Geoportal Server 1.2.4 Installation Guide

Contents

Introduction

This document is a guide for installing an initial implementation of the Geoportal Server version 1.2.4.

For new implementations, proceed with this installation guide from beginning to end. After installing the Geoportal Server, the documentation available at https://github.com/Esri/geoportal-server/wiki provides additional information for customizations, usage, troubleshooting, and more.

1. Pre-Installation Requirements

Prior to installing, please review the system and pre-installation requirements. See https://github.com/Esri/geoportal-server/wiki/Preinstallation-1.2.4.

2. Select an Authentication Mechanism for the Geoportal Server

The Geoportal Server offers two different authentication mechanisms – Simple Authentication or LDAP Authentication. Which one you select depends solely on your geoportal instance requirements. The table below gives a quick summary of features available in each option, followed by a more detailed explanation.

Feature	Simple Authentication	LDAP Authentication
Single sign-on with other applications		•
User roles		•
User accounts/profiles		•
LDAP software required		•
Authentication configured in property file	•	
Quick installation	•	

Simple Authentication

With simple authentication, there is only one user in the geoportal – the administrator. This user is specified in the main geoportal configuration file, gpt.xml. Choosing this authentication mechanism does not require any additional external software to be installed. Single sign-on between the geoportal and other applications is not possible.

This mechanism is a quick option for initial application testing, but is not recommended for a production environment.

If you choose simple authentication for your geoportal instance, please skip *Section 3: Configure a Directory Server for the geoportal*, and proceed to *Section 4: Set up the database*.

LDAP Authentication

For full functionality of user-based roles in the Geoportal Server, and to have the possibility of single sign-on with other applications, an LDAP-enabled Directory Server is required for the authentication mechanism. You may use an existing Directory Server if you already have one in your organization. If you currently do not have a Directory Server, and you wish to have user-based roles, and/or single sign-on, you will need to install a Directory Server.

If you choose LDAP authentication for your geoportal instance, please proceed with *Section 3: Configure a Directory Server for the geoportal*.

3. Configure a Directory Server for the geoportal

For a complete feature-rich geoportal, the authentication mechanism must rely on LDAP communication. If you already have an existing Directory Server setup in your organization, you may use it for geoportal purposes with minimal configuration customizations. For users without a pre-existing Directory Server, Section 3.1 will help you through the steps of setting up an open source Directory Server for the geoportal.

If you have an existing Directory server accessible via LDAP, skip step 3.1 and proceed directly to step 3.2.

3.1. Install a new Directory Server and Client

3.1.1. Install Directory Server

There are many directory server software packages available. For the purposes of this installation guide we have selected Apache Directory Server. Apache Directory Server can be downloaded from: http://directory.apache.org.

After the installation of your Directory Server is complete, make sure that the Directory Server is active, by checking whether its service is started.

- ☐ Open Control Panel>Administrative Tools>Services
- ☐ Highlight the service representing your Directory Server.

- ☐ If its status is not “Started”, click “Start”.

3.1.2. Install Directory Server Client

There are also many directory server clients available for browsing your directory structure. For the purposes of this installation guide we have selected Apache Directory Studio, downloadable from http://directory.apache.org/studio/ .

3.1.3. Define a Connection from the client to the server

The information in this section assumes you have installed Apache Directory Server and Apache Directory Studio. If you have a different combination of software, you can skip this step or use the information within it as a guide.

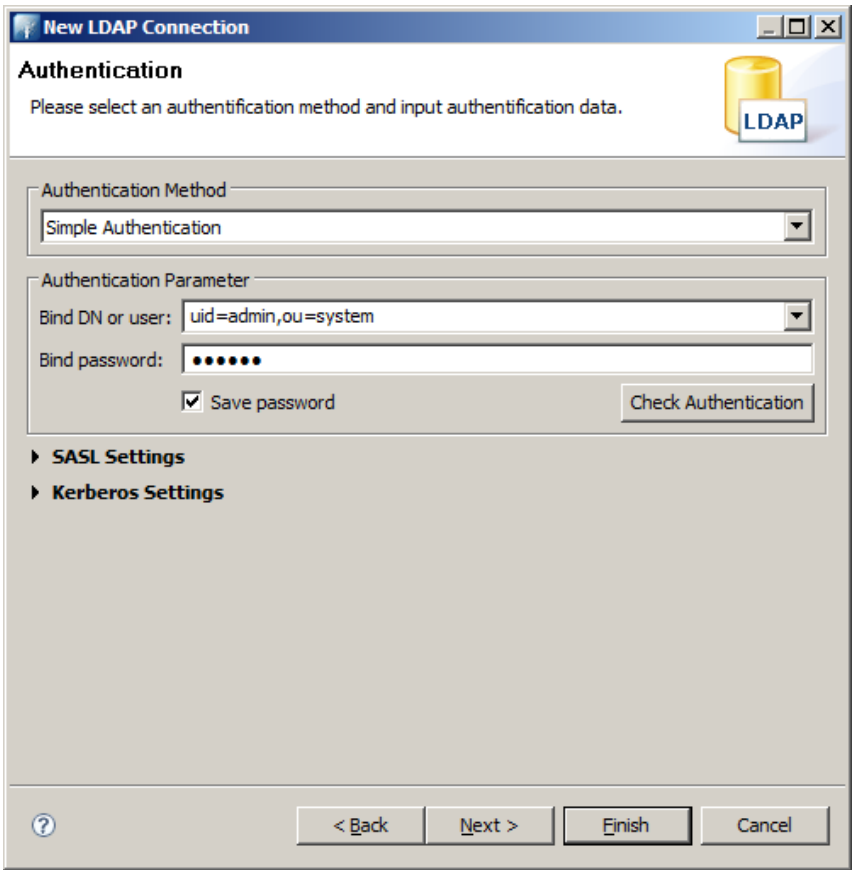
- ☐ Launch Apache Directory Studio.

- ☐ From the File menu, select “New…” and then “LDAP Connection”.

- ☐ On the **Network Parameter** screen, enter the following parameters:
  - **Connection name**: Can be any name. Here, input local.
  - **Hostname**: The machine name on which the LDAP server was installed, in your case, this computer so you can input localhost.
  - **Port**: The port number on which the LDAP server is running. For a default Apache Directory Server service, it will be *10389*.
  - **Encryption method**: No encryption for this connection.

- ☐ Now click the **Check Network Parameter** button. You should receive a message that the connection was successful. Click Next.

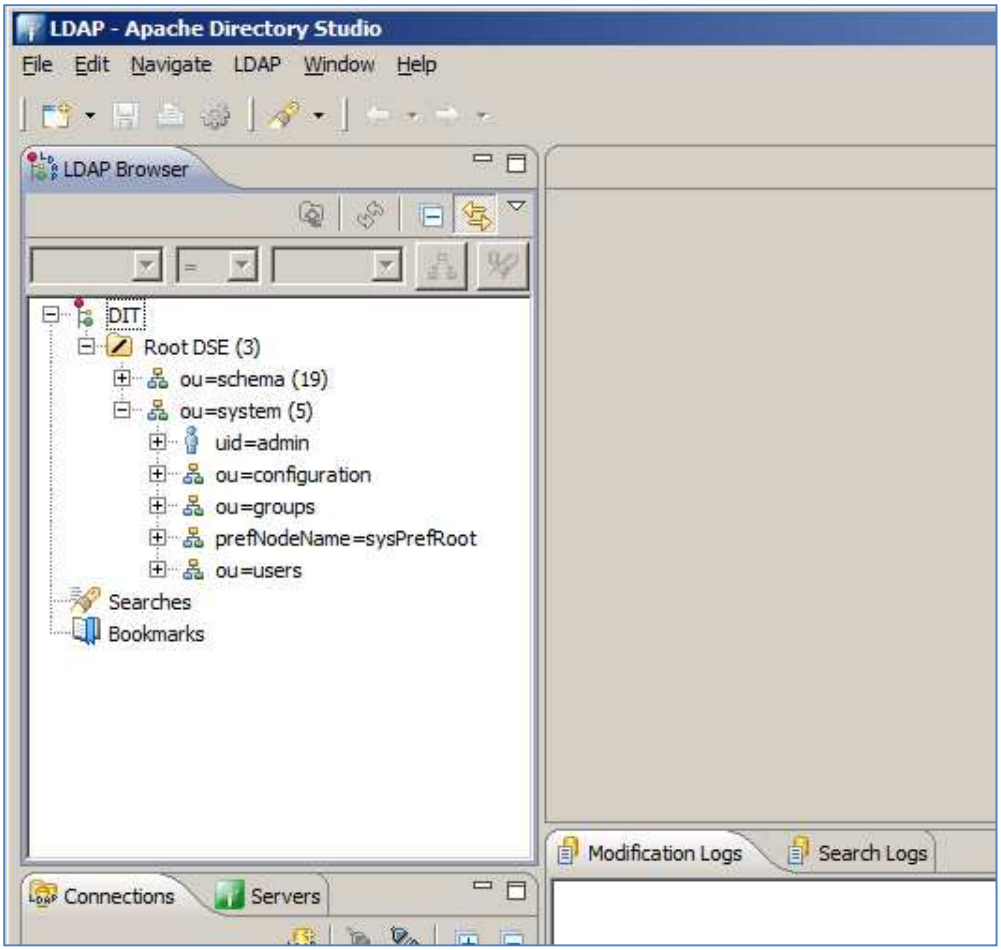
- ☐ On the **Authentication** screen, enter the following parameters:
  - **Authentication Method**: Choose *Simple Authentication*.
  - **Bind DN or user**: enter the distinguished name (DN) of the default admin user. For Apache Directory Server, the default DN will be *uid=admin,ou=system*.
  - **Bind password**: The password to the LDAP server for the admin user. For Apache Directory Server, the default password will be *secret*.



- ☐ Click the **Check Authentication** button. You should receive a message that the authentication was successful. Click Finish.

- ☐ In the left-hand pane of the window, you should see a tree structure with DIT as the top node. You are now connected to the LDAP server.

- ☐ An initial structure of entries was created when you installed Apache Directory Server. If you expand the DIT node, and then the ou=system node, you will see nodes with groups and users beneath it.



