

TRAINING GUIDE

ArcGIS Server and Geodatabase Administration

Part 1

러는 러는 러는 러는

ArcGIS for Server and Geodatabase Administration - Part 1

Here at Lucity, we understand that our software is requiring more skills in ESRI technology and these Esri systems can be difficult to manage without training. In this workshop, we will explore the nature of ArcGIS for Server v10.4.1, touch on key principles and techniques, as well as explore best practices for integration into Lucity. We will cover some key administration best practices for: design, setup, maintenance, and optional editing workflow. Even though we won't be covering the full gamut of ESRI technologies, we will be focused on the administration of ArcGIS for Server, how this relates to the IT and GIS administrators and what are some basic principles for enabling ArcGIS for Server to be compatible with Lucity.

Table of Contents

Setup	2
ArcGIS for Server Design	2
ArcGIS for Server Setup	4
Connect to ArcGIS for Server from ArcCatalog	9
ArcGIS for Server and Extensions Patch Notification	11
Installing and Configuring ArcGIS for Server Web Adaptor	12
SQL Server Specifications	16
SQL Instance Setup	17
Install SQL Server for ArcSDE for Workgroup	17
SQL Server Enterprise Setup	27
Enabling ArcSDE for Workgroup Databases	
Install SQL Server Native Client	35
Connect and Create Geodatabase in Workgroup	35
Registering the Geodatabase in ArcGIS for Server	41
Create Enterprise Geodatabase (formerly ArcSDE)	45
Publishing and Configuring Map Services	
Unlock Schema	50
Enabling the Geometry Service	53
Creating a Geocoding Service	54
Securing a GIS Service	56
How to Create a Feature Service	63
Redlining	63
Publishing a Feature Service	
Publishing an Offline Feature Service	

Setup

ArcGIS for Server Design

- ArcGIS for Server 10.2.2 and higher are supported for Lucity
- Support Windows Server 2008 R2 or higher
 - For Virtualization, recommend Windows Server 2012 R2
- Server should have 2-4 cores minimum and 4GB of RAM per core. For a 4 core system, you should have at least 16GB of RAM.
- SQL Server 2012, 2014 and 2016 are supported
- If using ODBC drivers for SQL Server 2016 and ArcGIS 10.4.1, use ODBC Driver v13. Otherwise, use ODBC Driver v11 or SQL Server native client 2012.
- If you have virtual servers, make sure you dedicate resources and have the latest VMware or Hyper-V software available. Based on ESRI's testing, Virtual software is the key to many performance issues. Make sure in VMware environments that you subtract overhead of two cores for the Virtual Environment so ArcGIS for Server map services doesn't pool across the Virtual overhead cores. If you don't, you will see a significant performance decrease in ArcGIS for Server.
- Try to limit map services to utilize 4 pools per core maximum. Anything more than that, you could allow ArcGIS for Server crashes when many people are simultaneously hitting your server.
- If you have a dedicated system for ArcGIS for Server, try creating a RAID 1 SSD configuration for your hard drives. Also, use the latest version of SSD standards as this will increase performance and reliability. For all new SSD cards, it will take at least 40 years before they reach their read/write maximum. This benchmark test was performed on a 24/7 continuous read/write routine. If SAS drives, use RAID 10 with a good RAID controller.
- Space depends on caching. If you plan to cache imagery, please account for large image files. Remember, each scale in the cache will have separate tiles for each scale. If you have 9 scales within a cache, you will have nine separate tiles of cache. Smaller scale images will be smaller in size and the larger scale images will be larger in size.
- 10.4.1 installation automatically configures HTTP and HTTPS Secure Design for new installations. Upgrades stay the same as previous versions.
- For Lucity, we use ArcGIS Tokens for authentication mode. Do not use Web Tier Authentication

Lucity Web, Lucity Services, Lucity Mobile Server servers and mobile devices need access to the map service rest endpoints in order to function.



ArcGIS for Server Setup

1. Download the ArcGIS for Server program. You may also want to download the ArcGIS for Server Web Adaptor for IIS as well. The web adaptor can be placed on internal and external web servers.

Note: When installing ArcGIS for Server on a separate server than your SQL Server 2012 or higher instance, you need the SQL Server 2012 Native Client 64 bit. You can also use the ODBC drivers supplied at <u>MyEsri</u>. Latest SQL Server 2012 Native 64-bit Client download link: <u>http://www.microsoft.com/en-us/download/details.aspx?id=29065</u>

Select Downloads

Select the items below that you want to download:	F	ilter: Filter	files Q
Files	Guides	File Size	e Select
ArcGIS for Server	Install guide	1.62 GE	Bownload
Portal for ArcGIS	Install guide	981.93 ME	Bownload
ArcGIS Web Adaptor (IIS)	Install guide	22.58 ME	Bownload
ArcGIS Web Adaptor (Java Platform)	Install guide	25.02 ME	Bownload
ArcGIS Data Store for Server	Install guide	211.66 ME	Bownload
ArcGIS GeoEvent Extension for Server	Install guide	221.48 ME	Bownload
ArcGIS Data Interoperability for Server		658.35 ME	Bownload
ArcGIS Data Reviewer for Server	Install guide	53.01 ME	Bownload
ArcGIS Workflow Manager for Server	Install guide	12.69 ME	Bownload
ArcGIS Server Cloud Builder on Amazon Web Services (Windows)		80.91 ME	B
ArcGIS Server Cloud Builder for Microsoft Azure Web Services (Windows)	Install guide	16.00 KE	B Download
ArcGIS License Manager (Windows)	Reference guide	19.13 ME	Bownload
ArcGIS License Manager (Linux)	Reference guide	126.56 ME	Bownload
ArcObjects SDK for the Microsoft .NET Framework		387.63 ME	B
ArcObjects SDK for Java (Windows)		438.88 ME	B Download

Information may not reflect recent changes.

- 2. Start the install for ArcGIS for Server Windows after program extracts
- 3. Once installation starts click next.

ArcGIS for Server and Geodatabase Administration - Part 1

谩	ArcGIS 10.4.1 for Server Setup
	Welcome to the ArcGIS 10.4.1 for Server Setup program It is strongly recommended that you exit all Windows programs
	berore running this setup program. Click Cancel to quit setup and close any programs you have running. Click Next to continue the installation.
	WARNING: This program is protected by copyright law and international treaties.
	Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Help	< Back Next > Cancel

- In the next dialog, click on 'I Accept' and click next.
 For python, this is needed for geoprocessing and click next.

6. In the 'Specify ArcGIS for Server Account name and password', create a username and passwords for ArcGIS. Recommend to add ArcGIS as a user within Active Directory and add this to ArcGIS for Server Account information <domain>\<user>.

😼 ArcGIS 10.4.1	I for Server Setup
Specify ArcGIS Server Account Specify the account that the ArcGIS Serve	er processes will run as.
 Specify the account name and pas 	sword:
ArcGIS Server Account:	test\arcgis
Password:	•••••
Confirm password:	••••••
 I have a configuration file with the previous run of this setup. Filename: 	account information generated by a
Help	< Back Next > Cancel

7. In the next screen, you will be given the option to export your configuration; this is recommended and will be helpful during upgrades. Click next and install.

😥 ArcGIS 10.4.1 for Server Setup	x
Export server configuration file Export server configuration file	
Exporting a server config file helps you with installing multiple systems that use the same server configuration. It will create the user account, and grant it the necessary privileges on the system based on this configuration file.	
O Do not export configuration file.	
\odot Export configuration file. This file should be placed in a properly secured directory.	
Filename: C:\temp\arcgis_config.xml	
Help <a>Reck Cancel	

8. When finished, you will need to activate. Refer to Enabling ArcSDE for Workgroup Databases section for more detail about the activation process.

ArcGIS for Server and Geodatabase Administration - Part 1

9. When finished activation, you will be prompted to create a new site.

ArcGIS Server	Manager
	ArcGIS Server Setup Wizard This machine does not currently participate in an ArcGIS Server site. You can either create a new site or join an existing site. Create New Site Join Existing Site

10. Click on create a new site and supply the username and password for the site administrator account. Click next.

ArcGIS Server Manager	
Primary Site Administrator Account Create the account that will be the primary administrator for this ArcGIS Server site. This is a new account that is stored with the site and is not an operating system account. You will use this account when logging in to Manager. Username: AGS Password:	

11. Specify the root server directory and configuration storage. Your server configuration is stored in the config-store directory and your working directories are stored in directories (arcgiscache, arcgisjobs, arcgisoutput, arcgissystem). In this example we will take the defaults.

Specify Root Server Directory and Configuration Store When you create an ArcGIS Server site, several directories are installed to store output images, geoprocessing job results, cached images, and more. You can choose this location, but it must be accessible from each machine in your site. Root Server Directory: [::\arcgisserver\directories] The config store holds information about the GIS server's machines, services, and directories. You can choose the location of the config store, but it must be accessible from each machine in your site.	ArcGIS Server	Manager
Back Next	ß	Specify Root Server Directory and Configuration Store When you create an ArcGIS Server site, several directories are installed to store output images, geoprocessing job results, cached images, and more. You can choose this location, but it must be accessible from each machine in your site. Root Server Directory: E:\arcgisserver\directories The config store holds information about the GIS server's machines, services, and directories. You can choose the location of the config store, but it must be accessible from each machine in your site. Configuration Store: C:\arcgisserver\config-store Back Next

12. Click next and finish when done.

ArcGIS for Server does not need a web client to run. ESRI chose to use Tomcat as the servlet engine for ArcGIS for Server and can be a stand-alone system if used internally. However, if you want to serve webpages out through IIS, consider installing a Web Adaptor. ArcGIS for Server web adaptor will act as a proxy server that will pass requests to and from ArcGIS for Server. Web Adaptor will also be able to create an alias URL location for your ArcGIS for Server. ArcGIS for Server by itself needs to have port 6080 as the rest service endpoint for the URL. For example: http://<internalservername>:6080/arcgis/rest/services is the URL without the Web Adaptor. When using the Web Adaptor, requests can be alias masked through an URL designation http://<URLname>/<virtualdirectory>/rest/services. The Web Adaptor takes care of the requests to and from ArcGIS for Server using port 6080 and translating this to the user. The Web Adaptor for ArcGIS for Server can be located on ArcGIS for Server machine running IIS or on a different server within the LAN or a DMZ. For internet and intranet based ArcGIS for Server services, it's recommended to use a DMZ with the firewall open from DMZ web server to the internal ArcGIS for Server on port 6443. The Web Adaptor will be installed on the DMZ web server. Also, it is highly recommended that the Web Adaptor uses HTTPS as the protocol within a secure design as well as running ArcGIS for Server as HTTPS and HTTP. By default, new ArcGIS for Server 10.4.1 installs http and https protocols automatically. In ArcGIS for Server design section, we have added a diagram of what this actually looks like.

