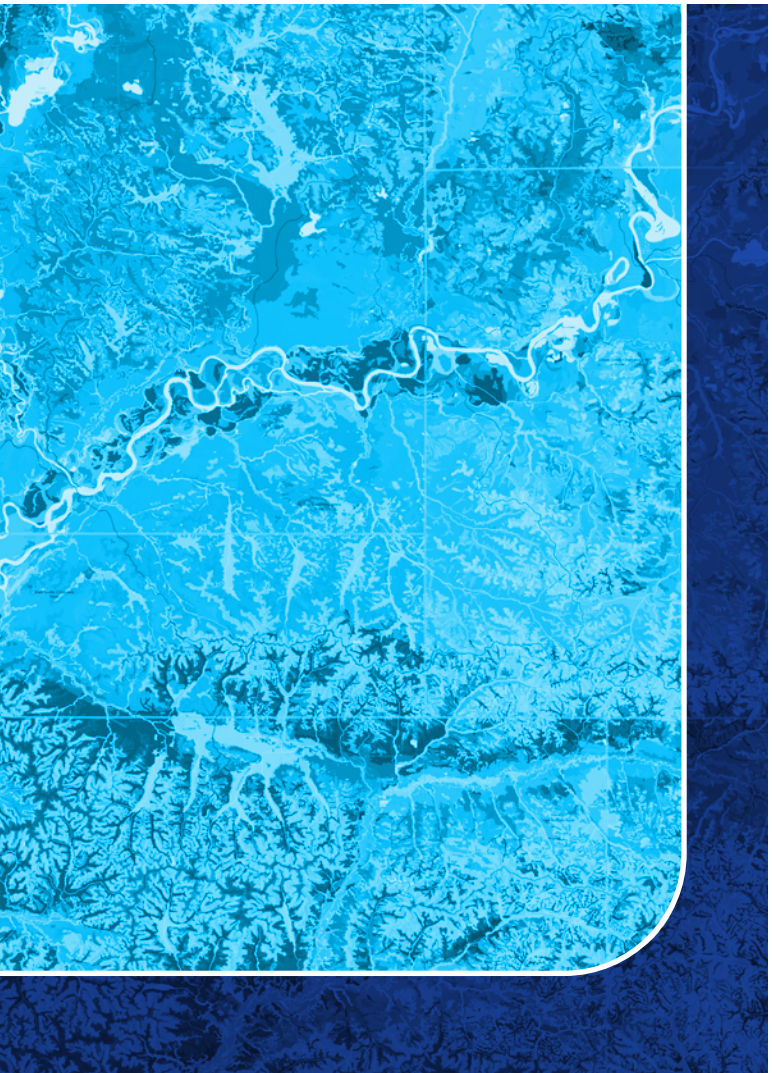
esri

10.8.1



ArcGIS ENTERPRISE

Functionality Matrix

ArcGIS Enterprise is the foundational system for geographic information system (GIS) technology, mapping and visualization, analytics, and Esri's suite of applications. Running in customers' own infrastructure, it is software that can be used in the cloud and on-premises.

ArcGIS Enterprise includes several types of servers such as ArcGIS GIS Server, ArcGIS Image Server, ArcGIS GeoEvent Server, ArcGIS GeoAnalytics Server, and ArcGIS Notebook Server, providing comprehensive functionality for mapping, image exploitation, real-time data, big data analytics, and data science. It also powers the full suite of applications for field data collection, analytics, operational overviews, and workforce tracking.

This functionality matrix features the vast and diverse capabilities supported by the various servers so you can identify which best fit your needs.

You can manage, map, analyze, and share GIS data with ArcGIS Enterprise to power your data-driven decisions. ArcGIS Enterprise comes with enterprise-ready features including full data management control that empowers you to visualize your data spatially, perform analysis in your web browser to discover patterns and trends, and share and collaborate inside and outside your organization.

With ArcGIS Enterprise, you have complete control over your deployment, whether on physical or virtualized machines or cloud infrastructure. Esri provides tools to get you started including wizard-like builders for all-in-one deployments, Chef and PowerShell Desired State Configuration (DSC) scripts to automate custom deployments, and machine images to jump-start cloud deployments on Amazon Web Services (AWS) and Microsoft Azure.

Powerful, collaborative, and secure—ArcGIS Enterprise epitomizes modern GIS in your infrastructure.