3.1.4. Create an initial user

In this step you will create a user entry, to which you will later grant geoportal administrator privileges.

- ☐ In the LDAP Browser window in Apache Directory Studio, right-click the users node and select *New*, and then *New Entry…* from the shortcut menu.

- ☐ Select *Create entry from scratch* from the *Entry Creation Method* dialog box that appears. Click *Next*.

- ☐ In the *Object Classes* dialog box, choose object classes from the object class list. The following four classes need to be chosen for this node:

  - inetOrgPerson
  - organizationalPerson
  - person
  - top

- ☐ If more than the four classes listed above are listed, remove the extras by selecting them in the right-hand panel *Selected object classes* and clicking the *Remove* button. Click *Next*.

- ☐ In the second text box, labeled *RDN*, select "cn" in the left box and type "gptadmin" in the right box to make **cn= gptadmin**. This sets the user's name as *gptadmin*. Click *Next*.

- ☐ Now you will see the Attributes dialog for the new user. Double click in the *Value* column next to the *sn* attribute. This would be the last name of your user, but for this example, use the same name, *gptadmin*.

- ☐ Now you will add additional information about your user, using the *New Attribute* functionality. Here, we will add first the email, then the password, and finally the userid attributes.

    - For email:
        - Put your cursor in the empty cell in the *Attribute Description* column beneath *sn*, and rightclick. Select *New Attribute* from the right menu.
        - Select *mail* from the *Attribute type* drop down, and click *Next*.
        - On the resulting *Options* screen, accept the defaults and click *Finish*.
        - Doubleclick the *mail* attribute in your *Attribute Description* column and enter a fictional email address for gptadmin.
        - After entering the email address, click off of the *Value* column to preserve the entered information.

    - For the password:
        - Put your cursor in the empty cell in the *Attribute Description* column beneath *mail*, and rightclick. Select *New Attribute* from the right menu.
        - Select *userPassword* from the *Attribute type* drop down, and click *Next*.
        - On the resulting *Options* screen, accept the defaults and click *Finish*.
        - Upon clicking Finish, the Password Editor dialog appears. Enter a password for your user, and leave the rest of the defaults. Click *OK*.

    - The uid should be the same as the user name used to create the entry, and the same as the *cn* attribute value listed in the table. This id is used to login to the geoportal interface.
        - Put your cursor in the empty cell in the *Attribute Description* column beneath *userPassword*, and rightclick. Select *New Attribute* from the right menu.
        - Select *uid* from the *Attribute type* drop down, and click *Next*.
        - On the resulting *Options* screen, accept the defaults and click *Finish*.
        - Doubleclick the *userid* attribute in your *Attribute Description* column and enter the same name you entered to create the user, e.g., *gptadmin*.

- After entering the userid, click off of the *Value* column to preserve the entered information.

☐ After adding the new attributes, click *Finish* to close the *New Entry* dialog. The new *gptadmin* user should appear as a new node under the users node in the directory structure.

☐ You can repeat the above steps to create test users for the remaining geoportal roles. We suggest using the following user names:
- gptpublisher
- gptuser

Your Directory Server is now ready to be populated with additional geoportal-specific entries. Follow the steps in Section 3.2 to finish configuring your Directory Server for the geoportal.

3.2. Adapt an existing Directory Server

The geoportal relies on user roles in order to grant various user and functionality privileges. The three pre-defined geoportal roles are:

- Administrator
- Publisher
- Registered User

With LDAP authentication, the definition of the geoportal roles is achieved by creating Directory Server "group" entries. A group entry is defined as an entry that has an object class of "groupOfUniqueNames", thereby allowing it to have member (person) entries.

3.2.1. Create groups for the geoportal roles

The group structure in your Directory Server does not have to adhere to any particular schema. However it is strongly recommended that you adhere to a group structure which maps directly to the pre-defined geoportal roles.

If you are working with a newly installed Directory Server, this is fairly straightforward to create, and instructions are provided in this section.

If you are working with an existing Directory Server, you can either create a new set of groups specifically for the geoportal, or decide what the best possible mapping is of your existing groups to the new geoportal roles. This needs to be done in such a way that it does

not disrupt your existing applications' authentication mechanisms, yet can be adapted to the geoportal requirements.

The steps in this section assume the following:

a) You are using Apache Directory Studio as your Directory Server client browser.
b) You will be creating groups that directly map to the geoportal roles.
c) You have an organizational unit in your directory structure called "groups". If you have another organizational unit, substitute your organizational unit's name for the word "groups" in the steps below.

☐ Open Apache Directory Studio if it isn't already open and connect to your directory server.

☐ Right-click the *groups* node and select *New*, and then *New Entry…* from the shortcut menu.

☐ Select *Create entry from scratch* from the *Entry Creation Method* dialog box that appears. Click *Next*.

☐ In the *Object Classes* dialog box, choose object classes from the object class list. The following two classes need to be chosen for this node:
- groupOfUniqueNames
- top

☐ If more than the two classes listed above are present, remove the extra ones by selecting them in the right-hand panel *Selected Classes* and clicking the *Remove* button. Click *Next*.

☐ On the next screen, go to the second text box, which is labeled *RDN. S*elect "cn" in the left box and enter a group name of **gpt_administrators**. This sets the new group's name as *gpt_administrators*. This is the group to which you'll later assign geoportal administration privileges.

☐ Click *Next*.

☐ The *Attribute* dialog box appears where the *uniqueMember* attribute must be specified.

☐ Since uniqueMember DN's are not trivial, temporarily enter placeholder information for the value of uniqueMember. Even though you are putting in placeholder information, it still has to conform to LDAP standards. Enter **cn=abc**.

- ☐ Click *Finish* to create the group. The new group *gpt_administrators* should appear as an entry under groups in the directory structure.

- ☐ Create two more new groups using the same steps as above. Use the following user group names, and remember to assign placeholder uniqueMember values to each. Note that in production, you can map geoportal functionality to existing groups in your organizational structure.

    - For geoportal publisher users, create a group called gpt_publishers
    - For geoportal registered users, create a group called gpt_registeredUsers

- ☐ Now you will add the *gptadmin* user to the gpt_administrators group. Navigate to the Users branch, and right-click on the *gptadmin* user. Select *Copy Entry / DN* from the shortcut menu.

- ☐ Go back to the *groups* branch and click the *gpt_administrators* group.

- ☐ In the *Attribute* panel on the right-hand side, doubleclick inside the *Value* column for the *uniqueMember* attribute that has the placeholder *cn=abc* value.

- ☐ Press Ctrl+V on your keyboard to paste the copied DN from the clipboard into this value field. Now, *gptadmin* is part of the *gpt_administrators* group.

- ☐ Repeat these steps to associate your gptpublisher and gptuser users to the gpt_publishers, and gpt_registeredUsers groups respectively, using the same steps.

4. SET UP THE DATABASE

IMPORTANT: The following sections assume that you have downloaded and unzipped the Geoportal Server Installation zip files. Files within those zip files are required for the next steps.

The geoportal database scripts create a schema in the default database in your system. If you would like the geoportal tables to exist in its own database, you will want to create a new database upon which you will run the geoportal database scripts. This is recommended for requirements on backing up or restoring your geoportal database.

CAUTION: These instructions include running database scripts. If you run the database scripts on top of an existing geoportal installation, you will overwrite your existing geoportal database.

The database setup instructions vary significantly depending on the database software used. For Linux users, use the Geoportal Server Linux Installation Guide, available from the https://github.com/Esri/geoportal-server/wiki/How-to-Set-Up-an-Esri-Geoportal-Server-on-Linux page.

For Windows users:

- Oracle users please follow the steps in section 4.1.
- SQL Server users please skip to section 4.2.
- PostgreSQL users please skip to section 4.3.
- MySQL user please skip to section 4.4

4.1. ORACLE

In this section you will set up the tablespace and schema that will be used for the geoportal. The geoportal should run in its own tablespace and schema. Creating the geoportal database schema involves running two scripts:

- A "grants" script that sets the user permissions for creating the geoportal schema.
- A "create schema" script that creates the table structure, procedures and triggers and populates tables in the geoportal schema.

4.1.1. Setup the Geoportal tablespace

☐ Open the command console (Start>Run>cmd)

☐ Type: sqlplus /nolog

 Tip: In the following commands, be sure to include the semicolons.

☐ SQL>connect sys/sys as sysdba;

☐ SQL>create tablespace geoportal datafile 'C:\oracle\oradata\geoportal.dbf' size 500M AUTOEXTEND ON;

☐ SQL>create user geoportal identified by geoportalpwd default tablespace geoportal temporary tablespace temp;

☐ SQL>commit;

☐ SQL>quit.

4.1.2. *Run grants_oracle.cmd*

☐ Open a command prompt window. Start>Run>cmd

☐ Change directories to point to <Geoportal Dir>\Database Scripts\Oracle.

- ☐ Run the grants_oracle.cmd file from the command prompt window as described below:

  Usage: grants_oracle [sys username] [sys password] [geoportal username]
  Where
  [sys username] is the username of the sys user in Oracle
  [sys password] is the password of the sys user in Oracle
  [geoportal username] is the geoportal user you are creating

  Sample Input: grants_oracle sys sys geoportal

- ☐ When the script finishes executing you will be returned back to the command prompt and a text file (grants.txt) will open. Check the grants.txt file for error messages.

IMPORTANT: You must fix errors appearing in the grants.txt file; do not continue until the script runs without errors.

4.1.3. Schema: create_schema_oracle.cmd

- ☐ Open a command window. Start>Run>cmd

- ☐ Change the directory to the <Geoportal Dir>\Database Scripts\Oracle folder

- ☐ Run the create_schema_oracle.cmd file from the command prompt window as described below:

  Usage: create_schema_oracle [geoportal username] [geoportal password]

  Where
  [geoportal username] is the geoportal user you created earlier.
  [geoportal password] is the password of the geoportal user.