Connect to ArcGIS for Server from ArcCatalog

1. Open ArcCatalog and go to the TOC. Expand GIS Servers.



13. Click on Add ArcGIS for Server and choose Administer GIS Server. As a note, you can add users to be able to publish gis services without having administrative rights.

Add ArcGIS Server		X
	This wizard guides you through the process of making a connection to an ArcGIS Server. You can create a connection to use, publish, or administer GIS services.	
 ↓ ↓ 	What would you like to do? O Use GIS services Publish GIS services Administer GIS server	
	< Back Next > Ca	ncel

14. In the general dialog, you need to add the URL and the username and password for administrating the server. Make sure you use the exact case for your username and password as ArcGIS for Server is now case sensitive. If Web Adaptor is installed, you can use the Web Adaptor URL to connect to ArcGIS for Server if it is setup to accept management. Because 10.4.1 installs http and https, you may need to accept certificates when connecting.

General		×
Server URL:	http://actweb;6080/arcgis ArcGIS Server: http://gisserver.domain.com:6080/arcgis	
Server Type:	ArcGIS Server 🗸	
Staging Folder:	C:\Users\LSAVAG~1.TES\AppData\Local\Temp\arc4	
	Use ArcGIS Desktop's staging folder	
Authentication		
User Name:	AGS	
Password:	•••••	
	Save Username/Password	
About ArcGIS Serve	r connections	
	< Back Finish Canc	el

15. Click finish.

ArcGIS for Server and Extensions Patch Notification

1. Go to the Start Menu/All Programs/ArcGIS app folder and choose Check for Updates to check for ArcGIS for Server patches. For 10.4.1, publishing patch is highly recommended.



6	ArcGIS for Server and Extensions Patch Notifications	X
	Installed Products ArcGIS 10.4.1 for Server	^
	 Updates for ArcGIS 10.4.1 for Server ArcGIS for Server Spatial Analysis Failure on Localized Operating Systems Patch Products: ArcGIS Server Release Date: 06/13/2016 ArcGIS for (Desktop, Engine, Server) NADCON transformations for Alaska, Guam, Rota, and Saipan Patch Products: ArcGIS Desktop, ArcGIS Engine, ArcGIS Server, ArcReader Release Date: 06/24/2016 ArcGIS 10.4.1 for (Desktop, Engine, Server) Geocoding General Maintenance Patch Products: ArcGIS Desktop, ArcGIS Engine, ArcGIS Server Release Date: 06/17/2016 ArcGIS for Server Publishing Patch Products: ArcGIS Server Release Date: 07/28/2016 ArcGIS 10.4.1 for (Desktop, Server) SQL Server Mixed Precision Patch Products: ArcGIS Desktop, ArcGIS Server Release Date: 08/10/2016 	
	СК	

Installing and Configuring ArcGIS for Server Web Adaptor

1. Download the ArcGIS Web Adaptor (IIS) and install. If IIS is not setup with features, ArcGIS for Server Web Adaptor will configure IIS for you with the features necessary to run the Web Adaptor.

Files	Guides	File Size	Select
ArcGIS for Server	Install guide	1.62 GB	Download
Portal for ArcGIS	Install guide	981.93 MB	Download
ArcGIS Web Adaptor (IIS)	Install guide	22.58 MB	Download
ArcGIS Web Adaptor (Java Platform)	Install guide	25.02 MB	Download
ArcGIS Data Store for Server	Install guide	211.66 MB	Download
ArcGIS GeoEvent Extension for Server	Install guide	221.48 MB	Download
ArcGIS Data Interoperability for Server		658.35 MB	Download
ArcGIS Data Reviewer for Server	Install guide	53.01 MB	Download
ArcGIS Workflow Manager for Server	Install guide	12.69 MB	Download
ArcGIS Server Cloud Builder on Amazon Web Services (Windows)		80.91 MB	Download
ArcGIS Server Cloud Builder for Microsoft Azure Web Services (Windows)	Install guide	16.00 KB	Download
ArcGIS License Manager (Windows)	Reference guide	19.13 MB	Download
ArcGIS License Manager (Linux)	Reference guide	126.56 MB	Download
ArcObjects SDK for the Microsoft .NET Framework		387.63 MB	Download
ArcObjects SDK for Java (Windows)		438.88 MB	Download

岁 ArcGIS 10.4.1 Web Adaptor	· (IIS) Setup
Select Features Select the program features you want installed.	
Click on an icon in the list below to change how a feature is in	nstalled. Feature Description Installs cross-domain policy files in the web server root location to enable access for Silverlight and Flex clients. This feature requires 8KB on your hard drive.
Help < Back	Next > Cancel

16. In the new Virtual Directory section, create your own virtual directory that will be used to alias ArcGIS for Server URL location. In this example, the URL change will be <u>http://<URLname>/MapForU/rest/services</u>. Click next.

ArcGIS 10.4.1 Web Adaptor (IIS) Setup	X
New Virtual Directory Specify the name of the ArcGIS Web Adaptor	
Name for the ArcGIS Web Adaptor MapForU	
This specifies the URL you will use to access services. For example: http://actweb/arcgis/rest	
Help < Back Next >	Cancel

17. Click Install.

After install is finished, you will be rerouted to a site that will allow you to configure your ArcGIS Web Adaptor. There are many options but the great thing about the Web Adaptor is you can be security conscience. Make sure you figure out if you want management internal only or allow management from both the Web Adaptor and ArcGIS for Server. Enabling administrative access to your site through the web adaptor is fine but discuss this option with your network engineer before enabling it to make sure the vulnerability is acceptable.

Help | About

	ArcGI	S Web Adaptor
V	Vhich produ	act do you want to configure with your Web Adaptor?
	۲	ArcGIS for Server
	0	Portal for ArcGIS
	i a c	GIS server is not configured with your Web Adaptor. portal is not configured with your Web Adaptor.
		Next >

Help | About

ArcGIS Web Adaptor	
To configure the Web Adaptor, server. GIS Server URL: Administrator Username:	specify the URL and an administrator account for your GIS http://actweb.test.local:6080 Example: http://gisserver.domain.com:6080 AGS 2
Administrator Password:	<u>?</u>
Enable administrative acc	ess to your site through the Web Adaptor. ?
Only if it is in	ternal. Don't recommend outside administrative access.
The following GIS se	
• ACTWEB.TEST • ACTWEB.TEST Last updated on 8/2 Use the following UR <u>http://actweb/rocks</u>	:LOCAL :S/2015 10:13:20 AM L to access the Services Directory: :tar/rest/services

18. Once configured, you should see a change in the green section of the web adaptor page.

SQL Server Specifications

- Server should have 2-4 cores minimum and 4GB of RAM so that SQL Server can use at least 2GB dedicated for the instance (sql server express can only use up to 1GB RAM per instance). For a Lucity and an Enterprise Geodatabase SQL Instance configuration, I would suggest 4 cores minimum with at least 8GB dedicated to SQL Server of RAM. Training, Development or Test servers can have less; 2 cores with at least 4GB of RAM which 1GB is dedicated to the SQL Server instance.
- RAID 10 configurations has become a standard RAID best practice. Please don't use onboard RAID controllers as they are not performance based.
- Don't load ArcGIS for Server on a database server. ArcGIS for Server is a memory hog and will fight for computer resources.
- Plan for data scalability 5 years out. If you have imagery that consumes 20GB and you know you will acquire a new image at least once within the 5 years, scale out four times the consumption rate. Space is cheap and there is no need to be caught in a low memory situation. Remember, digital imagery space is higher as they have a smaller focal length per image. If you acquired analog images in the past, digital images can be 2-3 times the memory size.
 - **Case study**: Pocatello used 70GB 2012 Aerial for storage space. In their 2015 Aerial delivery, the database grew by 400GB. Higher resolution is becoming cheaper to purchase.
- If in a virtual environment, make sure you have enough RAM and storage space for your servers. You could have as much as three to four servers minimum depending on your system design.

			Developer ¹	Express	Standard	Enterprise
Mission critical	Maximum number of cores	New	Unlimited	4 cores	24 cores	Unlimited
	Maximum memory utilized per instance		OS Max	1 GB	128 GB	OS Max
	Maximum size		524 PB	10 GB	524 PB	524 PB
	Production use rights			•	•	•
	Basic OLTP		•	•	•	•
performance	Manageability (Management Studio, Policy-Based Management)		•	•	•	•
	Basic high availability (2-node single database failover, non-readable secondary)	New	•		•	•
	Enterprise data management (Master Data Services, Data Quality Services)		•			•
	Advanced OLTP (In-memory OLTP, Operational analytics)	New	•			•
	Advanced HA (Always On - multi-node, multi-db failover, readable secondaries)		•			•
Cocurity	Basic security (Row-level security, data masking, basic auditing, separation of duties)	New	•		•	•
Security	Advanced security (Transparent Data Encryption, Always Encrypted)	New	•			•
Data	Advanced data integration (Fuzzy grouping and look ups, change data capture)		•			•
Data	Data warehousing (In-Memory ColumnStore, Partitioning)	New	•			•
warenousing	PolyBase ²		•		•	•
	Programmability & developer t ools (T-SQL, CLR, Data Types, FileTable, JSON)	New	•	•	•	•
	Basic reporting & analytics		•	•	•	•
Business	Basic data integration (SSIS, built-in connectors)		•		•	•
intelligence	Basic Corporate Business Intelligence (Multi-dimensional models, Basic tabular model)	New	•		•	•
	Mobile BI (Datazen)	New	•			•
	Advanced Corporate Business Intelligence (Advanced tabular model, DirectQuery, in-memory analytics, advanced data mining)	New	•			•
Advanced	Basic "R" integration (Connectivity to R Open, Limited parallelism for RRE)	New	•	•	•	•
analytics	Advanced "R" integration (Full parallelism for RRE)	New	•			•
Hybrid cloud	Stretch Database	New	•	•	•	•
¹ SQL Server 2010 Developer Edition of ² Scale out relational and non-relation © 2016 Microsoft Corporation. All rig document does not provide you wi	affers the full feature set of SQL Server 2016 Interprise Edition, but Developer Edition is for development and text only, and not for product all adds queries with the simplicity of 1.52QL using Polytates which requires single Microsoft SQL Server 2016 Interprise Edition as I built or H and gueries and the simplicity of 1.52QL using Polytates which requires single Microsoft SQL Server 2016 Interprise Edition as I built or H and gueries and any interfacture property in any Microsoft Microsoft Toront Server queries of any interfacture property in any Microsoft Microsoft Toront Server queries and use the document for your interfacture property in any Microsoft Microsoft Toront Server queries and use the document for your interfacture property in any Microsoft Microsoft Toront Server queries and use the document for your interfacture property in any Microsoft Microsoft Toront Server queries and use the document for your interfacture property in any Microsoft Microsoft Toront Server queries and use the document for your interfacture property in any Microsoft Microsoft Toront Server queries and use the document for your interfacture property in any Microsoft Microsoft Toront Agree queries and use the document for your interfacture property interfacture property in any Microsoft Microsoft Toront Agree queries and use the document for your interfacture property interfact	tion enviro de. site referen purposes. Y	nments or use with productio ces, may change without not ou may modify this documer	on data. ice. You bear the risk of us it for your internal, referen	ing it. This ce purposes.	Microsoft

