**ArcGIS Enterprise: Installation Guide**

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Revision History

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# Introduction

## Purpose

This installation guide provides the information necessary to install and configure ArcGIS Enterprise 10.8.1.

## Scope

This document covers all required steps for installing ArcGIS Enterprise 10.8.1.

## Document Conventions

Table 1‑1 describes the conventions used in this documentation.

Table 1‑1: Document Conventions

| Convention | Meaning |
| --- | --- |
| **🛈** | Indicates a note that supplements the information in the current section or about the procedure. |
| ! | Indicates an important note related to the current section or procedure. |
|  | Indicates that a section or procedure needs to be repeated. |
| Text > Text > Text | The arrow symbol (>) is used for navigation paths (e.g., **Start** > **Programs** > **Adlib** > **Express** > **Express Server**). All navigation paths in this document assume that Windows is set to display Classic View. |

# About This Guide

The content in this installation guide contains references to the software manufacturer’s online help documentation specific to ArcGIS Enterprise 10.8.1. These help topics are noted, where applicable, and the links to the specific topics are in alphabetical order in [Appendix B](#AppendixB).

# About ArcGIS

This section describes ArcGIS Enterprise software and installation requirements.

**ArcGIS Enterprise** is the foundational software system for geographic information system (GIS), powering mapping and visualization, analytics, and data management. It is the backbone for running the Esri suite of applications and custom applications. ArcGIS Enterprise is tightly integrated with ArcGIS Desktop and ArcGIS Pro for mapping and authoring, and seamlessly connects with ArcGIS Online to share content between systems.

**ArcGIS Server** is a back-end server software component of ArcGIS Enterprise that makes geographic information available to others in your organization. This is accomplished through web services, which allow a powerful server computer to receive and process requests for information sent by other devices.

**Portal for** **ArcGIS** is a component of ArcGIS Enterprise that allows you to share maps, scenes, apps, and other geographic information with others in your organization. The front-end portal is powered by the back-end infrastructure of Portal for ArcGIS. You can customize the portal to fit your organization's look and feel.

**ArcGIS Data Store** is an application that lets you configure data storage for the hosting server used with your ArcGIS Enterprise portal. If you are not a database expert, ArcGIS Data Store provides you with a convenient setup and configuration experience that creates the following different types of data stores: relational, tile cache, and spatiotemporal big data.

**ArcGIS Web Adaptor** is an application that runs in your existing website and forwards requests to your ArcGIS Server machines. It polls your site at a regular interval to learn which machines have been added or removed. It then forwards traffic to the currently participating machines only. The Web Adaptor forwards requests to the machine hosting Portal for ArcGIS. It is compatible with Internet Information Services (IIS) and Java EE servers, such as WebSphere and WebLogic.

**Scene Viewer** is an application used for viewing 3D geospatial content. Scene Viewer works with desktop web browsers that support WebGL, a technology standard for rendering 3D graphics.

## ArcGIS Server Installations

This section explains the ArcGIS servers: Image Server, GeoEvent Server, and Spatiotemporal Data Store.

### ArcGIS Image Server

ArcGIS Image Server is part of the ArcGIS Enterprise and provides a distributed computing and storage system that powers the analytical processing and serving of large collections of imagery, elevation data, and other remotely sensed date. Image Server provides four key capabilities for working with large volumes of imagery and rasters: dynamic image services, raster analytics, ortho mapping, and imagery hosting.

### ArcGIS GeoEvent Server

**The ArcGIS GeoEvent Server enables real-time event-based data streams to be integrated as data sources in your enterprise GIS. Event data can be filtered, processed, and sent to multiple destinations, allowing you to connect with virtually any type of streaming data and automatically alert personnel when specified conditions occur, all in real-time.**

|  |  |
| --- | --- |
| **🛈** | **Note:** GeoEvent may or may not need a direct Internet connection depending on source of data. If data is “pull” only, it is basic port 443 traffic. If “push,” the data will go through port 6143. |

### Spatiotemporal Data Store for Big Data Store

Data Store for Spatiotemporal is a Big Data Store (BDS)consisting of ArcGIS Data Store with a different database selected. ArcGIS Server core uses a relational database, while BDS uses a spatiotemporal database when connecting to GeoEvent or GeoAnalytics Server tools. BDS enables archival of high-volume observation data and sustains high velocity write throughput up to 200 events per second with one server.

## ArcGIS Web Adaptor

ArcGIS Web Adaptor is a required component of Portal for ArcGIS, which allows you to integrate your portal with your existing web server and your organization's security mechanisms.

You can only use the Web Adaptor with port 80 or 443. Using different ports is not supported. Refer to online documentation on ArcGIS Web Adaptor 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 (like 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
* Mozilla Firefox

Scene Viewer has its own browser and hardware requirements. Some of the common Portal for ArcGIS clients have different requirements. Consult specific client documentation for details. Refer to online documentation on common clients for more information.

### Supported Virtualization Environments

All ArcGIS Enterprise components are fully supported on virtual environments, provided they run on supported operating systems.

# Pre-Installation Parameters

Table 4‑1 provides the information required for installation.

Table 4‑1: Required Information for Installation

| Item | Description | Value |
| --- | --- | --- |
| DNS Name | Friendly name | gistest123.com |
| Host Names | Server names | servername123 |
| Portal Name | “ArcGIS Enterprise” | Enterprise GIS |
| Authentication Mode | Auto-account creation or request administrator to create accounts | Admin created |
| Service Account | AD Services accounts, one account for all servers or one for each server. | domain\  serviceaccount |
| Portal and Server application Admin account, aka PSAs | Web application administrator account and password for Portal and Server. | PortalAdmin  ServerAdmin |
| Root SSL certificate |  |  |
| Intermediate SSL certificates |  |  |
| Application SSL certificate to match DNS name | Used on Web Adaptor Server, contains subject alternate names (SAN) for all hostnames in enterprise installation | dnsname  SAN = servername |

A site (or website) is a default home page for finding data. Sites allows you to create and manage sites and pages.

You can create as many independent, tailored web pages as you want. The ArcGIS Enterprise portal controls security and access to your site and content. Individuals within your organization can be added to your sites team to gain permission to edit and create web pages using ArcGIS Enterprise Sites.

Within a site, you can create pages to further organize and focus your content. A site can have many pages, and these pages can be shared across multiple Sites, if needed. How you choose to organize your Sites and pages can be tailored to the needs of your organization.

# Section 5 Software Installation

## 5.1 Pre-Install Steps

The following steps allow for the installation and configurations to be consistent each time the process needs to be repeated.

Key benefits include-

* Logging– installations and configurations steps are logged, and logs can be reviewed to verify success, or to trap errors in case of install failure.
* Config files – post-install configuration parameters are invoked from lines in a configuration file as opposed to being hand-types. The ensures veracity and consistency.

Before Folder Creation, this step will **only** **apply** when migrating your ArcGIS Enterprise (10.8.1) to another machine and using the backup and restore method, changing the host files on each machine that will be part of the new enterprise is essential for several reasons:

1. **DNS Resolution**: Updating the host files ensures that the DNS resolution for the new enterprise components points to the correct IP addresses of the new machines. This is crucial for the proper functioning of the ArcGIS Enterprise since various components communicate with each other using hostnames.
2. **Consistency:** Ensuring that all machines involved in the enterprise have consistent hostname resolutions prevents any potential conflicts or misconfigurations. This helps maintain a stable and reliable environment.
3. **Avoiding Downtime:** By updating the host files, you can ensure that the transition to the new machines is smooth, with minimal downtime. This allows for continuous operation while the migration is completed.
4. **Testing and Validation:** Before fully switching over to the new environment, updating the host files allows you to test and validate the new setup without disrupting the existing production environment. This step ensures that all services and components are working correctly.
5. **Load Balancing and Failover:** If you are using load balancing or failover mechanisms, updating the host files ensures that these mechanisms are aware of the new machine addresses, allowing for proper load distribution and high availability.
6. **Security:** Ensuring that the host files are correctly updated helps prevent any unauthorized access or misrouting of requests, which could lead to security vulnerabilities.

To change the host files, complete the steps below on each VM enterprise component:

Go to cmd and get the Webadaptor ip address (ipconfig)  
  
Go to C drive 🡪 Windows 🡪 Windows 🡪 System32 🡪 drivers - etc  
  
Open the host files with notepad  
  
Add a line to the bottom of the commented out lines at the very bottom, see **example below**:  
  
# localhost name resolution is handled within DNS itself.  
#    127.0.0.1 localhost  
#    ::1      localhost  
10.0.0.0    dns  
  
You essentially put the WebAdaptor machine IP address, followed by tab, followed by the domain.   
  
Click save as 🡪 place on desktop 🡪 it will save as .txt - edit the name and get rid of the file extension 🡪 place back in the host file location and override original file.

You will have to do these steps for every machine in the enterprise.

**Now back to the folder creation, see Below:**

All the following steps are executed in a Console Window using a domain user account with administrative privileges. To initiate a 64-bit Console Window with administrative privileges, navigate to C:\Windows\SysWOW64 and right-clik cmd.exe and select Run as Administrator.

Alternatively, you can just search cmd and right-click “run as administrator”.

Using the administrative Console, execute the following steps by copy/pasting the lines in each of the steps into the Console and press Enter.

**COMMON STEPS FOR ALL SERVERS** – these need to be executed on all VMs that participate in the Site:

**Step by Step Guide:**

Find Install Scripts 🡪 Click on Section 5 (Folders will correspond to the sections in this guide)

Click on 5.1 🡪 Copy each 5.1 folder in the corresponding computer/server

**NOTE:** Go to Drive of the corresponding computer/server, create a folder named InstallScripts and have the path look as such: F:\InstallScripts\5.1

The reason is because, many of these install scripts are depended on constant share folder paths.

Verify the parameters of each .cmd script 🡪 Verify the parameters of the .ps1 file named 0\_Folders

The only parameter, you might have to change is the service account, or file server path (these scripts are already filled out with the parameters needed).

The PowerShell calls each .cmd script in the folder, which means you will need to verify the .cmd script path is correct in the PowerShell script too (although the path will likely be correct if you keep the same folder path F:\InstallScripts\5.1).

Open PowerShell as Admin 🡪 cd F:\InstallScripts\5.1 🡪 .\ 0\_Folders.ps1 🡪 Run

Run the PowerShell script for each server. Afterwards, you can move on to [Section 5.2](#_Install_Portal_for), and guess what you correct, the install scripts in section 5.2 are named after the section as well.

**Details:**

Below is an example of one of the scripts for Portal, keep in mind that they are scripts already made for each enterprise component.

1. PowerShell Script that runs all of the .cmd files below.
2. Establish folder structure

echo Establishing Folder Structure for Enterprise Deployment >> F:\AGSDeploy\Logs\Folders.log

md F:\AGSDeploy\Software\Patches

md F:\AGSDeploy\License

md F:\AGSDeploy\Configs

md F:\AGSDeploy\Certs

md F:\AGSDeploy\Logs

md F:\ArcGIS

echo Done >> F:\AGSDeploy\Logs\Folders.log

echo List of newly established folder structure >> F:\AGSDeploy\Logs\Folders.log

dir F:\AGSDeploy /s /b >> F:\AGSDeploy\Logs\Folders.log

dir F:\ArcGIS /s /b >> F:\AGSDeploy\Logs\Folders.log

Please check folders.log by opening it in Notepad. The log should be similar to the folders.log in Appendix C

1. Assign folder privileges to service accounts, and log the output:

echo %date% %time% >> F:\AGSDeploy\Logs\Permissions.log

echo Current Permissions for Service Account >> F:\AGSDeploy\Logs\Permissions.log

icacls "F:\AGSDeploy" >> F:\AGSDeploy\Logs\Permissions.log

icacls "F:\ArcGIS" >> F:\AGSDeploy\Logs\Permissions.log

echo Assigning Permissions for Service Account >> F:\AGSDeploy\Logs\Permissions.log

icacls "F:\AGSDeploy" /grant "domain\serviceaccount":(OI)(CI)F /Q /C /T

icacls "F:\ArcGIS" /grant "domain\serviceaccount":(OI)(CI)F /Q /C /T

echo Updated Permissions for Service Account >> F:\AGSDeploy\Logs\Permissions.log

icacls "F:\AGSDeploy" >> F:\AGSDeploy\Logs\Permissions.log

icacls "F:\ArcGIS" >> F:\AGSDeploy\Logs\Permissions.log

echo %date% %time% >> F:\AGSDeploy\Logs\Permissions.log

Please check permissions.log by opening it in Notepad. The log should be similar to the log in Appendix C

1. Assign local administrator group membership to service accounts, and log the output:

**Note:** This may seem superfluous after Step 2 but is a vendor recommendation.

echo %date% %time% >> F:\AGSDeploy\Logs\Permissions.log

echo Current Membership of localgroup administrators >> F:\AGSDeploy\Logs\Permissions.log

net localgroup administrators >> F:\AGSDeploy\Logs\Permissions.log

echo Assigning Service Accounts to localadmins >> F:\AGSDeploy\Logs\Permissions.log

net localgroup administrators domain\serviceaccount /add

echo Updated Membership of localgroup administrators >> F:\AGSDeploy\Logs\Permissions.log

net localgroup administrators >> F:\AGSDeploy\Logs\Permissions.log

echo %date% %time% >> F:\AGSDeploy\Logs\Permissions.log

1. Copy installation files, patches and licenses from the File server or ESRI downloads to:

Copy Install Executables > F:\AGSDeploy\Software

Copy Patches > F:\AGSDeploy\Software\Patches

Copy License files as necessary > F:\AGSDeploy\License

After the completion of the copy, the contents under F:\AGSDeploy\Software should be like this:

F:\AGSDeploy\Software

\ArcGISDataStore

\ArcGISGeoEventServer

\ArcGISServer

\ArcGISWebStyles

\ArcGISWorkflowManagerServer

\CoordinateSystemsData

\CustomDataFeeds

\DataInteropServer

\EnterpriseSDK

\LicenseManager

\LocationReferencingEventEditor

\MissionServer

\NotebookServer

\PortalForArcGIS

\RasterData

\WebAdaptorIIS

The contents under each folder should be like this *example*:

F:\AGSDeploy\Software\PortalForArcGIS

\Install.htm

\Setup.exe

\SetupFiles

## 5.2 Install Portal for ArcGIS Software

**Step by Step Guide:**

Same as last section, go to Install Scripts

Find Install Scripts for this section 🡪 Click on Section 5 (Folders will correspond to the sections in this guide)

Click on 5.2 🡪 Copy each 5.2 folder in the corresponding VM (Copy into the InstallScripts folder you made in section 5.1, F:\InstallScripts\5.2)

The reason is because, many of these install scripts are depended on constant share folder paths.

Verify the parameters of each .cmd script 🡪 Verify the parameters of the .ps1 file named 0\_PRT

The only parameter, you might have to change is the service account, or file server path (these scripts are already filled out with the parameters needed).

The PowerShell calls each .cmd script in the folder, which means you will need to verify the .cmd script path is correct in the PowerShell script too (although the path will likely be correct if you keep the same folder path F:\InstallScripts\5.2).

Open PowerShell as Admin 🡪 cd F:\InstallScripts\5.2 🡪 .\ 0\_PRT.ps1 🡪 Run

Run the PowerShell script for only for Portal. Afterwards, you can move on to Section 5.3, and guess what you correct, the install scripts in section 5.3 are named after the section as well.

**Details**

Manual Install Quick Guide (if trouble with scripts):

Double Click Setup.exe

Click next 🡪 On the next page 🡪 Change the folder name: F:\Program Files\ArcGIS\Portal 🡪 Click Ok 🡪 Click Next 🡪 Change the ArcGIS Directory (F:\arcgisportal\) 🡪 Click Next 🡪 Input Service Account information 🡪 Click Next 🡪 Export Server Configuration File (Select Do Not Export) and click next 🡪 Install 🡪 Click Finish 🡪 Configure Portal

1. **PowerShell Script that runs all the .cmd files below.**

# PowerShell Script for Section 5.2 - ArcGIS Enterprise Installation

# Parameters - Fill these out before running the script

$portalAdminUserName = "domain\serviceaccount"

$portalAdminPassword = "password"

# Function to run CMD scripts with admin privileges

function Run-CmdScript {

param (

[string]$scriptPath

)

$processInfo = New-Object System.Diagnostics.ProcessStartInfo

$processInfo.FileName = "cmd.exe"

$processInfo.Arguments = "/c `"$scriptPath`""

$processInfo.Verb = "runas"

$processInfo.UseShellExecute = $true

$process = [System.Diagnostics.Process]::Start($processInfo)

$process.WaitForExit()

}

# Ensure the PowerShell script runs with highest admin privileges

if (-not ([Security.Principal.WindowsPrincipal] [Security.Principal.WindowsIdentity]::GetCurrent()).IsInRole([Security.Principal.WindowsBuiltInRole]::Administrator)) {

Write-Warning "This script must be run as an administrator!"

