 2.5 system requirements

### Cloud virtual desktop infrastructure (VDI)

Cloud virtual desktop infrastructure (VDI)	Notes
Amazon WorkSpaces Graphics Bundle	
Azure Nx-Series VMs	<p>Nx6 is recommended because it includes one GPU, and ArcGIS Pro currently doesn't need more than one GPU. Windows 10 client RDP is adequate for most workloads; Teradici technology may be helpful for demanding workloads.</p> <p><b>Note:</b> When using Spatial Analyst tools or machine learning capabilities that leverage GPU, more than one GPU may be helpful to support visualization and computation. Consider this option if running Spatial Analyst tools or machine learning capabilities and the display becomes jerky. Here are the current lists of <a href="#">Spatial Analyst tools</a> and <a href="#">machine learning capabilities</a> that utilize the GPU for computation.</p>

### Cloud application streaming and virtualizing

Cloud application streaming and virtualizing	Notes
AWS AppStream	
Azure Citrix XenApp	

# ArcGIS 10.8 System Requirements



## ArcGIS Server 10.8 system requirements

- **Windows operating system requirements**

The following 64-bit operating systems satisfy the minimum operating system requirements. Support is not provided for 32-bit operating systems; the setup will only proceed if the operating system is 64 bit.

Machines with an underscore ( \_ ) in their names are not supported. Several widely used internet host name specifications have designated the underscore character as nonstandard. Although Microsoft Windows allows you to use the underscore in a machine name, it can cause problems when you interact with other servers and platforms. For this reason, ArcGIS Server will not install on servers that have an underscore in the host name.

ArcGIS Server is not supported on domain controllers. Installing ArcGIS Server on a domain controller may adversely affect functionality.

**Note:**

ArcGIS Enterprise components require the Microsoft Visual C++ 2015–2019 Redistributable (x64) minimum version 14.22.27821. Obtain the Microsoft Visual C++ Redistributable for Visual Studio 2015–2019 file from the Microsoft site. If the required Visual C++ Redistributables are not already installed, running the ArcGIS Server setup.exe file will install them. Running the ArcGIS Server setup.msi file will not install them. Therefore, to run the ArcGIS Server setup.msi, you must first install the Microsoft Visual C++ 2015 - 2019 Redistributables..

Supported operating system	Latest update or service pack tested
Windows Server 2019 Standard and Datacenter (64 bit [EM64T])	Nov 2019 updates
Windows Server 2016 Standard and Datacenter (64 bit [EM64T])	Nov 2019 updates
Windows Server 2012 R2 Standard and Datacenter (64 bit [EM64T])	Nov 2019 updates
Windows Server 2012 Standard and Datacenter (64 bit [EM64T])	Nov 2019 updates

Prior and future updates or service packs on these operating systems are supported unless otherwise stated. The operating system version and updates must also be supported by the operating system provider.

**Note:**

Windows 10 and 8.1 are supported for basic testing and application development use only. They are not recommended for deployment in a production environment.

Supported operating system	Latest update or service pack tested
Windows 10 Pro and Enterprise (64 bit [EM64T])	Nov 2019 updates
Windows 8.1 Pro and Enterprise (64 bit [EM64T])	Nov 2019 updates



## ArcGIS Server 10.8 system requirements

- **Hardware requirements**

The minimum RAM requirement for ArcGIS GIS Server, ArcGIS GeoEvent Server, or ArcGIS Image Server is 8 GB per machine.

For a production environment, minimum hardware requirements are not listed because the user and business needs of the software may vary. These requirements must be considered in determining hardware needs to meet performance and scalability expectations.

ArcGIS GeoAnalytics Server requires a minimum of 16 GB of RAM per machine.

When configuring ArcGIS GeoAnalytics Server, ensure that the drive hosting the user profile has sufficient temporary space available. When determining a sufficient value, consider the input data size, the type of GeoAnalytics task, and the number of nodes in your site.

ArcGIS Server requires a minimum of 10 GB of available disk space.

- **Firewall settings**

ArcGIS Server communicates on specific ports. You need to open these ports on your firewall before installing the software. For more information on the ports ArcGIS Server requires for communication, see [Ports used by ArcGIS Server](#).

- **Domain name service (DNS) and fully qualified domain name (FQDN) recommendations**

If you'll be federating your site with an ArcGIS Enterprise portal, it's recommended you configure your organization's domain name service (DNS) to include fully qualified domain name (FQDN) entries for each site you intend to federate with the portal. Portal for ArcGIS will request the FQDN of each site when you federate.

- **SSL certificates**

ArcGIS Server comes configured with a self-signed certificate, which allows you to do initial testing of the ArcGIS Server site and helps you quickly verify that your installation was successful. You must request a certificate from a trusted certificate authority (CA) and configure the ArcGIS Server site to use it. This could be a domain certificate issued by your organization or a CA-signed certificate.

Like ArcGIS Server, Portal for ArcGIS also comes with a configured self-signed certificate. If you'll be federating an ArcGIS Server site with an ArcGIS Enterprise portal, you should request a certificate from a trusted CA and configure the portal to use it. For more information, see [Best practices for configuring a secure environment](#).

- **Microsoft .NET Framework requirement for .NET Extension Support feature**

The .NET Extension Support feature requires Microsoft .NET Framework 4.5.2 or higher. If Microsoft .NET Framework 4.5.2 is not found, the .NET Extension Support feature will not be available for installation.