02
03
04
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ArcGIS ENTERPRISE
Functionality Matrix

10.8.1

- ● Included
- ○ Additional Purchase

[1] It is recommended to deploy Notebook Server on Linux. See the documentation for details.

[2] Only applicable if you have the corresponding ArcGIS Desktop or ArcGIS Pro extension.

SERVER CAPABILITIES

	GIS Server Advanced	GIS Server Standard	Image Server	GeoEvent Server	GeoAnalytics Server	Notebook Server
Run on Windows	●	●	●	●	●	● [1]
Run on Linux	●	●	●	●	●	●
Deploy in the cloud	●	●	●	●	●	●
Deploy on-premises	●	●	●	●	●	●
Deploy disconnected from the open internet	●	●	●	●	●	●
Script and automate workflows	●	●	●	●	●	●
Create analytical models and model chains	●	●	●	●	●	●
Edit data on the web	●	●	●	●	●	●
Create OGC-compliant web services	●	●	●			
Convert location information to x,y (geocode)	●	●			●	●
Visualize data as a schematic diagram	●	●				
Support disconnected/field editing	●	●				
Publish geoprocessing services and web tools	●	●				
Serve ArcGIS 3D Analyst tools [2]	●					
Serve ArcGIS Geostatistical Analyst tools [2]	●					
Serve ArcGIS Spatial Analyst tools [2]	●					
Create dynamic image and raster mosaics			●			
Perform on-the-fly raster processing and analytics			●			
Process and analyze big data			●	●	●	●
Analyze streaming data in real time				●		
Generate geoenabled alerts				●		
Create and monitor geofences				●		
Use data science Python libraries					●	●
Built-in scheduling						●

● Included

○ Additional Purchase

[3] The only geoprocessing services that can be served are those that are preconfigured within the server; you cannot add or modify geoprocessing services.

[4] ArcGIS Network Analyst extension is required.

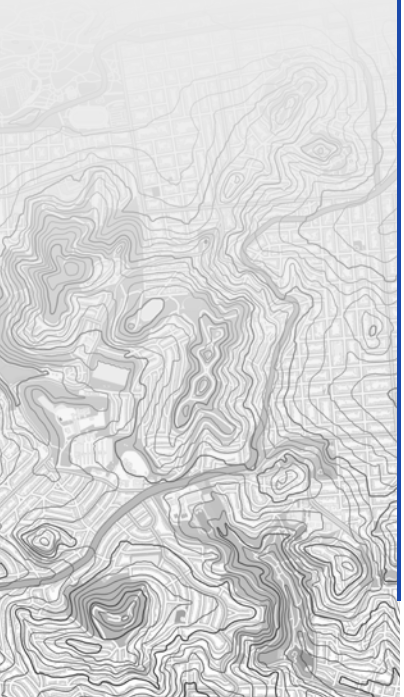
	GIS Server Advanced	GIS Server Standard	Image Server	GeoEvent Server	GeoAnalytics Server	Notebook Server
SERVICE TYPES						
Cached service–Map, image	●	●	●			
Dynamic map service	●	●				
Feature service	●	●				
Geocoding service	●	●				
Geodata service	●	●				
Geometry service	●	●				
Geoprocessing service	●	●	●		● [3]	
Image service–From mosaic dataset			●			
Image service–From single raster	●	●	●			
Network service	●	● [4]				
Parcel fabric service	●	●				
Print service	●	●				
Ready-to-use Python Notebook						●
Schematic service	●	●				
Stream service				●		
Utility network service	●	●				
HOSTED LAYER TYPES						
Feature layer	●	●				
Hosted map image layer	●	●				
Imagery layer			●			
Scene layer	●	●				
Raster tile layer	●	●				
Vector tile layer	●	●				
CONTENT						
ArcGIS Living Atlas of the World	●	●				
ArcGIS StreetMap Premium (display, routing, geocoding)	○	○				

● Included

○ Additional Purchase

[5] Windows Only

[6] GeoEvent Server can ingest data from system files. Data in a system file should be text readable and formatted as delimited text, generic JSON, or XML. GeoEvent Server can poll a feature service's feature layer for feature records and process these as event records. GeoEvent Server integrates with traditional relational geodatabases (RDBMS) through a feature service; direct connections to underlying database tables are not supported.