Start-Process powershell.exe "-File $PSCommandPath" -Verb RunAs

exit

}

# Script paths

$establishPortsScript = "F:\InstallScripts\5.2\1\_PRT\_PortRules.cmd"

$installPortalScript = "F:\InstallScripts\5.2\2\_PRT\_Install.cmd"

$installWebStylesScript = "F:\InstallScripts\5.2\3\_PRT\_WebStyle\_Install.cmd"

$installPatchScript = "F:\InstallScripts\5.2\4\_PRT\_Patches.cmd"

$checkNTServiceScript = "F:\InstallScripts\5.2\5\_PRT\_Check.cmd"

# Run scripts sequentially

Run-CmdScript -scriptPath $establishPortsScript

Run-CmdScript -scriptPath $installPortalScript

Run-CmdScript -scriptPath $installWebStylesScript

Run-CmdScript -scriptPath $installPatchScript

Run-CmdScript -scriptPath $checkNTServiceScript

1. **Establish Ports Rules and open ports.**

:: Establish Ports Rules and Open Ports

echo %date% %time% > F:\AGSDeploy\Logs\Ports.log

echo Existing listening Ports on VM >> F:\AGSDeploy\Logs\Ports.log

netstat -an |findstr /i "listening" >> F:\AGSDeploy\Logs\Ports.log

echo Adding in direction Ports >> F:\AGSDeploy\Logs\Ports.log

netsh advfirewall firewall add rule name=" WHITELIST TCP IN" dir=in action=allow protocol=TCP localport=7080,7443,7005,7099,7654,5701,5702,5703,7120,7220

netsh advfirewall firewall show rule name=" WHITELIST TCP IN" >> F:\AGSDeploy\Logs\Ports.log

echo Adding out direction Ports >> F:\AGSDeploy\Logs\Ports.log

netsh advfirewall firewall add rule name=" WHITELIST TCP OUT" dir=out action=allow protocol=TCP localport=7080,7443,7005,7099,7654,5701,5702,5703,7120,7220

netsh advfirewall firewall show rule name=" WHITELIST TCP OUT" >> F:\AGSDeploy\Logs\Ports.log

echo %date% %time% >> F:\AGSDeploy\Logs\Ports.log

echo Added listening Ports on VM >> F:\AGSDeploy\Logs\Ports.log

netstat -an |findstr /i "listening" >> F:\AGSDeploy\Logs\Ports.log

1. **Administratively install ArcGIS Portal.**

:: Install ArcGIS Portal

"F:\AGSDeploy\Software\PortalForArcGIS\setup.exe" /qb ACCEPTEULA=yes /l\* F:\AGSDeploy\Logs\ArcGISPortal\_Setup.log INSTALLDIR=F:\Program Files\ArcGIS\Portal CONTENTDIR=F:\Program Files\ArcGIS\PortalContent USER\_NAME="domain\serviceaccount" PASSWORD="password" EXPORTCONFIG=Yes CONFIGPATH=F:\AGSDeploy\Config\serviceaccount.xml

This command supplies the following options to the installer-

ArcGIS Portal's installation directory- software binaries and base configs

Portal's content directory- user and default content

The domain server account which will be used to run the NT Service.

Acceptance of the End-user-license-agreement (EULA) – Software cannot be installed without agreeing to ESRI’s terms.

Export of the installation configs for potential re-use, although preferably the above command line can be invoked for re-use.

*Important-* Review the log output from the installer and look for errors or failures.

1. **Administratively install ArcGIS Web Styles for Portal.**

:: Install ArcGIS Web Styles for Portal

"F:\AGSDeploy\Software\ArcGISWebStyles\setup.exe" /qb /l\* F:\AGSDeploy\Logs\PortalForArcGISWebStyles\_Setup.log INSTALLDIR=F:\Program Files\ArcGIS\Portal

*Important-* Review the log output from the installer and look for errors or failures.

**Step 10. Administratively install Patch(es) for ArcGIS Portal.**

:: Install Patch(es) for ArcGIS Portal

msiexec.exe /qb /l\* F:\AGSDeploy\Logs\ArcGIS-1081-PFA-ESSEC-Patch.log /p F:\AGSDeploy\Software\Patches\ArcGIS-1081-PFA-ESSEC-Patch.msp

msiexec.exe /qb /l\* F:\AGSDeploy\Logs\ArcGIS-1081-PFA-SEC2023U1-PatchB.log /p F:\AGSDeploy\Software\Patches\ArcGIS-1081-PFA-SEC2023U1-PatchB.msp

*Important-* Repeat for any additional Patches. Review the log output from the installer and look for errors or failures.

**Step 11. Check successful installation of ArcGIS Portal NT Service.**

:: Check Successful Installation of ArcGIS Portal NT Service

"C:\Program Files\Internet Explorer\iexplore.exe" https://fdqn:7443/arcgis/portaladmin/?f=pjson

"C:\Program Files\Internet Explorer\iexplore.exe" https://fdqn:7443/arcgis/portaladmin/license

"C:\Program Files\Internet Explorer\iexplore.exe" https://fdqn:7443/webadaptor/portaladmin/license?f=json

"C:\Program Files\Internet Explorer\iexplore.exe" https://fdqn:7443/arcgis/portaladmin/license/validateLicense

**Step 12. Check successful installation of ArcGIS Portal.**

*Important-* Review the log output from all installers and look for errors or failures.

Additionally, web styles are included in this scripting, below is the manual process.

### Install Web Styles

Installing Web Styles on the Portal Server enables us to create sites for bureaus or functional groups.

1. Launch the **ArcGIS\_Web\_Styles\_Windows\_1071\_170272.exe** program.
2. Expand the install files to the temp (F:\GIS) directory. The program will install to the existing Portal path. Select **Install** (see Figure 6‑13).

Graphical user interface, text, application

Description automatically generated

Figure 6‑13: Web Style Setup

1. If you see the warning message shown in Figure 6‑14, disregard. Portal services take several minutes to restart. No further configuration is necessary.

Graphical user interface

Description automatically generated

Figure 6‑14: Warning – Disregard

## 5.3 Install ArcGIS Server Software

**Step by Step Guide:**

1. Change location of Temp directory of Service Account for backups.

ArcGIS Backup uses the service account temp directory to prepare and store backup file to consolidate into one package. This is by default on the C: OS drive. Backups have become very large and consume more disk space on C: drive than is usually available, thus causing operating issues. Moving the TEMP directory to a larger disk solves this problem.

1. Login to SVR11.
2. Create a TEMP directory on the data drive (F:\TEMP).
3. Log in to the server machine as the Windows account that administers ArcGIS Server.
4. Right-click Computer and click Properties.
5. Click Advanced system settings on the left panel.
6. In the System Properties dialog box, click the Advanced tab.
7. At the bottom of the dialog window, click Environment Variables.
8. In the variable value edit box, specify the path to the directory for ArcGIS Server to temporarily compile its backups (F:\TEMP).
9. Repeat that process for both the TMP and TEMP user environment variables.
10. Restart Windows for the new settings to take effect.

Find Install Scripts 🡪 Click on Section 5 (Folders will correspond to the sections in this guide)

Click on 5.3 🡪 Copy each 5.3 folder in the corresponding VM (Copy into the InstallScripts folder you made in section 5.1, F:\InstallScripts\5.3)

The reason is because, many of these install scripts are depended on constant share folder paths.

Verify the parameters of each .cmd script 🡪 Verify the parameters of the .ps1 file named 0\_SVR

The only parameter, you might have to change is the service account, or file server path (these scripts are already filled out with the parameters needed).

The PowerShell calls each .cmd script in the folder, which means you will need to verify the .cmd script path is correct in the PowerShell script too (although the path will likely be correct if you keep the same folder path F:\InstallScripts\5.3).

Open PowerShell as Admin 🡪 cd F:\InstallScripts\5.3 🡪 .\ 0\_SVR.ps1 🡪 Run

Run the PowerShell script for only for Server (Hosting). Afterwards, you can move on to Section 5.4, and guess what you correct, the install scripts in section 5.4 are named after the section as well.

**Details:**

Manual Install Quick Guide (if trouble with scripts):

Double Click Setup.exe

Click Next 🡪 On the next page 🡪 Change the folder name: F:\Program Files\ArcGIS\Server 🡪 Click Ok 🡪 Change the Python Folder 🡪 F:\Python27\ 🡪 Input Service Account information 🡪 Click Next 🡪 Export Server Configuration File (Select Do Not Export) and click next 🡪 Install 🡪 Click Finish (when install is done) 🡪 Select “I Have received an authorization file and am now ready to finish the authorization process.” And browse to your server license (authorization.ecp) 🡪 Click finish and go to the server manager site. Create new site (https://localhost:6443/arcgis/manager/)

1. Establish Ports Rules and open ports.

echo %date% %time% > F:\AGSDeploy\Logs\Ports.log

echo Existing listening Ports on VM >> F:\AGSDeploy\Logs\Ports.log

netstat -an |findstr /i "listening" >> F:\AGSDeploy\Logs\Ports.log

echo Adding in direction Ports >> F:\AGSDeploy\Logs\Ports.log

netsh advfirewall firewall add rule name=" WHITELIST TCP IN" dir=in action=allow protocol=TCP localport= 6080,6443,6006,1098,6099,4000,4001,4002,4004

netsh advfirewall firewall show rule name=" WHITELIST TCP IN" >> F:\AGSDeploy\Logs\Ports.log

echo Adding out direction Ports >> F:\AGSDeploy\Logs\Ports.log

netsh advfirewall firewall add rule name=" WHITELIST TCP OUT" dir=out action=allow protocol=TCP localport= 6080,6443,6006,1098,6099,4000,4001,4002,4004

netsh advfirewall firewall show rule name=" WHITELIST TCP OUT" >> F:\AGSDeploy\Logs\Ports.log

echo %date% %time% >> F:\AGSDeploy\Logs\Ports.log

echo Added listening Ports on VM >> F:\AGSDeploy\Logs\Ports.log

netstat -an |findstr /i "listening" >> F:\AGSDeploy\Logs\Ports.log

1. Administratively install ArcGIS Server.

F:\AGSDeploy\Software\ArcGISServer\Setup.exe /qb ACCEPTEULA=yes /l\* F:\AGSDeploy\Logs\ArcGISServer\_Setup.log INSTALLDIR=F:\ArcGIS\Server INSTALLDIR1=F:\ArcGIS\Python27 USER\_NAME="APPSERVICES\svcCfaGisServer" PASSWORD="<password here>"

This command supplies the following options to the installer-

ArcGIS Server's installation directory- software binaries and base configs

Python directory- user and default content

The domain server account which will be used to run the NT Service.

Acceptance of the End-user-license-agreement (EULA) – Software cannot be installed without agreeing to ESRI’s terms.

*Important-* Review the log output from the installer and look for errors or failures.

1. License file for ArcGIS Server and extensions

Generate a secure site operation authorization request from ArcGIS Server. This file will contain all the configurations required for the issuance of a secure site license.

Note:- this step can only be executed after a successful server install (Verify via Setup log as described in the previous step).

The contents under F:\AGSDeploy\License should be like this:

F:\AGSDeploy\License/authorize.txt

Double-check in notepad that file’s contents are like this:

//\*\*\*\*\*\*\*\*\*\* ArcGIS Server v# authorization file request form \*\*\*\*\*\*\*\*\*\*

//

//Date/Time: mm/dd/yyyy 4:49:31 PM

//

//Please choose one of the two options listed below to finish the authorization process.

//1. Upload this form to the My Esri website (recommended):

//

//- Sign into https://my.esri.com/#/activations/secure-site

//- Follow the instructions displayed there.

//

//2. Email this form to authorize@esri.com

//------------------------------------

//ESRI Customer Service,

//

//Enclosed is the registration information requested to obtain an

//authorization file for ArcGIS Server version#

//

//Please return my authorization file via email to:

//email

//

//Thank you,

//name

//

//ECP Authorization information:

//-------------------------------------------------

// User Information

First Name=

Last Name=

Organization=

Department=

Address 1=

Address 2=

City=

State=

Zip/Postal Code=

Location=United States

Location Code=

Phone Number=

Email=

Comment=servername authorization#

Provision ID=

Your Organization=

Your Industry=

Yourself=

// Features and authorization numbers

ArcGIS Server= #

//End ECP Authorization information:

//-------------------------------------------------

Upload the secure site operation authorization request to myESRI, and download the resultant ECP file and locate it under the License folder. This file will contain all the configurations required for non-internet authorization of ArcGIS Server

The contents under F:\AGSDeploy\License should be like this:

F:\AGSDeploy\License/authorization.ecp

1. Administratively authorize ArcGIS Server with the obtained license

"C:\Program files\Common files\ArcGIS\bin\SoftwareAuthorization.exe" /S /Ver 10.8.1 /LIF <full path to license file>

1. Administratively install Patch(es) for ArcGIS Server.

msiexec.exe /qb /l\* F:\AGSDeploy\Logs\ArcGIS-1081-S-SEC2023U1-Patch.log /p F:\AGSDeploy\Software\Patches\2023\ArcGIS-1081-S-SEC2023U1-Patch.msp

msiexec.exe /qb /l\* F:\AGSDeploy\Logs\ArcGIS-1081-S-MFSSEC2023U1-Patch.log /p F:\AGSDeploy\Software\Patches\2023\ArcGIS-1081-S-MFSSEC2023U1-Patch.msp

Repeat for any additional Patches

*Important-* Review the log output from the installer and look for errors or failures.

1. Check successful installation of ArcGIS Server.

"C:\Program Files\Internet Explorer\iexplore.exe" https://localhost:6443/arcgis/manager

"C:\Program Files\Internet Explorer\iexplore.exe" https://localhost:6443/arcgis/admin/?f=pjson

1. Administratively install SQL client to enable database connectivity.

msiexec.exe /i "F:\AGSDeploy\Software\msodbcsql.msi" IACCEPTMSODBCSQLLICENSETERMS=yes /qb /l\* F:\AGSDeploy\Logs\msodbcsql\_17\_x64\_Setup.log

## 5.4 Install ArcGIS Data Store Software

**Step by Step Guide:**

Find Install Scripts 🡪 Click on Section 5 (Folders will correspond to the sections in this guide)

Click on 5.4 🡪 Copy each 5.4 folder in the corresponding VM (Copy into the InstallScripts folder you made in section 5.1, F:\InstallScripts\5.4)

The reason is because, many of these install scripts are depended on constant share folder paths.

Verify the parameters of each .cmd script 🡪 Verify the parameters of the .ps1 file named 0\_ADS

The only parameter, you might have to change is the service account, or file server path (these scripts are already filled out with the parameters needed).

The PowerShell calls each .cmd script in the folder, which means you will need to verify the .cmd script path is correct in the PowerShell script too (although the path will likely be correct if you keep the same folder path F:\InstallScripts\5.4).

Open PowerShell as Admin 🡪 cd F:\InstallScripts\5.4 🡪 .\ 0\_SVR.ps1 🡪 Run

Run the PowerShell script for only for DataStore. Afterwards, you can move on to Section 5.5, and guess what you correct again, the install scripts in section 5.5 are named after the section as well.

**Details:**

Manual Install Quick Guide (if trouble with scripts):

Double Click Setup.exe

Click next 🡪 On the next page 🡪 Change the folder name: F:\Program Files\ArcGIS\DataStore\ 🡪 Click Ok 🡪 Click Next 🡪 🡪 Input Service Account information 🡪 Click Next 🡪 Export Server Configuration File (Select Do Not Export) and click next 🡪 Install 🡪 Click Finish 🡪 Configure DataStore (https://localhost:2443/arcgis/datastore/  
)🡪 Enter the GIS Server URL w/ Port # and username and password.

1. Establish Ports Rules and open ports.

echo %date% %time% > F:\AGSDeploy\Logs\Ports.log

echo Existing listening Ports on VM >> F:\AGSDeploy\Logs\Ports.log

netstat -an |findstr /i "listening" >> F:\AGSDeploy\Logs\Ports.log

echo Adding in direction Ports >> F:\AGSDeploy\Logs\Ports.log

netsh advfirewall firewall add rule name=" WHITELIST TCP IN" dir=in action=allow protocol=TCP localport= 2443,9876,29080,4369,9220,6443

netsh advfirewall firewall show rule name=" WHITELIST TCP IN" >> F:\AGSDeploy\Logs\Ports.log

echo Adding out direction Ports >> F:\AGSDeploy\Logs\Ports.log

netsh advfirewall firewall add rule name=" WHITELIST TCP OUT" dir=out action=allow protocol=TCP localport= 2443,9876,29080,4369,9220,6443

netsh advfirewall firewall show rule name=" WHITELIST TCP OUT" >> F:\AGSDeploy\Logs\Ports.log

echo %date% %time% >> F:\AGSDeploy\Logs\Ports.log

echo Added listening Ports on VM >> F:\AGSDeploy\Logs\Ports.log

netstat -an |findstr /i "listening" >> F:\AGSDeploy\Logs\Ports.log

1. Administratively install ArcGIS DataStore.

"F:\AGSDeploy\Software\ArcGISDataStore"\setup.exe /qb /l\* F:\AGSDeploy\Logs\ArcGISDataStore\_Setup.log INSTALLDIR=F:\ArcGIS\DataStore USER\_NAME="domain\serviceaccount" PASSWORD="<password here>"

This command supplies the following options to the installer-

ArcGIS DataStore 's installation directory- software binaries and base configs

The domain server account which will be used to run the NT Service.

*Important-* Review the log output from the installer and look for errors or failures.

1. Administratively install Patch(es) for ArcGIS DataStore.

msiexec.exe /qb /l\* F:\AGSDeploy\Logs\ArcGIS-1081-DS-Log4j-Patch.txt /p F:\AGSDeploy\Software\Patches\ArcGIS-1081-DS-Log4j-Patch.msp

msiexec.exe /qb /l\* F:\AGSDeploy\Logs\ArcGIS-1081-DS-ML-Patch.txt /p F:\AGSDeploy\Software\Patches\ArcGIS-1081-DS-ML-Patch.msp

Repeat for any additional Patches

*Important-* Review the log output from the installer and look for errors or failures.

1. Check successful installation of ArcGIS DataStore NT Service.

"C:\Program Files\Internet Explorer\iexplore.exe" <https://localhost:2443/arcgis/datastore> - Because the site is not yet configured, a configuration page will appear

"F:\ArcGIS\DataStore\tools\describedatastore.bat" - Because the site is not yet configured, the script output will only confirm that a datastore exists.

## CONFIGURE ENTERPRISE GIS

### Portal & Server Constraints

The following constraints are applicable to ArcGIS Portal, and need to be planned for at the outset of the site build-

The following scripts will mostly be manually done (copy/paste) via cmd prompt, as there is a permissions issue.

Portal for ArcGIS only supports a single DNS. Accordingly, a DNS value needs to be established beforehand, to be used during configuration and site build.

Portal for ArcGIS needs FQDNs of ArcGIS Server for federation. Accordingly, FQDNs of configured Server site need to be available before federation can begin.

Similarly, ArcGIS Server needs FQDNs of ArcGIS DataStore for site joining (federation). Accordingly, FQDNs of configured DataStore need to be available before site join can begin.

### DNS Configurations

DNS values need to be established before Site build can begin.

**Step-by-Step Guide**

1. Establish DNS Values

Ensure that DNS values are correctly mapped and recorded before initiating the site build process.

2. DNS Values Sample

* **Domain**: gisgeomap.com
* **IP Address**: 10.00.000.00
* **Purpose**: This IP address corresponds to fdqn, which serves as the Web Adaptor Server.