SQL Server 2016 features by edition

*NOTE: COMPARE SQL SERVER VERSIONS HTTPS://WWW.MICROSOFT.COM/EN-US/CLOUD-PLATFORM/SQL-SERVER-COMPARISON

SQL Instance Setup

Install SQL Server for ArcSDE for Workgroup

- You can install from ArcGIS for Server disk or you can download installation from Microsoft for SQL Server 2012-2014 Express 64bit with Advanced Services. For Windows Server 2012 and 2012R2, you may need to install .net 3.5 sp1. Below is the command line link. Also, for 10.4.1, it requires Visual C++ 2008 sp1 64 bit (v9.0.30729.17) to install the Database Server for Workgroup. If using Enterprise, this is not needed.
 - a. Visual C++ 2008 sp1 64 bit: <u>https://www.microsoft.com/en-us/download/details.aspx?id=2092</u>
 - b. For SQL Server 2012-2014 install on Windows 2012 or 2012 R2, .net 3.5 sp1 needs to be enabled. Make sure the install .iso is available or you've extracted from the install disk to d:\ or somewhere appropriate on your server. Run as Administration command line below.
 - i. Dism /online /enable-feature /featurename:NetFX3 /All /Source:D:\sources\sxs /LimitAccess
- 2. Click on the SQL Server executable.

Planning Installation Maintenance Tools Resources Options	New SQL Server stand-alone installation or add features to an existing installation Launch a wizard to install SQL Server 2012 in a non-clustered environment or to add features to an existing SQL Server 2012 instance. Image: SQL Server 2018 Cerver 2005, SQL Server 2008 or SQL Server 2008 R2 Launch a wizard to upgrade SQL Server 2005, SQL Server 2008 or SQL Server 2008 or SQL Server 2008 R2 to SQL Server 2012.
Microoft	

- 3. Click on new sql server stand-alone installation or add features to an existing installation. In this example, we will be using a fresh installation.
- 4. You can assign different locations for your shared feature directory, most of the time you'll take the defaults and click next. If you don't want reporting services, uncheck the 'Reporting Services -Native' checkbox. If you don't know and may in the future, you can continue with it checked.



5. You can assign different instance names, install as a default instance, and create reporting services directory but in this particular example, we will use the defaults.

📸 SQL Server 2012 Setup					
Instance Configuration	I Contraction of the second seco				
Specify the name and instance	ID for the instance of SQL Ser	ver. Instance	ID becomes part of [.]	the installation path.	
Setup Support Rules Feature Selection	 Default instance Named instance: 	SQLExpre	55		
Installation Rules Instance Configuration					
Disk Space Requirements Server Configuration	Instance ID:	SQLEXPRI	ESS	21 Survey	
Database Engine Configuration Reporting Services Configuration	Instance root directory:	C:\Progra	m Files (Microsoft SC	2L Server\	
Error Reporting Installation Configuration Rules	SQL Server directory:	C:\Progra	m Files\Microsoft SC m Files\Microsoft SC	QL Server\MSSQL11.SQ	
Installation Progress Complete	Installed instances:	, c.,riogia	in the symptosic sc	SE SELVEL (MOROTTOOLE	EXPRESS
	Instance Name Inst	ance ID	Features	Edition	Version
		[< Back	Next > Car	ncel Help

6. In this next dialog, turn on the sql browser to automatic startup

📸 SQL Server 2012 Setup			- • •
Server Configuration			
Specify the service accounts and	d collation configuration.		
Setup Support Rules Feature Selection Installation Rules	Service Accounts Collation Microsoft recommends that you use	a separate account for each SQL Server servic	e.
Instance Configuration	Service	Account Name	1 Startup Type
Disk Space Requirements	SQL Server Database Engine	NT Service\MSSQL\$SQLEXPRESS	Automatic 🔻
Server Configuration	SQL Server Reporting Services	NT Service\ReportServer\$SQLEXPRESS	Automatic 💌
Database Engine Configuration	SQL Full-text Filter Daemon Launc	NT Service\MSSQLFDLauncher\$SQLEXPR	Manual
Reporting Services Configuration	SQL Server Browser	NT AUTHORITY\LOCAL SERVICE	Automatic 💌
Error Reporting Installation Configuration Rules Installation Progress Complete			1
		< Back Next > Cance	el Help

7. For Server Configuration, it is good to enabled mixed mode. This is the case where you have an administrator and you would like to have SA as an admin user that is constant. Windows authentication only is bad if the person that administrates ever leaves and you disable their active directory account by accident. It's not the end of the world, but this is an IT assurance issue. For me, it's better to be safe than sorry. Store your SA password in a safe location that can be accessed in case of administrative role changes. Again, vulnerability and stability assurance measures are the key to a healthy working server environment. Reduce the number of server admins so you have a single point of entry into the database as an administrator. For those using AD domain or LDAP, please change the account name to include a domain user so you can browse the local server when added in a domain. SQL Server Browser, SQL Server Agent and the database engine is necessary to be network aware if using backup maintenance plans (database maintenance plans are enabled for SQL Server Standard, Developer or Enterprise only).

📸 SQL Server 2012 Setup		
Database Engine Config	guration	
Specify Database Engine authen	ntication security mode, administrators and data directories.	
Setup Support Rules Feature Selection Installation Rules Instance Configuration Disk Space Requirements Server Configuration Database Engine Configuration Reporting Services Configuration Error Reporting Installation Configuration Rules Installation Progress Complete	Server Configuration Data Directories User Instances FILESTREAM Specify the authentication mode and administrators for the Database Engine. Authentication Mode Windows authentication mode Mixed Mode (SQL Server authentication and Windows authentication) Specify the password for the SQL Server system administrator (sa) account. Enter password: Confirm password: Specify SQL Server administrators GBAMS\Isavage (Luke Savage) SQL Server administrators Add Current User Add	tors iss e.
	< Back Next > Cancel He	lp

8. On the data directories tab, it is good to change the location for easy backup queries and administration. However, system tables will use the Microsoft default location within the root directory of the databases. I would not recommend enabling user instances on the user instance tab as well as filestreaming unless you plan on loading large documents outside of the Geodatabase as BLOBs. Click next when complete.

1	SQL Server 2012 Setup					
Database Engine Configuration						
Specify Database Engine authentication security mode, administrators and data directories.						
Setup Support Rules License Terms Feature Selection Installation Rules Instance Configuration Disk Space Requirements Server Configuration Database Engine Configuration Error Reporting Installation Configuration Rules Installation Progress Complete	Server Configuration Data Dia Data root directory: System database directory: User database directory: User database log directory: Temp DB directory: Temp DB directory: Backup directory: Backup directory:	ectories User Instances FILESTREAM C:\data C:\data\MSSQL11.MSSQLSERVER\MSSQL\Data C:\data C:\log C:\log C:\log C:\log\temp C:\log\temp C:\log\temp				
		<back next=""> Cancel Help</back>				

9. Optional: In the reporting services configuration, if you are using the reporting services, install and configure. If not, I would install and not configure. I chose to install but not configure right away. If you chose not to install at all during the setup process, you will not see this dialog. Click next.



10. Your choice of sending Microsoft the error reports and usage automatically. I generally do this for a development or test environment. For a production environment, leave unchecked. Click Next.

📸 SQL Server 2012 Setup				
Complete Your SQL Server 2012 installatio	on completed successfully with product updates.			
Setup Support Rules	Information about the Setup operation or possible r	next steps:		
Feature Selection	Feature	Status		
Installation Rules	Management Tools - Basic	Succeeded		
Instance Configuration	SQL Server Data Tools	Succeeded		
Disk Space Requirements	🖉 Database Engine Services	Succeeded		
Server Configuration	Full-Text and Semantic Extractions for Search	Succeeded		
Database Engine Configuration	SQL Server Replication	Succeeded		
Reporting Services Configuration	Reporting Services - Native	Succeeded		
Error Reporting				
Installation Configuration Bules	Details			
Installation Drograms				
Complete				
Complete	Only the components that you use to view and been installed. By default, the Help Viewer com SQL Server, you can use the Help Library Mana your local computer. For more information, see http://go.microsoft.com/fwink/?LinkID=224683 Summary log file has been saved to the following lo C:\Program Files\Microsoft SQL Server\110\Setup I \Summary LUKESAVAGE 20120014 132258.bt	manage the documentation for SQL Server have uponent uses the online library. After installing ager component to download documentation to Use Microsoft Books Online for SQL Server. > (http://go.microsoft.com/fwlink/?LinkID= cation: Bootstrap\Log\20120814 132258		
		Close Help		

11. If complete, you have successfully created a sql instance. If not, go through the troubleshooting information listed in the error log. Highly recommend latest service packs.

