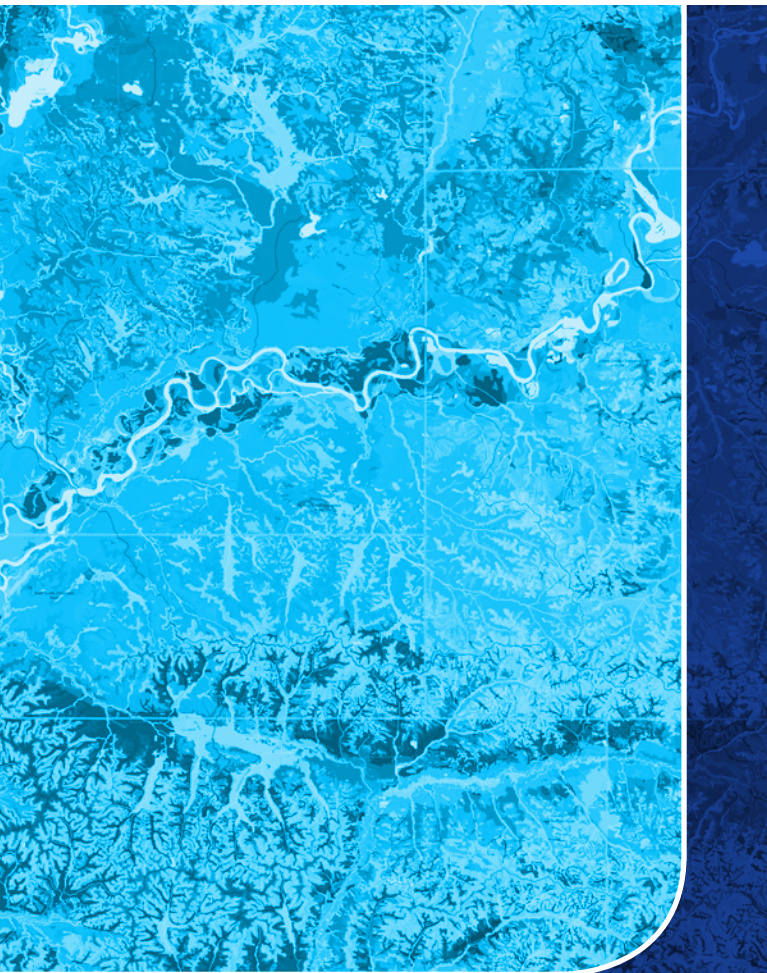




10.7

ArcGIS ENTERPRISE Functionality Matrix



ArcGIS Enterprise is flexible server software for mapping and analytics that allows you to easily manage your location-enabled data and brings a Web GIS into your infrastructure. ArcGIS Enterprise provides your organization with the power to analyze, create, and share content to any device, anywhere, at any time—helping you to discover and do more with your data.

Designed for flexibility, ArcGIS Enterprise gives you complete control over the infrastructure the software will use and supports deployments using physical or virtualized machines and cloud infrastructure alike. ArcGIS Enterprise also comes with tools to make getting started easier, including wizard-based builder for all-in-one deployments, Chef and PowerShell DSC scripts to automate custom deployments, and machine images to jump-start cloud deployments on Amazon Web Services and Microsoft Azure.

The ArcGIS Enterprise portal enables Web GIS and allows members of your organization to search, organize, analyze, store, and share location-enabled content; with it, you can transform raw data into a fully functional mobile app without writing a single line of code.

At the heart of ArcGIS Enterprise is powerful server software with capabilities that allow you to serve, map, and analyze geographic information. The vast and diverse capabilities of ArcGIS Enterprise are organized into different servers, each one unlocking a distinct array of functionality. This functionality matrix is organized so that you can identify which servers best fit your needs.