4. Verify DNS Values

* Ensure that the DNS values are correctly mapped to their respective IP addresses

5. Configure DNS Entries

* Access your DNS management system (this could be your network's DNS server or a DNS management console).
* Create new DNS entries or modify existing ones to map the domains to their respective IP addresses.

**Example for OpenNet DNS Configuration**:

nslookup dnsname

If the command returns correct ipaddress, the DNS entry is correctly configured.

6. Confirm Web Adaptor Servers

* Validate that the ipaddress points to webapadtorfqdn.

7. Document DNS Values

* Update the Standard Operating Procedure (SOP) and any relevant documentation with the established DNS values and their corresponding servers.

8. Begin Site Build

* Once DNS values are established and verified, proceed with the site build for your enterprise.

DNS Management Steps

1. **Access DNS Management Console**:
   * Open your DNS management tool or console.
   * Navigate to the zone where you want to add or update the DNS entries.
2. **Add DNS Record**:
   * For dnsname:
     + **Record Type**: A
     + **Name**: dnsname
     + **IP Address**:

Adding DNS records can be done using different DNS management systems, depending on your network infrastructure. Here are the steps to add DNS records using PowerShell.

**Open PowerShell**:

* + Press Win + X, select Windows PowerShell (Admin).

**Add DNS Records**:

Use the following commands to add the DNS records:

# For gisgeo.com.gov

Add-DnsServerResourceRecordA -Name "gis" -ZoneName "com.gov" -IPv4Address "10.00 "

**Save Changes**:

Save the DNS records and apply the changes.

### Security Certificate

SSL certificates need to be obtained before Site build can begin. The certificate configurations including Subject alternate names (SAN), common names (CN) and DNS names in the SSL certificate for OpenNet are as follows:

* CN: fdqn
* OU = office
* O= department
* L = location
* S =
* C = US
* Friendly name: geogis.com.gov
* Purpose: Server Authentication
* SANs:
  + DNS Name= geogis.com.gov
  + DNS Name= webadaptorfqdn
  + DNS Name= datastorefqdn
  + DNS Name= portalfqdn
  + DNS Name= serverfqdn

Public Certs (Get with your organization to find out the public trust certificates you have)

### User License file for ArcGIS Portal

1. Download the json file and locate it under the License folder.

This file will contain all the configurations required for the issuance of creator, editor or viewer licenses to enterprise users.

The contents under F:\AGSDeploy\License should be like this:

F:\AGSDeploy\License/ArcGIS\_Enterprise\_Portal\_1081\_431966\_20230919.json

### 5.5 Configure ArcGIS Server

**Step by Step Guide:**

Find Section 5.5 Server Folder in the InstallScripts folder path.

Click on 5.5 🡪 Copy each 5.5 folder in the corresponding VM (Copy into the InstallScripts folder you made in section 5.1, F:\InstallScripts\5.5)

Generate a properties file in the deployment Configurations folder, essentially just verify the file parameters inside the properties file:

Notepad F:\AGSDeploy\Configs\createsite.properties

The main parameters you are looking for are, Server Username and Password and make sure the encryption is set to False.

Create the .properties file and place the file inside the folder in F:\ArcGIS\Server\tools\createsite\

Rename the old file with a underscore \_orginal.

This step must be executed semi-manually as the PowerShell or CMD script doesn’t work. However, if you open CMD as admin, and paste the script into it. It will still work. Make sure to make a createsite.properties file first.

Additionally, this step is sort of misleading, as there isn’t a script to run. There will be .txt file in place of the script. Open CMD as admin and copy and paste the lines mentioned in the .txt file into cmd.

You can go to section 5.5.6 once the site is executed (you will see a message on the cmd prompt).

**Details:**

1. Generate a properties file in the deployment Configurations folder:

Notepad F:\AGSDeploy\Configs\createsite.properties

This file will contain all the configurations required for the site build. Double-check that “.txt” is not appended to the file name. The exact file name needs to be createsite.properties

1. Copy/paste the entire block of the following text into createsite.properties, save and exit.

# Start of file

# Configuration properties for Server site creation

#

# User name for primary site administrator.

# Cannot contain these characters: \/:\*?<>”

SERVER\_ADMIN\_USERNAME = GISSiteAdmin

# Password for primary site administrator.

# Cannot contain these characters: \/:\*?<>”

SERVER\_ADMIN\_PASSWORD = cX3i3HcelVqyiXWsKyhejg==

# Initially, leave SERVER\_ADMIN\_PASSWORD\_ENCRYPTED set to false.

# When you run the tool the first time, the password will be

# encrypted and SERVER\_ADMIN\_PASSWORD\_ENCRYPTED will change to true.

SERVER\_ADMIN\_PASSWORD\_ENCRYPTED = true

# Root server directory. By default, the server directories will be created locally,

# e.g.C:\\arcgisserver\\directories, or \\\\<Absolute path to>\\<Server directories>.

SERVER\_DIRECTORIES\_PATH = F:\\ArcGIS\\Site\\directories

# Configuration store for the ArcGIS Server site. By default, the configuration store will be created locally,

# e.g.C:\\arcgisserver\\config-store, or \\\\<Absolute path to>\\<Server config-store>.

SERVER\_CONFIGSTORE\_PATH = F:\\ArcGIS\\Site\\config-store

# End of file

Note- The password contained in this file is encrypted.

1. Execute ArcGIS Site build by copy/paste the following lines into the Console:

F:\

cd\F:\AGSDeploy\Configs

F:\ArcGIS\Server\tools\createsite\createsite.bat -f createsite.properties

Script output of successful build-

Starting the createsite utility.

Checking if the ArcGIS Server is initialized.

The ArcGIS Server is not initialized.

Validating ArcGIS Server environment.

The ArcGIS Server is configured successfully.

You will be able to access ArcGIS Server Manager by navigating to

https://fqdn:6443/arcgis/manager

The createsite utility completed successfully.

Stopping the createsite utility.

Test the build as follows-

“C:\Program Files\Internet Explorer\iexplore.exe" <https://localhost:6443/arcgis/manager>

“C:\Program Files\Internet Explorer\iexplore.exe" <https://localhost:6443/arcgis/manager>

## 5.5.6 Configure ArcGIS DataStore

**Step by Step Guide:**

Find Section 5.5 DataStore Folder in the InstallScripts folder path.

Click on 5.5 🡪 Copy the 5.5.6 folder in the corresponding VM (Copy into the InstallScripts folder you made in section 5.1, F:\InstallScripts\5.5)

The main parameters you are looking for are, Server FDQN, Server Username and Password.

This step must be executed semi-manually as the PowerShell or CMD script doesn’t work, same as last step. However, if you open CMD as admin, and paste the script into it. It will still work.

Additionally, this step is sort of misleading, as there isn’t a script to run. There will be .txt file in place of the script. Open CMD as admin and copy and paste the lines mentioned in the .txt file into cmd.

You can go to section 5.5.7 once it says operation completed successfully (you will see a message on the cmd prompt).

**Details:**

1. Verify from the DataStore Server that it can access the ArcGIS Server:

“C:\Program Files\Internet Explorer\iexplore.exe" <https://localhost:6443/arcgis/manager>

Upon successful verification of connectivity, execute the following command from the DataStore Server-

F:\ArcGIS\DataStore\tools\configuredatastore.bat https://localhost:6443 ServerAdmin <gissiteadminpassword> F:\ArcGIS\arcgisdatastore --stores relational

F:\ArcGIS\DataStore\tools\changedbproperties.bat --store relational --pitr enable

Note: The password contained in this command is encrypted.

Note: Configuring the Data Store, no matter what store configuration (relational, spatiotemporal, tile cache), the path must contain “arcgisdatastore” directory.

Script output of successful build-

Configuring data store(s). Initial configuration may take a few minutes. When configuring an upgraded data store, this process may take several hours depending on the size of your data. Please wait...

Configuring data store....

Operation completed successfully.

Go to <https://localhost:2443/arcgis/datastore> to verify you can get to the DataStore GUI

## 5.5.7 Configure ArcGIS Portal

**Step by Step Guide:**

Find Section 5.5 Portal Folder in the InstallScripts folder path.

Click on 5.5 🡪 Copy the Portal 5.5.7 folder into Portal VM (Copy into the InstallScripts folder you made in section 5.1, F:\InstallScripts\5.5)

Generate a properties file in the deployment Configurations folder, essentially just verify the file parameters inside the properties file (same as you did with server):

Notepad F:\AGSDeploy\Configs\createsite.properties

The main parameters you are looking for are, Portal Username and Password and make sure the encryption is set to False, Portal License File, and change the email if necessary.

Create the .properties file and place the file inside the folder in F:\ArcGIS\Server\tools\createsite\

Rename the old file with an underscore \_orginal.

This step must be executed semi-manually as the PowerShell or CMD script doesn’t work. However, if you open CMD as admin, and paste the script into it. It will still work. Make sure to make a createsite.properties file first.

Additionally, this step is sort of misleading, as there isn’t a script to run. There will be .txt file in place of the script. Open CMD as admin and copy and paste the lines mentioned in the .txt file into cmd.

You can test the build by going to <https://localhost:7443/arcgis/home>

However, the internet explorer might block it because of no ssl certification. Go to Server Manager 🡪 Local Server 🡪 IE Enhanced Security Configuration 🡪 Turn off for users and admins.

You can go to section 5.5.8 once the site is executed (you will see a message on the cmd prompt).

**Details:**

1. Generate a properties file in the deployment Configurations folder:

Notepad F:\AGSDeploy\Configs\createportal.properties

This file will contain all the configurations required for the site build. Double-check that “.txt” is not appended to the file name. The exact file name needs to be createsite.properties

1. Copy/paste the entire block of the following text into createportal.properties, save and exit.

# Start of file

#

# Portal for ArcGIS site creation properties

#

# First name for initial administrator account

PORTAL\_ADMIN\_FIRSTNAME =GIS

# Last name for initial administrator account

PORTAL\_ADMIN\_LASTNAME =PortalAdmin

# User name for initial administrator account

# Can only have the numbers 0-9, the ASCII letters a-z, A-Z and the dot character (.)

PORTAL\_ADMIN\_USERNAME =GISPortalAdmin

# Password for primary site administrator.

# Can only have the numbers 0-9, the ASCII letters a-z, A-Z and the dot character (.)

PORTAL\_ADMIN\_PASSWORD =iTdaCLoupArSjMecdZKWCg==

# Initially, leave PORTAL\_ADMIN\_PASSWORD\_ENCRYPTED set to false.

# When you run the tool the first time, the password will be

# encrypted and PORTAL\_ADMIN\_PASSWORD\_ENCRYPTED will change to true

PORTAL\_ADMIN\_PASSWORD\_ENCRYPTED = true

# E-mail address for initial administrator account

# e.g username@domain.com

PORTAL\_ADMIN\_EMAIL =

#This is the index of the secret question to retrieve a forgotten password.

#The list of questions with their respective index numbers is as follows:

#1, What city were you born in ?"

#2, What was your high school mascot?"

#3, What is your mother's maiden name?"

#4, What was the make of your first car?"

#5, What high school did you go to?"

#6, What is the last name of your best friend?"

#7, What is the middle name of your youngest sibling?"

#8, What is the name of the street on which you grew up?"

#9, What is the name of your favorite fictional character?"

#10, What is the name of your favorite pet?"

#11, What is the name of your favorite restaurant?"

#12, What is the title of your favorite book?"

#13, What is your dream job?"

#14, Where did you go on your first date?");

PORTAL\_ADMIN\_SECURITY\_QUESTION\_INDEX =4

# Answer to the secret question

# e.g \"My Answer\"

PORTAL\_ADMIN\_SECURITY\_QUESTION\_ANSWER =\"answer\"

# Portal content directory where portal will store default and user-generated content.

# By default, the portal content directory will be created locally,

# e.g.C:\\arcgisportal, , or \\\\<Absolute path to>\\<portal arcgisportal>

PORTAL\_CONTENT\_DIRECTORY =F:\\ArcGIS\\PortalContent\\arcgisportal

# The path to the Portal license file

PORTAL\_LICENSE\_FILE =F:\\AGSDeploy\\License\\ArcGIS\_Enterprise\_Portal.json

# The id of the user type for the Initial Administrator

PORTAL\_USER\_TYPE\_ID =creatorUT

# End of file

Note- The password contained in this file is encrypted.

1. Execute ArcGIS Site build by copy/paste the following lines into the Console:

F:\

cd\F:\ArcGIS\Portal\tools\createportal

createportal.bat -f F:\AGSDeploy\Config\createportal.properties

Script output of successful build-

==================================================

Starting the createportal utility.

==================================================

Checking if the portal is initialized.

The portal is not initialized.

Configuring the portal.

The portal is created successfully.

Waiting for the portal to restart.

Populating the portal license.

You may access the portal by navigating to:

<https://localhost:7443/arcgis/home>

The createportal utility completed successfully.

Stopping the createportal utility.

Test the build as follows-

“C:\Program Files\Internet Explorer\iexplore.exe" <https://localhost:7443/arcgis/home>

“C:\Program Files\Internet Explorer\iexplore.exe" <https://localhost:7443/arcgis/home>

## 5.5.8 Add Portal Certificate to Data Store

**Step by Step Guide:**

Find Section 5.5 DataStore Folder in the InstallScripts folder path.

Click on 5.5 🡪 Copy 5.5.8 folder in the DataStore VM (Copy into the InstallScripts folder you made in section 5.1, F:\InstallScripts\5.5)

Verify the parameters (its an updatessl command).

F:\ArcGIS\DataStore\tools\updatesslcertificate.bat F:\AGSDeploy\Certs\WebAdapter.pfx <pw> alias

If you run the updatesslcertificate.bat, it will tell you the usage, if you feel like you did something wrong.

Additionally, this step is sort of misleading, as there isn’t a script to run. There will be .txt file in place of the script. Open CMD as admin and copy and paste the lines mentioned in the .txt file into cmd.

You can go to section 5.6 once it says operation success (you will see a message on the cmd prompt).

**Details:**

Use the SSL certificate obtain from a PKI Office.

Create a PKCS12 format file and set a password and alias for the file.

Run the updatesslcertificate utility to replace the self-signed SSL certificate for an ArcGIS Data Store machine.

In this example, the certificate file, WebAdapter.pfx, is in the Certs directory, has the alias WebAdapterfinal, and is secured with the password <pw>

F:\ArcGIS\DataStore\tools\updatesslcertificate.bat F:\AGSDeploy\Certs\WebAdapter.pfx <pw> WebAdapterfinal

If you have multiple ArcGIS Data Store machines, update the certificate for each one.

If you can’t remember the password to the certificate, you can always export the certificate from the portal machine. See example below: Go to Portal VM, and search for certlm.msc, go to the personal certificates, and find the machine name certificate. Right click on the certificate and click all tasks and export.

Export the certificate. When you click next, it will ask you to export the certificate with private key. Click yes. Export the certificate as PKCS and click on the checkbox “export all extended properties” and click next. Check the box on password, and create a password, for encryption, select AES256 and click next. Specify the file path and name the certificate.

Save the certificate in the share drive, go to the web adaptor machine. Copy the certificate to web adaptor machine documents. Double click the certificate to install on the local machine. Input the password, you just created, and it should automatically go to the personal certificates when you install.

## ArcGIS Web Adaptor

ArcGIS Web Adaptor allows you to integrate ArcGIS Server with your organization's existing web server. By including a web server in your site, you gain the ability to host web applications that use your GIS services.

ArcGIS Web Adaptor has its own setup and installation guide, which is separate from the installations for ArcGIS Server. You must install ArcGIS Web Adaptor on a machine running a web server. This can be a machine already running an ArcGIS Server site or a separate machine.

### Bind the SSL certificate to HTTPS in IIS

Make sure the PKI office provided SSL certificate is in the keystore of the Web Adaptor Server. To confirm, open Certificate Manager and search for the certificate name. If found, proceed. If not, add the SSL certificate to the server with the Certificate Manager.

In the **IIS Manager** of the web adaptor server, do the following to bind a certificate to SSL port 443:

1. Select your site in the tree view and in the Actions pane, click **Bindings**.
   1. If port 443 is not available in the Bindings list, click **Add**. From the Type drop-down list, select **https**. Leave the port at 443.
   2. If port 443 is listed, select the port from the list and click Edit.
2. From the SSL certificate drop-down list, select your certificate name and click **OK**.

**Note**: IIS may not be available until running the install program for Web Adaptor. If IIS Manager is not available on your server, Run the Web Adaptor installation program, it will install and configure IIS and IIS Manager. After IIS is installed and configured, stop the Web Adaptor install at the New Virtual Directory window. Open IIS and bind the certificate. Then restart the Web Adaptor install.

## 5.6 Install Web Adapter for Portal for ArcGIS

**Step by Step Guide:**

To run the script, you will need the thumbprints (Cert hash), Path\To\Web\_Adaptor\_for\_Microsoft\_IIS.exe, Webadaptorname (portal, etc), websitename (portal), and certPassword. You will need to create a site for Portal, and Hosting Server at minimum.

Find Install Scripts 🡪 Click on Section 5 (Folders will correspond to the sections in this guide)

Click on 5.6 🡪 Copy each 5.6 folder in the corresponding VM (Copy into the InstallScripts folder you made in section 5.1, F:\InstallScripts\5.6)

The reason is because, many of these install scripts are depended on constant share folder paths.

Verify the parameters of the .ps1 file named WebAdaptor\_Install

The only parameter, you might have to change is the service account, or file server path (these scripts are already filled out with the parameters needed).

