302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

Scheduler for ArcGIS® | Users' Guide

Supported Version: Scheduler for ArcGIS v 1.1 - Nov 2024

Table of Contents

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

XIV. Tool List

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

I. Introduction to Scheduler

A. What is Scheduler for ArcGIS?

Scheduler for ArcGIS is a powerful tool that allows users to customize and automate the setup and management tasks associated with managing an ArcGIS® Organization in a quick, easy, and efficient manner. By combining multiple tools and workflows, Scheduler allows users a greater variety of resolutions than ever before. Furthermore, by leveraging webhooks, Scheduler allows users to be much more responsive and have more control over what happens in their ArcGIS Organizations. Scheduler also supports back-end operations, such as starting and stopping services, rebuilding spatial indexes, publishing services, monitoring server health and status, and responding to monitored events based on server logs.

Some examples of things users can do with Scheduler include:

- Regularly scan an organization for invalid content, flag it for review, and send an email to responsible parties. If that content is not addressed within a certain time frame, Scheduler can perform various escalation tasks.
- Pull data from an external API every day, write the information to a CSV, then publish that CSV as a feature service.
- If a member of an ArcGIS Organization shares sensitive content (such as a service containing personally identifiable information, or PII), immediately unshare it and send an email to alert the appropriate contacts.
  Note: This is only possible for ArcGIS® Enterprise Organizations
- Automatically run resource-intensive tasks during off hours.

Additional functionality includes:

- Automate routine tasks, including multi-step operations, so that they run on a schedule of the user's choosing.
- Manage webhooks, both ones used in Scheduler and elsewhere.

- Automate server operations, such as starting and stopping services, rebuilding indexes, checking for and restarting stopped services, monitoring portal health, and publishing services from CSV.
- Bulk manage services on demand (start, stop, edit, delete, as well as view their properties and manifest information) (Enterprise only).
- Take action in response to events that occur in the ArcGIS® Server logs (Enterprise only).
- Monitor geoprocessing jobs and cancel jobs that become unresponsive.
- Ensure optimization of spatial data and underlying tables by rebuilding database indexes.
- Create administrative reports on a schedule, with the option to have them emailed to administrators upon completion.
- Run custom scripts. Scheduler can run any script that can be run in the command line.
- Report on the progress of tile caching.

B. Acquiring Scheduler for ArcGIS

Scheduler can be acquired in one of two ways:

1. *Visit the ArcGIS Marketplace and search for "Scheduler for ArcGIS"*
2. *Contact the GEO Jobe Sales Team at sales@geo-jobe.com*

C. Installing Scheduler for ArcGIS

Scheduler is installed on-premise. This means users are in total control over where their copy of Scheduler is installed and what data from their ArcGIS Organization it may access. Scheduler can be run on any machine that can access your ArcGIS Organization and can run as a service or locally on a workstation*.

** If using webhooks, Scheduler must be installed on a server with a fully qualified domain name and a valid certificate from an external certificate authority (i.e. not self-signed). If a user wishes to run Scheduler on localhost and leverage webhooks, they can do so if they use*

a URL rewrite to create a fully qualified domain name for localhost. Scheduler comes with a default web.config file that can be used to enable a URL rewrite.

Scheduler for ArcGIS relies on MongoDB® (included in the install ZIP file) to operate. This will need to be installed on any machine that Scheduler (or Scheduler Satellite) is installed on. We also recommend installing MongoDB Compass as part of the installation process. MongoDB Compass is a GUI interface used for interacting with the database, enabling a user to access the database's information more easily.

Scheduler for ArcGIS also requires that Internet Information Services (IIS) is installed on the machine to operate. Verify that IIS has been installed before performing the Scheduler installation. For Windows Server, you can install IIS by visiting the **Start Menu > Administrative Tools > Server Manager**, then **Add roles** and select **Web Server (IIS)**. For Windows 10, you can install it by visiting **Control Panel > Programs > Programs and Features > Turn Windows features on or off** and select **Internet Information Services**. For Windows 11, it is installed by default.

Scheduler can be installed on the same machine as other GEO Jobe products. We recommend that Scheduler not be installed on the same machine as ArcGIS Monitor, though ArcGIS Monitor and Scheduler can work together in the same environment if they are installed on different machines. If a user wants to install Scheduler on the same machine as ArcGIS Monitor, they will need to change the default ports Monitor runs on so as not to conflict with IIS. Scheduler Satellite can be installed on the same machine as ArcGIS Monitor without needing to change Monitor's default ports

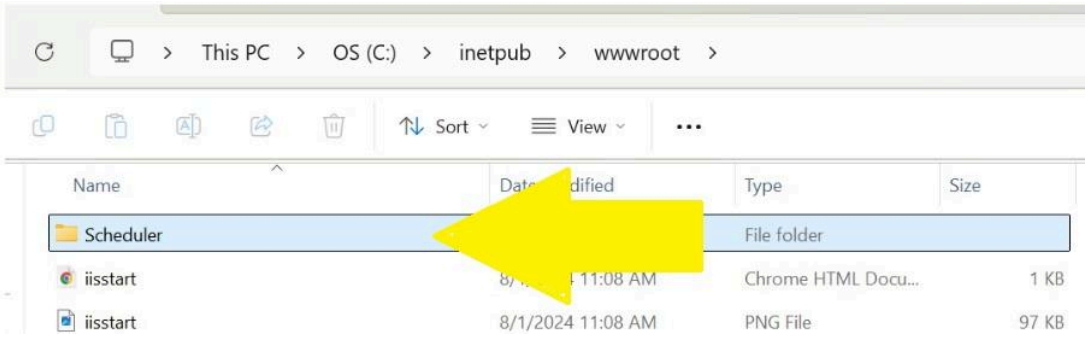
1. Installation Requirements

- System Requirements:
- Windows Server 2016 or higher server OR
- Windows 10 or higher personal computer
- MongoDB installation required
- Recommended server specs:

- Quad-core processor minimum, 8 core or higher recommended for larger organizations
- 16 GB RAM for optimal performance
- If users want to run tasks based on ArcGIS Server Logs, Scheduler Satellite must be installed on the machine where the log files are located.
- If users plan to utilize webhooks, Scheduler must be installed on a machine with a valid certificate from a certifying authority (i.e. not self-signed). Scheduler can run on localhost but users must use a URL rewrite in IIS to create a fully qualified domain name that is HTTPS. Scheduler comes with a web.config file that contains default information for setting up a rewrite.

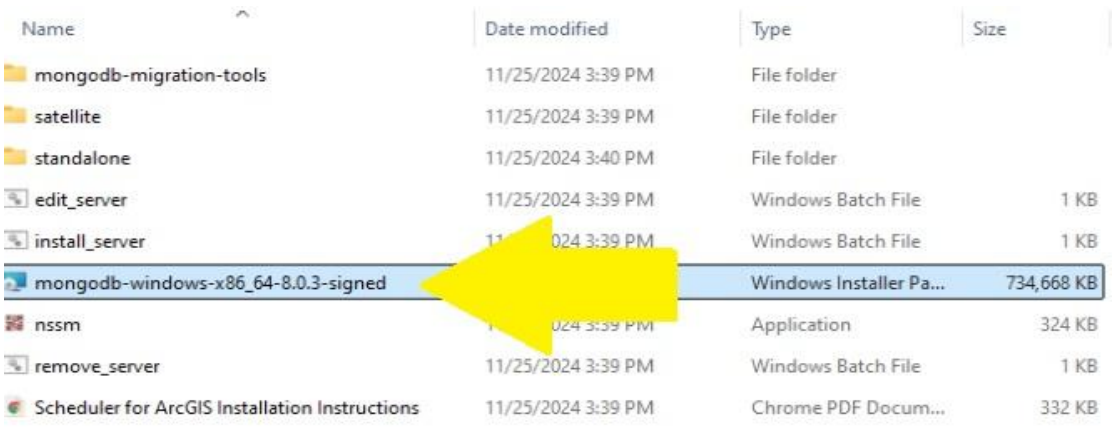
2. New Installation Instructions

a. Unzip the Scheduler for ArcGIS build to the desired location. This can be under **C:\inetpub\wwwroot\scheduler** or any location you wish. Wherever the files are extracted, that location will need to be added as an application in IIS. Make sure that your license file, **SCHED-geojobe.license.txt**, is in the main directory.

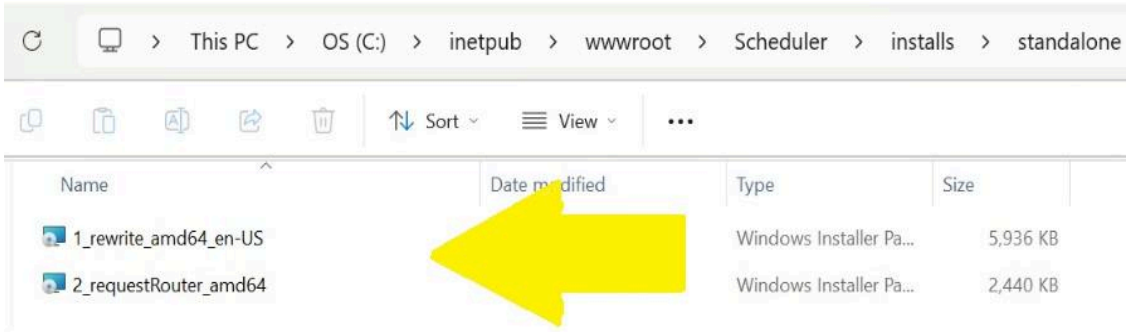


b. Install **scheduler/installs/MongoDB-windows-*.exe**. If MongoDB is not already installed on your server, you can find the installation file, **mongodb-windows-x86_64-7.x.x-signed.msi**, in the **scheduler/installs**

folder that was unzipped in step a. Follow MongoDB's installation wizard to install (default options are recommended).

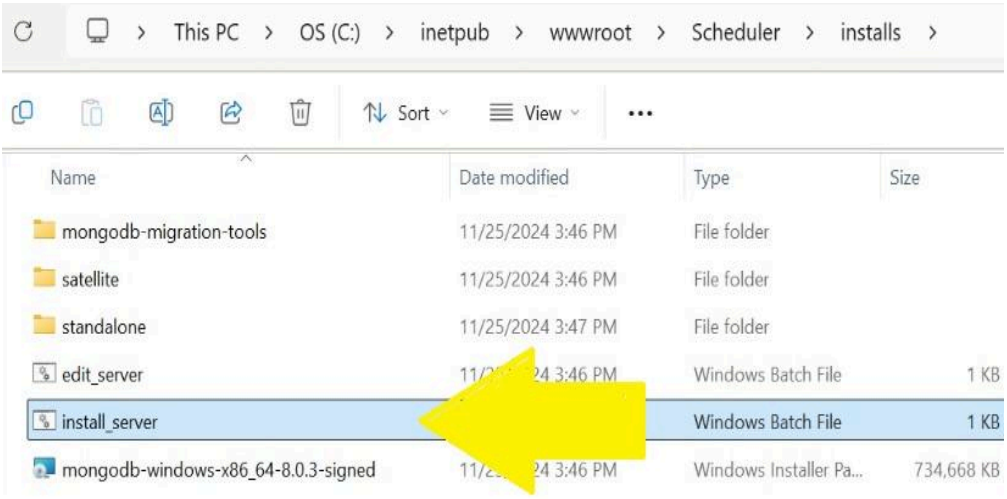


c. Install the required IIS Modules. In the **scheduler/installs/standalone** folder, there are two files - **1_rewrite_amd64_en-US.msi** and **2_requestRouter_amd64.msi**. These IIS modules must be installed in the order listed for Scheduler for ArcGIS to work properly. The modules are used by the application to create a reverse proxy to forward requests through IIS to the server application.

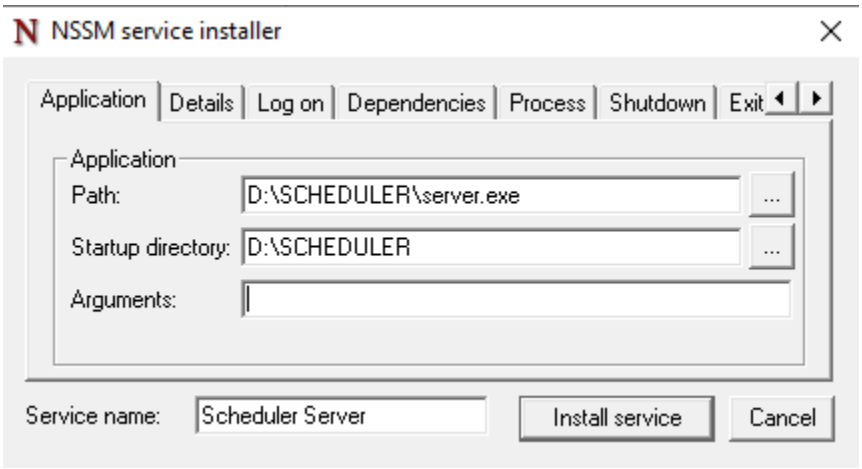


d. Install and start the Windows Service.

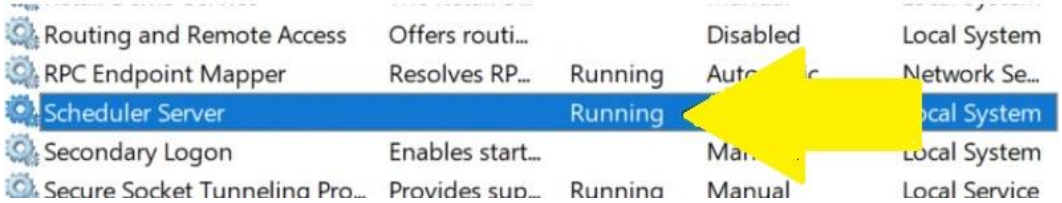
- Run the **scheduler/installs/install_server.bat** file.



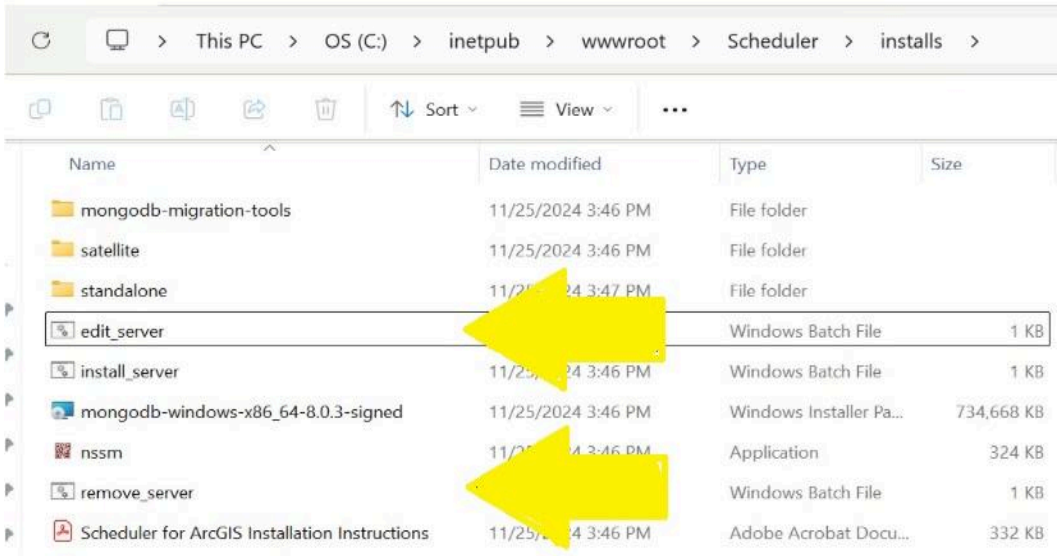
- Click the three dots next to the Path setting. Navigate one directory up to the main Scheduler folder. Then select the **server.exe** file and click the open button.
- Click the **Install Service** button.



Run the **services** application on Windows and make sure that "Scheduler Server" is running. If not, start the service.

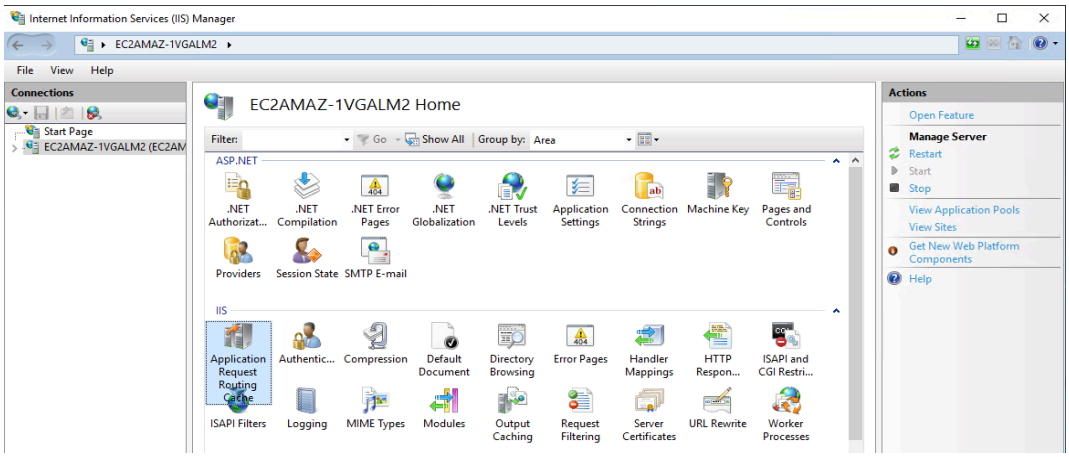


Note: If you need to edit the application path later, you can run the **edit_server.bat** file. If you need to delete the service, run the **remove_server.bat** file.

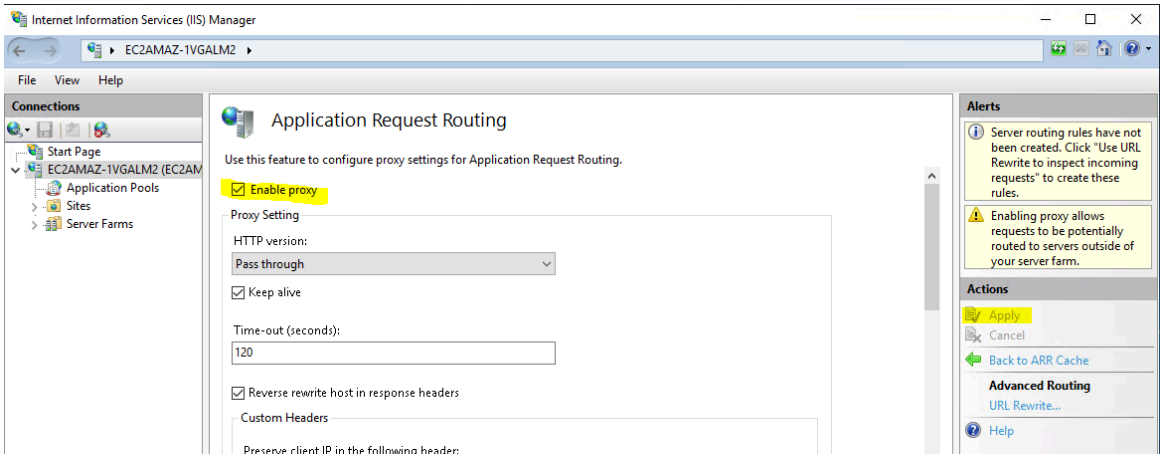


- In IIS, enable Application Request Router proxy.

  Under connections, click on the server entry under the start page. In the center panel under the IIS section, double-click on the Application Request Routing icon.



Click the ***Enable Proxy*** checkbox in the center panel, then on the right panel click the ***Apply*** button.



- You can now open a browser to **https://yourdomain.com/scheduler** and use the application.

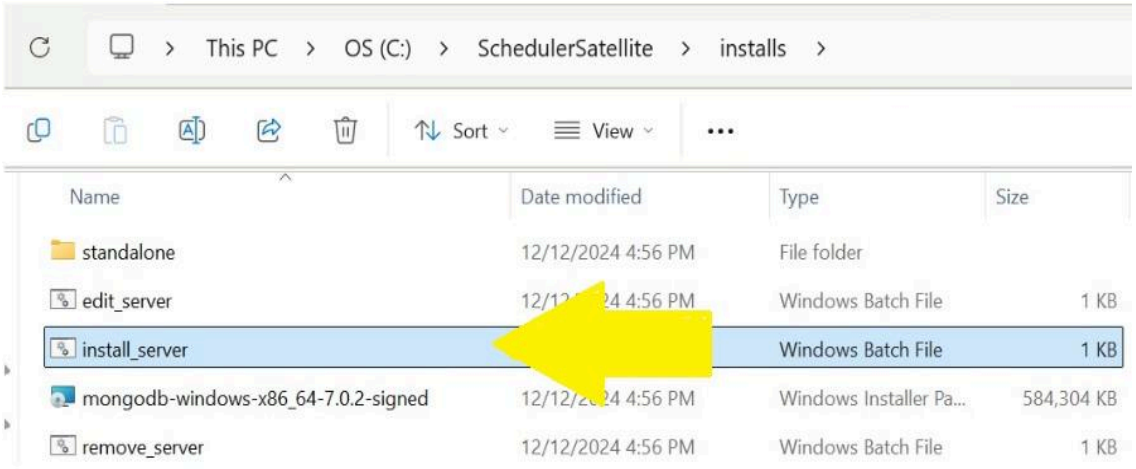
2. Installing Scheduler Satellite on an ArcGIS/Data Source Server

Scheduler Satellite is an additional, optional application that can be used to access local files that cannot be accessed remotely. It will be included as a zip file in the main Scheduler build and can be installed on multiple other machines. The Satellite application communicates directly with the main Scheduler for ArcGIS application to

enable users to perform actions from the Scheduler interface that require access to local ArcGIS Server files..

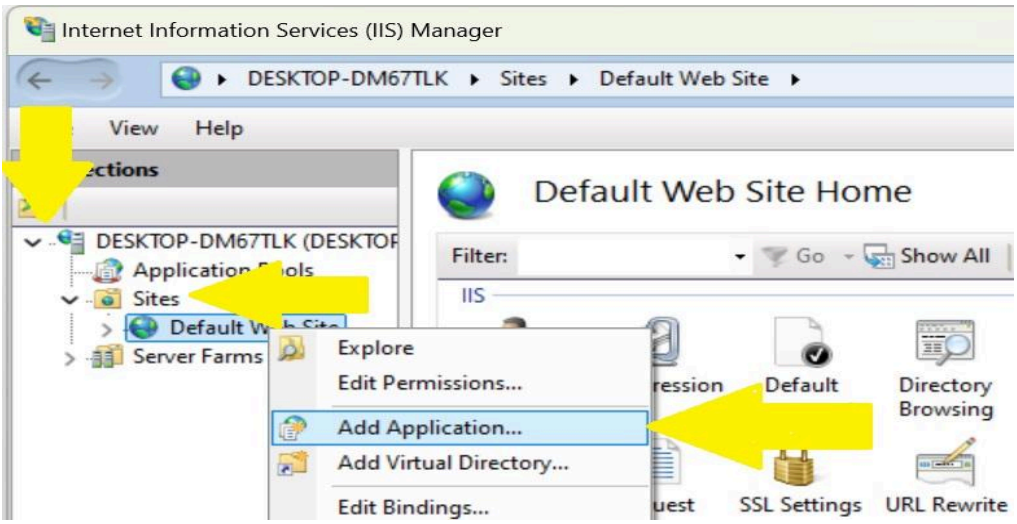
To Install Scheduler Satellite:

a. Unzip the Scheduler Satellite build to the proper location. This can be under **C:\SchedulerSatellite** or any location you wish. You will need to add this location as an application in IIS. Be sure to include your license file, **SCHED-geojobe.license.txt**, in the main directory of Scheduler Satellite.

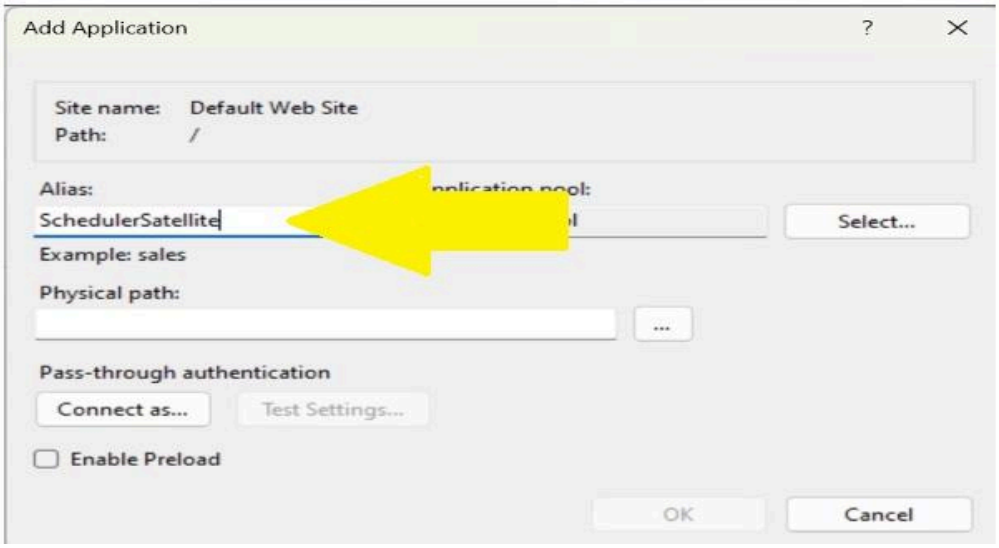


302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

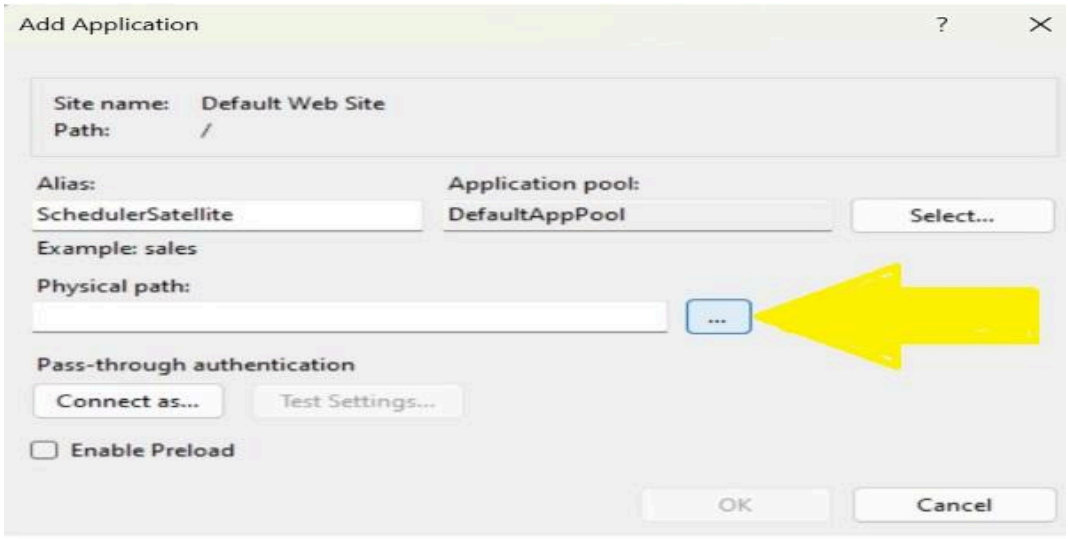
b. To add an IIS application, open IIS. Click the drop-down menu next to DESKTOP. Then, click the drop-down for Sites. Right-click on Default Web Site and select Add Application from the menu.



c. Please enter a name of your choice under the "Alias" section, such as "SchedulerSatellite."

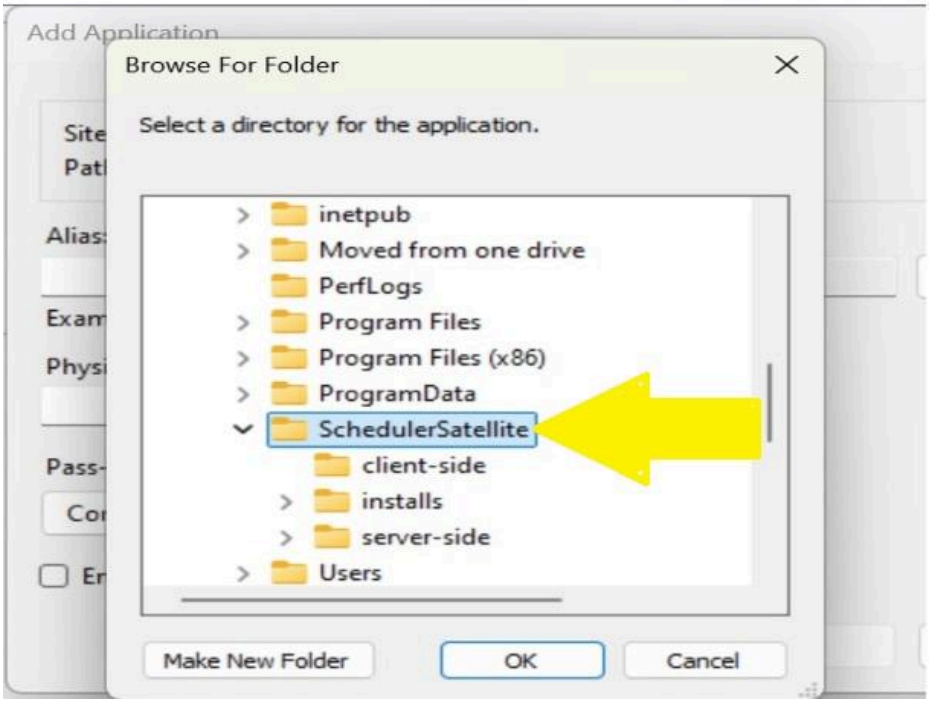


d. Please select the three small dots adjacent to the physical path.

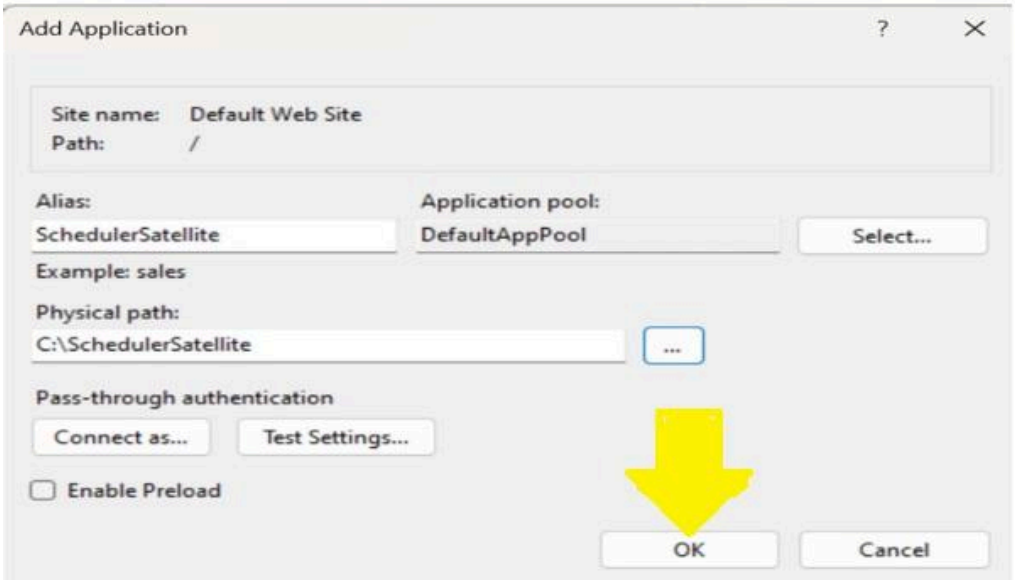


e. Please choose the directory where SchedulerSatellite is installed then click ok.

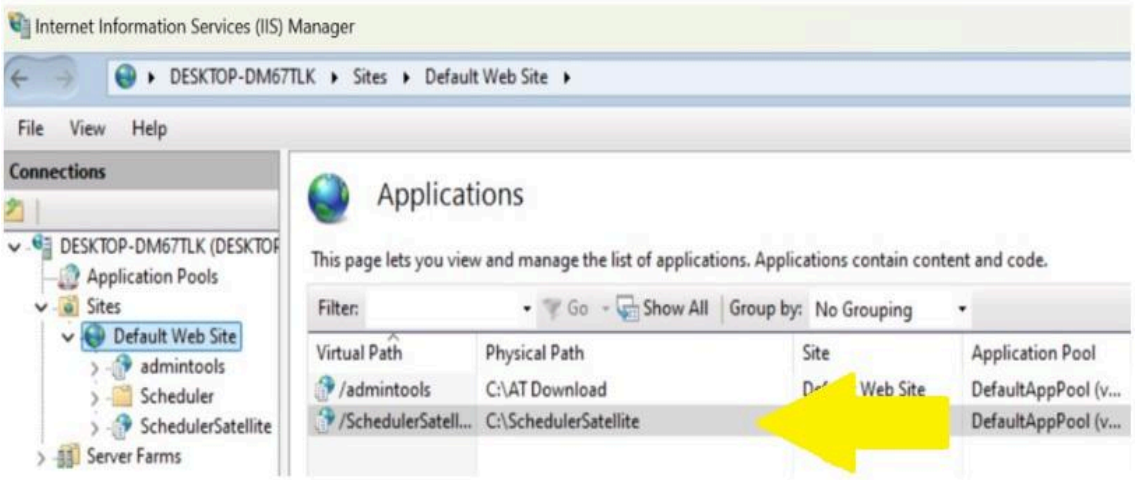
302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



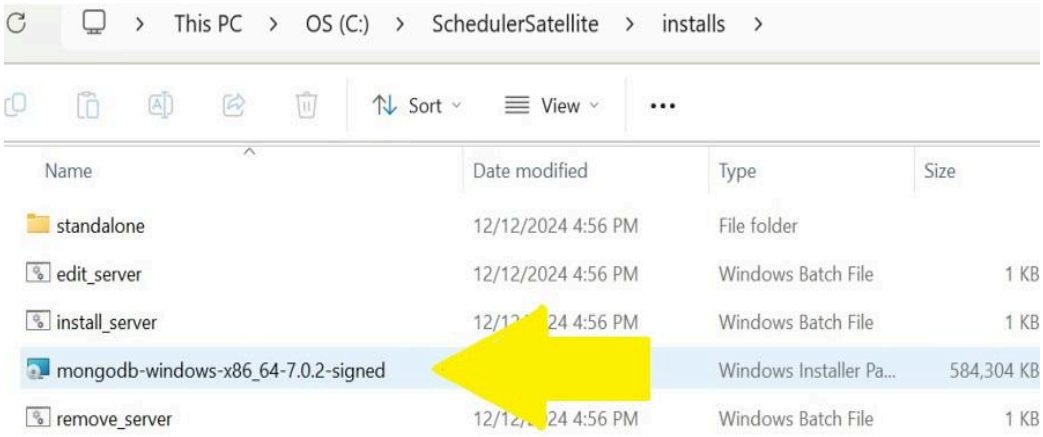
f. On the "Add Application" screen, please select the "OK" button to proceed.



g. The application has been successfully integrated into the Internet Information Services (IIS).

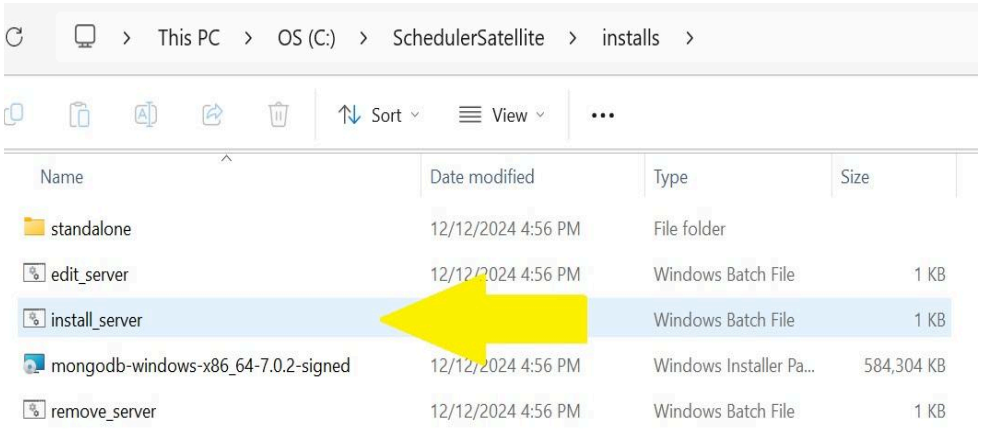


h. Install **scheduler/installs/MongoDB-windows-*.exe**. If you don't already have MongoDB installed on your server, you can find the installation file, **SchedulerSatellite/installs folder** that was unzipped in step a. Follow MongoDB's installation wizard to install (default options are recommended).

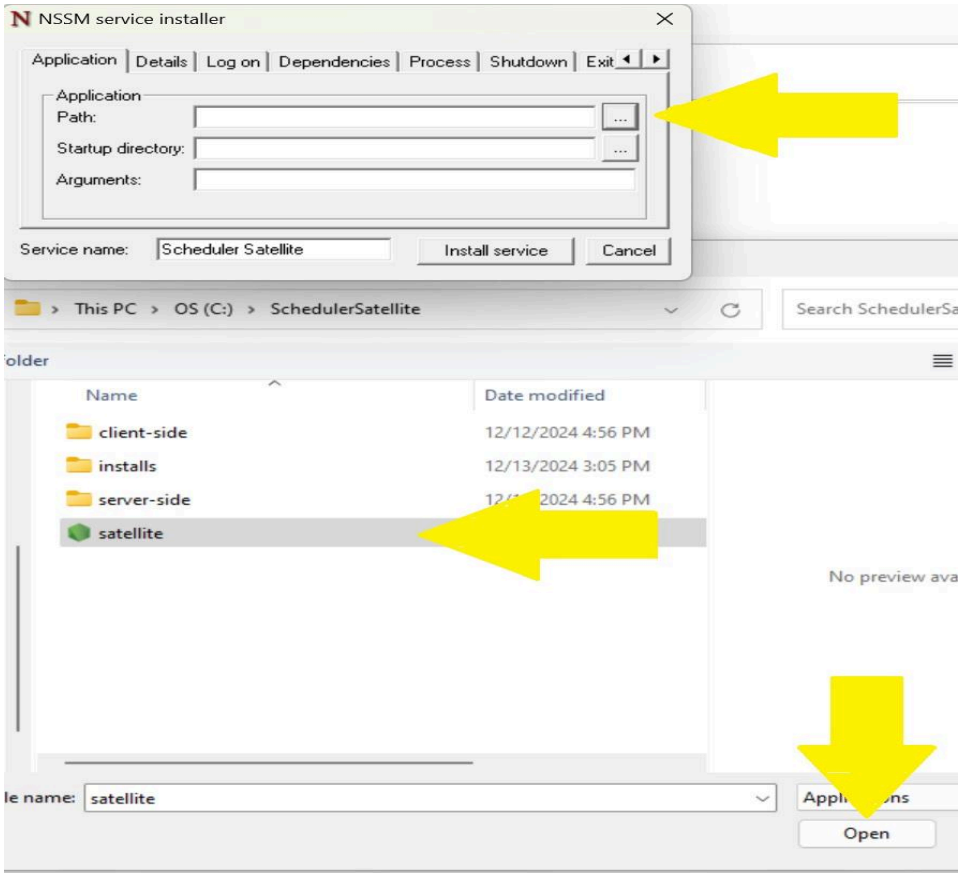


i. Install and Start the Windows Service.

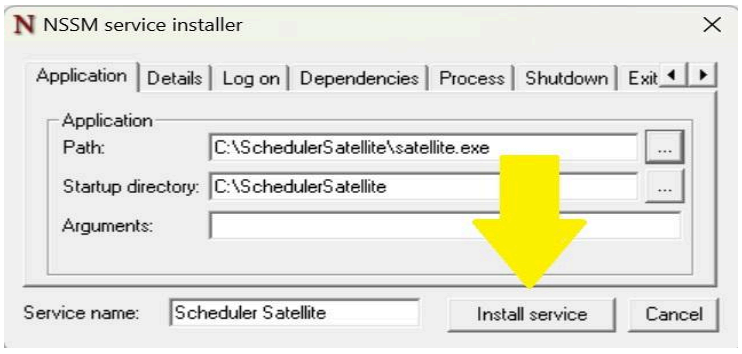
- Click on "install-server," then right-click on it and select "Run as administrator."**SchedulerSatellite/installs/install_server.bat** file.



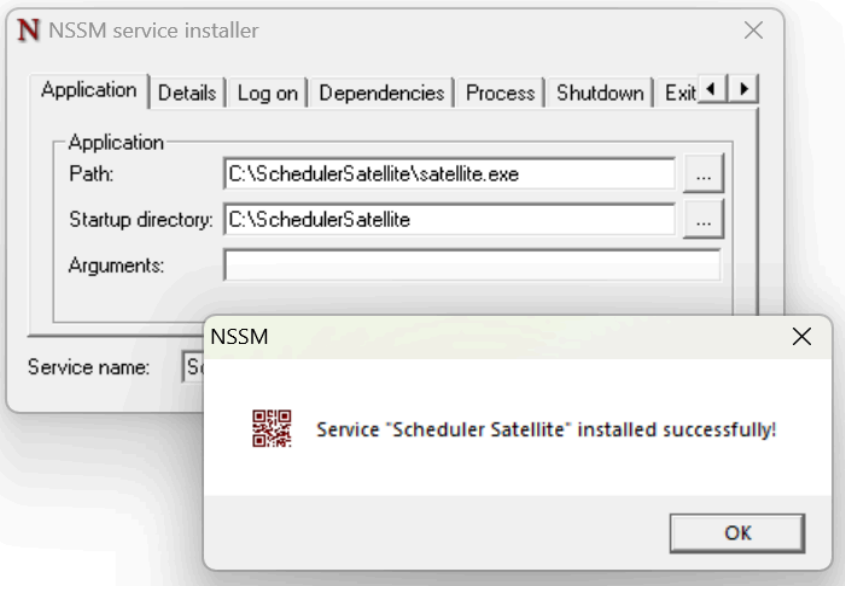
- Click the three dots next to the Path setting. Navigate one directory up to the main Satellite folder. Then select the **satellite.exe** file and click the open button.



- Click the **Install Service** button.



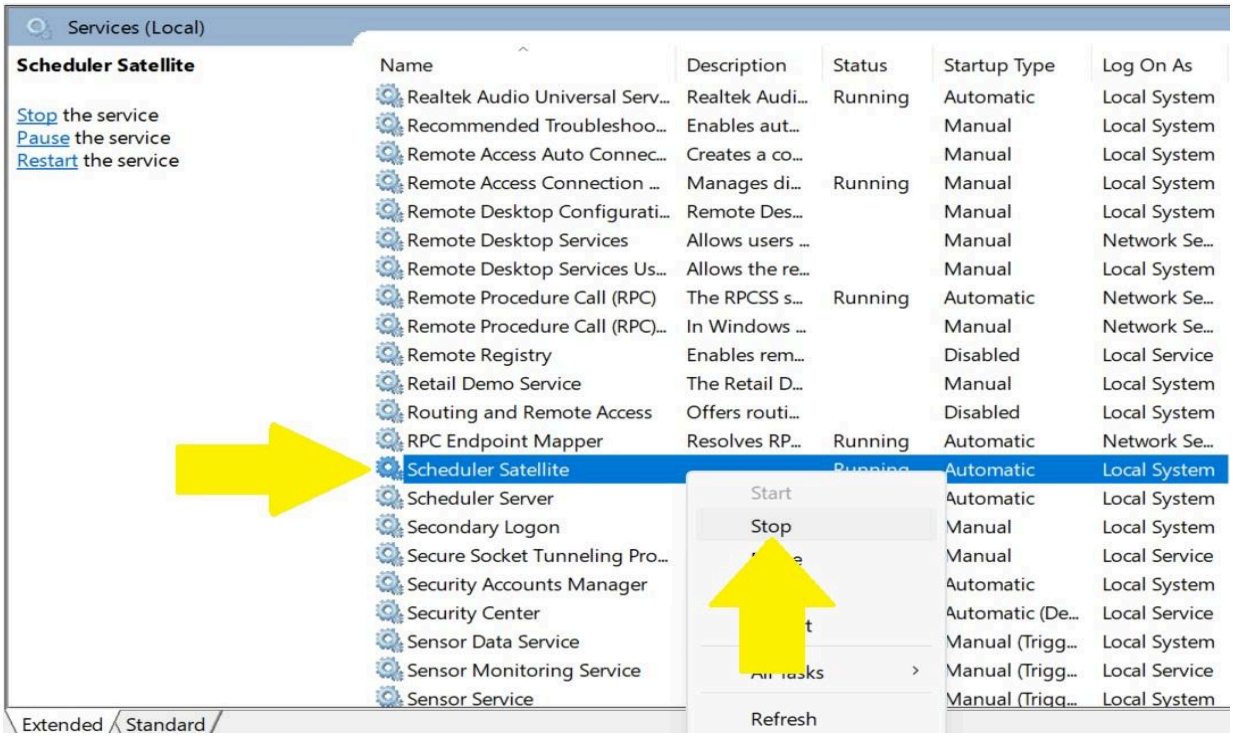
- Run the **Services** application on Windows and make sure that "Scheduler Satellite" is running. If not, start the service.



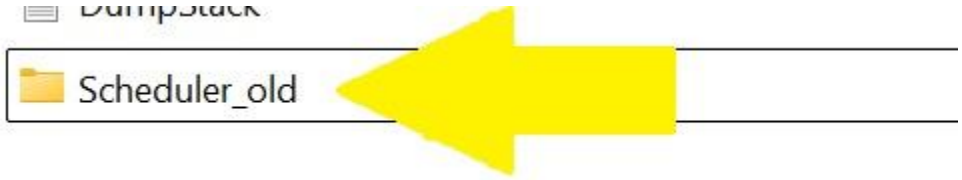
- See **Section I: Scheduler Satellite** for more information on how to configure Satellite in the Scheduler for ArcGIS application.

3. Updating an Existing Version of Scheduler for ArcGIS or Scheduler Satellite

a. To stop the current Scheduler for ArcGIS/Scheduler Satellite service, search for services, click on Scheduler Satellite, right-click it, and then select Stop from the pop-up menu.

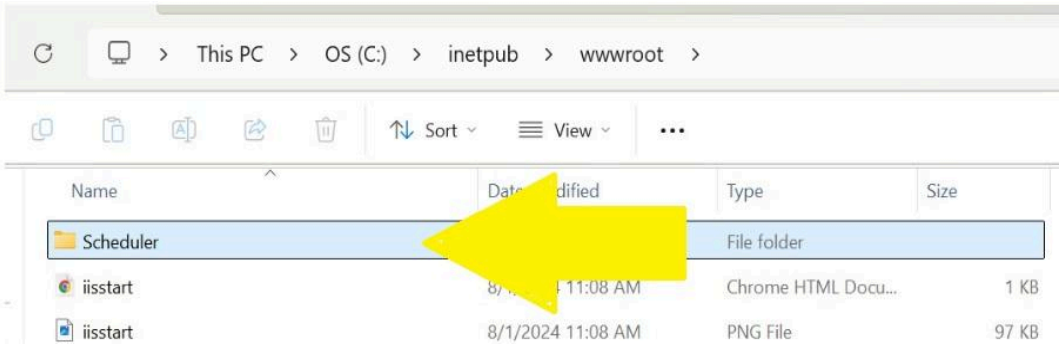


b. Update the name for your current Scheduler or Satellite folder to include the suffix "_old". This is recommended best practice until the update is complete, so you can roll back if an unexpected error occurs during installation.



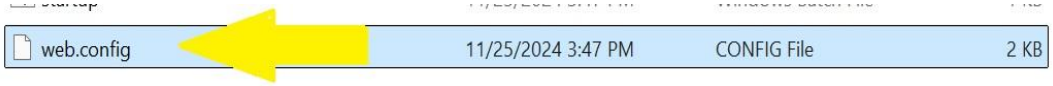
c. Recreate the original Scheduler or Satellite folder, then move the Zip file containing the update to the same location where you installed Scheduler for ArcGIS or Satellite, then extract it. We recommend moving the files while they are still zipped, as this is a faster and more efficient use of both your computer's resources and your time. If you do not have it, we

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

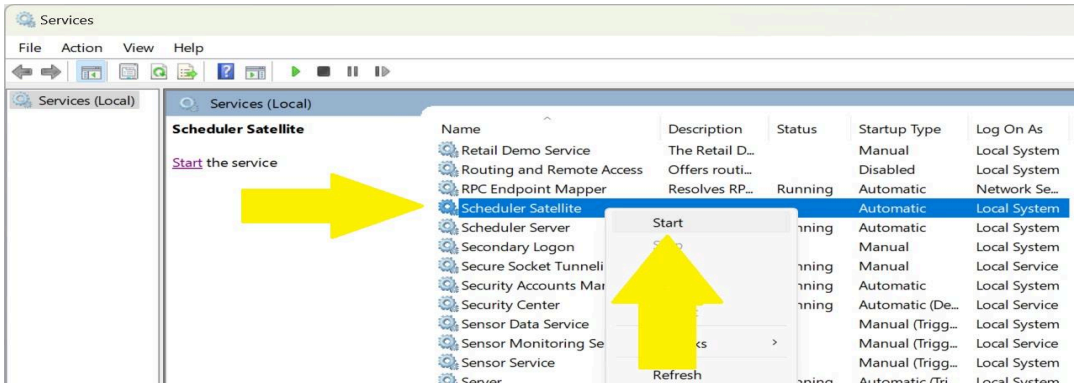


d. recommend using 7zip to extract the files. 7zip is faster, more efficient, and more reliable than the default Windows process.

e. If you made custom changes to config/**nodeconfig.json**, copy those files as needed from the **_old** directory into the new directory.

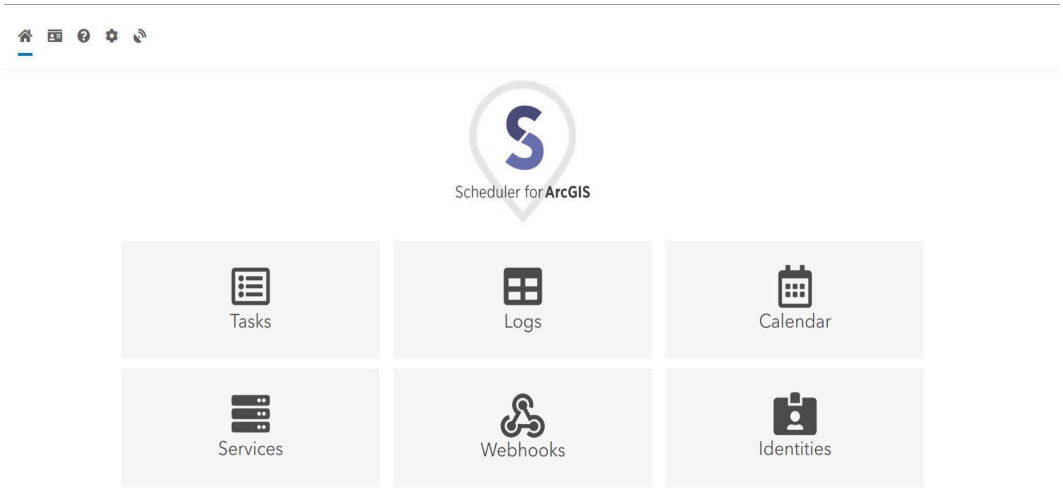


f. To restart the Scheduler Service or Satellite Service, search for services, click on Scheduler Satellite, right-click it, and then select Stop from the pop-up menu.

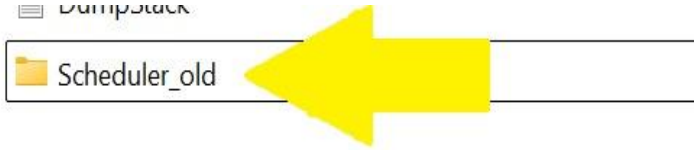


g. For Scheduler for ArcGIS, test the update at the same URL you used to access Scheduler for ArcGIS before. If the webpage loads and you can sign into Scheduler for ArcGIS,

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

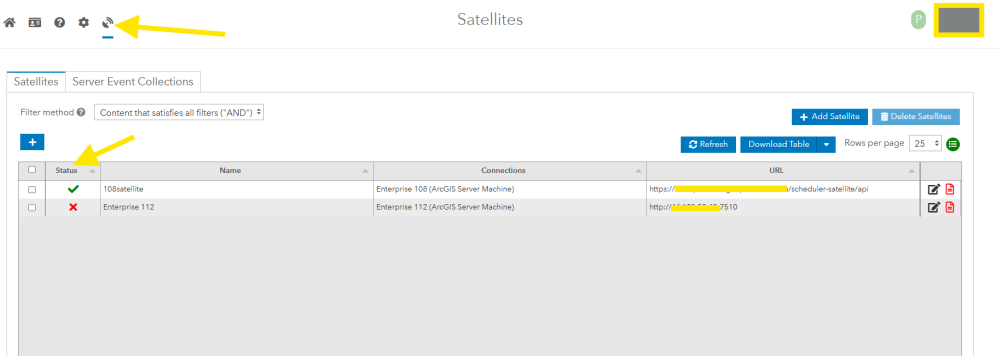


h. you may delete the **_old** folder created in step b.



i. If the webpage does not load or you cannot sign into Scheduler for ArcGIS, please reach out to GEO Jobe's Support Division (support@geo-jobe.com) for additional help. For Scheduler Satellite, you can verify that the update was successful by going to the Satellites page within the main Scheduler for ArcGIS application and verifying that the connection to the Satellite is valid.