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

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ArcGIS ENTERPRISE

Functionality Matrix

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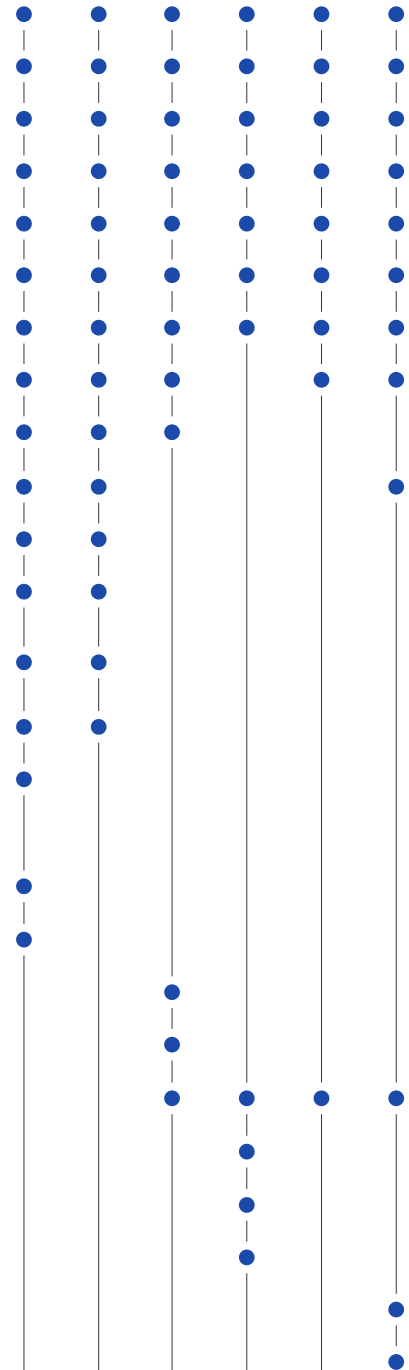
- Included
- Additional Purchase

¹ Only applicable if you have the corresponding ArcGIS Desktop extension

SERVER CAPABILITIES

- Run on Windows
- 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
- Create geoprocessing services from ArcGIS Desktop analysis tools
- Create geoprocessing services as web tools
- Serve ArcGIS 3D Analyst tools ¹
- Serve Business Analyst tools and apps
- Serve ArcGIS Geostatistical Analyst tools ¹
- Serve ArcGIS Spatial Analyst tools ¹
- Create image and raster mosaics dynamically
- Display imagery and raster data on the fly
- Process and analyze big data
- Analyze streaming data in real time
- Generate geoenabled alerts
- Create geofences
- Utilize data science libraries
- Enrich data

GIS Server Advanced
 GIS Server Standard
 Image Server
 GeoEvent Server
 GeoAnalytics Server
 Notebook Server



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- Included
- Additional Purchase

² The only geoprocessing services that can be served are those that are preconfigured within the server; you cannot add or modify geoprocessing services.

³ ArcGIS Network Analyst for Server extension is required.

SERVICE TYPES

Service Type	GIS Server Advanced	GIS Server Standard	Image Server	GeoEvent Server	GeoAnalytics Server	Notebook Server
Cached service–Map, image	●	●	●			
Dynamic map service	●	●				
Feature service	●	●				
Feature service (read-only)	●	●				
Geocoding service	●	●				
Geodata service	●	●				
Geometry service	●	●				
Geoprocessing service	●	●	●	● ²		
Image service–From mosaic dataset			●			
Image service–From single raster	●	●	●			
Network service	●	● ³				
Print service	●	●				
Ready-to-use Python Notebooks						●
Schematic service	●	●				
Stream service				●		

HOSTED LAYER TYPES

Layer Type	GIS Server Advanced	GIS Server Standard	Image Server	GeoEvent Server	GeoAnalytics Server	Notebook Server
Feature layer	●	●				
Imagery layer			●			
Scene layer	●	●				
Raster tile layer	●	●				
Vector tile layer	●	●				

CONTENT

Content	GIS Server Advanced	GIS Server Standard	Image Server	GeoEvent Server	GeoAnalytics Server	Notebook Server
ArcGIS Living Atlas of the World	●	●				
StreetMap Premium for ArcGIS (Display, Routing, Geocoding)	○	○				

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- Included
- Additional Purchase

⁴ Windows Only

⁵ GeoEvent Server can ingest data from system files, which may be in a table format. GeoEvent Server can also poll a feature service for feature records, which are maintained in a feature class or table. But direct database table support is not included; queries need to be made through a feature service.