# Parameters - Fill these out before running the script

$setupPath = "F:\AGSDeploy\Software\Software\WebAdaptorIIS\Setup.exe"

$patchPath = "F:\AGSDeploy\Software\Software\Patches\ArcGIS-1081-WAI-S-Patch.msp"

$certPath = "F:\AGSDeploy\Software\Cert\portal.pfx"

$certPassword = "secret”

$certHash = "lotsofnumbersandletters"

$websiteID = 1 # Update this to the correct WEBSITE\_ID

$port = 80 # Update this to the correct PORT if necessary

$vdirectoryName = "portal"

$webAdaptorName = "portal"

$appcmdPath = "C:\Windows\System32\inetsrv\appcmd.exe"

$logFilePath = "F:\AGSDeploy\Logs\WebAdaptor\_Install.log"

$configToolPath = "C:\Program Files (x86)\Common Files\ArcGIS\WebAdaptor\IIS\<current version>\Tools\ConfigureWebAdaptor.exe"

$webAdaptorURL = "https://webadaptorhost.domain.com/webadaptorname/webadaptor"

$serverMachineName = "server.domain.com"

$adminUsername = "siteadmin"

$adminPassword = "secret"

$adminAccessEnabled = "false"

# Paths to CMD scripts

$folderCreationScript = "F:\InstallScripts\5.1\1\_Folder\_Creation.cmd"

$folderPrivilegesScript = "F:\InstallScripts\5.1\2\_Folder\_Privileges.cmd"

$groupMembershipScript = "F:\InstallScripts\5.1\3\_Group\_Membership.cmd"

$copyInstallationScript = "F:\InstallScripts\5.1\4\_Copy\_Installation.cmd"

Open PowerShell as Admin 🡪 cd F:\InstallScripts\5.6 🡪 .\ WebAdaptor\_Install.ps1 🡪 Run

Run the PowerShell script for only for Portal WebAdaptor.

**Details:**

Manual Install (if trouble with scripts):

Double Click Setup.exe

Click next 🡪 Select Default Web Site 443 🡪 Input portal for ArcGIS Web Adaptor name 🡪 Click Next 🡪 Click Install.

Click Finish 🡪 Configure the web adaptor (<https://localhost/portal/webadaptor>) 🡪 Select Portal for ArcGIS 🡪 Configure

**Below are the original .cmd files, if you’re interested in the details and development.**

1. Browse to the location of the downloaded setup files and double-click the executable file: **Web\_Adaptor\_for\_Microsoft\_IIS.exe**.
2. Review the terms and conditions of the master agreement (see Figure 5‑35). You must agree to the terms to proceed. Select **Next**.

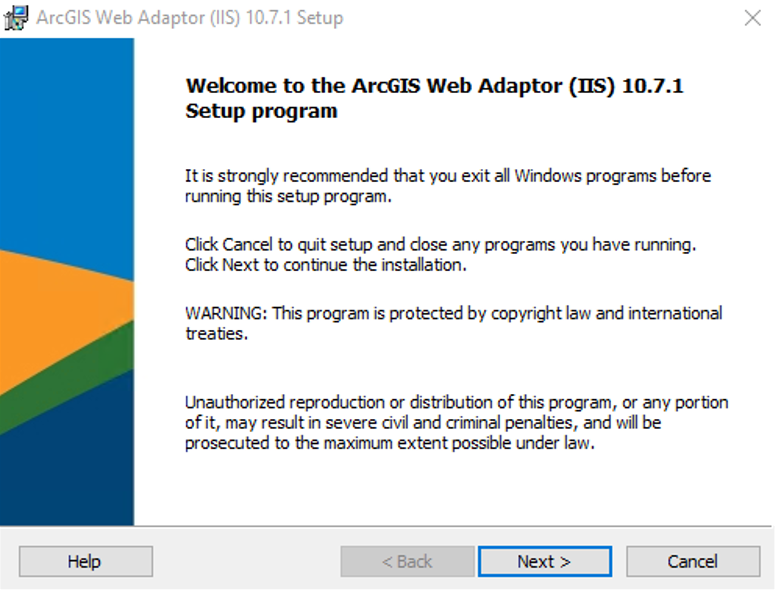


Figure 5‑35: Web Adaptor (IIS) – Setup

1. Choose a website for the Web Adaptor. Available websites are listed as **website name (port)** (see Figure 5‑36). When only one website is found on your machine, ArcGIS Web Adaptor is automatically placed on that website and the **Select Web site for Web Adaptor** will not display.

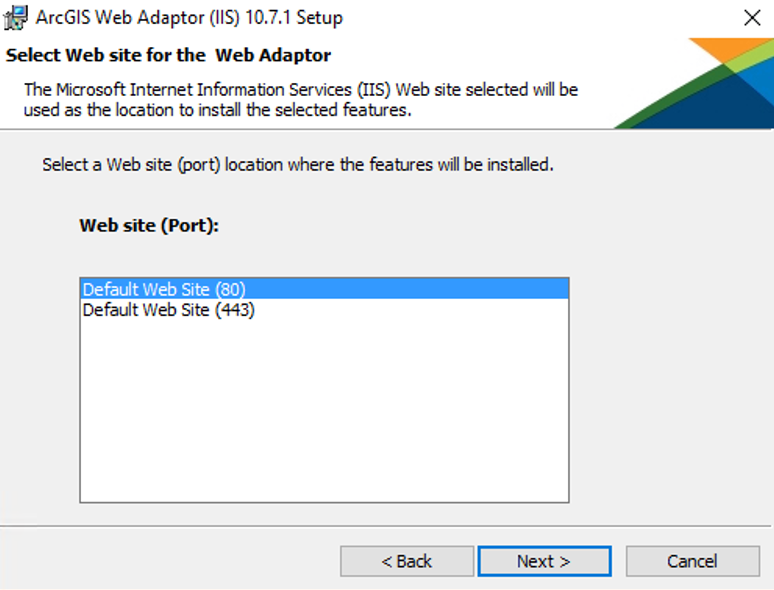


Figure 5‑36: Web Adaptor (IIS) Setup – Select Website

|  |  |
| --- | --- |
| ! | **Important:** You need to see both ports. Otherwise, the SSL certificate has not been bound to port 443 in IIS. |

1. Type the name of the Web Adaptor (see Figure 5‑37). The default value is “arcgis.” This instance name cannot contain spaces. Select **Next**.

|  |  |
| --- | --- |
| **🛈** | **Note:** A message will display if a virtual directory with the same name as the Web Adaptor already exists in the selected website. Select **OK** to close the message and enter a different name for the Web Adaptor. The name appears as **https://dns/portal**. |

1. To complete the installation, follow the directions on the setup screen (see Figure 5‑38).

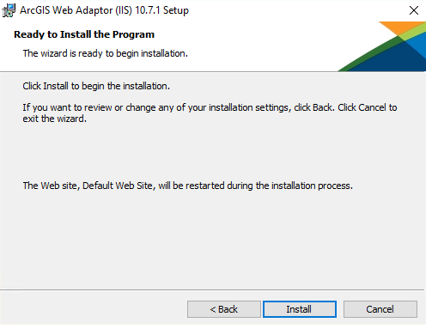


Figure 5‑38: Web Adaptor (IIS) Setup – Install

### Configure Web Adaptor for Portal for ArcGIS

The steps in this section explain how to configure ArcGIS Web Adaptor from the configuration web page that was installed with the software **MANUALLY.**

1. If you have not done so already, enable HTTPS on port 443 of your web server.
2. Open the configuration page in a web browser using an HTTPS URL in the format **https://webadaptorhost.domain.com/webadaptorname/webadaptor**. If a DNS alias will be used with the portal, the Web Adaptor should be configured over the DNS alias instead, using a URL in the format **https://<dnsalias.domain.com>/<webadaptorname>/webadaptor**.

|  |  |
| --- | --- |
| **🛈** | **Note:** If you have a forward proxy running on the web server where you installed ArcGIS Web Adaptor, disable it while registering the Web Adaptor. Otherwise, you will be unable to access the Web Adaptor configuration page. |

1. Select **Portal for ArcGIS** > **Next** (see Figure 5‑39).



Figure 5‑39: Web Adaptor (IIS) Setup – Select Component

1. Specify the URL and administrator account for your Portal (see Figure 5‑40):
   1. For **Portal URL**, type the URL to the machine hosting Portal for ArcGIS. Include the fully qualified domain name of the machine in the Portal URL field (e.g., https://portal.domain.com:7443).
   2. For **Administrator Username** and **Administrator Password**, supply a username and password for an account that has administrative privileges to Portal for ArcGIS. Typically, you will use the initial administrator account username and password you defined when you first set up your portal. If you demoted or deleted the initial administrator account, you will need to specify an account with administrative access to the portal website.
   3. Select **Configure**.
2. ArcGIS Web Adaptor will be configured for use with the machine hosting Portal for ArcGIS. Access your portal through ArcGIS Web Adaptor URL instead of port 7443.

The URL is in the format **https://webadaptorhost.domain.com/webadaptorname/home**

### Install Web Adapter

1. Open the firewall port on ArcGIS Server to allow Web Adaptor to communicate with Server (see Figure 5‑42).

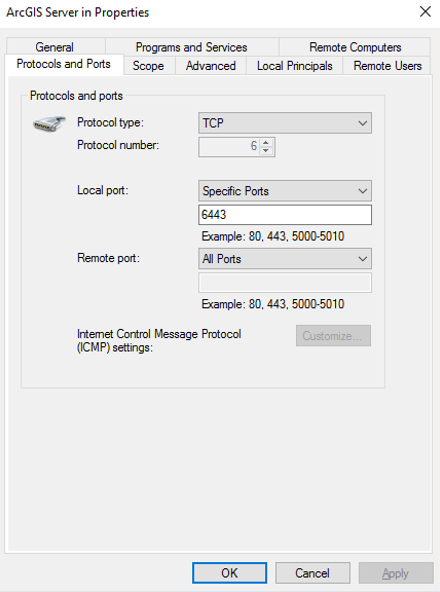


Figure 5‑42: Firewall Port

1. Run setup on Portal Server again to install and configure the adapter on the Server.
2. The ArcGIS Web Adaptor setup program should start automatically after the download is complete. If the setup does not start automatically, browse to the location of the downloaded setup files and launch Setup.exe. (Run Setup from the temp decompressed directory F:\GIS\...WebAdaptorIIS).
3. Review the terms and conditions of the master agreement. You must agree to the terms to proceed.
4. Choose a website for the Web Adaptor. Available websites are listed as **website name (port)**. When only one website is found on your machine, ArcGIS Web Adaptor is automatically placed on that website and the **Select website** dialog will not display.
5. Type the name of the Web Adaptor (see Figure 5‑43). The default value is arcgis. This instance name cannot contain spaces. Select **Next**.

|  |  |
| --- | --- |
| **🛈** | **Note:** A message will display if a virtual directory with the same name as the Web Adaptor already exists in the selected website. Select **OK** to close the message and enter a different name for the Web Adaptor. |

1. To complete the installation, follow the directions on the screen.

### Configure Web Adaptor for ArcGIS Server

1. Open the Web Adaptor configuration page in a web browser. The URL is in the format **https://webadaptorhost.domain.com/webadaptorname/webadaptor**.
2. Select **ArcGIS Server** > **Next** (see Figure 5‑44).



Figure 5‑44: Web Adaptor Install – Select Component

1. Specify the URL and administrator account for your server (see Figure 5‑45 on page 45).
   1. For **ArcGIS Server URL**, type the URL to one of the ArcGIS Server machines in your ArcGIS Server site. This URL will be used to discover all of the machines participating in your site and register them with the Web Adaptor.

When configuring the Web Adaptor with ArcGIS Server, the URL is in the format **https://gisserver.domain.com:6443**. When configuring the Web Adaptor with ArcGIS Notebook Server, the URL is in the format **https://notebookserver.domain.com:11443**.

* 1. For **Administrator Username** and **Administrator Password**, supply a username and password for an account that has administrative privileges to the ArcGIS Server site.

Typically, you will use the primary administrator account username and password you defined when you created the site. If you disabled the primary site administrator account, you will need to specify an account with administrative access to the site.

* 1. For **Enable administrative access to your site through the Web Adaptor**,choose whether users can administer the site through ArcGIS Web Adaptor. By default, administration of the site through ArcGIS Web Adaptor is enabled.

If ArcGIS Server is configured with web-tier authentication, you must keep administration enabled through ArcGIS Web Adaptor. This allows users in your enterprise identity store with publisher and administrator privileges to publish services from ArcGIS Desktop. When the users in these roles connect to the server in ArcGIS Desktop, they must specify the ArcGIS Web Adaptor URL.

|  |  |
| --- | --- |
| **⦸** | **Caution:** Administrative access through the Web Adaptor must remain enabled for ArcGIS Notebook Server sites. |

* 1. Select **Configure**.

1. The servers will be configured with your Web Adaptor (see Figure 5‑46).

# Customize ArcGIS

## Configure Portal for ArcGIS Security Settings

1. Open the ArcGIS Portal in a web browser
2. Enter the credential you created for the internal Portal Administrator (see Figure 6‑1).

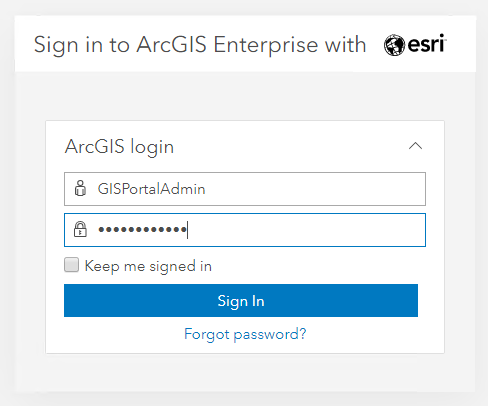


Figure 6‑1: Configure Portal

1. Go to **Settings** > **Security** to configure security settings for your portal. Select the options you want to enable (see Figure 6‑2).

The policy, **Allow anonymous access to your portal**, lets members share content publicly. It is probably best to leave this disabled. Consult the application owner or security administrator for guidance.

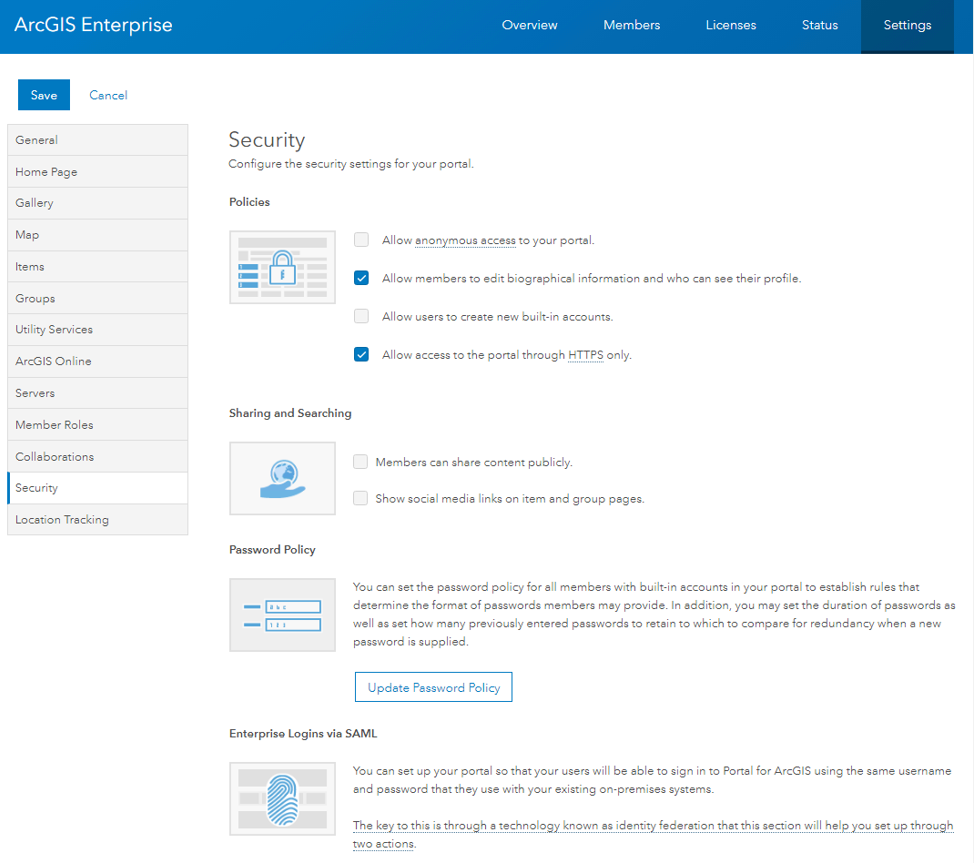


Figure 6‑2: Configure Portal – Security Settings

## Configure Portal Properties

Log in to the REST Administrator interface (see Figure 6‑3)

Go to Log 🡪 Change the settings changed from **Normal** to **Fine** to allow detailed usage.



Figure 6‑3: REST Login

### Set WebContextURL

1. Go to **System** > **Properties** > **Update**.
2. In the **Update System Properties** window, copy and paste the following text:

{

"WebContextURL":"https://gisgeo.com.gov/portal"

}

1. Additional configuration may be required in this window. For example, after adding an Internet proxy to the server in production, proxy statements needed to be inserted into the System Properties JSON. This is an example only.

{

"WebContextURL":"https://gisgeo.com/portal",

"privatePortalUrl":"https://portalfdqn:7443/arcgis",

"httpsProxyHost":"192.168.x.y",

"httpsProxyPort":80,

"httpProxyHost":"192.168.x.y",

"httpProxyPort":80zz,

"nonProxyHosts":"\*.com.gov"

}

### Configure to Use Integrated Windows Authentication

1. Select **Start** > **Control Panel** > **Administrative Tools** > **Internet Information Services Manager** to open IIS Manager.
2. Under **Sites**, expand the left tree of IIS Manager.
3. In the **Connections** panel, locate and expand the website hosting the Portal Web Adaptor and select the name of the Portal Web Adaptor portal.
4. Select **Home** > **Authentication,** then disable **Anonymous Authentication** and enable **Windows Authentication**.
5. Close IIS Manager.

### Import SSL, PFX, and Root CA Certificates to Portal

1. Confirm you have DOS root and intermediate certificates on hand.
2. Sign in to the ArcGIS Portal Directory as an administrator of your organization. The URL is in the format **https://webadaptorhost.domain.com/webadaptorname/portaladmin**.
3. Import the root and intermediate certificates (see Figure 6‑4).
   1. Select **Security** > **SSLCertificates** > **Import Root or Intermediate Certificate**.
   2. Browse to the location of the root certificate provided by the CA and select **Import**.
   3. Browse to the location of the intermediate certificate and select **Import**.

|  |  |
| --- | --- |
|  | **Repeat:** For additional root and intermediate certificates, apply steps 3. a. through 3. c. |

### Import PFX

1. Sign in to the ArcGIS Portal Directory as an administrator of your organization (see Figure 6‑6). The URL is in the format **https://webadaptorhost.domain.com/webadaptorname/portaladmin**.
2. Select **Security** > **SSLCertificates** > **Update**.
3. In the **Web server SSL Certificate** field, enter the alias of the CA-signed certificate. The alias you specify should match the alias of the certificate that was replaced with the CA-signed certificate in the previous section.
4. Select **Update**.