If your operating system includes Microsoft .NET Framework 4.5.2, make sure it's enabled using Windows Features. If your operating system does not include Microsoft .NET Framework 4.5.2, you can download it from the installation media and enable it using Windows Features.

## ArcGIS Server 10.8 system requirements

- **Microsoft Core XML Services (MSXML) 6**

ArcGIS Server requires Microsoft Core XML Services (MSXML) 6. The ArcGIS Server installation will not proceed if MSXML 6 is not found on the machine. If the ArcGIS Server installation is performed through the GUI, the installation process automatically installs it for you. If you're installing ArcGIS Server silently or in certain deployment environments, MSXML 6 must be installed separately. The MSXML 6 setup is available at <ArcGIS Server Installation folder>\Support\MSXML6\64-bit\msxml6\_x64.msi..

- **Geoprocessing requirements**

Python 2.7.16, Numerical Python 1.9.3, and Matplotlib 1.5.2 are required to support certain core geoprocessing tools. If these are not detected, the setup will install them automatically (recommended).

- **Page file size requirements**

Ensure that a sufficient page file size is configured for the ArcGIS Server machine. You should consult with your IT administrator or follow best practices from Microsoft.

When using ArcGIS GeoAnalytics Server, the Windows page file can use up to 3X available physical RAM when working on memory-intensive tasks. To avoid system failures and depleted disk space, move the page file to a volume with at least 3X physical RAM available space.

- **Supported web browsers**

ArcGIS Server Manager requires one of the following web browsers:

- Google Chrome
- Mozilla Firefox
- Microsoft Internet Explorer 11 \*
- Microsoft Edge

\*Use of Internet Explorer 11 with ArcGIS Enterprise is deprecated at this release. Esri highly encourages you to move to one of the other browsers listed above. While Internet Explorer 11 is still supported with the current release of ArcGIS Enterprise, use of Internet Explorer 11 is generally discouraged, and support will be discontinued at a future release. Additional notice will be provided prior to the removal of support.

- **ArcGIS Enterprise on cloud platforms**

You can deploy ArcGIS Enterprise on many cloud platforms. Any cloud platform that provides virtual machines that meet the basic system requirements for operating system and system specifications is supported for use with ArcGIS Enterprise.

In addition to basic support, Esri provides deployment tooling and prebuilt virtual machine images on two cloud platforms: Amazon Web Services (AWS) and Microsoft Azure. When deploying on these two cloud platforms, it's recommended that you use the specialized tooling and images to simplify deployment and technical support.

# ArcGIS 10.8 System Requirements



Esri does not provide technical support for provisioning and configuring cloud infrastructure beyond what ArcGIS Enterprise deployment tooling creates and manages as part of its normal operations. For cloud platforms for which Esri does not provide specialized deployment tooling, support is limited to troubleshooting software-specific issues.

ArcGIS Enterprise also supports native cloud functionality such as storage and databases on several cloud platforms. Examples include Amazon Simple Storage Service (S3) and Microsoft Azure SQL Database. See the documentation for each ArcGIS component for information on the native cloud functionality that's supported.

- **Supported virtualization environments**

All components of ArcGIS Enterprise are fully supported on virtual environments as long as they run on supported operating systems. When running third-party applications with ArcGIS Enterprise, such as relational databases, the application must also be supported in a virtual environment. Check the third-party vendor for its virtualization support.

The following virtualization environments are known to perform well with ArcGIS Enterprise and its components:

- VMware vSphere 6.5, 6.7
- Microsoft Hyper-V

- **Supported databases**

See supported database management systems for information on databases supported with ArcGIS Server:

- Cloud-based databases as a service
  - Microsoft Azure SQL Database
  - Microsoft Azure Database for PostgreSQL
  - Amazon Aurora PostgreSQL
  - Amazon Relational Database Service (RDS) for PostgreSQL
  - Amazon RDS for SQL Server
- Dameng
- IBM Db2
- IBM Informix
- Microsoft SQL Server
- Oracle
- PostgreSQL
- SAP HANA
- SQLite
- Teradata Data Warehouse Appliance

Workgroup edition database servers use SQL Server Express and work with ArcGIS Server sites. These database servers and ArcGIS Server sites are supported on Windows operating systems only

# ArcGIS 10.8 System Requirements



## Portal for ArcGIS 10.8 system requirements

- **Windows Operating system requirements**

The following 64-bit operating systems satisfy the minimum operating system requirements. Support is not provided for 32-bit operating systems; the setup will only proceed if the operating system is 64 bit.

Machines with an underscore ( \_ ) in their names are not supported. Several widely used internet host name specifications have designated the underscore character as nonstandard. Although Windows allows you to use the underscore in a machine name, it can still cause problems when you interact with other servers and platforms. For this reason, Portal for ArcGIS will not proceed with installation on servers that have an underscore in the host name.

Portal for ArcGIS is not supported on domain controllers. Installing Portal for ArcGIS on a domain controller may adversely affect functionality..

**Note:**

ArcGIS Enterprise components require the Microsoft Visual C++ 2015–2019 Redistributable (x64) minimum version 14.22.27821. Obtain the Microsoft Visual C++ Redistributable for Visual Studio 2015–2019 file from the Microsoft site.