  Sample Input: create_schema_oracle geoportal geoportalpwd

- ☐ When the script finishes executing you will be returned back to the command prompt and a text file (GPT_Schema.txt) will open. Check the GPT_Schema.txt file for error messages. Error messages and warnings that state a table or view does not exist can be ignored. It simply means that the script was trying to delete a nonexistent table. Verify the following tables are corrected:

  - gpt_collection
  - gpt_collection_member
  - gpt_harvesting_history

- gpt_harvesting_jobs_completed
- gpt_harvesting_jobs_pending
- gpt_resource
- gpt_resource_data
- gpt_search
- gpt_user

4.2. SQL SERVER

In this section you will use a script to set up the database that will be used for the geoportal web application.

IMPORTANT PREREQUISITES

1) If you have the "Enforce Password Policy" option enabled by default for all new users, then you will need to choose a user password in keeping with your organization's password policy. This is usually a complex password. If you do not select a password in keeping with the password policy, the script may fail.

2) Verify that your server allows both Windows authentication and SQL Server authentication. If your server only allows Windows authentication, then the user that the script creates will not be able to logon to create the tables. The error in the build_schema.log file will read 'Login failed for user'. To check and possibly change the security authentication mode (as per Microsoft, article http://msdn.microsoft.com/en-us/library/ms188670.aspx), do the following:

- ☐ Login to SQL Server Management Studio.
- ☐ In SQL Server Management Studio Object Explorer, right-click the server, and then click Properties.
- ☐ On the Security page, under Server authentication, select the "SQL Server and Windows Authentication Mode" radial if it is not already selected, and then click OK.
- ☐ In the SQL Server Management Studio dialog box, click OK to acknowledge the requirement to restart SQL Server.

4.2.1. Create database schema

To support multi-lingual geoportals, the SQL Server database must be able to support Unicode characters. If your geoportal will be in a language other than English, you should run the create_schema_mssql_unicode script for this step. If not, then use the create_schema_mssql script as shown below. Input parameters are the same for the Unicode version of the script.

- ☐ Open a command window. Start>Run>cmd

- ☐ Change the directory to the <Geoportal Dir>\Database Scripts\SQL Server folder

- ☐ Run the create_schema_mssql script –or the create_schema_mssql_unicode script as described above - by typing the following:

  create_schema_mssql [database server machine] [Geoportal database name] [Geoportal database user] [Geoportal database user password]

Where

[database server machine] is the name of the machine on which SQL Server is installed, or the named SQL Server Instance (e.g. <machineName>\instance) if applicable
[Geoportal database name] is the name you designate for the Geoportal database
[Geoportal database user] is the name of the login and user that will have access to the Geoportal database. This script creates a user if one does not already exist
[Geoportal database user password] is the password for the login and user of the Geoportal database

Sample Input: create_schema_mssql mymachine geoportal geoportal geoportalpwd

- ☐ After running the script, verify that a new database and tables were created. If the tables were not created, consult the build_schema.log file for any potential errors. The log file can be found in the same folder as the scripts that you ran. The file should not contain any errors, except possibly warnings on the 'maximum key length'; these you can safely ignore.

  - gpt_collection
  - gpt_collection_member
  - gpt_harvesting_history
  - gpt_harvesting_jobs_completed
  - gpt_harvesting_jobs_pending
  - gpt_resource
  - gpt_resource_data
  - gpt_search
  - gpt_user

4.3. POSTGRESQL

Setting up a PostgreSQL database for the geoportal consists of two steps – setting up database permissions, and creating the database schema. Each of these steps is accomplished by running a script, found in the <Geoportal Dir>\Database Scripts\PostgreSQL folder:

- A "grants" scripts that sets the user permissions for creating the geoportal schema
- A "create schema" script that creates the table structure, procedures, and triggers and populates tables in the geoportal schema.

4.3.1. Grants: grants_pg.cmd

☐ Open a command prompt window. Start>Run>cmd

☐ Change directories to point to <Geoportal Dir>\Database Scripts\PostgreSQL.

☐ Run the grants_pg.cmd file from the command prompt window as described below:

Usage: grants_pg [host] [port] [database] [geoportal schema] [userToConnect] [geoportalUser]

Where
[host] is the machine name hosting PostgreSQL
[port] is the port number of PostgreSQL. Default = 5432
[database] is the database name for the geoportal. Default = postgres
[geoportal schema] is the name for the geoportal schema. Default=geoportal
[userToConnect] is the name of the user to connect to the database as. Default=postgres
[geoportalUser] is the name for the geoportal schema owner. Default=geoportal

Sample Input: grants_proxy_pg localhost 5432 postgres geoportal postgres geoportal

☐ When prompted with the message "Enter password for new role:", input the password for the geoportal user.

☐ When prompted with the message "Enter it again:" input the password for the geoportal user again.

☐ When the script finishes executing you will be returned back to the command prompt and a text file (grants_pg.txt) will open. Check the grants_pg.txt file for error messages.

IMPORTANT: You must fix errors appearing in the grants_pg.txt file; do not continue until the script runs without errors.

4.3.2. Schema: Run create_schema_pg.cmd

☐ Run the create_schema_pg.cmd file from the command prompt window as described below:

Usage: create_schema_pg [host] [port] [geoportal database] [geoportal user]

Where
[host] is the machine name hosting PostgreSQL
[port] is the port number of PostgreSQL. Default = 5432
[geoportal database] is the geoportal database name. Default = postgres
[geoportal user] is the name for the geoportal schema owner. Default = geoportal

Sample Input: create_schema_pg machineName 5432 postgres geoportal

☐ When prompted with the message "Enter password for geoportal user:", input the password for the geoportal user.

☐ When the script finishes executing you will be returned back to the command prompt and a text file (Geoportal_Schema.txt) will open. Check the Geoportal_Schema.txt file for error messages. Error messages and warnings which state that Table or view does not exist can be ignored. It simply means that the script was trying to delete a nonexistent table.

☐ Open the PostgreSQL Administrator tool, and verify that a new schema and following tables were as created.

- gpt_collection
- gpt_collection_member
- gpt_harvesting_history
- gpt_harvesting_jobs_completed
- gpt_harvesting_jobs_pending
- gpt_resource
- gpt_resource_data
- gpt_search
- gpt_user

4.4. MySQL

Setting up a MySQL database for the geoportal consists of two steps – setting up database permissions, and creating the database schema. Each of these steps is accomplished by running two scripts, found in the <Geoportal Dir>\Database Scripts\MySQL folder:

- A "grants" scripts that sets the user permissions for creating the geoportal schema
- A "create schema" script that creates the table structure, procedures, and triggers and populates tables in the geoportal schema.

IMPORTANT: It is assumed that you already have MySQL database software installed and have mapped the MySQL binaries (e.g., <MySQL Install Dir>\bin) to the PATH environment variable before running the geoportal database scripts.

4.4.1. Grants: grants_mysql.cmd

☐ Open a command prompt window. Start>Run>cmd

☐ Change directories to point to <Geoportal Dir>\Database Scripts\MySQL.

☐ Run the grants_mysql.cmd file from the command prompt window, as described below.

Usage: grants_mysql [dbserver] [port] [Geoportal database] [sys username] [sys password] [geoportal username] [geoportal server] [geoportal password]

Where

[dbserver] is the machine hosting MySQL
[port] is the port number of MySQL
[Geoportal database] is the name of the database that will be created and contain the Geoportal schema
[sys username] is the username of the sys user in MySQL
[sys password] is the password of the sys user in MySQL
[geoportal username] is the geoportal user that will be created and will access the geoportal database
[geoportal server] is the name of the geoportal web application server machine
[geoportal password] is the geoportal user password

Sample Input (here, the database and geoportal web app are on machine 'localhost'):
grants_mysql localhost 3306 geoportal root sys geoportal localhost geoportalpwd

☐ When the script finishes executing you will be returned back to the command prompt and a text file (grants_mysql.txt) will open.

IMPORTANT: Check the grants_mysql.txt file and the command interface for errors. You must fix these errors and rerun the script before continuing to the next step. Note that if you rerun the script after the user was successfully created, you may receive "ERROR 1396 (HY000): Operation CREAT USER failed…" You can ignore this error - see MySQL documentation for explanation http://bugs.mysql.com/bug.php?id=28331 .

4.4.2. Schema: Run create_schema_mysql.cmd

☐ Run the create_schema_mysql.cmd file from the command prompt window as described below:

Usage : create_schema_mysql.cmd [host] [port] [Geoportal database] [geoportal user] [geoportal password]

Where

[host] is the machine hosting MySQL

[port] is the port number of MySQL

[Geoportal database] is the database that contains the Geoportal Schema; use the same as in the grants script

[geoportal user] is the geoportal user created in the grants script

[geoportal password] is the geoportal user password

Sample Input: create_schema_mysql localhost 3306 geoportal geoportal geoportalpwd

☐ When the script finishes executing you will be returned back to the command prompt and a text file (Geoportal_Schema.txt) will open. Check the Geoportal_Schema.txt file for any possible error messages. Error messages and warnings that a table or view does not exist can be ignored as these are checks for existing tables.

☐ After running the grants and create_schema scripts, verify that a new database and following tables were created.

- gpt_collection
- gpt_collection_member
- gpt_harvesting_history
- gpt_harvesting_jobs_completed
- gpt_harvesting_jobs_pending
- gpt_resource
- gpt_resource_data
- gpt_search
- gpt_user

5. Deploy and Configure the Geoportal Web Application

This step deploys the geoportal web application. First you will deploy the geoportal.war file, and then you will configure its property file – gpt.xml - so the web application can successfully communicate with other components of your system.

IMPORTANT: The steps in this section assume you are running Tomcat. If you are running WebLogic or GlassFish, download the *GeoportalServer_InstallationGuide_WebLogic.pdf* or *GeoportalServer_InstallationGuide_GlassFish.pdf* from https://github.com/Esri/geoportal-server/wiki/Installation-Version-1.2.4. These guides have different instructions for deploying the geoportal web application and connecting it to the database.

5.1. Deploy Geoportal.war

- ☐ Copy the geoportal.war file from the <Geoportal Dir>\Web Applications\Geoportal folder to your <Tomcat>\webapps folder.
- ☐ After a few moments, Tomcat should automatically recognize the new war file and deploy it by creating a geoportal folder. If it does not, restart Tomcat.