⁶ ArcGIS Utility Network Management extension is required.

EXTENSIONS

- ArcGIS Network Analyst for Server
- ArcGIS for INSPIRE
- ArcGIS Data Interoperability for Server ⁴
- ArcGIS Data Reviewer for Server ⁴
- ArcGIS Utility Network Management
- ArcGIS Workflow Manager for Server ⁴
- ArcGIS for Maritime: Server ⁴
- Esri Defense Mapping for Server ⁴
- Esri Production Mapping for Server ⁴
- Esri Roads and Highways for Server ⁴

GIS Server Advanced
 GIS Server Standard
 Image Server
 GeoEvent Server
 GeoAnalytics Server
 Notebook Server

	GIS Server Advanced	GIS Server Standard	Image Server	GeoEvent Server	GeoAnalytics Server	Notebook Server
ArcGIS Network Analyst for Server	●	○				
ArcGIS for INSPIRE	○	○				
ArcGIS Data Interoperability for Server ⁴	○	○				
ArcGIS Data Reviewer for Server ⁴	○	○				
ArcGIS Utility Network Management	○	○				
ArcGIS Workflow Manager for Server ⁴	○	○				
ArcGIS for Maritime: Server ⁴	○	○				
Esri Defense Mapping for Server ⁴	○					
Esri Production Mapping for Server ⁴	○	○				
Esri Roads and Highways for Server ⁴	○	○				

INPUT DATA TYPES

- 3D feature (point, object, 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
- Point clouds
- Raster elevation surfaces
- Real-time data streams
- Tabular data
- Utility networks

	GIS Server Advanced	GIS Server Standard	Image Server	GeoEvent Server	GeoAnalytics Server	Notebook Server
3D feature (point, object, 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	●	●				
Point clouds	●	●				
Raster elevation surfaces			●			●
Real-time data streams				●		●
Tabular data	●	●		● ⁵	●	●
Utility networks	● ⁶	● ⁶				● ⁶

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User Roles

Portal capabilities are unlocked by the role you assign the user type. Any of the default roles can be modified to create a custom role.

COMPATIBLE USER TYPES

- GIS Professional
- Creator
- Field Worker
- Editor
- Viewer

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

PORTAL CAPABILITIES

- 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 to another GIS
- Manage app licensing
- Add and manage user membership of the GIS
- Disable member accounts
- Delete members

	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 to another GIS	●				
Manage app licensing	●				
Add and manage user membership of the GIS	●				
Disable member accounts	●				
Delete members	●				

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

⁹ GeoAnalytics also supports writing your analysis results back to these sources.

¹⁰ Shapefiles, Parquet, ORC, and delimited files are compatible.

¹¹ GeoEvent Server input connectors included in this section are only those connectors that ship with the software. Additional GeoEvent Server input connectors can be added to the software from the [ArcGIS GeoEvent Gallery](#) and [ArcGIS GeoEvent Partner Gallery](#).