If the required Visual C++ Redistributables are not installed, running the Portal for ArcGIS setup.exe file will install them. Running the Portal for ArcGIS setup.msi file will not install the Microsoft Visual C++ Redistributables (x64). Therefore, if you want to run the Portal for ArcGIS setup.msi, you must first install the Microsoft Visual C++ 2015, 2017 and 2019 Redistributables (x64)

Supported operating system	Latest update or service pack tested
Windows Server 2019 Standard and Datacenter (64 bit [EM64T])	Nov 2019 updates
Windows Server 2016 Standard and Datacenter (64 bit [EM64T])	Nov 2019 updates
Windows Server 2012 R2 Standard and Datacenter (64 bit [EM64T])	Nov 2019 updates
Windows Server 2012 Standard and Datacenter (64 bit [EM64T])	Nov 2019 updates

**Note:**

Windows 10 and 8.1 are supported for basic testing and application development use only. They are not recommended for deployment in a production environment.

Supported operating system	Latest update or service pack tested
Windows 10 Pro and Enterprise (64 bit [EM64T])	Nov 2019 updates
Windows 8.1 Pro and Enterprise (64 bit [EM64T])	Nov 2019 updates

## Portal for ArcGIS 10.8 system requirements

- **Hardware requirements**

- Processor: 2 cores minimum for development and testing, 4 cores minimum highly recommended for production systems
- Memory/RAM: 8 GB
- Disk space: 10 GB

All content created by your users will also be stored on disk. Carefully consider how data will be uploaded and created by your users and allocate disk space accordingly. If desired, you can change the location of where the portal stores its content after installing the software.

- **Firewall settings**

Portal for ArcGIS communicates through specific ports. You'll need to open these ports on your firewall before installing the software. For information on the ports Portal for ArcGIS requires for communication, see [Ports used by Portal for ArcGIS](#).

- **Domain name service (DNS) and fully qualified domain name (FQDN) requirements**

Your organization's domain name service (DNS) must include an entry of the fully qualified domain name (FQDN) of the machine hosting Portal for ArcGIS. Similarly, if you'll be using ArcGIS Server with your portal, it's recommended that you include FQDN entries for each site you intend to federate with Portal for ArcGIS.

**Note:**

Portal only supports a single DNS name.

Optionally, you can configure your DNS to use a friendly name for the portal (for example, friendly.domain.com instead of portal.domain.com). When doing this, assign the name to the portal machine before you install the software. Then use the friendly name when setting up the portal. For example, setup activities that require use of the friendly name include the following:

- Configure ArcGIS Web Adaptor with your portal.
- Federate an ArcGIS Server site with your portal.
- Add Portal for ArcGIS to your organization's reverse proxy server. If you're not using a reverse proxy server, it's recommended that you assign a friendly name to the machine hosting ArcGIS Web Adaptor.

**Caution:**

If you configure a friendly DNS name after setting up your portal, existing items in the portal may become unusable, as they will include the nonfriendly name. You'll need to manually re-create each item to use them again.

## Portal for ArcGIS 10.8 system requirements

- **SSL certificates**

Portal for ArcGIS is configured with a self-signed server certificate, which allows you to do initial testing of the portal and helps you quickly verify that your installation was successful. You must request a certificate from a trusted certificate authority (CA) and configure the portal to use it. The certificate can be signed by a corporate (internal) or commercial CA.

You should configure each applicable ArcGIS component in your organization with a certificate from a corporate or commercial CA. Common examples include ArcGIS Web Adaptor and ArcGIS Server. For example, ArcGIS Server includes a configured self-signed certificate. If you'll be federating an ArcGIS Server site with your portal, it's very important that you request a CA-signed certificate and configure the ArcGIS Server site and Web Adaptor to use it.

- **ArcGIS Web Adaptor**

ArcGIS Web Adaptor is a required component of Portal for ArcGIS that allows you to integrate your portal with your existing web server and your organization's security mechanisms. You cannot deploy Portal for ArcGIS in your organization without the Web Adaptor.

You can only use the Web Adaptor with port 80 or 443. Using other ports is not supported. See the ArcGIS Web Adaptor documentation for details.

- **Supported web browsers**

For the best performance in the portal website, use the latest versions of the browsers listed below. The website leverages the local storage capabilities (similar to cookies) of the browser. If this storage is disabled, the site will not function properly. To learn how to enable local storage, consult the browser's documentation.

- Google Chrome
- Microsoft Edge
- Microsoft Internet Explorer 11\* (Active scripting must be enabled for the portal website to function correctly.)
- Mozilla Firefox
- Safari
- Android Browser
- Chrome for Android

\*Use of Internet Explorer 11 with ArcGIS Enterprise is deprecated at this release. Esri highly encourages you to move to one of the other browsers listed above. While Internet Explorer 11 is still supported with the current release of ArcGIS Enterprise, use of Internet Explorer 11 is generally discouraged, and support will be discontinued at a future release. Additional notice will be provided prior to the removal of support.

Scene Viewer has its own browser and hardware requirements. Some of the common clients of Portal for ArcGIS have different requirements. See their documentation for details

# ArcGIS 10.8 System Requirements



## Portal for ArcGIS 10.8 system requirements

- **External access**

If you'll be using services provided by Esri, such as basemaps, ArcGIS Living Atlas of the World content, and data from ArcGIS Online, the machine hosting Portal for ArcGIS must have access to the internet. If your portal will not have access to the internet, you'll need to perform some additional configuration steps to ensure that your portal is pointing to local resources. For instructions, see [Configure a disconnected deployment](#).