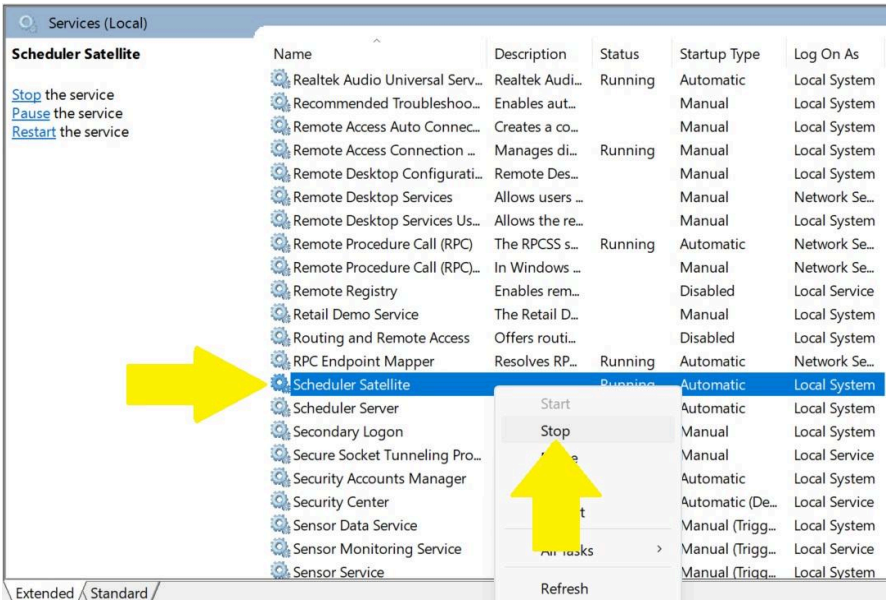
302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



4. Changing the port of Scheduler Service or Scheduler Satellite Service

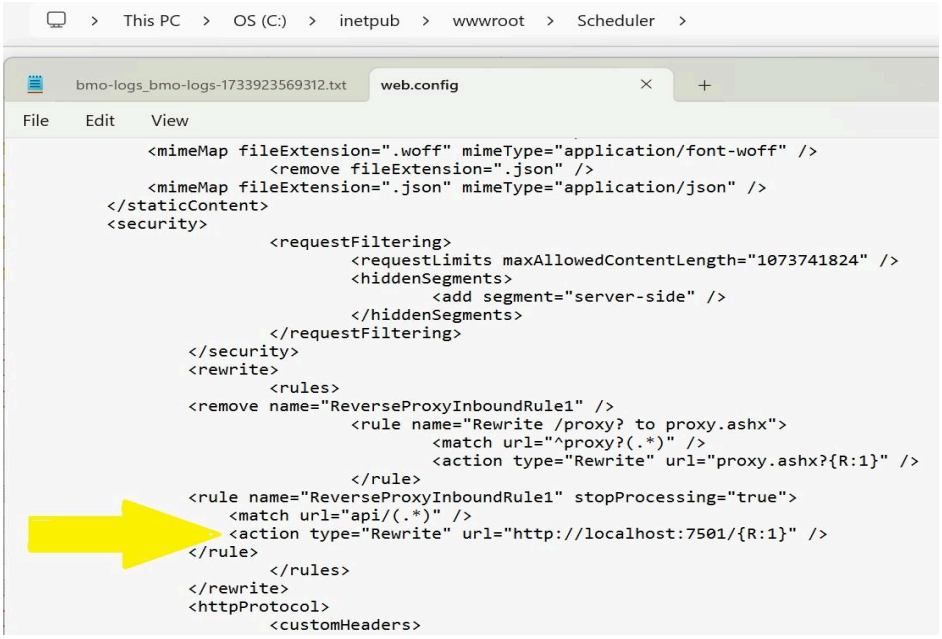
a. Scheduler by default runs internally on port (7501), and Scheduler Satellite runs on port (3000). If you wish to change the port number, follow these steps:

- Temporarily stop the Scheduler or Satellite service if it is running.



- In the Scheduler base directory, edit the **web.config** file, find the line

```
<action type="Rewrite"
url="http://localhost:7501/{R:1}" />
```



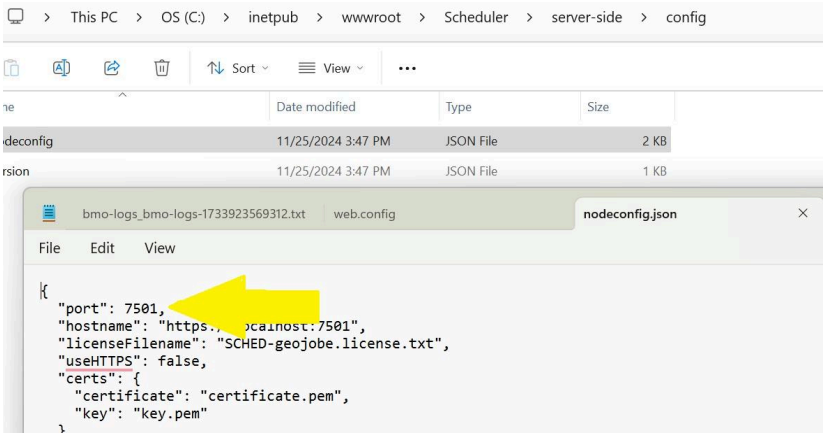
- And change it to

```
<action type="Rewrite"
url="http://localhost:yourPortNumber/{R:1}" />
```

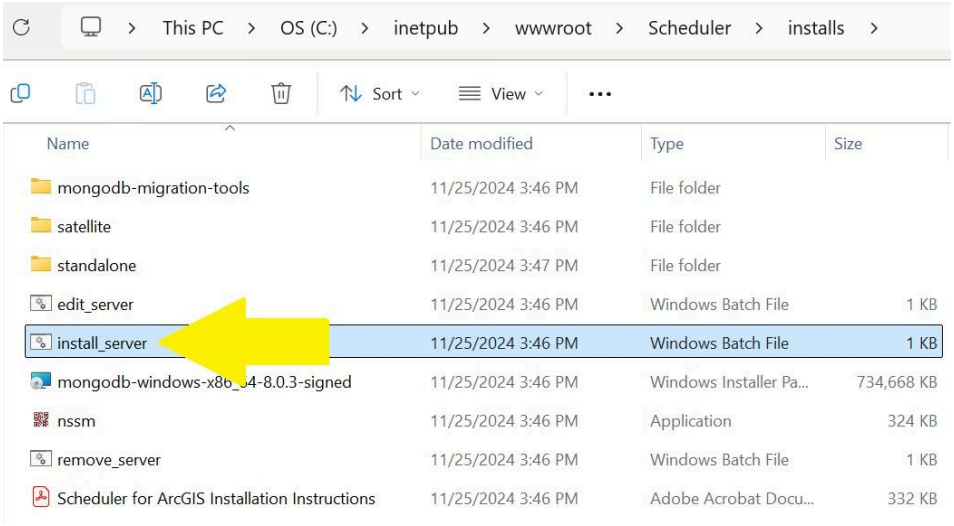
- Save this file and edit your text editor.

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

- Under the <**schedulerhome>/config** directory, edit the **nodeconfig.json** file and update the **port** to your new port number.



- Restart the service or use <**schedulerhome>/installs/install_server.bat** to create the service.



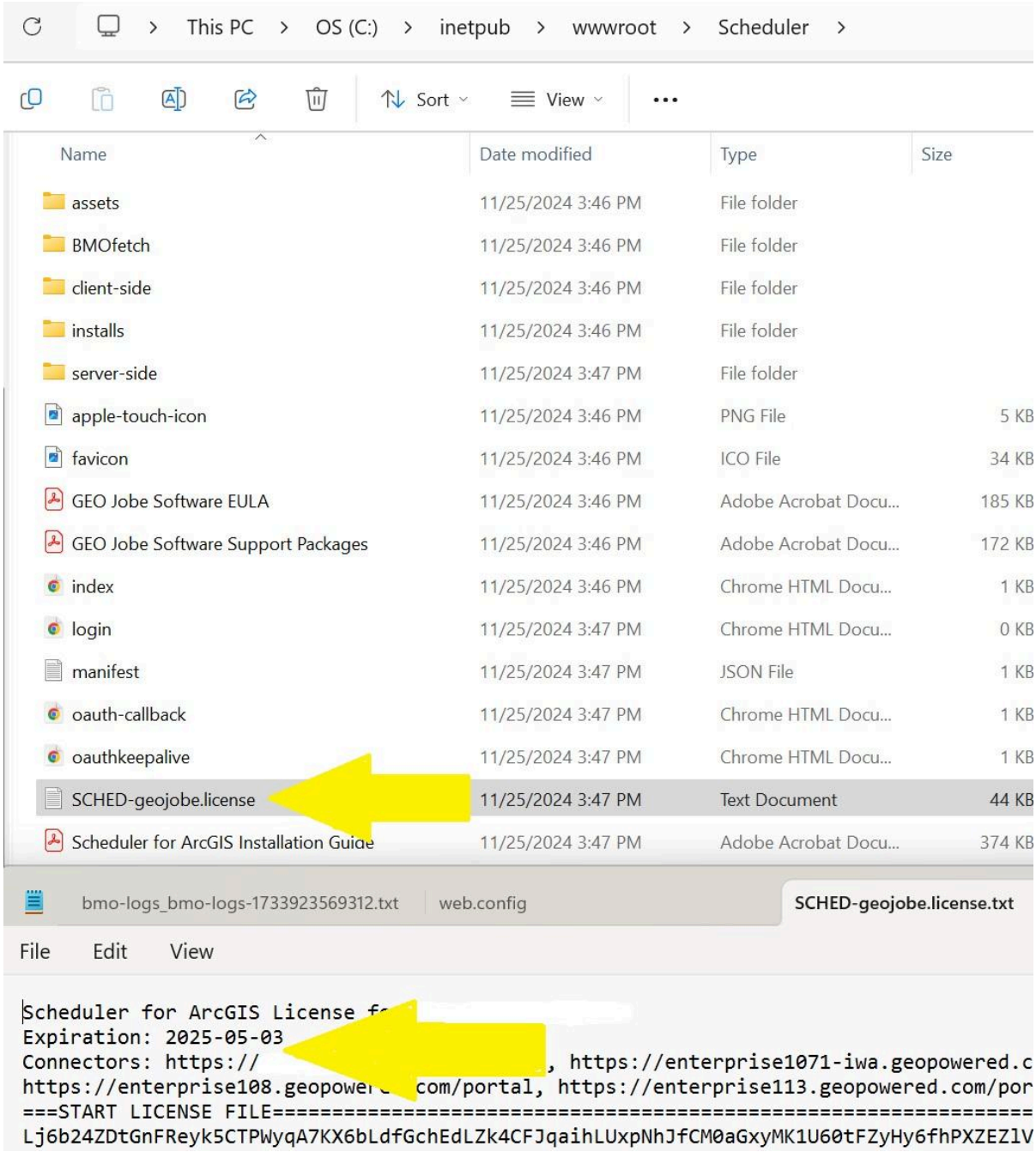
5. Licensing

The licensing for Scheduler for ArcGIS is based on connectors, specifically per connector or the URL used to access your ArcGIS Organization. Each unique ArcGIS Organization requires a separate connector for Scheduler usage. The license encompasses unlimited implementations of Scheduler Satellite, facilitating access to data sources for integration with your Scheduler application. Additionally, a Scheduler license allows access for unlimited users to the application.

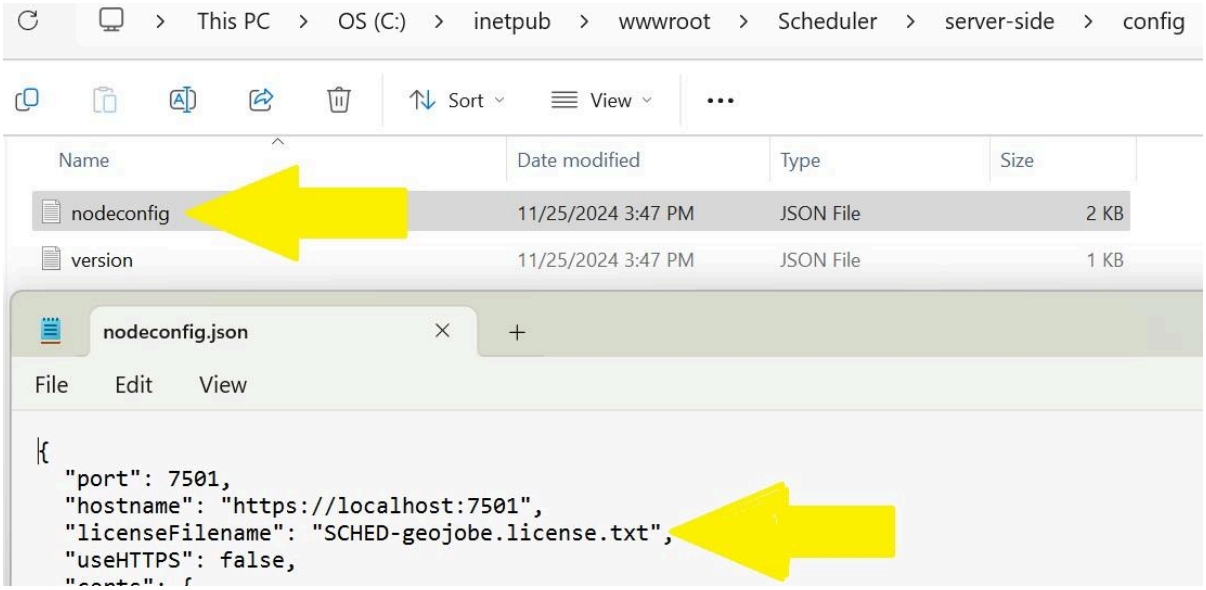
Your license is contained in a file in your main Scheduler/Scheduler Satellite directory called **SCHED-geojobe.license.txt**. Opening this file in a text editor you can see your expiration and connector information. You may also change the name of the license file that Scheduler for ArcGIS is looking for by opening

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

scheduler/server-side/config/nodeconfig.json and changing the **licenseFilename** field.



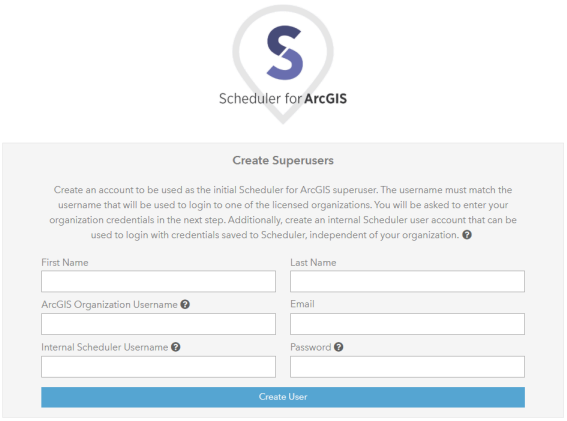
302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



D. Configuring Scheduler for ArcGIS

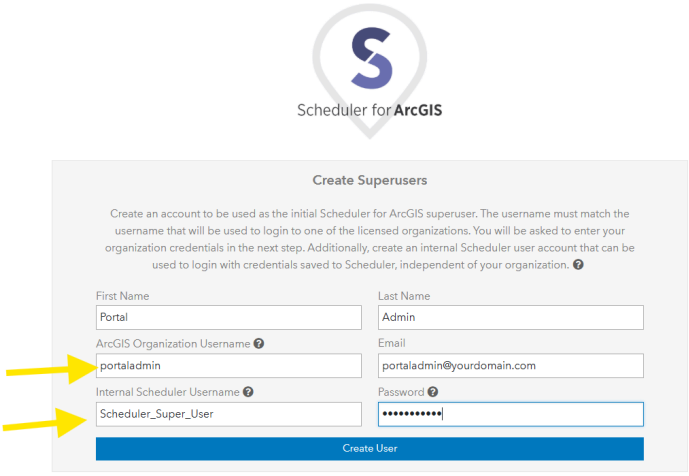
When you open Scheduler for ArcGIS for the first time, you will be taken through several configuration steps. These steps are not necessary when upgrading or replacing a previous version of Scheduler.

1. When the application first loads, you will be asked to create both an organization superuser account and an internal superuser account.

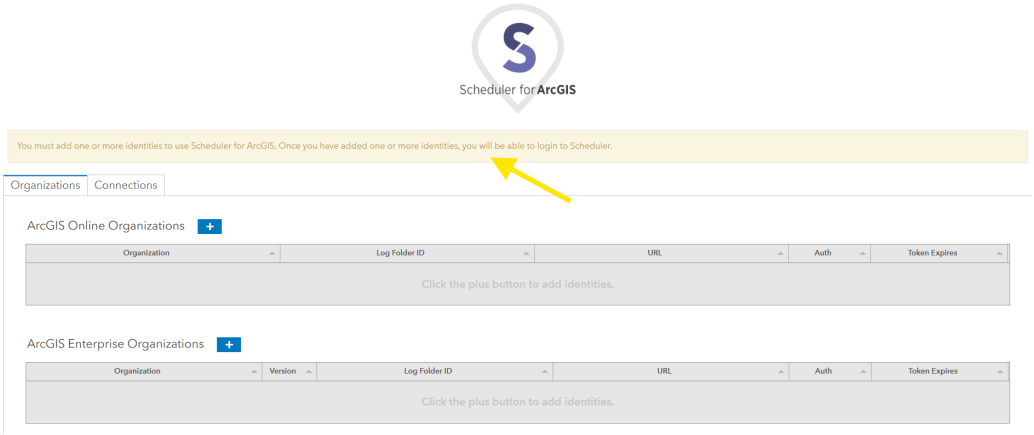


The organization superuser account will login with credentials from one of the ArcGIS organizations licensed for Scheduler. The internal superuser account will login with credentials saved to and encrypted in a MongoDB database and verified by Scheduler and will not interact with the organization to login. This internal superuser account can serve as a backup account in case you are not able to login with your organization credentials. Scheduler must have at least one internal superuser to function and ensure that you won't ever get locked out of the application. Both superuser accounts (and all other superuser accounts) will be able to perform all functions on all licensed identities, so they should belong to someone who is an administrator in the organization.

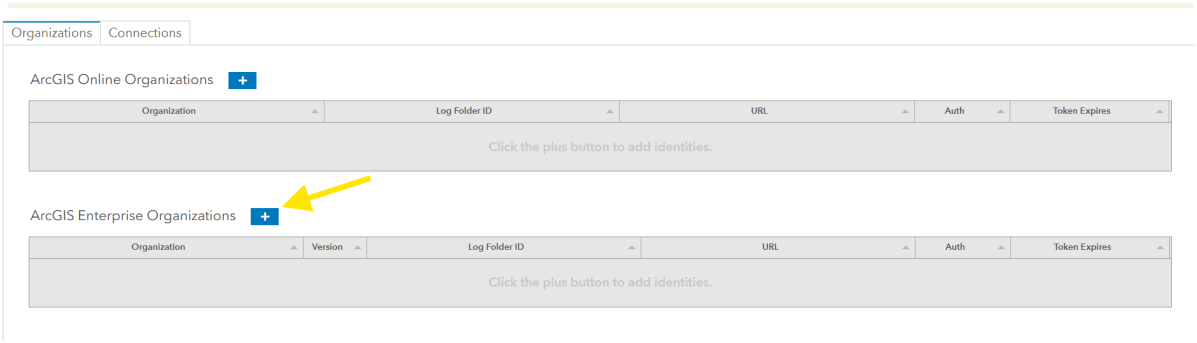
a. For the ArcGIS organization superuser, the username should be the username of whatever organization credentials you're going to be logging in with. For the internal superuser, the username can be whatever you want. We strongly recommend that any superuser be a native admin in their organization. Superusers have the ability to refresh tokens, and some aspects of Scheduler will not work properly if the saved token doesn't belong to an admin.



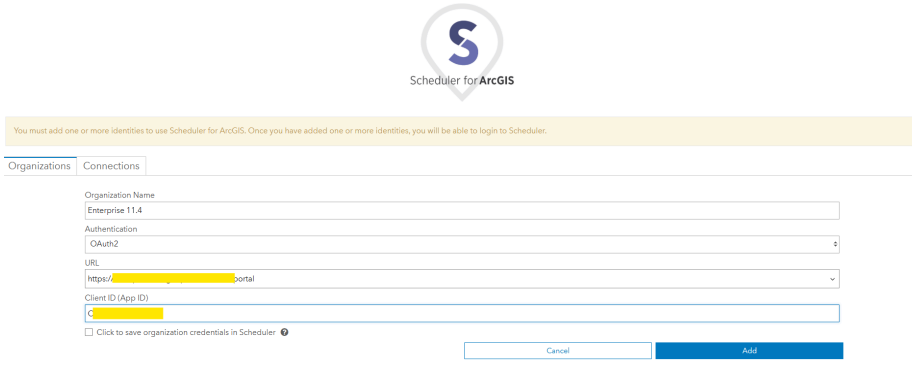
2. Once you've created the initial users, you will be asked to add one or more identities from those that are licensed for Scheduler.



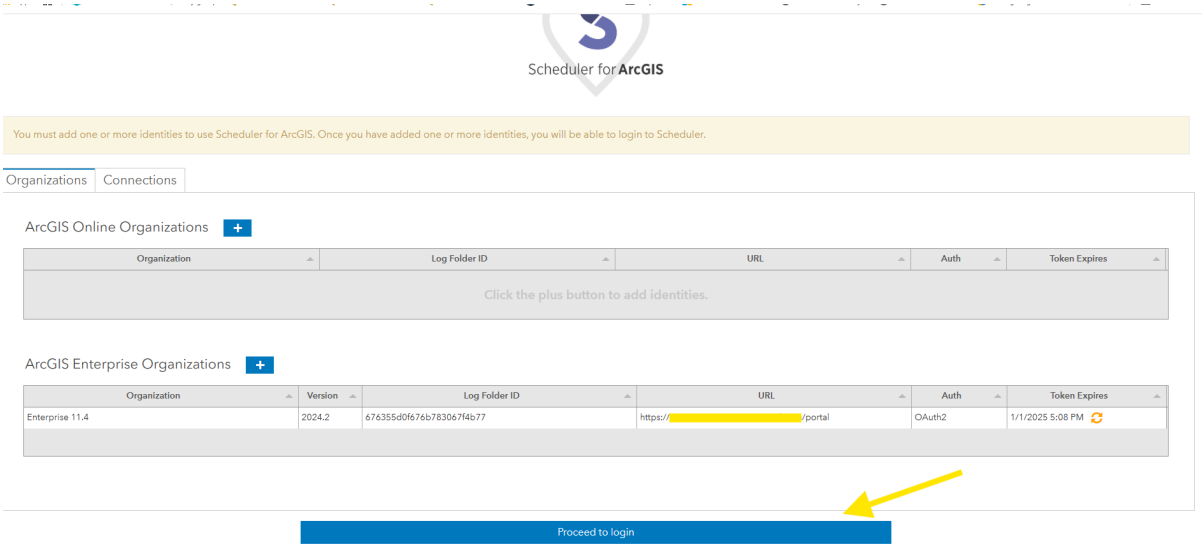
You must add the identity that you are using for the superuser's credentials and can add others as well. You can use Scheduler with both ArcGIS® Online and ArcGIS Enterprise Organizations. When you click the + ADD Button, you will be prompted to enter your organization's name and URL, which is the licensed connector to your ArcGIS organization.



a. If your organization uses OAuth authentication, you will need to enter an app ID/client ID. If your organization uses IWA (Windows Authentication), you will not need an app ID/client ID. For more information on identities, see the Setting Up Identities section below.

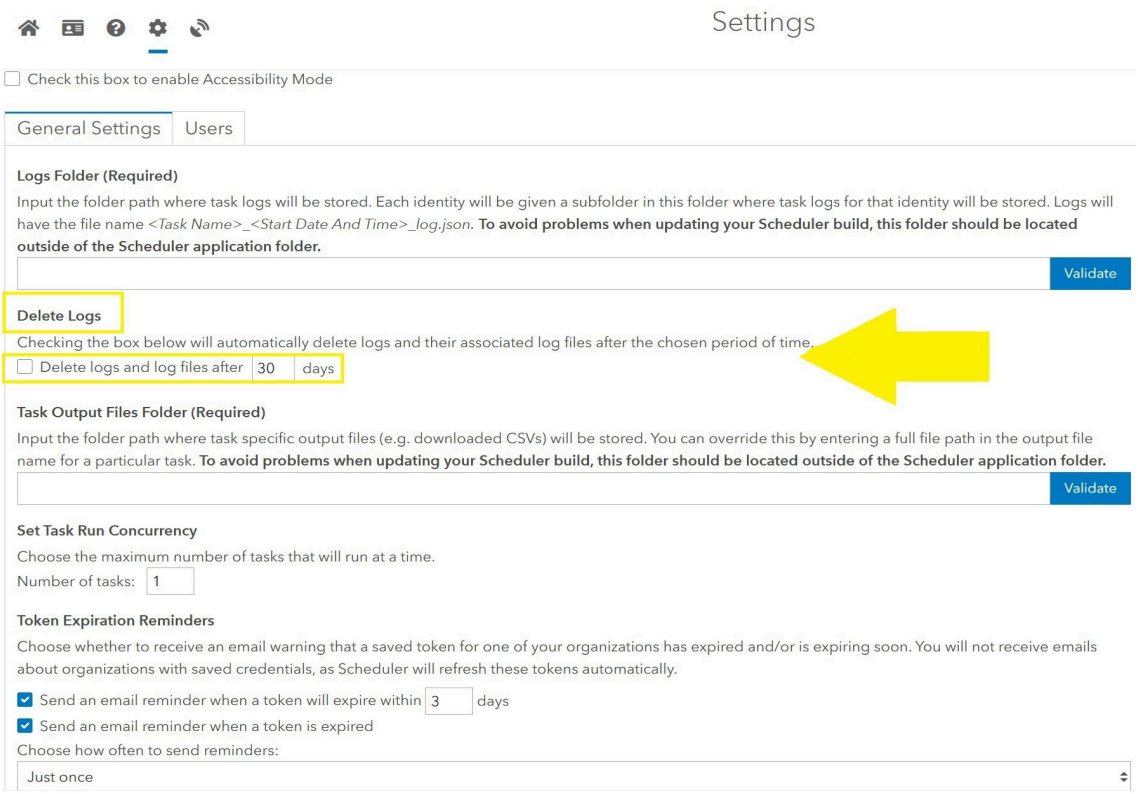


3. After you're done adding identities, click Proceed to Login. Once you arrive at the login page, you should log in with the superuser credentials and identity that were just set up.

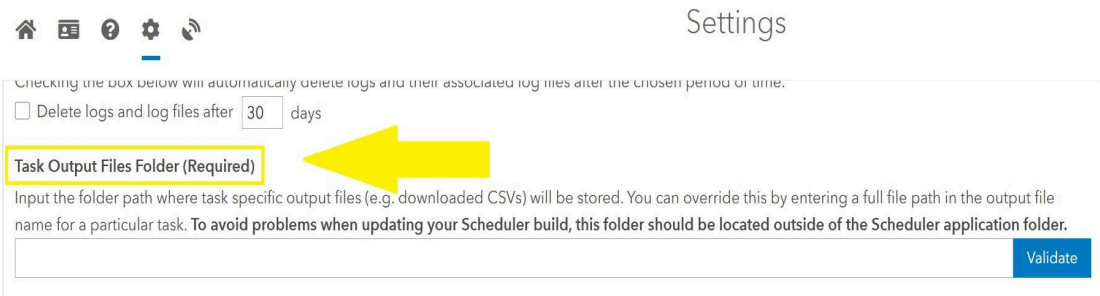


4. Once you're logged in, you should configure the following in Settings. You won't be able to create tasks until you have configured at a minimum the logs folder and task output files folder. For more information on these settings and others, see the Settings section below.

    a. ***REQUIRED*** - The logs folder. This is where the logs that Scheduler generates for each task will be stored. You will have the option to regularly delete these log files after a selected period of time.

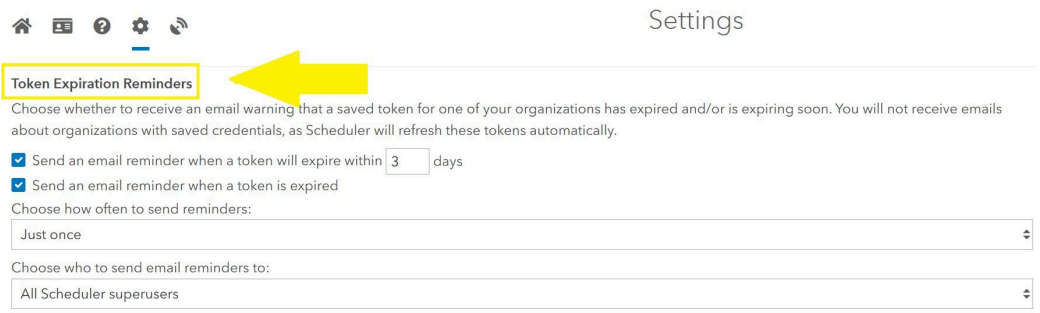


b. ***REQUIRED*** - The task output files folder. This is where files generated by Scheduler tasks will be saved (for example, if your task includes a step that exports content to CSV). Within an individual task, you will also be able to choose a different location for output files.

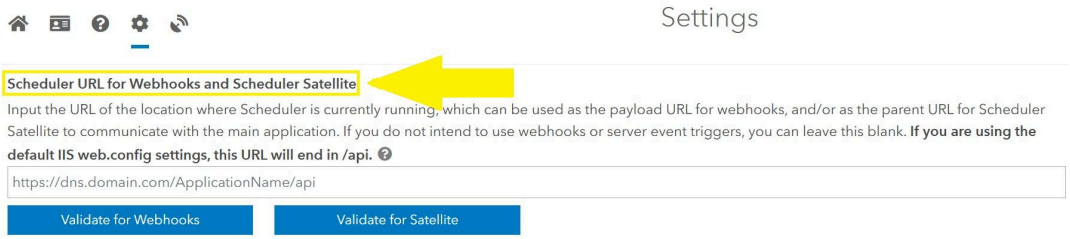


c. ***OPTIONAL*** - Token expiration reminders. In order to perform operations in your organization, you will need to have a current token for that organization saved on the Identities page. Tokens expire after two weeks. If an organization's token is expired, tasks for that organization will not

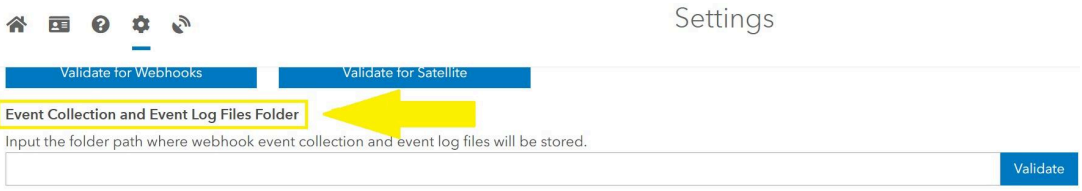
run. If you save credentials with the identity, Scheduler will automatically refresh tokens for you. Otherwise, you will need to do so manually, and Scheduler can send you emails reminding you to do so.



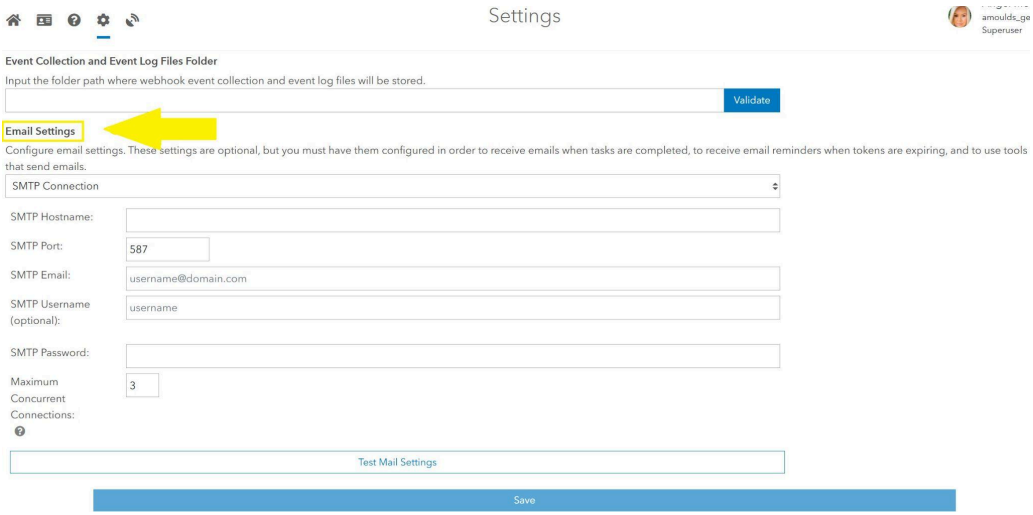
d. ***OPTIONAL*** - The Scheduler URL for Webhooks and Satellite. This is the URL where the Scheduler application is installed so that webhooks and/or Satellites can communicate with it. If you want to use Satellite, the URL needs to be reachable from another machine (i.e. you need either a fully qualified domain name (FQDN) if you have one, or the IP address of the machine). If you want to use webhooks, see the section about requirements for using webhooks. If you do NOT want to use webhooks or Satellite, you don't need to update this setting.



e. ***OPTIONAL*** - Event collections and event logs files folder. This is where event collections and event logs will be stored. This is optional and you can leave it blank if you don't intend to use event collections or event logs.



f. ***OPTIONAL*** - Email settings. This is what will be used for Scheduler to send emails. Enter the information for your SMTP email server, or use the Custom Settings option for additional settings. This is optional but highly recommended, as the ability to send emails to alert people of potential problems is an important use for Scheduler. For more details on setting up email, see below.



5. You are now ready to make tasks and start using Scheduler.

E. Settings

The Settings tab, accessible via the cog icon in the top bar in the upper left of the Scheduler application, contains various configuration options for Scheduler. After initially configuring Scheduler for the first time, when you initially login, you will be directed to the Settings page first. This is because some settings must be configured

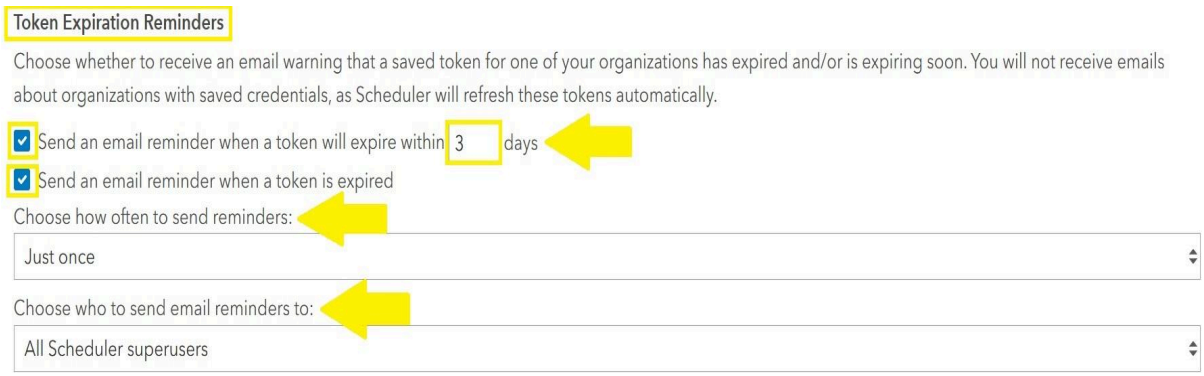
before you can begin using tasks. You can also edit these settings at any time by navigating to this page.

1. General Settings

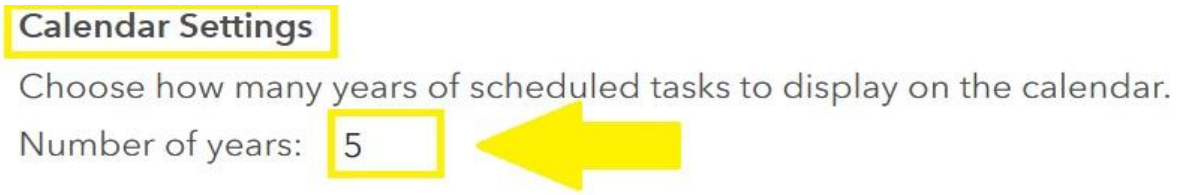
This tab contains general settings, and is visible to all Scheduler users. The settings are described below:

- ***Accessibility Mode*** enables some additional options to make Scheduler more accessible.
- The ***Logs Folder*** indicates where to store the task logs. If you change this option, all current logs will be moved to the new location.
    - **Users shouldn't move logs manually, otherwise, Scheduler won't be able to find them.**
- The ***Delete Logs*** option allows users to choose to automatically delete logs after a certain number of days.
- The ***Task Output Files Folder*** is the default location for files generated by tasks, such as CSVs. For each individual step in a task, a different output file location can be specified by putting in a full file path. Otherwise, entering a file name with no file path will cause the file to be saved to the folder indicated here. Files will also be saved here if the input file path is invalid.
- ***Task Run Concurrency*** indicates the number of tasks that can run at once. In most cases, this should be 1. A robust server may be able to run more than 1 concurrent task; however this should be done with caution as multiple tasks could use a lot of resources or cause Scheduler to run slowly.

- ***Token Expiration Reminders*** gives you the option to have Scheduler send you an email to warn you of organization tokens that have expired and/or are expiring soon. You can choose how often Scheduler will email you, and who the emails will be sent to. You will not receive emails about organizations with saved credentials, as Scheduler will refresh these tokens automatically.



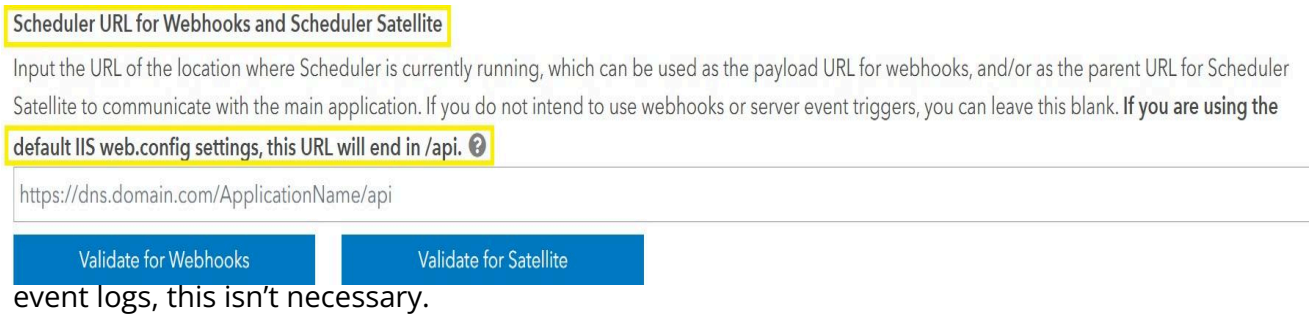
- The ***Calendar Settings*** specify the number of years worth of tasks that are displayed on the calendar, more years means the calendar will take longer to load, depending on how many tasks you have and how frequently you run them.



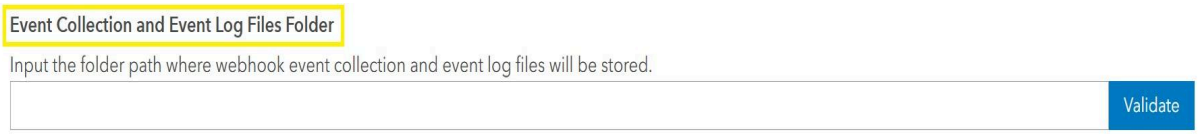
- ***Check for Feature Service Updates Frequency*** applies to tasks that are triggered by feature service updates. This property indicates how often Scheduler will check for feature service updates.

- The default is once per hour. Checking for feature service updates is a relatively resource-intensive process, so if your triggered tasks will be watching many feature services and/or very large feature services, checking too frequently could lead to decreased performance.

- The ***Scheduler URL For Webhooks and Scheduler Satellite*** is the URL where the Scheduler application can be reached from another machine. This will be used for Satellite and it will also be the payload URL for webhooks, but there are different requirements depending on what you want to use it for. For Satellite, this can be any valid URL that is reachable from an outside machine. For webhooks this URL must be a fully qualified domain name (FQDN) that is recognized by the DNS (it should not contain the web adaptor or an IP address), it must be HTTPS, and the hosting server where Scheduler is installed must have a valid certificate that is not self-signed, per Esri's current requirements.
- [Esri's current requirements]
    - To validate the payload URL for Enterprise, a test organization webhook will be created and then deleted in one of the Enterprise organizations to ensure that the URL is valid and able to receive the message from the webhook. To validate the payload URL for ArcGIS Online, the URL will be tested to ensure that it is reachable. If you don't intend to use webhooks or Satellite, this property isn't necessary.



- event logs, this isn't necessary.



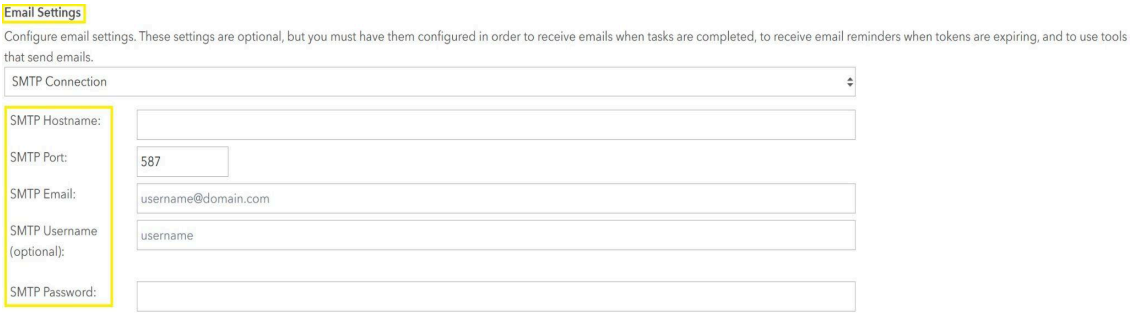
- ***Email Settings*** are described in greater detail below.

2. Setting Up Mail Capabilities

Email settings can be found at the bottom of the General Settings tab. Setting up email isn't required to use Scheduler or run tasks, but it is necessary if you want to be able to receive emails from tasks, reports on whether tasks succeeded or failed, and reminders to refresh tokens for your identities.

There are two options for mail types that can be configured:

- ***SMTP***
    - Standard SMTP options are available in this section, including host, port, username, and password. If there is a configuration that is not supported here, the Custom Settings can be used instead.



- ***Custom***
    - Scheduler uses Nodemailer for its mail system, so any transport configuration that works in Nodemailer can be entered here. The format

for this section is JSON, and you can get a list of options at https://nodemailer.com/smtp/#examples.

If you are using a credential-less internal email server without authentication, use the following format under the Custom Settings section, below:

```
C/C++

{
  "host": "yourhostinfo",
  "port": 25,
  "tls": { "rejectUnauthorized": false}
}
```

Additional Settings:
Maximum Concurrent Connections: Different email services have rules about the number of concurrent connections that can be made at one time. If you are unsure of the correct value, consult the documentation for the email service you wish to use.

Test Mail Settings
To test your connection settings, you can use the Test Mail Settings button to check if your connection settings are valid. You will see a modal with a response message (testing mail settings will not actually send an email).

3. Users

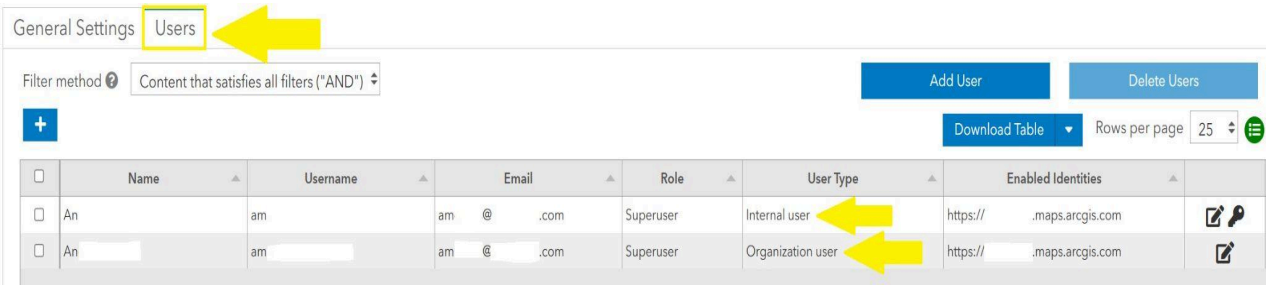
For a person to use Scheduler, they must be added as a Scheduler user. Organization users in Scheduler can login with the credentials from their ArcGIS organization if that organization has been added as an identity, but the fact that someone is a user in an ArcGIS organization that is added as a Scheduler identity does *not* automatically mean that they will be able to use Scheduler; they must be added in the Users tab. The Users tab is only visible to Scheduler superusers, and allows you to create, edit and delete Scheduler users. Scheduler has several options for configuring users, including different login types, different roles and different permitted organizations that users can interact with.

Adding and Updating Users

Superusers can add and update users with the Add / Update Users button. You can choose to add a single user, or to bulk add or update users from a CSV. When uploading a CSV, users whose username already exists in Scheduler will be updated, while users not already present will be added. For users who are administrators, you can bulk add and remove permissions for organizations and connections using the Add Identities and Remove Identities buttons.

User Types

Scheduler has two user types: **organization users** and **internal Scheduler users**. These user types are not related to user types in ArcGIS.



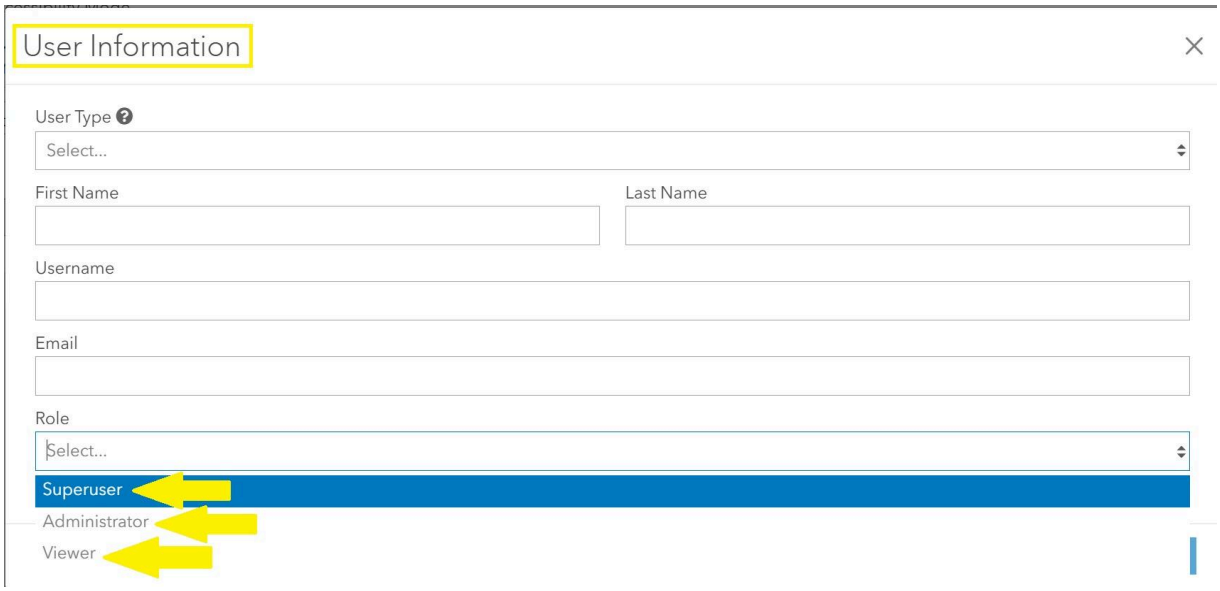
- ***Organization users*** are users with accounts in one or more of your ArcGIS organizations licensed for Scheduler. Organization users login to Scheduler by

using either Esri's OAuth2 authentication or Integrated Windows Authentication (IWA) to login to their organization, depending on the authentication type configured for that organization. Thus, an organization user's username in Scheduler should match their ArcGIS username in the organization they are using to login. When an organization user logs in, if they are a native admin in the ArcGIS organization, their token is saved to Scheduler's database, with the token encrypted and used to run tasks, create and view webhooks, and perform other functions. If they are not a native organization admin, their token will not be saved, because a native admin's token is necessary to perform many of Scheduler's operations. However, they will still be able to use the native admin token that is stored with Scheduler's identities if they are a superuser or administrator role (see ***User Roles*** below).

- ***Internal Scheduler Users*** are users who do not have credentials in one of your ArcGIS organizations (i.e. a supervisor running reports, but who doesn't need to access the ArcGIS Organization itself). These users login with a unique set of credentials that are saved and encrypted in a MongoDB database and validated by Scheduler. Internal users do not interact with your organization to login.

User Roles

Scheduler has three roles: **Superuser**, **Administrator**, and **Viewer**. These roles are not related to user roles in ArcGIS.



- ***Superusers*** can perform all activities, including creating, editing, and deleting users, identities, and connections. Superusers can also access and use all identities licensed for Scheduler. Scheduler must have at least one organization superuser and one internal superuser. When you open Scheduler for the first time, you will be required to create both an organization and an internal superuser, who will then be able to create other users. Only people who are administrators in the organizations licensed for Scheduler should be superusers.
- ***Administrators*** can create and run tasks, create and use webhooks, event collections and event logs, and manage services, but they cannot create or manage users, identities or Satellites. Additionally, you can grant administrators access to only certain organizations and connections that you have licensed for Scheduler. In this case, administrators will only be able to create, edit, and use tasks, webhooks, event collections, event logs and services for the permitted organizations and connections. For example, you may want to give someone access to use Scheduler within your development environment, but not your production environment. This will give you greater control over what users can do in Scheduler, allowing you to add more users without worrying that a user from one organization will interfere with tasks in another.

- ***Viewers*** can see tasks, webhooks, event collections,event logs, services, and Satellites, but cannot create, update, use, or delete them. Most buttons will be disabled for viewers. Junior level members of your organization or people outside your organization would be good candidates to be viewers.

Scheduler is a powerful tool that can reach deep into your organization and allow you to interact with content, services, server machines, and other components. Because of this, GEO Jobe highly recommends that only native admins in your ArcGIS organization be permitted to use Scheduler as superusers or administrators. If you want someone who is not a native admin to be able to use Scheduler, GEO Jobe highly recommends making them a viewer.