### Set Up Active Directory Identity Store

1. Sign in to the ArcGIS Portal Directory as an administrator of your organization to update your portal's identity store to use Active Directory users and groups. The URL is in the format **https://webadaptorhost.domain.com/webadaptorname/portaladmin**.
2. Go to **Security** > **Config** > **Update Identity Store**.
3. In the **User store configuration (in JSON format)** text box, use your organization's Windows Active Directory user configuration information (in JSON format). Alternatively, you can update the following sample with user information specific to your organization.

{

"type": "WINDOWS",

"properties": {

"userPassword": "plaintextpasswordifencryptedfalse",

"isPasswordEncrypted": "false",

"user": "mydomain\\winaccount",

"userFullnameAttribute": "cn",

"userEmailAttribute": "mail",

"caseSensitive": "false"

}

}

In most cases, you only need to alter values for the **userPassword** and **user** parameters. Although you type the password in clear text, it will be encrypted when you select **Update Configuration**. The account you specify for the user parameter only needs permissions to look up the email address and full name of Windows accounts on the network. If possible, specify an account whose password does not expire.

In the rare case where your Windows Active Directory is configured to be case sensitive, set the **caseSensitive** parameter to true.

If you want to create groups in the portal that leverage the existing enterprise groups in your identity store, paste use your organization's Windows Active Directory group configuration information (in JSON format) in the **Group store configuration (in JSON format)** text box. Alternatively, you can update the following sample with group information specific to your organization. If you only want to use portal's built-in groups, delete any information in the text box and skip this step.

{

"type": "WINDOWS",

"properties": {

"isPasswordEncrypted": "false",

"userPassword": "plaintextpasswordifencryptedfalse",

"user": "mydomain\\winaccount"

}

}

In most cases, you'll only need to alter values for the **userPassword** and **user** parameters. Although you type the password in clear text, it will be encrypted when you select **Update Configuration**. The account you specify for the user parameter only needs permissions to look up the names of Windows groups on the network. If possible, specify an account whose password does not expire.

1. Select **Update Configuration** to save your changes (see Figure 6‑8).

If you've configured a highly available portal, restart each portal machine. Refer to online instructions about stopping and starting the portal for complete instructions (see [Appendix B](#AppendixB)).

1. Enter the text as follows:

{

"type": "WINDOWS",

"properties": {

"userPassword": " plaintextpassword",

"isPasswordEncrypted": "false",

"user": "domain\\serviceaccountportal",

"userFullnameAttribute": "cn",

"userEmailAttribute": "mail",

"caseSensitive": "false"

}

}

{

"type": "WINDOWS",

"properties": {

"isPasswordEncrypted": "false",

"userPassword": "plaintextpasswordifencryptedfalse",

"user": "domain\\serviceaccountportal"

}

}

## Add Members to Portal

1. Log in to the portal with the URL **https://dns/portal/**.
2. Go to **Organization** > **Members**.
3. The next step did not work for me, because my admin login doesn’t have an assigned email address. Read and try the next step first, if it doesn’t work, then comeback here.
4. So, here is the work around. Go to Web Adaptor 🡪 Open IIS 🡪 Go to Default Web Site 🡪 Go to Portal 🡪 Go to Authentication 🡪 Turn off Anonymous 🡪 Turn ON Windows Authentication 🡪 Click back on Default Web Site and Restart Site.
5. Go to your portal it should make you a viewer account by default, go back to IIS, and turn back on Anonymous and turn back OFF windows authentication.
6. Go back to your portal and it might keep you logged in as a viewer, if so, open a new tab and Go to <https://fdqnportal:7443/arcgis/>
7. Sign in as admin, and make your viewer account, a creator account and administrator. Additionally, you will have to add your account to the “Featured Maps and Apps”.
8. Go back to IIS and turn ON Windows Authentication and Turn OFF Anonymous. Your admin account will now be an administrator in portal.

### Add Members Based on Existing Enterprise Users

1. Select **New Members** to add individual members (see Figure 6‑10).
2. On the **Add Members** page, select **Add members based on existing enterprise users**, then select **Next**.
3. In the **Add member** page, select the **New member** tab, then select **Search for user**.

### Add Member to ArcGIS Group(s).

1. From the **Add members** page, select **Assign groups** to add members to groups (see Figure 6‑12).

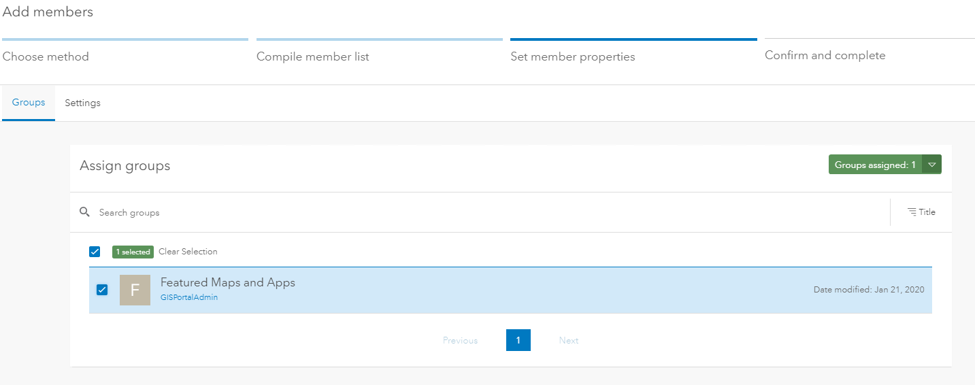


Figure 6‑12: Add Members – Assign to Group

1. Select **Next** to continue, then select **Add Member** in the next window.

## Configure ArcGIS Server (Verify)

Log in to the server with the URL **https://dnsname/server/manager/**.

### Verify the ArcGIS Server Software Authorization

To verify the ArcGIS Server Software Authorization and ensure that the software is licensed for the specified roles and extensions, follow these steps:

**Step-by-Step Verification Process**

1. **Log in to ArcGIS Server Manager**
   * Open a web browser and navigate to the ArcGIS Server Manager URL. This is typically https://<your\_server\_domain>:6443/arcgis/manager.
   * Log in using your ArcGIS Server administrative credentials.
2. **Navigate to Software Authorization**
   * Once logged in, click on the "Site" tab at the top of the page.
   * In the Site tab, click on the "Software Authorization" link in the left-hand panel.
3. **Review Authorization Information**
   * In the Software Authorization section, you will see details about the current software authorization for your ArcGIS Server.
   * Verify the following information:
     + **Version:**
     + **Roles and Extensions:**
4. **Check Roles and Extensions Expiration Dates**
   * Confirm that the GIS Server Advanced role is listed with an expiration date of "Never."
   * Confirm that the Network Analyst extension is listed with an expiration date of "Never."

**Troubleshooting Tips**

* **If Roles or Extensions are Missing:** If you do not see the roles or extensions listed, or if their expiration dates do not match, you may need to reauthorize the software using the authorization file provided by Esri.
* **Reauthorizing the Software:**
  1. Click on the "Authorize Now" button within the Software Authorization section.
  2. Follow the prompts to reauthorize the software using the appropriate authorization file (.prvc) or authorization code provided by Esri.

**Verifying via Command Line (Optional)**

For additional verification, you can use the authorizeSoftware command from the command line:

1. Open a Command Prompt with administrative privileges.
2. Navigate to the ArcGIS Server installation directory, typically C:\Program Files\ArcGIS\Server\bin.
3. Run the following command: SoftwareAuthorizationLS.exe -v

This command will display the current authorization status of your ArcGIS Server, including versions and expiration dates for roles and extensions.

By following these steps, you should be able to verify that your ArcGIS Server is correctly authorized for the specified roles and extensions.

1. ArcGIS Server Software Authorization:
2. ArcGIS Server is licensed for the following roles and extensions in Table 6‑2.

Table 6‑2: ArcGIS Server Roles and Extensions

|  |  |
| --- | --- |
| Role | Expiration Date |
| GIS Server Advanced | Never |
| Extension | Expiration Date |
| Network Analyst | Never |

### Configure Log Settings for ArcGIS Server

Log in to the REST Administrator interface for Server

Go to Log 🡪 Change the settings changed from **Normal** to **Fine** to allow detailed usage.

Log settings changed from **Normal** to **Fine** to allow detailed usage.

## Server Administrator Interface

1. Log in to the server with the URL **https://dns/server/admin/**.
2. Import SSL PFX and root CA certificates to ArcGIS Server.

### Import Root Certificate

1. Navigate to **Home** > **machines** > **fqdn> SSL Certificates** > **Import Root or Intermediate**.
2. Alias:
3. Certificate file: .cer

### Import Existing Server Certificate

1. Certificate password:
2. Alias:
3. Certificate File: .pfx

# Federate ArcGIS Servers to Portal

1. Log in to Portal for ArcGIS as **GISPortalAdmin**.
2. Select **Organization** > **Settings** > **Servers** > **Add Server**.
3. Enter the hosting server (**https://dns/server**) in the **Services URL** and **Administration URL** fields, input your credentials, then select **Add**

## Hosting Server

1. Sign in to the portal website as an administrator and go to **Organization** > **Settings** > **Servers**.
2. Select **No hosting server** from the drop-down menu
3. Select **Save**.

|  |  |
| --- | --- |
| **🛈** | **Note:** This process will update other servers in the installation and take a few minutes. |

1. To confirm the hosting server, select **Validate Servers**
2. Once server is validated, hover over the green check mark in the **Status** column to view server details

## Utility Services for ArcGIS Server

For the most part, this step is already configured by default, just go to server manager and verify the services are turned on, then go back to portal and make sure they are shared.

Default administrators and those with the correct [privileges](https://enterprise.arcgis.com/en/portal/10.8/administer/windows/roles.htm#ESRI_SECTION1_4FF9051EFB814C249AB26B0ACFF7C79F) can configure the portal to use services to perform various tasks, including printing, geocoding, geometric calculations, spatial analysis, routing, and more. These are referred to as utility services. To learn more about these services, see [About utility services](https://enterprise.arcgis.com/en/portal/10.8/administer/windows/about-utility-services.htm).

The way you configure utility services for your portal depends on the service and where it originates. How you configure utility services depends on where the service originates. Follow the instructions specific to the origin of the service you want to configure as a utility service for your portal.

* If the service is provided by Esri and requires credentials from an ArcGIS Online account, use the **ArcGIS Online** tab on the **Settings** page of your portal to select the service to be configured and store the account credentials. See [Configure ArcGIS Online utility services](https://enterprise.arcgis.com/en/portal/10.8/administer/windows/configure-arcgis-online-utility-services.htm) for steps on how to do this.
* If the [service is from a federated server](https://enterprise.arcgis.com/en/portal/10.8/install/windows/configure-services.htm#ESRI_SECTION2_A3E5299DB5D349FD94AB25B4F1BFE2C5), start the service, share the service, and configure it as a utility service.
* If the [service is not from a federated server and requires credentials](https://enterprise.arcgis.com/en/portal/10.8/install/windows/configure-services.htm#ESRI_SECTION2_CD97431BAC104D9A80DEA0D55F4420D9), add the service as an item in your portal, specify credentials to the service, share the service, and configure it as a utility service. Services from secured ArcGIS Server sites are added in this way.
* If the [service is not from a federated server and does not require credentials](https://enterprise.arcgis.com/en/portal/10.8/install/windows/configure-services.htm#ESRI_SECTION2_540FBD09EFC64A93B4C9216FE9BA4535), add the URL directly to the **Utility Services** dialog box.

|  |  |
| --- | --- |
| **🛈** | **Note**: If your portal accesses any of the utility services over HTTPS, but the ArcGIS Server site on which the utility service runs use a certificate that is either self-signed or issued by an internal Certificate Authority, you must configure the portal to trust that certificate. For instructions on how to do this, see [Configuring the portal to trust certificates from your certifying authority](https://enterprise.arcgis.com/en/portal/10.8/administer/windows/configuring-the-portal-to-trust-certificates-from-your-certifying-authority.htm). |

### If the service is from a federated server

1. On the ArcGIS Server site that you have federated with your portal, start the services that you want to configure as utility services. You can do this by signing in to ArcGIS Server Manager with a portal member account with administrator privileges. Manager is typically available through a URL such as https://dns/server/manager. The ArcGIS Server preconfigured print and geometry services are stopped by default.
2. Verify that you are signed in as a default administrator or with a custom role with administrative privileges to manage utility services.
3. Click the **My Content** tab of the content page.
4. Click the name of the service that you want to configure as a utility service to open the item's details page.
5. On the **Overview** tab, click **Share** and specify who can access this service.

How you share a service depends on who needs to use the functionality the service provides. For example, if you want anyone who connects to the portal to see thumbnails and print maps, share the print service with **Everyone**. If you want to allow your portal members to geocode locations, but you don't want anonymous users to do this, share the geocode service with the portal organization. If you want to restrict the use of analysis tools that require GeoEnrichment to the members of specific groups, share the GeoEnrichment service with those groups only.

1. Click **OK** to apply the **Share** settings.
2. Copy the URL at the bottom of the **Overview** tab.
3. Open the **Organization** page of the portal website and click the **Settings** tab.
4. Click **Utility Services**.
5. Paste the service URL into the appropriate utility service field. Ensure that you append the task name to the service if it is a print service or route service. See the sections on specific utility services above for details.
6. Click **Save**.

### If the service is not from a federated server and requires credentials

1. Verify that you are signed in as a default administrator or with a custom role with administrative privileges to manage utility services.
2. Click the **My Content** tab of the content page.
3. Click **Add Item > From a URL** .
4. On the **Add item from the web** dialog box, select the **ArcGIS Server web service** option and specify the URL to the service.
5. Since this is a secure service, you must provide credentials to access it. Type a valid user name and password to access the service, and select **Store credentials with service item. Do not prompt for authentication.** to save the credentials.
6. Enter a title and tags for your service and click **Add Item**.

The details page for the item appears.

1. On the **Overview** tab, click **Share** to specify who can access the service.

How you share a service depends on who needs to use the functionality the service provides. For example, if you want anyone who connects to the portal to see thumbnails and print maps, share the print service with **Everyone**. If you want to allow your portal members to geocode locations, but you don't want anonymous users to do this, share the geocode service with the portal organization. If you want to restrict the use of analysis tools that require GeoEnrichment to the members of specific groups, share the GeoEnrichment service with those groups only.

1. Click **OK** to apply the **Share** settings.
2. Copy the URL at the bottom of the **Overview** tab.
3. Open the **Organization** page of the portal website and click the **Settings** tab.
4. Click **Utility Services**.
5. Paste the service URL into the appropriate utility service field. Ensure that you append the task name to the service if it is a print service or route service. See the sections on specific utility services above for details.
6. Click **Save**.

### If the service is not from a federated server and does not require credentials

1. Verify that you are signed in as a default administrator or with a custom role with administrative privileges to manage utility services.
2. At the top of the site, click **Organization** and click the **Settings** tab.
3. Click **Utility Services**.
4. Paste the service URL into the appropriate utility service field. Ensure that you append the task name to the service if it is a print service or route service. See the sections on specific utility services above for details.
5. Click **Save**.
6. Repeat these steps as necessary to configure other services as your utility services.

|  |  |
| --- | --- |
| **🛈** | **Note**: To reset the utility services back to their default URLs, delete the URL for each utility service you have configured and click **Save.** When you return to the **Utility Services** page, the URLs will be reset to their defaults. |

### Printing

Beginning at 10.3.1, when you specify a hosting server for your portal, the hosting server's print service is automatically started and configured with the portal; however, you need to share the print service to the organization to use it in the portal. Beginning at 10.5.1, when you specify a hosting server for your portal, the print service is automatically shared with the organization. If you configured a print service prior to Portal for ArcGIS 10.3, upgraded your portal, and then specified a hosting server, the URL is not updated when specifying a hosting server.

When you configure a print service with the portal, you must add the task name of the service to the REST URL. For example, add /Export%20Web%20Map%20Task for the ArcGIS Server default PrintingTools service or /Export%20Web%20Map for a custom print service. The URL will look similar to the following:

* An ArcGIS Server preconfigured print service: https://webadaptorhost.domain.com/webadaptorname/rest/services/Utilities/PrintingTools/GPServer/Export%20Web%20Map%20Task
* A custom ArcGIS Server print service: https://webadaptorhost.domain.com/webadaptorname/rest/services/folder/servicename/GPServer/TaskName

Asynchronous print services are not supported.

### Geometry

You can add the following types of geometry services to the portal:

* A geometry service [from a federated or hosting server](https://enterprise.arcgis.com/en/portal/10.8/install/windows/configure-services.htm#ESRI_SECTION2_A3E5299DB5D349FD94AB25B4F1BFE2C5)
* A geometry service [that requires credentials and is from a server that is not federated with your portal](https://enterprise.arcgis.com/en/portal/10.8/install/windows/configure-services.htm#ESRI_SECTION2_CD97431BAC104D9A80DEA0D55F4420D9)
* A geometry service [that does not require credentials and is from a server that is not federated with your portal](https://enterprise.arcgis.com/en/portal/10.8/install/windows/configure-services.htm#ESRI_SECTION2_540FBD09EFC64A93B4C9216FE9BA4535)

The preconfigured geometry service included with all ArcGIS Server sites is stopped by default. You must explicitly start the service before you can access its URL, which will be in the format https://webadaptorhost.domain.com/webadaptorname/rest/services/Utilities/Geometry/GeometryServer.

A custom ArcGIS Server geometry service URL is in the format https://gisserver.domain.com:6443/arcgis/rest/services/folder/servicename/GeometryServer.

### GeoEnrichment

You can add the [Esri GeoEnrichment Service from ArcGIS Online](https://enterprise.arcgis.com/en/portal/10.8/administer/windows/configure-arcgis-online-utility-services.htm) to your portal. To use this service, you must provide credentials for an ArcGIS Online organizational account that has credits associated with it.