IMPORTANT: If your geoportal will need to support searching multibyte characters – such as Chinese - then you must configure the Tomcat server.xml file to support UTF-8 character encoding. Open the server.xml file from the \\Tomcat\conf folder. Add the **URIEncoding="UTF-8"** attribute below to the connector settings referenced by the <connector> tags for any port the geoportal web application will be using. For example:

```
  <Connector port="8080" protocol="HTTP/1.1" connectionTimeout="20000"
redirectPort="8443" URIEncoding="UTF-8"/>
```

5.2. Configure the Geoportal

- ☐ Navigate to: <Tomcat Installation Directory>\webapps\geoportal\WEB-INF\classes\gpt\config
- ☐ Open the gpt.xml file in a text editor.
- ☐ Now you will update the gpt.xml file with only the essential configurations to run the geoportal web application. If a setting is not mentioned in the table, it should be left with its default value. There are many other configurations available in this file for

additional geoportal functionality. These are discussed in ***Appendix A: More Geoportal Configurations***.

☐ Find the section just after the "Mail server configuration" comment. This section defines the mail settings to determine who will receive feedback forms submitted from the geoportal application. It will also determine the return address for any email sent from the geoportal, such as password reminders. Set the following properties:

√	Property Name	Function	Accepted Values
	smtpHost	smtp of your mail server	Any valid smtp address.
	smtpPort	Port on which the mail server runs	Integer specifying a port.
	siteEmailAddress	The email address of the person who is to receive feedback forms, and is the email address from whom email is sent out from the geoportal.	Any valid email address.
	smtpAuth	Settings for username, password and whether the password is encrypted if the smtp server requires authentication	Valid string values for username and password. True or false for the "encrypted" parameter.

☐ Next, find the "interactiveMap" start tag. The interactiveMap settings determine information about the map used on the search page, the geoportal online editor map, the view details map, and the preview map – they all use the same map service. Set the properties as per the table below. For properties not mentioned, leave the defaults already set in the file.

√	Property Name	Function	Accepted Values
	jsapiUrl	URL to the ArcGIS Server JavaScript API. Default: http://serverapi.arcgisonline.com/jsapi/arcgis/?v=2.5	Any valid URL pointing to the ArcGIS Server JavaScript API version 2.5.

	mapServiceUrl	URL to a map service that is to be used for the geoportal map interfaces. Default Example: http://server.arcgisonline.com/ArcGIS/rest/services/ESRI_Imagery_World_2D/MapServer See documentation at https://github.com/Esri/geoportal-server/wiki/Search-Map for more details and examples on configuring the map service.	Any valid URL pointing to one of the following map service types: • An ArcGIS Server Map Server REST endpoint • WMS REST endpoint without the query string • WMTS REST endpoint without query string • Leave blank if 'mapServiceType' parameter (below) is set to 'openstreetmap'
	mapVisibleLayers (WMS only)	An array of visible WMS layer names. This parameter should be defined only when WMS is used as a map service. Layer names are found in the <name> element of the WMS GetCapabilities xml.	Strings in an array. Example for a service with three layers to be visible, layers called "nameX": "['nameA','nameB','nameC']"
	mapServiceType	The type of map service. **Note**: the search map may not display tiled services correctly. For best results, set this to "dynamic".	String, as follows: • For ArcGIS Map Server endpoints, "dynamic" or "tiled" (dynamic is recommended) • For WMS endpoints, "wms" • For WMTS endpoints, "wmts" • For an OpenStreetMap endpoint, "openstreet"
	geometryServiceUrl	REST URL to a geometry service that is used to handle the projection of coordinates when using a projected map service. Default Example: http://sampleserver3.arcgisonline.com/ArcGIS/rest/services/Geometry/GeometryServer	Any valid REST URL pointing to an ArcGIS Server Geometry Service.
	locatorUrl	URL to an ArcGIS Server locator service, used for the find place functionality. Default Example: http://sampleserver1.arcgisonline.com/ArcGIS/rest/services/Locators/ESRI_Geocode_USA/GeocodeServer	Any valid REST URL pointing to an ArcGIS Server locator service.

locatorSingleFieldParameter	Parameter name associated with a single field locator. This is used for the place search function in the geoportal search page map.	String value representing a locator field. This will be one of the Address Fields parameters when you view the locator service information in a web browser (Examples: City, State, Zip).

☐ The lucene settings contain information about the Lucene index. Lucene is the local indexing engine used by the geoportal for indexing published documents for fast retrieval in a search (see https://github.com/Esri/geoportal-server/wiki/Using-Lucene-Search-Text-Queries for more information). **IMPORTANT:** You will need to create a folder to hold the index files. After creating a new folder and giving it a sensible name (e.g., "lucene") set the following property:

√	Property Name	Function	Accepted Values
	indexLocation	Absolute path to the folder that will hold indexed documents. This can be any path on your machine. Example: C:\lucene	String representing an absolute path.

☐ *Authentication Settings* - Simple Authentication Settings

The *simpleAdapter* settings specify the user account details for a single administrative user. If per Section 2, you chose to use simple authentication with your geoportal instance then do the following:

☐ Uncomment this simpleAdapter section by deleting the <!-- and --> comment markings.

☐ Set the properties as per the following table:

√	Property Name	Function	Accepted Values
	username	The username for the single account.	Any valid string.
	password	The password for the single account.	Any valid string.
	encrypted	Specifies whether the password value set in the password parameter is encrypted or not. For instructions on encrypting your password, refer to https://github.com/Esri/geoportal-server/wiki/Security-Concepts	True or false

Since you have chosen to use simple authentication, you must comment out the ldapAdapter section:

- ☐ Insert the opening comment <!-- just before the <ldapAdapter> tag.
- ☐ Remove the <!-- and the --> that surround the <metadataManagementGroup> tag.
- ☐ Insert the ending comment --> just after the </ldapAdapter> tag.

☐ *Authentication Settings* - LDAP Authentication Settings

The *ldapConnectionProperties* settings determine the connection to the Directory Server. If per Section 2 you chose to use LDAP authentication with your geoportal instance, set the properties according to the table below. For properties not mentioned, leave the defaults already set in the file. **IMPORTANT:** Default values below are for an implementation using Apache Directory Server, OpenDS, or 389. If you are using a different Directory Server provider, this section may need to be adjusted with values corresponding to your Directory Server software. For guidance with Microsoft Windows Active Directory, Oracle Internet Directory, or IBM Tivoli Directory Server, see https://github.com/Esri/geoportal-server/wiki/Connecting-to-a-User-Directory

√	Property Name	Function	Accepted Values
	providerUrl	URL to the server on which the directory server management resides, and will include the port used for the LDAP connection.	Any valid LDAP URL. i.e. ldap://machine:port. Common port numbers are 10389 or 19389 for Apache Directory Server, or 389 for Windows Active Directory.
	securityPrincipal	Username with which to connect to the Directory Server.	An LDAP distinguished name. Same value that was used to connect to the Directory Server in step 3.1.3 Example: “uid=admin,ou=system”
	securityCredentials	Password with which to connect to the Directory Server	String representing a password. Same value that was used to connect to the Directory Server in Step 3.1.3. Apache Directory Server default: “secret”
	Encrypted	Specifies whether the password value set in the securityCredentials parameter is encrypted or not. For instructions on encrypting your password, refer to https://github.com/Esri/geoportal-server/wiki/Security-Concepts	True or false

☐ The *roles* settings establish the mapping between Directory Server groups, and the default Geoportal user roles. Set the following properties:

√	Property Name	Function	Accepted Values
	authenticatedUserRequiresRole	Whether each user of the geoportal has to be assigned to at least one role.	True of False. Default: true
	For the <role key="gptRegisteredUser"> tag:		
	groupDN	Name of the Directory Server group that will map to the registered user's role	LDAP Distinguished Name Example: "cn=gpt_registeredUsers,ou=groups,ou=system"
	For the <role key="gptPublisher"> tag:		
	Inherits	Name(s) of role(s) whose properties will be inherited by the publisher role. Default: gptRegisteredUser	Comma-delimited string representing (a) role name(s).
	groupDN	Name of the Directory Server group that will map to the publisher's role	LDAP Distinguished Name Example: "cn=gpt_publishers,ou=groups,ou=system"
	For the <role key="gptAdministrator"> tag:		
	Inherits	Name(s) of role(s) whose properties will be inherited by the administrator role. Default: gptPublisher	Comma-delimited string representing (a) role name(s).
	groupDN	Name of the Directory Server group that will map to the administrator's role	LDAP Distinguished Name Example: "cn=gpt_administrators,ou=groups,ou=system"

☐ The *users* settings determine properties of user accounts. Set the properties as per the table below. Set the following properties:

√	Property Name	Function	Accepted Values
	displayNameAttribute	The user entry attribute that is used for displaying the user's name in the geoportal interface.	String representing a user entry attribute name. Default: uid

	passwordEncryptionAlgorithm	The algorithm used for encrypting passwords sent from the geoportal to the Directory Server	Accepted values are “MD5” or “SHA” Default: “SHA”
	newUserDNPattern	The pattern of the distinguished name for new users.	String value representing a DN pattern, pointing to the users node. Example: cn={0},ou=users,ou=system
	usernameSearchPattern	The search pattern for the Directory Server to use when looking for users.	String value representing a user entry pattern. Leave as default.
	searchDIT	The path in the Directory Information Tree to search for users.	LDAP DN representing the “Users” organizational unit entry. Example: ou=users,ou=system
	For the <requiredObjectClasses> tag: Each <objectClass> child tag represents a mandatory class that must be part of a new entry when creating new users in the Directory Server. You may add to, modify or delete from this list as needed.		
	For the <userAttributeMap> tag: Each key value of an <attribute> child tag represents a property of a user’s profile that is used in the geoportal. Each key value has to be mapped to its Directory Server attribute name equivalent, as represented by the ldapName value. You may add to, modify or delete from this list as needed.		