Table: Scheduler Roles and Permissions:

Action	Role		
	Superuser	**Admin**	**Viewer**
Login with org credentials	Yes	Yes for permitted identities, but not recommended	No
View tasks	Yes	Yes	Yes
Add custom task	Yes	Yes for permitted identities	No
Add template task	Yes	Yes for permitted identities	No
Enable task	Yes	Yes for permitted identities	No
Disable task	Yes	Yes for permitted identities	No
Transfer task	Yes, as long as the target user has permission to use all of the tasks' identities	Yes, as long as both the Scheduler user and the target user have permission to use all of the tasks' identities	No
Delete task	Yes	Yes for permitted identities	No
Run task	Yes	Yes for permitted identities (if a task has	No

Action	Role		
	Superuser	Admin	Viewer
		more than one identity it will run it only for the permitted ones)	
Edit task	Yes	Yes for permitted identities	No
View logs	Yes	Yes	Yes
Delete logs	Yes	Yes for permitted identities	No
View check flags	Yes	Yes	Yes
Add check flag	Yes	Yes for permitted identities	No
Update check flag	Yes	Yes for permitted identities	No
Delete check flag	Yes	Yes for permitted identities	No
View schedule adjustments on the calendar	Yes	Yes	Yes
Add or remove schedule adjustments on the calendar	Yes	Yes for permitted identities	No
View services	Yes	Yes	Yes
Start service	Yes	Yes for permitted connections	No
Stop service	Yes	Yes for permitted connections	No
View individual service info	Yes	Yes	Yes
Edit service	Yes	Yes for permitted connections	No
View service database tables	Yes	Yes	Yes
Add service database table	Yes	Yes	No
Update service database table	Yes	Yes	No
Delete service database table	Yes	Yes	No
View service workspaces	Yes	Yes	Yes
View webhooks	Yes	Yes	Yes
Create webhook	Yes	Yes for permitted identities	No
Delete webhook	Yes	Yes for permitted identities	No
Update webhook	Yes	Yes for permitted identities	No
Update payload URL	Yes	Yes for permitted identities	No

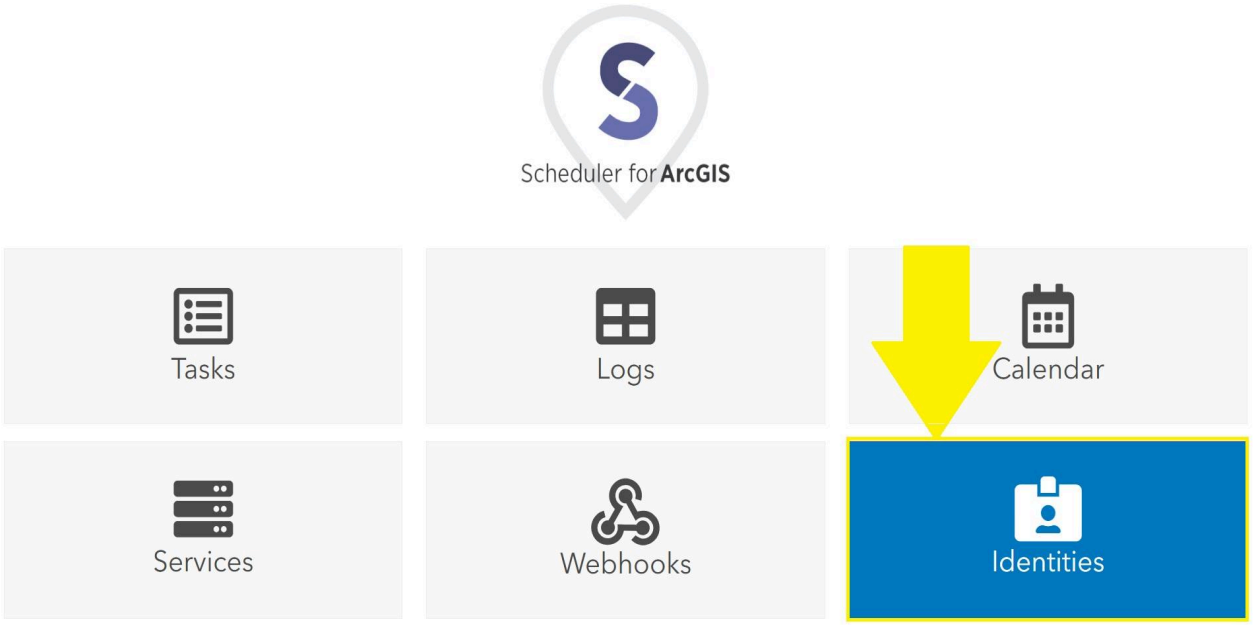
302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

Action	Role		
	Superuser	Admin	Viewer
Activate webhook	Yes	Yes for permitted identities	No
Deactivate webhook	Yes	Yes for permitted identities	No
Export webhook	Yes	Yes	Yes
Import webhook	Yes	Yes for permitted identities	No
View event collections	Yes	Yes	Yes
Create event collection	Yes	Yes, with webhooks for permitted identities	No
Update event collection	Yes	Yes, if all of the webhooks are for permitted identities	No
Delete event collection	Yes	Yes, if all of the webhooks are for permitted identities	No
View event logs	Yes	Yes	Yes
Create event log	Yes	Yes, with webhooks for permitted identities	No
Update event log	Yes	Yes, if all of the webhooks are for permitted identities	No
Delete event log	Yes	Yes, if all of the webhooks are for permitted identities	No
View organizations	Yes	Yes	Yes
Add organization	Yes	No	No
Update organization	Yes	No	No
Refresh organization token	Yes	Yes for permitted identities	No
Delete organization	Yes	No	No
View connections	Yes	Yes	Yes
Add connection	Yes	No	No
Update connection	Yes	No	No
Delete connection	Yes	No	No
View server logs	Yes	Yes	Yes
View users	Yes	Yes	No
Add user	Yes	No	No
Update user	Yes	No	No
Delete user	Yes	No	No
View Satellites	Yes	Yes	Yes

Action	Role		
	Superuser	Admin	Viewer
Add Satellite	Yes	No	No
Delete Satellite	Yes	No	No
Update Satellite	Yes	No	No
View server event collections	Yes	Yes	Yes
Create server event collection	Yes	Yes for permitted connections	No
Delete server event collection	Yes	Yes for permitted connections	No
Update server event collection	Yes	Yes for permitted connections	No
View Settings	Yes	Yes	Yes
Update Settings	Yes	No	No

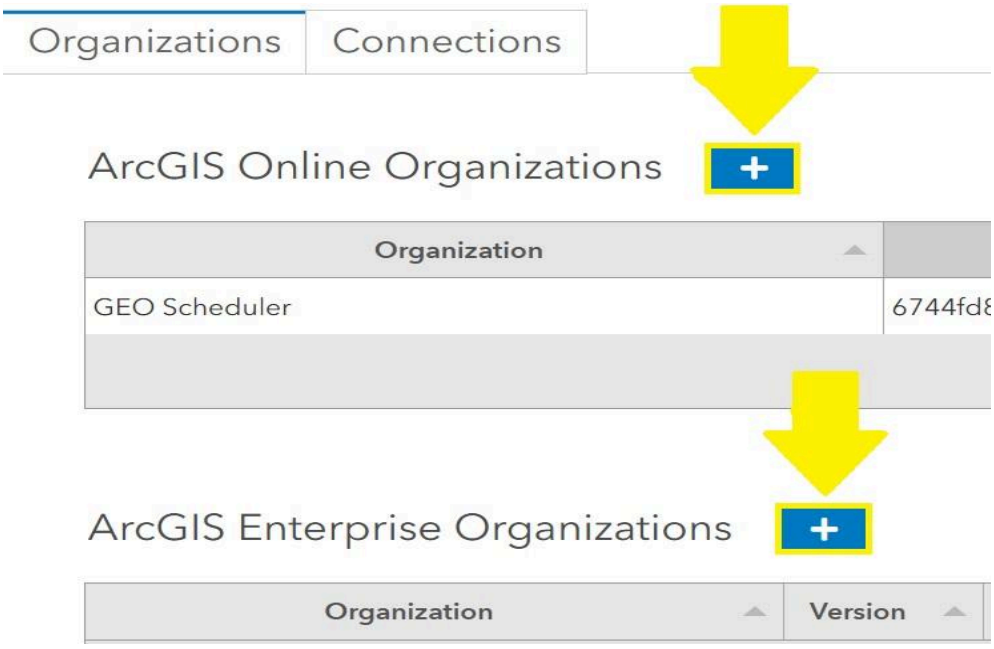
F. Setting Up Identities

The ***identities page*** allows you to set up your ArcGIS Online and ArcGIS Enterprise organizations, and also to edit them, delete them, and refresh their tokens. You can also create, update and delete connections to ArcGIS Server, ArcGIS Monitor and databases. You can use Scheduler with all of the organizations that are included in your license, which you can view in the License tab. You can also use Scheduler with unlimited ArcGIS Server, ArcGIS Monitor and database connections.



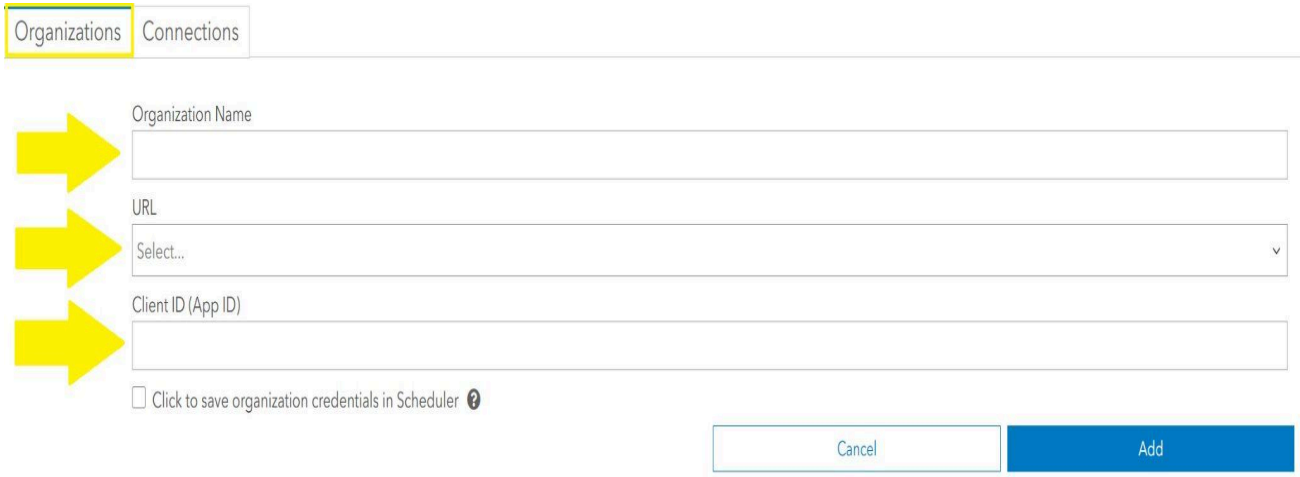
1. Organizations

You can add an organization by clicking on the blue + next to the appropriate organization type.

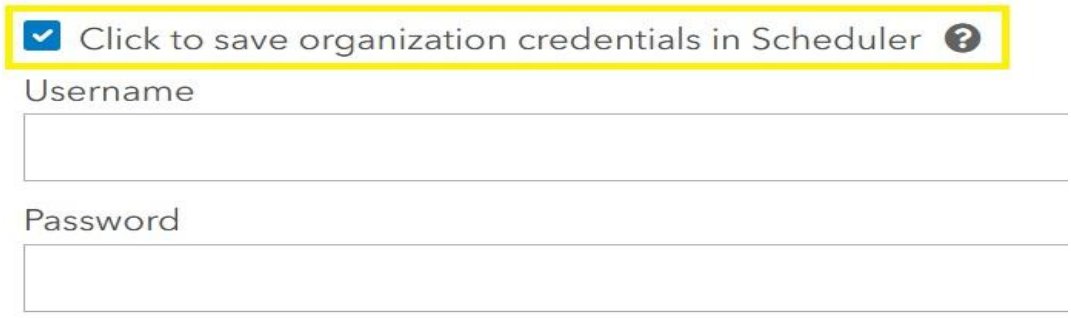


Enter an organization name, which can be any name you want. If you have a Standard license, select one of the licensed organizations from the dropdown. If you have a Site License, manually type or copy/paste the organization URL in the box. If your organization uses OAuth2 for authentication, enter a Client ID (App ID).

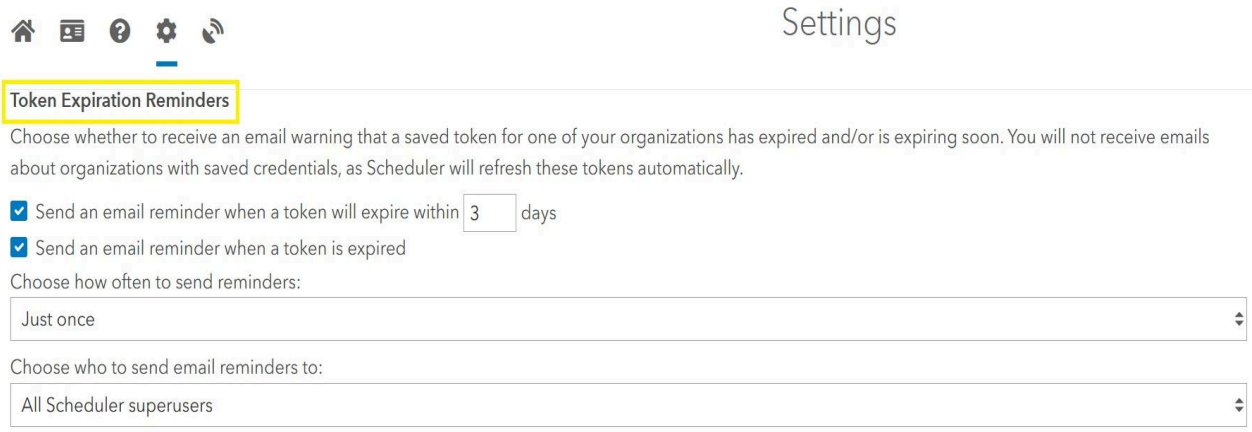
To obtain an App or Client ID, follow our instructions for **creating an App or Client ID for your ArcGIS organization**. If you have never created an application item for a GEO Jobe product, follow the instructions all the way through. If you have an existing application item that you have used for other GEO Jobe products, go to that application and skip to ***Step 5*** to add the Scheduler application to the Redirect URLs. If your organization utilizes IWA Authentication you do not need a Client ID (App ID).



Optionally, you can choose to save organization credentials to Scheduler.



This will allow Scheduler to refresh tokens automatically so you will not have to remember to do so. If you choose this option, the username and password will be saved in the Scheduler database, with the password encrypted. If you choose not to save credentials, you will need to remember to refresh tokens every two weeks (by default, if you have email set up, Scheduler will send email reminders to do this, which you can configure in Settings).



When you click Add, you will be asked to login to your organization. If the login screen does not load properly, you may need to add the URL of the Scheduler application to the Redirect URLs section of the App or Client ID application in your organization (see above). Once you successfully login, the identity will be added and you will be able to see when its token expires. You can refresh a token with the orange button next to the expiration date.

a. ***Organization Tokens***

To interact with organizations, Scheduler requires a valid token for that organization. Organization tokens expire after 14 days. The Identities card on the home page will show an error or warning if a token is expired or expiring soon,

and an error or warning will also appear next to the identity on the Identities page. Scheduler tokens are generated in three ways:

1. When an organization user logs in with their credentials, their token will be saved to that identity *if they are a native org admin.*
2. Superusers can generate a new token by clicking the "Refresh token" button and entering their organization credentials.
3. If you have selected to save the identity's credentials, Scheduler will automatically refresh the tokens before they expire.

GEO Jobe highly recommends that only native organization admins save their tokens to Scheduler by clicking the Refresh token button. Scheduler will not save a user's token when logging in if they are not a native admin. If the token saved to an identity does not belong to a native admin, some functionality may fail or behave unexpectedly. A warning will appear at the top of every page if a token saved to Scheduler does not belong to a native admin. If this occurs, a native admin should replace the token with their own by refreshing the token for the organization in question.

2. Connections

The Connections tab manages connections to additional components of an ArcGIS environment, including ArcGIS Server machines, SQL Server databases, and ArcGIS Monitor instances.

For ArcGIS Server machines, you can add the machine as either a federated server or a standalone server. If the server is federated to one of the organizations

in the Organizations tab, you can choose to use that organization's credentials. If your server is not federated or you don't want to use the organization's credentials, or if you are connecting to a SQL Server database or ArcGIS Monitor instance, you will need to input the credentials manually. Credentials will be saved to the Scheduler database with the password encrypted. For ArcGIS Server machine connections, you can also configure Scheduler Satellite (see below). Once you have done so, you will be able to view the server logs for that machine with the "*View server logs*" button.

G. Configuring Scheduler Satellite

Scheduler Satellite is an additional, optional application that can be used to access local files that cannot be accessed remotely. Satellite works by reading local files, storing the information in a more manageable format in MongoDB, and then sending that data back to the parent application. Satellite is included as a zip file in the main Scheduler build and can be installed on multiple other machines. Satellite is needed to do the following:

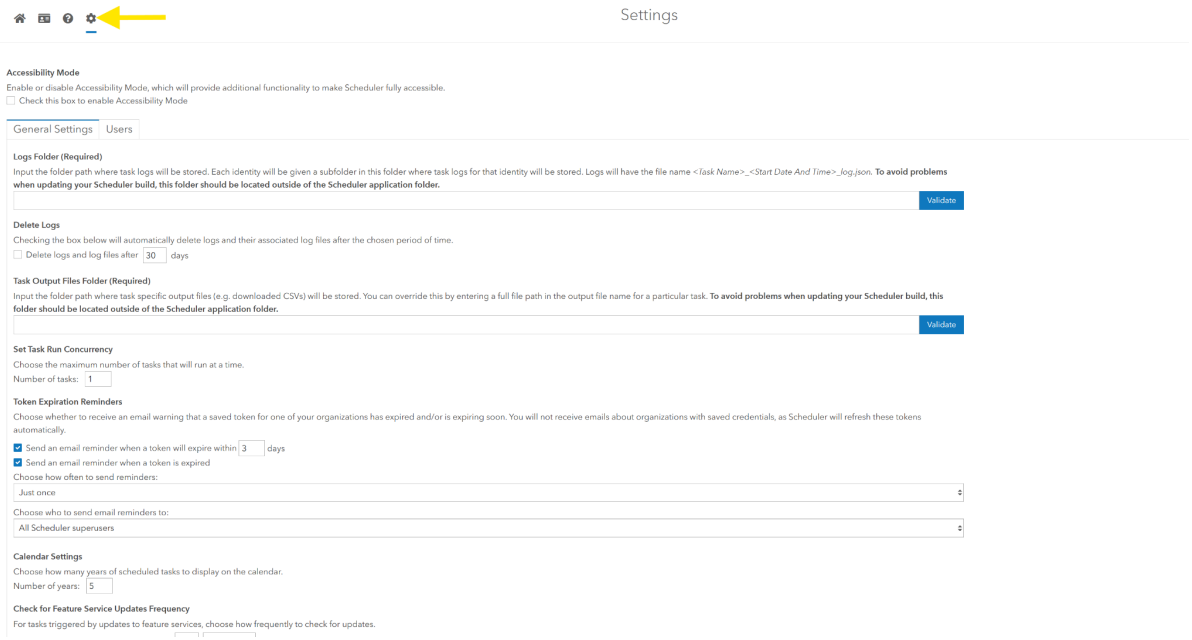
- View the server logs in the Server Logs Viewer (see the Scheduler Satellite and Server Logs section of this document for more information).
- Trigger tasks based on events in the server logs (see the Server and Database-Event Driven Tasks subsection of the Tasks section of this document for more information).

If you don't want to perform any of the above functions, Satellite is not necessary. If you do want to use Satellite, it should be installed (along with MongoDB) and run as a service in the same way as the main application, on any machine where you want to access local files to use in Scheduler (for example, an ArcGIS Server machine). Satellite does not have its own interface; everything is managed via the parent application. Like the main Scheduler application, Satellite can be run on localhost, but will need to be accessible from the parent application, via an IP address or configuration in IIS. You can

install Satellite on multiple machines, but each machine should only have one Satellite installed. Installations of Satellite on different machines do not interact with each other.

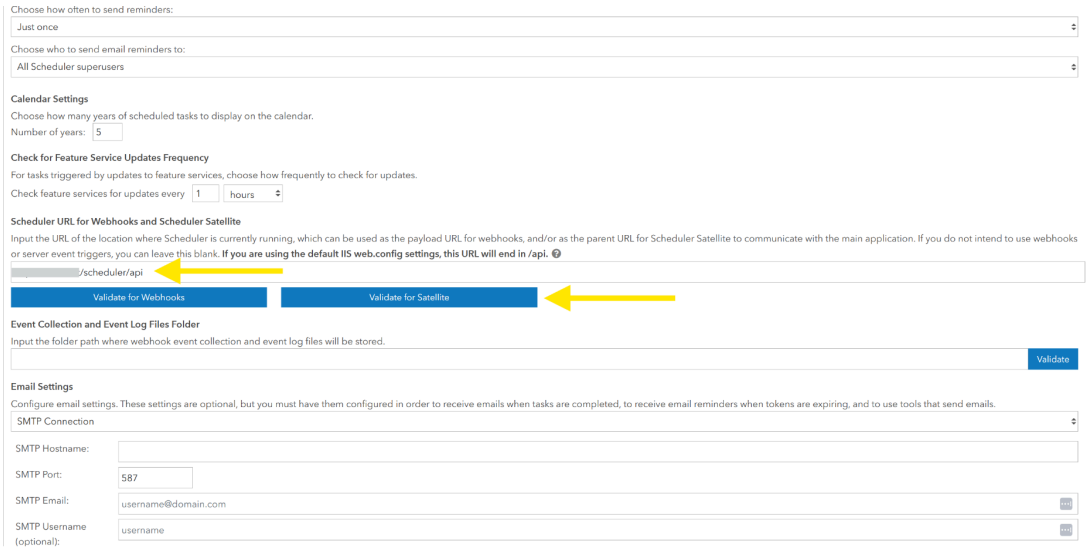
Once you have Satellite running, do the following in the parent Scheduler application:

a. Go to the Settings page, accessible via the settings cog in the top bar.



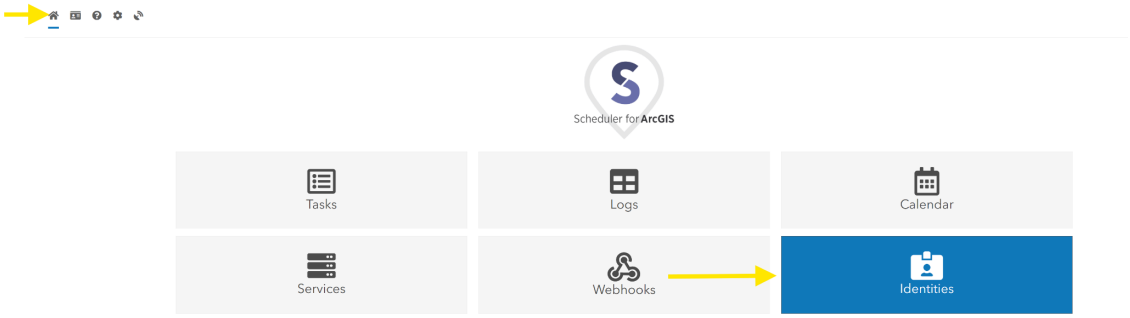
b. If it is not already set, configure the Scheduler URL for Webhooks and Scheduler Satellite. Input the URL where the main Scheduler application is installed, which should be accessible externally. This is the URL that Satellite will use to send information to the parent application. Test the URL and, if it is valid, save the

settings.



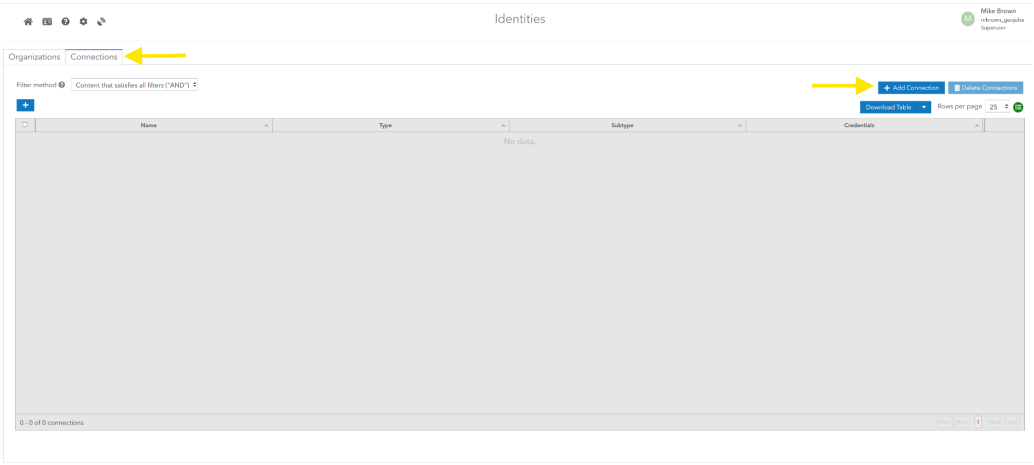
c. If it is not already set up, configure the Connections by the following process

   i. Go to the Home page, and choose Identities

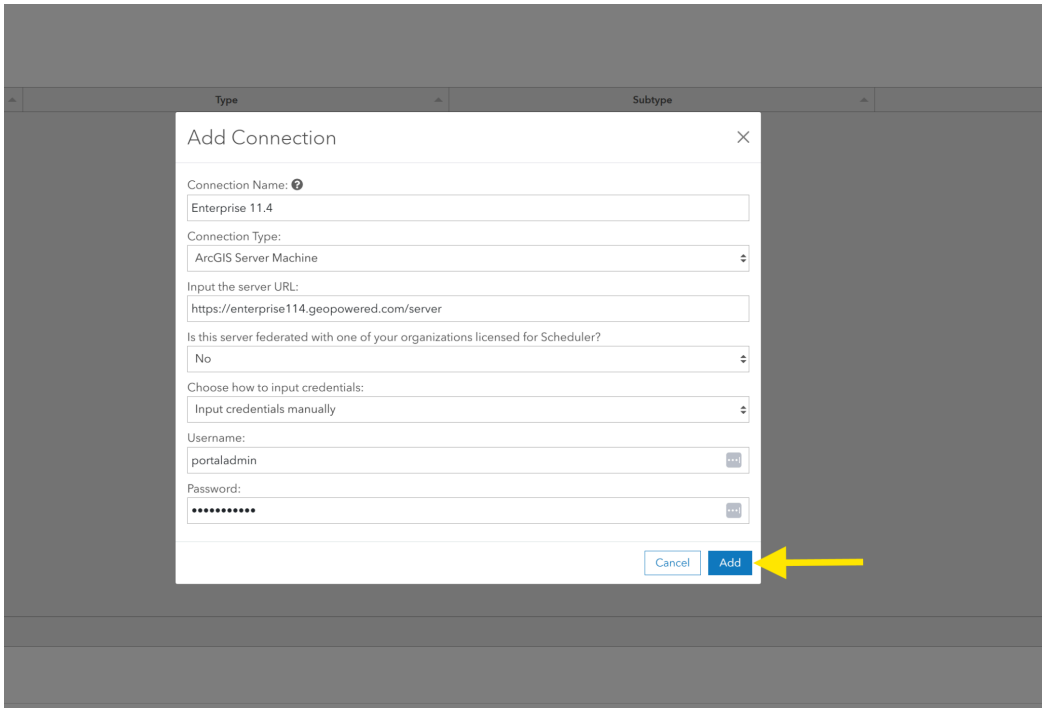


302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

ii. Choose the Connections Tab, then Add Connection

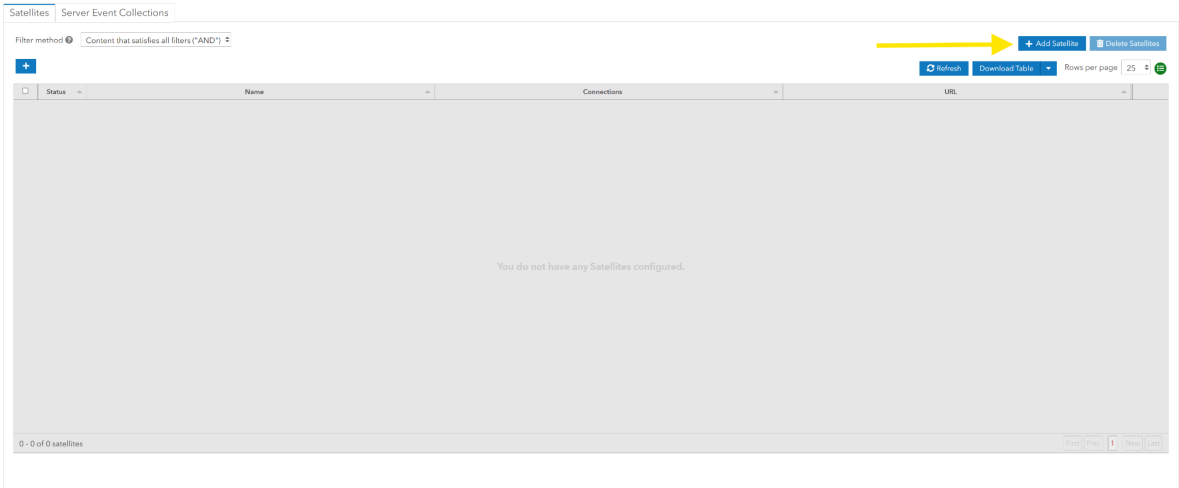


iii. Enter the required information. See the Connections section for more information about all of the possible data to enter here. Click Add



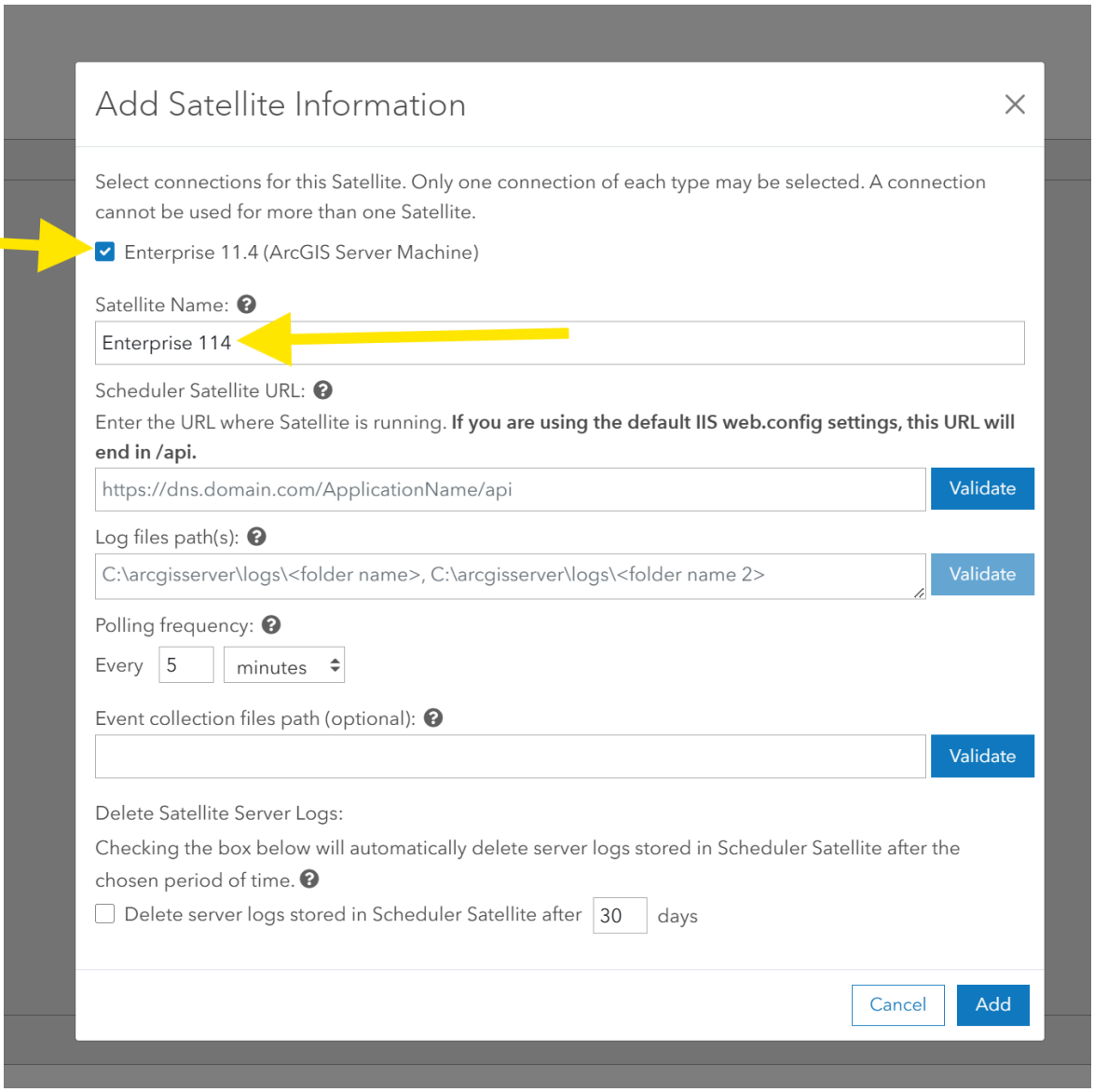
d. Go to the Satellites page, accessible via the satellite icon in the top bar next to the settings icon.

e. Click Add Satellite.

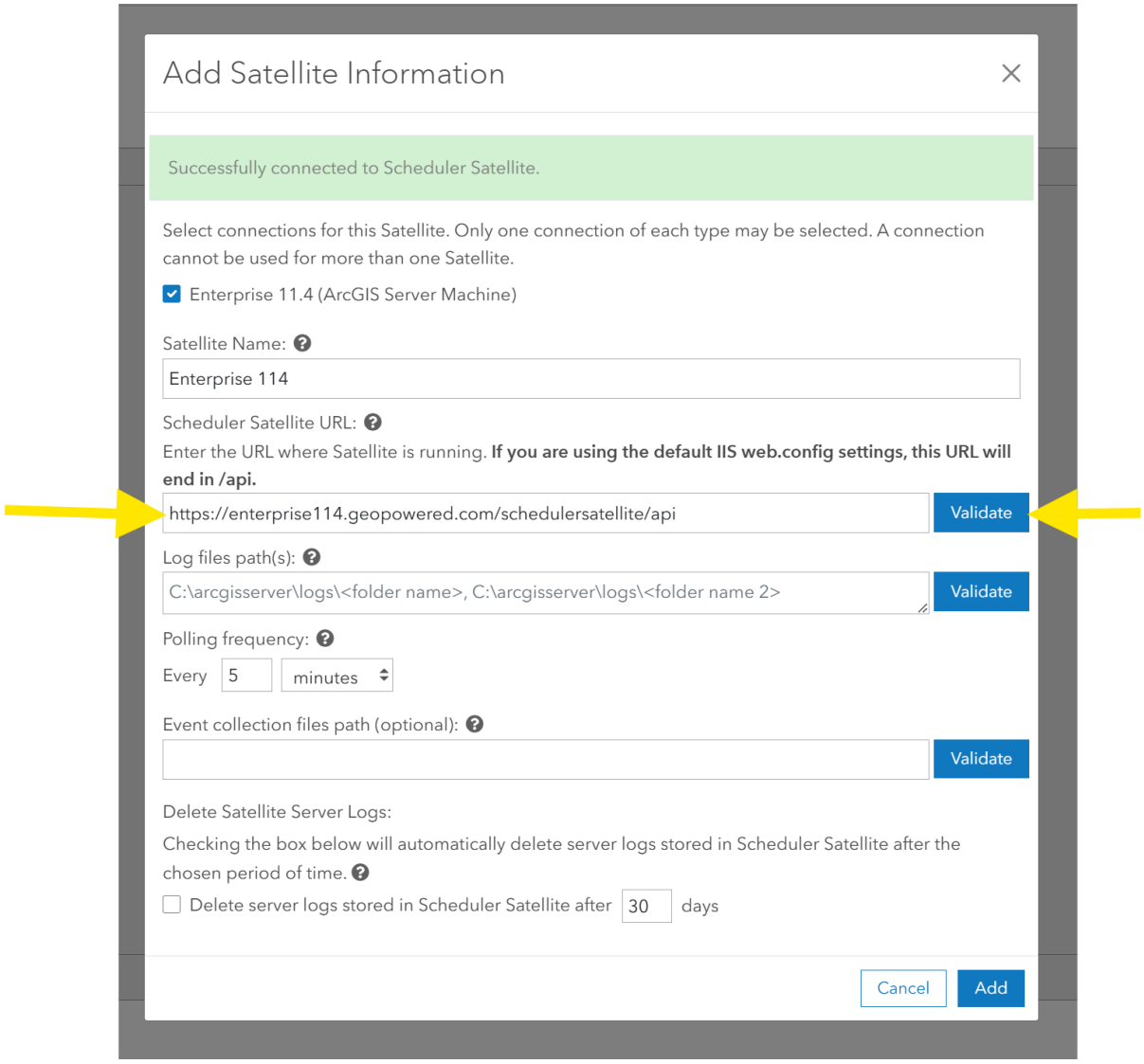


f. Select a connection to use the Satellite with. You can only have one connection of each type per Satellite. If you want to use Satellite with multiple servers, you will need one Satellite per server. Currently, only ArcGIS Server machines are supported.

g. Enter a name for the Satellite. This can be whatever you want.

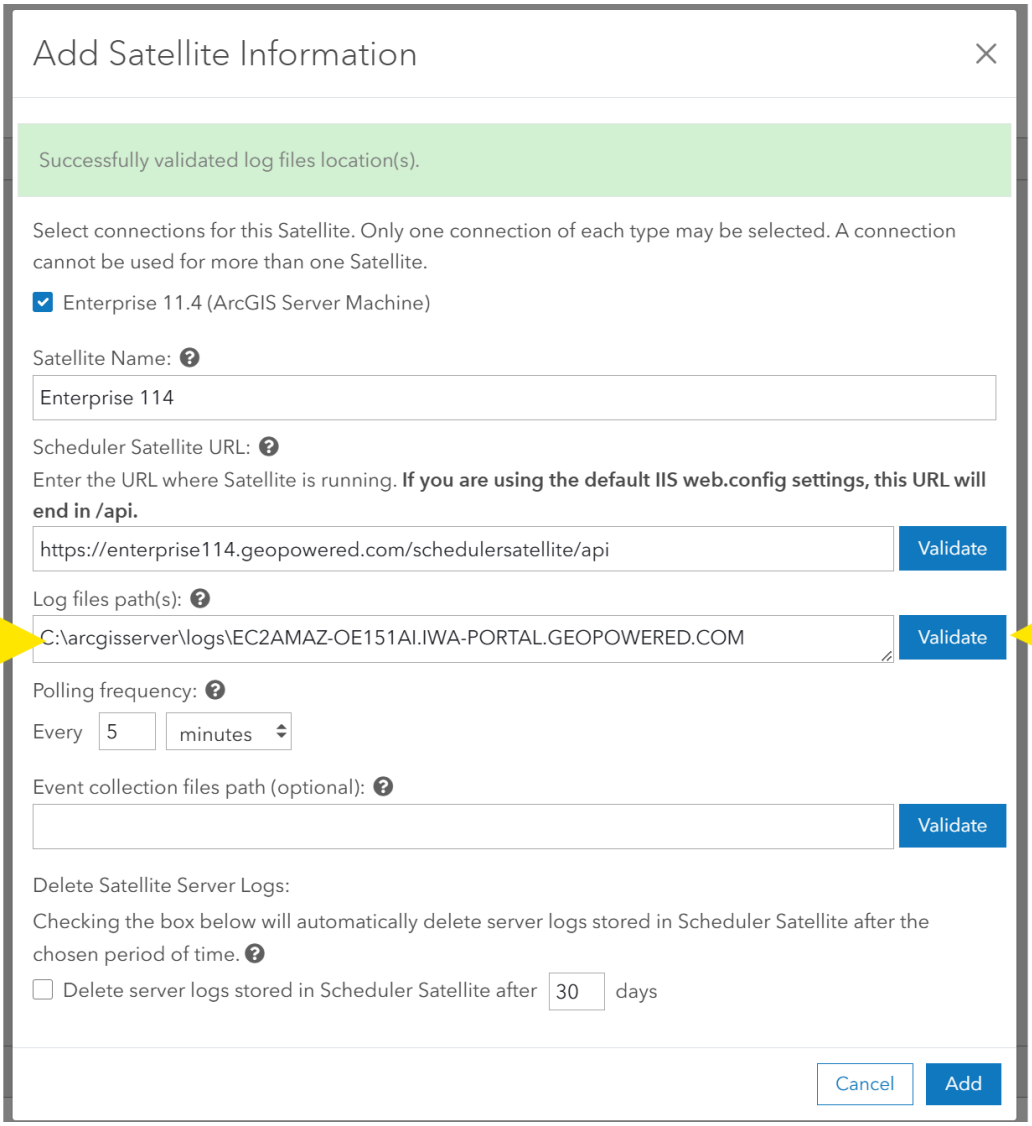


h. Enter the Satellite URL. This is the externally accessible URL where Satellite is running. Click Validate.



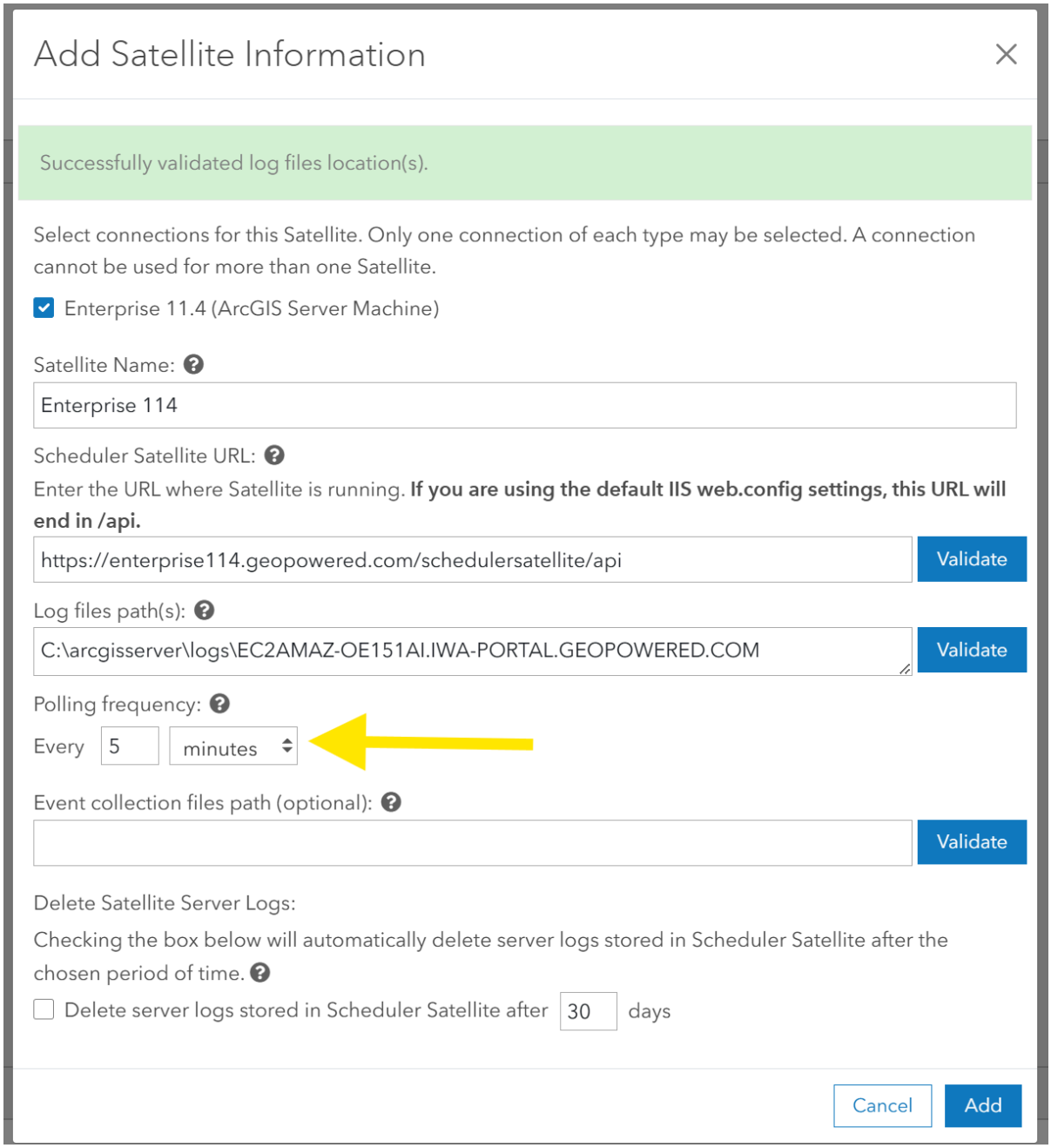
i. Enter the log files path. The server logs can be found in the logs folder of your ArcGIS Server installation, for example, **C:\arcgisserver\logs**. The exact location will depend on where you have installed ArcGIS Server. Within the logs folder, there will be one or more folders. Include the full path(s) for one or more of these folders in the log files path property, separated by commas. Do not include the /server, /services, or /errorreports subfolders in the file path, as Satellite will

automatically search those folders. Click Validate.



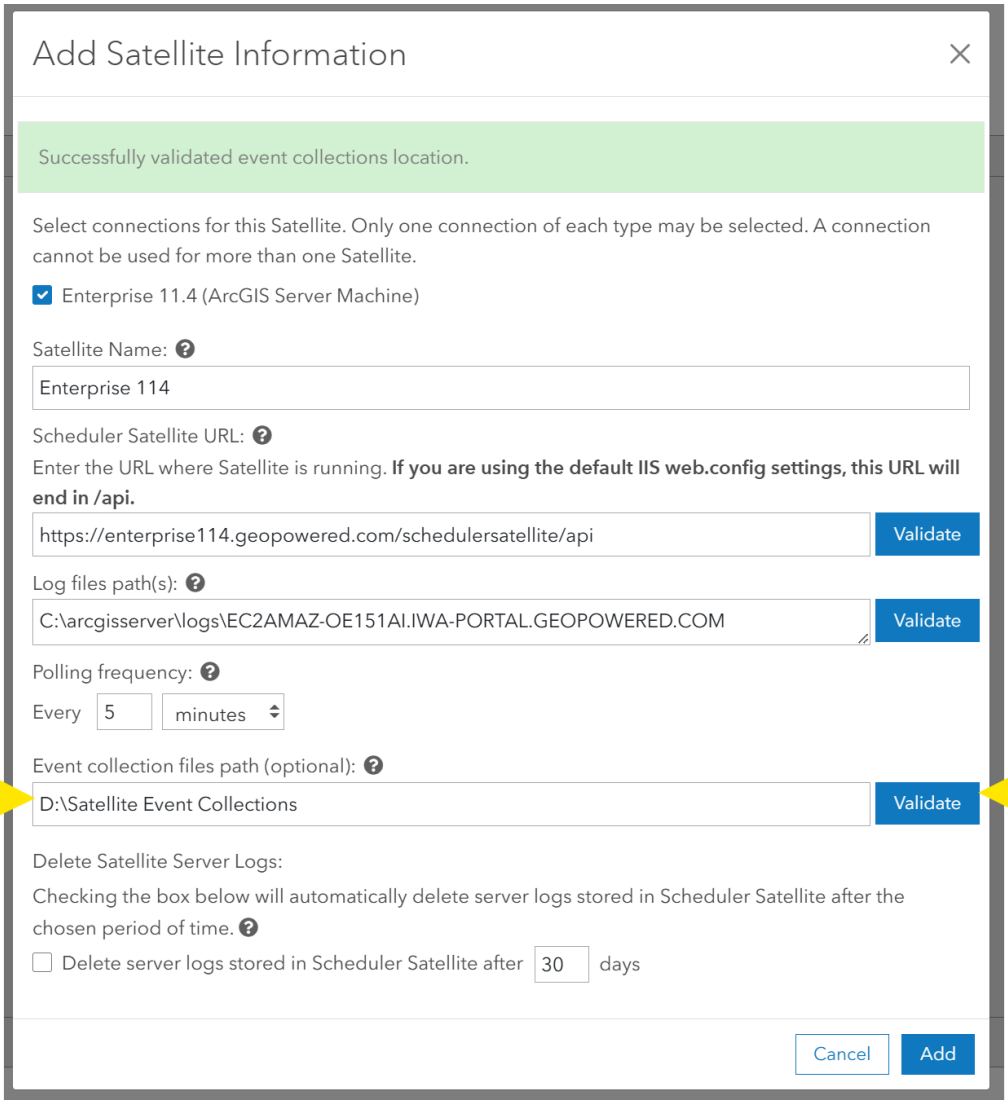
j. Choose a polling frequency. This determines how often Satellite will consume the server log files and transfer them to MongoDB, and it is also how often Satellite will check for server logs to trigger tasks. More frequent polling will allow tasks to respond more quickly to events on your server, but it will also consume more resources. The Server Logs Viewer always pulls the latest logs and so will always

be up to date.



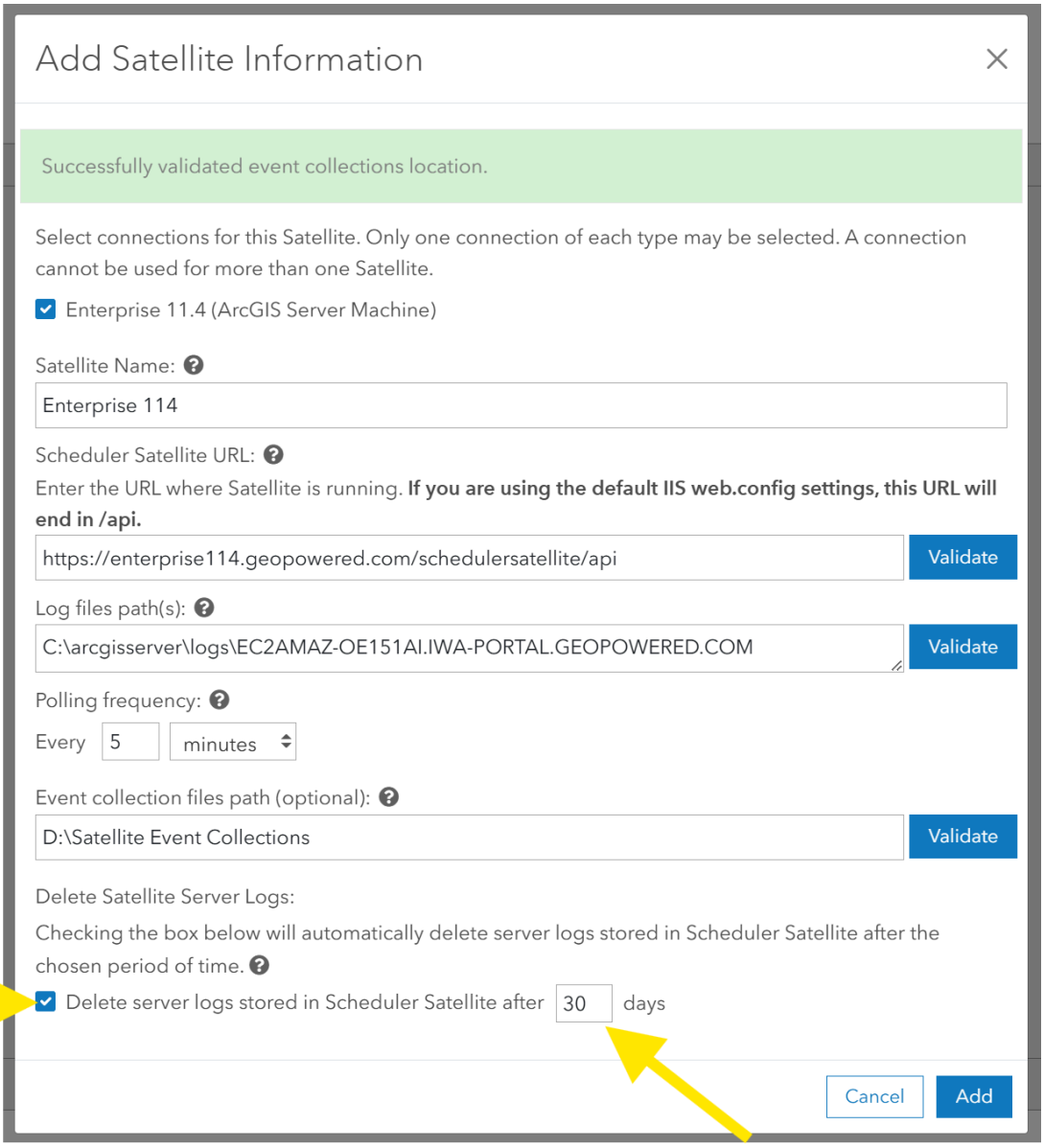
k. Enter a file path on the machine where Scheduler Satellite is installed to store event collections (see below), and click validate. If you don't want to use server

event collections, leave this blank.



l. If you would like to delete Satellite Server Logs after a prescribed amount of time, click the check box next to “Delete server logs stored in Scheduler Satellite after x days” and choose the number of days to keep the server logs. This is unchecked

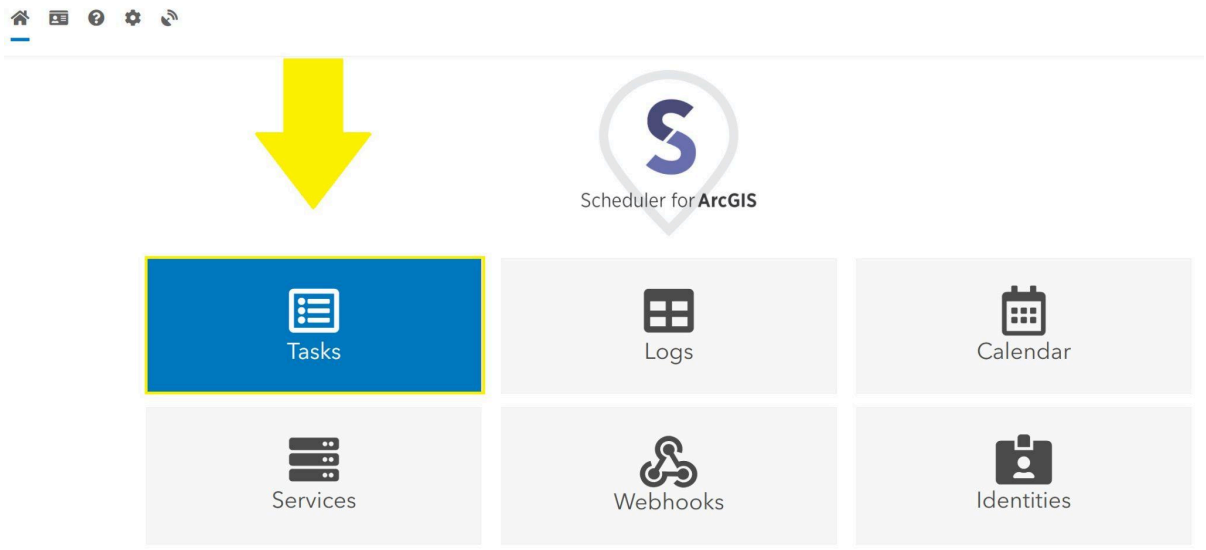
by default.



m. Click Add. Scheduler will attempt to connect to Scheduler Satellite. If the connection is successful, the Satellite will be added.

For more details about viewing, managing and using Satellite, see the Scheduler Satellite and Server Logs section of this document.