The Business Analyst web app leverages GeoEnrichment as a utility service in the Enterprise portal to create sites, reports, infographics, and more. GeoEnrichment capabilities are provided with Business Analyst Server and can be configured in portal following the steps below:

1. Verify that you are signed in as a default administrator or with a custom role with administrative privileges to manage utility services.
2. At the top of the site, click **Organization** and click the **Settings** tab.
3. Click **Utility Services** on the left side of the page.
4. Enter the URL for your GeoEnrichment Service, for example, https://webadaptor.domain.com/arcgis/rest/services/DefaultMap/geoenrichmentserver.
5. Click **Save**.

### Hydrology

You can add the [Esri Hydrology Service from ArcGIS Online](https://enterprise.arcgis.com/en/portal/10.8/administer/windows/configure-arcgis-online-utility-services.htm) to your portal. To use this service, you must provide credentials for an ArcGIS Online organizational account.

### Orthomapping Elevation

This service is used by the [Ortho Maker web app](https://enterprise.arcgis.com/en/portal/10.8/use/introduction-to-ortho-maker.htm), from initial image collection creation to block adjustment and final product creation. For Ortho Maker users, if your portal is not connected to the internet, or if you have higher-resolution data you want to use with the app, you can publish an orthomapping elevation service and add its service URL here. If you do not have your own orthomapping elevation service and your portal's users have access to the internet, [add the Esri Orthomapping Elevation Service from ArcGIS Online](https://enterprise.arcgis.com/en/portal/10.8/administer/windows/configure-arcgis-online-utility-services.htm).

### Elevation

The portal uses two elevation services: an elevation utility service for analysis and an elevation service used in Scene Viewer.

For analysis, you can add the [Esri World Elevation Service from ArcGIS Online](https://enterprise.arcgis.com/en/portal/10.8/administer/windows/configure-arcgis-online-utility-services.htm) to your portal. To use this service, you must provide credentials for an ArcGIS Online organizational account. Alternatively, you can [configure a custom elevation utility service](http://links.esri.com/arcgis-portal-elevation-service) to use if your portal is not connected to the internet.

For Scene Viewer, if your portal is not connected to the internet or you have higher-resolution data you want to use for the Scene Viewer elevation service, you can [publish an elevation service and update the portal's Elevation3D Service setting](https://enterprise.arcgis.com/en/portal/10.8/administer/windows/configure-default-elevation-service.htm).

### Directions and routing

You can add the following types of directions and routing services to the portal:

* [Esri network utility services on ArcGIS Online](https://enterprise.arcgis.com/en/portal/10.8/administer/windows/configure-arcgis-online-utility-services.htm). To use these services, you must provide credentials for an ArcGIS Online organizational account that has credits associated with it. The following services are included:
  + Routing
  + Closest Facility
  + Asynchronous Closest Facility
  + Service Area
  + Asynchronous Service Area
  + Vehicle Routing Problem
  + Asynchronous Vehicle Routing Problem
  + Location Allocation
  + Routing Utilities
  + Asynchronous Routing Utilities
  + Traffic
  + Traffic Data
* Your own network utility services for use in a portal that is restricted to a disconnected environment. For instructions, see the deployment steps in [Publish Routing Services utility](https://enterprise.arcgis.com/en/server/10.8/administer/windows/publishing-routing-services.htm).

### Geocoding

You can configure multiple geocoding services with your portal. The following types of geocoding services are supported:

* A geocoding service [from a federated or hosting server](https://enterprise.arcgis.com/en/portal/10.8/install/windows/configure-services.htm#ESRI_SECTION2_A3E5299DB5D349FD94AB25B4F1BFE2C5).
* A geocoding service [that requires credentials and is from an ArcGIS GIS Server site that is not federated with your portal](https://enterprise.arcgis.com/en/portal/10.8/install/windows/configure-services.htm#ESRI_SECTION2_CD97431BAC104D9A80DEA0D55F4420D9).
* A geocoding service [that does not require credentials and is from an ArcGIS GIS Server site that is not federated with your portal](https://enterprise.arcgis.com/en/portal/10.8/install/windows/configure-services.htm#ESRI_SECTION2_540FBD09EFC64A93B4C9216FE9BA4535).
* The [Esri World Batch Geocoder](https://enterprise.arcgis.com/en/portal/10.8/administer/windows/configure-arcgis-online-utility-services.htm). You must provide credentials for an ArcGIS Online account that has credits associated with it to use this service.
* A [locator view](https://enterprise.arcgis.com/en/portal/10.8/use/geocode.htm#ESRI_SECTION1_BC67C473527D4AD4A51F24B5D1A6860C), once you have configured the [Esri World Batch Geocoder](https://enterprise.arcgis.com/en/portal/10.8/administer/windows/configure-arcgis-online-utility-services.htm).

The ArcGIS World Geocoding Service is configured as a geocoding utility service by default. If you want to geocode tables of addresses, configure one of the following as an additional geocoding utility service:

* An ArcGIS Server geocoding service for which the **Batch Geocoding** operation is enabled.

The URL for a geocoding service from an ArcGIS Server is in the format https://webadaptorhost.domain.com/webadaptorname/rest/services/folder/servicename/GeocodeServer.

* The Esri World Batch Geocoder from ArcGIS Online.

To configure the Esri World Batch Geocoder as a geocoding utility service, go to the [ArcGIS Online](https://enterprise.arcgis.com/en/portal/10.8/administer/windows/configure-arcgis-online-utility-services.htm) tab and check the **Geocode** check box under **Configure Utility Services**. Be aware that the ArcGIS Online credentials you provide must have privileges in ArcGIS Online to geocode, and that using this service consumes ArcGIS Online credits.

A [locator](https://enterprise.arcgis.com/en/portal/10.8/use/geocode.htm) is used to search for and locate addresses and places on a map. You can specify locators that members of your portal can access. You can add a locator by referencing the URL of your own locator or by pointing to an existing locator item in your portal.

|  |  |
| --- | --- |
| **🛈** | **Note**: If you specify one or more locator views along with ArcGIS World Geocoding Service, users may see multiple matching suggestions when searching for locations. To ensure an optimal publishing and geosearch experience, configure batch geocoding and geosearch as appropriate when configuring locators for your portal. |

To add a locator, complete the following steps:

1. Verify that you are signed in as a default administrator or with a custom role with administrative privileges to manage utility services.
2. At the top of the site, click **Organization** and click the **Settings** tab.
3. Click **Utility Services** on the left side of the page.
4. In the **Geocoding** section, click **Add Locator** and do one of the following:
   * Select **From URL** and enter the URL to the locator—for example, https://webadaptorhost.domain.com/webadaptorname/rest/services/World/GeocodeServer.
   * Select **From Existing Locator** and select the locator item you want. Only locators shared with your organization or with the public are available for selection.
5. For **Locator Name**, enter the name (Restaurant Locator) you want to appear in the drop-down menu of locators on the site (for example, in Map Viewer).
6. For **Placeholder Text**, enter a hint (restaurant name) that will appear in the input box on the site.
7. Check the appropriate boxes if you want to allow geosearch and batch geocoding.
8. Configure the number of threads for batch geocoding and click **OK** to save your changes. This number should be less than the number of instances available for the service. To adjust the number of instances for your published geocoding service, go to the ArcGIS Server Manager. The option to configure the number of threads for batch geocoding is not available for the Esri World Batch Geocoder or for locator views. For more information about batch geocoding threads, see [Best practices for portal batch geocoding](https://enterprise.arcgis.com/en/portal/10.8/administer/windows/best-practices-for-portal-batch-geocoding.htm).
9. Repeat the process to add additional locators.
10. You can manage the locators in the following ways:
    * To edit an existing locator, click the edit button Edit next to the locator and make your updates. Click **OK** to save your changes.
    * To delete an existing locator, click the delete button Delete next to the locator.
    * To reorder how the locators appear in the geosearch drop-down menu on the site, click the up or down arrow next to the locator.
11. Click **Save**.

## Adding Basemap Gallery

This step is very simple, as were only adding the basemap that come by default.

To add basemaps to your ArcGIS Enterprise portal (version 10.8.1), you need to configure the portal's Basemap Gallery. Here are the steps to configure and add basemaps:

Step 1: Configure the Basemap Gallery Group

1. **Log in to your ArcGIS Enterprise portal as an administrator**.
2. Go to **Organization > Settings > Map**.
3. In the **Basemap Gallery** section, select a group that will contain the basemaps. If you do not have a group for basemaps, you will need to create one:
   * Go to **Content > Groups > Create Group**.
   * Name the group (e.g., " Basemap Gallery") and set appropriate sharing settings.
   * “Basemap group. Used to add basemaps to default basemap menu. Basemaps must be shared with Everyone. Vector basemaps are added to group from Org, Settings, Maps.”
   * Click **Create Group**.

Step 2: Add Basemaps to the Group

1. Go back to **Organization > Settings > Map**.
2. In the **Basemap Gallery** section, set the group you created as the basemap gallery group.
3. Click the buttons, “Share Vector Basemaps” and “Share Raster Basemaps”.
4. Click **Save.**
5. Navigate to the **Group** page.
6. Verify the content is in fact inside the group.

Step 3: Verify the Basemaps

1. Navigate to the **Map Viewer**.
2. Click the **Basemap** button.
3. Ensure the basemaps from your basemap gallery group are available for selection.

# Additional ArcGIS Servers

This section describes the ArcGIS Server specifications for the Image Server, GeoEvent Server, and Spatiotemporal Data Store.

### Initial Administration Steps

Each installation of ArcGIS Server (in its various roles, such as Image Server) has its own independent Primary Site Administrator Account. Make sure to properly document each server, account, and password properly.

**COMMON STEPS FOR ALL SERVERS** – these need to be executed on all servers that participate in the Site:

**Step by Step Guide:**

Find Install Scripts 🡪 Click on Section 8 (Folders will correspond to the sections in this guide)

Copy each section 8 folder in the Image Server (8.1.2, 8.1.3, 8.1.4)

**NOTE:** Go to F Drive of the corresponding VM, create a folder named InstallScripts and have the path look as such: F:\InstallScripts\Section 8\8.1

The reason is because, many of these install scripts are depended on constant share folder paths.

Verify the parameters of each .cmd script 🡪 Verify the parameters of the .ps1 file named 0\_Folders

The only parameter, you might have to change is the service account, or file server path (these scripts are already filled out with the parameters needed).

The PowerShell calls each .cmd script in the folder, which means you will need to verify the .cmd script path is correct in the PowerShell script too (although the path will likely be correct if you keep the same folder path F:\InstallScripts\8.1).

Open PowerShell as Admin 🡪 f: 🡪 cd “F:\InstallScripts\Section 8\8.1\1. ImageServer 8.1.2” 🡪 .\ 0\_Folders.ps1 🡪 Run

Afterwards, you can move on to the next section.

### Install ArcGIS ImageServer Software

1. Change location of Temp directory of Service Account for backups.

ArcGIS Backup uses the service account temp directory to prepare and store backup file to consolidate into one package. This is by default on the C: OS drive. Backups have become very large and consume more disk space on C: drive than is usually available, thus causing operating issues. Moving the TEMP directory to a larger disk solves this problem.

1. Login to IMG11.
2. Create a TEMP directory on the data drive (F:\TEMP).
3. Log in to the server machine as the Windows Service Account that administers ArcGIS Server.
4. Right-click Computer and click Properties.
5. Click Advanced system settings on the left panel.
6. In the System Properties dialog box, click the Advanced tab.
7. At the bottom of the dialog window, click Environment Variables.
8. In the variable value edit box, specify the path to the directory for ArcGIS Server to temporarily compile its backups (F:\TEMP).
9. Repeat that process for both the TMP and TEMP user environment variables.
10. Restart Windows for the new settings to take effect.

**Step by Step Guide:**

Because you already copied all the image server script folders in the last section. You just need to verify and run the scripts in the next couple of sections.

Find the script folder 8.1.3 in your F drive of the VM 🡪 Open each script and verify the parameters. As before, the parameter, you might have to change is the service account, or file server path (these scripts are already filled out with the parameters needed).

The PowerShell calls each .cmd script in the folder, which means you will need to verify the .cmd script path is correct in the PowerShell script too (although the path will likely be correct if you keep the same folder path F:\InstallScripts\Section 8\8.1\2. ImageServer 8.1.3).

Open PowerShell as Admin 🡪 f: 🡪 cd “F:\InstallScripts\Section 8\8.1\2. ImageServer 8.1.3” 🡪 .\ 0\_SVR.ps1 🡪 Run

You can move to the next step (configuration), once completed, unless your interested in the details listed below.

**Details:**

Manual Install Quick Guide (if trouble with scripts):

Double Click Setup.exe

Click Next 🡪 On the next page 🡪 Change the folder name: F:\Program Files\ArcGIS\Server 🡪 Click Ok 🡪 Change the Python Folder 🡪 F:\Python27\ 🡪 Input Service Account information 🡪 Click Next 🡪 Export Server Configuration File (Select Do Not Export) and click next 🡪 Install 🡪 Click Finish (when install is done) 🡪 Select “I Have received an authorization file and am now ready to finish the authorization process.” And browse to your server license (authorization.ecp) 🡪 Click finish and go to the server manager site. Create new site (https://localhost:6443/arcgis/manager/)

1. Establish Ports Rules and open ports.

echo %date% %time% > F:\AGSDeploy\Logs\Ports.log

echo Existing listening Ports on VM >> F:\AGSDeploy\Logs\Ports.log

netstat -an |findstr /i "listening" >> F:\AGSDeploy\Logs\Ports.log

echo Adding in direction Ports >> F:\AGSDeploy\Logs\Ports.log

netsh advfirewall firewall add rule name=" WHITELIST TCP IN" dir=in action=allow protocol=TCP localport= 6080,6443,6006,1098,6099,4000,4001,4002,4004

netsh advfirewall firewall show rule name=" WHITELIST TCP IN" >> F:\AGSDeploy\Logs\Ports.log

echo Adding out direction Ports >> F:\AGSDeploy\Logs\Ports.log

netsh advfirewall firewall add rule name=" WHITELIST TCP OUT" dir=out action=allow protocol=TCP localport= 6080,6443,6006,1098,6099,4000,4001,4002,4004

netsh advfirewall firewall show rule name=" WHITELIST TCP OUT" >> F:\AGSDeploy\Logs\Ports.log

echo %date% %time% >> F:\AGSDeploy\Logs\Ports.log

echo Added listening Ports on VM >> F:\AGSDeploy\Logs\Ports.log

netstat -an |findstr /i "listening" >> F:\AGSDeploy\Logs\Ports.log

1. Administratively install ArcGIS Server.

F:\AGSDeploy\Software\ArcGISServer\Setup.exe /qb ACCEPTEULA=yes /l\* F:\AGSDeploy\Logs\ArcGISServer\_Setup.log INSTALLDIR=F:\ArcGIS\Server INSTALLDIR1=F:\ArcGIS\Python27 USER\_NAME="domain\serviceaccount" PASSWORD="<password here>"

1. License file for ArcGIS Server and extensions

Generate a secure site operation authorization request from ArcGIS Server. This file will contain all the configurations required for the issuance of a secure site license.

Note:- this step can only be executed after a successful server install (Verify via Setup log as described in the previous step).

The contents under F:\AGSDeploy\License should be like this:

F:\AGSDeploy\License/authorize.txt

Upload the secure site operation authorization request to myESRI, and download the resultant ECP file and locate it under the License folder. This file will contain all the configurations required for non-internet authorization of ArcGIS Server

The contents under F:\AGSDeploy\License should be like this:

F:\AGSDeploy\License/authorization.ecp

1. Administratively authorize ArcGIS Server with the obtained license

"C:\Program files\Common files\ArcGIS\bin\SoftwareAuthorization.exe" /S /Ver 10.8.1 /LIF <full path to license file>

1. Administratively install Patch(es) for ArcGIS Server.

msiexec.exe /qb /l\* F:\AGSDeploy\Logs\ArcGIS-1081-S-SEC2023U1-Patch.log /p F:\AGSDeploy\Software\Patches\2023\ArcGIS-1081-S-SEC2023U1-Patch.msp

msiexec.exe /qb /l\* F:\AGSDeploy\Logs\ArcGIS-1081-S-MFSSEC2023U1-Patch.log /p F:\AGSDeploy\Software\Patches\2023\ArcGIS-1081-S-MFSSEC2023U1-Patch.msp

Repeat for any additional Patches

*Important-* Review the log output from the installer and look for errors or failures.

Step 10. Check successful installation of ArcGIS Server.

"C:\Program Files\Internet Explorer\iexplore.exe" https://localhost:6443/arcgis/manager

"C:\Program Files\Internet Explorer\iexplore.exe" https://localhost:6443/arcgis/admin/?f=pjson

Step 11. Administratively install SQL client to enable database connectivity.

msiexec.exe /i "F:\AGSDeploy\Software\msodbcsql.msi" IACCEPTMSODBCSQLLICENSETERMS=yes /qb /l\* F:\AGSDeploy\Logs\msodbcsql\_17\_x64\_Setup.log

### Configure ArcGIS ImageServer

**Step by Step Guide:**

Because you already copied all the image server script folders in the last section. You just need to verify and run the scripts in the next couple of sections.

Find the script folder 8.1.4 in your F drive of the VM 🡪 Open the .txt file and verify the parameters.

Generate a properties file in the deployment Configurations folder, essentially just verify the file parameters inside the properties file:

Notepad F:\AGSDeploy\Configs\createsite.properties

The main parameters you are looking for are, Server Username and Password (Image Server) and make sure the encryption is set to False.

Create the .properties file and place the file inside the folder in F:\ArcGIS\Server\tools\createsite\

Rename the old file with an underscore \_orginal. This section doesn’t have much steps which is why there isn’t much automation. However, I do plan on automating creating the properties file and running the .bat command.

Open cmd as Admin 🡪 f: 🡪 cd F:\ArcGIS\Server\tools\createsite\ 🡪 F:\ArcGIS\Server\tools\createsite\createsite.bat -f createsite.properties

You can move to the next step (configuration), once completed, unless your interested in the details listed below.

Additionally, this step is sort of misleading, as there isn’t a script to run. There will be .txt file in place of the script. Open CMD as admin and copy and paste the lines mentioned in the .txt file into cmd. Make sure to make a createsite.properties file first.

**Details:**

Step 10. Generate a properties file in the deployment Configurations folder:

Notepad F:\AGSDeploy\Configs\createsite.properties

This file will contain all the configurations required for the site build. Double-check that “.txt” is not appended to the file name. The exact file name needs to be createsite.properties

Step 11. Execute ArcGIS Site build by copy/paste the following lines into the Console:

F:\

cd\F:\AGSDeploy\Configs

F:\ArcGIS\Server\tools\createsite\createsite.bat -f createsite.properties

Script output of successful build-

Starting the createsite utility.