- **Supported virtualization environments**

All components of ArcGIS Enterprise are fully supported on virtual environments as long as they run on supported operating systems. When running third-party applications with ArcGIS Enterprise, such as relational databases, the application must also be supported in a virtual environment. Check the third-party vendor for its virtualization support.

The following virtualization environments are known to perform well with ArcGIS Enterprise and its components:

- VMware vSphere 6.5, 6.7
- Microsoft Hyper-V

## ArcGIS Data Store 10.8 system requirements

- **Windows Operating system requirements**

The following 64-bit operating systems satisfy the minimum operating system requirements. Support is not provided for 32-bit operating systems; the setup will only proceed if the operating system is 64 bit.

Machines with an underscore ( \_ ) in their names are not supported. Several widely used internet host name specifications have designated the underscore character as nonstandard. Although Microsoft Windows allows you to use the underscore in a machine name, it can still cause problems when you interact with other servers and platforms. For this reason, ArcGIS Data Store will not proceed with installation on servers that have an underscore in the host name.

ArcGIS Data Store is not supported on domain controllers. Installing ArcGIS Data Store on a domain controller may adversely affect functionality.

**Note:**

ArcGIS Enterprise components require the Microsoft Visual C++ 2015–2019 Redistributable (x64) minimum version 14.22.27821. Obtain the Microsoft Visual C++ Redistributable for Visual Studio 2015–2019 file from the Microsoft site.

If the required Visual C++ Redistributables are not installed, running the ArcGIS Data Store setup.exe file will install them. Running the ArcGIS Data Store setup.msi file will not install the Microsoft Visual C++ Redistributables (x64). Therefore, if you want to run the ArcGIS Data Store setup.msi, you must install the Microsoft Visual C++ 2015 - 2019 Redistributables (x64) first.

Supported operating system	Latest update or service pack tested
Windows Server 2019 Standard and Datacenter (64 bit [EM64T])	Nov 2019 updates
Windows Server 2016 Standard and Datacenter (64 bit [EM64T])	Nov 2019 updates
Windows Server 2012 R2 Standard and Datacenter (64 bit [EM64T])	Nov 2019 updates
Windows Server 2012 Standard and Datacenter (64 bit [EM64T])	Nov 2019 updates

Prior and future updates or service packs on these operating system versions are supported unless otherwise stated. The operating system version and updates must also be supported by the operating system provider.

**Note:**

Windows 10 and 8.1 are supported for basic testing and application development use only. They are not recommended for deployment in a production environment.

Supported operating system	Latest update or service pack tested
Windows 10 Pro and Enterprise (64 bit [EM64T])	Nov 2019 updates
Windows 8.1 Pro and Enterprise (64 bit [EM64T])	Nov 2019 updates



## ArcGIS Data Store 10.8 system requirements

- **Disk space requirements**

To install and configure ArcGIS Data Store requires a minimum of 13 GB of available disk space on the system drive. This is the minimum disk space requirement for a machine with one empty data store type; it does not take into account the data you will store in the data store or backup files that might be stored on the machine. Given this requirement, you should plan to install ArcGIS Data Store on machines with large quantities of available disk space.

**Note:**

When a relational or tile cache data store machine contains less than 10 GB of free disk space, ArcGIS Data Store begins logging warnings that you are running out of disk space. When free disk space on spatiotemporal big data store machines reaches 20 percent, ArcGIS Data Store begins logging warnings that you are running out of disk space. Monitor your data store logs so you are aware when a machine begins to run out of disk space. Once the disk drive contains less than 1 GB of free space, relational data stores are placed in read-only mode, and tile cache and spatiotemporal big data stores are shut down.

To determine the amount of disk space needed on a dedicated ArcGIS Data Store machine, you need to take all of the following into consideration:

- The software installation uses 800 MB of disk space.
- Each data store uses an additional amount of space when created and still empty:
  - Tile cache data store = 1 MB
  - Spatiotemporal big data store = 200 MB
  - Relational data store = 2.5 GB\*

\*An empty relational data store uses up to 2.5 GB of disk space over time, to support high availability and a reliable backup policy. Upon configuration of the relational data store, approximately 200 MB of disk space is used. The amount of disk space used by the empty relational data store will grow by about 200 MB per hour over the course of 11 hours until settling at 2.5 GB at that time. Data stored in the system during use is in addition to this baseline storage requirement.

- You need to estimate the amount of disk space needed for the data stored in the data stores.
- Backup files stored on the data store machine also consume disk space. If you do not configure backups to be written to a shared location, you must plan for this additional use of disk space.

## ArcGIS Data Store 10.8 system requirements

- **Memory requirements**

The minimum memory required to configure a single, empty ArcGIS Data Store on a machine varies by type. Meeting the minimum free memory requirements ensures the data store will start. Once in use, additional memory is required.

The following minimum memory requirements assume you install each type of ArcGIS Data Store on its own machine; no other data store type or ArcGIS Enterprise component is installed on the machine. Amounts listed reflect the amount of free memory that must be available on the machine before installing ArcGIS Data Store and configuring a data store.

- Relational data store = 8 GB
- Spatiotemporal big data store = 16 GB
- Tile cache data store = 8 GB

- **Firewall settings**

ArcGIS Data Store uses specific ports to communicate with the portal, the hosting server, and machines inside the data store.

- HTTPS port—ArcGIS Data Store is accessed via secured port 2443.
- Data store ports—Relational data stores communicate through port 9876. Tile cache data stores communicate through ports 29080 and 29081. Spatiotemporal big data stores communicate through ports 9220 and 9320.