II. Tasks

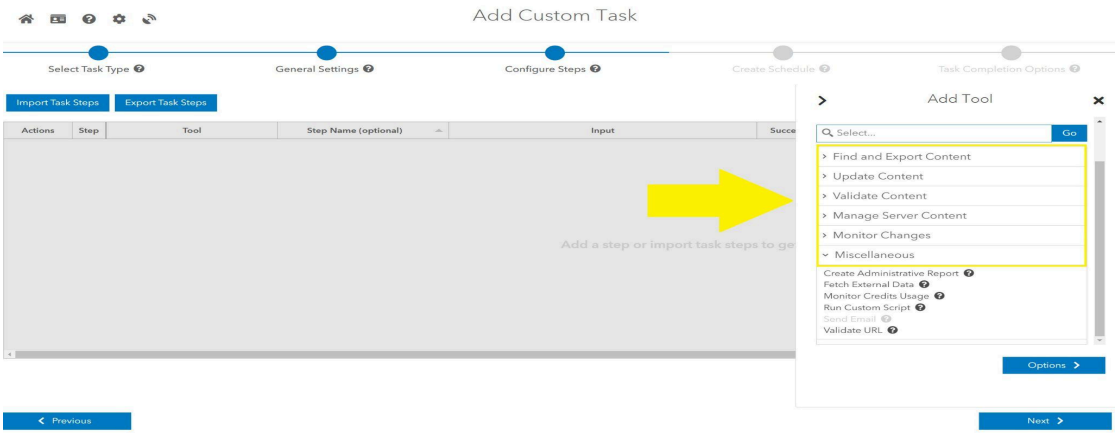


A. What is a Task?

Tasks are the core of Scheduler's functionality. A task consists of one or more steps and is highly configurable. These steps can be structured to create workflows where the output of one step is used as the input for the next, or the steps can be unrelated to each other and each take their own specific input. For example, you might want to have a task that exports a set of items, exports a set of groups, and exports a set of users. These steps don't interact with each other but it can be convenient to put them in a single task if they all run at the same time.

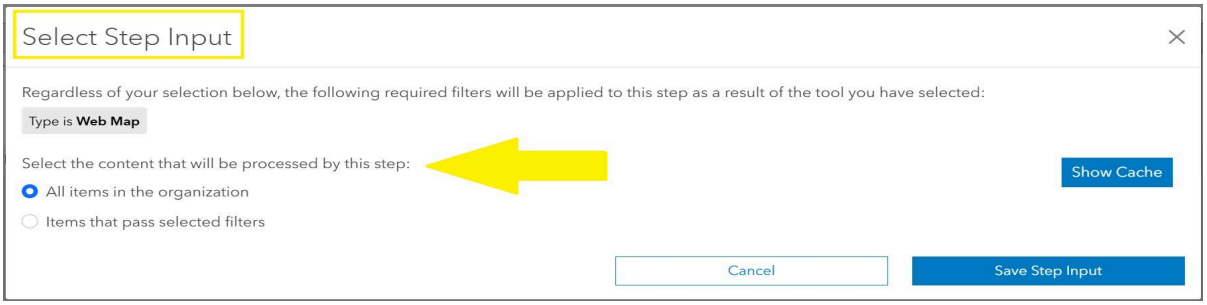
Steps are added and configured in the Configure Steps page of the task setup wizard. Each step uses a tool. Tools are designed to be simple and to perform a single action so that users have the flexibility to combine them. These tools are grouped into several categories.

- ***Find and Export Content:*** These tools either find content in an ArcGIS Online or Enterprise organization (items, users, and/or groups) in order to pass it to another step, or export content, including items, users, groups, services, service layers and service features.
- ***Update Content Tools:*** These tools update properties such as owner, tags, or categories for items, users, and groups.
- ***Validate Content:*** These tools validate items, users, and groups based on a variety of parameters. These tools classify content as either valid (success) or invalid (failure). Users can then choose to take action on valid content (e.g. add a collection of web maps to a group, but only if all of their layers are working) and/or invalid content (e.g. tag it or email the owner to inform them of what they need to fix).
- ***Manage Server Content:*** These tools manage services, geoprocessing jobs, portals and databases.
- ***Monitor Changes:*** These tools provide a way for people with ArcGIS Online to detect changes to items, users, and groups, since ArcGIS Online doesn't have organization webhooks. Monitor Changes tools can also be used to detect certain changes that aren't captured by organization webhooks (see the Monitor Changes section under Tools later in this document).
- ***Miscellaneous:*** These tools perform a variety of other tasks, such as creating administrative reports, sending emails or running custom scripts.

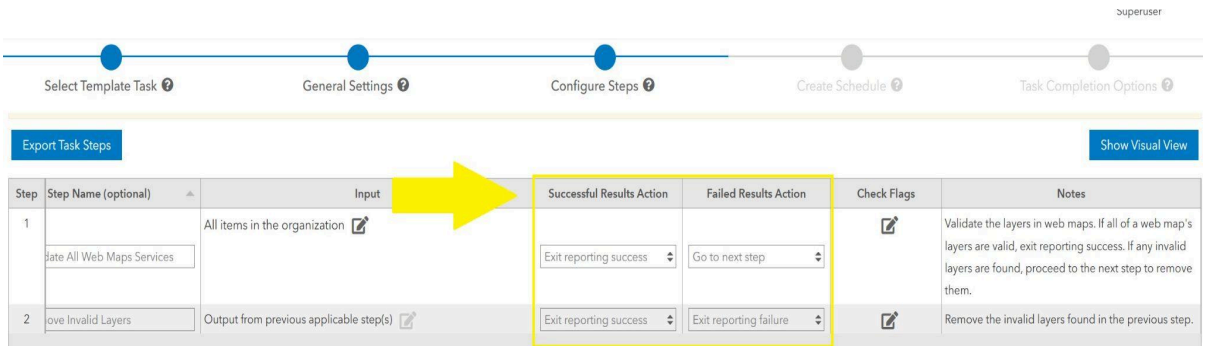


302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

Each step in a task has several configuration options. The Step ***Input*** determines what content will be processed by that step. Options include all content in the organization, content from a previous step, content that passes specific filters, or several other options depending on the tool and the type of task.

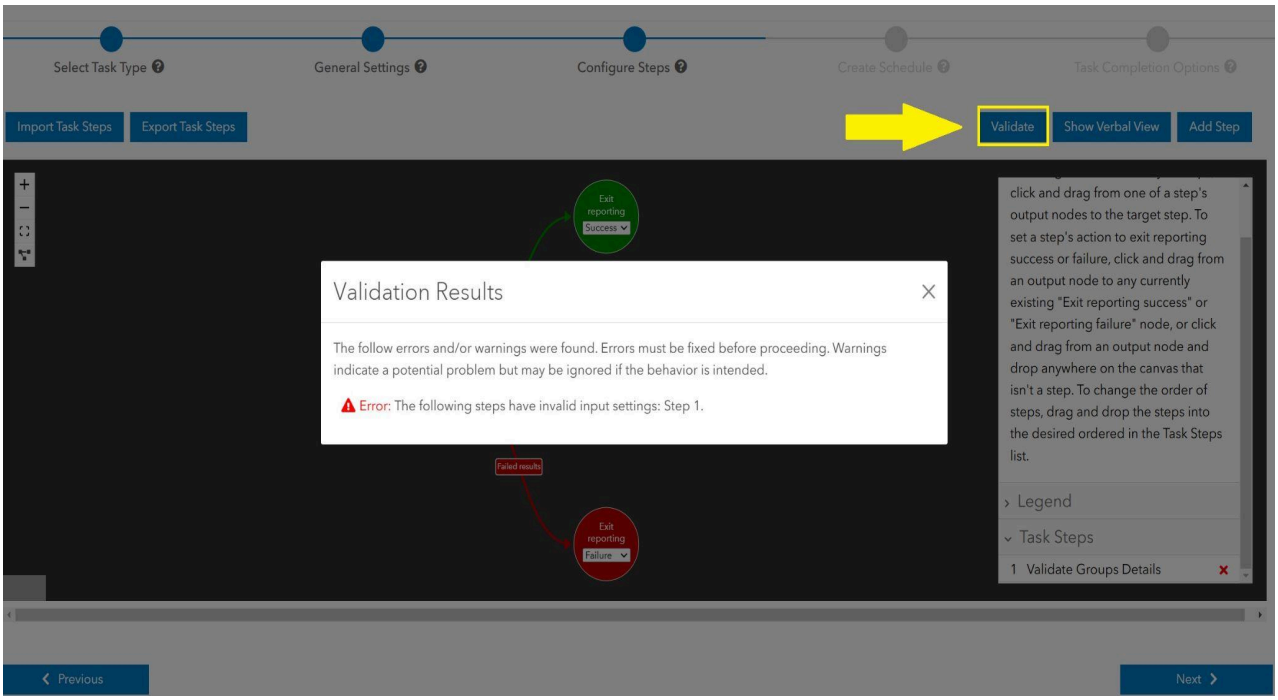


The ***Successful Results*** Action and ***Failed Results*** Action determine what happens to content that is marked as success or failure in that step, which can include proceeding to another step or exiting the task. This can allow you to create different workflows depending on whether content succeeds or fails for a particular step. For example, you could check to see whether all of a web map's services are valid (Validate Web Maps Services). If they are valid, they can be added to a public group (Share Items With Groups). If they're not, they can proceed to a different set of steps, which will tag them (Add Tags to Items) and then email their owners to let them know that the maps need to be fixed (Email Users). Finally, each step has configuration operations for the tool being used, which are unique for each tool.



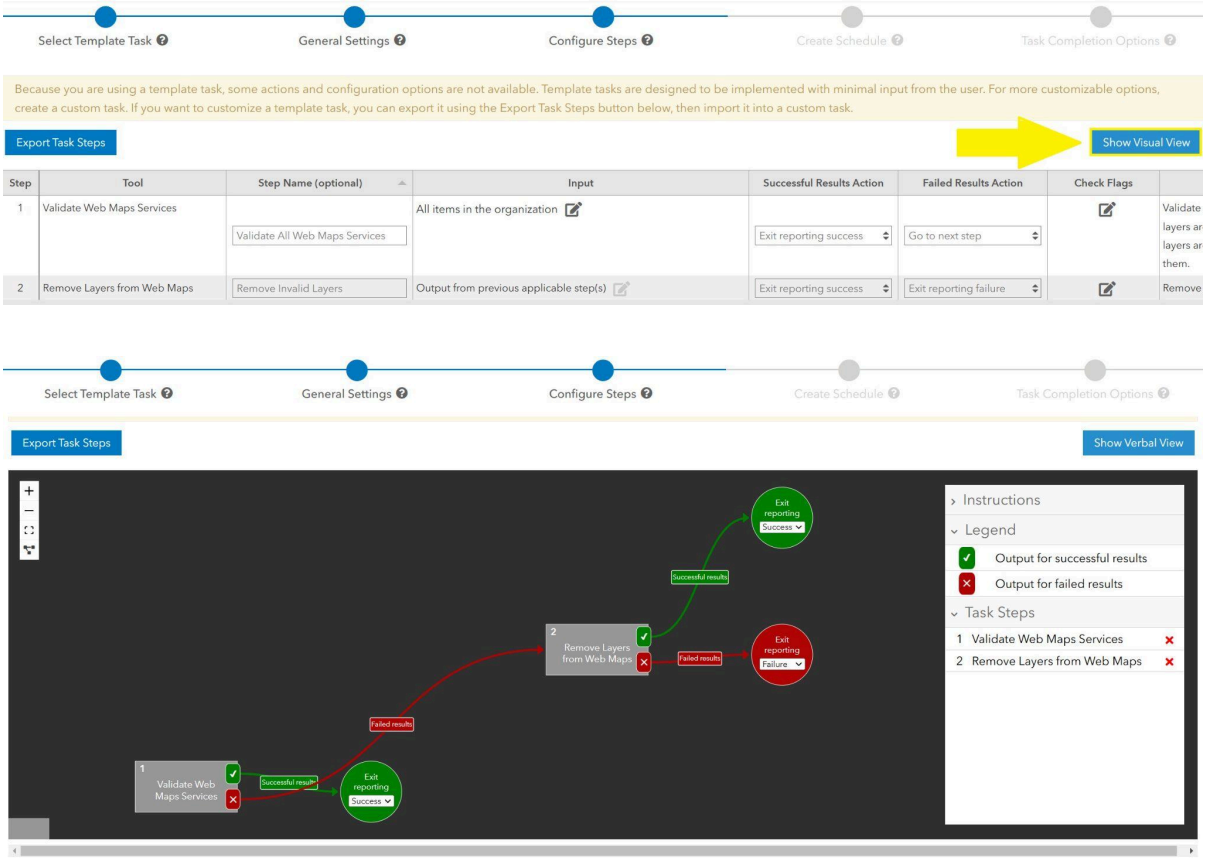
302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

To help you with your workflows, there is a Validate button in the upper right of the Configure Steps table. This button analyzes the workflow and finds both errors (issues that will break the task) and warnings (issues that won't break the task but are undesirable in most cases, e.g. a step that is being skipped). The validation will run whenever you click the button, when you go to the next step, or when you save the task. When you validate by clicking the Validate button, a modal will appear with results. When going to the next step or saving, the modal will only appear if there are errors or warnings.



302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

You can use the Visual View button to toggle between the table view and a flowchart representing the workflow. You can edit your task by clicking and dragging components of the flow chart in the same way you can move around rows in the table.



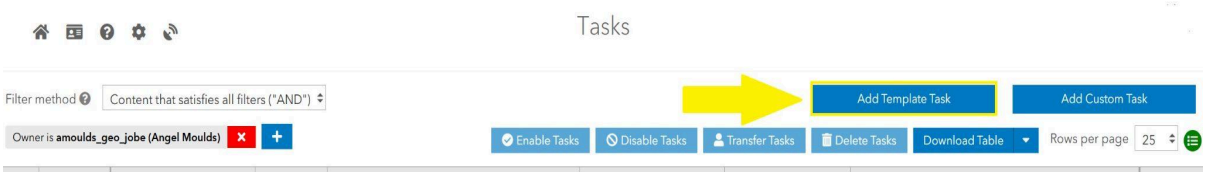
Finally, the Rewire Steps button can help you quickly reconfigure your task when the identities used for the task change. This button, which is next to the Validate button, only appears when one or more of your steps is using filters for the step input, and the filters are configured for identities different from those selected for the task. For example, say you originally set up a task for Organization A, and the input for several of the steps use a filter for content in Organization A. If you then decide to run the task for Organization B instead, the Rewire Steps button will appear, and you can use it to automatically find and replace filters for Organization A with filters for Organization B. Once all of the steps are configured probably, the Rewire Steps button will disappear.

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

You can also use the Rewire Steps button if you import a task that someone else has sent you. If their task was configured with filters for their organization, you can use the Rewire Steps button to replace those filters with filters for your own organization.

For more details on task configuration, see the Tasks Wizard subsection.

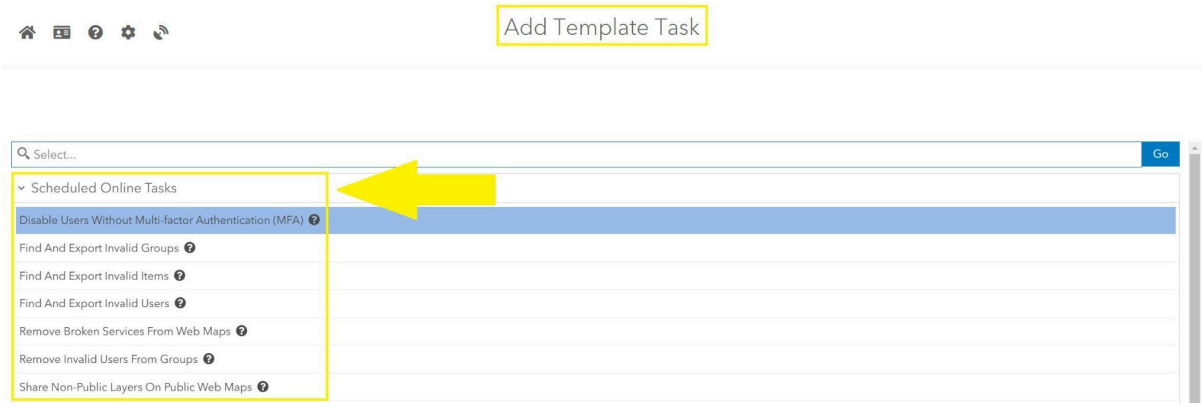
B. Template Tasks



Template tasks are pre-configured, commonly used tasks that are easily accessible. Using the Add Template Task button on the tasks page, you may choose from a number of templates that are ready to use, with all the steps and actions already set up. The available template tasks are described below.

1. Scheduled Online Tasks

Scheduled online tasks are template tasks that can be configured to run on a schedule.



a. ***Disable Users Without Multi-factor Authentication (MFA)***

Find users who do not have MFA enabled and send them an email telling them to enable MFA. After a certain period of time (the default is 4 days), if they have not enabled MFA, send them a second email. After an additional period of time (the default is 3 days), if they still haven't enabled MFA, disable them and send them a final email informing them.

b. ***Find and Export Invalid Groups***

Find groups that are missing selected details or properties and export them to CSV/JSON, find groups with invalid items and export them to CSV/JSON, and find groups with invalid users and export them to CSV/JSON.

c. ***Find and Export Invalid Items***

Find items that are missing selected details properties and export them to CSV/JSON, then find web maps with invalid services and export those services to CSV/JSON.

d. ***Find and Export Invalid Users***

Find users that are missing selected details properties and export them to CSV/JSON.

e. ***Remove Broken Services from Web Maps***

Detect web map services with one or more problematic characteristics, then remove them from their maps.

f. ***Remove Invalid Users from Groups***

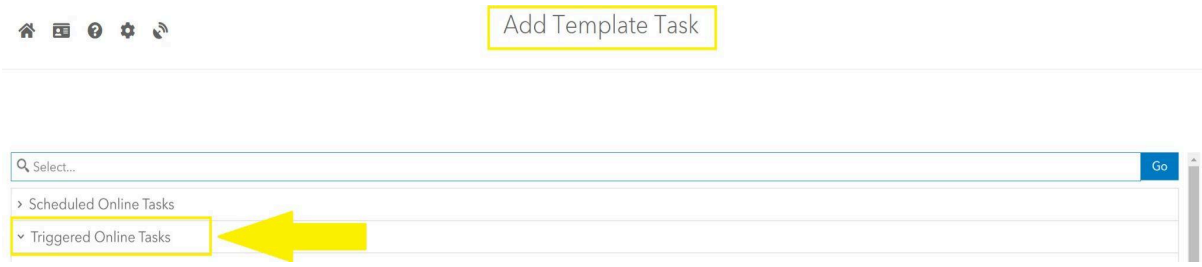
Find users that are missing selected details or properties and remove them from groups.

g. ***Share Non-Public Layers on Public Web Maps***

Find non-public layers on public web maps and share them publicly. Layers can be shared publicly if they belong to the organization(s) assigned to the task, or optionally, to another of your organizations licensed for Scheduler. If the layers cannot be shared publicly, they will be removed.

2. Triggered Online Tasks

Triggered online tasks are template tasks that can be configured to run in response to webhooks in your organization.



a. Prevent Public Sharing of Sensitive Information

This task is triggered by a webhook that fires when items are shared publicly. The task will search the attribute data of services that are shared publicly for sensitive information, such as Social Security Numbers, that shouldn't be made public. You can choose to search attributes for particular text strings, or you can search by regular expression. If a service is found to contain sensitive information, its sharing will be reverted to org level and its owner will be informed of what happened.

C. Custom Tasks

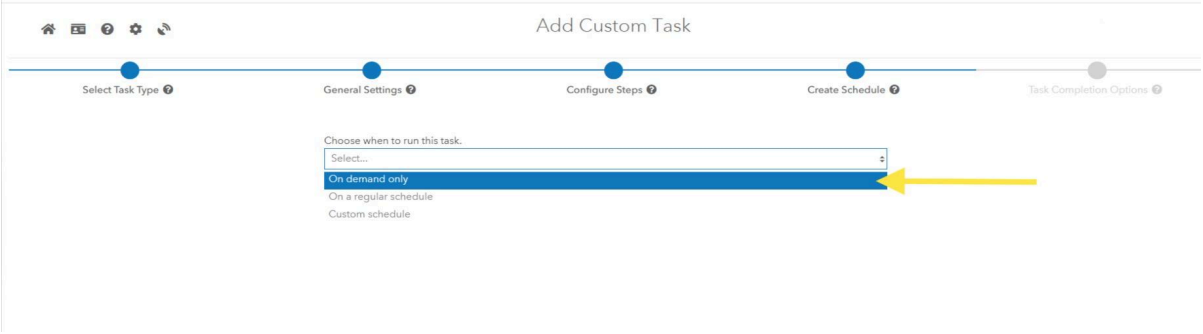
Scheduler has the ability to initiate tasks in several different ways. Not only is it capable of scheduling tasks based on a number of customizable criteria, it can also be

configured to trigger tasks based on webhooks, information that appears in the server logs or the number of changes that have been made to a service in your environment.

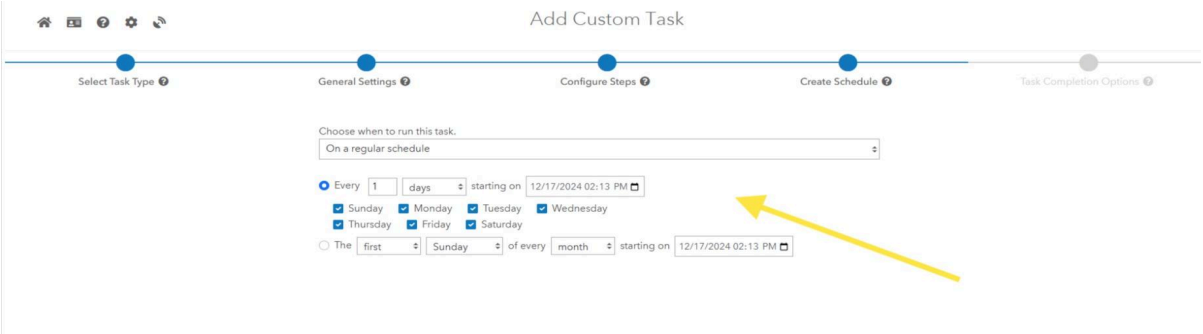
1. Scheduled Tasks

Scheduled tasks run on a schedule to be determined by you. There are three options for scheduled tasks:

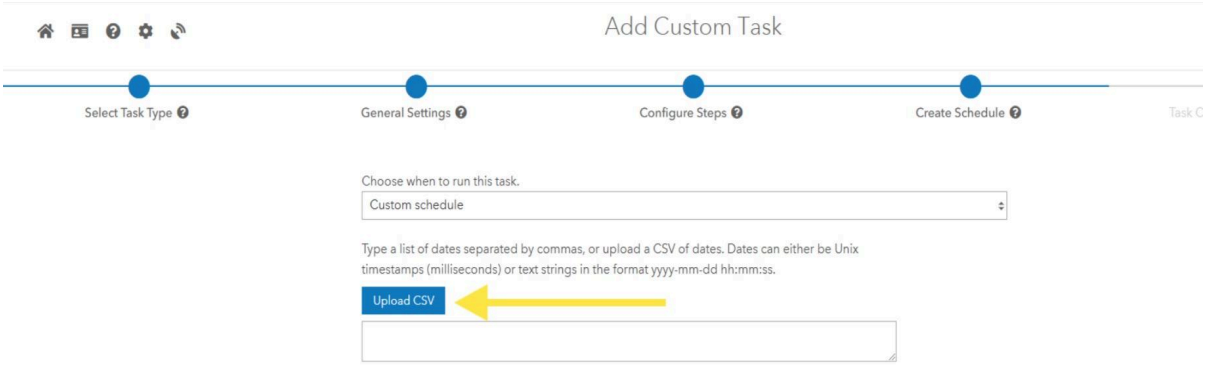
- ***On demand only***: This task will only run when the user tells it to, by using the Run Now button in the Tasks table. Note that all scheduled tasks can be run on demand at any time using the Run Now button; this option simply means that this is the only way the task can be run.



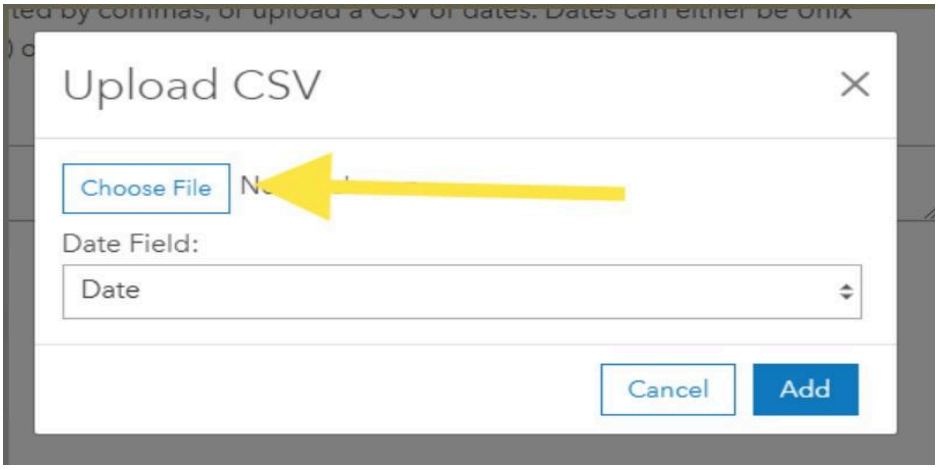
- ***On a regular schedule***: The task can run either every X minutes (as frequently as every 5 minutes), hours, days, etc., or on the first or last Sunday, Monday, etc. of every month or year. For tasks that run every X minutes, hours, days, etc., users can select to only run the task on certain days of the week. For tasks that run more than once per day, users can also choose to only run the task between certain times of the day.

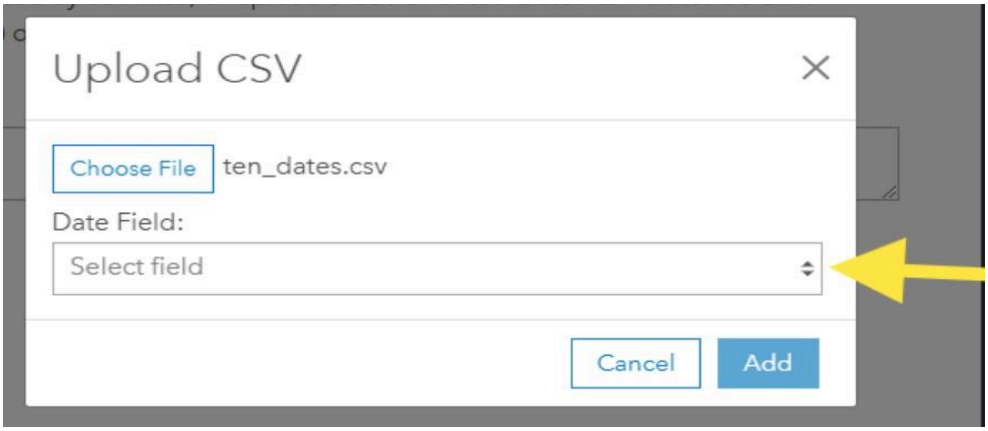


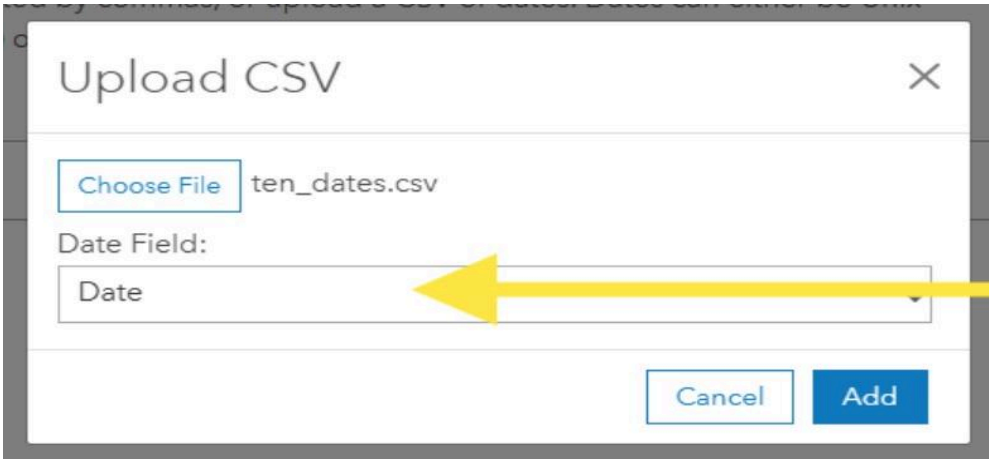
- ***Custom schedule***: The user can type in or upload a CSV of custom dates and times, either as Unix timestamps in milliseconds, or text strings in the format yyyy-mm-dd hh:mm:ss (if users are not familiar with Unix timestamps, there are several websites that can convert normal dates to Unix timestamps; users should ensure that the results are in milliseconds).

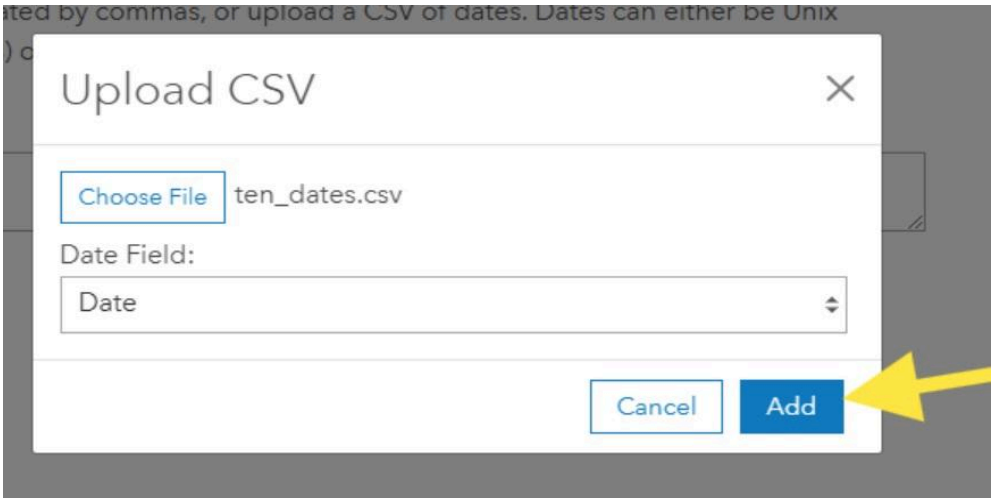


302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)









2. Organization Event-Driven Tasks

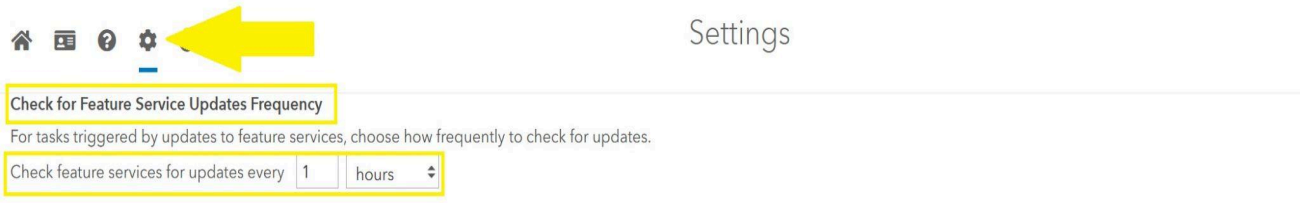
Organization event-driven tasks run in response to events in your organization that are captured by organization, service or Survey123 webhooks (see the Webhooks section of this document for more information on webhooks [Section VI]). Organization webhooks are available for all supported versions of Enterprise. Service and Survey123 webhooks are available for Enterprise 11 and above and for ArcGIS Online. For organization and service webhooks, users will be able to create webhooks within the task wizard, or use existing ones. For Survey123 webhooks users can only use existing webhooks (Survey123 webhooks can be created and managed in the Survey123 application in the user's organization). For all webhook types, these tasks will run whenever the selected trigger fires. For items, users and groups, if you want to use webhooks but don't want a task to run every time the webhook fires, see the Event Collections and Event Logs subsections of the Webhooks section of this document.

3. Server and Database-Driven Tasks

Server and database-driven tasks run in response to events on a server or involving an Enterprise service. Currently, Scheduler supports two types of server event

triggers, server logs and feature service updates. A task triggered by server logs will run whenever Satellite detects server logs that pass filters defined by the user (such as a particular severity level, code, or message text). For example, a server event triggered task might detect server logs whose codes indicate that a service has crashed, then automatically restart that service. To create this type of task, you must have one or more connections to ArcGIS Server machines set on the Identities page, and the ArcGIS Server you want to use must have Scheduler Satellite installed and connected on the Satellites page (for more about Satellite, see the Configuring Scheduler Satellite subsection of the Introduction to Scheduler section of this document, above, and the Scheduler Satellite and Server Logs section, below). Satellite will regularly pull information directly from the server log files on an ArcGIS Server machine, allowing it to trigger tasks in the main Scheduler application. If you want to respond to information in the server logs but don't want a task to run every time a log is detected, see the Server Event Collections subsection of the Scheduler Satellite and Server Logs section of this document.

Tasks triggered by feature service updates do not require Scheduler Satellite. These tasks will run when one or more Enterprise services, defined by filters, accumulate(s) at least the selected number of updates (records added or deleted). For example, if a feature service accumulates a certain number of updates, you might want to rebuild the indexes of the service or its corresponding database in order to improve performance. Scheduler monitors services by comparing the service's current list of Object IDs against a snapshot from the last time it checked those services. The frequency with which Scheduler checks services for changes can be configured on the Settings page.

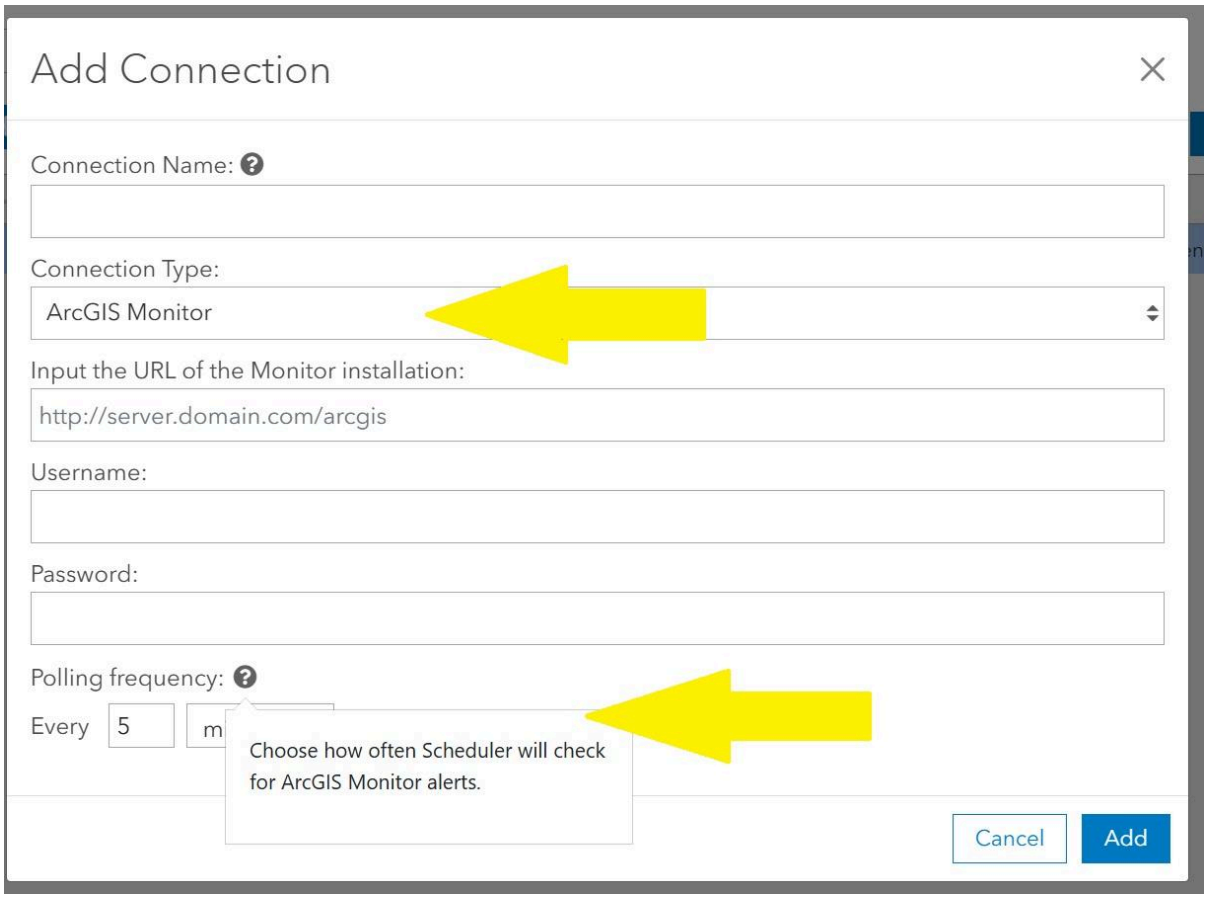


4. ArcGIS Online Service-Driven Tasks

ArcGIS Online service-driven tasks run in response to events pertaining to a service in ArcGIS Online. Currently, Scheduler supports one type of AGOL service event triggers, service updates. These tasks work similarly to tasks triggered by Enterprise service updates (described above), but take as their input items in an ArcGIS Online organization rather than services on an ArcGIS Server connection. These tasks will run when one or more services, defined by filters, accumulate(s) at least the selected number of updates (records added or deleted). For example, if a service accumulates a certain number of updates, you might want to rebuild the indexes of the service. Scheduler monitors services by comparing the service's current list of Object IDs against a snapshot from the last time it checked those services. The frequency with which Scheduler checks services for changes can be configured on the Settings page (one setting is used for both ArcGIS Online and Enterprise services).

5. ArcGIS Monitor-Driven Tasks

ArcGIS Monitor tasks run in response to alerts in ArcGIS Monitor. Currently, Scheduler can respond to alerts pertaining to service components. This type of task requires one or more connections to ArcGIS Monitor in the Connections tab of the Identities page. Within the task, you can choose the type of Monitor alerts that trigger the task based on the alert metric, alert level, alert state, and various properties of the component, such as service name. You can then use the service corresponding to the component that triggered the alert as the input for a task. For example, if a service's average response time is too high and this triggers an alert in Monitor, Scheduler could then detect that alert and restart the service. You can configure how frequently Scheduler checks for alerts in the Monitor's connection properties in the Connections tab of the Identities page.



D. Tasks Wizard

Whichever type of task is chosen, the tasks wizard will walk you through the necessary steps in order to configure the task, including its steps, schedule or trigger, and task completion options. Each step in the tasks wizard will be described below.

1. General Settings

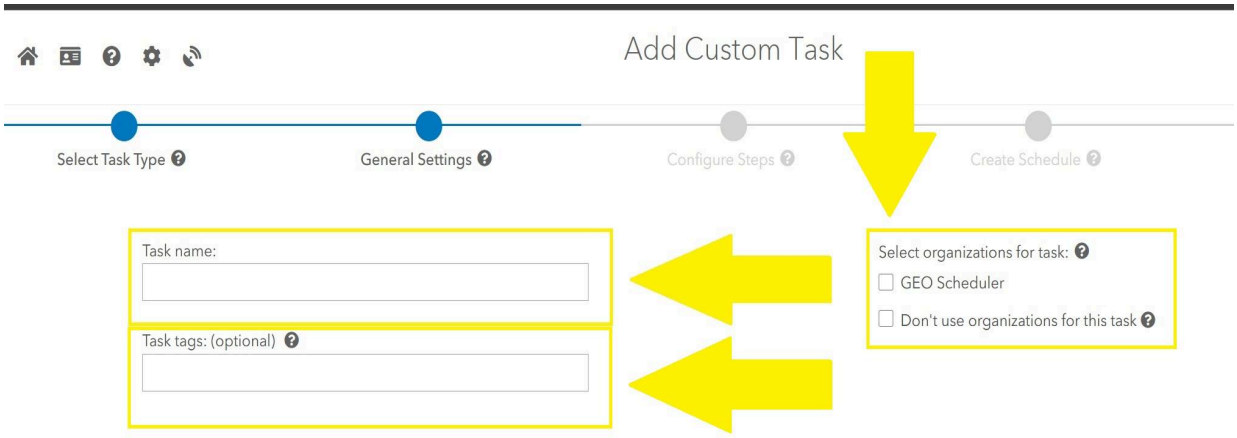
In the first step in the tasks wizard, enter the task name, a unique name for the task being created. It is recommended that some basic description of the purpose of the task be used in the name as well as any additional information to set it apart from similar tasks (such as geographic area or a certain time period).

Task tags is an optional field; here you can provide individual tags that can be used to identify the task being created. This is useful to group together similar tasks so they can be reviewed and managed together. These tags are only used within Scheduler and are not related to tags for items, users and groups in your organization.

Also optional is the drop-down to determine whether to run this task based on content in a server event collection. The options available are based on the existing server event collections, which are configured on the Satellites page. The contents of the server event collection will determine if/when to run this task.

On the right, you will need to choose one or more organizations to use for the task. Select one or more options from your current organizations that have been added to Scheduler on the Identities page. Alternatively, you can select the option "Don't use organizations for this task." This option is recommended if you are planning to run the task against servers or databases as opposed to an ArcGIS organization.

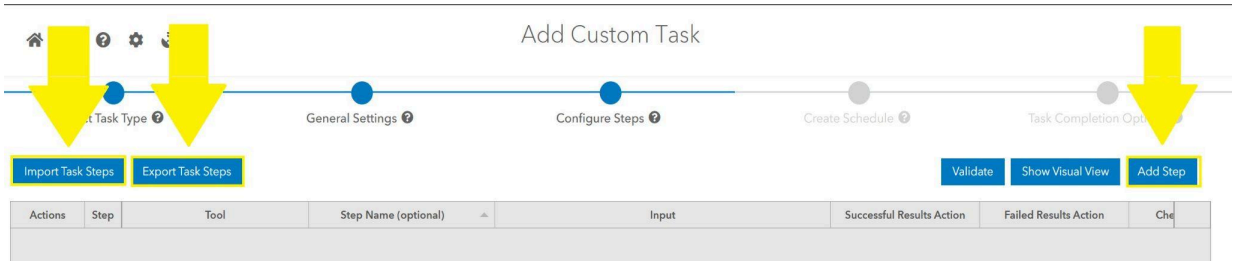
If you choose to create a task that runs in response to events in your organization, you will need to choose the type of content to monitor: Items, Groups, Users, Feature services or Survey123 forms. This will dictate the data that will trigger the webhooks to start the task in Scheduler. Depending on the webhook type, different organizations will be available to be selected.



2. Configure Steps

The Configure Steps portion of the wizard is where the individual steps in the task are configured. It contains a list of the steps, as well as several buttons used to add or modify steps for the task being created:

Some of the options available are described below:



a. Add Steps - Tool Selection and Configuration

The Add Step button allows the user to select from a wide range of different tools that can be used for the task. Not every tool can be used with every type of organization; any tools that are not usable with the selected organization(s) will be disabled in the menu here. The full list of tools is available in Appendix B of this document.

Each tool has options to configure to determine how the tool will be run. Once those options are selected, you can add the step to the task being created.

b. Exporting and Importing Task Steps

The steps in the Configure Steps table can be exported as a JSON file using the ***Export Task Steps*** button. This file can then be imported into a new task using the ***Import Task Steps*** button. This functionality allows users to send a task's steps to another person so that they can recreate the task for

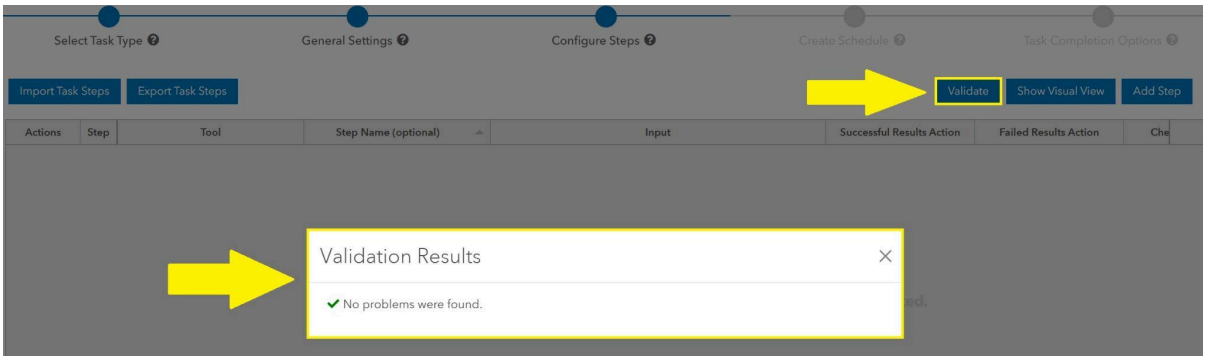
themselves, and can also be used to copy a task's steps and then modify them without having to start from scratch. When exporting, users can choose to include the configured values for step options, in which case someone else who imports the task will be able to recreate it exactly, or to leave step options blank, in which case someone else who imports the task can configure the options themselves. If users wish to customize Scheduler's

built-in task templates, they can export the template, import it into a custom task, and make the desired modifications.

Importing a task created for a different set of identities or connections than those currently being used may cause a problem if one or more steps uses filters that are configured for the original identities or connections. If one or more filters is configured for an identity or connection not being used in the task, or one or more identities or connections being used in the task doesn't have a filter configured for it, this will lead to errors in task validation. Users can manually replace the identities or connections in the filters, or they can use the Rewire Steps tool. This option, which is found to the left of the Validate button and only appears if there is a mismatch between the identities or connections being used for step input filters and those being used for the task, allows users to automatically replace the identities or connections in the filters with those currently used for the task. Note that users may still need to configure some values manually. For example, say a user is importing a task created for Organization A into a task that's using Organization B, and one or more steps uses a filter for items owned by User X. The Rewire Steps tool can replace Organization A with Organization B in the step filters, but if User X does not exist in Organization B, the user will need to manually select a new user for that filter.

c. Task Validation

Task Validation is a check system by which the user can ensure that all of their assigned steps within a task are setup logically. For example, if a user attempts to have a step receive input from a previous step that does not produce an output, Task Validation will produce an error message informing the user of the problem.



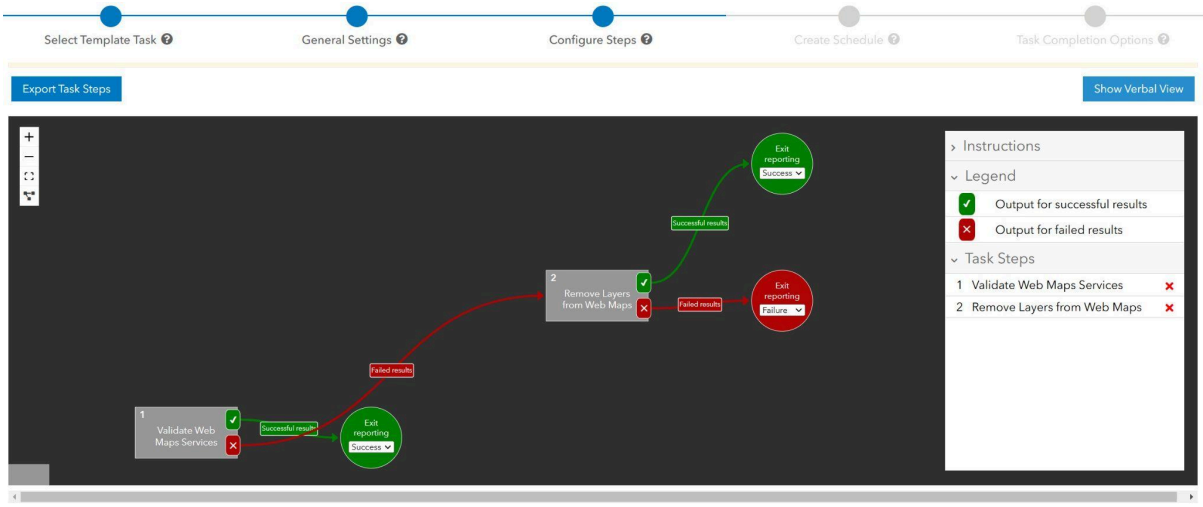
The ***Validate*** button validates the task steps to ensure that there are no problems that will interfere with the task's ability to run. Validation returns two kinds of issues: ***errors***, which will break the task and must be fixed before saving, and ***warnings***, which are issues that may cause a problem but that also may be desirable under some circumstances. Errors include a tool whose content type is incompatible with the content it is configured to receive (for example, a users tool processing the content from a step that returns items), a step whose input has not been set, or an invalid input setting. Warnings include steps that are being skipped (this is usually not desirable, but users may want to have a task temporarily skip one or more steps for testing purposes) or a step that uses an event collection used by another step or task.

Users can validate their steps at any time by clicking the Validate button. A modal will open, reporting any problems. Validation will also run automatically when the user moves to another step or saves the task. In this

case, the modal will open if there are any errors or warnings, but if all steps are valid, it will proceed immediately to the other step or to saving.

d. Visual View

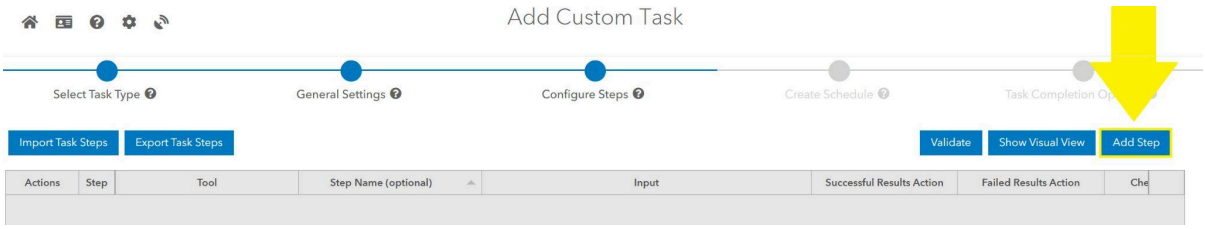
The Show Visual View button will provide a visual representation of the workflow being performed by the task in the form of a flow chart. Paths taken through the workflow by successful or failed content can be configured by clicking and dragging within the flow chart. Clicking and dragging from the success or failure node of one step to another step will cause successful or failed content to proceed to that step. Clicking and dragging from the success or failure node of a step and releasing on the canvas will trigger content from that step to exit reporting success or failure. This provides additional flexibility in case issues arise during a task, allowing for branched workflows past the initial point that an error occurs.



e. Input

Within the steps table, for most steps, you have the option to configure the input content that will be processed by the step (for some tools, such as

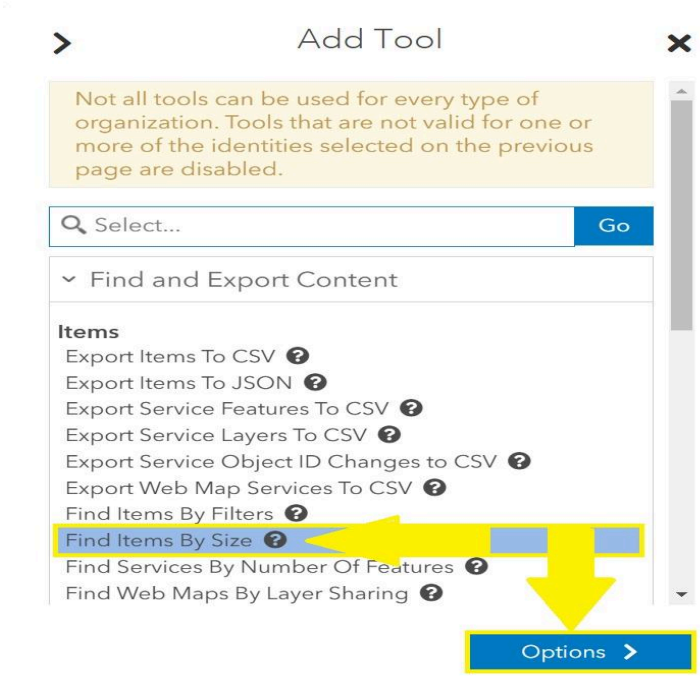
portal security or operational health scans, there is no configurable step input, in which case this field will be marked N/A). There are a variety of options, including all content in the organization, content from any applicable previous steps, and content that passes selected filters. These filters include a variety of content properties, as well as values in a CSV, and various selection methods such as “is”, “is not”, “matches regex”, “does not match regex”, and many others depending on the property in question. Other input options include options that switch from one type of content to another, such as owners of the content from any applicable previous steps. If the task is triggered by a webhook, the step input options will include the content returned by the webhook. You can also filter by check flags (see below), which are stored in the Scheduler database.