- 12. Go to start/all programs/Microsoft sql server 2012/sql server management studio. If you had sql server 2008 before, you can import profile settings.
 - a. If you don't have sql server management studio, you'll need to download and install from the Microsoft website. Below is the link.

https://www.microsoft.com/en-us/download/details.aspx?id=29062

Connect to Server		
SQL Serv	ver 2012	
Server type:	Database Engine	V
Server name:	ACTWEB	~
Authentication:	Windows Authentication	~
User name:	TEST\lsavage	~
Password:		
	Remember password	
Connect	Cancel Help Options	>>

13. Click connect

14. Right click the instance you connected to and choose properties



15. Go to the memory tab and click on maximum server memory. You will want this to be a realistic number as the default puts an ungodly amount of maximum ram that will far exceed your server limit. Because we are treating this as a production server, you will want to dedicate resources to SQL Server. For the operating system, at least give the operating system 512 GB of RAM and for SQL Server adjust appropriately. In this case, I'm giving SQL Server 1 GB of RAM but in can be more depending on your instance load and available memory. All other defaults are fine.

B	Server Properties - ACTWEB	_		x
Select a page	🔄 Script 👻 🎼 Help			
Memory Processors Security Connections Database Settings	Server memory options			
Advanced	Minimum server memory (in MB):			
	0			
	Maximum server memory (in MB):			
	Other memory options			
	Index creation memory (in KB, 0 = dynamic memory):			
Connection				
Server: ACTWEB	Minimum memory per query (in KB):			
Connection: TEST\Isavage				
View connection properties				
Progress				
Ready	Configured values O Running values			
	OK		Cance	el la

16. Tab down to Processors in the TOC, do not check Boost SQL Server Priority for a VM Host using VMWare or Hyper-V. DO NOT ENABLE WINDOWS FIBERS (lightweight pooling)! This is for older technologies and ArcSDE from v10 and higher uses XML calls to the SQL Server database so keep windows fibers disabled.

8	Server Properties - ACTWEB
Select a page	🖾 Script 👻 📑 Help
Memory Memory Memory Monosy Security Connections Database Settings Advances	Enable processors Automatically set I/O affinity mask for all processors Automatically set I/O affinity mask for all processors
Connection	Threads
Server: ACTWEB Connection: TESTVIsavage	Maximum worker threads:
Progress	
C Ready	Configured values O Running values
	OK Cancel

17. Double the network packet size for the Geodatabase connections in the advanced menu item (from 4096 to 8192). For network traffic and performance, the Geodatabase network packets need the additional size increase.

📋 Server Properties - LUKESAVA	GE\SQLEXPRESS	- • •
Select a page	Script 👻 🖪 Help	
📑 General		
Memory		
Processors		
Security	Containment	*
Patabase Settings	Enable Contained Databases False	
	⊿ FILESTREAM	
	FILESTREAM Access Level Disabled	
	FILESTREAM Share Name SQLEXPRESS	
	Miscellaneous	
	Allow Triggers to Fire Others True	
	Blocked Process Threshold 0	
	Cursor Threshold -1	
	Default Full-Text Language 1033	
	Default Language English	=
	Full-Text Upgrade Option Import	
	Max Text Replication Size 65536	
	Optimize for Ad hoc Workloads False	
	Scan for Startup Procs False	
	Two Digit Year Cutoff 2049	
Connection	4 Network	
Server	Network Packet Size 8192	
	Remote Login Limeout	
	Paranensm Cost Threshold for Development E	
Connection: GRAMSVeavage	Lost i nresnoid for Parallelism 5	
	LOCKS	_
View connection properties	Network Packet Size Set the packet size (in bytes) used across the entire network.	
Progress		
Ready	Configured values Running values	
		JK Cancel

SQL Server Enterprise Setup

Very similar to the workgroup setup above only that I recommend using default instance and locating all databases for Lucity and ArcGIS in one instance for ease of administration and resource dedication.

Enabling ArcSDE for Workgroup Databases

2. Download Database Server and install.

Files	Guides	File Size	Select
ArcGIS for Server	Install guide	1.62 GB	Download
Portal for ArcGIS	Install guide	981.93 MB	Download
ArcGIS Web Adaptor (IIS)	Install guide	22.58 MB	Download
ArcGIS Web Adaptor (Java Platform)	Install guide	25.02 MB	Download
ArcGIS Data Store for Server	Install guide	211.66 MB	Download
Database Server (Workgroup)	Install guide	146.91 MB	Download
ArcGIS GeoEvent Extension for Server	Install guide	221.48 MB	Download
ArcGIS Data Interoperability for Server		658.35 MB	Download
ArcGIS Data Reviewer for Server	Install guide	53.01 MB	Download
ArcGIS Workflow Manager for Server	Install guide	12.69 MB	Download

3. Click Next

ArcSDE for Microsoft SQL Server Express	×
Welcome to the database server setup wizard	
This setup installs Microsoft SQL Server Express and enables geodatabase storage.	
It is strongly recommended that you exit all Windows programs before running this setup If other Windows programs are running, click Cancel to quit the setup program, close ar programs you have running, then restart this wizard.	Ју
WARNING: This program is protected by copyright law and international treaties.	
Unauthorized reproduction or distribution of this program, or any portion of it, may result severe civil and criminal penalties, and will be prosecuted to the maximum extent possib under law.	n le
< Back Next > Cancel Hel	

4. Uncheck the checkbox next to Microsoft SQL Server Express Edition

ArcSDE for Microsoft SQL Server Express	×
Installation Options	
Microsoft SQL Server Express Edition	
C Install Manager COL Comments	
C Install Microsoft SQL Server Express	
C Upgrade Microsoft SQL Server Express	
Enable geodatabase storage on SQL Server Express	
< Back Next > Cancel	Help

- 5. Click next
- 6. Supply your instance name and windows login

ArcSDE for Microsoft SQL Server Express		×
Choose a SQL Server Instance an Specify an instance and the login of	d add a Windows login the user to administer it.	
SQL Server instance name	LUKESAVAGE\SQLEXPRESS	
Windows Login	gbams\lsavage E.g. DOMAIN\login_name	
If you want to add a Windows login may do so now. This step is necess software is not a member of the loca	to SQL Server as an Administrative user you ary if the person who is to be using this al Windows Administrators group.	
< Back	Next > Cancel Hel	p

7. If successful, click ok and move to step 24. If not, fix the connection issues.



8. The next section will authorize the SQL Server Express instance. For SQL Server enterprise, this is different as the subsequent topics will show you how to authorize Enterprise Geodatabases for SQL Server. Click next

ArcSDE for Microsoft SQL Server Express	×
Enable geodatabase storage on SQL Server Express ArcSDE for Microsoft SQL Server Express	
An authorization file from ESRI is requred to create and use SQL Server Express geodatabases.	
Click Next to start the ArcSDE authorization wizard.	elo 1

9. The authorize option allows you to point to an authorize file supplied from ESRI or to authorize the software installation. In this example, we will be choosing the later. Click next

Software Authorization Wizard	83
Authorization Options You must authorize the software prior to use. Select from the options below.	
Authorization Options I have installed my software and need to authorize it.	
I have received an authorization file from Esri and am now ready to finish the authorization process. Browse	
< Back Next > Can	cel

10. Again, you have the choice of email, website or through the internet. We will be performing the later. Click next.

Software Authorization Wizard	X
Authorization Method Select the method you want to use to authorize the software.	
Outhorize with Esri now using the Internet. (This automatic method is the easiest way to authorize. It requires an Internet connection	.)
Authorize at Esri's website or by email to receive your authorization file.	
< Back Next > Cancel	əl

11. The authorization information will need filled out. Click next. Click next.

12. In software authorization number dialog, you will need to supply the authorization number that ESRI has supplied to you for ArcGIS for Server Workgroup. Click next.

Software Authorization Wizard	8
Software Authorization Number Enter the authorization number for your software product	
The authorization number consists of three letters and a series of numbers; similar to ABC123456789. To authorize the ArcSDE component of ArcGIS Server, provide your ArcGIS Server authorization number.	
ArcGIS Server	
< Back Next > Car	icel

13. If you do not receive a congratulations message as it may be an internet interruption. If you are not successful, contact your ESRI representative for an authorization file. Click Finish.

Software Authorization Wizard	1	×
Authorizing Software		
✓	Connecting to ESRI	
✓	Sending authorization information	
\checkmark	Receiving authorization file	
✓	Authorizing software	
Congratulations, ye	our software has been authorized and is now ready for use.	
	< Back Finish Cano	el

Install SQL Server Native Client

You will need to install the SQL Server Native Client or the ODBC drivers listed in the previous sections on each workstation that will connect using ArcMap or ArcCatalog for the Geodatabase.

Connect and Create Geodatabase in Workgroup

1. Open ArcCatalog or ArcMap -> Embedded ArcCatalog and expand the database server's item in the TOC. Click on Add Database Server.


2. After the connection has been established, you have the choice of creating a Geodatabase by right clicking on the instance and choosing new Geodatabase.

Database Serve	ers\ACTWEB.GDS	
	Lucity GIS Tools 🔻	Ŧ
Catalog Tree		Ψ×
 Folder C C:\U: C:\U: C:\U: C:\U: C:\U: Toolbox: Toolbox: Toolbox: Database Add Datab GIS Se GIS Se My He Ready 	onnections xds sers\lsavage.TEST\Do ST-M\download t-web\mxd es e Servers Database Server WFD GTS Connect Disconnect Disconnect Disconnect Start Stop Refresh Start Stop Refresh Start New Geodatabas Attach Restore Permissions Properties	F5

3. Create new Geodatabase and change the location if needed of the database file. Also, you have the option of changing the initial size but the autogrow method will be established. Click OK.

New Geodatabase					23
Geodatabase Name	:	Vector			
Geodatabase storag	le				
Location for the Geo	odataba	se files (on the serv	/er):		
C:\data\					
Initial Size: 1	00		Units:	MB	•
			ОК		Cancel

4. Once complete you will see a new database in your instance. Afterwards, you can add users to the instance by right clicking on the instance in the TOC and choosing permissions.