☐ The *groups* settings determine the properties of the Directory Server groups, set up to map to Geoportal user roles. Set the following properties:

√	Property Name	Function	Accepted Values
	displayNameAttribute	The group entry attribute to use for displaying the group’s name. Currently not used in the geoportal interface.	String representing a group entry attribute name. Default: cn
	dynamicMemberOfGroupsAttribute	A vendor specific attribute that can be used to determine all the groups to which a user belongs	String representing a group entry attribute name. Default: “”
	dynamicMembersAttribute	A vendor specific attribute that can be used to determine all the members of a group.	String representing a group entry attribute name. Default: “”
	memberAttribute	The group entry attribute that is used to determine which users belong to the group	String representing a group entry attribute name. Default: uniquemember

memberSearchPattern	The search pattern for the Directory Server to use when looking for groups.	String value representing a group entry pattern.
searchDIT	The Directory Information Tree path to search for groups.	LDAP DN representing the “Groups” organizational unit. Example: “ou=groups,ou=system”

- ☐ You are now finished configuring the geoportal web application for basic functionality. Save the gpt.xml file and close it.

6. Deploy and Configure the Servlet Web Application

This step deploys the servlet web application. The servlet is responsible for communication between the geoportal and ArcCatalog 9.3.x when users are publishing to the Geoportal using the Publish Client tool. Note that deploying the servlet.war file is only necessary if users with a 9.3.x version of ArcCatalog will be connecting to your geoportal using the Publish Client. If users will be using ArcCatalog 10.x to connect to your geoportal, deploying the servlet.war is not necessary. For more information on the Geoportal Publish Client, see https://github.com/Esri/geoportal-server/wiki/Geoportal-Publish-Client. Follow the steps below to deploy the servlet.war file.

- ☐ Navigate to the <Geoportal Dir>\Web Applications\Servlet folder to find the servlet.war file.

- ☐ Deploy the servlet.war file in the same manner which you deloyed the geoportal.war file. By default, the servlet web application needs no further configuration unless you have modified the name of the geoportal web application.

- ☐ If you modified the name of your deployed application from "geoportal" to something else, you must let the servlet know the reference to your newly-named geoportal application.
  - Navigate to: <Tomcat Installation Directory>\servlet\WEB-INF
  - Open the web.xml file in a text editor.
  - Modify the <param-value> setting (for the redirectURL parameter above) to point to your machine's geoportal application deployment path starting from the web application name:
    i.e. */applicationName*/com.Esri.Esrimap.Esrimap

- ☐ Save the file and close it.

7. JDBC Configuration

The geoportal uses a Java Naming and Directory Interface (JNDI) key to connect to the database through a JDBC connection. This allows system components to find the database connection information using the JNDI key instead of having to store the JDBC connection information in many places. In this step, we will setup the JNDI configuration and JDBC connection for Tomcat. JDBC configuration is different for WebLogic or GlassFish; if you are using those environments, see the requisite installation guides for them available at https://github.com/Esri/geoportal-server/wiki/Installation-Version-1.2.4.

- ☐ Identify the jdbc .jar file that your geoportal's JNDI key will use for the database JDBC connection. Database .jar files are typically provided with your database software, but if

you cannot find the .jar files that came with your database, you can obtain them from the manufacturer's website.

- Oracle: http://www.oracle.com/technetwork/database/features/jdbc/index-091264.html
- SQL Server: http://msdn.microsoft.com/en-us/sqlserver/aa937724.aspx
- PostgreSQL: http://jdbc.postgresql.org/download.html
- MySQL: http://dev.mysql.com/downloads/connector/j/

The database .jar file you use is determined by the database vendor and Java version you have running. Because Geoportal 1.0 and higher requires Java 1.6, make sure that your driver supports JDBC4. See the table below to identify recommended .jar files for your environment.

Database	**Oracle (10g, 11g)**	**SQL Server (2005, 2008)**	**Postgres (8.4, 9.1)**	**MySQL 5.5**
.jar file	ojdbc6.jar	sqljdbc4.jar	postgresql-9.1-901.jdbc4.jar	mysql-connector-java-5.1.18-bin.jar

☐ Copy the database jdbc driver .jar to the <Tomcat Installation Directory>\lib directory.

☐ Copy the "geoportal.xml" file from the <Geoportal Dir>\Other\JNDI Configuration\ folder and paste it into your C:\<Tomcat Installation Directory>\conf\Catalina\localhost folder. If you are using Tomcat 6 and you don't have a Catalina\localhost directory in your conf directory, then you need to create it.

☐ Open the geoportal.xml file in a text editor. Modify the properties specified in the table below, then save the file and close it. The values that you modify should not include placeholder brackets ("<" or ">").

√	**Property Name**	**Line**	**Expected Values**	**Example**
	docBase	Line 3	The name of your geoportal web application in Tomcat. Default: geoportal	docBase="geoportal"
	Path	Line 3	The name of the geoportal application directory within Tomcat webapps.	path="/geoportal"
	driverClassName	Line 5	The JDBC Driver class name. Vendor specific.	Oracle: oracle.jdbc.driver.OracleDriver SQL Server: com.microsoft.sqlserver.jdbc.SQLServerDriver PostgreSQL: org.postgresql.Driver MySQL: driverClassName="com.mysql.jdbc.Driver"

	url	Line 6	The JDBC URL connection string	Oracle*: jdbc:oracle:thin:@*serverName*:1521:*oracleSID* SQL Server: jdbc:sqlserver://*serverName*:1433;databaseName=geoportal PostgreSQL: jdbc:postgresql://*serverName*:5432/postgres MySQL: url="jdbc:mysql://*serverName*:3306/geoportal"
	userName	Line 7	geoportal database user	username=”geoportal” Oracle ojdbc6.jar: user=”geoportal”
	password	Line 8	geoportal database user password	password=”geoportalpwd”

* The oracleSID (System Identifier) is typically the service_name attribute contained within the comment descriptor in the tnsnames.ora Oracle configuration file.

***Note**: Please verify the JDBC settings with official driver documentation found online your database vendor’s website.*

IMPORTANT: If you are using the ojdbc6.jar file and the configuration described above is not connecting the geoportal to your database, then try the configuration below in your geoportal.xml file. Users have reported that in some instances, this configuration is successful with the ojdbc6.jar file. You will need to change the “type” attribute, and add the “factory” attribute, as shown highlighted below:

```
<Resource name="jdbc/gpt" auth="Container"
        type="oracle.jdbc.pool.OracleDataSource"
        factory="oracle.jdbc.pool.OracleDataSourceFactory"
        driverClassName="oracle.jdbc.driver.OracleDriver"
```

☐ Save the geoportal.xml file.

Additional configuration to support localization (optional)

To allow the Geoportal website to work in multiple languages, a configuration modification is required to change the default URL encoding of the servlet container. Below is a sample of how to make this change within Tomcat:

☐ Navigate to <Tomcat Installation Directory>\Conf\ and open the server.xml file.

- ☐ Locate the Service name=”Catalina” section and add the highlighted text below in the Connector element.

  <Service name="Catalina">

  <Connector connectionTimeout="20000" port="8080" protocol="HTTP/1.1" redirectPort="8443" URIEncoding=”utf-8”/>

- ☐ Save the file.

8. SMOKETEST THE GEOPORTAL

IMPORTANT: Before proceeding with the smoketest, save all configuration files, and restart your geoportal web application.

Now that your geoportal web application has been installed, it is important to do a brief smoketest before continuing with installing the Desktop Tools or doing customizations. The following describes basic steps to check that your geoportal is up and running. These are steps for an initial smoketest. Your organization should also do extensive testing and reference Post-Deployment Actions – at https://github.com/Esri/geoportal-server/wiki/Post-Deployment-Actions - before the geoportal goes into production.

If you encounter errors during the smoketest, review your ‘gpt’ logfiles (Tomcat\logs) and see ‘Common Problems and Solutions’ at https://github.com/Esri/geoportal-server/wiki/Common-problems-and-solutions.

- ☐ Launch the geoportal web application in a web browser. A sample URL: http://serverName:port/geoportal
  - *Verifies that the gpt.xml file is valid XML, and the Tomcat service is started.*

- ☐ Click the Login link from upper right corner. Login with your Administrator user login credentials. After doing so, you should see a Welcome message and the Administration tabs should now appear.
  - *Verifies that the server hosting the geoportal can connect to the directory server, that the <identity> section in the gpt.xml file is configured correctly, and that the geoportal can communicate with the database.*

- ☐ Click the Administration tab. From the resulting Manage interface, click the Add link. You will be presented with three options for adding a resource to the geoportal. From the list, choose the radio next to ‘Use dedicated editor to create metadata manually’. A page presenting the supported metadata profiles will appear.

- ☐ For this smoketest, you will create a simple Dublin Core metadata record for testing. Select the “Dublin Core” radial. On the resulting form, fill out information for all required fields. Required fields have bold/italic headings. Then click Save at the

bottom. After clicking Save, you should receive a success message or a message saying what is missing in the document to be valid. If you receive a message that something is missing, fill in the missing information and click Save again.
    - *Verifies the connection to the database and the user's ability to publish metadata.*

- ☐ Click the Manage link, and in the resulting interface check the box next to your newly created record in the table. Then select "Set as Approved" from the dropdown box, and click the "Execute Action" button. The document should now have a Status of Approved.

- ☐ Click the Search tab. In the resulting Search interface, type a word in the search field that was included in your newly approved record's title or abstract. Then click Search. Your document should be returned.
    - *Verifies that the indexing mechanisms in the geoportal are working (e.g., lucene folder set in the gpt.xml).*

- ☐ Click on the record returned in the Search results to display its options. Select the "Metadata" link. The document's metadata XML should load in a new browser window.
    - *Verifies that the geoportal is able to retrieve the full XML from the database.*

- ☐ If the smoketest is completed successfully, you may proceed to the Desktop Tools section below if you desire to use ArcGIS Desktop to search or publish to your geoportal. Also, review Appendix A to apply configurations in the gpt.xml file for additional functionality.

9. Desktop Tools (Optional)

There are several Desktop tools that can be used in conjunction with your geoportal. Installation for each is described below. Machines that have the Desktop Tools installed do not have to be connected to the geoportal server machine or database, except to have access to the geoportal server endpoint (e.g., able to connect to the geoportal through a web browser).