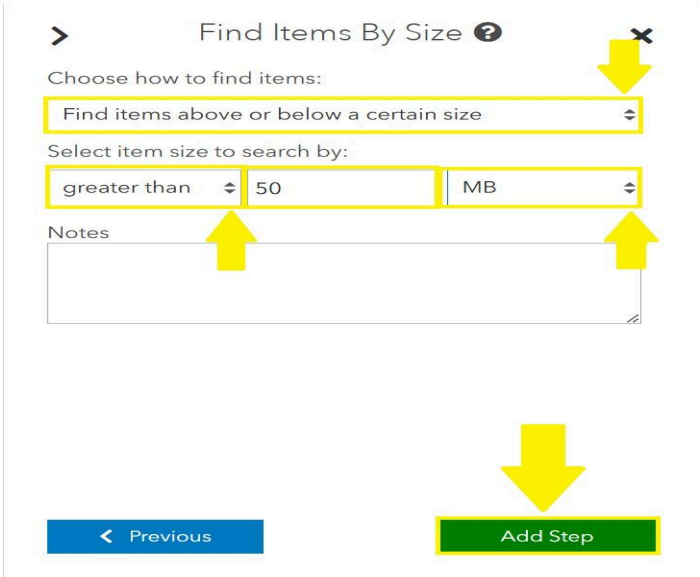


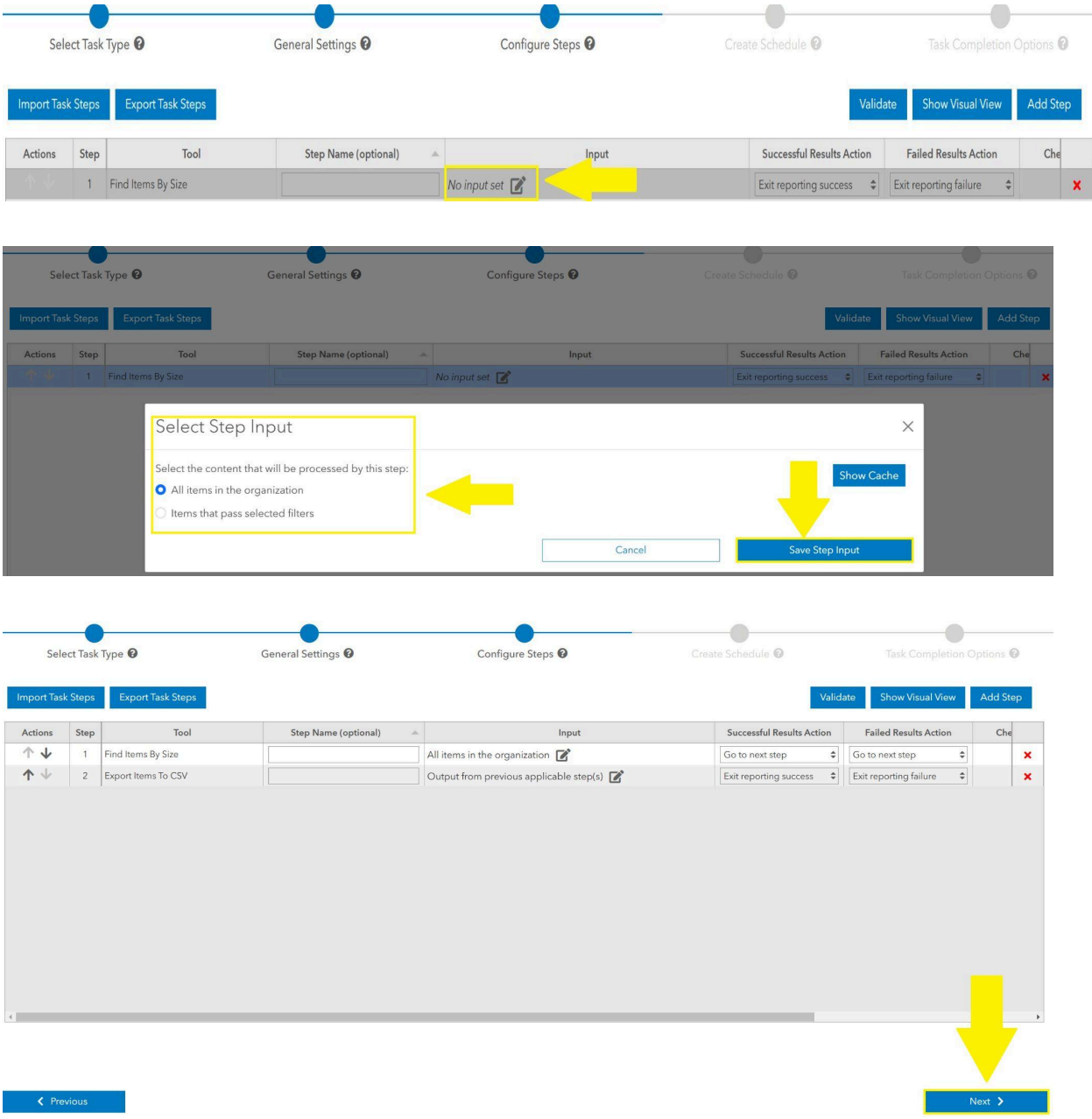
f. Successful Results Action and Failed Results Action

These fields in the steps table determine what will happen to the step’s output content. You can configure these options to have the content exit reporting success or failure (in which case it will not be processed by any further steps) or have the content proceed to the step of your choosing. This allows you to create different workflows for different pieces of content depending on the results of each step.

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



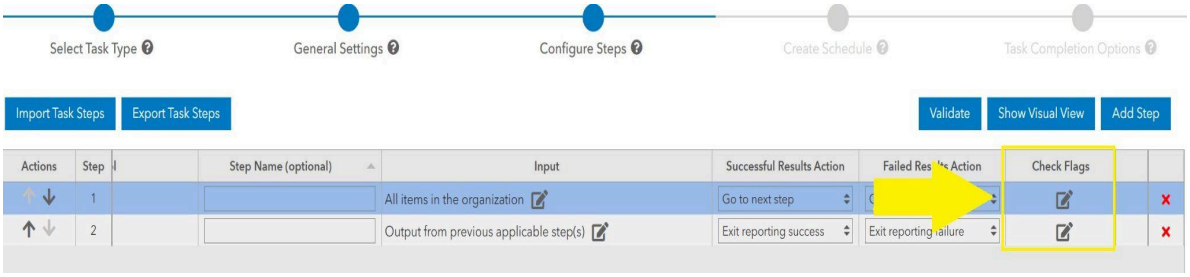


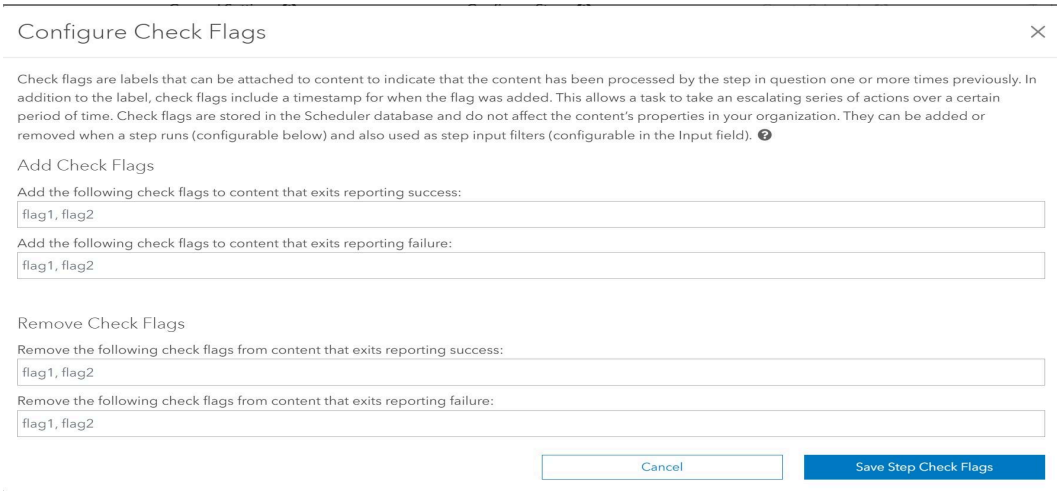


g. Check Flags

Check flags are optional labels that can be attached to content to indicate that the content has been processed by the step in question one or more

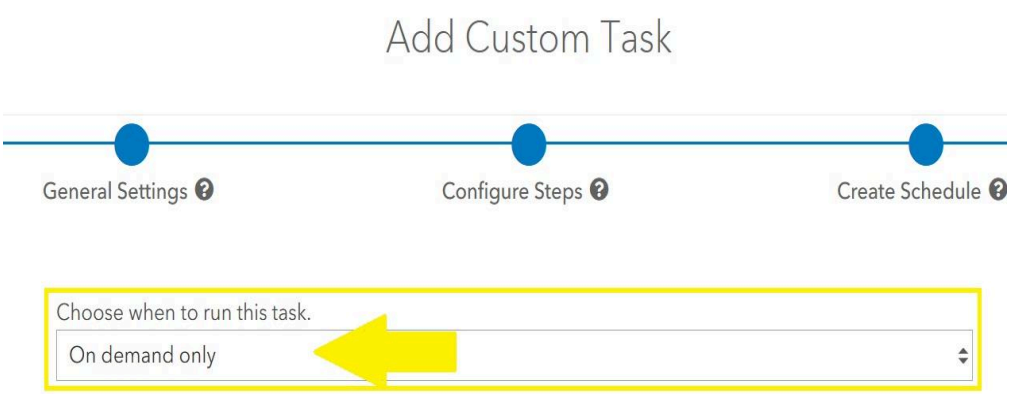
times previously. In addition to the label, check flags include a timestamp for when the flag was added. This allows a task to take an escalating series of actions over a certain period of time. For example, you might want to disable inactive users, but you might want to give them the opportunity to login first. In this case, you could email the inactive users warning them that they will be disabled if they don't login, and add a check flag to indicate that they have been found once already by the task. In another step in the task, you could disable users who are both inactive and have a check flag older than X days, that is, users who have already been emailed and did not respond in the given time period. Check flags are stored in the Scheduler database and do not affect the content's properties in your organization. In the Check Flags field for each step, you can configure the step to add or remove check flags from processed content. You can also filter by check flags in the step input (see above). You can view and delete assigned check flags in the Check Flags modal in the Logs table, and you can see an example of how to create a task with check flags in the template task Disable Users Without Multi-factor Authentication (MFA).





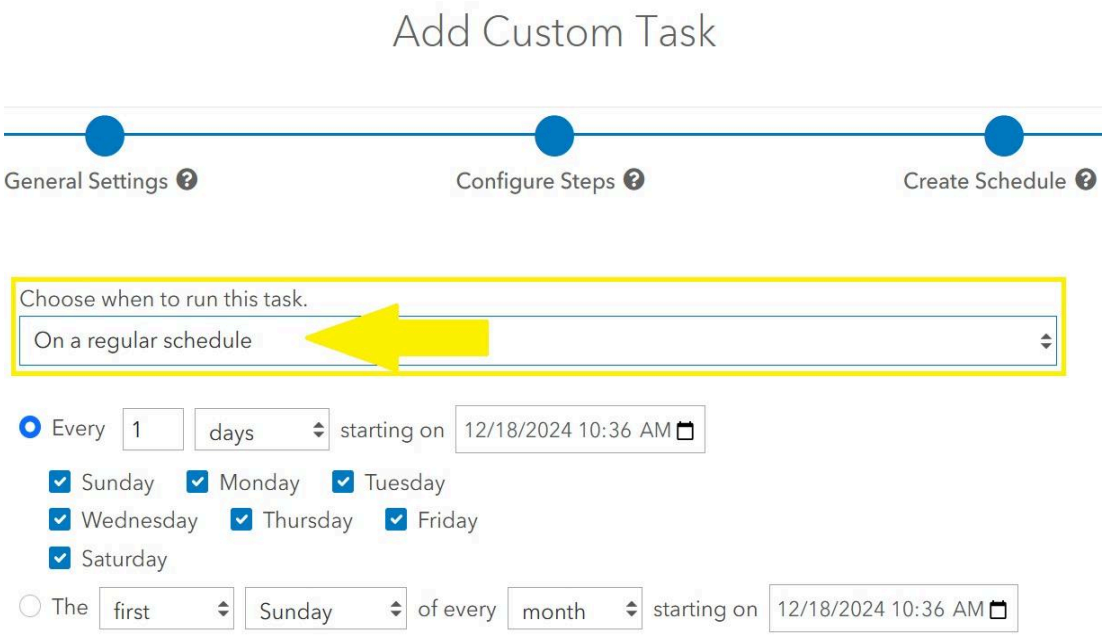
3. *Schedule Options*

From the drop-down here, there are three options to choose from. The first is to have the task run on demand only. This will require the user to manually invoke the task on the Tasks page of Scheduler by clicking the "Run now" button.



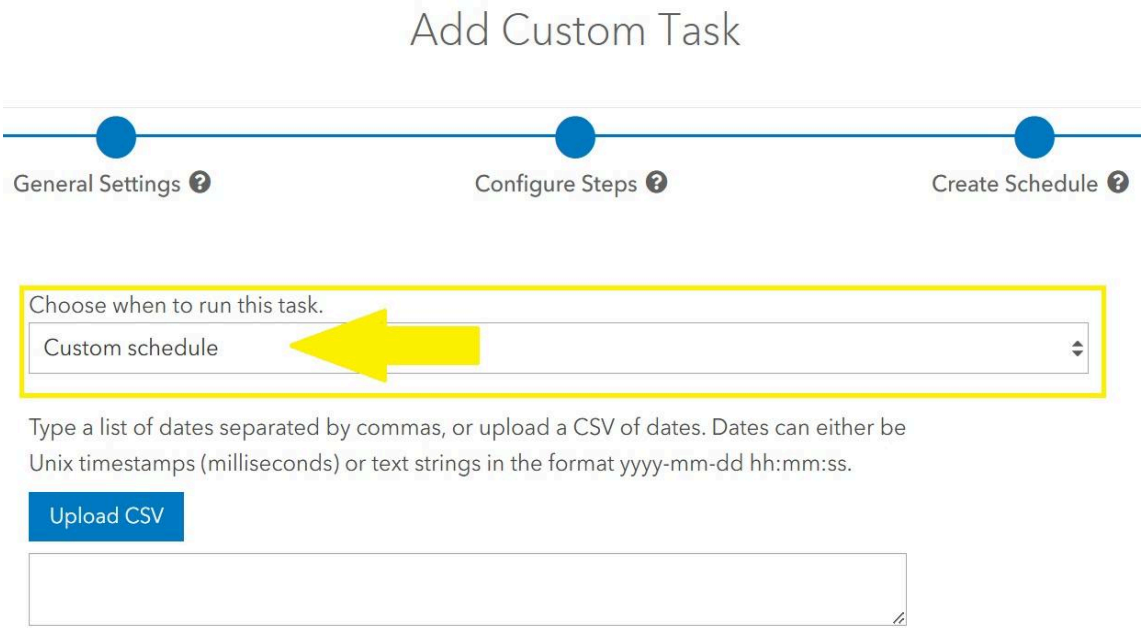
302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

You can also set the task to run on a regular schedule. The frequency of the schedule can be configured to be as high as a matter of minutes to as low as years, per the needs of the user. The maximum frequency is every 5 minutes, but very large organizations will likely want to run tasks less frequently. You can also select/deselect certain days or times if you don't wish the task to use system resources at certain times. Finally, you can set the task to run regularly on desired days of the month, i.e. the first or last Saturday of each month, in order to avoid conflict with business activities.



302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

The last option for setting a schedule is to do so through uploading a CSV with the desired dates and times to run the task. The dates in the CSV can be either formatted as Unix timestamps (in milliseconds) or as a text string (yyyy-mm-dd hh:mm:ss). This option allows the user to be as flexible as they wish in scheduling the task.



4. Select Triggers

If you elect to create a task that runs in response to an event, there are different triggers to choose from, depending on the type of event being used:

a) Webhook Triggers

You have the ability to use organization, feature service and/or Survey123 webhooks to trigger tasks in Scheduler. You will need to be familiar with Esri's documentation on webhooks in ArcGIS Enterprise and webhooks in ArcGIS Online in order to use this option. For more information about viewing and configuring webhooks in Scheduler, see the Webhooks section of this document.

In Select Triggers, you'll have the option of either creating a new webhook or using one that already exists. To create a new webhook, provide the identity under which you want to create it, give it a unique name, then select the trigger from the options available. For organization webhooks, the options for the deactivation policy allow the user to choose when the webhook will automatically be deactivated for the identity in question (webhooks are deactivated if they fail to deliver their payload a certain number of times in a certain time period, such as if the server that receives the payload, in this case the Scheduler application, is down). If the webhook is deactivated, it can be reactivated by navigating to the Webhooks page and doing so there. Feature service webhooks are automatically deactivated after 5 failures (this is not configurable). Finally, you can add filters to an organization webhook so that it only responds to changes to certain content (for example, if you have a webhook that responds to an item being shared, you can use a filter so that the Scheduler task will only run if the item being shared is a feature service). Feature service webhooks have an additional configuration for the

webhook's schedule, which determines how often the webhook checks for changes. The maximum frequency is once every 30 seconds. In addition, Scheduler implements a minimum frequency of at least once per week (when webhooks check for changes infrequently, the amount of changes they must retrieve is greater, which consumes more system resources).

b) Server and Database Driven Events

For server and database driven tasks, you'll choose whether to trigger the task based on entries in the server logs and/or when a service accumulates a selected number of updates. If the task is triggered by server logs, you'll need to select the connection to be monitored via a dropdown, then create a filter for the desired data in the logs that will trigger the task, whether it's specific text, a specific severity level of log, a numerical code, or some other value. The second option here is to trigger the task when a certain number of updates (additions or deletions, as measured by changes in Object IDs) are applied to a service. After checking this box, you can provide the number of updates to trigger the task, the desired behavior the first time the task is run, the connection you wish need to run the task against, and the filters for services you wish to use to trigger the task. For the desired behavior the first time the task is run, since these tasks work by checking service Object IDs against a previous snapshot, you must choose what to do when the task is first created and there is no snapshot to compare to. If you choose "Services updated since the task was created", the first snapshot will be created when the task is created, and the first time the task is run, the object IDs will be checked against that initial snapshot, meaning updates will be measured by changes since the task was created. If you choose "All services that pass the filters", all services that pass the filters will trigger the task the first time. The first snapshot will be created at that time, and going forward services will be checked against that snapshot. If you choose "Services updated since the

task was created", there may be a delay when saving the task as the initial snapshot is created.

c) ArcGIS Online Feature Service Driven Events

This option provides similar functionality to the option to trigger a task based on changes in an Enterprise feature service (see above) but does so against an ArcGIS Online organization, allowing you to trigger the task when a feature service accumulates a certain number of updates. After checking this box, you can provide the number of updates to trigger the task, the desired behavior the first time the task is run, the identity you wish to run the task against, and the filters for service items you wish to use to trigger the task (see the previous section for a detailed explanation of how to determine the desired behavior the first time the task is run).

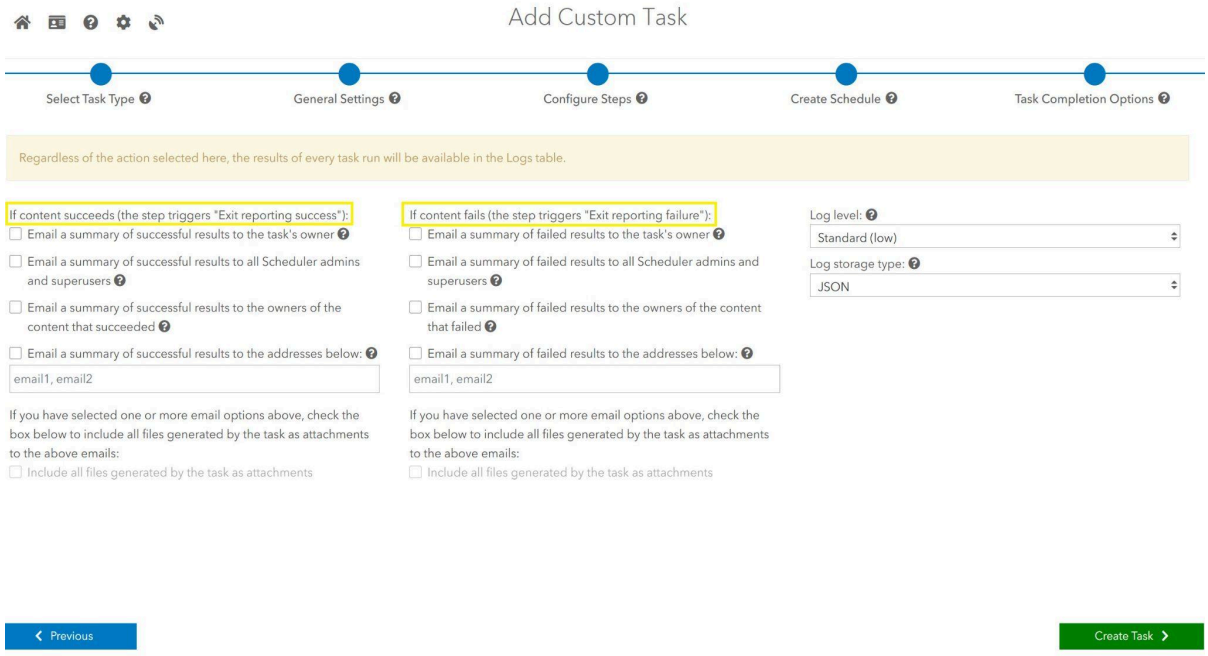
d) ArcGIS Monitor Driven Events

For tasks triggered by events in ArcGIS Monitor, you can specify what type of Monitor alerts you want the task to respond to. Select one or more alert metrics, alert levels and alert states that will trigger the task. Additionally, you can select what ArcGIS Monitor service components you want to watch for these alerts, by choosing either all services or services that pass certain filters.

5. Task Completion Options

You can choose to email CSVs of successful and/or failed content to a variety of people, so you can be alerted right away if a problem is found, or know that your tasks succeeded. This email can include a summary of the results of the task and/or any files that were generated by the tasks. You can also choose the log level, which determines what is recorded in the task's log. The standard (low) level only records critical errors and a general summary of which steps ran and how much content

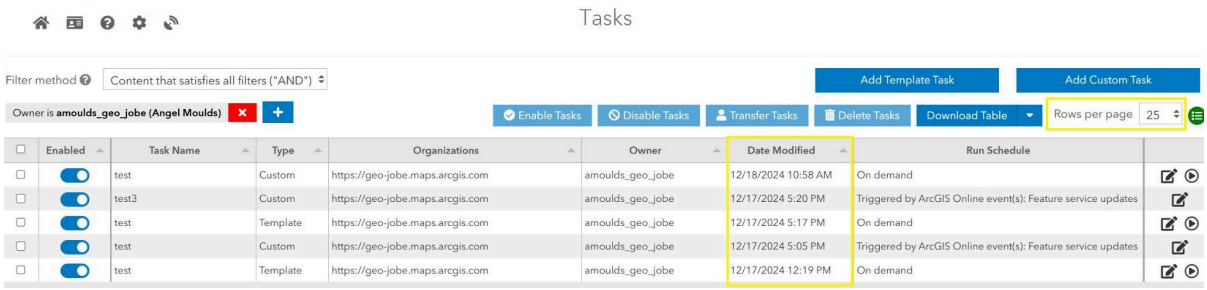
succeeded or failed. The verbose (medium) level records all errors, including errors for individual content. The debug (high) level records all actions taken by the task. A higher log level can provide more detail but can also cause a task to run more slowly and consume more system resources. The default setting is standard. You can change this setting at any time, so if a task encounters a problem or content is failing, you can change the setting to verbose or debug, inspect the errors, and then change the level back to standard.



302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

E. The Tasks Table

In this view screen, the user is able to see a table that lists every task saved. The table lists tasks in groups of 25. By default the table is sorted by Date Modified in descending order, and will initially show tasks owned by the user who is currently logged in. The user has the option to choose what field is the sorting field and/or whether the table is then sorted in ascending or descending order. Furthermore, the user can apply filters to the table to customize what tasks are shown.

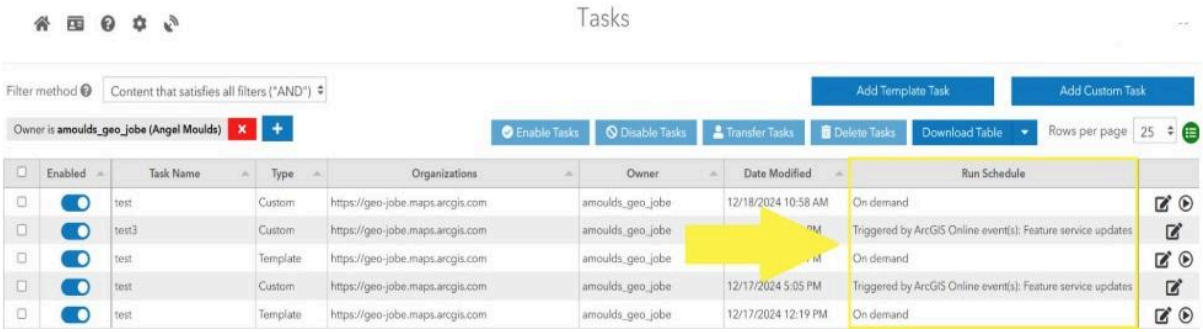


1. Disabling and Enabling Tasks

By default, all tasks are enabled to run when they're created. If you don't want a task to run, you can disable it by clicking the toggle in the Enable column. Disabling a task will remove it from the queue, if it's a scheduled task, and will prevent it from being run on demand. Enabling the task will add it back to the queue if it's a scheduled task and allow it to be run on demand. You can also bulk enable and disable tasks by selecting multiple tasks and using the Enable Tasks and Disable Tasks buttons above the table.

2. Run Schedule

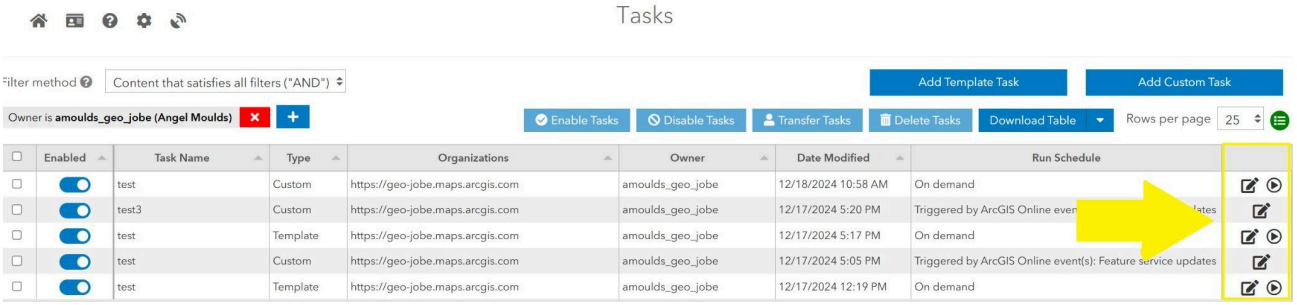
The Run Schedule column shows the conditions under which a task will run, whether that's on demand, on a schedule or triggered by a webhook or other event. If there are any problems that might prevent a task from running when it's supposed to, a warning or error message will appear in this column. For example, a message will show if one or more of the webhooks that trigger a task are disabled or can't be found, or if a task runs on a custom set of dates and all of these dates have passed.

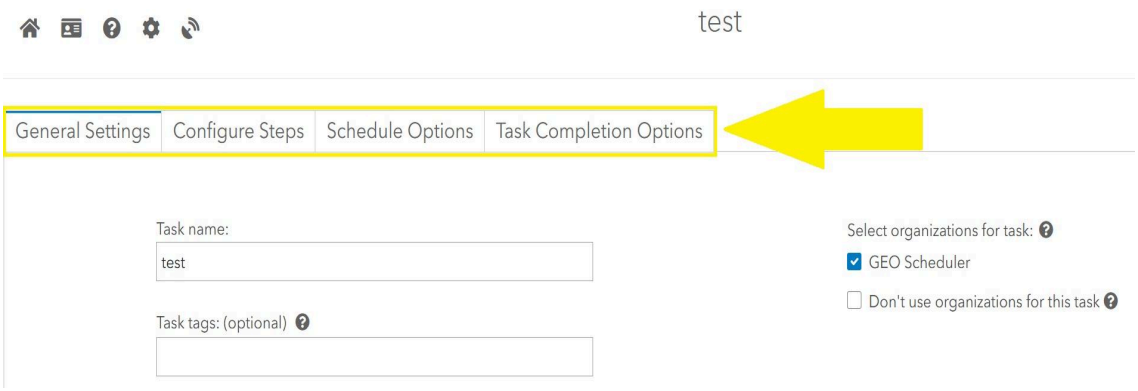


3. Editing Existing Tasks

On the far right side of the task table, each task will have an icon of a pencil in a box.

 This icon is the "Edit task" icon and clicking it allows the user to change any of the task's settings and configurations.





4. Running Tasks on Demand

While Scheduler can be used for task automation by way of setting a run schedule, it also allows for the user to both set a task to be run "On demand only" and for a scheduled task to be run on demand.

For each task, next to the Edit button is an icon of a play button surrounded by a circle.  Clicking this icon will run the associated task immediately.

F. Additional Notes on Tasks

1. Filtering The Tasks Table

Users can filter which tasks are shown on the task table. By clicking on the  icon at the top left corner of the table, the user can define a single filter or a combination of multiple filters.

Tasks can be filtered by the following categories:

- ***Name***

- ***Date Created***
- ***Date Modified***
- ***Enabled***
- ***Organization***
- ***Owner***
- ***Schedule Type***
- ***Tag***
- ***Task ID***
- ***Type***

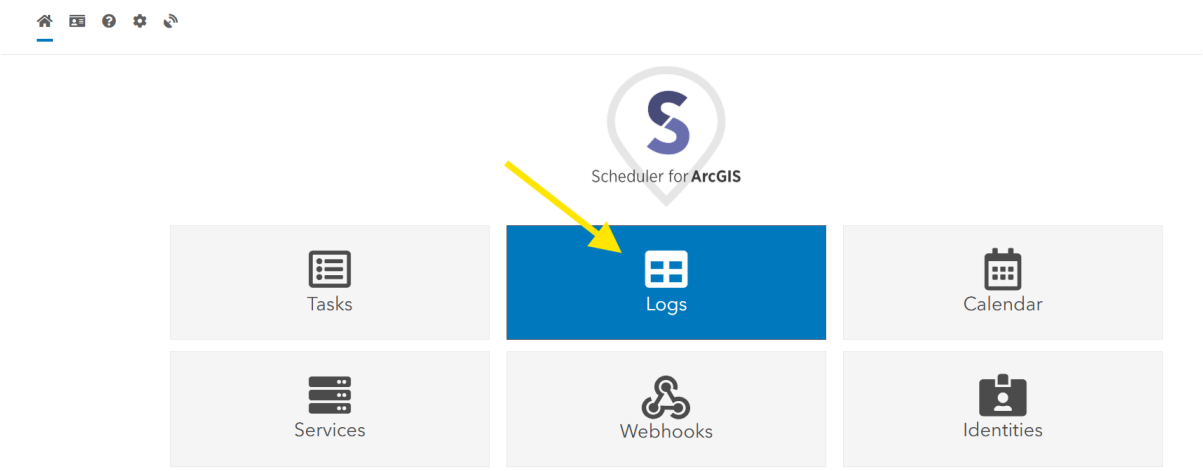
2. Downloading The Tasks Table

The "*Download Table*" button allows users to download the tasks table in either a CSV or a JSON format. The table can be downloaded either in its entirety or if a filter is applied to the table, the filtered results can be downloaded.

Downloaded tables are automatically named in the following format:

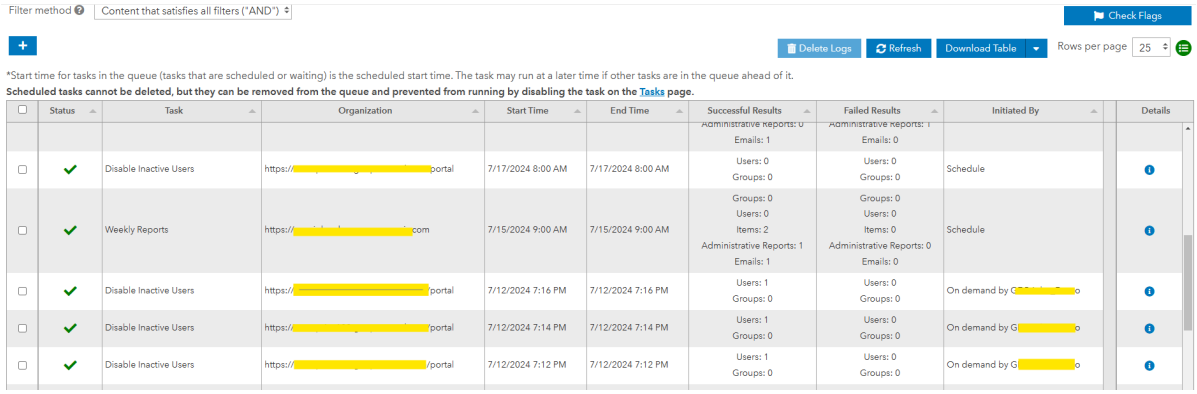
"tasks"_YYYY_MM_DD_HHMMSS

III. Logs



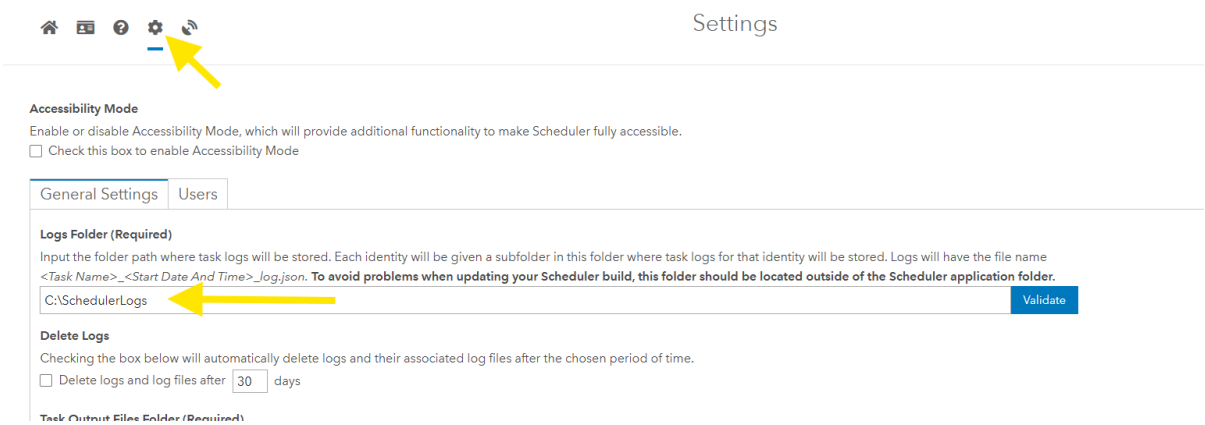
A. What Are Logs?

Task logs are records of activities that occurred when a task ran. Each time a task runs, one log is created for each identity that the task uses.

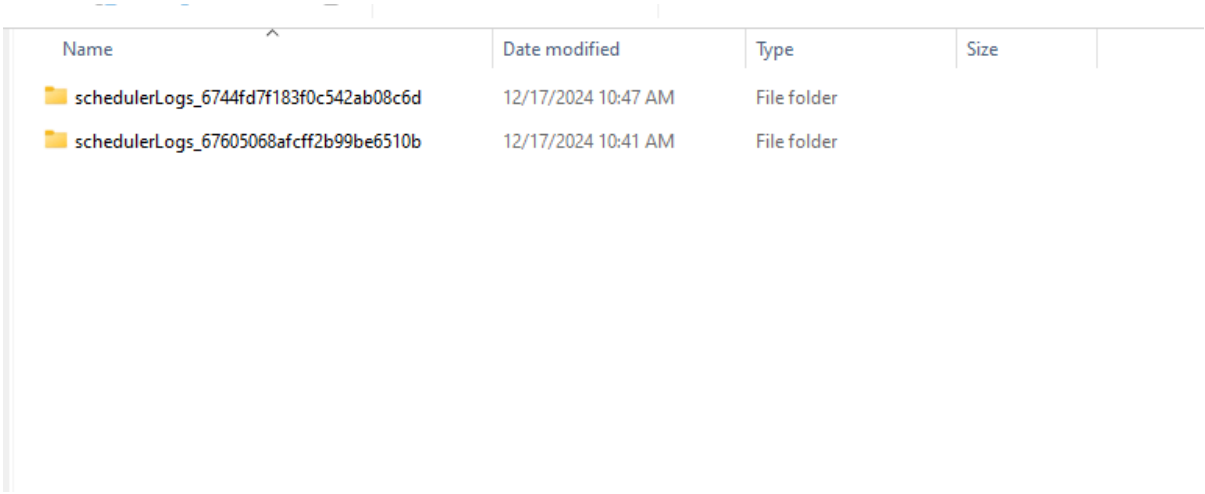


The log is a JSON file that's stored in the logs folder location indicated in Settings.

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



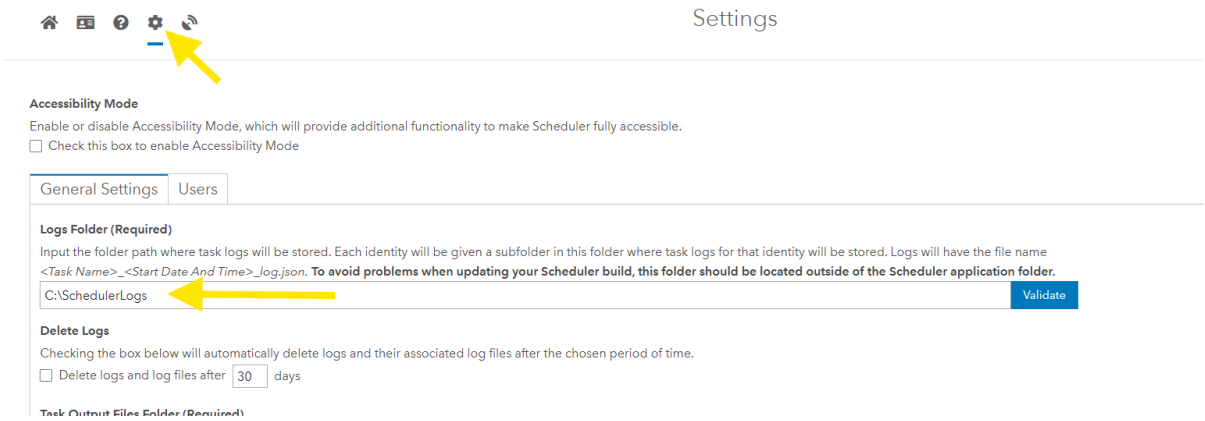
Within the logs folder location, each log file will be stored in a subfolder for its specific identity. This subfolder will be labeled *schedulerLogs_<identity_id>*, where <identity_id> is the MongoDB ID of the identity in question (you can find this property for each identity in the Log Folder ID column in the organizations tables on the Identities page).



For tasks that don't use identities, only connections, log files are stored in a subfolder called *schedulerLogs_ConnectionOnlyTasks*. Within each subfolder, the individual log files are labeled in the following format:

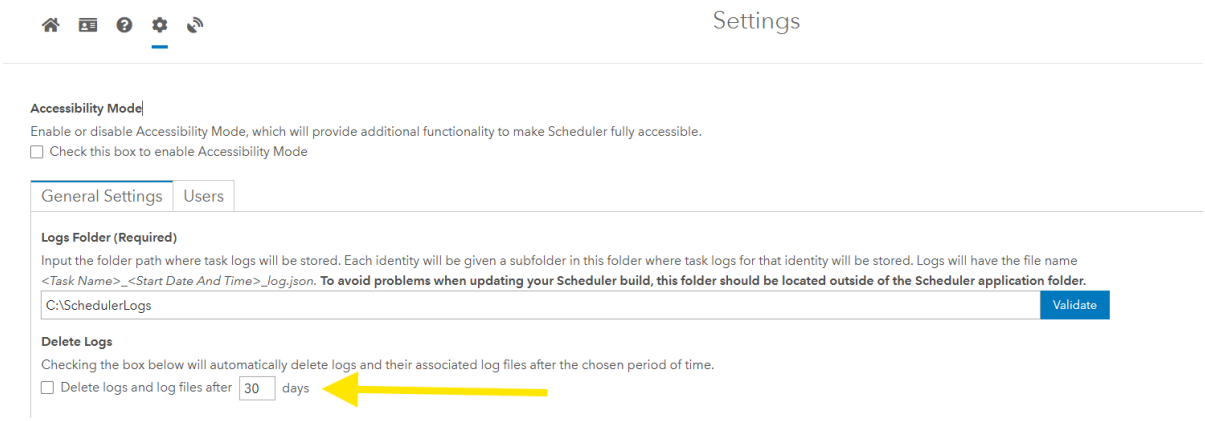
```
Unset

<task name>_<date>_<time>_log.json.
```

All log files must be kept in the same location. If users want to move the log files to a different location, they should change the Logs Folder property in Settings.



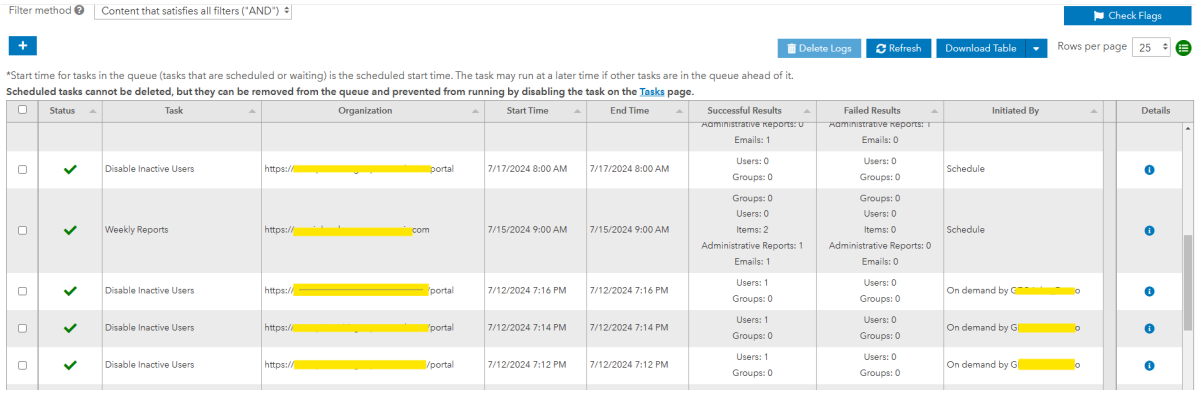
This will move the log files to the new location and also update the settings to allow Scheduler to find the files in the new location. **Do not move the log files manually, otherwise, Scheduler will not be able to find them.** A summary of each individual log is also stored as a record in MongoDB. On the Settings page, users can choose to automatically delete logs every X days, to keep the logs from taking up too much space. This will delete both the database records and the files.

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



B. Logs Table

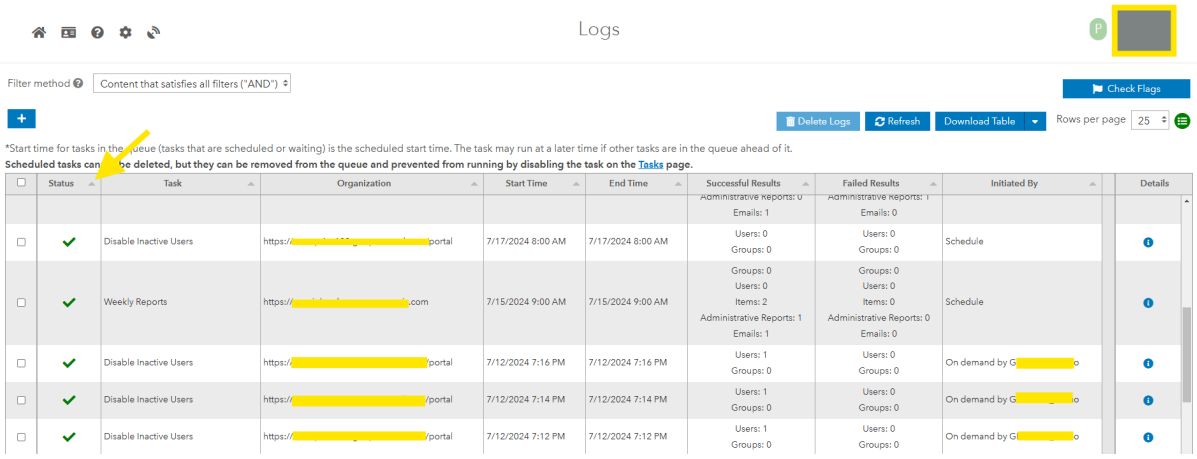
The logs table contains a record of both logs from tasks that have already run, and tasks in the queue, that is, tasks waiting to be run. Tasks are sorted by start time with the most recent first. Tasks in the queue are always at the top of the table. For scheduled tasks, the queue contains the next scheduled run time.



When the task runs, a new run time will be calculated and inserted into the queue. There will only be one scheduled task run per task per identity in the Logs table. When a task is run on demand or triggered by a webhook or other event, it will also be added to the queue. Since these tasks haven't run yet, they will not have log files. For tasks that

have run, the table will show the task's status (scheduled, pending, in progress, succeeded or failed), start and end time, a summary of how many pieces of content (items, users, groups, services, etc.) exited reporting success or failure, and what caused the task to run (its regular schedule, run on demand by a user, or triggered by a webhook or other trigger event).

The user has the capability to both choose what field is the sorting field and whether the table is then sorted in ascending or descending order.



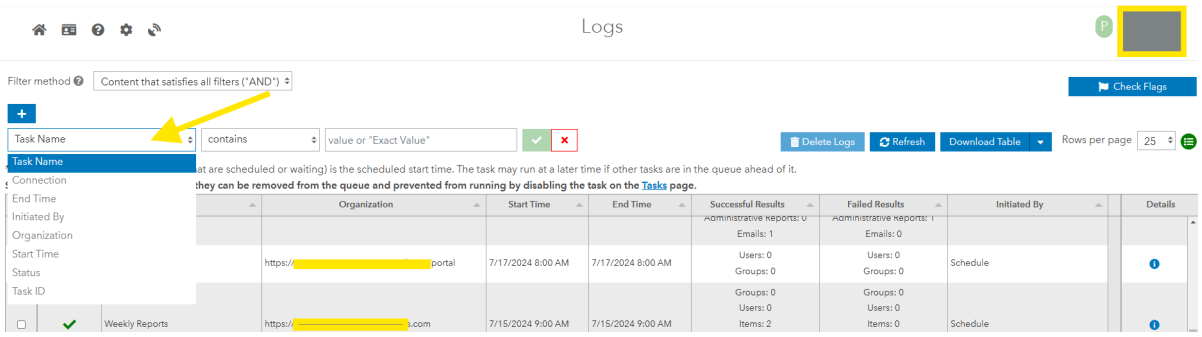
Furthermore, the user can apply filters to the table to customize what logs are shown.

Logs can be filtered by the following properties:

- ***Task Name***
- ***Connection***
- ***End Time***
- ***Initiated By***
- ***Organization***
- ***Start Time***
- ***Status***

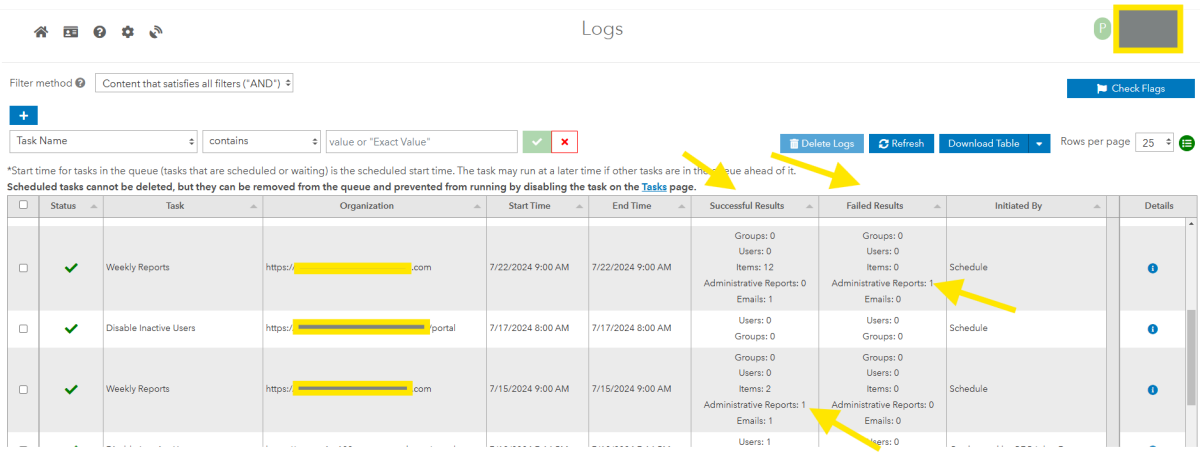
302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

- ***Task ID***



1. Successes, Failures, and Result Counts

Every successful task run returns a count of content that has succeeded and failed.

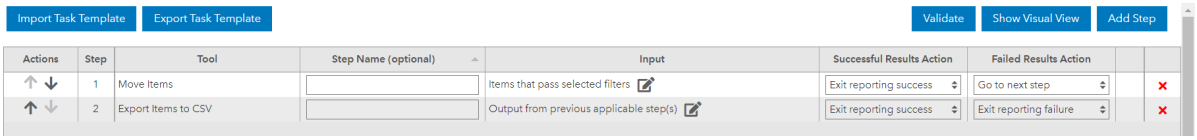


If a task fails before it can determine what content is to be processed, the Successful Results and Failed Results columns will show N/A. It is important to note that content is marked as successful if it exits the task reporting success, and failed if it exits the task reporting failure. Content exits the task marked as success or failure per conditions configured by the user in the task steps. Success or failure reflects that content's final behavior, not its performance on each step, and is dependent on

the user's choices. Counts of content that succeeded and failed for each individual step can be found in the summary section of the logs viewer modal (see below).

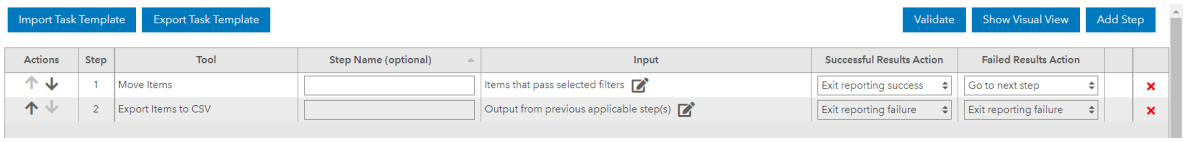
Consider a task which transfers items to a new owner. Content that is successfully transferred exits reporting success, and content that fails to transfer proceeds to the next step, which exports that content. Content that is exported successfully will exit reporting success, and content that fails to export will exit reporting failure. In this case, both content that transfers successfully and content that fails to transfer to the new owner but that is able to be exported will be reported as successes, but users will be able to see the content that failed to transfer by looking at the CSV. If the user would like to mark that content as failed results in the log, they can configure the export step to exit reporting failure even if the export succeeds. Scheduler's default is for the last step in the tool's workflow to have successful content exit reporting success, and failed content to exit reporting failure, but these can be changed by the user.

For example, imagine that for the task shown below, the task attempts to transfer 100 items to a new owner. 75 items are successfully transferred, 20 fail to be transferred but are successfully exported, and 5 fail to be transferred and also fail to export. Successes and failures will be calculated differently depending on the settings.



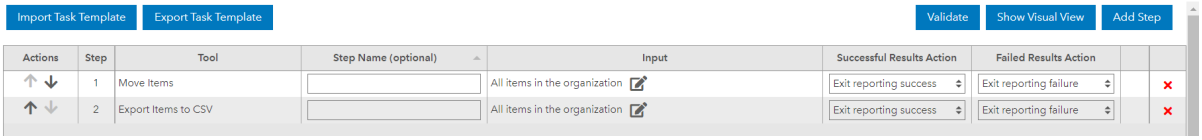
If the task were configured as above, the items that were transferred successfully would exit reporting success. The items that failed to transfer but that exported successfully would also exit reporting success. Only the items that both failed to transfer and failed to export would exit reporting failure. Thus, for the scenario above, there would be 95 successful results and 5 failed results.

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



If the task were configured in this way instead, all items that failed to transfer would exit reporting failure, even if they exported successfully. Thus, this version of the task would have 75 successful results and 25 failed results. The ability to control whether results are reported as successes or failures provides maximum flexibility for users.