🖃 🗊 Database S	Serve	rs	
📲 Add Da	ataba	se Server	
🗉 📳 ACTW			
🗄 👼 Database		Connect	
📧 🚮 GIS Server		Disconnect	
🗄 🛜 My Hoste	×	Delete	
🗄 🛜 Ready-To	з	Refresh	F5
	►	Start	
	н.	Stop	
	н	Pause	
		Resume	
		New Geodatabase.	
		Attach	
		Restore	
		Permissions	
	r	Properties	

5. This is where you can add users and groups within your organization from Active Directory.

Select User or Group		×
Select this object type:		
User, Group, or Built-in security principal		Object Types
From this location:		
test.local		Locations
Enter the object name to select (<u>examples</u>):		
Domain Users		Check Names
Advanced	OK	Cancel

6. Once you click ok, you then need to make a decision if they are going to be server administrators or not. In this example, they are not server administrators. Click ok or apply.

Permissions: activeb	×
Database Server Users:	
NT Service\MSSQLSERVER	
TEST\lsavage	
Add User Remove User	
Server administrator	
OK Apply Capcel	_

7. Next, you need to assign the group or user per Geodatabase if you have more than one. Because I separate Raster and Vector Geodatabases, the permissions change for users and groups depending on the intent for use. Right click on the new Geodatabase and select administration permissions in the drop down menu.

Ē	Paste		
×	Delete		
2	Refresh		
	New	►	
	Import	►	
	Export	۲	
	Administration	►	Administer Geodatabase
	Distributed Geodatabase	×	Backup
	Change Version		Detach
	Save Connection		Permissions
Q	Share as Geodata Service		Permissions
r	Properties		Grant and revoke privileges on the Geodatabase.

8. In the permissions: <database> dialog, select the group or user you would like to add permissions to and select the appropriate permission. In this example, I will be giving the Domain users group read/write permissions. Click ok or apply. Notice the other options available for Workgroup for example, backup, Administer Geodatabase, detach, save connection, compress, Geodatabase maintenance, and change versions. We will explore these tasks in subsequent sections.

Permissions: Vector		×
Database Server Users:		
NT Service\MSSQLSERVER TEST\Domain Admins		
TEST\Domain Users		
○ No Geodatabase Permissions	◯ Read Only	
O Geodatabase Administrator	Read/Write	
ок	Apply	Cancel
-		

9. For your users who edit and publish maps, you will want them to create a connection to the database. You can add database connections using the database connection utility as well. This is a primary connection for anyone running full versions of SQL Server. Go to the TOC of ArcCatalog again and expand Database Connections.



10. Click on 'Add Database Connection'. Add instance and the database to the connection strings. You have the choice of authenticating using the operating system or SQL Server user accounts. In this example, we are going to use the OSA method. Click ok.

Database Connection			×
Database Platform:	SQL Server		~
Instance:	actweb		
Authentication Type:	Operating system auth	entication	~
	User name:		
	Password:		
Database:	Vector		~
About Database Connections		ОК	Cancel

- 11. The connection string for the name of the connection is always arbitrary. Recommend using the following naming convention.
 - <instance if more than one instance; if not skip>.<database>.<version>.<OSA or SQL user>
 - For this example, we will be renaming the connection to vector.default.osa.
 - Right click on the new connection and select rename. Type in the new name.
 vector.default.osa

Registering the Geodatabase in ArcGIS for Server

- 1. If you are using Operating System Authentication to publish map services and in order for ArcGIS for Server to connect to your database, you need to add ArcGIS for Server service user as read or read/write depending on your uses. Otherwise, use a SQL Server user so you don't need to add ArcGIS for Server service user in the database.
- 2. You can either grant permissions to ArcGIS for Server service user through the Geodatabase Administration toolset in ArcCatalog or you can add the user in SQL Server and then grant permissions of the data to the user. In this exercise, we'll go through and add ArcGIS for Server user to SQL Server. This exercise is beneficial for GIS workflow scenarios. We will be assigning ArcGIS for Server service user that has read/write access to the database with no DBO or other special privileges.
- 3. Go to SQL Server Management Studio and add the new user to your Geodatabase or Geodatabases. Open Security within the SSMS TOC and right click on logins. Select new login. Add ArcGIS for Server Service user to the Geodatabase. Recommend assign a default database to general groups or users other than master.
- 4. Go to User Mapping and select on the appropriate databases you want ArcGIS for Server service user to connect to. Make sure it has db_datareader or db_datawriter enabled depending on the functionality you want. You may still need to assign privileges within ArcCatalog in an enterprise setup.

🚪 Login Properties - TEST\arc	gis				_ 🗆 🗵
Select a page	🔍 Script 👻	📑 Help			
🚰 General	<u> </u>				
Server Roles	Users mar	oped to this login:			
🚰 User Mapping	Map	Database	User	Default Schema	_
Status		GBAWater001			
		GBAWork			
		GBAWork001			
		LucityGIS	TEST\arcgis	dbo	
		master			
		model			
		msdb			
		Raster	TEST\arcgis	dbo	
	V	Replica	TEST\arcgis	dbo]
		ReportServer			-
	Database	account enabled for: Replic role membership for: Replic	a a		
Connection	db_ac	cessadmin			
Server: TEST-DB Connection: TEST\lsavage View connection properties Progress Ready	db_ba db_da db_da db_da db_da db_da db_de db_se v public	ickupoperator itareader itawriter Illadmin nydatareader nydatawriter wrer curityadmin			
				ОК	Cancel

Click ok and go to your workstation and open ArcCatalog. Go to the GIS Servers section within the TOC of ArcCatalog. Connect to the administration connection by double clicking the connection or right click and choose connect.



5. Once connected, right click on the connection and choose server properties.

ð	Сору	Ctrl+C
×	Delete	
·	Rename	F2
3	Refresh	F5
	Connect	
_	Disconnect	
C	Server Properties	\supset
	New Folder	
-		
	Root Folder Propertie	es
	Root Folder Propertie ArcGIS Server Manaç	es ger

6. Go to the data store tab and click the plus button.

rcGIS Server Properties	×
Directories Configuration Store Clusters Machines Data Store Logs Types	
Registered Databases	
• Raster	×
Registered Folders	
	+ ×
About registering databases and folders Validate Al	
OK Cancel	Apply

7. Notice I already have LucityGIS and Raster inside of my data store and now I want to connect to the Replica. Add the replica name and click add for publisher database connection.

Penlica		
Publisher database connection		
	- (Add
		Import
Server database connection		
Z Same as publisher database connection		
		Add

8. Add the appropriate information in instance and database. Click ok and ok.

Database Connection			×
Database Platform:	SQL Server		•
Instance:	test-db		
Authentication Type:	Operating system User name: Password:	authentication	<u> </u>
Database:	Replica		•
About Database Connections		ОК	Cancel

9. Your database should have a green check next to it to signify completed successfully.

ArcGIS Server Properties	×
Directories Configuration Store Clusters Machines Data Store Logs Types	
Registered Databases	
 LucityGIS Raster Replica 	+ • ×
Registered Folders	+ × ~
About registering databases and folders Validate All	
OK Cancel	Apply

10. Now you are ready to publish map services from connections to the SQL Server Enterprise Geodatabase.

Create Enterprise Geodatabase (formerly ArcSDE)

- 1. Choose the database platform you will be connecting to. Since Lucity is SQL Server friendly, this will demonstrate the sql server platform type.
- 2. Within SQL Server, an instance is the container or the repository of the databases.
- 3. Database would be a name given to the database. In SQL Server's case, you will be specifying a name of the database. In this example, we will be creating a database called "vector".
- 4. Since I have mixed mode turned on for sql authentication, I chose to use the sa account. As the sysadmin, I could have created a database using my OSA account; however, for organizations that have changes, I would recommend creating the database using the SA as this will tag the database to be owned by sa. For most cases, a mixed mode sql instance is the best practice. This gives your organization the flexibility of using both the sa account and OSA when managing databases. If a DBA is let go and they have created databases using their credentials and the SQL Server instance is set to only use OSA credentials, you will not like the outcome.
- 5. Uncheck sde owned schema as this was the old way ESRI used for the ArcSDE setup and configuration. DBO schemas are much preferred as they have the most flexibility within a windows environment.
- 6. Authorization file is the file created after authenticating ArcGIS for Server (i.e. c:\program files\ESRI\ License10.4\sysgen\keycodes)

ArcToolbox	🔨 Create Enterprise Geodatabase
ArcToolbox	Create Enterprise Geodatabase Database Platform SQL_Server Instance test-db Database (optional) vector Database Administrator (optional) Database Administrator (optional) sa Database Administrator Password (optional) sa
Create Enterprise Geodatabase Create Raster Type Create Role	Geodatabase Administrator (optional) Geodatabase Administrator Password (optional)
	Tablespace Name (optional) Authorization File \\TEST-WEB\keycode\keycodes
	OK Cancel Environments << Hide Help

Publishing and Configuring Map Services

- 1. Open ArcMap and locate your .mxd to publish to ArcGIS Server
 - Recommend: If you have an image, recommend separating the image from the vector map services for performance reasons.
 - Recommend: Cached Image Service
 - Recommend: Converting dynamic labels to Annotation and scale.
 - Recommend: Make your map services scale dependent so not everything shows up in a small scale extent.
 - Recommend: Use ArcGIS Server Web Adaptor if using a DMZ. Please consult your IT Administrator for setting up a DMZ.
 - Recommend: Make sure your Symbols are bigger if using map services for Mobile tablet applications.
- 2. When cartographic and scaling operations are complete, go to the file menu and click on 'Share As/Service'.



3. Share as Service dialog prompts. There are three choices. Choose Publish a service and click next.

Share as Service	
	 Publish a service Save a service definition file Overwrite an existing service
	About sharing a service
	Next > Cancel

4. Publish a Service dialog appears and give it a name. Click Next.

Publish a Service		X
Choose a connection		
Select an existing) connection or create a new one	-
Server type:	No Connection Set	
Service name		
sewer		
	Back Nex	t > Cancel

5. Service Editor dialog will appear and this is where you add your settings for your map service.

Service Editor			1			-	83
Connection: arcgis on luke	esavage_6080 (admin) Sen	vice Name: sewer	🖳 Import	🗸 Analyze	Preview		
General	General						
Parameters	General						
Capabilities	Service Name:	sewer					
Mapping	Connection:	http://lukesavage:6080/arcgis,	/admin				
Pooling	Tupe of Servers	ArcGIS Server				_	
Processes	Type of Server.	Mar Carlos					
Caching	Type of Service:	Map Service					
Item Description		📝 Start service immediately					

6. Click on Analyze at the top of the dialog. After the analyze tool has completed, it will list errors, warnings and messages letting you know if there are any issues with the performance of the data being rendered to ArcGIS Server.