- **Supported web browsers**

ArcGIS Data Store administration resources and the Data Store Configuration wizard require one of the following web browsers:

- Google Chrome
- Mozilla Firefox
- Microsoft Internet Explorer 11\*
- Microsoft Edge

\*Use of Internet Explorer 11 with ArcGIS Enterprise is deprecated at this release. Esri highly encourages you to move to one of the other browsers listed above. While Internet Explorer 11 is still supported with the current release of ArcGIS Enterprise, use of Internet Explorer 11 is generally discouraged, and support will be discontinued at a future release. Additional notice will be provided prior to the removal of support

## ArcGIS Data Store 10.8 system requirements

- **ArcGIS Enterprise on cloud platforms**

You can deploy ArcGIS Enterprise on many cloud platforms. Any cloud platform that provides virtual machines that meet the basic system requirements for operating system and system specifications is supported for use with ArcGIS Enterprise.

In addition to basic support, Esri provides deployment tooling and prebuilt virtual machine images on two cloud platforms: Amazon Web Services (AWS) and Microsoft Azure. When deploying on these two cloud platforms, it's recommended that you use the specialized tooling and images to simplify deployment and technical support.

Esri does not provide technical support for provisioning and configuring cloud infrastructure beyond what ArcGIS Enterprise deployment tooling creates and manages as part of its normal operations. For cloud platforms for which Esri does not provide specialized deployment tooling, support is limited to troubleshooting software-specific issues.

ArcGIS Enterprise also supports native cloud functionality such as storage and databases on several cloud platforms. Examples include Amazon Simple Storage Service (S3) and Microsoft Azure SQL Database. See the documentation for each ArcGIS component for information on the native cloud functionality that's supported.

- **Supported virtualization environments**

All components of ArcGIS Enterprise are fully supported on virtual environments as long as they run on supported operating systems. When running third-party applications with ArcGIS Enterprise, such as relational databases, the application must also be supported in a virtual environment. Check the third-party vendor for its virtualization support.

The following virtualization environments are known to perform well with ArcGIS Enterprise and its components:

- VMware vSphere 6.5, 6.7
- Microsoft Hyper-V

## ArcGIS Web Adaptor 10.8 system requirements

- **Operating system and application/web server requirements (IIS)**

The following Microsoft Windows operating systems are supported. The IIS web server versions available on these operating systems are supported for use with ArcGIS Web Adaptor (IIS). Updates on these operating systems and web servers are supported unless otherwise stated

Supported operating system	Latest update or service pack tested
Windows Server 2019 Standard and Datacenter (64 bit [EM64T])	Nov 2019 updates
Windows Server 2016 Standard and Datacenter (64 bit [EM64T])	Nov 2019 updates
Windows Server 2012 R2 Standard and Datacenter (64 bit [EM64T])	Nov 2019 updates
Windows Server 2012 Standard and Datacenter (64 bit [EM64T])	Nov 2019 updates

Prior and future updates or service packs on these operating system versions are supported unless otherwise stated. The operating system version and updates must also be supported by the application or web server provider.

**Note:**

Windows 10 and 8.1 are supported for basic testing and application development use only. They are not recommended for deployment in a production environment.

Supported operating system	Latest update or service pack tested
Windows 10 Pro and Enterprise (64 bit [EM64T])	Nov 2019 updates
Windows 8.1 Pro and Enterprise (64 bit [EM64T])	Nov 2019 updates

## ArcGIS Web Adaptor 10.8 system requirements

- **Application and web server and operating system requirements for ArcGIS Web Adaptor (Java Platform)**

The following application/web servers are supported on these operating systems:

- Apache Tomcat 7.0.92, 8.5.35, and 9.0.19
- GlassFish 4.1.1
- IBM WebSphere 8.5.5.9 and 9
- JBoss Enterprise Application Platform 7
- Oracle WebLogic 12c R1 and R2

Updates on these application/web servers are supported unless otherwise stated.

**Note:**

Please verify that the internal Java Development Kit (JDK) used by your application server, where the Java Web Adaptor is deployed, is at a minimum of JDK 8 update 191. JDK version 8 Update 191 or later is supported when building SOEs and SOIs. Building SOEs or SOIs with Java 9 or higher is not supported.

Supported operating system	Latest update or service pack tested
Windows Server 2019 Standard and Datacenter (64 bit [EM64T])	Nov 2019 updates
Windows Server 2016 Standard and Datacenter (64 bit [EM64T])	Nov 2019 updates
Windows Server 2012 R2 Standard and Datacenter (64 bit [EM64T])	Nov 2019 updates
Windows Server 2012 Standard and Datacenter (64 bit [EM64T])	Nov 2019 updates

- **Java support (for Windows)**

ArcGIS Web Adaptor 10.8 supports Java 8.x and 12.x.

**Legacy:**

ArcGIS Web Adaptor 10.4.x supported Java 7.x and 8.x. ArcGIS Web Adaptor 10.5.x and 10.6.x support only Java 8.x.

ArcGIS Web Adaptor 10.7.x supported Java 8.x and 12.x

- **Maximum installation instances**

You can install a maximum of 21 instances of ArcGIS Web Adaptor (IIS) on a single machine. If more instances are required, install them on a separate machine.