For tools that use items, groups, users or services as their input, successful results plus failed results will equal the total number of items, groups, users, or services that entered the task. It should be noted that under certain configurations, an item, group, user, or service can enter the task more than once, if steps operate independently of each other. Consider a different variant of the task above:



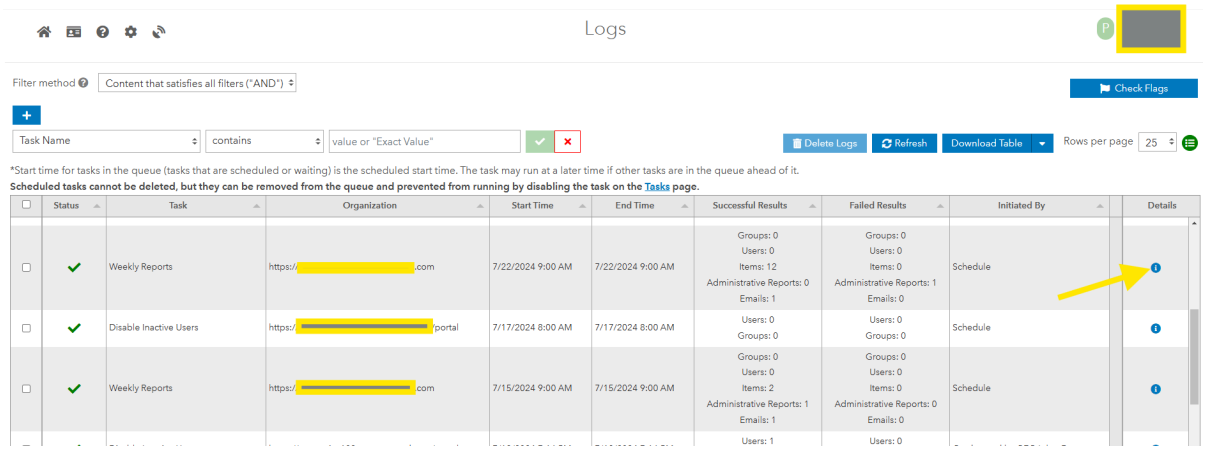
In this case, both steps take all items in the organization as their input. If there are 1,000 items in the organization, every item will enter the task twice and exit the task twice, and therefore, there will be 2,000 total results.

For administrative reports, the total number of results will reflect the total number of reports created. For portal operational health and security scans, the total number of results will reflect the total number of scans run; however, one scan can return multiple issues, which can be viewed in the CSV report. For tools where there is no content to count, such as Run Custom Scripts, the tool will have one successful result if it succeeds and one failed result if it fails.

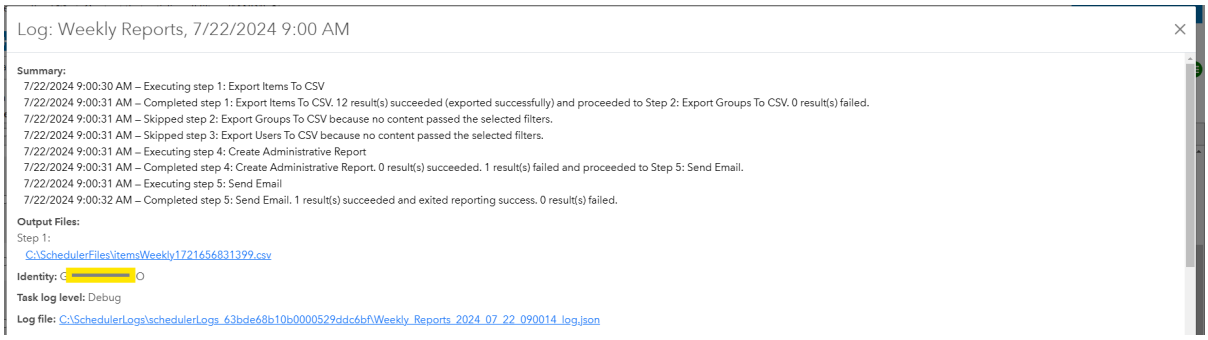
302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

C. Log Details

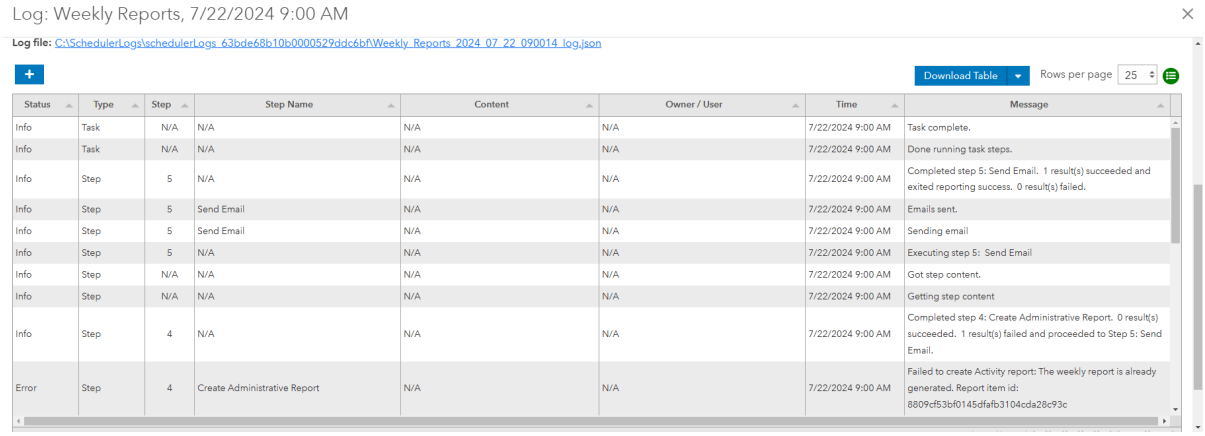
Clicking on the blue info-circle in the Details column opens the log file viewer for an individual log.



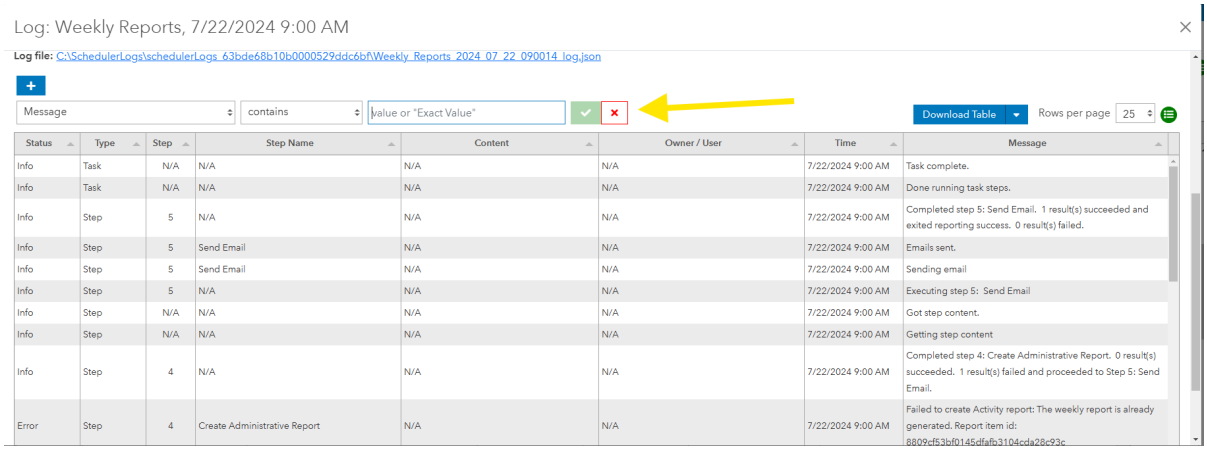
All logs contain a summary of all the steps that ran, download links for any files that were created, and any critical errors.



Beneath the summary is the log messages table, which records each individual message in the log file.



The type and amount of messages logged depends on the log level selected for the task (see Task Completion Options in the Tasks Wizard section for a detailed explanation of log levels). Changing the log level will change what information is logged going forward, but won't impact logs already created. The log messages table can be filtered in a variety of ways, allowing you to see, for example, all messages pertaining to a particular piece of content or a particular step, provided that the log level is configured to record that information.

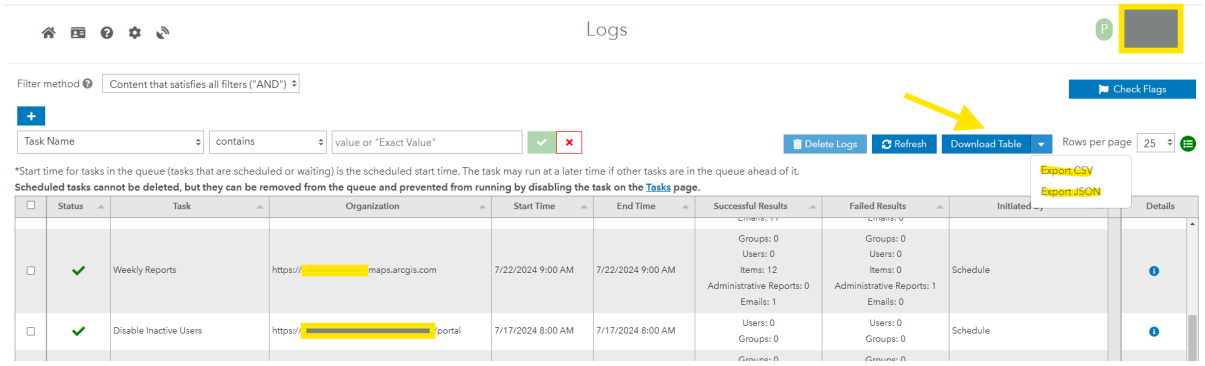


D. Downloading Logs

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

1. Logs Table

Using the “Download Table” button, users have the ability to download the logs table in either a CSV or a JSON format. The table can be downloaded either in its entirety; or if a filter is applied to the table, the filtered results can be downloaded.

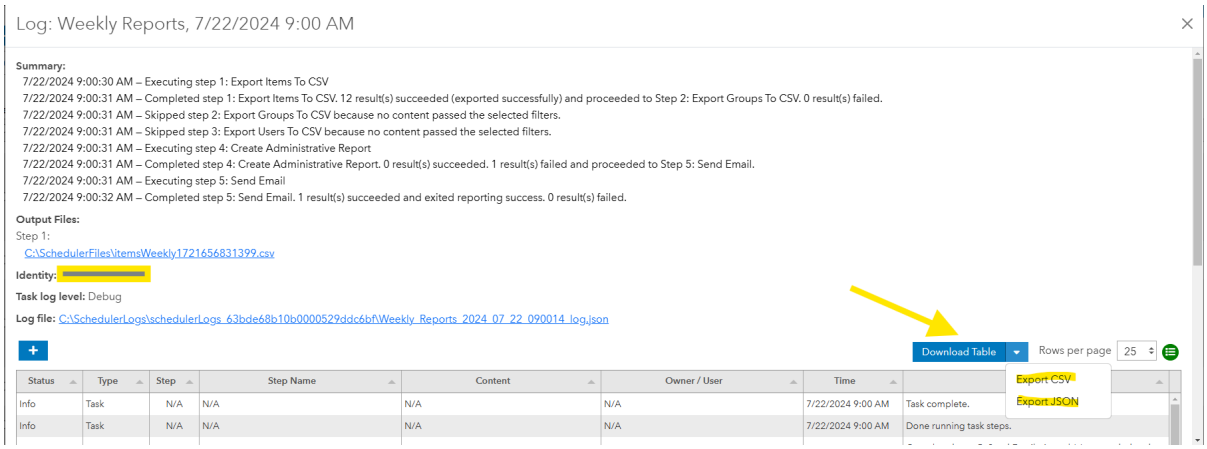


Downloaded tables are automatically named in the following format:

“logs”_YYYY_MM_DD_HHMMSS

2. Log Files

Using the “Download Table” button, users have the ability to download the log messages table in either a CSV or a JSON format. The table can be downloaded either in its entirety; or if a filter is applied to the table, the filtered results can be downloaded.



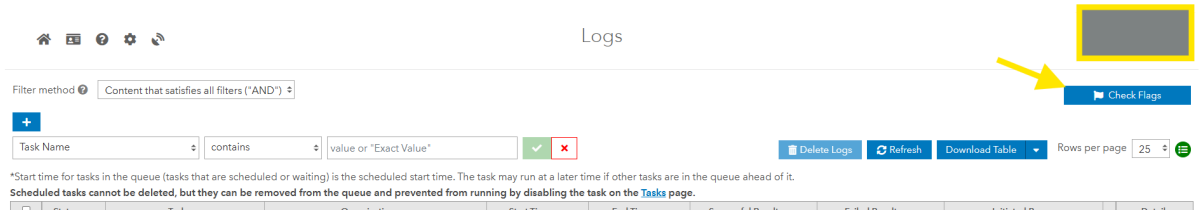
Downloaded tables are automatically named in the following format:

"messages"_YYYY_MM_DD_HHMMSS

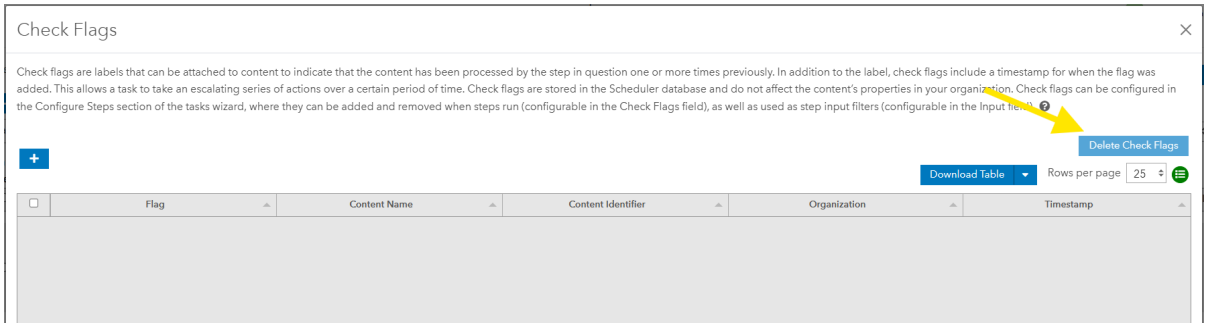
Additionally, the log file link directly above the messages table will download the JSON log file itself.

E. Check Flags

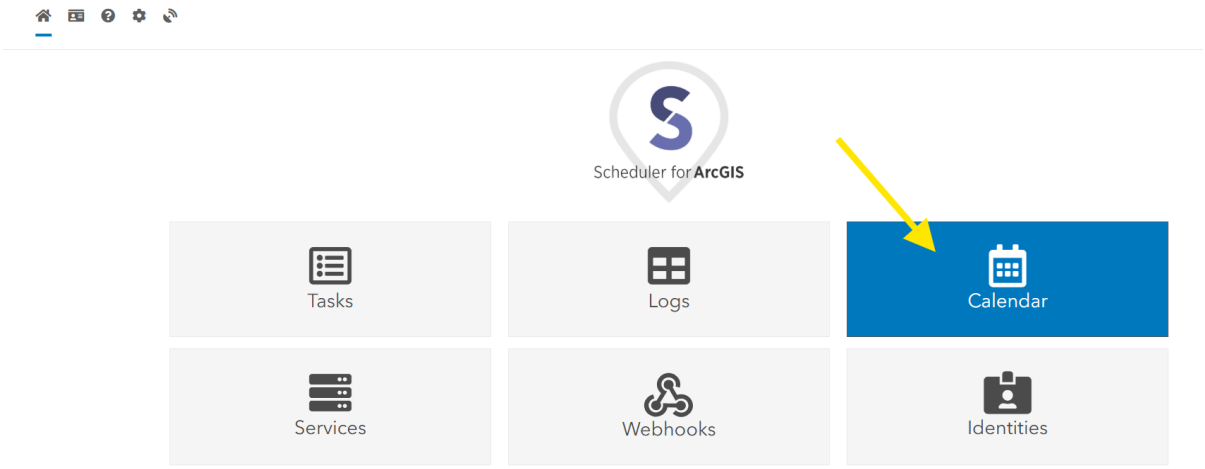
Check flags are labels that can be attached to content to indicate that the content has been processed by the step in question one or more times previously (see the Configure Steps portion of the Tasks section for more information). The check flags modal in the logs table, visible by clicking the "Check Flags" button in the upper right corner of the Logs table, allows you to see all of the check flags stored in the Scheduler database, and also to delete them.



302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



IV. Calendar

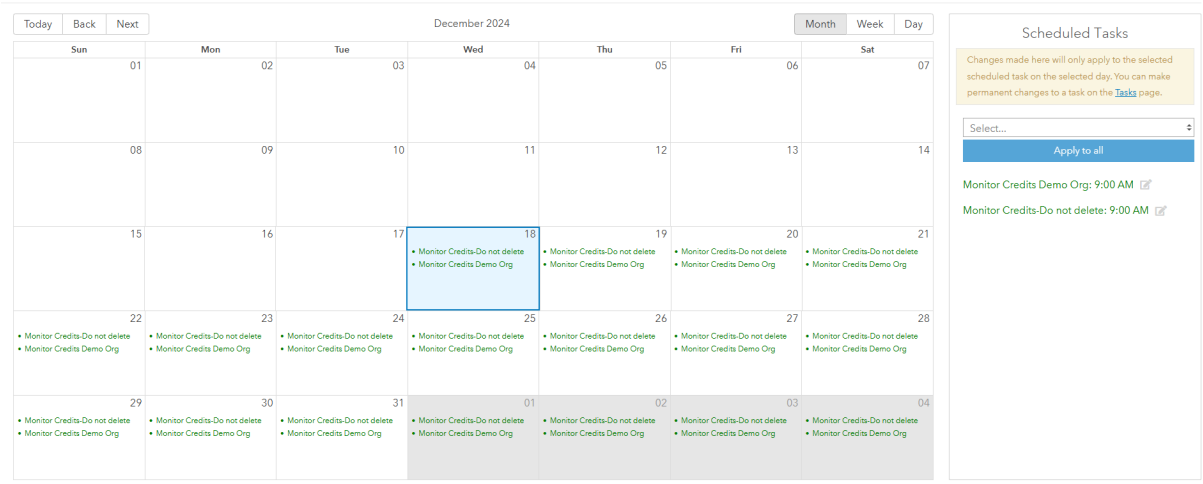


The calendar shows scheduled tasks and when they will run. Only tasks that are enabled will appear here, and the calendar will only show tasks scheduled for the future

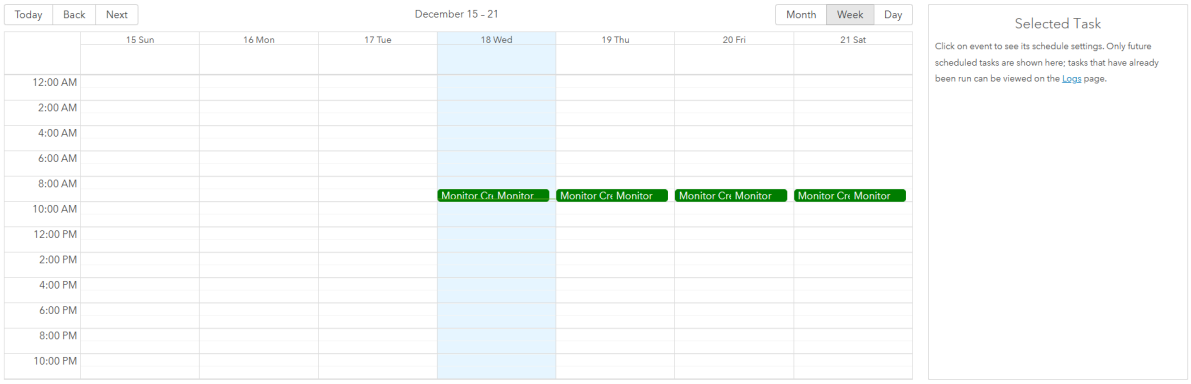
302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

(to see tasks that have already run, use the Logs table). The exception to this is the current day, which to avoid confusion will show all scheduled tasks, including those that have already run. There is:

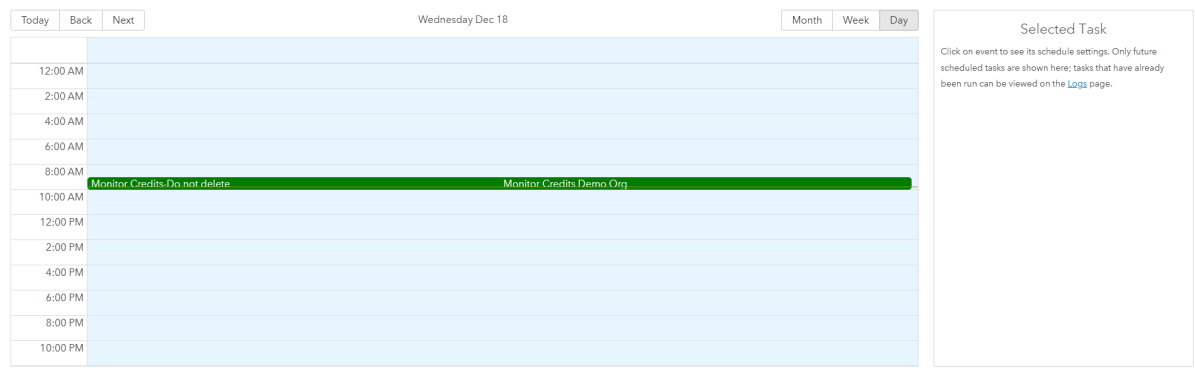
- A month view, which shows the whole month and a list of tasks for each day



- A week view



- A day view, which shows hour by hour.

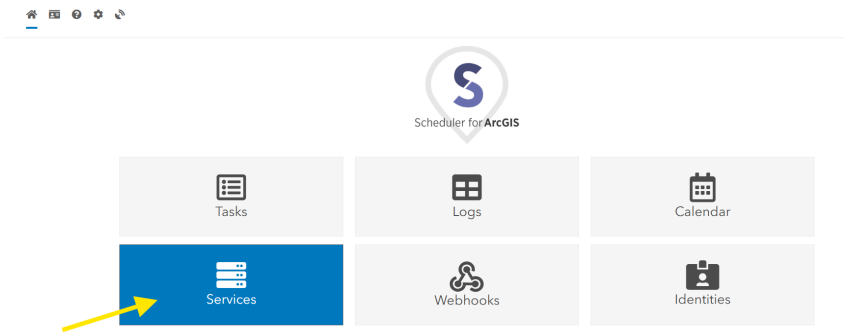


The start time of the calendar block coincides with the start time of the task. In order to create a visible block on the calendar for each task, all tasks are shown as taking 10 minutes, but this is solely for display purposes and does not reflect how long the task will actually take. To avoid the calendar getting too crowded, tasks that run multiple times per day will appear at the top as all-day events.

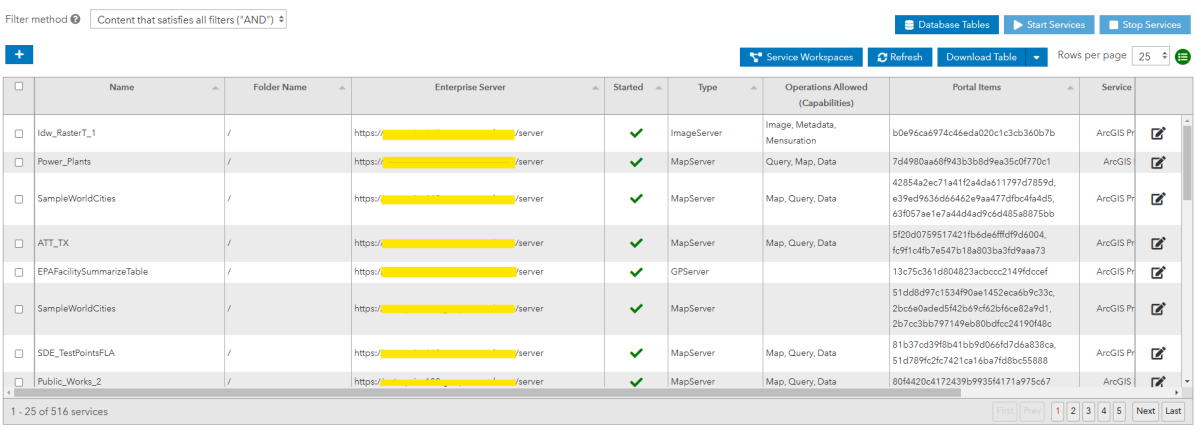
Users can get more information about a task's run time by clicking on a day (in the month view) or the task itself (in the week and day views). The sidebar will show the tasks and what the expected run time is for each. Users can also edit a task's schedule for a particular day without changing the overall schedule. For example, if there's going to be server maintenance on a particular day and the user doesn't want the task to run during that time, for that day only they can disable it or move it to a different time, without changing the task's schedule on other days.

V. Services

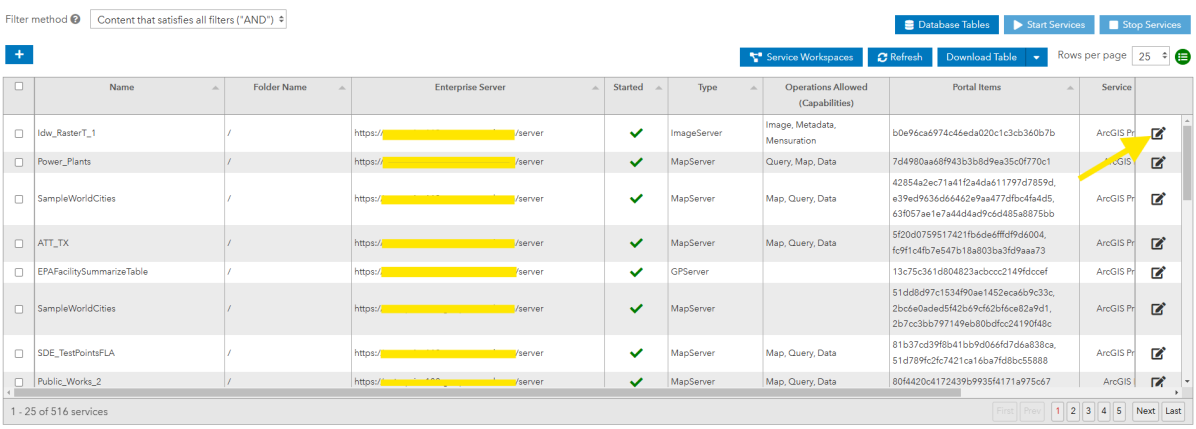
302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



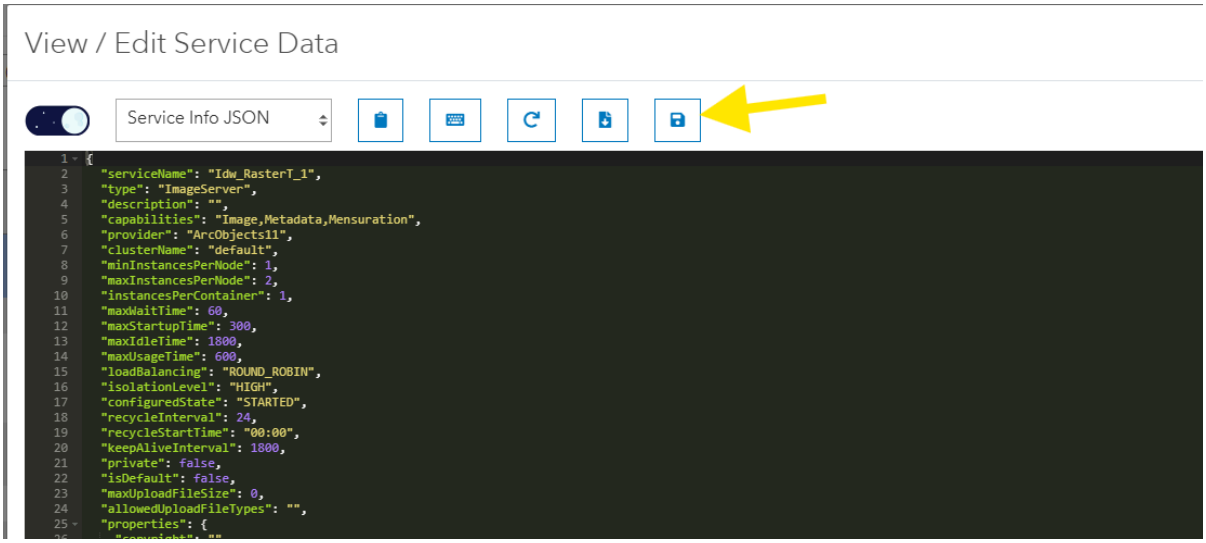
If you have one or more ArcGIS Server connections set up, the Services table will show those connections' services and their properties. Services have many properties, and the properties present for each service will depend on the service's type and configuration. The Services table displays a few common service properties, which may not be present for every service; if users want to see a field that isn't currently in the table, they can contact our support team to request it.



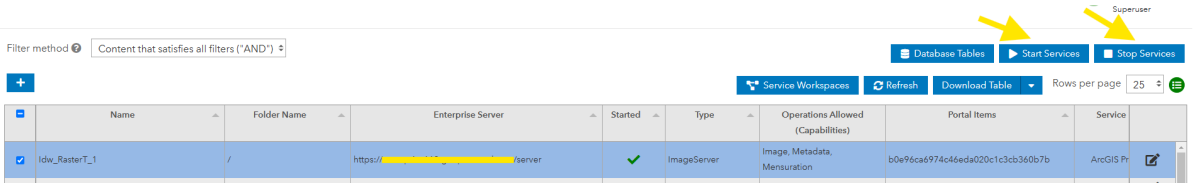
The same applies to the filters. All of the properties for an individual service can be viewed and edited by clicking the edit icon, which will open a JSON editor that shows all of the service's properties.



Users can make changes within the text editor and then click the Save button to update the service.



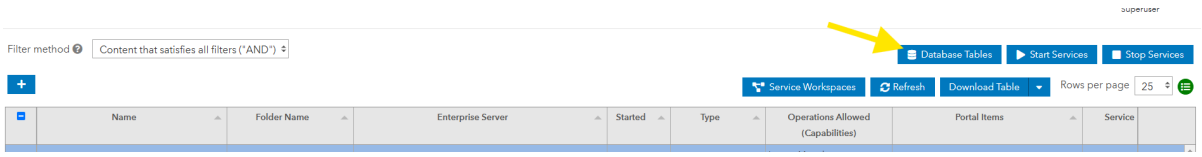
The service manifest data, which provides information about the databases and other resources that a service uses, can also be viewed in the JSON editor, though this data can't be edited. Users can also bulk start and stop services using the buttons to the upper right of the table.



Scheduler can be used as a services viewer even if you don't intend to run tasks that interact with the services.

A. Service Database Tables

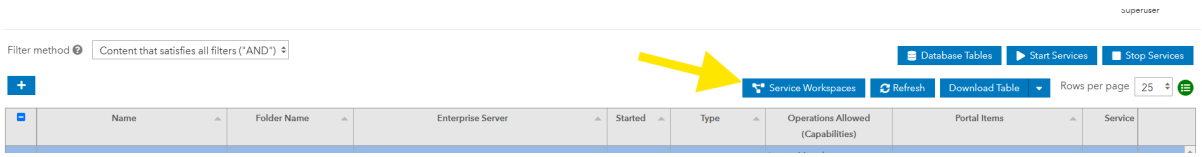
If your services come from data stored in a database table, and if that database is one of your database connections in Scheduler, you can configure Scheduler to access that table. You can do this in the Database Tables modal on the Services page.



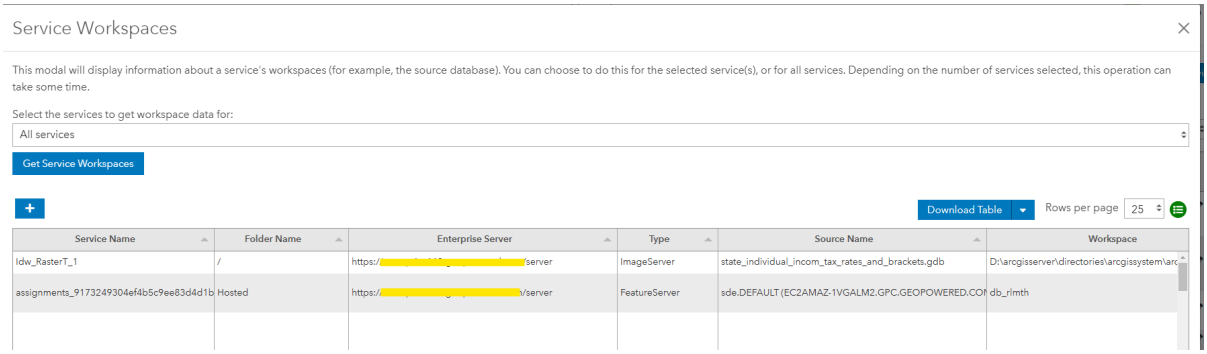
Enter the service layer information and the corresponding table, and for any activity that uses the service layer, Scheduler will be able to find the corresponding table. Optionally, you can select indexes to use when rebuilding indexes. One usage of this functionality might be to create a triggered task that runs when a feature service has been updated a certain number of times and that rebuilds the indexes of the underlying tables for that service in order to improve performance.

B. Service Workspaces

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



Scheduler can also display all of the workspaces being used by your services in the Service Workspaces table.



This table pulls from the service manifest data and shows information about the source database(s) and datasets being used by a service. The table displays one row per workspace per service, so you can see all of the workspaces used by a service, or all of the services that use a workspace. This can be useful if, for example, you want to make changes to a database, but first you need to stop all of the services that use that database. In that case you would simply filter by that database workspace, and you could then stop all of the services that use it. For a large number of services, loading service workspace information can take some time, so you also have the option to select a subset of services from the Services table and just get the workspace information for those selected services.

VI. Webhooks

Scheduler gives you the ability to view and manage webhooks for organization content (items, users and groups), hosted feature services and Survey123 surveys. Additionally,

Scheduler can use webhooks to trigger tasks in response to actions involving items, users, groups, services or Survey123 forms (see the section on Organization Event-Driven Tasks for more information).

Note: *If you want to use webhooks to trigger tasks, Scheduler must be installed on a server with a fully qualified domain name and a valid certificate from an external certificate authority (i.e. not self-signed). If you wish to run Scheduler on localhost and leverage webhooks, you can do so by using a URL rewrite to create a fully qualified domain name for localhost. Scheduler comes with a default web.config file that can be used to enable a URL rewrite. If you simply want to view and manage webhooks for applications other than Scheduler, you can do so without meeting these requirements.*

A. What Are Webhooks?

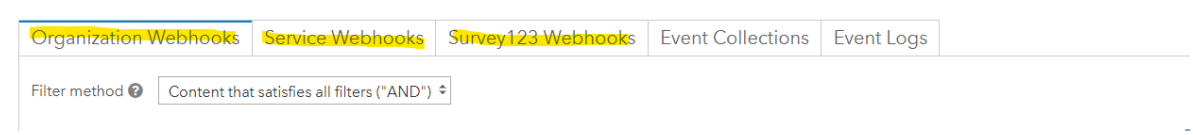
Generally speaking, webhooks are event listeners that respond whenever a particular action occurs. The webhook detects the action and then sends information about the action (the payload) to the URL of the application configured to receive it. That application can then perform some functionality based on the information contained in the payload. For example, you could configure a webhook that fires when an item in your organization is shared publicly. The payload would contain the item ID of the item that was shared, and the receiving application could then do something to that item, such as tag it or validate it, or simply alert an admin that the item had been shared.

Esri provides several kinds of webhooks for ArcGIS, including organization webhooks, hosted feature service webhooks and Survey123 webhooks. Organization webhooks for items, users, and groups are available in Enterprise 10.7 and above and detect actions such as sharing content, changing ownership of content, or creating content. Hosted feature service webhooks are available in ArcGIS Online and in Enterprise 11 and above. These webhooks detect actions such as editing or adding features. Survey123 webhooks are also available in ArcGIS Online and in Enterprise 11 and above, and detect when a Survey123 form response is submitted or updated. Organization and Survey123 webhooks respond to events as soon as they occur, while service webhooks

report changes in batches, at a frequency that can be configured in the “schedule” property. You can learn more about webhooks by consulting Esri’s documentation on webhooks in ArcGIS Enterprise and webhooks in ArcGIS Online.

B. The Webhooks Tables

Scheduler provides a comprehensive interface for viewing organization, feature service and Survey123 webhooks, as well as for creating, updating and deleting organization and service webhooks in bulk. The Webhooks page shows all of the organization, service and Survey123 webhooks for all identities, including both webhooks that are used in Scheduler and those that are used in other applications.



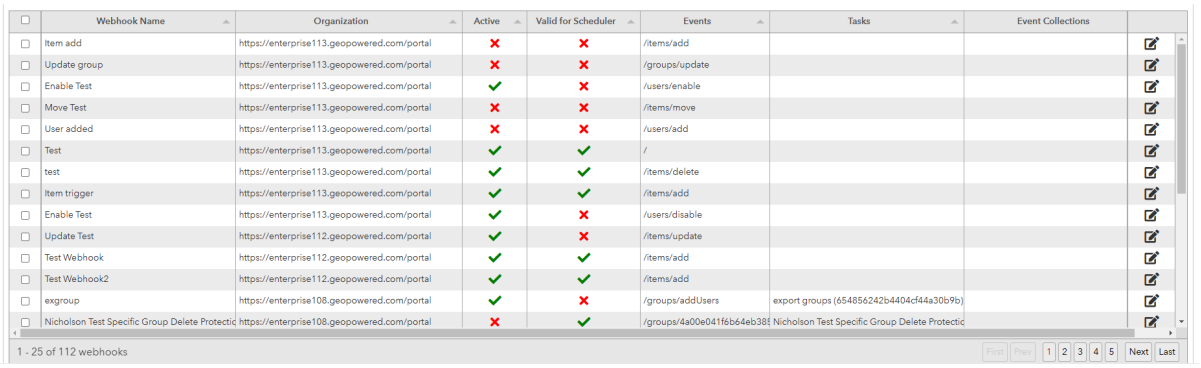
1. Organization Webhooks

The organization webhooks table shows all organization webhooks for items, users and groups for all the Enterprise identities that have been added to Scheduler. You can also filter these webhooks by a number of different properties.

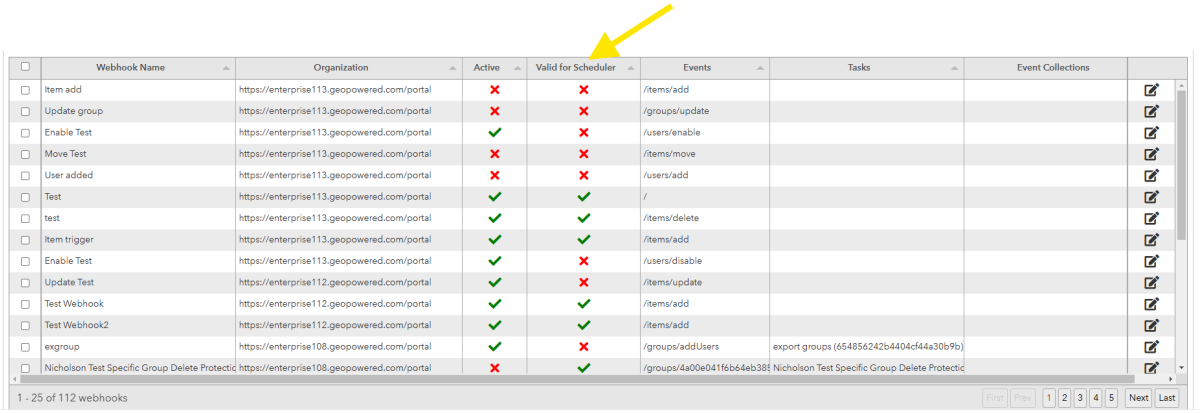
a. Table Columns

The table columns display the webhooks’ properties, such as their name, the organization they come from, and whether or not they are active.

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

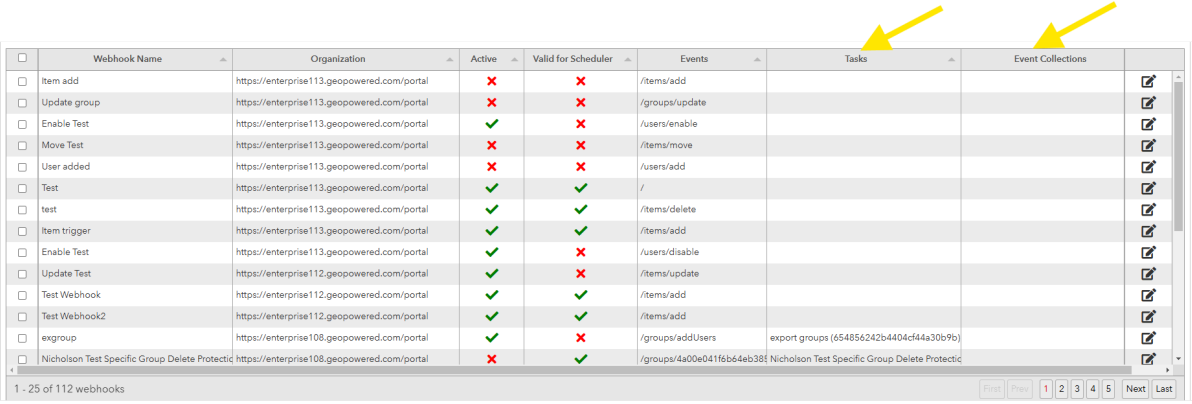


The **Valid for Scheduler** column indicates whether a webhook can be used in Scheduler. If a webhook's payload URL matches the Scheduler URL configured on the Settings page (see the Settings section for details on configuring this property), it is considered valid for Scheduler; otherwise, it is not. You can still view and modify webhooks that aren't valid for Scheduler, but you won't be able to use them to trigger tasks.



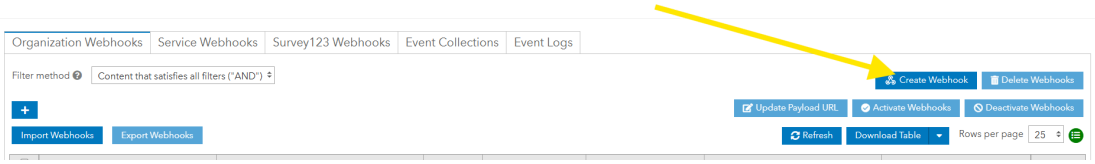
The **Tasks** and **Event Collections** columns show what tasks or event collections, if any, are using a webhook (for more information on event collections, see below).

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

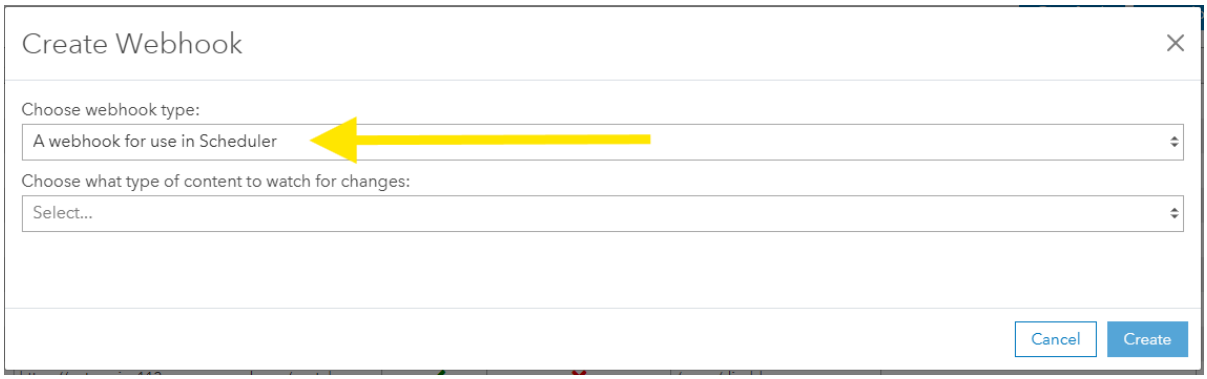


b. Create Webhooks

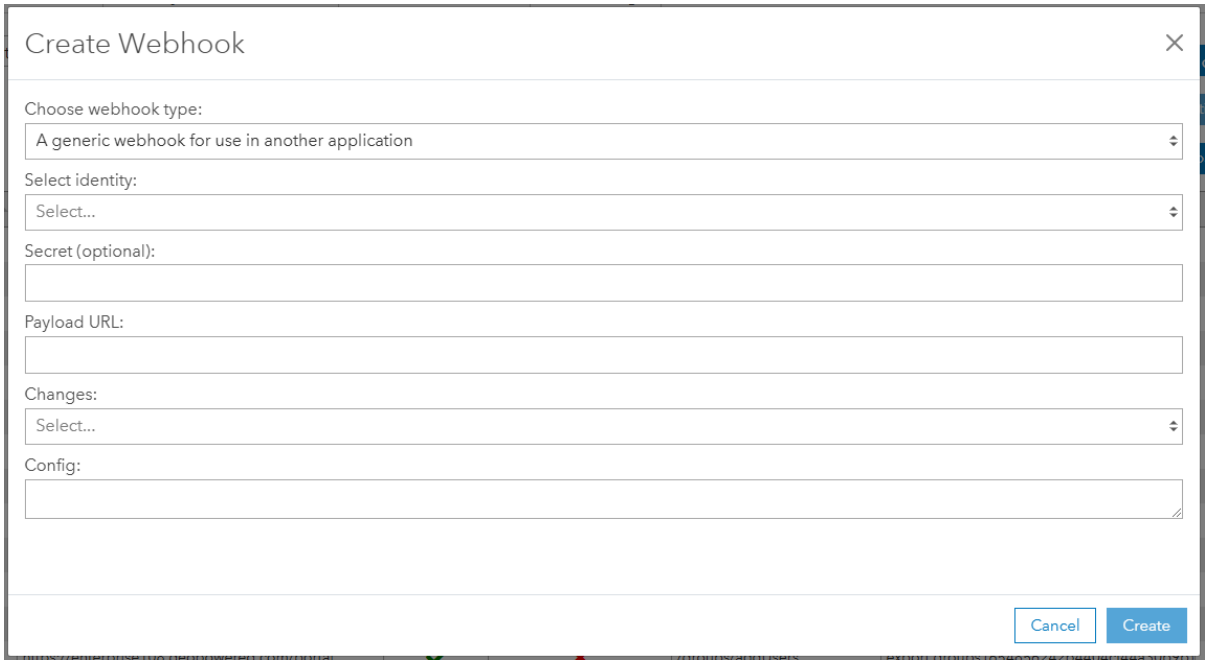
Clicking the Create Webhook button opens the Create Webhook modal, which will walk you through the process of setting up a webhook.



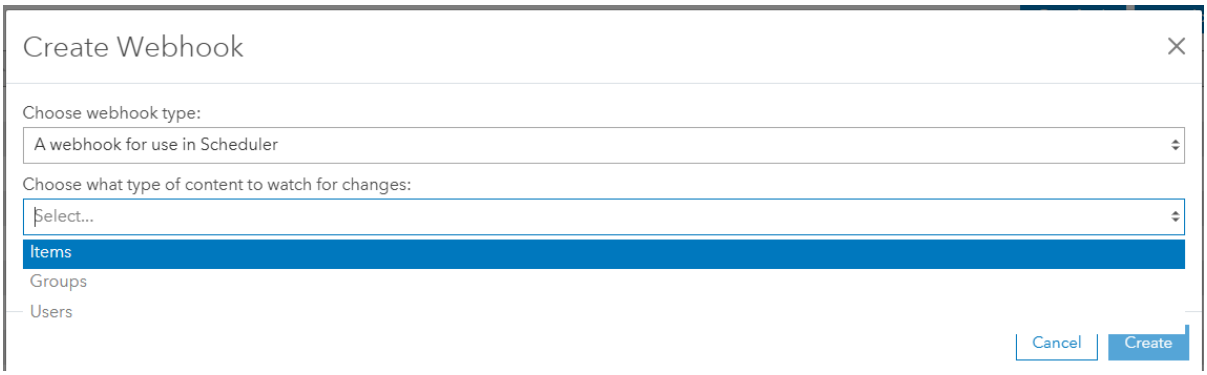
If you choose to create a webhook for use in Scheduler, the webhook's payload URL will automatically be set to the Scheduler URL, and there will be several additional options available.

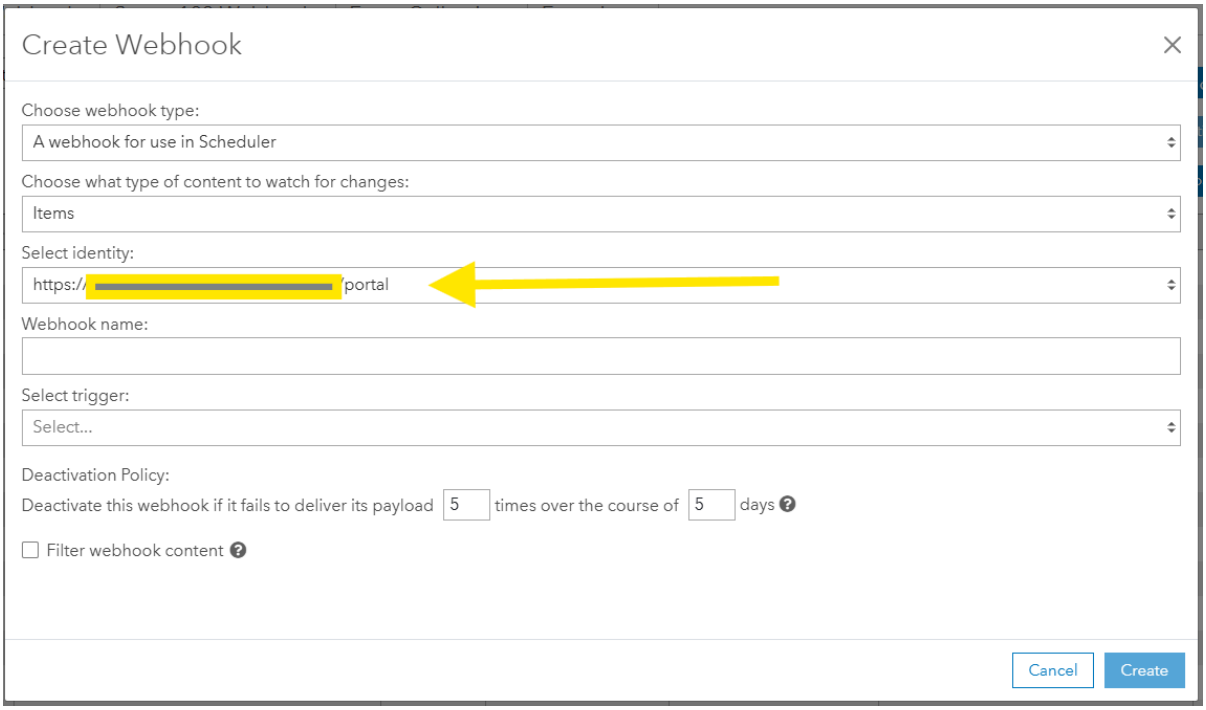


If you choose to create a generic webhook for use in another application, you will input information in the same format as is used in Esri's REST API interface in your organization.

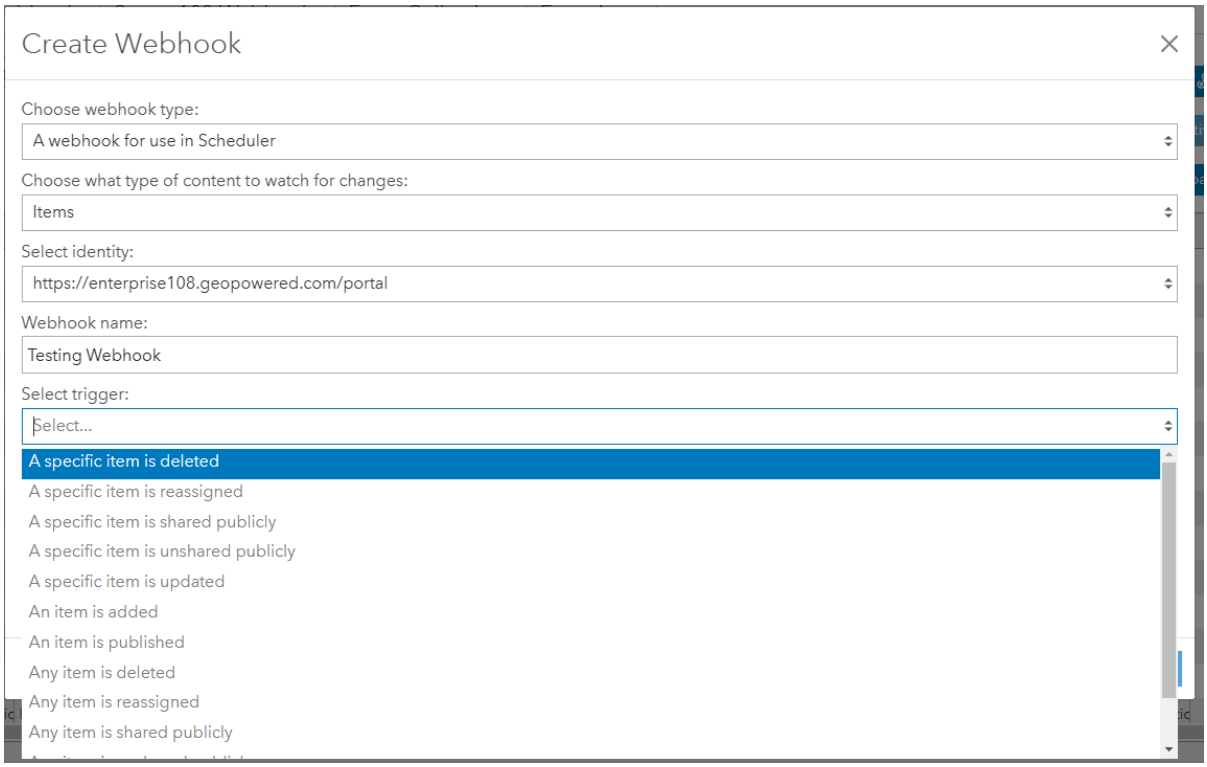


Once you select your webhook type, you will need to choose what type of content to watch, for Scheduler webhooks, and select an identity that the webhook will be used with.