9.1. Geoportal CSW Clients

The Geoportal CSW Clients enable searching CSW 2.0.x metadata repositories from ArcGIS Desktop or ArcGIS Explorer. The CSW Clients install can be found in the <Geoportal Dir>\Desktop Tools\CSWClients directory. Refer to the documentation at https://github.com/Esri/geoportal-server/wiki/Geoportal-CSW-Clients for installation instructions, how to add the CSW Clients to ArcMap and ArcGIS Explorer, and how to use the CSW Clients.

9.2. Geoportal Publish Client

The Geoportal Publish Client is a tool for ArcCatalog that allows publisher users to easily publish metadata from their local desktop to the geoportal. The metadata can come from Shapefiles, personal Geodatabases or Enterprise Geodatabases, or any other local data formats for which you can create metadata in ArcCatalog. The Publish Client install can be found in the <Geoportal Dir>\Desktop Tools\PublishClient folder. Refer to the documentation at https://github.com/Esri/geoportal-server/wiki/Geoportal-Publish-Client for installation instructions, how to add the Geoportal Publish Client to ArcCatalog, and how to use the Geoportal Publish Client.

9.3. WMC CLIENT

The WMC Client allows for a Web Map Context (WMC) file to be opened directly in ArcMap. WMC files adhere to the Open Geospatial Consortium (OGC) specification and have the extension ".cml", ".wmc", or ".xml". WMC files provide pointers to remote accessible data, specifically Live Data and Map resources. The WMC Client install can be found in the the <Geoportal Dir>\Desktop Tools\WMCOpener folder. Refer to the documentation at https://github.com/Esri/geoportal-server/wiki/WMC-Client for installation instructions, how to add the WMC Client to ArcMap, and how to use the WMC Client.

APPENDIX A: MORE GEOPORTAL CONFIGURATIONS

Earlier you updated the gpt.xml file to include the basic configuration needed to support the smoketest. Besides this basic configuration, there is a lot more you can do with the Esri Geoportal Server. This section describes settings in the gpt.xml file that can be adjusted to support additional functionality and configuration ("Customization Configurations"). It also includes settings not included in the gpt.xml file that can be added in to support specific environments/scenarios ("Additional Configurations").

To get started, make a backup copy of the \\Tomcat\webapps\geoportal\WEB-INF\classes\gpt\config\gpt.xml file so you can revert to a working configuration if necessary, and then open the original gpt.xml in an editor. Then, read in the sections below about configurations that you may want to enable, and apply the changes as appropriate. When finished, save the gpt.xml file and restart your geoportal web application.

1.0 CUSTOMIZATION CONFIGURATIONS

This section outlines parameters in the gpt.xml file that are associated with customizations. Customizations are changes you make to an out-of-the-box geoportal that enable additional functionality, or change the default of how the geoportal works. In this section, these settings will be described in the order in which they appear in the gpt.xml file. **IMPORTANT:** if the parameter was discussed as part of the basic gpt.xml configuration earlier in this guide, it is not described again in this section.

1.1 Lucene settings

In the <lucene> section of the gpt.xml file, the following parameters can be set.

√	Property Name	Function	Accepted Values
	writeLockTimeout	Time in milli-seconds that Lucene will wait to acquire a write-lock. The write-lock is used to keep processes from concurrently attempting to modify an index. Lucene will at times generate an inactive write-lock file within the indexLocation folder, and this file may require manual deletion.	Any integer. Default: "60000", which is 60 seconds
	useNativeFSLockFactory	If true a NativeFSLockFactory is used otherwise use a SimpleFSLockFactory. For NativeFSLockFactory documentation, see http://lucene.apache.org/java/2_4_0/api/org/apache/lucene/store/NativeFSLockFactory.html	true or false. Default: "true"

	analyzerClassName	The class name for the Lucene analyzer	Default: org.apache.lucene.analysis.standard.StandardAnalyzer

Additional parameters that affect the geoportal indexing our found just below the <lucene> section:

√	Property Name	Function	Accepted Values
	lucene.alwaysStoreXmlInIndex	Indicates if the full document xml should be stored within the index.	true or false. Default: "false"
	lucene.force.isPartOf	Forces all Lucene queries to have an isPartOf field equal to the supplied value.	Alphanumeric value. Default is empty.
	lucene.useSingleSearcher	Indicates if a single Lucene searcher is preferred across all threads. Using a single searcher can improve search performance for indexes that are essentially in read-only mode.	true or false. Default: "true"
	lucene.useSingleWriter"	Indicates if a single Lucene writer is preferred across all threads.	true or false. Default: "true"
	lucene.useLocalWriter	Indicates if a local Lucene writer is preferred across all threads.	true or false. Default: "true"
	lucene.useRemoteWriter	Indicates if documents should be indexed remotely.	true or false. Default: "false"
	lucene.remoteWriterUrl	The URL to be used when indexing documents remotely.	URL. Default is empty.

Additional parameters that define the ability to comment and rate resources are in the *index based assertions* settings. See https://github.com/Esri/geoportal-server/wiki/Ratings-and-Comments-for-Search-Results for more details about these properties:

√	Property Name	Function	Accepted Values
	assertion.index.enabled	Indicates if ratings and comments should be enabled.	true or false

	assertion.index.location	Filepath to the folder that will hold the indexed comments and ratings.	String representing an absolute path. **NOTE:** This index should not be deleted and should be on a file backup/restore plan. Also, this filepath should not be the same location as the lucene\indexLocation value set earlier.
	assertion.index.allowNonLocalResourceIds	If true, comments and ratings can be made about resources that do not exist in the local catalog.	true or false
	assertion.rating.enabled	Allow users to rate resources.	true or false
	assertion.comment.enabled	Allow users to leave comments for resources.	true or false
	assertion.comment.maxLength	maximum characters allowed for one comment	Integer. Default: 2048

1.2 Search Settings

The *search* settings define settings for searching and retrieving published metadata documents:

√	Property Name	Function	Accepted Values
	searchTimeoutMillisecs	The length of time allotted to a search attempt before a timeout error occurs	Any valid integer representing milliseconds. Default: 10000
	distributedSearchTimeoutMillisecs	length of time allotted to a federated search attempt before a timeout error occurs	Integer. Default: 5000
	distributedSearchMaxSelectedSites	maximum number of sites allowed to be searched in one federated search attempt	Integer. Default: 5
	searchResultsPerPage	The number of results to show on a page. If more results are returned than this value, page navigation will be visible	Any integer. Default: 10
	searchResultsReviewsShown	Determines circumstance for displaying the review icon for search results on the search page. Options are "none" (no review icons shown in search results), "only-reviewed" (icon present only for resources that have been reviewed) or "all" (review icon displays for all resources, even if they have not yet been reviewed).	"none", "only-reviewed", or "all". If "only-reviewed" is chosen but the user is logged in, then the page will behave like "all".

	maxSavedSearches	The maximum number of allowed searches in storage, per user.	Any integer. Default: 10
	allowExternalSiteSearch	Whether to enable federated search to remote catalogs.	true or false. Default: true.

1.3 Repository Settings

You do not need to change settings in the <repositories> tag. A <repository> here refers to a single or type of catalog available in the federated search on the search page. If you leave these settings as default, the geoportal will provide federated search to the local geoportal catalog, ArcGIS.com, and CS-W repositories flagged to appear on the search page when registered through the 'Register network resource' page.

- For more about registering endpoints for federated search, see https://github.com/Esri/geoportal-server/wiki/Add-an-OpenSearch-endpoint-for-Federated-Search

- For configuring search to YouTube and similar endpoints, see https://github.com/Esri/geoportal-server/wiki/Configure-Searching-of-YouTube

1.4 Metadata Access Policy Settings

The *metadataAccessPolicy* settings specify information about what method to use for restricting access to metadata documents. For a description on the available policies, see https://github.com/Esri/geoportal-server/wiki/How-to-Restrict-Access-to-Resources.

Once you have decided which policy configuration you want for your geoportal instance, set the *metadataAccessPolicy* setting as below:

√	Property Name	Function	Accepted Values
	Type	The type of metadata access policy to employ in the geoportal	One of three: 1. Unrestricted 2. Public-protected 3. Restricted
	protectedGroup DN	Specifies the single LDAP group that can have "restricted" documents assigned to it. This property is required if the type parameter as above is set to "public-protected"	A valid DN of an LDAP group. Example: "cn=gpt_administrators,ou=groups,ou=system"

1.5 Sitemap Settings

The *Sitemap Parameters* settings specify how your site should be indexed for discovery by search engines such as Google™. The settings for each parameter can be left with its current

default value. To modify the behavior of your site's indexing, modify the appropriate parameters as per the descriptions in the gpt.xml file's inline comments for the sitemap section. For more information see https://github.com/Esri/geoportal-server/wiki/Post-Deployment-Actions#wiki-Register_the_Geoportal_Sitemap_with_Search_Engines.

1.6 Web Harvester Settings

The *Web Harvester parameters* settings are optional settings that define how synchronization is handled in the geoportal. Synchronization is the processes by which registered network resources are revisited by the geoportal to update the geoportal catalog with new resources, propagate updates to existing resources, and delete resources no longer found at the registered network source. For more information, see the section on synchronization (https://github.com/Esri/geoportal-server/wiki/How-to-Publish-Resources). Synchronization is configured to run automatically by default without further configuration required. The synchronization parameters in the gpt.xml are **optional** configurations. If you do not change these settings, synchronization will automatically run when you deploy your geoportal, and no additional configuration is required. The Web Harvester parameter settings are described in the table below.