If you have earlier versions installed on the machine, you are not required to uninstall them. For example, you can have 5 instances of ArcGIS Web Adaptor 10.4 and 21 instances of ArcGIS Web Adaptor 10.8 installed on the same machine. The maximum value only applies to instances of the same software version.

## ArcGIS Web Adaptor 10.8 system requirements

- **Microsoft .NET Framework 4.5.2 support**

ArcGIS Web Adaptor (IIS) requires Microsoft .NET Framework 4.5.2 or later to be installed. If your operating system includes Microsoft .NET Framework 4.5.2, make sure it's enabled using Windows Features. If your operating system does not include Microsoft .NET Framework 4.5.2, you can download it from the installation media and enable it using Windows Features.

- **Microsoft IIS required components**

ArcGIS Web Adaptor (IIS) supports IIS in Windows 8.1, 10, Server 2012, 2012 R2, 2016, and 2019 Standard/DataCenter. This corresponds to IIS versions 8.0, 8.5, and 10. IIS must be enabled along with specific IIS 8.0, 8.5, and 10 components. The setup will not proceed if IIS is not detected and specific IIS components enabled.

If you already have IIS 8.0, 8.5, or 10 installed but are missing required IIS components, the setup will display the IIS requirements verification dialog box. This gives you the option to allow the installation to automatically enable any missing required IIS components. To do this, click I agree. To learn more, see the Automatically enabling IIS components section.

**Note:**

If you're going to perform a silent installation of ArcGIS Web Adaptor, all required IIS components must be enabled manually. The setup will not automatically enable missing IIS components when you're performing a silent installation.

- **Supported web browser**

The Web Adaptor Configuration wizard supports the following web browsers:

- Google Chrome
- Mozilla Firefox
- Microsoft Internet Explorer 11\*
- Microsoft Edge

\*Use of Internet Explorer 11 with ArcGIS Enterprise is deprecated at this release. Esri highly encourages you to move to one of the other browsers listed above. While Internet Explorer 11 is still supported with the current release of ArcGIS Enterprise, use of Internet Explorer 11 is generally discouraged, and support will be discontinued at a future release. Additional notice will be provided prior to the removal of support.

## ArcGIS Notebook Server 10.8 system requirements

- **Hardware requirements**

The minimum RAM requirement for an ArcGIS Notebook Server node is 8 GB. For a production environment, minimum hardware requirements are not listed because the user and business needs of the software may vary. These requirements must be considered in determining hardware needs to meet performance and scalability expectations. ArcGIS Notebook Server requires a minimum of 50 GB of available disk space.

- **Firewall setting**

ArcGIS Notebook Server communicates on port 11443. You'll need to open this port on your firewall before installing the software.

To communicate with the ArcGIS Enterprise portal with which it's federated, ArcGIS Notebook Server needs access to port 7443 on the portal machine.

- **Operating system requirements**

The following 64-bit operating systems satisfy the minimum operating system requirements. Support is not provided for 32-bit operating systems; the setup will only proceed if the operating system is 64 bit.

Only Windows Server 2019 is supported by ArcGIS Notebook Server 10.8 for production systems

**Note:**

*If you are upgrading ArcGIS Notebook Server on a machine currently running Windows Server 2016, you must also upgrade your operating system to Windows Server 2019. See [Upgrade ArcGIS Notebook Server for steps](#)*

Windows 10 Pro and Windows 10 Enterprise are supported for basic testing of single-machine sites and application development use only. Windows 10 is not recommended for deployment in a production environment and does not support multiple-machine sites.

Machines with an underscore ( `_` ) in the name are not supported. The setup will not proceed if an underscore is detected in the machine name.

The operating system of your ArcGIS Notebook Server machines can be different from those of the other machines in your ArcGIS Enterprise deployment. The most common scenario for this is to deploy ArcGIS Notebook Server on Linux machines while the rest of the ArcGIS Enterprise deployment is on Microsoft Windows machines.

Several Internet host name specifications have designated the underscore character as nonstandard. Although Microsoft Windows allows the underscore in a machine name, it can still cause problems when you interact with other servers and platforms. For this reason, ArcGIS Notebook Server will not install on servers that have an underscore in the host name.

ArcGIS Notebook Server is not supported on domain controllers. Installing ArcGIS Notebook Server on a domain controller may adversely affect functionality.

Prior and future updates or service packs on these operating system versions are supported unless otherwise stated. The operating system version and updates must also be supported by the operating system provider.

## ArcGIS Notebook Server 10.8 system requirements

- **SSL certificates**

ArcGIS Notebook Server is preconfigured with a self-signed certificate that allows the server to be initially tested and to help you quickly verify that your installation was successful.

You must request a certificate from a trusted certificate authority (CA) and configure ArcGIS Notebook Server to use it. This can be a domain certificate issued by your organization or a CA-signed certificate. The certificate must have a Subject Alternative Name (SAN) configured, or ArcGIS Notebook Server will not work properly.

**Note:**

Certificates created using IIS do not have the option to include a SAN. Use the script in Create a domain certificate, which includes a SAN, with the certificate created.

Portal for ArcGIS also includes a preconfigured self-signed certificate. Because you'll federate an ArcGIS Notebook Server site with your portal, request a certificate from a trusted CA and configure the portal to use it.

- **Software prerequisites**

Before installing ArcGIS Notebook Server, you must have at least a base deployment of ArcGIS Enterprise ready. During the setup process, you will federate your new ArcGIS Notebook Server site with your ArcGIS Enterprise portal. ArcGIS Notebook Server can be installed on a machine that has other ArcGIS Enterprise software (of the same version) installed.