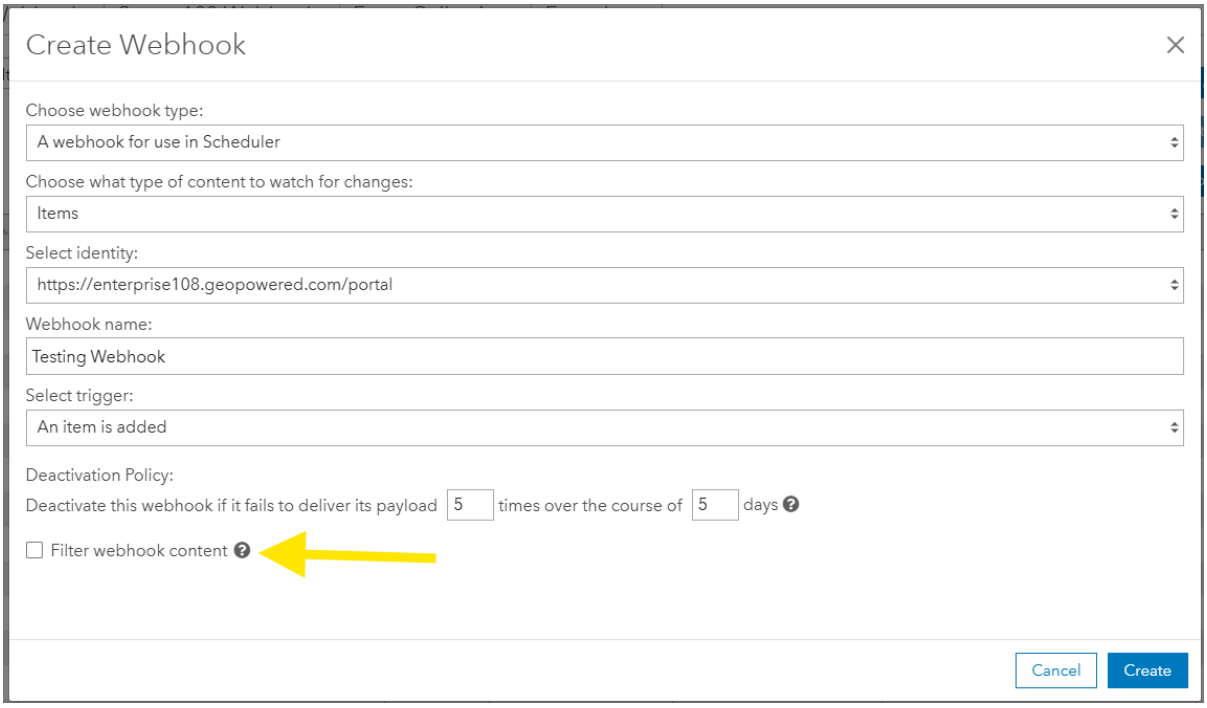




You will then name your webhook, and select or enter the event that will trigger the webhook. Webhooks can have multiple events, but Scheduler works best with webhooks that have only a single event, because different events return different information, which could lead to problems when running tasks.



If you are creating a webhook for use in Scheduler, you will have an additional option to filter the webhook content.



Out-of-the-box webhooks functionality allows you to watch an event for all items, users or groups, or for specific IDs or usernames. Scheduler's additional functionality allows you to configure your webhook to, for example, only respond to an event for feature services but not for other item types, providing maximum flexibility. Information about filters is stored in the Scheduler database, so using filters won't impact how the webhook is configured in your organization. Webhooks with filters will still be triggered in your organization regardless of whether they pass the filters, but when Scheduler receives them it will ignore them if the content they reference doesn't pass the filters. This functionality is unique to Scheduler, so it will not work when using the webhook with another application.

When you click Create, Scheduler will create the webhook. If an error occurs, make sure that your environment is properly configured (see the note earlier in this section about requirements for webhooks).

c. Delete Webhooks

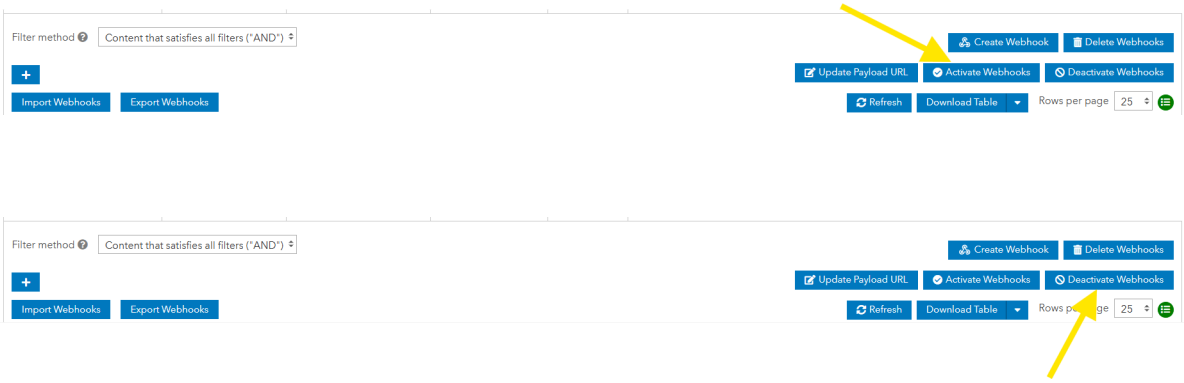
You can select one or more webhooks and bulk delete them. Scheduler will first report how many tasks or event collections are using the selected webhooks, to ensure that you don't delete webhooks that will interfere with your tasks.

d. Update Payload URL

You can bulk update the payload URL of webhooks. This changes the application which will receive the webhook's payload. Each webhook can send its payload to a single application. You can use this tool to migrate webhooks used in other applications to Scheduler, or vice versa.

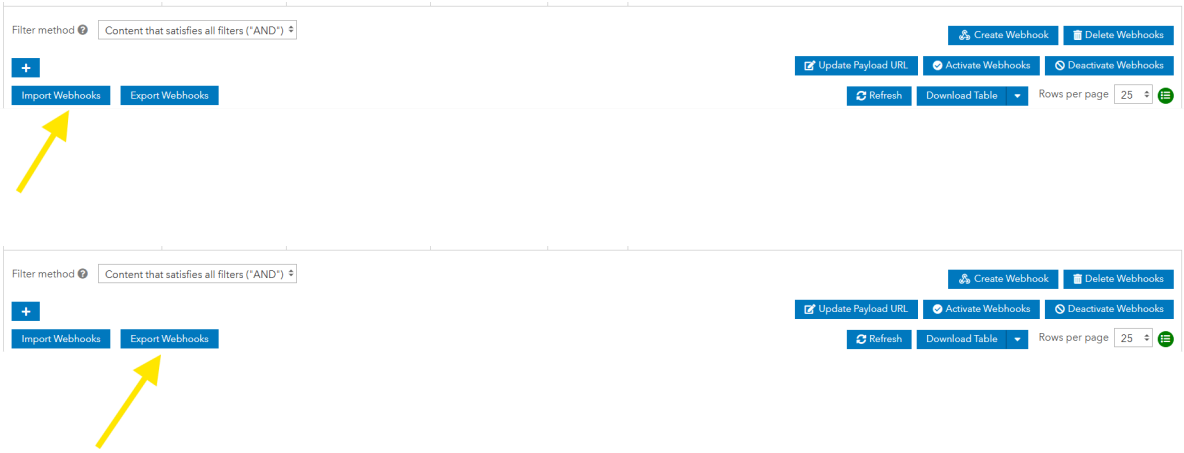
e. Activate and Deactivate Webhooks

You can bulk activate and deactivate webhooks. Inactive webhooks will not fire and will not trigger tasks.



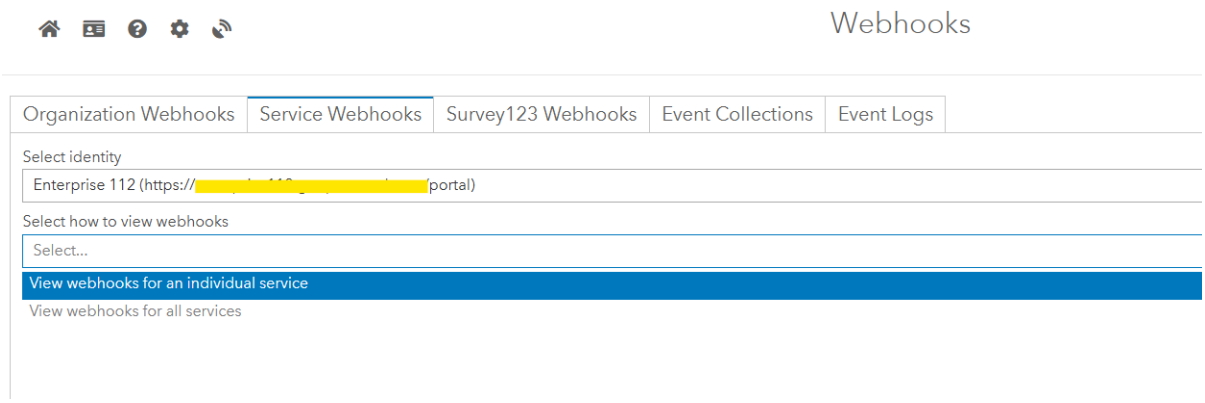
f. Import and Export Webhooks

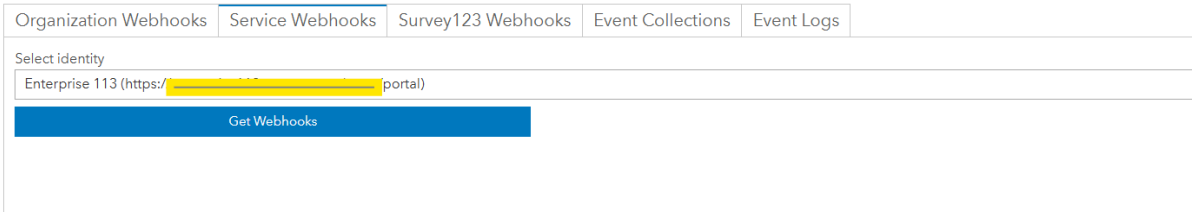
You can use these tools to clone webhooks or to bulk update properties other than the payload URL. Simply export the webhooks to CSV, make the desired changes (such as changing the identity), then import them.



2. Service Webhooks

The service webhooks table displays feature service webhooks for all Enterprise 11+ and ArcGIS Online identities. Due to changes in Esri's API, fetching service webhooks for Enterprise 11.2 and below is more time-consuming and resource-intensive than fetching service webhooks for Enterprise 11.3 and above and for ArcGIS Online, depending on the number of services in your organization. Because of this you are given the option to only display the webhooks for a single identity, and, for Enterprise 11.2 and below, for a single service for a particular identity. You can also choose to view webhooks for all identities or all services. You can filter webhooks by a number of different properties.

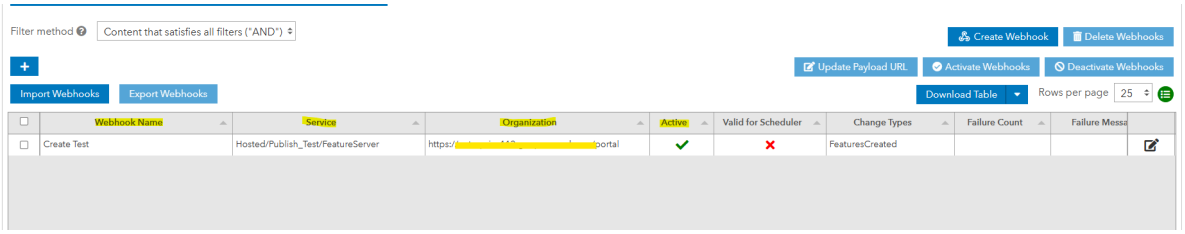




a. Table Columns

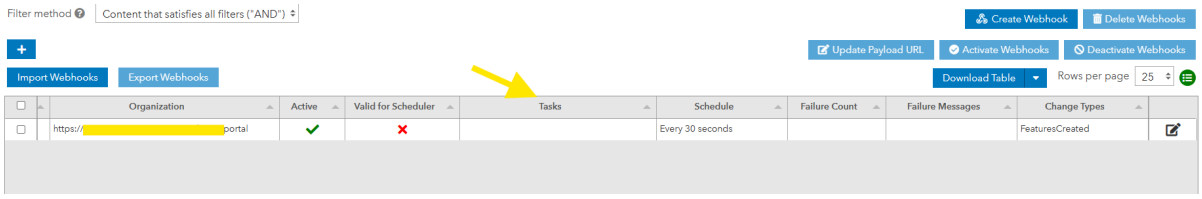
The table columns display the webhooks' properties, such as their name, the service they're assigned to, the organization they come from, and whether or not they are active.

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

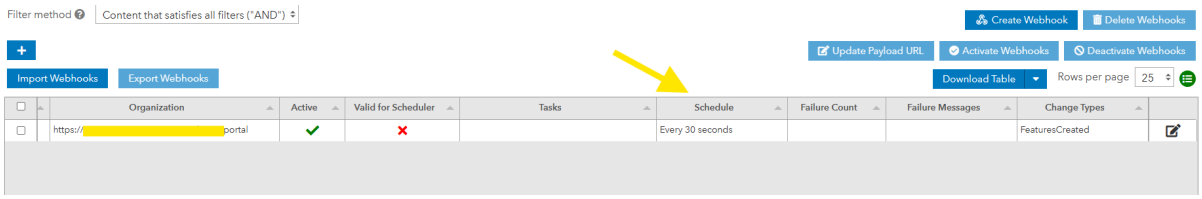


The **Valid for Scheduler** column indicates whether a webhook can be used in Scheduler. If a webhook's payload URL matches the Scheduler URL configured on the Settings page (see the Settings section for details on configuring this property), it is considered valid for Scheduler; otherwise, it is not. You can still view and modify webhooks that aren't valid for Scheduler, but you won't be able to use them to trigger tasks.

The **Tasks** column shows what tasks, if any, are using a webhook.

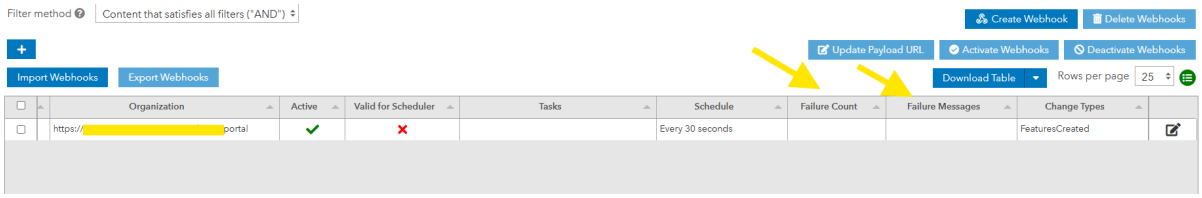


The **Schedule** column shows how frequently the webhook checks for updates.



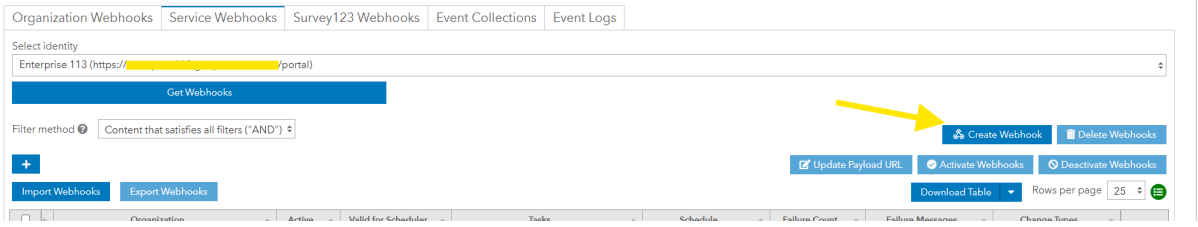
The **Failure Count** and **Failure Messages** columns show information indicating when a webhook payload failed to be delivered (for example if the Scheduler server is down). Service webhooks will automatically deactivate after five failures.

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

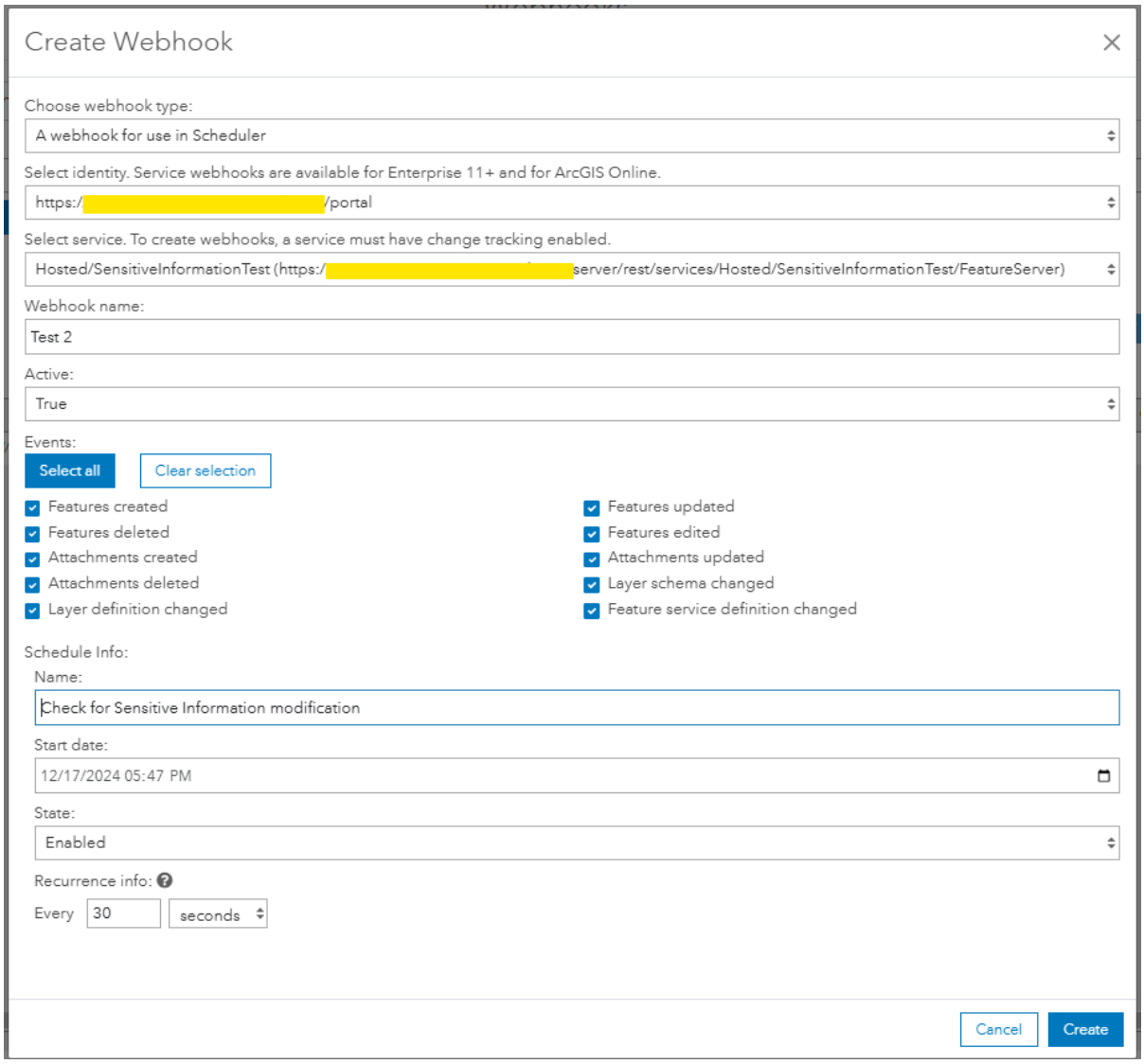


b. Create Webhooks

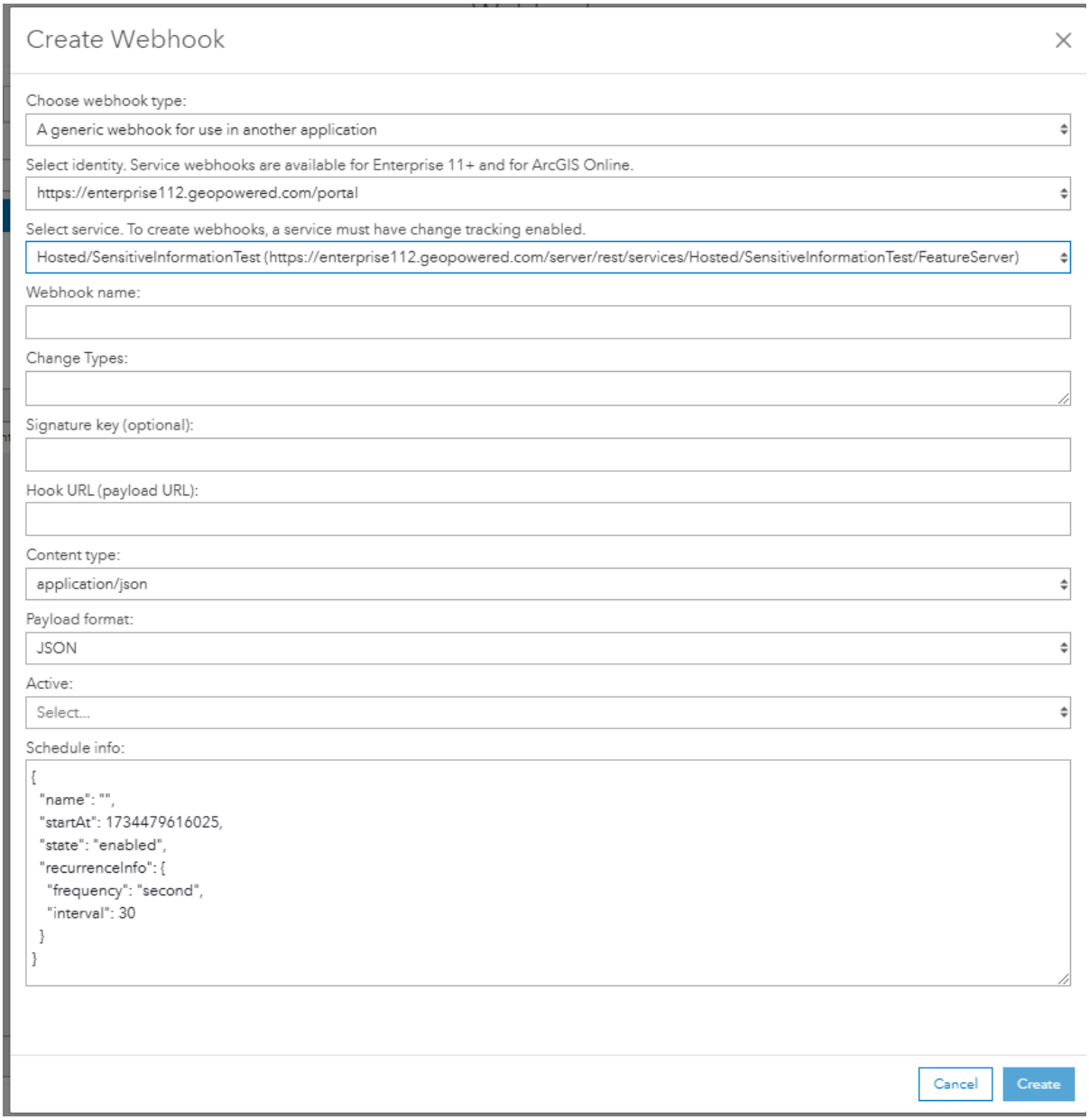
Clicking the Create Webhook button opens the Create Webhook modal, which will walk you through the process of setting up a webhook.



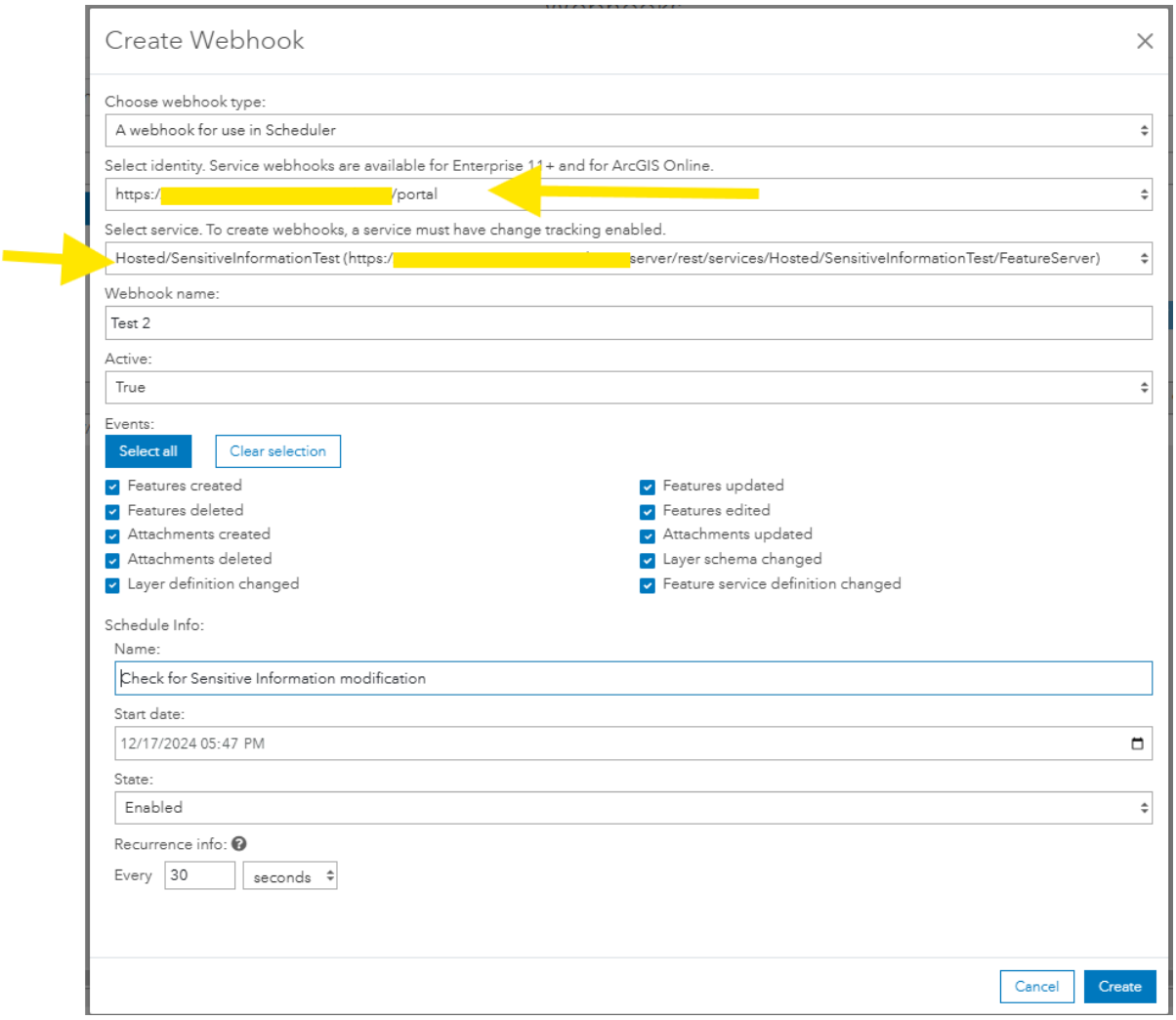
If you choose to create a webhook for use in Scheduler, the webhook's payload URL will automatically be set to the Scheduler URL, and there will be several additional options available.



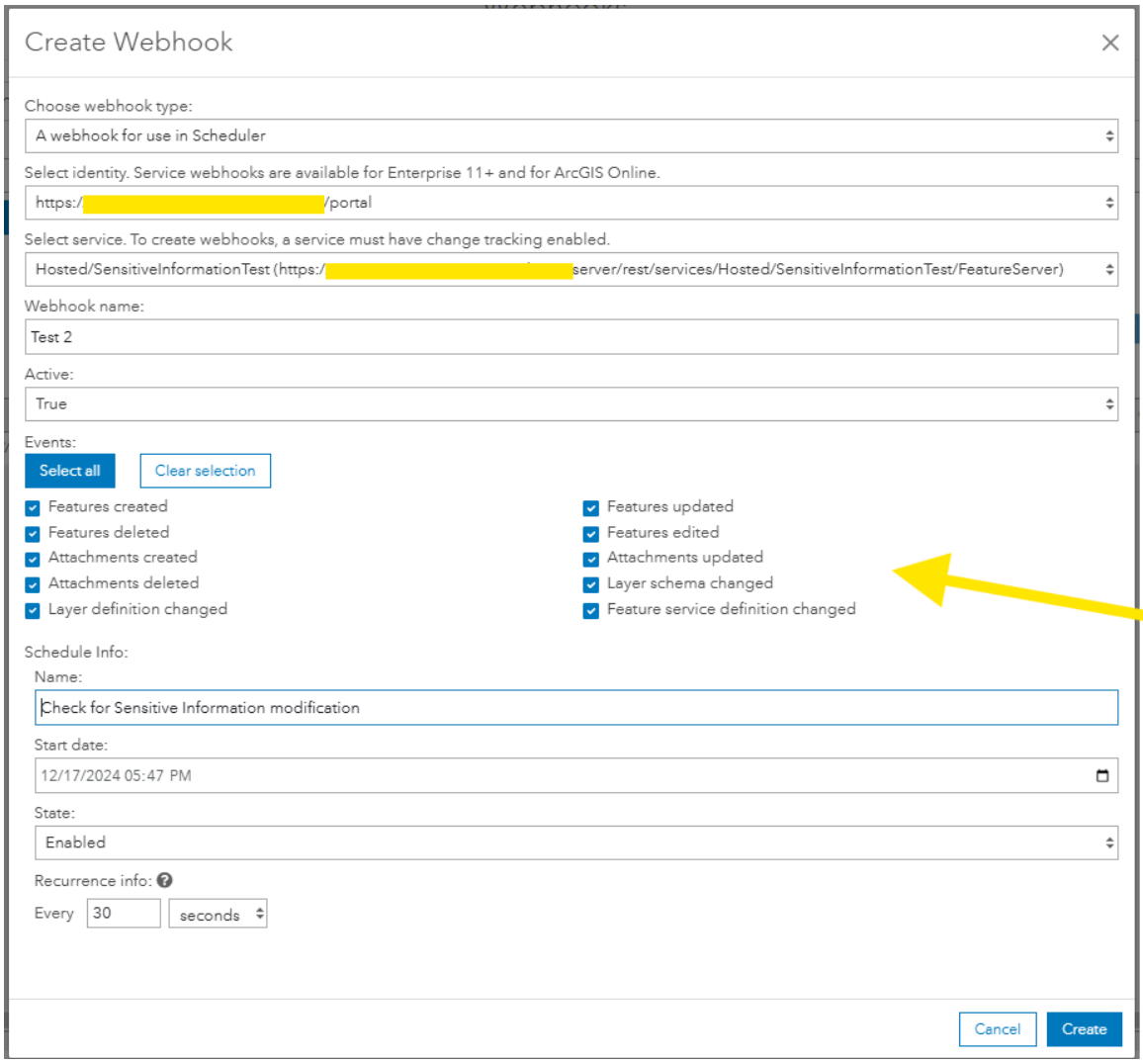
If you choose to create a generic webhook for use in another application, you will input information in the same format as is used in Esri's REST API interface in your organization.



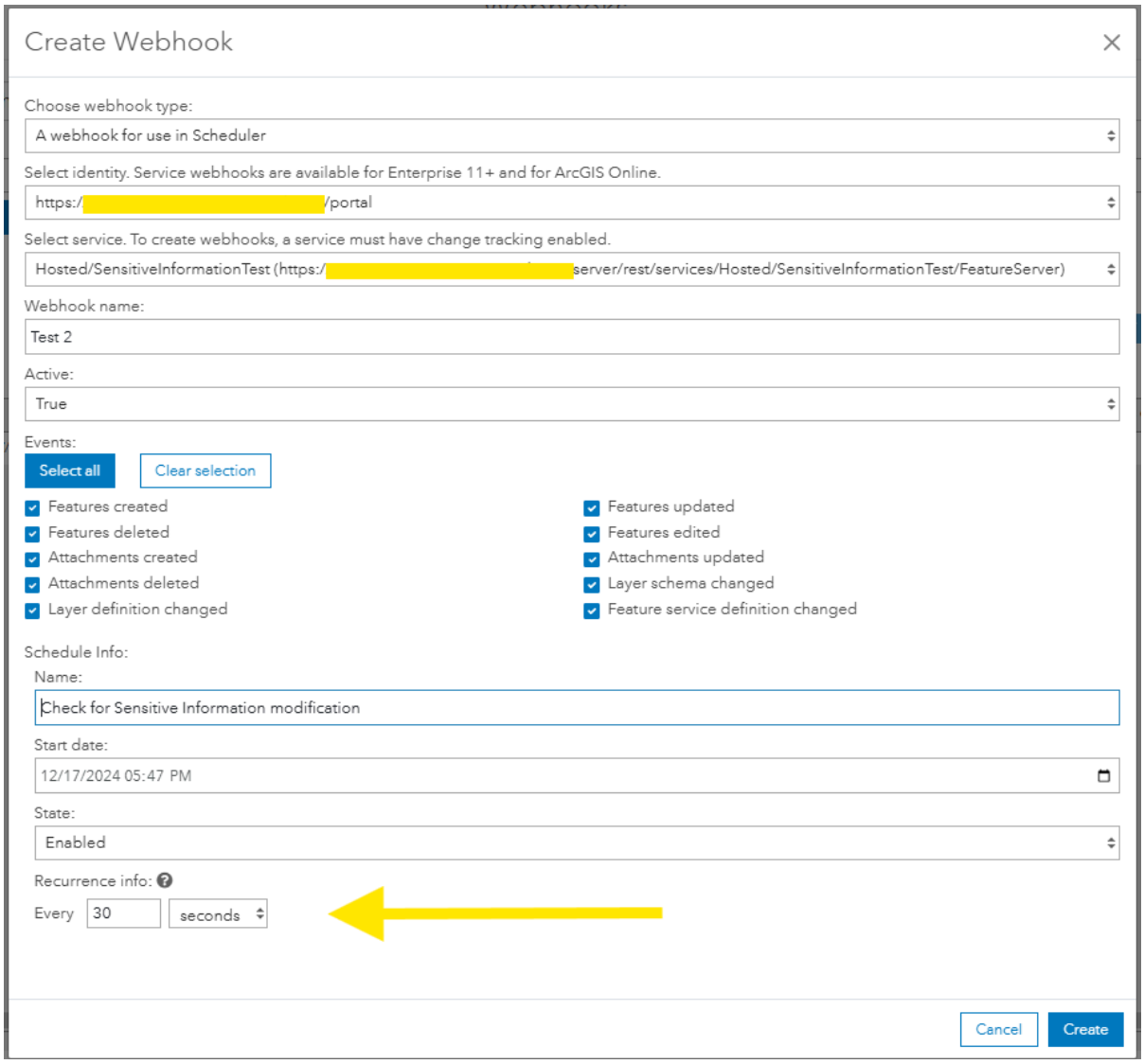
Once you select your webhook type, you will need to choose the identity and service to assign the webhook to.



You will then select or enter the event(s) that will trigger the webhook and set its schedule, which determines how often the webhook checks for updates.



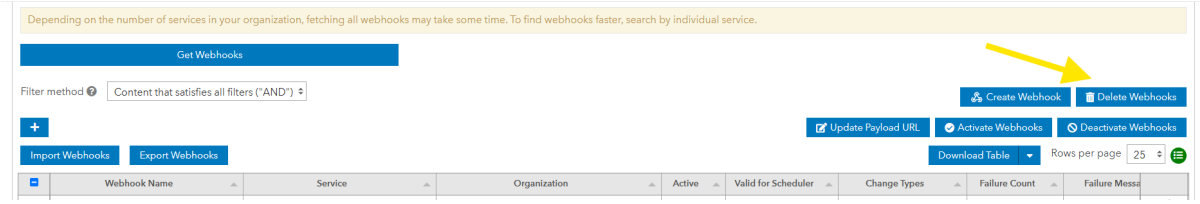
The maximum frequency is every 30 seconds, a restriction imposed by Esri. Scheduler also imposes a minimum frequency of once per week. This is because getting a webhook's full payload consumes more resources the more changes have accumulated, and webhooks that fire infrequently will accumulate more changes.



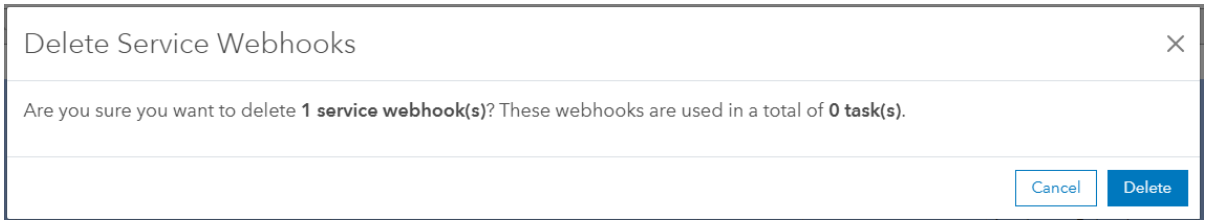
Depending on how frequently changes to a particular service occur, you may want to observe how your service webhooks function in Scheduler tasks and then adjust their schedule accordingly.

c. Delete Webhooks

You can select one or more webhooks and bulk delete them.

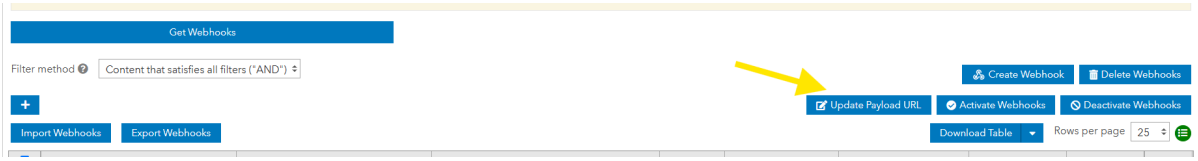


Scheduler will first report how many tasks are using the selected webhooks, to ensure that you don't delete webhooks that will interfere with your tasks.



d. Update Payload URL

You can bulk update the payload URL of webhooks. This changes the application which will receive the webhook's payload. Each webhook can send its payload to a single application. You can use this tool to migrate webhooks used in other applications to Scheduler, or vice versa.

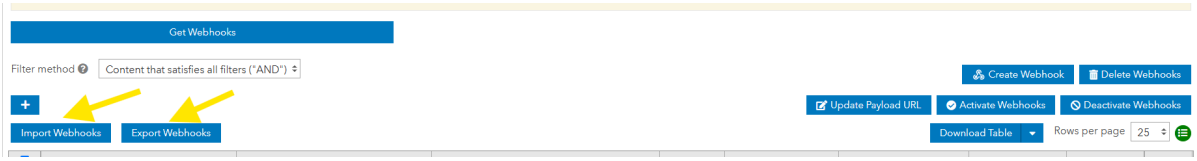


e. Activate and Deactivate Webhooks

You can bulk activate and deactivate webhooks. Inactive webhooks will not fire and will not trigger tasks.

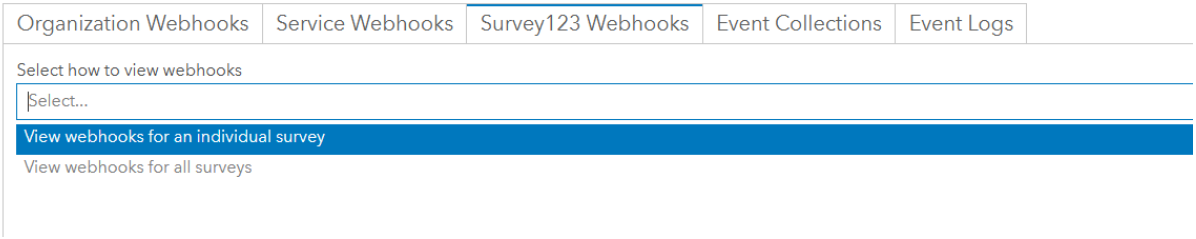
f. Import and Export Webhooks

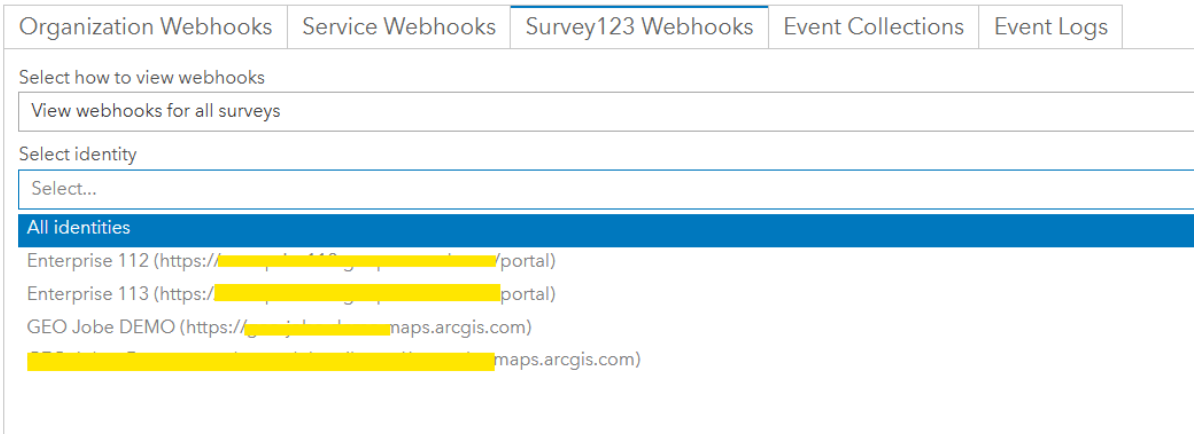
You can use these tools to clone webhooks or to bulk update properties other than the payload URL. Simply export the webhooks to CSV, make the desired changes (such as changing the identity), then import them.



3. Survey123 Webhooks

The Survey123 webhooks table shows all Survey123 webhooks for all Enterprise 11+ and ArcGIS Online identities. Fetching Survey123 webhooks can be time-consuming and resource-intensive depending on how many Survey123 items are in your organization. Because of this you are given the option to only display the webhooks for a single identity, and then for a single survey. You can also choose to view webhooks for all identities or all surveys for a specific identity.

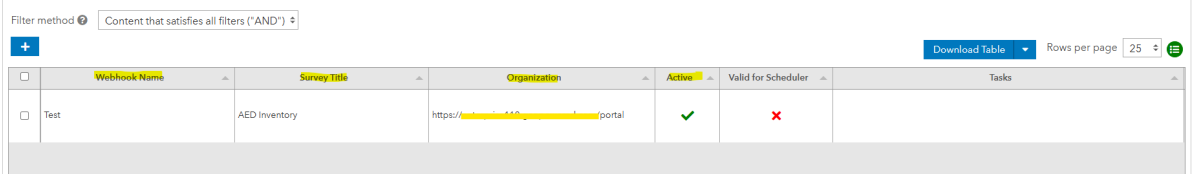




You can filter webhooks by a number of different properties. ***Because of the unique structure of Survey123 items, you cannot create, edit or delete Survey123 webhooks in Scheduler, and instead should perform these activities in the Survey123 interface in your ArcGIS organization.*** However, you can still use Survey123 webhooks to trigger tasks.

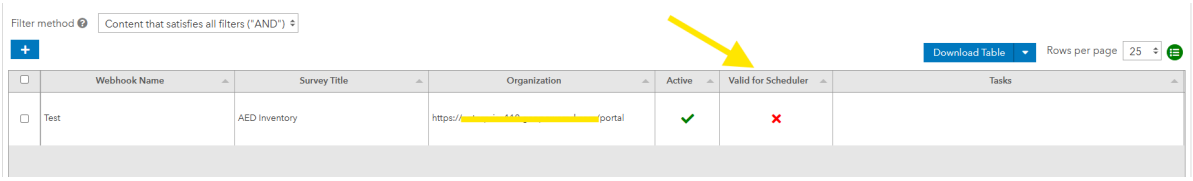
a. Table Columns

The table columns display the webhooks' properties, such as their name, the survey they're assigned to, the organization they come from, and whether or not they are active.

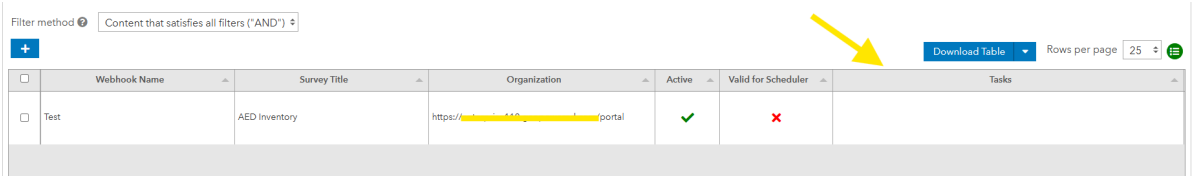


The **Valid for Scheduler** column indicates whether a webhook can be used in Scheduler. If a webhook's payload URL matches the Scheduler URL configured on the Settings page (see the Settings section for details on configuring this property), it is considered valid for Scheduler; otherwise, it is not. You can still

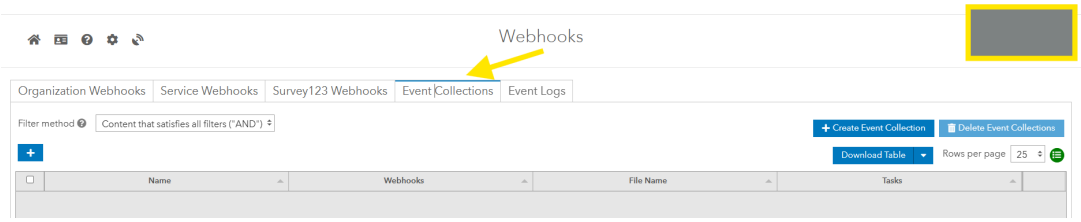
view webhooks that aren't valid for Scheduler, but you won't be able to use them to trigger tasks.



The **Tasks** column shows what tasks, if any, are using a webhook.

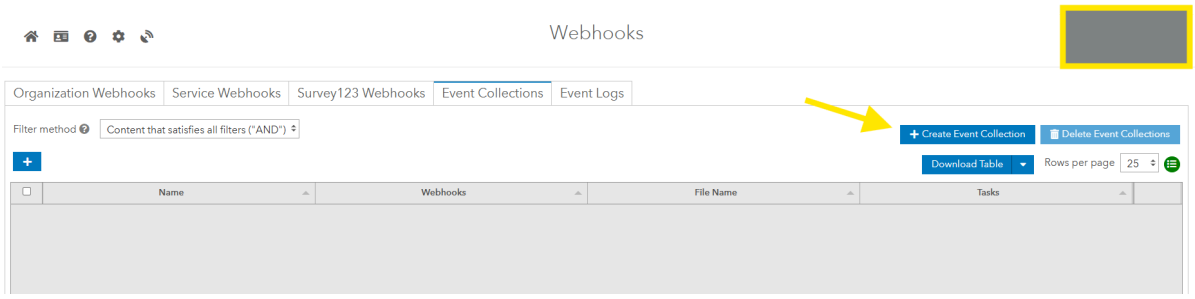


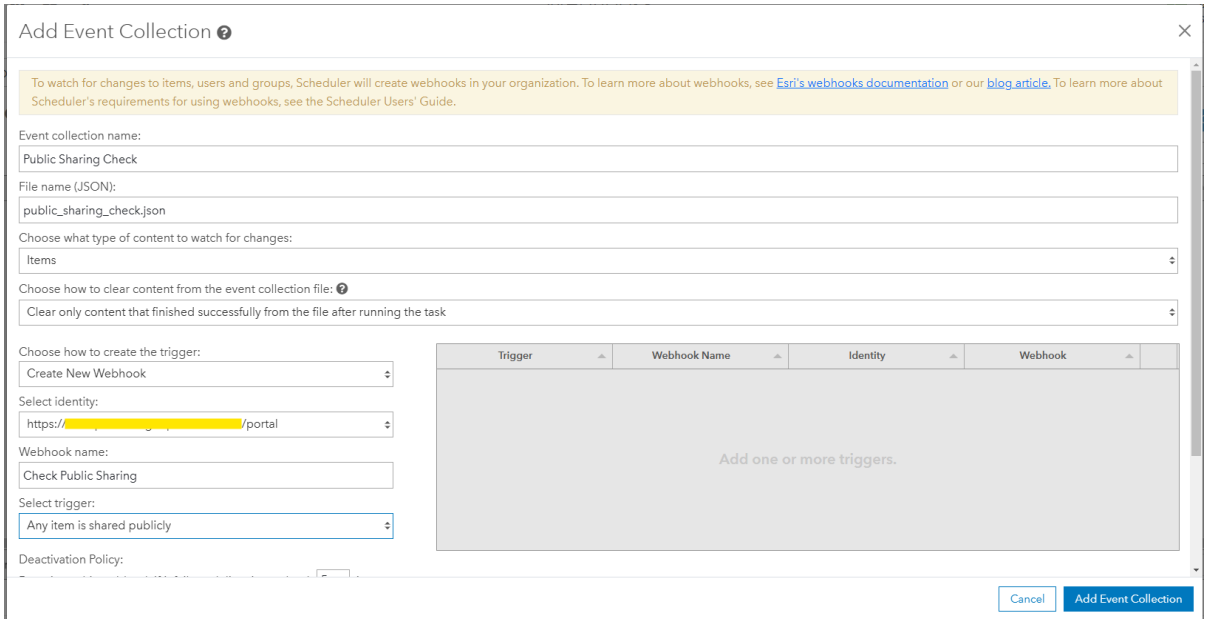
C. Event Collections

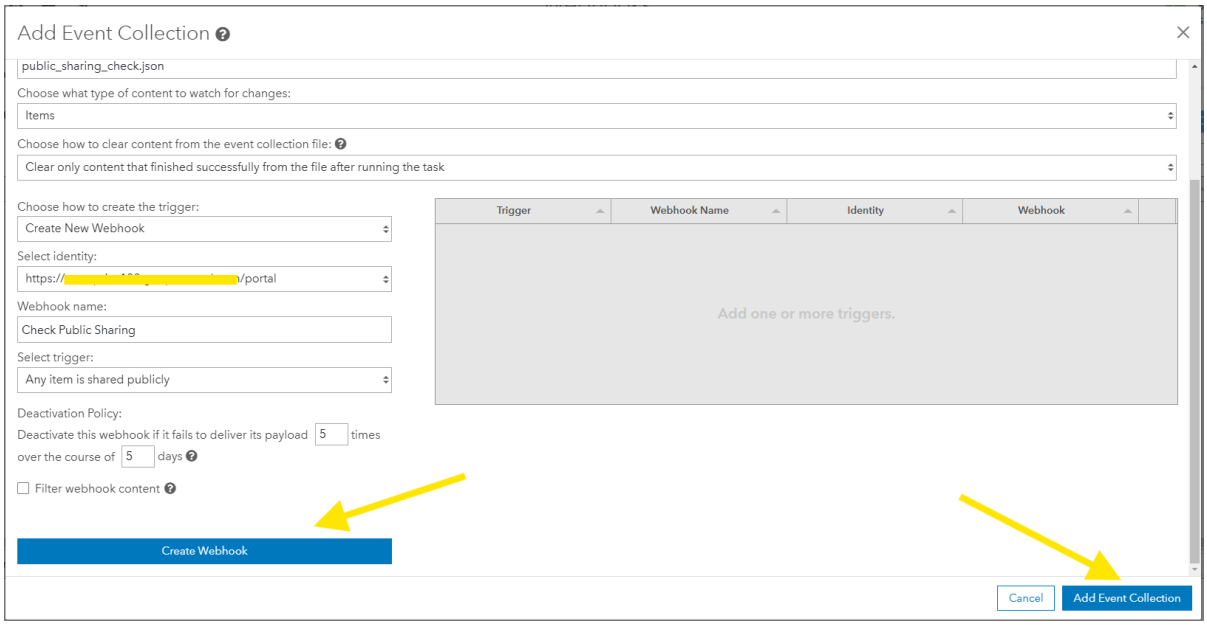


Organization webhook triggers are powerful tools that can allow Scheduler to respond immediately to events that occur in an organization. However, for events that occur frequently, it may not be desirable to run a task every time the event occurs. For example, a Scheduler user may want to know about items being shared publicly, but in a large organization where items are shared publicly often, it would be untenable to have a task run every time this occurs. To solve this problem, Scheduler has event collections. Event collections use organization webhooks just like organization event triggered tasks do, but rather than causing a task to run, when the webhook fires, the content it returns will be written to a file. This file can

then be used as input for a scheduled task that will process all the content the file contains. So in the example above, a user could configure an organization webhook event collection that will record when items are shared, and then set up a scheduled task that runs once a day to validate the items.