EXTENSIONS	GIS Server Advanced	GIS Server Standard	Image Server	GeoEvent Server	GeoAnalytics Server	Notebook Server
ArcGIS Network Analyst	●	○				
ArcGIS for INSPIRE	○	○				
ArcGIS Data Interoperability [5]	○	○				
ArcGIS Data Reviewer [5]	○	○				
ArcGIS Workflow Manager [5]	○	○				
ArcGIS for Maritime [5]	○	○				
Esri Defense Mapping [5]	○					
Esri Production Mapping [5]	○	○				
Esri Roads and Highways [5]	○	○				

INPUT DATA TYPES	GIS Server Advanced	GIS Server Standard	Image Server	GeoEvent Server	GeoAnalytics Server	Notebook Server
3D feature (points, objects, extrusions)	●	●				
3D scenes	●	●				●
Address locators	●	●				
Big data—Feature				●	●	●
Big data—Imagery/Raster			●			●
Feature data (points, lines, polygons)	●	●	●	●	●	●
Imagery/Raster data—Mosaic dataset			●			●
Imagery/Raster data—Single raster	●	●	●			●
Integrated mesh	●	●				
Lidar/Terrain data—Mosaic dataset			●			
Lidar/Terrain data—Single raster	●	●	●			
Multipatch data	●	●				
Parcel fabric	●	●				●
Point clouds	●	●				
Raster elevation surfaces			●			●
Real-time data streams				●		●
Tabular data	●	●		● [6]	●	●
Utility networks	●	●				●

User Roles

Portal capabilities are unlocked by the role you assign the user type. You can use the default roles as a base to create custom roles.

COMPATIBLE USER TYPES

	Administrator	Publisher	User	Data Editor	Viewer
GIS Professional	●	●	●	●	●
Creator	●	●	●	●	●
Field Worker				●	●
Editor				●	●
Viewer					●

ArcGIS ENTERPRISE PORTAL CAPABILITIES

	Administrator	Publisher	User	Data Editor	Viewer
Browse and view data, map layers, web maps, and apps	●	●	●	●	●
Visualize data on a map	●	●	●	●	●
Visualize data in 3D	●	●	●	●	●
Query and filter data dynamically	●	●	●	●	●
Search for a location (geosearch)	●	●	●	●	●
Generate turn-by-turn directions	●	●	●	●	●
Change the way the data is styled (symbolize)	●	●	●	●	●
Measure distances	●	●	●	●	●
Add items	●	●	●		
Publish layers from existing items	●	●			
Convert location information to x,y (geocode)	●	●	●		
Save data as map layers and web maps	●	●	●		
Share data, map layers, and web maps with others	●	●	●		
Create web mapping applications from web maps	●	●	●		
Edit data	●	●	●	●	
Save modified data as a new item	●	●	●		
Analyze data	●	●	●		
Organize content into groups	●	●	●		
Apply security to data, map layers, web maps, and apps	●	●	●		
Create dynamic data views as layers	●	●			
Use the built-in site builder to create custom landing pages	●	●	●		
Establish trusted sharing with another GIS	●				
Manage app licensing	●				
Add and manage user membership of the GIS	●				
Disable member accounts	●				
Delete members	●				

Supported Databases and Data Connections

[7] To use cloud-hosted databases, your ArcGIS Enterprise deployment must be colocated with the database in the same cloud environment.

[8] IBM Informix and IBM Db2 for z/OS is only supported when publishing from ArcGIS Desktop 10.x.

[9] Compatible with publishing workflows between ArcGIS Enterprise 10.6 and up and ArcGIS Pro 2.1 and up. SAP HANA enterprise geodatabases cannot be used with older versions of ArcGIS Enterprise or ArcGIS Desktop (ArcMap or ArcGIS Pro).

[10] GeoAnalytics Server also supports writing your analysis results back to these sources.

[11] Shapefiles, Parquet, ORC, and delimited files are supported.

[12] Support for the input data sources listed is shipped with the software. GeoEvent Server also supports writing back to these sources. Support for additional input data sources can be added to the software from the ArcGIS GeoEvent Server Gallery and the ArcGIS GeoEvent Server Partner Gallery.