Checking if the ArcGIS Server is initialized.

The ArcGIS Server is not initialized.

Validating ArcGIS Server environment.

The ArcGIS Server is configured successfully.

You will be able to access ArcGIS Server Manager by navigating to

https://fqdn:6443/arcgis/manager

The createsite utility completed successfully.

Stopping the createsite utility.

Test the build as follows-

“C:\Program Files\Internet Explorer\iexplore.exe" <https://localhost:6443/arcgis/manager>

“C:\Program Files\Internet Explorer\iexplore.exe" <https://localhost:6443/arcgis/manager>

### Confirm Installation/License

1. Browse to Server Manager: **https://dns/server/manager/#**.
2. Log in as the site administrator.
3. Navigate to **Site > Server Authorization**.
4. Verify the Image Server is authorized (see Figure 13‑1).

### Install Web Adaptor for Image Server

1. Run Web Adaptor for IIS Setup using the instructions in section 5, use the adaptor name **image**.

### Configure Web Adaptor for IIS – Image Server

* + - 1. Configure the Image Server using the instructions in [Section 5.6](#_Configure_ArcGIS_Web), except in [step 5](#section_5_6_step_5), use the URL **https://fqdn:6443** in the **ArcGIS Server URL** field

### Federate Server

To federate the Image Server to the ArcGIS site, follow the same instructions in [Section 8](#_Federation_of_ArcGIS), except in [step 3](#section_8_step_3), enter the Web Adaptor friendly name **https://dns/image** in the **Services URL** field

### Check for Patches

Check ArcGIS file repository on the CfA Share or the Esri technical support page at **https://support.esri.com/en/** for any patches needed for both the ArcGIS Server and Image Server.

## ArcGIS GeoEvent Server

### Primary Site Administration Account and Password

Each installation of ArcGIS Server (in its various roles, such as GeoEvent Server) has its own independent Primary Site Administrator Account. Make sure to properly document each server, account, and password properly.

### Firewall Ports

* + - 1. Prepare the Windows Server to allow the ArcGIS software communications ports through the firewall.
      2. Using the Windows Firewall application, create the following inbound ports on the GeoEvent Server according to the following firewall rule:
* Type: **Ports**
* TCP or UDP: **TCP**
* Specific Ports: **2181, 2182, 2190, 4181, 4182, 4190, 6080, 6143, 6180, 6443, 9191– 9194, 9220, 9320**
* Action: **Allow Connection**
* Profile: **Domain, Private, Public**
* Name: **ArcGIS GeoEvent Server Ports**

Description: **Ports required for communications to the ArcGIS GeoEvent, including HA**

### Install ArcGIS Server for GeoEvent Server

ArcGIS Server must be installed and configured on the machine before installing ArcGIS GeoEvent Server.

1. The GeoEvent server uses the same software and instructions as those in the ArcGIS Server, up to Authorization. Follow the instructions (steps 1 – 8) in [Section 5.2](#_Installing_ArcGIS_Server).
2. Before authorizing the server (as explained in [Section 5.2.1](#_Authorize_ArcGIS_Server)), the installer must use the current ECP code for the software, which was provided via email (see Figure 13‑5).

Graphical user interface, text, application, email

Description automatically generated

Figure 13‑5: License Server

1. Follow the offline authorization process.
2. Once authorized, continue the installation instructions to complete the authorization (see Figure 13‑6).

Graphical user interface, text, application, email

Description automatically generated

Figure 13‑6: Authorization Complete

### Confirm Installation/License

1. Browse to either **https://dns/server/manager/#** from a local workstation or **https://localhost:6443/arcgis/manager/authorization.html** from the server
2. Log in as the site administrator.
3. Navigate to **Site > Server Authorization**.
4. Verify the GeoEvent Server is authorized (see Figure 13‑7).

### Install ArcGIS GeoEvent Server Software

The steps below describe the GeoEvent Server installation process.

1. Log in as a user with administrative privileges.
2. Browse to the downloaded folder containing the GeoEvent Server setup or insert the GeoEvent Server media into the appropriate drive to automatically launch the setup program.
3. The GeoEvent Server setup program should launch automatically after the download has completed. If the GeoEvent Server setup program does not launch automatically, browse to the location of the downloaded setup files and double-click Setup.exe.
4. Review the license agreement and accept it, or exit if you do not agree with the terms.
5. To complete the installation, follow the directions on the screen.

### Configure GeoEvent Server

1. Ensure Internet Explorer Enhanced Security is turned off for administrators.
2. From the **Start** menu, go to **ArcGIS** and select **GeoEvent Manager**.
3. Log in as the Site Administrator.
4. Set **Logs** to **Info**.

### Add Web Adaptor to Portal Server for GeoEvent Server

1. Run Web Adaptor for IIS Setup using the instructions in [Section 5.5](#_Install_Web_Adapter), except in [step 4](#section_5_5_step_4), use the adaptor name **geoeventserver**.
2. Use the URL: **https://fdqn:6443** in the **ArcGIS Server URL** field (see Figure 13‑8).

### Federate the Server

While the GeoEvent Server does not need to be federated, the steps below describe how to federate the server to allow SSO and management from the Servers list:

1. Go to **Federate Server**.
2. Select **Enterprise** > **Settings** > **Servers** > **Federate Server – Add Server**

### Check for Patches

Check ArcGIS file repository on the CfA Share or the Esri technical support page at **https://support.esri.com/en/** for any patches needed for both the ArcGIS Server and GeoEvent Server.

## Spatiotemporal Data Store for Big Data Store

### Firewall Ports

* + - 1. Prepare the Windows Server to allow the ArcGIS software communications ports through the firewall.
      2. Using the Windows Firewall application, create the following inbound ports on the Spatiotemporal Data Store Server according to the following firewall rule:
* Type: **Ports**
* TCP or UDP: **TCP**
* Specific Ports: **2181, 2182, 2190, 4181, 4182, 4190, 6080, 6143, 6180, 6443, 9191 – 9194, 9220, 9320**
* Action: **Allow Connection**
* Profile: **Domain, Private, Public**
* Name: **ArcGIS Big Data Store Ports**
* Description: **Ports required for communications to the ArcGIS Big Data Store, including HA**

### Install ArcGIS Data Store for the Spatiotemporal Data Store

Installation of the Spatiotemporal BDS starts with the same software and instructions as ArcGIS Data Store in [Section 5.3](#_Install_ArcGIS_Data). No additional authorization is required.

### Configure Spatiotemporal Store

1. Ensure Internet Explorer Enhanced Security is turned off for administrators.
2. Install ArcGIS Data Store on another server.

The standby and primary machines (for relational and tile cache data stores) and each node in a spatiotemporal big data store must be installed on different servers. Be sure to use the same network account for the ArcGIS Data Store account on all machines in the data store.

1. Open the ArcGIS Data Store Configuration Wizard.
2. In the **GIS Server URL** field, enter the URL of the GIS Server site (e.g., Hosting Server: https://fqdn:6443). Use the same GIS Server site as you did when configuring the primary relational or tile cache data store or the other machines in your spatiotemporal BDS.
3. Enter the credentials for the ArcGIS Server primary site administrator, then click **Next**.
4. Choose the type of data store you want to create. Be sure to choose the same type as is on the data store machine to which you want to add this machine (see Figure 13‑10).

Graphical user interface, text, application, email

Description automatically generated

Figure 13‑10: ArcGIS Data Store Type

1. Specify a location for the new data store's directory, then select **Next**.
2. Verify the information on the **Configuration Summary** dialog (see Figure 13‑11) and select **Finish** if you have no corrections.

When the configuration installs, you will receive confirmation (see Figure 13‑12).

### Check for Patches

Check ArcGIS file repository on the CfA Share or the Esri technical support page at **https://support.esri.com/en/** for any patches needed for the Data Store.

# Section 14 – Additional Products

## ArcGIS Insights

ArcGIS Insights is a data analytics workbench that offers spatial and nonspatial analysis capabilities to explore data and deliver powerful results.

Obtain installation file and licenses from my.esri.com

Run the setup program

1. Browse to the location of the downloaded installation file and double-click the setup.exe file.
2. During the installation, read the license agreement and accept it, or exit if you do not agree with the terms.
3. You are enrolled in the Esri User Experience Improvement Program by default when you install Insights. If you do not want to be enrolled in the program, uncheck Click here to participate in the Esri User Experience Improvement Program. (Recommended). For more information, see How does the Esri User Experience Improvement Program work for ArcGIS Insights?

The setup program detects the ArcGIS Enterprise component on your machine—Portal for ArcGIS, ArcGIS Server, or both—and installs the appropriate features.

The default installation directories are the following:

C:\Program Files\ArcGIS\Portal\apps for the portal client application

C:\Program Files\ArcGIS\Server for the server component

1. If you're working in a distributed environment, repeat the setup until the client is installed on your portal machine (or two machines in a high-availability deployment), and the server component (containing Insights services) is installed on each ArcGIS Server machine in your hosting server site.

It is important to run the installation steps on both the portal and server machines when using a distributed environment. If the setups are not run on all machines, Insights will not be installed properly.

## ArcGIS LocateXT

ArcGIS LocateXT is entity extraction software for analysis of unstructured data, enabling you to quickly distill location information from massive amounts of data. Its sense-making capability automatically identifies location information inside large volumes of your unstructured data to bring geospatial information to the surface.

Add the ArcGIS LocateXT Server Tool to Portal for ArcGIS and Map Viewer

1. Add the ArcGIS LocateXT Server Tool to Portal for ArcGIS.
   1. Sign in to Portal for ArcGIS and navigate to My Content.
   2. In the My Content page, click Add Item > From a URL. The Add an item from the web window opens.
   3. In a new window, navigate to the ArcGIS REST Services Directory. For more information, refer to ArcGIS REST API: Using the Services Directory.
   4. Under Services, select LocateXTServerTool.

Note: The ArcGIS LocateXT Server Tool name may differ from the example provided in this article, depending on the name set during the publishing process.

* 1. On the LocateXTServerTool (GPServer) page, copy the URL.
  2. In Portal for ArcGIS, in the Add an item from the web window, select ArcGIS Server web service for Type, and paste the copied URL in the URL field.
  3. If necessary, provide the required login credentials.
  4. Provide a title and tags for the tool.
  5. The ArcGIS LocateXT Server Tool is added to My Content.

1. Add the ArcGIS LocateXT Server Tool to Portal for ArcGIS Map Viewer.
   1. In Map Viewer, click Analysis.
   2. In the Perform Analysis pane, click the Browse Raster Function Templates and Custom Web Tools Browse Raster Function Templates and Custom Web Tools icon. button.
   3. In the Custom Analysis Tools window, search for the ArcGIS LocateXT Server Tool and click Select resources and view details.
   4. On the item details page, click Select.
   5. In the upper right corner of the Map Viewer Analysis pane, click the back icon The back icon. The ArcGIS LocateXT Server Tool is added to the list of analysis tools in the Perform Analysis pane. Expand the tool to view all the parameters required for the tool.

## ARCGIS LICENSE MANAGER

Installing the ArcGIS License Manager 2020.0

### Requirements

* A valid operating system (Windows Server 2019, 2016, 2012 R2)
* Microsoft Visual C++ 2017 (update 5 or later)
* Firewall Ports 27000-9 open on LM server host

Upon purchasing your ArcGIS products, you will receive an email from Esri Customer Service listing the purchased products and associated authorization numbers and license counts. Alternatively, you can visit the My Esri site to obtain authorization information. Follow the steps below to install, authorize, and start the license manager:

1. Run the License Manager setup from your My Esri software download or from the ArcGIS installation media.
2. Follow the instructions to install the license manager and FlexNet licensing service. At the end of the installation, ArcGIS License Server Administrator appears. If you did not install the FlexNet licensing service during the License Manager setup, you must manually install the FlexNet licensing Service before attempting step 3.
3. Complete the authorization process and start the license service. If you choose to do this step at a later time, on Windows, you can access License Server Administrator from **Start > Programs > ArcGIS > License Server Administrator**.
4. Click **Authorization** in the table of contents, select a version from the **Version** drop-down list, and click the **Authorize Now** button to launch the **Software Authorization Wizard**.
5. Follow the instructions on the dialog boxes to complete the authorization process. A provisioning file **(\*.prvs**) generated on the My Esri portal can be used to speed up the authorization process for concurrent use. This file fills in all the necessary user and product authorization information in the wizard. More information on provisioning files can be found in the section Provisioning Files.
6. Click **Finish** to close the wizard and return to License Server Administrator.

### Authorizing licenses offline

If the machine hosting your license manager does not have access to the Internet, you can complete the authorization process in an offline mode. After launching the Software Authorization Wizard as described in step 4 above, follow these instructions:

Generate Portal License from my.esri.com, make sure to include License Manager Name, MAC and Port. Copy Portal License file to sever, use I have License file to authorize.

1. On the second dialog box of the authorization wizard, select the option **Authorize at Esri's website or by email to receive your authorization file**.
2. Follow the instructions on the rest of the dialog boxes and save the authorization request file when prompted at the end. By default, this will be saved as **authorize.txt**.
3. Follow the instructions on the last dialog box to send or upload the file from a machine that has email and/or Internet access.
4. Esri Customer Service will process the request and return the response file **(\*.resps**) that contains your licenses.
5. Save this file to your license manager host machine and relaunch the **Software Authorization Wizard** from the License Server Administrator.
6. On the first panel, select the third option **I have received an authorization file from Esri and am now ready to finish the authorization process** and browse to the response file to complete your authorization.

### Configure the firewall

Firewall configurations may prevent ArcGIS License Manager from receiving and making connections. The firewall must be configured to allow ArcGIS License Manager to work through it.

1. Navigate to **Control Panel > Windows Defender Firewall > Advanced Settings**.
2. Click **Inbound Rules** in the left pane.
3. Click **New Rule** in the right pane. The **New Inbound Rule** wizard runs.
4. Select **Program > Next**.
5. Select **This program path**. Navigate to the following directory, select **lmgrd.exe > Open > Next**:

<install drive>:\Program Files(x86)\ArcGIS\License10.x\bin

1. Select Allow the connection > **Next**.
2. Check the check boxes of all the available options and click **Next**.
3. Name the rule (for example, “LMGRD” with a description of “ArcGIS License Manager process”) and click **Finish**.
4. Repeat the same steps for the following files: **ARCGIS.exe** and **LSAdmin.exe**. Both files are stored in the same location specified in Step 5.
5. Repeat the 'Configuring the firewall' process for **Outbound Rules**.

A total of six firewall rules are created; three inbound to each process, and three outbound for each process.

### Confirm integration with ArcGIS Portal (Optional)

If you need to update your ArcGIS License Manager, open a web browser and sign in to the ArcGIS Portal Directory as a member of the default administrator role in your organization. The URL is formatted as <https://portal.domain.com:7443/arcgis/portaladmin> (https://dns/portal/portaladmin/)

Browse to **Home > License > Update License Manager**.

In the **License Manager Info** field, specify the host name of the ArcGIS License Server Administrator machine.

{

"hostname":"portal.domain.com"

"port":27000

}

If change is needed, Click **Update**.

### Creating a license file in My Esri for Enterprise portal 10.7 and later

When you add a named user license to the existing license file in My Esri, the Host Name, MAC Address and port number for the License Manager must be provided as part of the process. This information can be obtained from the ArcGIS License Manager:

1. Open the License Server Administrator from **Start > All Programs > ArcGIS**.
2. In the **Authorization** panel of the License Server Administrator, press the **Machine IDs** button.
3. Copy and paste or note the **MAC address** of the License Manager to which the file is going to be applied.

* MAC Address: 001dd8014c5f
* Host Name: servername
* IP Address: 10.
* Domain:

Be aware that a machine can have multiple MAC addresses. If this is the case for your machine, they will be listed separated by spaces. Any one of the listed MAC addresses can be used when creating the license file. The port number can be obtained from service.txt file in C:\Program Files (x86)\ArcGIS\LicenseManager\bin. Open the file in a text editor. The port number is located on the SERVER line. By default it uses port 27000.

When creating a license file (\*.json) on My Esri for the portal at ArcGIS Enterprise 10.7 and later, you will select ArcGIS Pro and Premium Apps licenses along with your portal named users.

### License Manager for use with Enterprise portal 10.7 and later

Following the creation of the portal authorization file (\*.json) in My Esri, the file must be authorized on the ArcGIS License Manager:

1. Open the License Server Administrator from **Start > All Programs > ArcGIS**
2. In the Authorization view, choose **Named User** in the drop-down and then click **Authorize Now**. The Software Authorization Wizard will now be launched.
3. In the Software Authorization Wizard choose the option **I have received an authorization file from Esri and am now ready to finish the authorization process** and then click the **Browse** button.
4. Browse to the portal authorization (\*.json) file, select it, and then click **Open**.
5. In the Software Authorization Wizard, press **Next** to complete the authorization process.
6. A pop-up will be displayed confirming the named user licenses have been applied. Click **OK** to continue.
7. A **Re-reading** Licenses message will be displayed for a few seconds.
8. Once the re-read is complete, the ArcGIS Pro and Premium App named user licenses that were authorized can be inspected by going to the **Availability** view of the License Server Administrator and clicking the Named User drop-down in the upper right - hand corner. All authorized ArcGIS Pro and Premium App named user licenses will be listed here.

https://desktop.arcgis.com/en/license-manager/2020.0/license-manager-installation-and-startup.htm

# Enterprise Backup and Restore

## Backups

You can export the components of your ArcGIS Enterprise deployment to a backup file that can later be used to restore your deployment in the event of hardware failure or data loss. The file includes your portal items and settings, hosted web layers, federated and hosting server settings, and, if using ArcGIS Data Store, your hosted feature layer data and hosted scene layer caches.

The size of the backup file and the time it takes to create it will vary depending on how many items are in your portal, the number and type of hosted web layers you have, how many federated servers you have, and how many ArcGIS Server machines are in your hosting and federated servers.

|  |  |
| --- | --- |
| **🛈** | **Note:** When you back up a deployment that does not contain any data or services, the file that is generated is approximately 400 MB in size. Minimally configured, the backup amounts to 1.5 GB. Your file will always be larger than that. |

Refer to online documentation on how to create an ArcGIS Enterprise backup for more information (see [Appendix B](#AppendixB)).