- ArcGIS Notebook Server requires Docker runtime (17.0 or later) to be installed. Follow the steps in Install Docker for ArcGIS Notebook Server to install the appropriate edition of Docker.
- ArcGIS Notebook Server requires the Hyper-V role to already be installed on Windows Server 2016, Windows Server 2019, and Windows 10. Refer to the Microsoft documentation on how to install the Hyper-V role for Windows Server 2016 or Windows Server 2019 and for Windows 10.

**Note :**

Certain virtualization environments do not allow Hyper-V to be enabled and operated in Windows. As a result, ArcGIS Notebook Server cannot be installed and operated in such environments. Before you install ArcGIS Notebook Server, ensure that Docker is installed on your machine and supports Linux containers

- Starting at 10.8, instances of ArcGIS Web Adaptor running on IIS web servers enable the WebSocket protocol by default. No action is needed. Previously, enabling WebSocket was an essential part of ArcGIS Notebook Server installation, as the protocol is required for notebooks to work with the Web Adaptor.



# ArcGIS 10.8 System Requirements



## ArcGIS Notebook Server 10.8 system requirements

- **Domain name service and fully qualified domain name recommendations**

It's recommended that you configure your organization's domain name service (DNS) to include fully qualified domain name (FQDN) entries for the ArcGIS Notebook Server site. Portal for ArcGIS will request the FQDN of the site when you federate.

- **Supported web browsers**

The ArcGIS Notebook Server Configuration Wizard requires one of the following web browsers to be installed:

- Google Chrome
- Mozilla Firefox
- Microsoft Edge

\*Microsoft Internet Explorer is not recommended when using ArcGIS Notebook Server.

## Microsoft SQL Server database requirements for ArcGIS 10.8

- **Supported database versions**
  - Enterprise/Standard/Developer\* editions
    - Microsoft SQL Server 2019 (64-bit)
    - Microsoft SQL Server 2019 on Linux (64-bit)
    - Microsoft SQL Server 2017 (64-bit)
    - Microsoft SQL Server 2017 for Linux (64-bit)
    - Microsoft SQL Server 2016 (64-bit)
    - Microsoft SQL Server 2014 SP3 (64-bit)
  - Express editions
    - Microsoft SQL Server 2019 (64-bit)
    - Microsoft SQL Server 2017 (64-bit)
    - Microsoft SQL Server 2016 (64-bit)
    - Microsoft SQL Server 2014 SP3 (64-bit)

**Note:**

\*Developer edition is only supported in non-production environments.

- **Supported operating systems**

If your database management system is installed on a server where ArcGIS products are installed, the server operating system must meet the ArcGIS product system requirements as well as the operating system requirements for your SQL Server version.

If your database is not installed on the same server as an ArcGIS product, see the Microsoft documentation for operating system requirements for your SQL Server version.

## Microsoft SQL Server database requirements for ArcGIS 10.8

- **Software required to connect to SQL Server**

Any client machines that connect directly to SQL Server must have a SQL Server client installed. SQL Server clients for Microsoft Windows and Linux are distributed by Microsoft. SQL Server clients for Windows are also available on My Esri. You must install a client that is the same version or a newer version than the SQL Server database to which you want to connect. If you upgrade SQL Server, upgrade the SQL Server clients at the same time. When a version of SQL Server is no longer supported by ArcGIS, the corresponding SQL Server client library will no longer be supported either.

Supported SQL Server clients are as follows:

- SQL Server 2019
  - Microsoft ODBC Driver 17 for SQL Server
- SQL Server 2017
  - Microsoft ODBC Driver 17 for SQL Server
- SQL Server 2016
  - Microsoft ODBC Driver 17 for SQL Server
  - Microsoft ODBC Driver 13 or 13.1 for SQL Server
- SQL Server 2014 SP3
  - Microsoft ODBC Driver 17 for SQL Server
  - Microsoft ODBC Driver 13 or 13.1 for SQL Server
  - Microsoft ODBC Driver 11 for SQL Server
  -

**Note:**

When connecting from ArcGIS Server on Ubuntu to a supported version of SQL Server, you must install the Microsoft unixodbc-dev package on all ArcGIS Server machines in addition to the ODBC driver.

## Oracle database requirements for ArcGIS 10.8

- **Supported database versions**

Standard/Standard One/Enterprise Editions :

- Oracle 11g R2 (64 bit) 11.2.0.4

Standard 2 (SE2)/ Enterprise (EE) Editions :

- Oracle 12c R1 (64 bit) 12.1.0.2
- Oracle 12c R1 (64 bit) 12.2.0.1
- Oracle 18c (64 bit) 18.3.0.0, 18.4.0.0
- Oracle 19c (64 bit) 19.3.0.0

- **Supported operating systems**

If your database management system is installed where ArcGIS products are installed, the operating system must meet the ArcGIS product system requirements as well as the operating system requirements for your Oracle version.

If your database is not installed on the same server as an ArcGIS product, see the Oracle documentation for operating system requirements for your Oracle version.

### **Additional requirements for the ST\_Geometry shape library**

Esri supports the following four operating systems when you use the ST\_Geometry shape library and configure Oracle external procedure (extproc). Minimum operating system versions are listed if the minimum version that Esri supports differs from what Oracle databases support.