√	Property Name	Function	Accepted Values
	webharvester.active	A value of 'false' will disable synchronization in the geoportal	false (if you do not set this parameter, synchronization is enabled by default)
	webharvester.queueEnabled	Allows users to queue a resource for synchronization even if the synchronization is not activated for the geoportal (webharvester.active ="false"). This allows for a segmented geoportal architecture where a separate geoportal instance manages all synchronization, and that geoportal synchronizes with the main geoportal instance.	true or false. Default: current webharvester.active value. **IMPORTANT:** it is not possible to set this flag to false if webharvester.active = "true"

	webharvester.poolsize	The number of working threads that can run for synchronization. Each thread will be a different synchronization process running concurrently. Example: if four threads are available and three registered resources are set to be synchronized at the same time, three threads will be used and one will be idle. If two more resources are registered for synchronizing while those three threads are running, one of the newly registered resources will begin to be synchronized while the other will be queued to synchronize as soon as a thread is available. There is not a known limit to the number of threads the geoportal can accept and no cost if threads are sitting unused, but there is a limit to how many java can sustain. The default number of threads is four.	Integer value. Default: 4
	webharvester.autoSelectFrequency	Autoselect is a background thread responsible for checking if there is anything eligible to synchronize, and tracks when the next time to synchronize should be. The check is also activated if there is activity on the geoportal's "Register resource on the network" interface.	Default: 1[HOUR]
	webharvester.watchDogFrequency	Similar to autoselect, except used in a load balancing scenario. Checks if anything is cancelled while processing.	Default: 1[MINUTE]
	webharvester.baseContextPath	The basecontextpath is most used in a load balanced scenario as an access URL so users can access the synchronization reports in a load balanced situation behind the firewall.	String representing an absolute path.
	webharvester.maxRepRecords	Maximum number of records to report in harvesting report.	Integer value. Default: 10000. -1 to remove limit.
	webharvester.maxRepErrors	Maximum number of errors to report in harvesting report.	Integer value. Default: 5000. -1 to remove limit
	webharvester.resource.autoApprove	Autoapprove newly registered resources.	Default: false
	webharvester.updateindex	Indicates if the Lucene index should be updated following document publication.	true or false. Default: true

	webharvester.cleanup	Indicates if documents that no longer exist on the remote server should be deleted.	true or false. Default: true
	webharvester.policy.class	Manages policy of the harvester; currently only manages how frequently to enforce a 'full harvest' (per webharvester.policy.frequency below).	Default: com.esri.gpt.control.webharvest.engine.DefaultHarvestPolicy
	webharvester.policy.simple.frequency	Frequency how often a 'full harvest' should be enforced. This means that deletes for ArcGIS Server services will happen only at Full Harvest. So if set to 3, those deletes will only happen at every third harvest of that ArcGIS Server repository.	Integer value. Default: 1 (full harvest every harvest session for a repository)

1.7 Other Catalog Settings

Additional properties in the <catalog> element are defined next. See the table below.

√	Property Name	Function	Accepted Values
	catalog.enableEditForAllPubMethods	True if document editing should be enabled for all publication methods, false if only documents created by the editor should be editable. See https://github.com/Esri/geoportal-server/wiki/Online-form-editing-for-all-publication-methods for details.	true or false. Default: false.
	catalog.admin.allowApplyToAll	Indicates if an administrator should be able to apply an action to all matching records.	true or false. Default: true.
	catalog.useCollections	Enables collections. See https://github.com/Esri/geoportal-server/wiki/Collections	true or false. Default: false.
	database.isCaseSensitive	True if the database is case sensitive (set this to false for MySQL).	true or false. Default: true.
	publicationRequest.autoApprove	True if newly published documents should be approved by default.	true or false. Default: false.
	spatialRelevance.ranking.maxDoc	Turn spatial relevance ranking off when the catalog exceeds the supplied maximum document number.	Integer value. Default 1000000.
	rssProviderUrl	URL to include as the provider within RSS responses.	URL. Default is empty.

	reverseProxy.baseContextPath	The URL prefix to use when the application is deployed behind a reverse proxy (e.g., http://somehost/geoportal), generating full callback URLs.	URL. Default is empty, which auto generates - http://host:port/application.
	RestServlet.printXml.stripStyleSheets	True if references to XSLs and DOCTYPEs should be stripped from document XMLs when requesting the full XML from the REST end-point.	true or false. Default: true.
	Administration.viewMetadata.stripStyleSheets	True if references to XSLs and DOCTYPEs should be stripped from document XMLs when requesting a full XML view from the administration page.	true or false. Default: true.
	httpClientRequest.connectionTimeout	Connection timeout for HTTP requests to the remote endpoints using Apache HTTP client. If no value is provided, the default value is infinitive.	Possible values (if no unit is given, number of milliseconds) • [SECOND] – number of seconds • [MINUTE] – number of minutes • [HOUR] – number of hours Default value=2[MINUTE]
	httpClientRequest.responseTimeout	Response timeout for HTTP requests to the remote endpoints using Apache HTTP client. If no value is provided, the default value is infinitive.	Possible values (if no unit is given, number of milliseconds) • [SECOND] – number of seconds • [MINUTE] – number of minutes • [HOUR] – number of hours Default value=2[MINUTE]
	httpClient.alwaysClose	Forces to always close the socket connection for requests to the remote endpoints using Apache HTTP client.	true or false. Default: false.

1.8 Preview Link Settings

This setting determines which resources are not Previewable when they are returned as search results. For more details, see https://github.com/Esri/geoportal-server/wiki/Configure-Previewable-Filetypes.

√	Property Name	Function	Accepted Values

	resourceLinkBuilder.preview.filter	Regular expression disabling 'preview' link on search result for all records having resource URL matching template.	Default: do not show preview for ftp, ftps, zip, e00, lpk, pkinfo, gz, tgz, tar, rar, shp dbf, xls, dwg, dxf, dgn, mxd, lyr, nmf, f=lyr, f=nmf, globeserver, gpserver, geocodeserver, geometryserver, networkserver, geodataserver, service=wfs, wfsserver, service=wcs, wcsserver, service=csw, cswserver URLs

1.9 Manage User Roles Settings

These settings define how the Geoportal User management interface works. For more information, see https://github.com/Esri/geoportal-server/wiki/User-Management-Interface.

√	Property Name	Function	Accepted Values
	ldap.identity.manage.userRoleEnabled	Used to enable managing LDAP user roles using the geoportal 'User' option in the Administrative interface.	Default: true, indicating that yes you want to enable the management of users roles through the geoportal interface.
	ldap.identity.restrictToConfiguredRoles	Restricts managing user roles to roles configured in geoportal.	Default: true, indicating that only roles configured in the <ldapAdapter> <groups> settings in gpt.xml will be available for administering through the geoportal interface.
	ldap.identity.search.maxResults	Restricts the number of matches for a group when the geoportal queries an LDAP structure for users.	Integer value. Default: 1000

1.10 Service Checker Settings

These settings connect FGDC Service Checker services to monitor registered live services in the geoportal site. To enable this feature, it is required to get an API key from the FGDC Service Checker site. To obtain an API key, visit http://registry.gsdi.org/statuschecker and sign up for your Geoportal Server site. For more details about this functionality, see https://github.com/Esri/geoportal-server/wiki/FGDC-Service-Checker-Integration.

√	Property Name	Function	Accepted Values
	servicechecker.enabled	Enables or disables service checker functionality.	Default: false
	servicechecker.token	Service checker token.	FGDC token - Contact FGDC.GOV to obtain a token for your specific deployment.
	servicechecker.checkUrl	Service checker URL	URL

	servicechecker.infoUrl	Service info URL	URL

1.11 Cart Processor Settings

These settings enable and configure the Geoportal Cart functionality. Note, this is a sample processor; a specific processor can be created based upon the use case. For more details see https://github.com/Esri/geoportal-server/wiki/Cart-Processor.

√	Property Name	Function	Accepted Values
	catalog.cart.enabled	Enables or disables the cart.	Default: false
	catalog.cart.maxItems	Maximum number of items in the cart.	Integer value. Default: 10
	catalog.cart.processor	the Java class used to process items.	Default: none, but can use com.esri.gpt.control.cart.ZipXmls per sample.

1.12 Data Download Customization Settings

The *downloadData* settings specify information about the default map service and its corresponding geoprocessing service that is used by the Data Download functionality. Configuring Data Download is a customization and is not required for the functioning of the geoportal. For information on how to configure the Data Download function, see https://github.com/Esri/geoportal-server/wiki/DataDownload-Tab. By default, the taskURL and mapServiceURL are left blank and the download tab will not appear in the geoportal interface.

1.13 Identity Settings

The *identity* section defines the settings for the geoportal authentication. The opening tag "identity" has an *encKey* attribute which is used to specify an encryption key. This key is used in conjunction with a two-way encryption algorithm to encode/decode user names and passwords that are stored in the database, for example, in the information for a metadata repository. The default value of the key is PtkEsri, which is case-sensitive. The identity element also has a *realm* attribute, which is referenced when a publisher user updates a metadata record by using an external XML editor, such as Altova XMLSpy®. The realm is sometimes - but not always, depending on the XML editor software or system setup - displayed by the client prompting for credentials. The realm value helps users better understand that they are about to log into an editing session for a record from the geoportal. **IMPORTANT:** If the value of encKey is changed at any point, any data already stored in the database that was encrypted with the "old" encKey will become invalid and will have to be re-generated and re-stored in the database to correspond to the new encKey value.

√	Property Name	Function	Accepted Values
	encKey	Encryption key for encrypted values stored in the database.	PtkEsri (default). Any string value is acceptable, but changing post-deployment can have serious repercussions.
	realm	Displayed during publisher login for editing a metadata record in an external XML editor	Any String. Default: "Geoportal"

1.14 LDAP-enabled Identity Settings

If you've configured your geoportal to use the <ldapAdapter> as opposed to the <simpleAdapter> in the <identity> section, then settings in this section can be applied. If not, then proceed to the next section.

The *singleSignOn* settings determine how the geoportal is to function when configured with single sign-on with other applications. For more information about single sign-on for the geoportal, see https://github.com/Esri/geoportal-server/wiki/Single-Sign-On .

√	Property Name	Function	Accepted Values
	active	Whether single sign-on is enabled or not.	True of False. Default: false
	credentialLocation	The mechanism for providing credentials	Either "userPrincipal" which is a default Java mechanism. Or a vendor specific value that comes in the http header (header.variablename)
	anonymousValue	The value that represents an anonymous user	Any string. When the header variable is set to this value, the user coming in is "anonymous".
	logoutOutcome	URL specifying where to redirect to on logout.	Valid URL string.