Prep	are						
0	Errors	🛕 61 Warnings 🕕 1 Messag	es	Search:			
	Severity	Status	Code	Description	Name	Туре	Data Frame
Δ	Medium	Resolved In Map Service Definition	10009	Enabling the option to convert layer transparency to colo	Street Light	Layer	Layers
	Medium	Resolved In Map Service Definition	10009	Enabling the option to convert layer transparency to colo	Facility Building	Layer	Layers
	Medium	Resolved In Map Service Definition	10009	Enabling the option to convert layer transparency to colo	Park Path	Layer	Layers
Δ	Medium	Resolved In Map Service Definition	10009	Enabling the option to convert layer transparency to colo	Park Landscape	Layer	Layers
Δ	Medium	Resolved In Map Service Definition	10009	Enabling the option to convert layer transparency to colo	Parks	Layer	Layers
Δ	Medium	Resolved In Map Service Definition	10009	Enabling the option to convert layer transparency to colo	Street Median	Layer	Layers
	Medium	Resolved In Map Service Definition	10009	Enabling the option to convert layer transparency to colo	Parcels	Layer	Layers
	Medium	Unresolved	10016	Layer uses symbol level drawing with a transparent color	Park Path	Layer	Layers
	Medium	Unresolved	10016	Layer uses symbol level drawing with a transparent color	Park Landscape	Layer	Layers
	Medium	Unresolved	10017	Layer uses symbol level drawing with a picture marker sy	Street Sign	Layer	Layers
	Medium	Unresolved	10017	Layer uses symbol level drawing with a picture marker sy	Street Sign	Layer	Layers
	Medium	Unresolved	10017	Layer uses symbol level drawing with a picture marker sy	Street Sign	Layer	Layers
	Medium	Unresolved	10017	Layer uses symbol level drawing with a picture marker sy	Street Sign	Layer	Layers
	Modium	Uprocelued	10017	Lawer upon symbol lovel drawing with a picture marker ov	Street Sign	Lawor	Lawore

- If errors, you need to resolve before proceeding.
- If warnings, you may or may not address these issues but ESRI highly recommends fixing these issues.
- Messages are helpful hints on low priority performance issues. Most of the time, these do not need to be addressed as issues as they are intended.
- 7. Go to parameters in the TOC for the Service Editor dialog and change the anti-aliasing to Normal. Not all map services will show artifacts but if so normal is a good place to start.

Note: Anti-Aliasing: A graphics technique that blends foreground and background pixels near edges of objects to trick your eye into seeing smoother borders. You can use this option if unwanted artifacts appear in your map displays, for example, jagged lines, wavy lines or bands, and moiré patterns.

Use the following options to get the graphics effect and performance that will meet your map service needs:

- None: No antialiasing is performed.
- Fastest: Minimal antialiasing is performed, optimized for speed.
- Fast: Some antialiasing is performed, optimized for speed with better quality than can be achieved with Fastest.
- Normal: A good balance of speed and quality.
- Best: The best quality antialiasing. This option takes the longest to render.
- Force text anti-aliasing should be enabled by default.
- 8. Change the maximum number of records returned by the server. This will increase the records returned by one query. 3000 is a good number to return unless your users need more.

rvice Editor Connection: arcgis on Jul	resavage 6080 (admin) - Service	Name: sewer	@ Import	🖌 Analuze	🕶 Preview	🗐 Publish	
General Parameters	Parameters			•	-	v a	
Capabilities Mapping Pooling	Document Location Original Document: Published Document: Anti-Aliasing	C:\arcgisserver\MapService: C:\arcgisserver\MapService:	s\sewer.mxd s\sewer.mxd]
Processes Caching Item Description	Anti-Aliasing: Text Anti-Aliasing: Properties Maximum number of re	cords returned by the server:		Normal Force 3000	Advanced	•] -]
	Cluster Choose the cluster host Output Directory Directory:	ing the service: C:\arcgis	server\directo	default pries\arcgisou	tput	•]

Unlock Schema

- 1. Set SchemaLockingEnabled to False in Service Properties of ArcGIS for Server disables schema locking. For those who wish to serve their production data as a map service, this is extremely helpful if you need to make any kind of schema changes in your database. However, **feature services will persist a schema lock** and override this setting.
- 2. Within the service editor dialog when publishing a map service, go to Parameters within the menu tabs on the left and click on advanced.

ervice Editor							×
Connection: arcgis on lukesa	vage_6080 (admin) Service	Name: demo	🚉 Import	🗸 Analyze	🥶 Preview	된 Publish	٢
General Parameters Capabilities Mapping Pooling	Parameters Document Location Original Document: Published Document:	C:\arcgisserver\MapS C:\Demo\demo.mxd	ervices\web.mxd				
Processes Caching Item Description	Anti-Aliasing Anti-Aliasing: Text Anti-Aliasing: Properties Maximum number of re	cords returned by the se	rver:	Normal Force	Advanced	•]
	Cluster Choose the cluster hos Output Directory Directory:	ting the service:	arcgisserver\direct	default cories\arcgisoul	tput	•]

3. Click on the 'Advanced' button and change the values for schemaLockingEnabled to false if you don't want the map service to lock your database. Click ok when finished.

Advanced Properties		8
Property Name	Value	
disableIdentifyRelates	false	
maxDomainCodeCount	25000	
maxImageHeight	2048	
ma×ImageWidth	2048	
schemaLockingEnabled	false	
Use Default	ОК	Cancel

4. Go to the Capabilities tab and make sure the Mapping service is the only box checked.

Service Editor						×
Connection: arcgis on lukesava	Connection: arcgis on lukesavage_6080 (admin) Service Name: test3				🚛 Publish	
General Parameters Capabilities	Capabilities Choose the capabilities you would like enabled for this s	ervice:				
Apping Pooling Processes Caching Item Description Sharing	Mapping (always enabled) WC5 WM5 Feature Access Schematics Mobile Data Access Network Analysis KML WF5 Lucity Data Update SOE					

- 5. In pooling, usually 1 minimum and 5 maximum will suffice for most organizations. For large organizations, increase based on user load.
- 6. In Processes, go to recycle this configuration every: <number> and change to a desirable value. Usually, 12 hours is a good recycled time frame.
- 7. Change the starting at value to 6:00 am or whenever you would like it to start

Service Editor				
Connection: arcgis on lukesava	age_6080 (admin) Service Name: demo			
General Parameters Capabilities Mapping	Pooling Specify the number of instances Minimum number of instances per machine: 1			
Pooling	Maximum number of instances per machine: 5			
Processes Caching	Timeouts			
Item Description	The maximum time a client can use a service:	600 seconds		
	The maximum time a client will wait to get a service:	60 seconds		
	The maximum time an idle instance can be kept running:	1800 seconds		
		OK Cancel		

- 8. If you want to cache, click on caching and change the values to a suitable number. For basemaps and imagery, recommend caching. For interactive map services, leave caching turned off which is by default.
- 9. If you want to see the speed of your map service, click on the preview icon in the menu toolbar. Otherwise, click on publish.

📃 Packaging in progress (Not Responding)	×
Croating convice definition	
Cancel	

ArcGIS for Server and Geodatabase Administration - Part 1

- 10. Below are Lucity map service deployment scenarios.
 - You may have multiple map services for each group if needed. It really depends on your setup with replication, versioning and how complex this may be. Each organization may be different on how they want to handle distributing maps to the users.
 - Create Basemaps and Imagery services (tiled) for distribution to your users. Consider your users and what content they would like to see in Basemaps.
 - Make sure your basemap services are using the same coordinate systems (prefer wkid) in the publishing map document.
 - Make sure operational layers are using wkid for the coordinate system in your map document.

Enabling the Geometry Service

We need to enable the geometry service for Lucity GIS Web Map application to allow for buffering, projecting, calculating lengths and areas.

1. Log into ArcGIS Server Manager.

Please provide your ArcGIS Server username and password
Username: AGS Password:

2. Once logged in, go to the site root tab on the left side of the browser and click on the folder called 'Utilities'

				esi	<u>ri.com Resource Cent</u>	er <u>Sian Out</u> <u>Help</u>
ArcGIS Ser	rver Managei		Services	Site	Security	Logs
Manage Services	OGC Services	KML Network Links				
Folders	💕 Se	rvices			Pu	olish Service
Site (root) System Utilities	đ /	basema Status: Instance Maximu	▶ (Map Service) ■ Started es Running: 1 as in Use: 0 m Instances: 2			nî ⊨ = 3 ×
K		demo Status: Instano Instano Maximu	' (Map Service) Started es Running: 1 es in Use: 0 m Instances: 2			∎î ⊨ = © ×
		demoex Status: Instano Instano Maximu	t / (Map Service) Started es Running: 1 es in Use: 0 m Instances: 2			nî ⊨ ≡ 3 ×

- 3. Go to the Geometry Service and click on the play icon \blacktriangleright to start a stopped service.
- 4. Once complete, the service is now available.



Creating a Geocoding Service

Geocoding services allow Lucity GIS Web Map to find and display addresses on a map and see how they relate to surrounding features. We do support composite geocoding services.

- 1. Open ArcCatalog
- 2. Create a geolocator in your publishing database
- 3. For dual ranges, make sure to set the 'Match with no zones' value to Yes

Add	Iress Locator Properties		×
	Connguration Reyword		
	Support intersections	True	î.
Ŧ	Reference data tables		
Ŧ	Place name alias table		
÷	Input address fields		
Ŧ	Outputs		
Ξ	Geocoding options		
	Minimum match score	85	
	Minimum candidate score	75	
	Match if best candidates tie	Yes	
	Spelling sensitivity	80	
	Side offset	20	
	Side offset units	Feet	
	End offset	3	
	End offset units	Percent	Ξ
	Intersection connectors	& @ and at	
	Match without house number	No 🥒	
	Match with no zones	Yes	
	Left side value	L	
	Right side value	R	
÷	Performance		
Ge Ge	eocoding options eocoding options that control how the places the locations of matched addre	Mo locator finds and filters the list of candidates and h esses.	how
At	oout locator properties	OK Cancel	

4. Right click on the geolocator in the Catalog Tree and click on Share As/Geocode service



- 5. Publish a service
- 6. Click Next

7. Make the service name simple so it's easier to remember.

Publi	sh a Service					— ×
Ch	oose a connection					
	arcgis on lukesavage	_6080 (admin)				-
	Server type:	ArcGIS Server				
Sei	rvice name					
	GeoLocate					
			< Ba	ick	Next >	Cancel

- 8. Click Next
- 9. Choose a folder or keep default location as root
- 10. Click Continue
- 11. Select Parameters and change the interactive Find if you want more than 500 records returned by the server.