### Backup Target

The backup target can be a standard file share or Azure blob storage.

### Backup Accounts

The Data Store, Portal, and Server service accounts and the account used to initiate the backup must have Read/Write permissions to the backup location, as shown in Figure 10‑1.

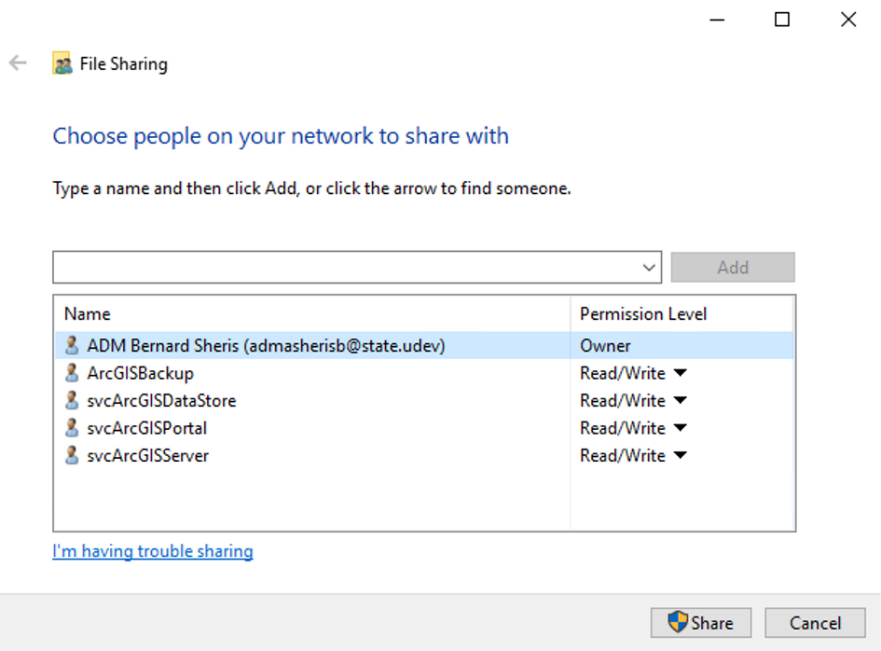


Figure 10‑1: Backup Account Permissions

### Command Line Backup Procedure

For this section, refer to online help about how to create an ArcGIS Enterprise backup in [Appendix B](#AppendixB).

When you follow the online help steps to create a backup of your ArcGIS Enterprise deployment, edit the template properties file (webgisdr.properties), which is installed in **C:\Program Files\ArcGIS\Portal\tools\webgisdr** by default.

1. Open a command window on the Portal for ArcGIS machine.
2. Change the directory to the location of the webgisdr utility.
3. Run the utility with the export option.

* The default location of the webgisdr utility is **C:\Program Files\ArcGIS\Portal\tools\webgisdr**.
* Syntax for the webgisdr is as follows:

webgisdr --{export | import} --file <location and name of properties file>

* The properties file (mywebgis.properties) was saved in the user-created folder C:\propfiles:

webgisdr --export --file C:\propfiles\mywebgis.properties

1. If your ArcGIS Enterprise deployment includes map service or hosted tile layer caches, manually make a backup copy of all directories where your cache tiles are stored (e.g., the entire arcgiscache directory under **C:\arcgisserver\directories\** or **<ArcGIS Server installation directory>/arcgis/server/usr/directories).**

These directories contain the map cache tiles and the tiling scheme file conf.xml. The cache directories may also contain a file geodatabase, status.gdb, which contains information about what tiles were built.

**egisfull.properties**

Refer to the example of variables used for full backup in the link at the beginning of this section (i.e., [Section 10.1.3](#section913)).

PORTAL\_ADMIN\_URL = https://fqdn:7443

PORTAL\_ADMIN\_USERNAME = (ArcGIS application user account)

PORTAL\_ADMIN\_PASSWORD = (password will be hashed after first execution using property file)

PORTAL\_ADMIN\_PASSWORD\_ENCRYPTED = (blank or true once password is hashed)

BACKUP\_RESTORE\_MODE = full

SHARED\_LOCATION = \\\\machinename\\ArcGISBackup

BACKUP\_STORE\_PROVIDER = FileSystem

BACKUP\_LOCATION = \\\\machinename\\ArcGISBackup

**egisinc.properties**

Refer to the example of variables used for incremental backup in the link at the beginning of this section (i.e., [Section 10.1.3](#section913)).

BACKUP\_RESTORE\_MODE = incremental

Webgisdr Import properties

Example of variables used for Import. Import mode matches Export node for day being restored.

Example

Sunday = Full Backup

Monday = Incremental Backup

If restoring data to state on Sunday, import mode would be Full. If restoring to state on Monday, state would be Incremental If both, import from Sunday would be Full, then Monday would be Incremental.

Refer to the link at the beginning of this section (i.e., [Section 10.1.3](#section913)) for details.

BACKUP\_RESTORE\_MODE = incremental/full

Backup Command

F:\Program Files\ArcGIS\Portal\tools\webgisdr>webgisdr.bat --export --file .\webgisdrExportFull.properties

If scheduled as a task, create a domain service account and grant that account local admin on the Portal server.

## Restore

This document outlines the detailed steps for backing up and restoring ArcGIS Enterprise 10.8.1 using the WebGIS DR tool, ensuring data integrity and service continuity.

**Prerequisites**

* Admin access to all ArcGIS Enterprise components.
* Sufficient storage for backups.
* WebGIS DR utility installed on the Portal for ArcGIS machine.
* Ensure that all ArcGIS Enterprise components are properly configured and running.
* Backup and restore user permissions and roles.
* **Leave services on.**
* **Need to know most recent backup.**
* **Need to know where properties file is located and import the properties file**.

**References**

* [ArcGIS Enterprise Restore Utility](https://enterprise.arcgis.com/en/server/10.8/administer/windows/restore-utility.htm)
* [Recover a Site](https://enterprise.arcgis.com/en/server/10.8/administer/windows/recover-a-site.htm)
* [Backup and Restore Best Practices](https://enterprise.arcgis.com/en/portal/latest/administer/windows/backup-and-restore-best-practices.htm)
* [Restore Web GIS](https://gis.icao.int/portal/portalhelp/en/portal/latest/administer/windows/restore-web-gis.htm)

If part of your ArcGIS Enterprise deployment fails, you can restore the deployment using the webgisdr utility and a backup file you previously exported. You need to be aware of the following when restoring your ArcGIS Enterprise deployment:

Any items or services created since the last export will be lost.

Map and tile service caches, referenced data sources for web services, and spatiotemporal big data store backup files are not included in the backup you created using the webgisdr utility; therefore, those must be restored separately.

If you restore to a different machine—for example, if the machine where you had Portal for ArcGIS installed cannot be recovered and you need to restore to a new machine—your installation directory must have the same name on the new machine.

The deployment to which you restore must be at the same version it was when you created the backup. Additionally, you must restore to the same type of operating system. For example, you cannot create a backup of an ArcGIS Enterprise deployment on Linux and restore it to Windows machines.

When you restore a highly available ArcGIS Enterprise deployment, the webgisdr tool maintains high-availability settings for the GIS Server site and the ArcGIS Data Store relational and tile cache data stores. For the portal, the webgisdr tool unregisters the standby portal machine, restores the portal to the primary machine, and reregisters the standby machine.

You can reference the properties file you created for the ArcGIS Enterprise export if you don't need to change any settings. However, if you need to change the backup file location, want to specify a specific backup file, or need to provide different portal administrator credentials, create a new properties file.

If you created incremental backups of your deployment, you must have the last incremental and the last full backup created before that incremental backup to restore your deployment.

Follow these steps to restore your ArcGIS Enterprise deployment to the same machines from which you created the backup file (or machines in a standby deployment that uses the same ArcGIS Web Adaptor or load balancer URL and ArcGIS Server sites that have the same services URL as your primary deployment):

### Restore Procedure

Actual Command: webgisdr.bat --import --file F:\Support\PropFiles\GeoEACSBackup.properties.

1. Log into Portal Machine

2. By default, the webgisdr tool restores the most recent backup file. To restore an earlier file than the most recent backup, you need to update the BACKUP\_LOCATION path in the properties file. For example, if you want to restore backup file Sep-08-2015\_17-10-44.webgissite from F:\temp, set BACKUP\_LOCATION = F:\temp\Sep-08-2015\_17-10-44.webgissite.

When you restore, you can edit the same properties file you used when you created your backup file, but then you must remember to change the BACKUP\_LOCATION value in this file to the backup location before you create the next backup. To avoid this, make a copy of the properties file specific for the import operation. For the purposes of this example, a copy of the file named toimport.properties is created and altered.

Be sure the domain account that runs the webgisdr tool has at least read access to the BACKUP\_LOCATION and write access to the SHARED\_LOCATION. Also be sure that the domain account that runs ArcGIS Server, Portal for ArcGIS, and ArcGIS Data Store has read access to the SHARED\_LOCATION.

3. Open a command window on the portal machine, change directories to the location of the webgisdr utility, and run the utility with the import option.

The default location of the webgisdr utility is F:\Portal\tools\webgisdr.

Syntax for the webgisdr utility is as follows:

webgisdr --{export | import} --file <location and name of properties file>

In this example, the properties file (toimport.properties) was saved in the user-created folder C:\propfiles.

webgisdr --import --file F:\propfiles\toimport.properties

Note that the property file does not have to be in the same folder you saved it in when first created. If you do move it, specify the new folder location with the --file parameter.

4. If your ArcGIS Enterprise deployment includes map service or hosted tile layer caches, manually move the [backup copies you made](https://gis.icao.int/portal/portalhelp/en/portal/latest/administer/windows/create-web-gis-backup.htm#GUID-435BFE87-B998-41ED-A321-33A13AB0955D), and place the files in the original arcgiscache directory.

If your ArcGIS Enterprise includes a spatiotemporal big data store, use the ArcGIS Data Store [restoredatastore](https://gis.icao.int/portal/portalhelp/en/portal/latest/administer/windows/data-store-utility-reference.htm" \l "ESRI_SECTION1_BAF681033AB248C2BF4718A917380C8D) utility to restore a backup of it.

5. If you had file-based data stored on the same machine as one of your ArcGIS Enterprise components, and that machine failed, restore your backup copies to the same path on the new machine.

For example, if you had a folder containing file geodatabases and shapefiles on one of your ArcGIS GIS Server site's machines, and that machine failed, place the backup copy of that folder in the same directory path on the new machine. This is necessary because you registered the file location with the ArcGIS Server site. If the data location changes, the services will not be able to find the data.

# Application Patching

This section describes the non-web-enabled server method

1. Go to the Esri technical support page at **https://support.esri.com/en/** (see Figure 9‑1).
2. Select **Enterprise** from the topics to enter information for the products that are installed.
   1. Select the proper version using the **VERSION** drop-down menu (e.g., 10.8.1).
   2. Filter using the **FILTER** drop-down menu (e.g., All Download Types).
   3. Sort using the **SORT** drop-down menu (e.g., Any time).

Graphical user interface, website

Description automatically generated

Figure 9‑1: Esri Technical Support

1. Select **Product** **Download** to download the patches that are required for the product you selected.
2. Download the patches in dev and test it on there first. Then, move to Production when ready.
3. Make sure, you schedule the time outage. You will need exact times to give to leadership for outage time. Get with Leadership to see process (72hrs prior minimum).
4. Next, once scheduled, on the day of the patching. Put a Portal Banner with the outage. Next, you will turn the services off (Section 12, but a **recommended** order will be noted below, should you run into issues), then you will shut down the VMs. You will back up the VMs on Azure, then you will boot them back up.
5. The services will boot back up by default, so make sure to turn off all the components’ services first before applying patches (again, look at the **Section 12 shutdown** steps).
6. If your just patching, Portal, you could put the Portal in read only, and turn off the GIS Server and DS, then do patches to Portal. However, if you already scheduled the outage, I recommend just shutting down the other services, so nothing is communicating while the patching is taking place.
7. Make sure you use the command line script to do the patching, so we can log the time and status of the patching.
8. After Patches are applied, make sure to put data on a map and see if it’s working right. Check DS and OBO sites page and their dashboards to see if data is coming through.
9. Afterwards, you can notify the distro the patches have been successfully applied: Maintenance has been successfully completed at this time. If users have any issues with the web site, please clear browser cache first.”

**Recommend Shut Down If issues arise – Reboot Order ArcGIS Services**

* Shutdown Order:
  1. Portal for ArcGIS, Portal LM
  2. ArcGIS Server
  3. Image Server
  4. ArcGIS Data Store
* Restart Order:
  1. Portal for ArcGIS, Portal LM
  2. ArcGIS Data Store
  3. **Wait Ten Minutes**, then ArcGIS Server
  4. Image Server

**The steps above have been successfully utilized to get data on the map working again,** however here is another shut down and reboot services setup, that have been used by the community should you find yourself with errors after patching.

**The error will most likely be, no data is visualizing in Portal (Check logs for the specific error).**

* Shutdown Order:
  1. Data Store
  2. Hosting Server
  3. Portal
  4. Wait a few minutes
* Restart:
  1. Data Store
  2. Hosting Server
  3. Wait a few minutes
  4. Start Portal
  5. Wait a few minutes

This allowed hosted layers to work in Portal now. In ArcGIS Pro 3.1 and 3.2 we had to start with new Projects for the hosted layers to begin working. Existing maps continued to show the same errors, even after re-adding layers/updating sources.

Also to note: Should the outage continue to be a problem, last resort can be to run the Configure ArcGIS Server account and input the same credentials we had used before, and this also solved the issue.

# Startup and Shutdown of ArcGIS Enterprise

## Shutdown Process

Step 1: As an administrator, log in/connect to the Data Store server, and stop the **ArcGIS Data Store** service.

Step 2: As an administrator, log in/connect to the ArcGIS Server, and stop the **ArcGIS Server** service.

Step 3: As an administrator, log in/connect to the Portal server, and stop the **Portal for ArcGIS** service.

Step 4: Wait for the Portal service to stop (service status shows as **Stopped**. This usually takes the longest.

Step 5: Patch or reboot server.

## Startup Process

Step 1: As an administrator, log in/connect to the Portal server, and start the **Portal for ArcGIS** service.

Step 2: Wait for the Portal service to start (service status shows as **Running**. This usually takes the longest.

Step 3: As an administrator, log in/connect to the ArcGIS Server, and start the **ArcGIS Server** service.

Step 4: As an administrator, log in/connect to the Data Store server, and start the **ArcGIS Data Store** service.

Step 5: From a workstation, connect the browser to Portal, **https://dns/portal/home/index.html**. When the browser displays an ArcGIS Enterprise web page (vice an error), the system is back up.

###### References

Below are online resources to topics referenced in this installation guide.

**About the initial administrator account**

<https://enterprise.arcgis.com/en/portal/latest/administer/windows/troubleshoot.htm>

**Administer ArcGIS Server**

<https://enterprise.arcgis.com/en/server/10.7/administer/windows/administer-arcgis-server.htm>

**ArcGIS License Manager system requirements**

<https://desktop.arcgis.com/en/license-manager/latest/arcgis-license-manager-system-requirements.htm>

**Authorize GIS Server**

<https://enterprise.arcgis.com/en/server/latest/install/windows/authorize-arcgis-server.htm>

**Changing the portal content directory**

<https://enterprise.arcgis.com/en/portal/latest/install/windows/changing-the-portal-content-directory.htm>

**Common clients**

<https://enterprise.arcgis.com/en/get-started/latest/windows/portal-clients.htm>

**Configure a forward proxy server with ArcGIS Server**

<https://enterprise.arcgis.com/en/server/latest/deploy/windows/using-a-forward-proxy-server-with-arcgis-server.htm>

**Create a Site**

<https://enterprise.arcgis.com/en/server/latest/deploy/windows/creating-a-new-site.htm>

**Create an ArcGIS Enterprise backup**

<https://enterprise.arcgis.com/en/portal/10.7/administer/windows/create-web-gis-backup.htm>

**Enable HTTPS on your web server**

<https://enterprise.arcgis.com/en/web-adaptor/latest/install/iis/enable-https-on-your-web-server-portal-.htm>

**Installing GeoEvent Server**

<https://enterprise.arcgis.com/en/geoevent/10.7/install/windows/installing-geoevent.htm>

**Installing Portal for ArcGIS**

<https://enterprise.arcgis.com/en/portal/10.7/install/windows/installing-portal-for-arcgis.htm>

**License Manager reference guide**

<http://links.esri.com/licensemanager/10.6/reference_guide>

**Manage Data Store Backups**

<https://enterprise.arcgis.com/en/data-store/latest/install/windows/data-store-backups.htm>

**Obtain a portal license file**

<https://enterprise.arcgis.com/en/portal/latest/administer/windows/obtain-portal-license.htm>

**Ports used by Portal for ArcGIS**

<https://enterprise.arcgis.com/en/portal/10.7/administer/windows/ports-used-by-portal-for-arcgis.htm>

**Scene Viewer**

<https://enterprise.arcgis.com/en/portal/latest/install/windows/scene-viewer-requirements.htm>

**Stopping and starting the portal**

<https://enterprise.arcgis.com/en/portal/latest/administer/windows/stopping-and-starting-the-portal.htm>

**Symantec Endpoint Protection**

<https://support.esri.com/en/technical-article/000015732>

**System requirements**

<https://enterprise.arcgis.com/en/system-requirements/latest/windows/portal-for-arcgis-system-requirements.htm>

**The Portal for ArcGIS account**

<https://enterprise.arcgis.com/en/portal/latest/administer/windows/the-portal-for-arcgis-account.htm>

**Troubleshoot ArcGIS Data Store**

<https://enterprise.arcgis.com/en/portal/latest/administer/windows/troubleshoot.htm>

**Update your portal's identity store**

<https://enterprise.arcgis.com/en/portal/latest/administer/windows/use-integrated-windows-authentication-with-your-portal.htm>

**Web Adaptor**

<https://enterprise.arcgis.com/en/web-adaptor/latest/install/iis/install-arcgis-web-adaptor-portal.htm>