Supported database types for enterprise geodatabases + query layers

Amazon Aurora PostgreSQL
 Amazon RDS for Microsoft SQL Server ⁷
 Amazon RDS for PostgreSQL ⁷
 IBM DB2
 IBM Informix
 Microsoft SQL Server
 Microsoft Azure SQL Database ⁷
 Microsoft Azure Database for PostgreSQL
 Oracle
 PostgreSQL
 SAP HANA ⁸

Supported database types for query layers

Altibase
 Dameng
 IBM Netezza
 SQLite
 Teradata

Input data supported by GeoAnalytics Server

Hosted feature layers
 Feature services
 Stream services
 Big Data File Shares
 - Apache Hadoop HDFS ⁹
 - Apache Hive
 - AWS S3 ^{9, 10}
 - Azure Data Lake Store ^{9, 10}
 - Local and Network File Shares ^{9, 10}
 - Microsoft Azure Storage ⁹

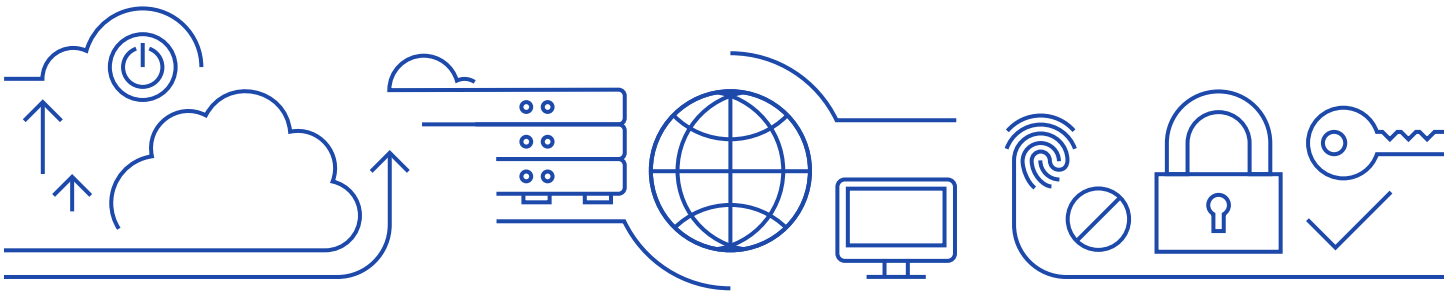
Raster stores supported by Image Server when running Raster Analytics

Alibaba Cloud OSS
 AWS S3
 Huawei Cloud OBS
 Local File Shares
 Microsoft Azure Storage

Input connectors supported by GeoEvent Server ¹¹

ArcGIS Server
 File (CSV, JSON)
 RSS
 Socket (TCP, UDP)
 Web (REST, JSON, GeoJSON, XML)
 WebSocket (JSON, GeoJSON)

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Supported Cloud Environments

ArcGIS Enterprise can be deployed on any cloud platform using infrastructure that meets the system requirements. For Amazon Web Services (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 has support for cloud native features in several clouds. This includes support for cloud native storage and support for 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
- Huawei Cloud OBS

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 Services 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 backwards compatibility

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Deploying ArcGIS Enterprise

¹²Only a deployment that was set up using the tool can be upgraded.

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 have planned the type of deployment that you will need (for example, single-machine, highly available) and be aware of any other system or architectural specifications your organization has outlined (for example, you must deploy using Windows, Linux, in a cloud environment).

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

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	●	●	●	●	—
Set up base ArcGIS Enterprise deployment	●	●	●	●	●
Set up GIS Server	●	●	●	●	—
Set up Image Server	●	●	●	●	—
Set up GeoEvent Server	●	●	●	●	—
Set up GeoAnalytics Server	●	●	●	●	—
Set up Notebook Server	●	●	●	●	—
Can be used to upgrade the deployment ¹²	●	●	●	●	●
Provides configurable deployment templates	●	●	●	—	—
Provides configurable machine images	—	—	●	●	—
Provides command line interface	●	●	●	●	●
Provides wizard-style interface	—	—	●	●	●

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User Type Licensing

¹³The 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 Named Users (Viewer, Creator, 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 Named Users (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 provisioned 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 your portal 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, Workforce, and Collector. 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.

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 ¹³	5	0
ArcGIS Enterprise Workgroup Advanced ¹³	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.

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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. Collectively, we refer to ArcGIS Enterprise to mean 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 on 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 deployed all-in-one 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.

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-functionality 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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