S	ervice Editor						×
	Connection: arcgis on lukesava	ge_6080 (admin) Service Name: GeoLocate			🗸 Analyze	된 Publish	
	General	Parameters					
	Parameters						
	Capabilities	Cluster					
	Pooling	Choose the cluster hosting the service:	default		•		
	Processes	Interactive Find					
	Item Description	Maximum number of candidates returned by the serv	/er:	1000			
		Batch Geocoding					
		Maximum number of records to be processed in each batch job: 1000					
		Recommended number of records to pass in each ba	tch job:	1000			

12. Analyze and fix any errors. If no errors, publish

Securing a GIS Service

We now support ArcGIS for Server secure GIS services (map, geocoding, geometry, feature, image, and routing). In this section, we will describe the deployment of secure map services as a built-in user store.

1. Log into ArcGIS Server Manager.

	esri.com <u>Resource Center</u> <u>Help</u>
ArcGIS Server Manager	
3	
	Please provide your ArcGIS Server username and
	password
	Username: AGS
	Password:
	Login

- 2. Go to the Security menu to configure the security features.
- 3. Click on configuration settings pencil to configure the type of data store.

ArcGIS Server Manager Settings Users Roles ArcGIS Server Security ArcGIS Server security determines who can General ArcGIS Server security settings are	Service administer the GIS server, who can p	s Site	Security	Logs Help
Settings Users Roles ArcGIS Server Security ArcGIS Server security determines who can General ArcGIS Server security settings are	administer the GIS server, who can p	iblish to the GIS server, an	nd who can use the s	Help
ArcGIS Server Security ArcGIS Server security determines who can General ArcGIS Server security settings are	administer the GIS server, who can p	iblish to the GIS server, an	nd who can use the s	Help
ArcGIS Server Security ArcGIS Server security determines who can General ArcGIS Server security settings are	administer the GIS server, who can p	blish to the GIS server, an	nd who can use the s	
ArcGIS Server security determines who can General ArcGIS Server security settings are	administer the GIS server, who can p	iblish to the GIS server, an	nd who can use the s	
General ArcGIS Server security settings are				services.
General Artigis Server security settings are	diseland helen. To shange the series	uste second by AveCTC C	Conversed out their	noveringing alial that
Users and Peles links above. To set access	displayed below. To change the account	Ints recognized by ArcGIS S	Server and set their	permissions, click the
osers and koles links above. To set access	rules for a service, use the services >	Manage services page.		
Configuration Settings	/ <			
User Store:	ArcGIS Server Built-in	· _		
Role Store:	ArcGIS Server Built-in	(This	needs to be	
Authentication Tier	GIS Server	Toker	n based. We	а
Authentication Mode:	ArcGIS Tokens	do n	not support	
		V	Veb-Tier	
Primary Site Administrator Account				
Username:	AGS			
Token Settings	/			
Lifespan of Short-lived Tokens:	60 minutes			
	t dau			

4. Again, we will be configuring a built-in store at the ArcGIS for Server level not the web store or the windows domain/LDAP configuration in this example.



- 5. Click Next
- 6. Finish after reviewing configuration
- 7. Optional (if using tokens), configure your Long-Lived tokens to the appropriate IT policy. In this example, the lifespan for Long-lived tokens will be 1 day.

Edit Token Settings	
Edit the token settings and click Save Helr	2
Lifespan of Short-lived Tokens: 60 🚔 minutes	
Lifespan of Long-lived Tokens: 1 days	
Shared key: b53f7567-30c3-415d-939f-7	
The shared key, used to encrypt and decrypt tokens, is critical to ensuring the identity and authorization of clients. The key should be set using 16 random characters.	
Save	

8. Click Save

9. Go to the roles submenu of security

ArcGIS Server	Manager	Services	Site	Security	Logs
Settings Users	Roles				
Roles in the Identity Sto	ore				<u>Help</u>
A role is a set of users relat to add a role. To locate a sp	ed by function, title, or some other attribut becific role, enter the first few letters of the	.e. When the built-in role name in the Fir	store is used to ma nd Role field.	anage roles, click th	ne New Role button
			Find Role:		🔍 🎎 New Role
Role name:	Description	F	Role type:		
viewers		L.	Jser		/×
< 1 ►					

- 10. Click new role
- 11. Add a role called 'viewer'. In this example, we will create a role used for the end user. You can similarly create roles for administrators and publishers in the same way. If you already had a user create, you can add them to the role by clicking the person with the plus sign icon ²

w Role				
				11-1-
				Help
Role name:	viewer			
Description:				
Role type:	() User	⊙Publisher ⊙Administ	rator 🔶	
Available users			Rol	e members
Username	Full name:	Email:		
chuck	Eric Daniel	edaniel@lucity.com	20	
	Q]		
∢ 1 ►				
				Create

- 12. Once finished, click on create.
- 13. In this example, we will create a user. Go to the submenu item called 'users'.

14. Click on new user.

ArcGIS Serve	er Manager	Services	Site	Security	Logs
Settings Users					
Users in the Identity S	itore				<u>Help</u>
A user is any person or so User button to add a user	oftware agent that will access an ArcGIS r. To locate a specific user, enter the firs	3 Server resource. When t at few letters of the usern	the built-in store is name in the Find Use	used to manage us er field.	ers, click the New
			Find User:		Q 🎝 New User
Username	Full name:	Email:			
chuck	Eric Daniel	edaniel@luc	ity.com		/ ×
< 1 ►					

- 15. Once the 'new user' dialog appears, add the user information. In this example, we will be adding the newly create role to the user during the creation of the user account.
- 16. Add the information in the 'new user' dialog
- 17. Click on the person with the plus sign icon $m{a}_{0}$

Username:	Jasper	Role name:	Role type:			
Password:	•••••	viewers	User		viewers	×
Repeat Password:	•••••			٩		
Email:	jasper@frankenberry.com	◀ 1 ►				
Full name:	Jasper Frankenberry					
Description:						
)				

- 18. Click create
- 19. We now have the new user added to the users list.

ArcG	IS Server Manage	r	Services	Site	Security	Logs
Settings	Users Roles					
Users in the	Identity Store					<u>Help</u>
A user is any p User button to	erson or software agent ti add a user. To locate a sp	nat will access an Arco ecific user, enter the 1	GIS Server resource. When t first few letters of the userr	he built-in store is ame in the Find U	: used to manage us ser field.	sers, click the New
				Find User:		🔍 🦾 New User
Username	Full nam	e:	Email:			
chuck	Eric Danie	Ι	edaniel@luci	ty.com		/×
Jasper	Jasper Fra	ınkenberry	jasper@franl	kenberry.com		/ ×

20. Assuming you published a map service for the intention to secure, go to the main menu and click on 'services'

Status:		Started
		Startea
Instances R	Running:	1
Instances ir	n Use:	0
Maximum Ir	nstances:	2

eî ► = S ×

- 21. Click on the lock icon 🖬
- 22. Click on the radio button 'Private, available only to selected users' to enable security. You have the choice to allow access to all users who are logged in which gives access to all users in the 'built-in' users security store but in this example we only want to use the 'viewers' role.
- 23. A message will appear 'no roles have been selected'. This is a friendly reminder that there have been no roles selected.

Edit Permis	ssions	20
Z		Help
4	No roles have been selected. Only Administrators or Publishers wi have access to this resource.	" ×
Secui	ity settings for this resource	
• E	Private, available only to selected users	
7	Available roles Q Allowed roles	
	Role name: viewers	
	Save	Cancel

24. Click on the person with the plus sign icon 🕹 under roles. This will add the 'viewers' role into the 'Allowed roles' dialog.

Allowed	roles		
viewers	K	×	
		Save	Cance

- 25. Click Save
- 26. For the map service, you should now see the lock icon $\mathbf{\hat{b}}$ in the locked position.

 demo secure 🖊 (M	lap Service)
Status:	Started
Instances Running:	1
Instances in Use:	0
Maximum Instances	: 2



- 27. Test the map service security. You can do this by going to the rest endpoint of the map service.
- 28. Example: http://<servername>/<alias>/rest/services/<nameofmapservice>/MapServer
- 29. Supply the newly created user credentials and click on login

¢	O lukesavage/map/rest/login?redirect=http%3A//lukesavage/map/rest/services/demo_secure/MapServer
	ArcGIS REST Services Directory
	Home

ArcGIS Server REST API Login

User Name:	jasper	
Password:	•••••	
Login		

30. If you see the rest service directory open, you have successfully secured your map service.

Iukesavage/map/rest/services/demo_secure/MapServer	
ArcGIS REST Services Directory	
<u>Home</u> > <u>services</u> > <u>demo_secure (MapServer)</u>	
JSON SOAP	

demo_secure (MapServer)

View In: ArcGIS JavaScript ArcGIS.com Map ArcMap ArcGIS Explorer

View Footprint In: ArcGIS.com Map

How to Create a Feature Service

Redlining

To configure the Geodatabase and ArcGIS for Server to enable redlining capability, we must create a feature class or feature classes depending on the type of redlining capability you desire. We support points, lines and polygons. Below we will demonstrate the creation of a feature dataset, three feature classes and published them to a feature service.

- 1. Open ArcMap
- 2. Click on the Catalog button if it is not already open.