- IBM AIX (64 bit) - For Oracle 11.2.0.4, the minimum supported version is IBM AIX 6.1.0.0.
- Linux (64 bit)—For Oracle 11.2.0.4, the minimum supported version is Red Hat Enterprise Linux (RHEL) Server AS/ES 5 - update 11.
- Solaris (64 bit) - For Oracle 11.2.0.4, the minimum supported version is Solaris 10 SPARC.
- Microsoft Windows (64 bit)

On Windows, you need the latest Microsoft Visual C++ Redistributable for Visual Studio 2015, 2017, and 2019 installed on the Oracle database machine. See the latest supported Visual C++ downloads from Microsoft support for more information.

- Support for Oracle Linux is based on Oracle documentation that Oracle Linux is compatible—both source and binary—with Red Hat Enterprise Linux Server. See the Oracle Linux FAQ on the Oracle website.
- Support for the Oracle Exadata Database Machine is based on Oracle guidance that OEM software that supports both Oracle Linux and Oracle RAC is compatible with Oracle Exadata.
- A new option starting with Oracle 12c, called Multitenant Architecture, consisting of a container database that can hold many pluggable databases, is supported at the pluggable database level. ArcGIS supports the same functionality in pluggable databases as is supported for Oracle 11g R2.

## Oracle database requirements for ArcGIS 10.8

- **Database requirements and limitations**

Branch versioning is supported at Oracle 12.1.0.2 and above.

The Oracle Text component must be installed. The Text component is installed by default in Oracle; however, if you did not perform a default installation, the Text component may not have been installed.

- **Oracle database patch support**

See Oracle Support for all Oracle patch set (and Interim Patch) documentation and installation instructions. Esri recommends making a full backup of your Oracle database prior to applying any Oracle patch sets or interim patches. If functionality that was working prior to applying the Oracle patch set or interim patch stops working, return to the previous version of Oracle. Contact Oraclesupport as needed.

- **Software required to connect to a DBMS**

Your client machine (for example, the one running ArcGIS Pro, ArcMap, or ArcGIS Server) must have the appropriate database client files installed for the RDBMS you are using. These client files are available from their respective RDBMS vendors. See Database clients for more information.

**Note:**

ArcGIS clients connecting to Oracle must use an Oracle 12c or newer client.

## PostgreSQL database requirements for ArcGIS 10.8

- **Minimum supported database versions**

The following versions of PostgreSQL and PostGIS are supported with ArcGIS. The specific versions listed are the minimum minor version supported and certified for each supported major release of PostgreSQL and PostGIS. Newer minor versions are supported but are not certified. Pursuant to the PostgreSQL definition, the number in the y position of the PostgreSQL version denotes a minor version in a PostgreSQL 9.x.y release. For PostgreSQL 10.x and later releases, the number in the x position indicates a minor version.

- PostgreSQL 11.5 (64 bit)
  - PostGIS 2.5.1
- PostgreSQL 10.10 (64 bit)
  - PostGIS 2.4
- PostgreSQL 9.6.15 (64 bit)
  - PostGIS 2.3

- **Supported operating systems**

If you use a geodatabase in PostgreSQL or use the ST\_Geometry type in a PostgreSQL database, the following operating systems have been tested and are the minimum supported version. Future updates or service packs on these operating system versions are supported and assumed to work unless otherwise stated. The operating system version and updates must also be supported by the operating system provider.

- **Microsoft Windows**

To use a geodatabase or the ST\_Geometry type in PostgreSQL on Windows, you need the latest Microsoft Visual C++ Redistributable for Visual Studio 2015, 2017, and 2019 installed on the PostgreSQL machine. See the latest supported Visual C++ downloads from Microsoft support for more information.

Supported operating systems	Latest update or service pack tested
Windows Server 2019 Standard and Datacenter (64 bit [EM64T])	Aug 2019 updates
Windows Server 2016 Standard and Datacenter (64 bit [EM64T])	Aug 2019 updates
Windows Server 2012 R2 Standard and Datacenter (64 bit [EM64T])	Aug 2019 updates
Windows Server 2012 Standard and Datacenter (64 bit [EM64T])	Aug 2019 updates

**Note:**

Windows 10 and 8.1 are supported for basic testing and application development use only. They are not recommended for deployment in a production environment.

# ArcGIS 10.8 System Requirements



## PostgreSQL database requirements for ArcGIS 10.8

- **Linux**

The following Linux operating systems have been tested:

Supported operating systems	Latest update or service pack tested
Red Hat Enterprise Linux (RHEL) Server 7	Update 7
Red Hat Enterprise Linux Server 6	Update 10
SUSE Linux Enterprise Server 12	Service Pack 4
Ubuntu Server LTS	16.04.6

**Note:**

Esri Technical Support is available for CentOS Linux, Scientific Linux, and Oracle Linux versions that provide full binary compatibility with an equivalent supported RHEL Server version. As a prerequisite for logging a defect, any software issue on these operating systems will be attempted to be reproduced on RHEL Server. For Oracle Linux, support is predicated on the use of the RHEL Server compatible kernel.

- **Database requirements and limitations**

Use of the PostGIS geography type with ArcGIS requires PostgreSQL 9.6.8 and later.

- **Software required to connect to a DBMS**

Most ArcGIS applications that can connect to a PostgreSQL database include the required PostgreSQL client libraries. These applications include ArcGIS Server, ArcGIS Pro, ArcGIS Desktop, and ArcReader.