Supported database types for enterprise geodatabases + query layers

Amazon Aurora PostgreSQL [7]
Amazon RDS for Oracle [7]
Amazon RDS for PostgreSQL [7]
Amazon RDS for Microsoft SQL Server [7]
Microsoft Azure SQL Database [7]
Microsoft Azure Database for PostgreSQL [7]
IBM Db2 [8]
IBM Informix [8]
Microsoft SQL Server
Oracle
Postgre SQL
SAP HANA [9]

Supported database types for query layers

Dameng
SQLite
Teradata

Input data supported by ArcGIS GeoAnalytics Server

Hosted feature layers
Feature services
Stream services
Big data file shares
- Apache Hadoop HDFS [10]
- Apache Hive
- AWS S3 [10, 11]
- Azure Data Lake Store [10, 11]
- Local and network file shares [10, 11]
- Microsoft Azure Storage [10]

Raster stores supported by ArcGIS Image Server when running raster analytics

Alibaba Cloud OSS
AWS S3
Local file shares
Microsoft Azure Storage

Input data supported by ArcGIS GeoEvent Server [12]

Hosted feature layers
Feature services
Stream services
Local and network file shares
Kafka
Network protocols
- HTTP
- TCP
- UDP
- RSS
- WebSocket

Supported Cloud Environments

ArcGIS Enterprise can be deployed on any cloud platform using infrastructure that meets the system requirements. For AWS and Microsoft Azure, ArcGIS Enterprise comes with prebuilt images and deployment tooling that makes it even easier to install and configure your deployment.

In addition to deploying in various cloud platforms, ArcGIS Enterprise supports cloud native features in several clouds. This includes support for cloud native storage and cloud-managed databases. See this functionality matrix for an overview and the documentation for specific details on what features are supported with the different cloud stores.

Cloud native storage

- AWS S3
- Microsoft Azure Storage
- Alibaba Cloud OSS

Supported OGC and Open Web Services

As part of Esri's Open Vision, ArcGIS GIS Server (Advanced and Standard) in ArcGIS Enterprise can serve out the following Open Geospatial Consortium (OGC) and open web services:

- WMS—Web Map Service (versions 1.0, 1.1, 1.1.1, and 1.3)
- WFS—Web Feature Service (versions 1.0, 1.1, and 2.0)
- WCS—Web Coverage Service (versions 1.0.0, 1.1.0, 1.1.1, 1.1.2, and 2.0.1)
- WMTS—Web Map Tile Service (version 1.0)
- WPS—Web Processing Service (version 1.0)
- KML—Keyhole Markup Language (version 2.2)
- GeoJSON

ArcGIS Server licensed as Image Server will be able to serve out Web Coverage Service at the same version levels as listed for ArcGIS GIS Server.

Security, Authentication, and Authorization

ArcGIS Enterprise comes with a robust and effective security framework that includes options for managing access and enforcing permissions for secured resources. Supported configurable security settings include the following:

- Web-tier authentication (IWA, PKI)
- GIS-tier authentication (built-in identity)
- Enterprise logins (SAML 2.0)
- Enterprise Groups (Active Directory, LDAP, and SAML 2.0)
- TLS 1.2 and optional support for TLS 1.0 and TLS 1.1 for backward compatibility

Deploying ArcGIS Enterprise

You can deploy ArcGIS Enterprise manually—installing and configuring each component in sequence, or you can automate the deployment process by using one of the ArcGIS Enterprise deployment automation tools. Before deciding on a deployment automation tool, you should plan the type of deployment that you will need (e.g., single machine, highly available) and be aware of any other system or architectural specifications your organization has outlined (e.g., you must deploy using Windows, Linux, in a cloud environment).

The following matrix compares common deployment characteristics among the ArcGIS Enterprise deployment automation tools and can be a useful guide in choosing the appropriate deployment automation tool.

[13] Ubuntu only.

[14] You can upgrade using these tools if you first installed your deployment using these tools.

DEPLOYMENT CHARACTERISTICS	Automation tool				
	Chef	PowerShell DSC	AWS	Azure	ArcGIS Enterprise Builder
Cloud deployments	●	●	●	●	
On-premises deployments	●	●			●
Windows OS	●	●	●	●	●
Linux OS	●		●		●
Single-machine deployments	●	●	●	●	●
Multi-machine deployments	●	●	●	●	
High-availability deployments	●	●	●	●	
Base ArcGIS Enterprise deployment setup	●	●	●	●	●
ArcGIS Server setup	●	●	●	●	
Image Server setup	●	●	●	●	
GeoEvent Server setup	●	●	●	●	
GeoAnalytics Server setup	●	●	●	●	
Notebook Server setup [13]	●	●	●	●	
Can be used to upgrade the deployment [14]	●	●	●	●	●
Configurable deployment templates	●	●	●		
Configurable machine images			●	●	
Command line interface	●	●	●	●	●
Wizard-style interface			●	●	●

User Type Licensing

[15] The Workgroup level of ArcGIS Enterprise supports a maximum of 10 users per deployment regardless of edition. ArcGIS Enterprise Workgroup Standard includes five Creator user types. You can add up to five additional user types (Viewers, Creators, or a combination thereof), so long as the total number of users for your organization does not exceed 10. As ArcGIS Enterprise Workgroup Advanced already includes 10 Creator user types, additional user types (of any level) cannot be added.