3. In the Catalog Tree, go to database connections and open your production GIS database.



- 4. Right click on the connection and choose new and a submenu will appear.
- 5. Click on Feature Dataset



6. Give the Feature Dataset a name. In this example we will call it Redlining

New Feature D	ataset			×
			_	
Name:	Redlining			
		< Back	Next > Cap	-el

- 7. Click Next
- 8. Set your coordinate system for the feature dataset

ArcGIS for Server and Geodatabase Administration - Part 1



- 9. Click Next
- 10. Click Next unless you need vertical coordinate systems applied to the data

11. Set your Z, M and XY tolerance. In this example, we will take the defaults.

New Feature Dataset	×
YV Tolerance	
The XY tolerance is the minimum distance between coordinates before they are considered equal. The XY tolerance is used when evaluating relationships between features.	
D.003280839895013 Foot	
Z Tolerance	
0.001	
M Tolerance	
0.001 Unknown Units	
Reset To Default About spatial reference properties Image: Accept default resolution and domain extent (recommended)	
< Back Finish Cance	el

- 12. Click Finish
- 13. In the Database Connection, right click on the newly created Feature Dataset and choose new and submenu Feature Class



14. In this example we will create a point Feature Class and call in RPoint

New Feature Class	×
Name	
Name:	RPoint
Alias:	Redlining Point
Туре	
Type of features :	stored in this feature class:
Point Features	~
Geometry Properti	es
Coordinates in	clude M values. Used to store route data.
📄 Coordinates in	clude Z values. Used to store 3D data.
	< Back Next > Cancel

- 15. Click Next
- 16. Except defaults unless you are using configuration keywords
- 17. Click Next

18. Add desired fields to your redlining point feature class. If you plan on using editing user, date and last editing fields, make sure you turn on editor tracking after creating the feature class.

	Ciald Name	Doto Tur	no. 4
	rield Name	Data Ty	pe _
OBJECTID		Object ID	
SHAPE		Geometry	
NAME		Text	
DESCRIPTION			
NOTES		Text	
NOTES2		lext	
GlobalID		Global ID	
created_user		lext	
created_date		Date	
last_edited_user		Text	
last_edited_date		Date	
ck any field to see its p Field Properties	properties.		-
ick any field to see its p Field Properties Alias	oroperties.		-
ick any field to see its p Field Properties Alias b add a new field, type ata Type column to cho	oroperties. OBJECTID the name into an empty row pose the data type, then edit	in the Field Name colunt the Field Properties.	Import

- 19. Click Finish
- 20. Repeat steps 13 through 18 to create polygon and line Feature Classes if desired.
- 21. Make sure to assign credentials for access to the newly create feature dataset and optional versioning before publishing.
- 22. Optional: Right click on each feature class that you would like to enable edit tracking and choose properties.
- 23. Go to the tab Editor Tracking and click on Enable Editor Tracking
- 24. Map the fields to the appropriate Feature Class fields

25. We only use UTC

Feature Class Prop	perties				X
Fields Inde General Ed	exes Subtypes itor Tracking X	Feature Extent Y Coordinate System	Relationships Domain, Resol	Representation and Tolera	ons nce
Update the:	tor tracking	ture is created			
Creator F	eld:	created_user		•	
Create Da	ite Field:	created_date		•	
Update the	se fields when a fea	ture is edited			
Editor Fiel	d:	[last_edited_user		•	
Edit Date	Field:	last_edited_date)	T	
Record Date	es in:	OUTC	🔘 Database Time		
Pre-existing specified tin for more inf	dates in create dat ne zone. UTC is reco ormation.	e and edit date fields: ommended if there are	will be considered t no dates. See the	o be in the on-line help	
		0	K Cance	el App	ly

26. Click Apply or ok.

Publishing a Feature Service

1. Go to the File/Share As/Service menu option to create a service



2. Select Publish a Service

Share as Service	
	 Publish a service Save a service definition file Overwrite an existing service
	Next > Cancel

3. Click Next

4. Choose server connection and create service name

Publi	ish a Service				X
Ch	oose a connection				
	arcgis on lukesavage	_6080 (admin)			-
	Server type:	ArcGIS Server			
Sei	rvice name				
	redlining				
			< Back	Next > C	ancel

- 5. Click Next
- 6. Use in folder or in the root of ArcGIS service directory
- 7. Click Continue
- 8. Go to Parameters and click on Advanced

ervice Editor					- ·	A-	8
Connection: arcgis on lul	<pre>cesavage_6080 (admin) Service</pre>	Name: redlining	오. Import	🗸 Analyze	⊕ Preview	🚚 Publish	\diamond
General	Parameters						
Parameters	Document Location						-
Capabilities	Original Document:	C:\Demo\redlining.mxd]
Mapping	Published Document:	The service has not yet be	en published]
KML Pooling	Anti-Aliasing Anti-Aliasing:			None		•	
Processes	Text Anti-Aliasing:			Force		-	Ì
Caching	Properties						
Item Description	Maximum number of rec	ords returned by the server	:	1000			1
Sharing					Advanced]
	Cluster						-
	Choose the cluster host	ing the service:		default		•]
	Output Directory Directory:	C:\arcc	isserver\direct	ories\arcgisou	tput	•]
- 9. Click Ok
- 10. Go to the Capabilities tab and make sure Mapping and Feature Access is selected.

rvice Editor						
Connection: arcgis on luk	esavage_6080 (admin) Service Name: redlining	🚉 Import	🗸 Analyze	🤯 Preview	된 Publish	(
General	Capabilities					
Parameters	Choose the capabilities you would like enabled for t	his service:				
Capabilities	Manaja (always an alta A					
Mapping	WCS					
Feature Access	WMS					
ooling	Schematics					
rocesses	Mobile Data Access					
aching	KML					
tem Description	WFS					
haring	Lucity Data Update SOE					

11. Click on the submenu tab 'Feature Access' and add the selection 'Enable ownershipbased access control on features'. This option will only allow the created user features to be updated by the owner of the features but only allow the other users to query the created data.

Service Editor	×
Connection: arcgis on luke	savage-It_6080 (admin) Service Name: LucityGIS_Redlining
General	Feature Access
Parameters	REST URL: http://lukesavage-lt:6080/arcgis/rest/services/LucityGIS_Redlining/FeatureServer
Capabilities	SOAP URL: http://lukesavage-lt:6080/arcgis/services/LucityGIS_Redlining/MapServer/FeatureServer
Mapping	Operations allowed:
Feature Access	Create Delete Extract Query Sync Update
Pooling	Properties
Processes	
Caching	Allow geometry updates
Item Description	Allow update of the curves
	Apoly default z-value
	When inserting or updating features with no z-values, set z-value to:
	☐ Enable ownership-based access control on features
	Operations allowed on features created by other users :
	Query Delete
	Advanced Options
	OK Cancel

- 12. Analyze to make sure no errors are present.
- 13. Click Publish
- 14. Optional: If you wish to secure the feature service, go to the below section of 'Security a Map Service' and add each user account to have access to the newly created map/feature service.
- 15. For Editing feature services, go through the same process above. Make sure you are using an edit user when publishing.

Publishing an Offline Feature Service

In order to support offline mode, we must prepare the data and configure the feature service. Below, we will demonstrate the setup for supporting offline feature services.

<u>Prepare Data</u>

- Add GlobalIDs
- Enable geodatabase archiving
 - \circ $\,$ Make sure there is enough space for your database to grow before enabling archiving on your enterprise geodatabase
- You have the capability to add create, delete, query, sync and update.
 - \circ $\;$ For Lucity, we currently do not plan to provide offline map edits.

Publishing Preparation

- Consider symbology
- Feature Services will lock database for any schema changes.
- Needs to be an edit user to database when publishing map
- Consider securing feature service
- Remove Joins
 - Joins and Relates are not accessible through Feature Services
- Ensure all layers are in the same versioned/un-versioned state
 - \circ $\;$ Layers in the TOC cannot have mix match of versioned and un-versioned data $\;$

End Users

- Make sure you are connected to a fast internet connection or LAN line when checking out map data
 - 1. Open ArcCatalog. Right click on your feature classes or feature datasets and choose manage, Add GlobalIDs.



2. To enable archiving, right Click on Feature Datasets or Feature Classes You can either publish a new map/feature service or enable the feature service within an existing map service. In order to have sync capability, make sure you log in as an edit user.

	Name		Туре			
		30.GeoLocator		Locator		
	TucityGIS.DBO.EQUIPMENT		SDE Feature Data:			
	Lucity	GIS.C	BO.FACILITY		SDE Feature Data:	
	Lucity	GIS.C	BO.LandBase		SDE Feature Data:	
Layers		GIS.C	BO.MARKUP		SDE Feature Data:	
Layers		GIS.DBO.PARK		SDE Feature Data:		
	Lucity	GIS.C	BO.RIGHTOFW	AY	SDE Feature Data:	
	Lucity	GIS.C	BO.ROAD		SDE Feature Data:	
	Lucity	GIS.C	BO.SEWER		SDE Feature Data:	
		LucityGIS.DBO.STORM			SDE Feature Data:	
	Lucity	LucityGIS.DBO.STREET		SDE Feature Data:		
Show only unversioned iter	LucityGIS.DBO.TRAFFIC		SDE Feature Data:			
Show only unresolved item	Lucity	LucityGIS.DBO.WATER		SDE Feature Data:		
	Lucity	GIS.C	BO.WATERDIST		SDE Feature Data:	
	Lucity	GIS.C	BO.WATERRAV	V_	SDE Feature Data:	
		P	Сору		5DE Feature Data:	
		白	Dacto		DE Feature Class	
			raste		DE Feature Class	
Analyze		×	Delete		DE Feature Class	
Add Global IDs			Rename		DE Feature Class Table	
Privileges		З	Refresh			
Register As Versioned			Manage 🕨 🕨			
Unregister As Versioned			New >			
Enable Archiving			Import	+		
Disable Archivi			Evport	•		
Enable SQL Ac Enable Archivit		ng				
Enable Editor 1 Selected object		al arc :.	hiving for the			
Disable Editor Tracking S 761540.61 847777.921 Feet						

3. Once complete, add data to map document.

4. Like with Redlining, go through the process of publishing a feature service but adding sync capability. You can have create, delete, query, sync and update enabled.

Service Editor	×
Connection: arcgis on lukesav	age-It_6080 (admin) Service Name: EvalGIS
General	Feature Access
Parameters	REST URL: http://lukesavage-lt:6080/arcgis/rest/services/EvalGIS/FeatureServer
Capabilities	SOAP URL: http://lukesavage-lt:6080/arcgis/services/EvalGIS/MapServer/FeatureServer
Mapping	Operations allowed:
Feature Access	Create Delete Extract Query Sync Update
Pooling	
Processes	110pc dc3
Caching	Allow geometry updates
Item Description	Allow update of true curves
	Apply default z-value When inserting or updating features with no z-values, set z-value to: □
	OK Cancel