The *selfCareSupport* settings contain information about the behaviors and functionalities of the geoportal with respects to user account. Usually these settings are either all set to false, or all set to true:

√	Property Name	Function	Accepted Values
	supportsLogin	Allows a user to login to the geoportal. If False, no login link will be displayed.	True of False. Default: true

	supportsLogout	Allows a user to logout of the geoportal. If supportsLogin is true, it is recommended leaving supportsLogout set to true as well.	True of False. Default: true
	supportsUserRegistration	Whether users can register for accounts in the geoportal interface. If you don't want users to be able to create new entries in your directory structure through the geoportal interface, then set this to False. This will disable the "Register" link in the geoportal interface.	True of False. Default: true
	supportsUserProfileManagment	Whether users can modify their profile information in the geoportal interface. If you don't want users to be able to change their user information as managed by the directory server (such as email, name, phone number, etc.) through the geoportal interface, set this to False.	True of False. Default: true
	supportsPasswordChange	Whether users can modify their password in the geoportal interface.	True of False. Default: true
	supportsPasswordRecovery	Whether the "Forgot Password" functionality is active.	True of False. Default: true

Metadata management groups are special group entries within the Directory Server in which all member users share metadata document editor access. All users belonging to a metadata management group have access to each other's metadata. Each <metadataManagementGroup> tag specifies the details about an existing metadata management group. You may add to, modify or delete from this list as needed. For each group definition, you can set the following properties:

√	Property Name	Function	Accepted Values
	Name	The name of the metadata management group, as it exists in the Directory Server	String value representing a group name.
	groupDN	Distinguished name of the metadata management group.	LDAP Distinguished Name

1.15 Scheduler Settings

The *scheduler* settings define the properties for Catalog synchronization and the Index optimization. It is important to consider your CatalogSynchronizer and LuceneIndexOptimizer thread time attributes. Make sure that these are not configured to start at the same time.

Catalog synchronization is a process that ensures that the Lucene indexing is synchronized with the resources' metadata stored in the geoportal database. The synchronizer will trigger the indexing of all approved or reviewed documents where indexes don't exist. The <thread>

element for the catalog synchronizer has a class value of "com.Esri.gpt.catalog.context.CatalogSynchronizer", which should not be changed. However, the '*at*' value can be updated, as specified below.

√	Property Name	Function	Accepted Values
	at	Specifies the start time for the lucene synchronizer to reindex approved documents from the geoportal database.	Time specified in HH:MM format.

The Index optimization is a process that rewrites the lucene index so searches can be performed faster. If the lucene index is never optimized, then performance will deteriorate over time. The amount of time required to synchronize the lucene index and the catalog is related to the size of your metadata database. For example, if the catalog contains 3,000 records, it will synchronize much faster than if it contains 300,000 records. The <thread> element of the index optimizer has a class value of "com.Esri.gpt.catalog.lucene.LuceneIndexOptimizer", which should not be changed. However, the '*at*' value can be updated, as specified below.

√	Property Name	Function	Accepted Values
	at	Specifies the start time for the optimizer to run.	Time specified in HH:MM format.

2.0 Additional Configurations

The configurations discussed in this section are not included in the out-of-the-box gpt.xml file, and must be added to the correct place in the file if desired. They encompass forward proxy authentication, reverse proxy settings, schema caching, spatial relevance settings, class settings for lucene, identifying resource links, building REST URLs, rendering live data through the Previewer, settings for how ArcGIS Server service endpoints are processed on the Upload page, additional settings for the catalog synchronization thread, and an alternative setting for integrating a map viewer. The table below shows the location in the gpt.xml file where they should be copied, and the text that should be copied which includes descriptions for functionality in comments. These parameters will need to be updated with values that are applicable for your organization.

√	Tag path in gpt.xml	Text with functionality in comments
	gptConfig/forwardProxyAuth	<!-- Forward proxy authentication The following element can be optionally configured if authentication is required by a forward (outbound) proxy. username: the username credential password: the password credential encrypted: "true" or "false" (indicates if this password is encrypted)

	For a forward proxy, the system properties "http.proxyHost" "http.proxyPort" and "http.nonProxyHosts" are configured at the Java web server level (e.g. Tomcat - catalina.properties) --> <forwardProxyAuth username="" password="" encrypted="false"/>
gptConfig/catalog/parameter	<!-- Optional catalog parameters - BaseServlet.autoAuthenticate: indicates if the com.Esri.gpt.framework.context.BaseServlet class should auto-authenticate credentials found within an HTTP request header, valid values: "true" or "false", default = true. - cacheSchemaDefinitions: indicates if metadata schema definition files should be cached. Caching improves production performance but can be over-ridden while developing definitions, valid values: "true" or "false", default = true. - spatialRelevance.queryPower: spatial relevance weighting power associated with the query envelope (input as criteria), default = 2.0. - spatialRelevance.targetPower: spatial relevance weighting power associated with the target envelope (stored within the database), default = 0.5. - spatialRelevance.ranking.enabled: indicates whether or not spatial query results will be spatially scored/ranked, valid values: "true", "false", "auto"; true: always use spatial relevance ranking, false: never use spatial relevance ranking (filter results spatially but do not score), auto: turn on/off spatial relevance ranking based upon the number of indexed documents, default = auto. - discoveryQueryAdapter: class associated with the execution of an internal discovery query, must extend: com.Esri.gpt.catalog.discovery.DiscoveryQueryAdapter, default = com.Esri.gpt.catalog.lucene.LuceneQueryAdapter - resourceLinkIdentifier: class associated with the identification of resource links, must extend: com.Esri.gpt.catalog.search.ResourceIdentifier, default = com.Esri.gpt.catalog.search.ResourceIdentifier. - resourceLinkBuilder: class associated with the building of search result resource links, must extend: com.Esri.gpt.catalog.search.ResourceLinkBuilder, default = com.Esri.gpt.catalog.search.ResourceLinkBuilder. - restUrlBuilder: class associated with the building of REST URLs associated with query criteria, must extend: com.Esri.gpt.catalog.search.RestUrlBuilder, default = com.Esri.gpt.catalog.search.RestUrlBuilder. - liveDataRendererFactoryBuilder: class associated with the building factories supporting live data rendering (i.e. preview), must extend: com.Esri.gpt.control.livedata.LiveDataRendererFactoryBuilder, default = com.Esri.gpt.control.livedata.LiveDataRendererFactoryBuilder. - AGSProcessor.interrogation.enabled: indicates whether or not ArcGIS server/service endpoints will be considered from the Upload Metadata page, valid values: "true" or "false", default = true. - AGSProcessor.GeoDataServer.recurse: indicates whether or not ArcGIS

	GeoDataServer endpoints will be recursed, publishing all underlying datasets having metadata, valid values: "true" or "false", default = true. - AGSProcessor.GeoDataServer.maxDataElements: specifies an upper threshold for data elements within an ArcGIS GeoDataServer. If the maxDataElements is exceeded, no data elements associated with the GeoDataServer will be published to the Geoportal. A value of -1 indicates no limit, default = 200. - AGSProcessor.GeoDataServer.expandDescendants: specifies whether or not descendants should be expanded when retrieving data elements from the GeoDataServer. If false, children are expanded (com.Esri.arcgisws.EsriDEExpandType.EsriDEExpandDescendants vs. com.Esri.arcgisws.EsriDEExpandType.EsriDEExpandChildren). --><parameter key="BaseServlet.autoAuthenticate" value="true"/> <parameter key="cacheSchemaDefinitions" value="true"/> <parameter key="spatialRelevance.queryPower" value="2.0"/> <parameter key="spatialRelevance.targetPower" value="0.5"/> <parameter key="spatialRelevance.ranking.enabled" value="auto"/> <parameter key="discoveryQueryAdapter" value="com.Esri.gpt.catalog.lucene.LuceneQueryAdapter"/> <parameter key="resourceLinkIdentifier" value="com.Esri.gpt.catalog.search.ResourceIdentifier"/> <parameter key="resourceLinkBuilder" value="com.Esri.gpt.catalog.search.ResourceLinkBuilder"/> <parameter key="restUrlBuilder" value="com.Esri.gpt.catalog.search.RestUrlBuilder"/> <parameter key="liveDataRendererFactoryBuilder" value="com.Esri.gpt.control.livedata.LiveDataRendererFactoryBuilder"/> <parameter key="AGSProcessor.interrogation.enabled" value="true"/> <parameter key="AGSProcessor.GeoDataServer.recurse" value="true"/> <parameter key="AGSProcessor.GeoDataServer.maxDataElements" value="200"/> <parameter key="AGSProcessor.GeoDataServer.expandDescendants" value="false"/>
gptConfig/catalog/scheduler/thread/@class="com.Esri.gpt.catalog.context.CatalogSynchronizer"	<!-- Optional parameter configuration for catalog synchronization thread element. - feedbackSeconds: an approximate number of seconds between FINER log messages, default = 120. - maxDeleteTokens: the maximum number of deletions to execute in a single transaction, default = 1000. -maxSqlTokens: for an SQL SELECT statement, the maximum number of OR operators to include in a single WHERE clause, default = 1000. - maxUuidCache: the maximum number of UUIDs to store in memory. The memory is only used while the synchronizer is active. Having a maxUuidCache greater than or equal to the number of documents within the catalog will result in the best performance, default = 100000. --> <!-- Catalog synchronization -->

	<thread class="com.Esri.gpt.catalog.context.CatalogSynchronizer" period='1[HOUR]' delay="30[SECOND]"> <parameter key="feedbackSeconds" value="120"/> <parameter key="maxDeleteTokens" value="1000"/> <parameter key="maxSqlTokens" value="1000"/> <parameter key="maxUuidCache" value="100000"/> </thread>
gptConfig/catalog/search/@mapViewerUrl	<!—Optional configuration to support a custom Map Viewer application. Example: mapViewerUrl =”http://machine_name/map_viewer_app”. Will automatically generate a link to launch a specified Map Viewer in the geoportal interface. To integrate Flex, Silverlight, or ArcGIS Online based viewers, see https://github.com/Esri/geoportal-server/wiki/Map-Viewer