NAMED USER LICENSES

ArcGIS Enterprise uses an identity-based security model. To access content secured within ArcGIS Enterprise, individuals must be a member of the ArcGIS Enterprise deployment and have an identity within the system. Throughout ArcGIS, identities are licensed and allocated through user type licensing.

There are five general-purpose user types: Viewer, Editor, Field Worker, Creator, and GIS Professional.

Viewers can access, view, and interact with any of the items in ArcGIS Enterprise but cannot edit, share, or create any new content. ArcGIS Enterprise Standard and Advanced include unlimited Viewers at no additional cost. Creators can be assigned a broad range of privileges. Users with the Creator user type can create, own, analyze, share, and store data and content within the ArcGIS Enterprise portal.

The Editor, Field Worker, and GIS Professional User Types include a mix of capabilities and included applications. For example, the Field Worker can edit existing datasets through field apps like Survey123 for ArcGIS, Workforce for ArcGIS, and Collector for ArcGIS. The Editor can edit existing data and add new data. The GIS Professional can do everything a Creator user type can do, and includes access to ArcGIS Pro.

At ArcGIS Enterprise 10.8, two user type extensions are available: Utility Network Service and Parcel Fabric Service. User type extensions provide access to underlying functionality and are included with GIS Professional Standard and Advanced and can be added on to other user types.

USER TYPES INCLUDED WITH INITIAL PURCHASE

ArcGIS ENTERPRISE EDITION/LEVEL	CREATOR USER TYPE	VIEWER USER TYPE
ArcGIS Enterprise Standard	5	Unlimited
ArcGIS Enterprise Advanced	50	Unlimited
ArcGIS Enterprise Workgroup Standard [15]	5	0
ArcGIS Enterprise Workgroup Advanced [15]	10	0

Note: The information listed here may not be applicable if you licensed ArcGIS Enterprise as part of a special program, such as an enterprise agreement (EA) or an Education Site License. Contact your Esri representative for more details on how user types apply to your organization.

Historical: A Viewer is functionally equivalent to a Level 1 Named User found in previous releases, and a Creator is equivalent to a Level 2 Named User.

Licensing

ArcGIS ENTERPRISE STANDARD AND ADVANCED

You can license ArcGIS Enterprise in two editions, offered at two different capacity levels. The editions are Standard and Advanced, and the levels are ArcGIS Enterprise and ArcGIS Enterprise Workgroup. Used collectively, the name *ArcGIS Enterprise* refers to any edition or level when there isn't a need to distinguish.

ArcGIS ENTERPRISE WORKGROUP LEVEL

ArcGIS Enterprise Workgroup is a lower capacity level of ArcGIS Enterprise. It offers all the same functionality as ArcGIS Enterprise but is designed for use in smaller teams and organizations. The Workgroup level has the following differences:

- There is a limit of 10 simultaneous desktop connections to workgroup geodatabases. Workgroup geodatabases are only supported in Microsoft SQL Server Express and have a maximum size of 10 GB.
- The Workgroup level is only licensed for use with file-based data sources (e.g., file geodatabases) and workgroup geodatabases. It is not licensed for use with enterprise geodatabases.
- The base ArcGIS Enterprise deployment must be an all-in-one installation on a single machine with up to four cores.
- Each server role has a four-core maximum. The additional roles can be deployed on machines that are separate from the base deployment. The spatiotemporal big data store from ArcGIS Data Store may be configured on a single, separate four-core machine.
- Parcel Fabric and Utility Network user type extensions cannot be added to Workgroup, and workgroup geodatabases cannot be used to power a parcel fabric or utility network.

For more information and to determine if ArcGIS Enterprise Workgroup is a good fit for your organization, contact your local Esri representative.

OTHER SERVER LICENSING

ArcGIS GIS Server Basic is a limited-capability GIS server that primarily provides enterprise geodatabase functionality. ArcGIS GIS Server Basic cannot be federated as part of an ArcGIS Enterprise deployment and does not enable any Web GIS access for functionality.

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