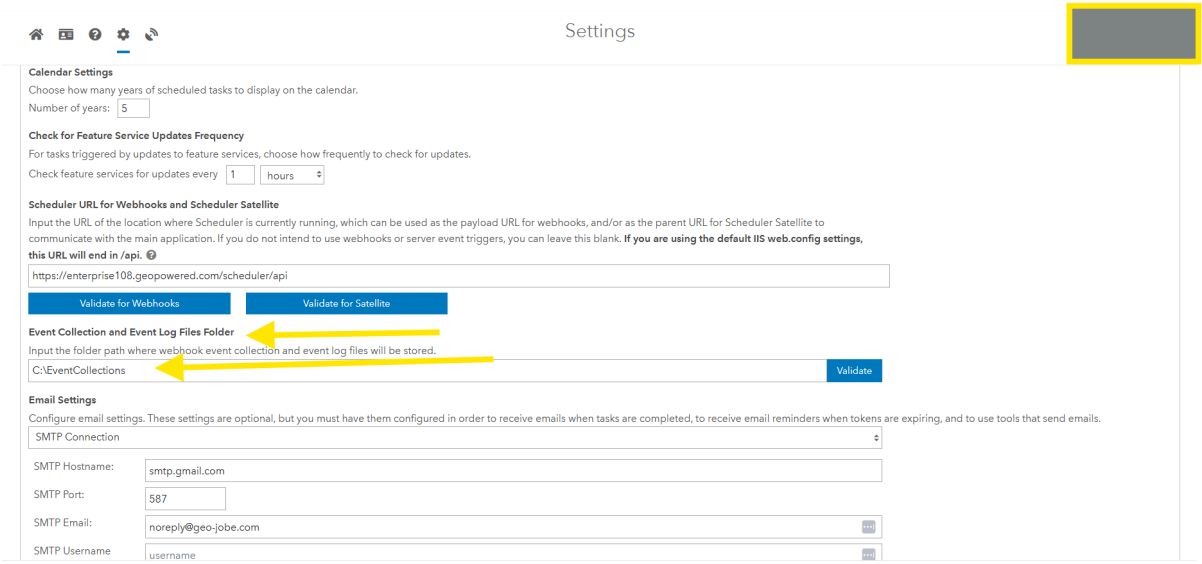


Event collections are not used with service webhooks because service webhooks already check for changes on a schedule, rather than responding instantly as

organization webhooks do. If you want tasks triggered by service webhooks to run less frequently, you can simply adjust the schedule (see the Service Webhooks section above).

To prevent the same content from being processed over and over again, the event collection will be cleared after each time it is run, with an option to only clear content that exited the task successfully, which will result in the task retrying failed content until it succeeds. Because running the task clears the event collection, it is recommended that only one task use a particular event collection.

Event collection files are stored on the machine where Scheduler is installed in the folder specified in the Event Collection Files Folder setting on the Settings page (see the Settings section of this document for more information).

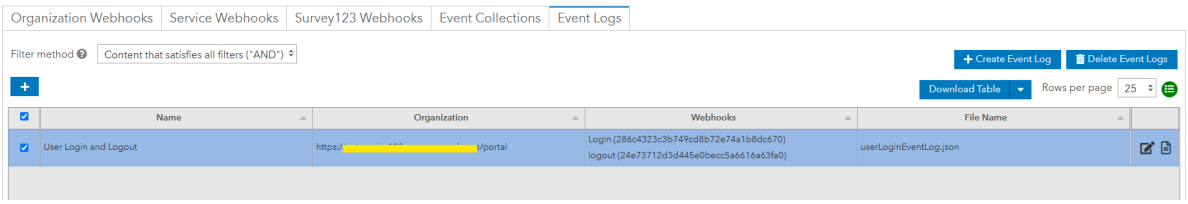


All event collections must be kept in the same location. ***If users want to move the event collection files to a different location, they should change the Event Collection Files Folder property in Settings.*** This will move the event collections to the new location and also update the settings to allow Scheduler to find the files in

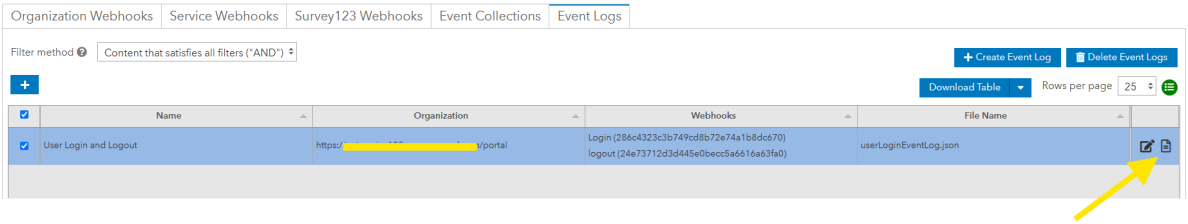
the new location. **Do not move the event collection files manually, otherwise Scheduler will not be able to find them.**

D. Event Logs

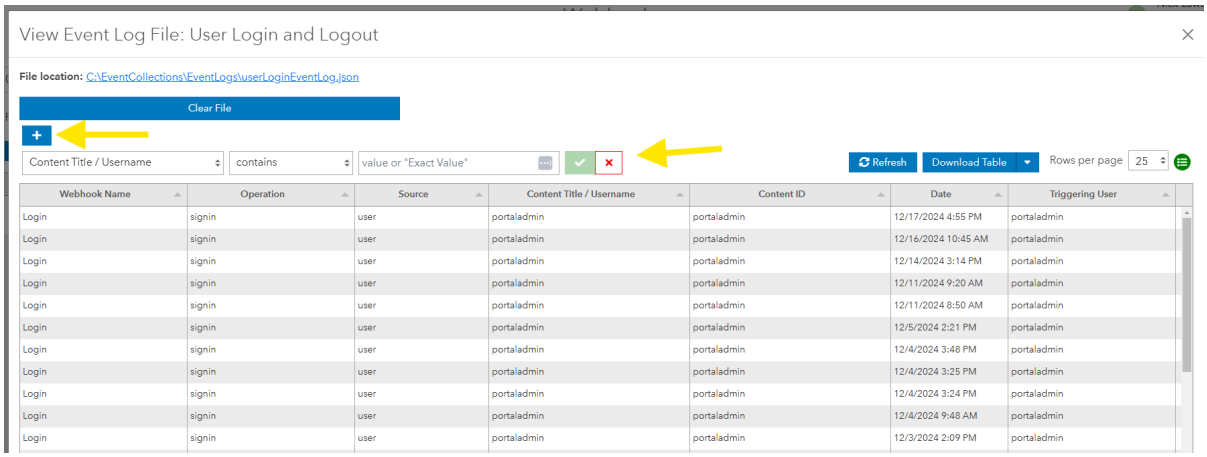
Event logs will log the payload of one or more organization webhooks to a file, which can then be displayed in the event logs viewer. This allows you to create a record of events in your organization. For example, you can tie an event log to a webhook that tracks user logins in order to have a record of every time someone logs in.

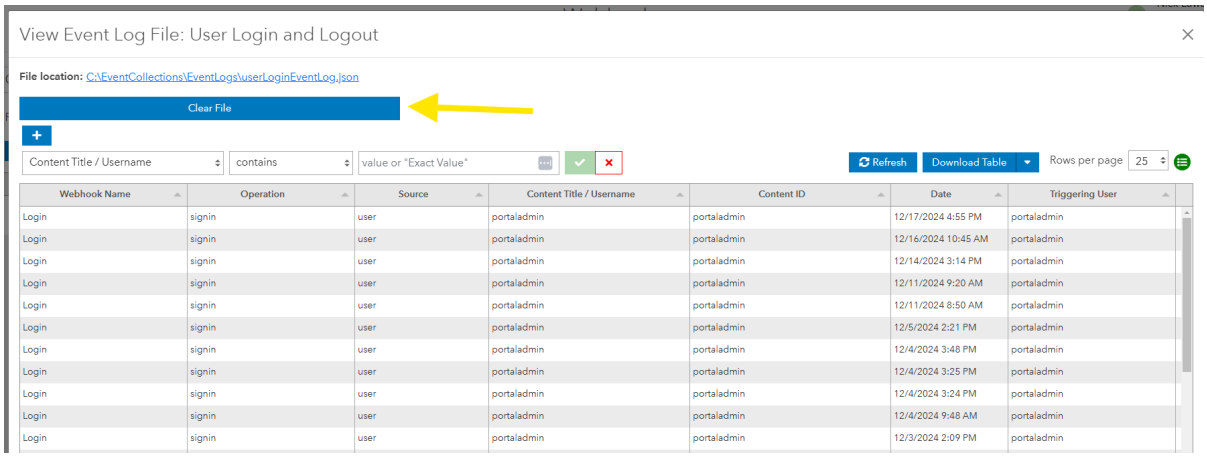


Event logs will display the event that occurred, the webhook it's tied to, the item, user or group involved, the user who took the action that triggered the webhook, the time the action occurred, and any other relevant information recorded by the webhook.



You can view, create and delete event logs in the Event Logs table, and you can view the log records by clicking the "View file" button for an event log's entry in the table. Within the View Event Log File modal, records in the log are ordered with the most recent first. You can filter these records, or clear them by clicking Clear File.





VII. Scheduler Satellite and Server Logs

Scheduler Satellite is an additional application that comes free with Scheduler. Its purpose is to allow Scheduler to access local files on an ArcGIS Server machine, particularly local files that contain log file data. While Scheduler can access most data in your organization from anywhere via the REST API, in order to directly read local files, an application must run on the machine where the files are located. Satellite make this process easier. Say you have an ArcGIS environment with three ArcGIS Server machines. Rather than having a separate installation of Scheduler on each machine and needing to access three different applications to see those log files, you can install the main

Scheduler application wherever is convenient, and then one Satellite on each machine. This will allow you to see and use the server logs from all three machines in a single application.

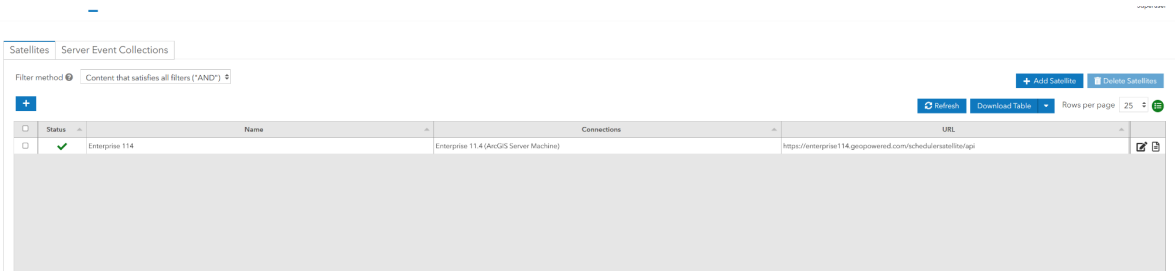
Scheduler Satellite does not have its own interface; rather, all aspects of it are managed from the main Scheduler application. For information on installing and configuring Satellite, see the Configuring Scheduler Satellite subsection of the Introduction to Scheduler section of this document.

A. Scheduler Satellite

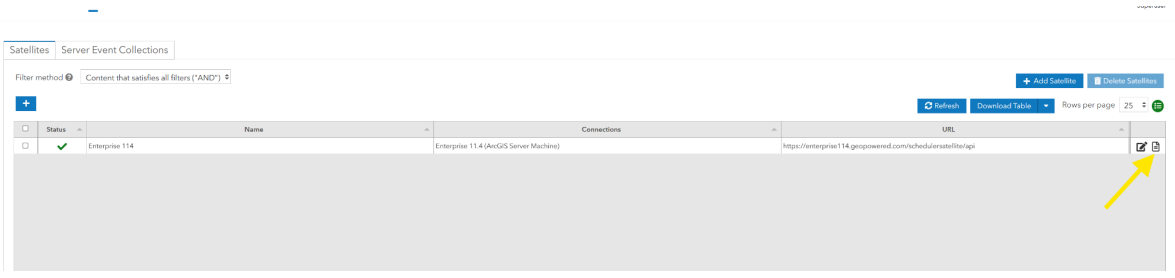
The Satellites page provides access to information about all of your configured Satellites, as well as server event collections.

1. The Satellites Table

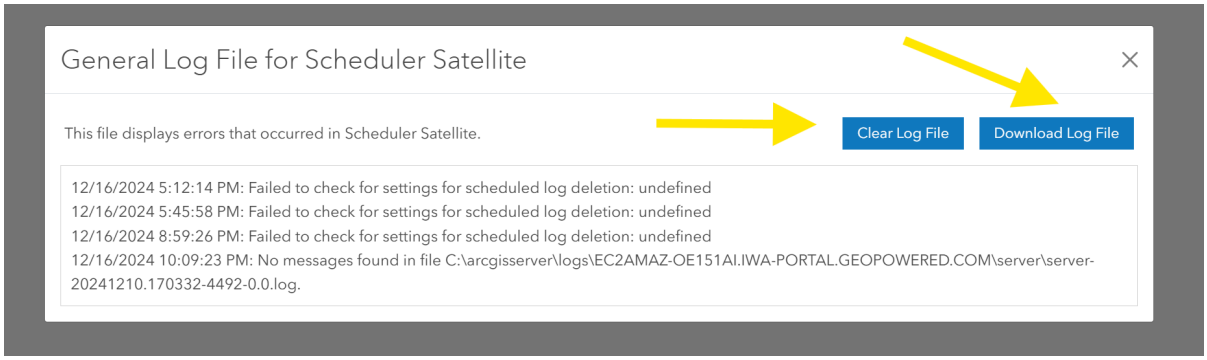
The Satellites table shows each Satellite, whether it is functioning properly, its associated connections, and its URL.



You can also view the Satellite logs by clicking the “View satellite logs” button.

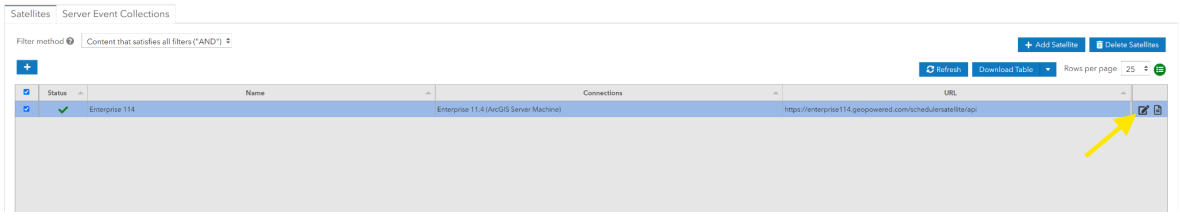


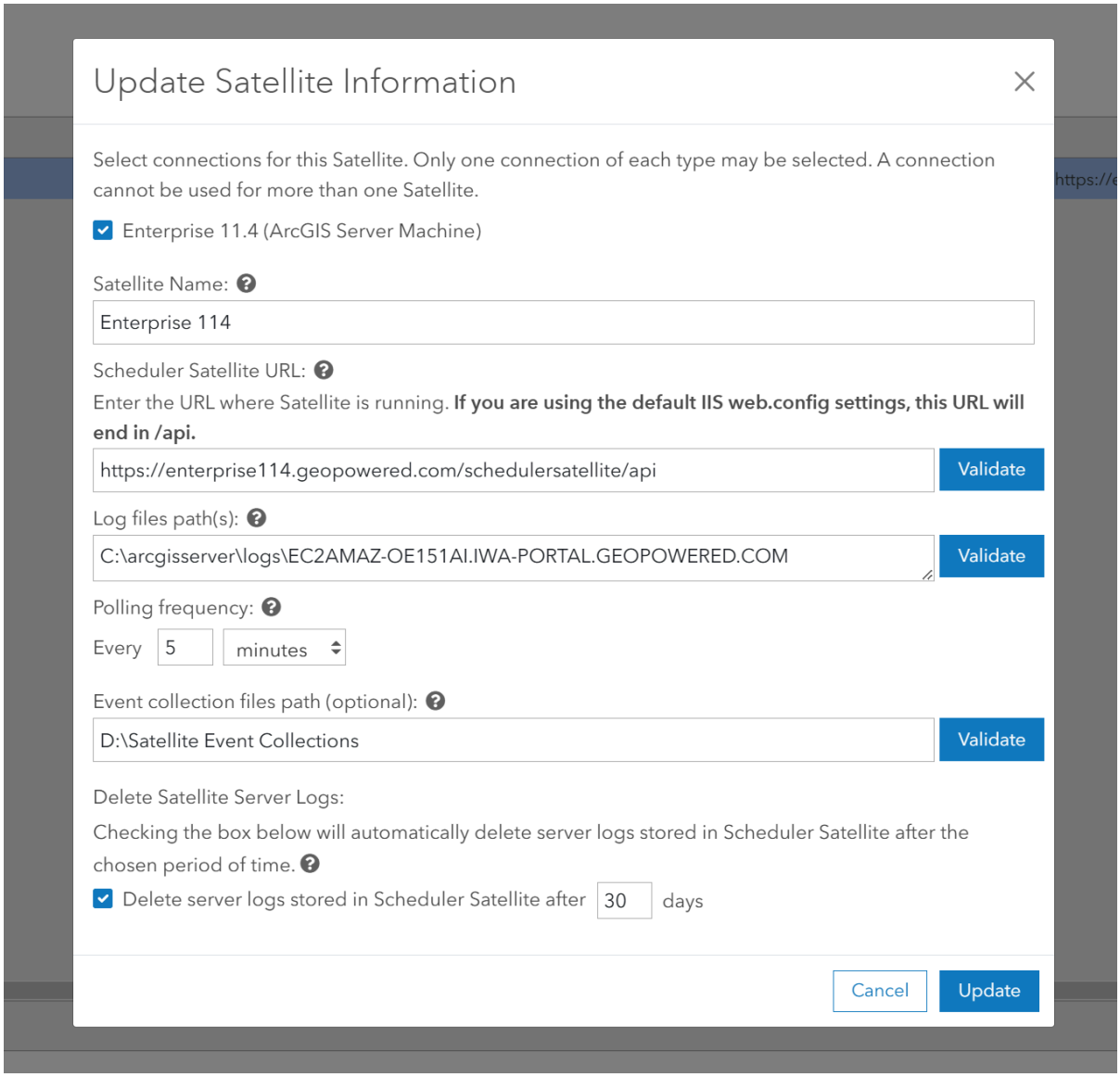
The Satellite logs record errors that occur while Satellite is checking the server logs, triggering tasks, and performing other actions. In the log file modal you can clear this log file, or download it.



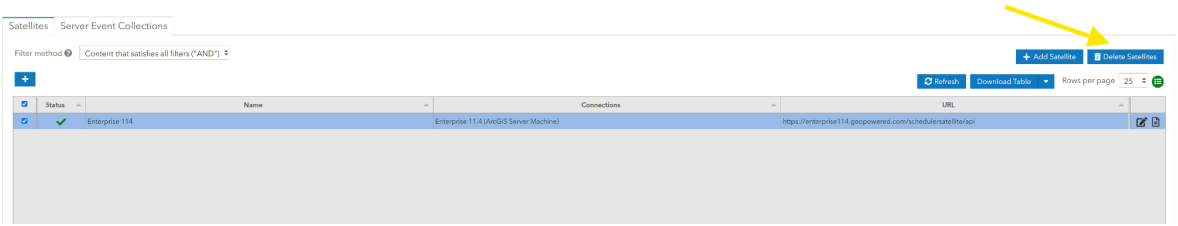
The Satellite logs are separate from both the task logs and the server logs, and exist solely for diagnosing errors with Satellite. Logs for tasks triggered by Satellite will appear on the main Logs page like all other task logs, and server logs are visible for individual connections in the Connections tab of the Identities page (see below). **If you remove a connection, Scheduler's information will be removed from the connection, you will not be able to access server logs for that connection, and tasks for that connection triggered by server logs won't run**.

You can edit a Satellite by changing any of its properties.





You can also delete the Satellite itself.



Deleting a Satellite will remove the Satellite's information from the Scheduler parent, stop any jobs running on the Satellite (such as checking server logs) and delete the Satellite database on the Satellite machine, meaning the copies of the server logs and all other data generated by Satellite in MongoDB will be deleted. This will not uninstall the Satellite application or stop the Satellite service, which must be done manually, but the Satellite will no longer perform any functionality and will not be accessible from the parent.

2. Server Event Collections

Scheduler can use server logs to trigger tasks (see the Server and Database-Driven Tasks subsection of the Tasks section of this document). However, sometimes you may want Scheduler to respond to events in the server logs, but you may not want a task to run every time a log occurs. To solve this problem, Scheduler has server event collections. Server event collections respond when server logs that match the given conditions occur, but rather than trigger a task, they write the contents of the log to a file. You can then use that file as the input of a scheduled task to respond to the server logs at a time that is convenient. This can prevent tasks triggered from server logs from running too frequently.

Tasks that use server event collections will run if any logs are found in the event collection. To prevent the same logs from being processed over and over again, the event collection will be cleared after each time it is run. For this reason, it is not

recommended to use a given server event collection for more than one task. Server event collection files are stored on the machine where Satellite is installed in the folder specified in the “Event collections files path” option in the Satellite’s settings.

B. Server Logs

As part of its ability to interact with ArcGIS Server machines, Scheduler for ArcGIS provides access to ArcGIS Server logs. Scheduler’s Server Logs Viewer allows users to view, filter and download server logs. Scheduler can also trigger tasks based on events in the server logs (see the Server and Database Driven Events subsection of the Tasks section of this document). To use server logs, users must add a connection to an ArcGIS Server machine (see the Setting Up Identities subsection of the Introduction to Scheduler section of this document) and then install Scheduler Satellite on that machine and connect to it in the main Scheduler application (see the Configuring Scheduler Satellite subsection of the Introduction to Scheduler section of this document).

Note: *The following discussion applies to working with server logs via Scheduler Satellite. Scheduler has a tool, Export Server Logs, that can export server logs via the API without the need to configure Scheduler Satellite. In this case, users would be limited to the query they configure the tool for. This method of getting the server logs may also be inefficient for organizations with large server logs. The similar tool Export Portal Logs also does not require Scheduler Satellite.*

1. What Are Server Logs?

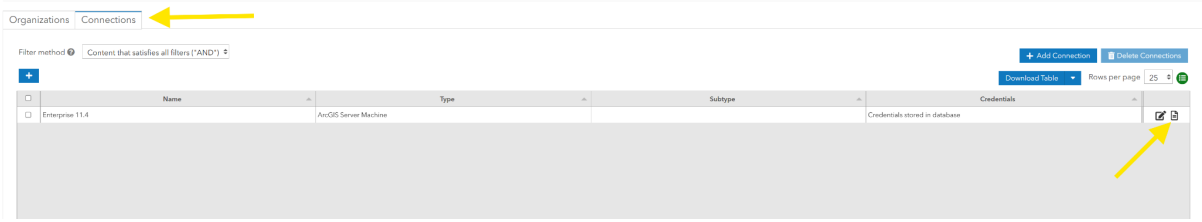
Server logs are created by Esri as part of the standard ArcGIS Server functionality. When events occur on the server, a record of it will be written to a log file within the installation of ArcGIS Server. What events are logged depends on the server log level, which can be configured in ArcGIS Server Manager. A Scheduler Satellite installed on the ArcGIS Server machine can read the logs, transfer their content to a database, and then send the data to the main Scheduler application. This allows for faster processing and more versatile querying than getting the logs via the API.

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

2. Viewing Server Logs

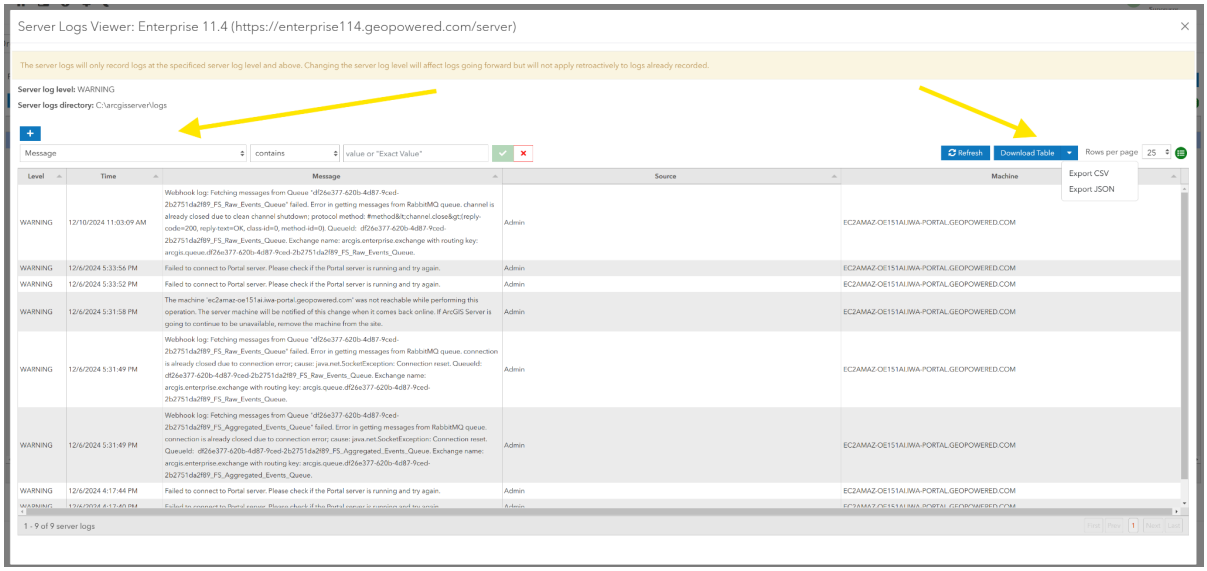
Server logs are created by Esri as part of the standard ArcGIS Server functionality. On the ArcGIS Server machine, the log files are stored in a folder called "logs" in the ArcGIS Server installation. The path of that location depends on where the user has chosen to install ArcGIS Server, but it generally looks something like *C:\arcgisserver\logs*. Within this logs folder are one or more folders corresponding to ArcGIS Server machines. Users should input the paths of these folders, for example *C:\arcgisserver\logs\<machine name>* in the Log file path(s) property when configuring Satellite. These folders have their own folders called errorreports, server and services. Scheduler pulls from the server and services folders; the content of the errorreports folder is not human readable and therefore is not included. These inner folders should *not* be included in the Log file path(s) property, as Scheduler is already configured to look for them. Because these log folders and files are created by Esri, users should not move or modify them. Satellite also does not modify these files, rather, it creates copies of them in MongoDB and then interacts with those copies. Changing or deleting the log file records in MongoDB will not affect the original log files.

In Scheduler, users can view server logs for an ArcGIS Server machine by going to the Connections tab of the Identities page and clicking on the "View server logs" button next to the connection.

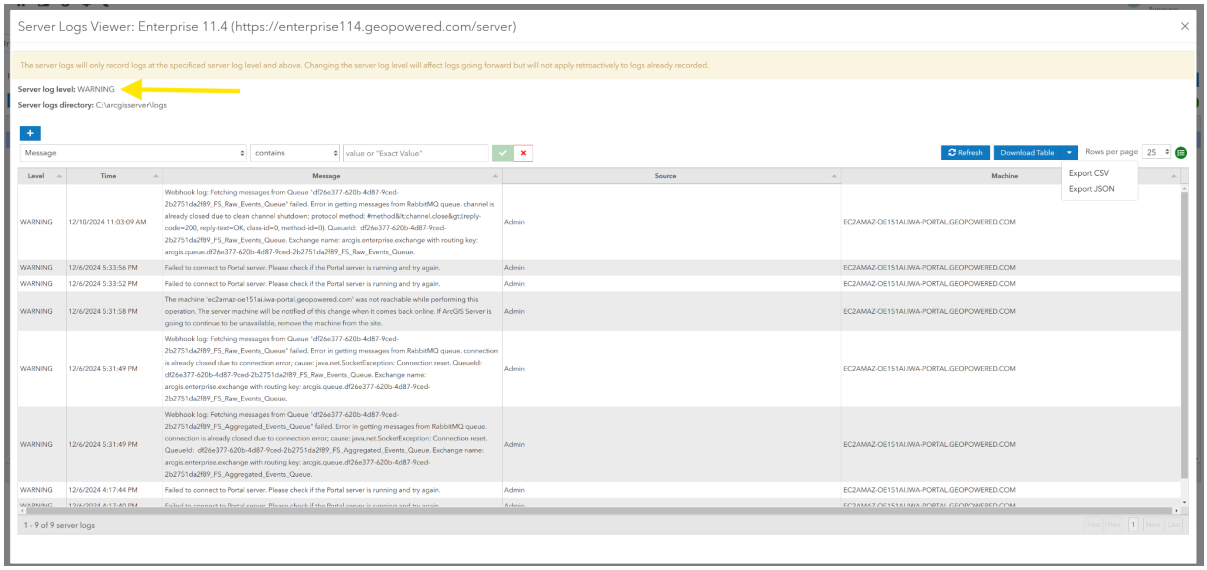


Satellite must be reachable in order to view the server logs. The Server Logs Viewer will then open with a table displaying the server log records in MongoDB. A variety

of filters can be used to search these logs, and they can also be downloaded as a CSV or JSON.



Users should note that what logs are recorded depends on the server log level, which is based on the severity of the event, as determined by Esri.



If an event is below the severity level specified in the server log level setting in

ArcGIS Server Manager, it will not be recorded in the logs. Changing the log level setting will change what logs are recorded going forward, but it won't apply retroactively. Additionally, Esri will delete the original log files after a certain period of time. The default setting is 90 days, which can be changed in ArcGIS Server Manager. There is a separate setting within Satellite for how long Satellite should keep the copies of the server logs in MongoDB. Satellite will regularly delete server log records in MongoDB that are older than the configured setting. This does not delete the original log files, and Esri's deletion of the original log files will not delete the records in MongoDB.

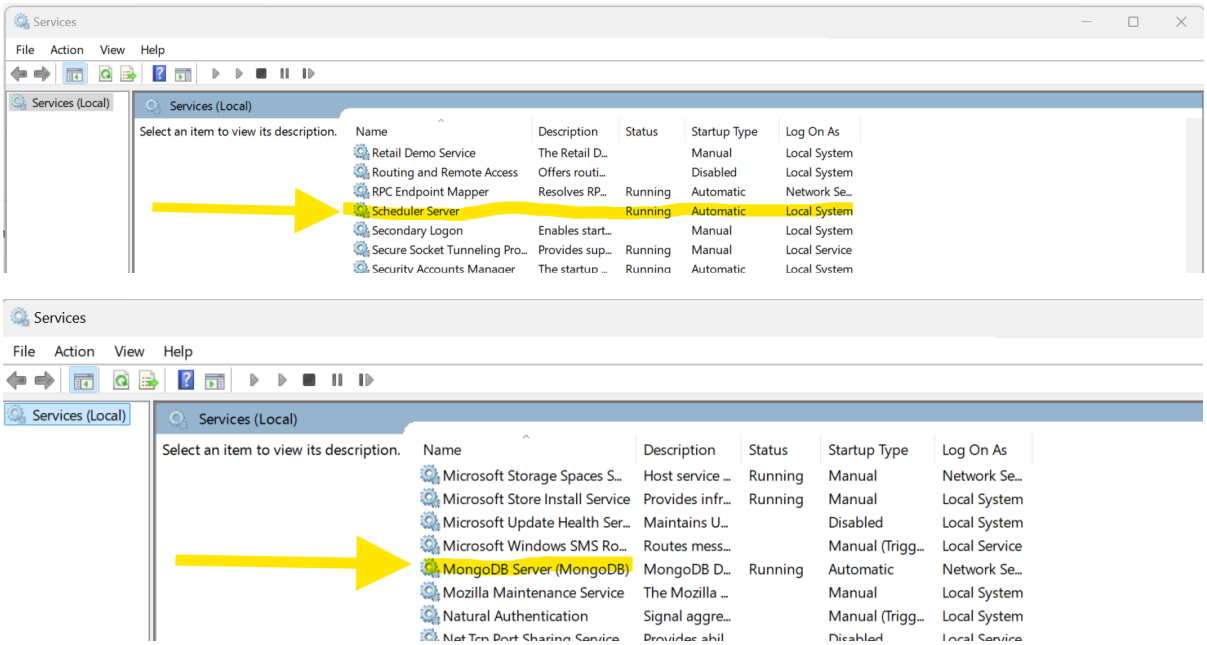
VIII. Troubleshooting

Below are some tips for troubleshooting potential issues that might arise in Scheduler, whether that's trouble connecting to your organization or errors in individual tasks.

General Issues

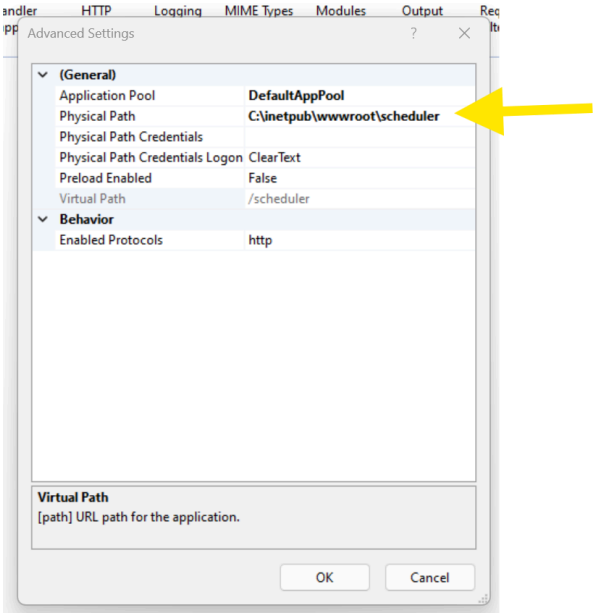
- Ensure that the machine where Scheduler is installed meets the system requirements (see the Installation Requirements in the Introduction to Scheduler section of this document).
- Ensure that Scheduler is not installed on the same machine as ArcGIS Monitor, which can interfere with IIS (Scheduler and ArcGIS Monitor can be present in the same environment, and Scheduler can even interact with ArcGIS Monitor, but they should not be installed on the same machine).
- Ensure that both the Scheduler service and the MongoDB service are running (you can do this by opening the Windows Services viewer).

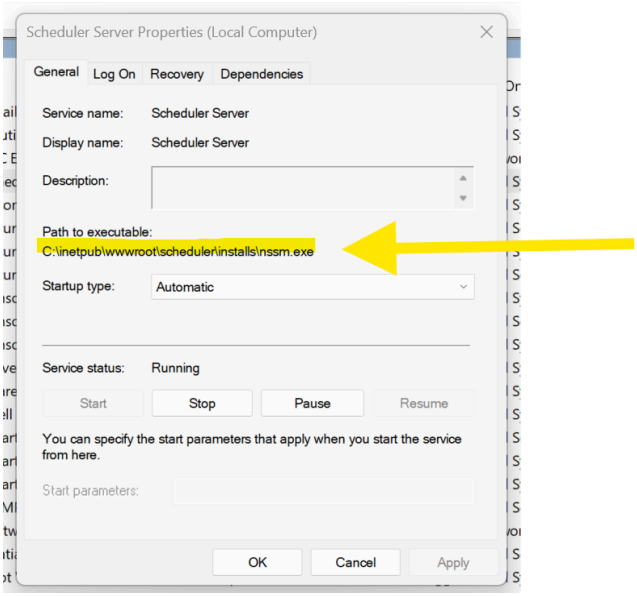
302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



Also ensure that the website in IIS and the service in the Services viewer are both pointing to the correct location of the Scheduler installation.

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

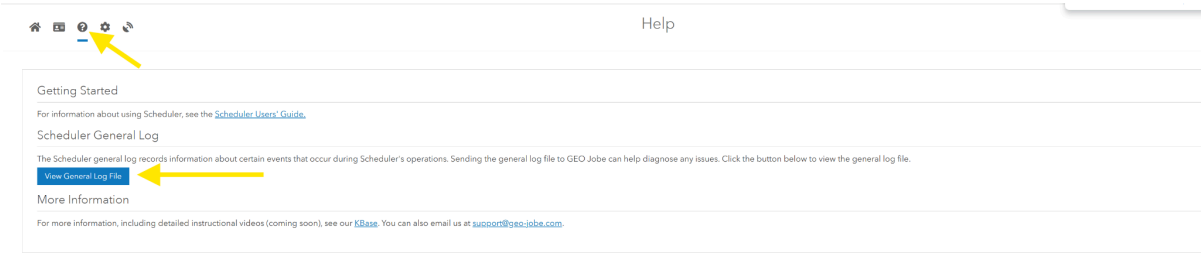


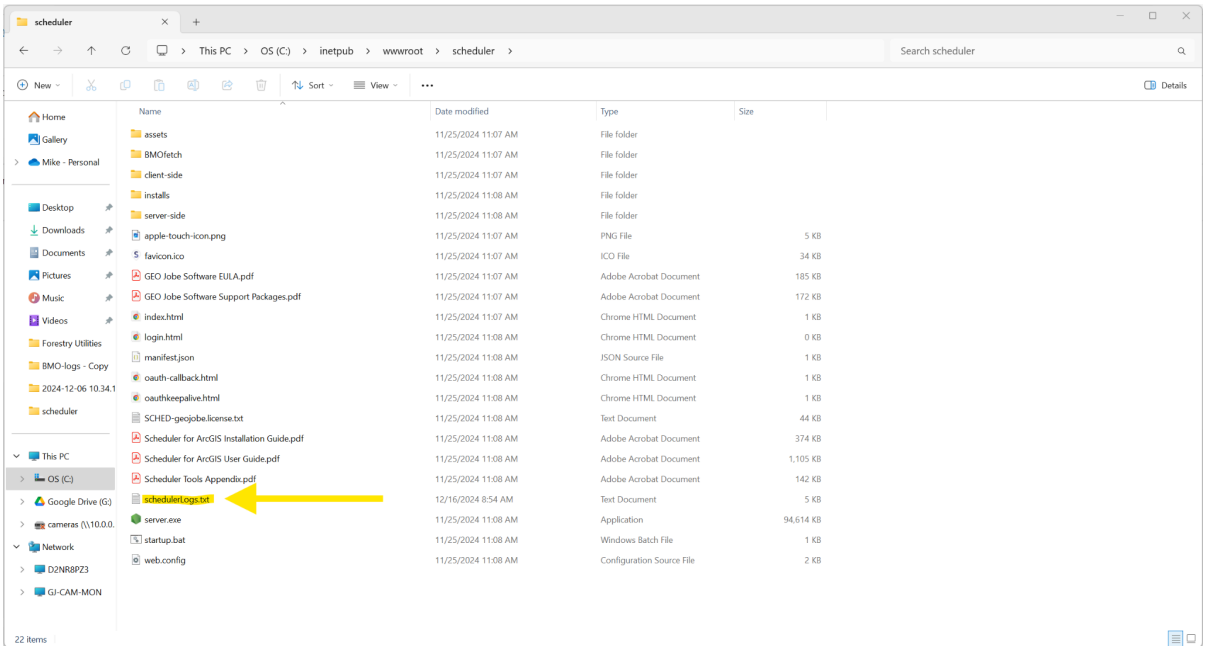


- Ensure that your organization's authentication type (OAuth2 or IWA) matches what is in your Scheduler license. If you believe that your Schedule license may have the wrong authentication type, reach out to GEO Jobe and we can correct the problem.
- If you are having trouble logging in to an organization, either to login to Scheduler or to add an identity, ensure that the URL where Scheduler is running

has been added to the “Allow origins” section of the application item in your organization that you are using for Scheduler. Instructions on how to do this can be found here (the document refers to Admin Tools, but the process is the same for Scheduler).

- Within Scheduler, the **General Log File** records errors that occur in Scheduler that are not associated with specific tasks (for example, errors that occur when Scheduler attempts to automatically refresh tokens). You can view the general log file in the Help tab, accessible by clicking on the question mark in the upper left bar of the Scheduler application. You can also find the general log file in the root directory of your Scheduler installation, where it will be called *schedulerLogs.txt.*

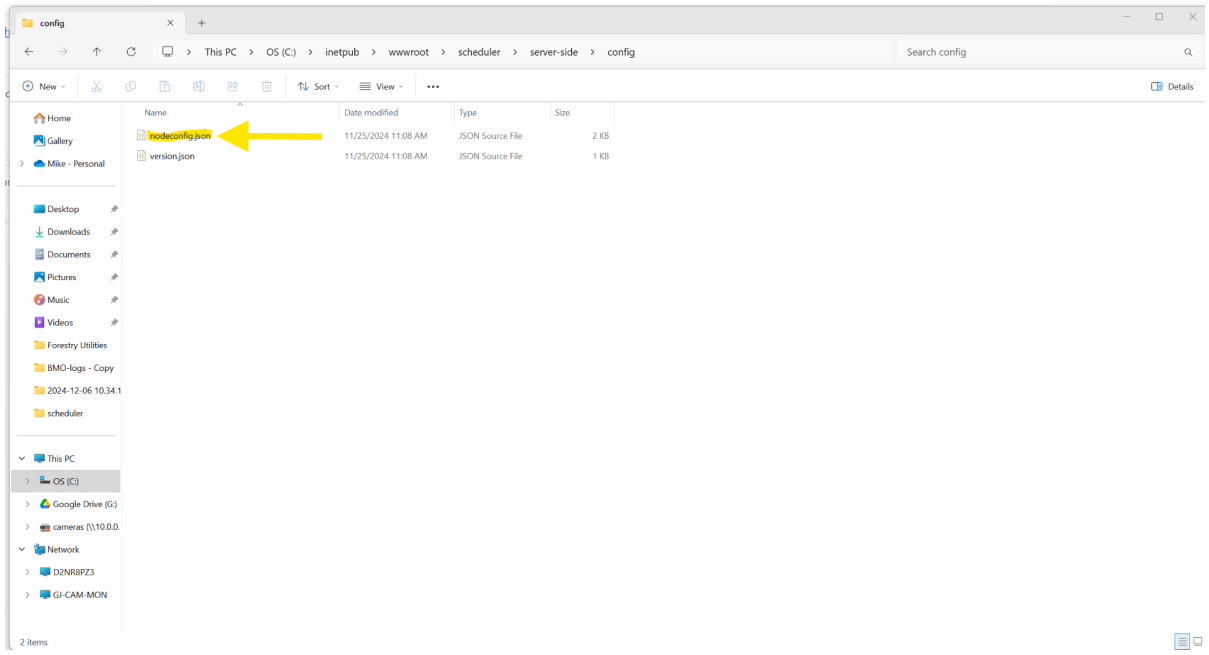




The Scheduler application is running but requests to your organization are failing (for example, you can't login or tasks can't create a cache).

If this problem occurs, it may be resolved by one or more changes to the nodeconfig settings. To change the nodeconfig file, stop the Scheduler service and open the file, located at *server-side/config/nodeconfig* within your Scheduler installation. Make the

necessary changes, then save the file and restart the service.



- Changing **useAdvancedFetch** to true will send requests with additional headers, which can be required for some organizations depending on their security settings.
- Changing **debugRequestLogging** to true will cause every request to your organization and its response to be logged in its entirety to the general log file. This option should be used with caution as it can cause Scheduler to run slowly, and can cause the log file to become very large. When debugging with this option, you should only run tasks with the minimum amount of content necessary (for example, only a single item) and you should set it back to false as soon as the problem is resolved.
- If the problem appears to be caused by a self-signed certificate, change **rejectUnauthorized** to true.

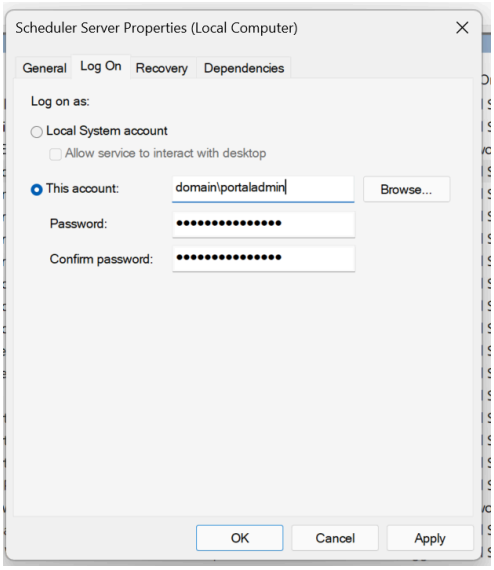
A task or content in a task is failing.

You can get more information on problems with a specific task by viewing the task's log. Task logs record errors that occur during individual tasks (see the Logs section of this document), such as a piece of content failing to transfer to a new owner because that user cannot own items.

Scheduler has a task that uses a custom script. The script runs without issue in the command line but fails in Scheduler.

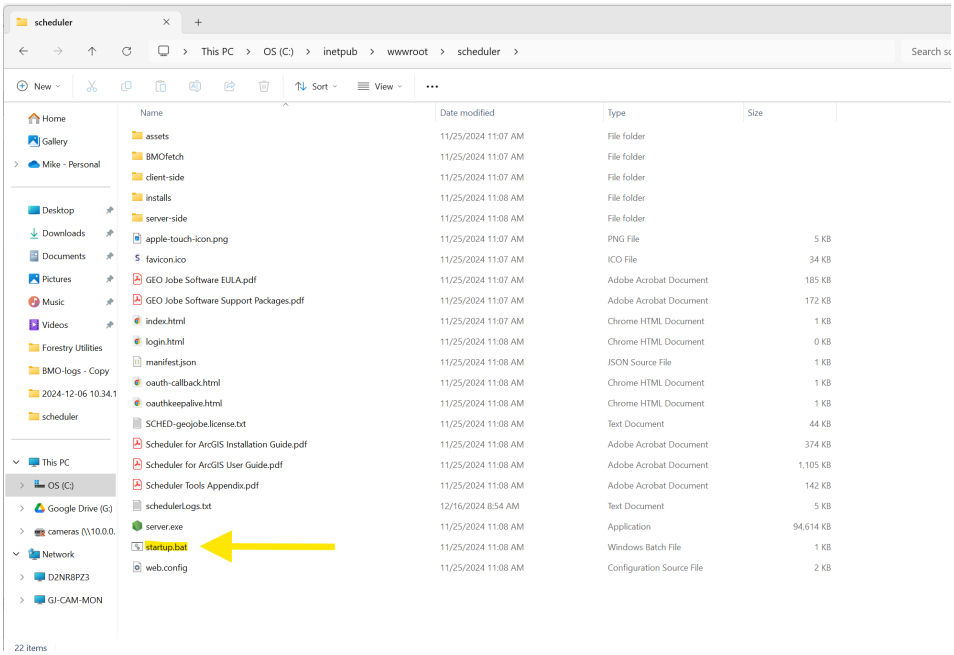
This generally happens because the user that the command line is running under is different from the user that the service is running under, and the command line user has permissions that the service user lacks. This is particularly common if the script uses ArcPy. In order for ArcPy to work, the Scheduler service must be running as a user who has a seat in ArcGIS Pro. If the service user cannot use Pro, then ArcPy won't work. In other situations, the service user might lack permissions to access files or directories being used by the script. To solve this problem, either give the service user the necessary permissions or change the service user. To see what user the Scheduler service is running as, open Windows Services, find the Scheduler service, and look at the Log On As field.To see what user the command line is running as, type *whoami* in the command line and hit enter.

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

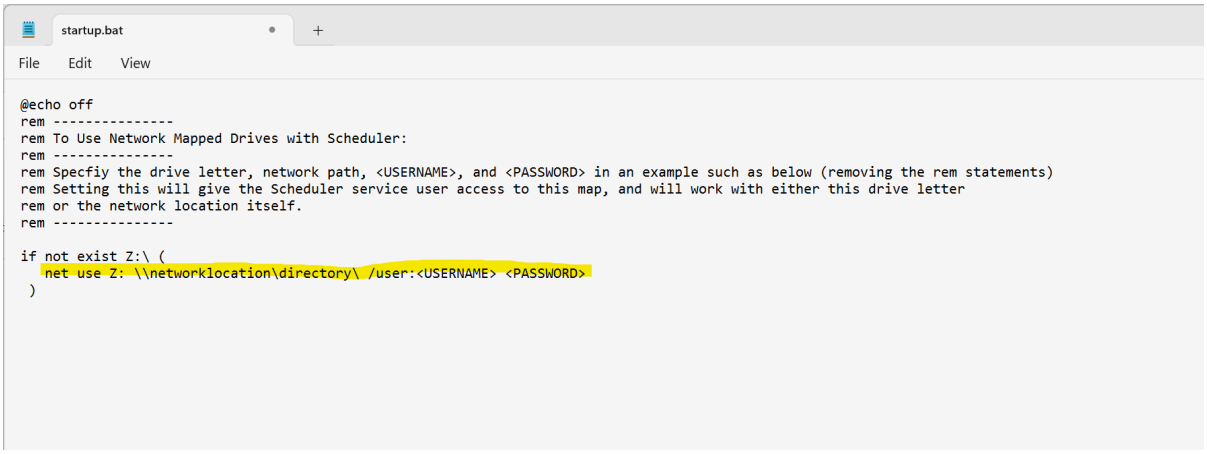


Scheduler has a task that accesses a network drive. The drive is accessible from the machine where Scheduler is installed, but Scheduler can't find it.

Scheduler comes with a script called startup.bat, where you can add custom code that will create access to network drives.



You can specify the drive letter, network path, and credentials. Once the network drive is mapped, both the network path and drive letter will be available for use in Scheduler.



After modifying the startup.bat, the Scheduler service should be restarted.

IX. Security

GEO Jobe products are designed with security in mind. The information below lays out steps GEO Jobe takes to keep your organization and data safe, and additional steps that you can take as well.

GEO Jobe is committed to your privacy. ***Scheduler does not in any way communicate with GEO Jobe or send data to GEO Jobe,*** and no Scheduler data is stored on GEO Jobe's servers; all information is stored on the machine where Scheduler is deployed, or in your ArcGIS organization. ***GEO Jobe does not have access to any information about you or your organization beyond what you provide us when you purchase our products***. For debugging purposes, GEO Jobe support may request logs or other files generated by Scheduler, but we do not have access to these files unless you send them to us, and you can always choose what information you want to send.

In order for Scheduler to access your organization's data, as per Esri's best practices, GEO Jobe Products for ArcGIS leverage OAuth 2.0 to generate a token that represents your session and is used to commit actions against the platform on your behalf. Please note that GEO Jobe Products installed on-prem may provide an (opt-in) feature to store credentials in the database as an encrypted string. This is only used for the automatic refresh of the login token, which ensures that functionality is not interrupted due to expired tokens. Any credentials stored are encrypted via AES-256-CBC in the local database on the Scheduler server.

GEO Jobe's products use OAuth 2.0 through Esri's REST API (already part of the existing Esri Enterprise environment), so the port is 443 if installed for HTTPS with SSL.

All code related to GEO Jobe Products for ArcGIS runs locally in your browser and on your machine where the application is installed, and executes requests directly against the platform through Esri's REST API.

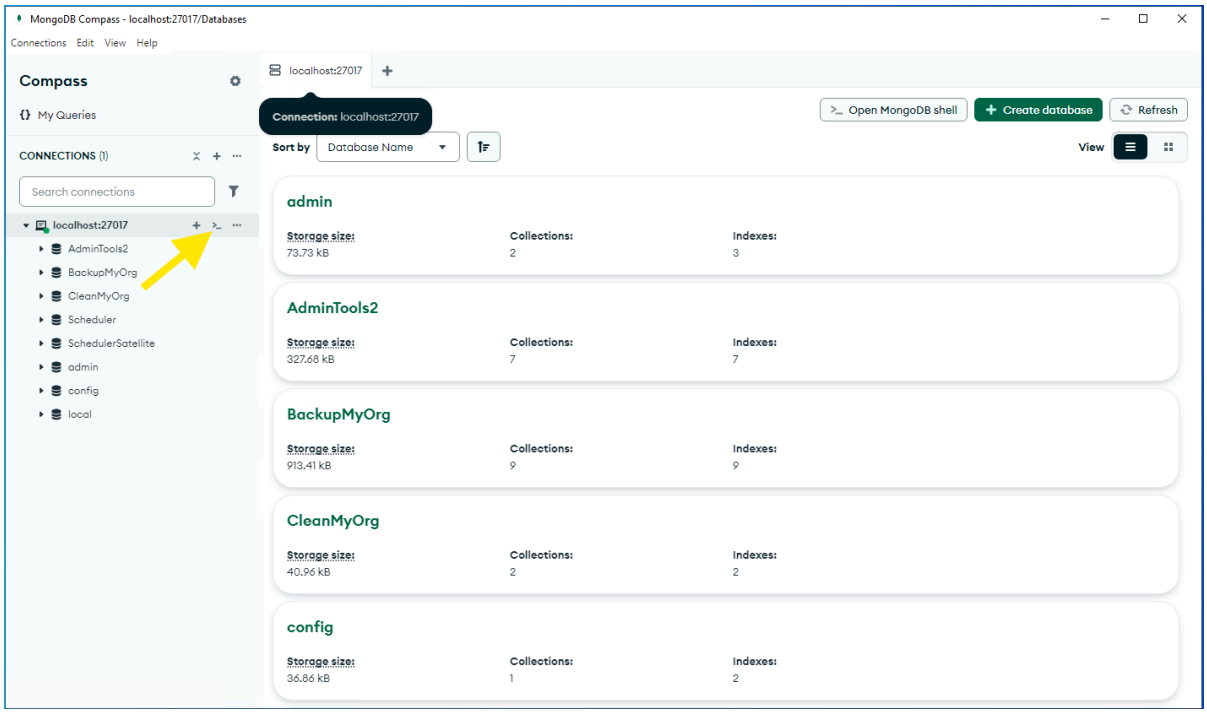
Scheduler uses IIS to provide access to the application interface. Below are some best practices for serving the Client-Side application in IIS:

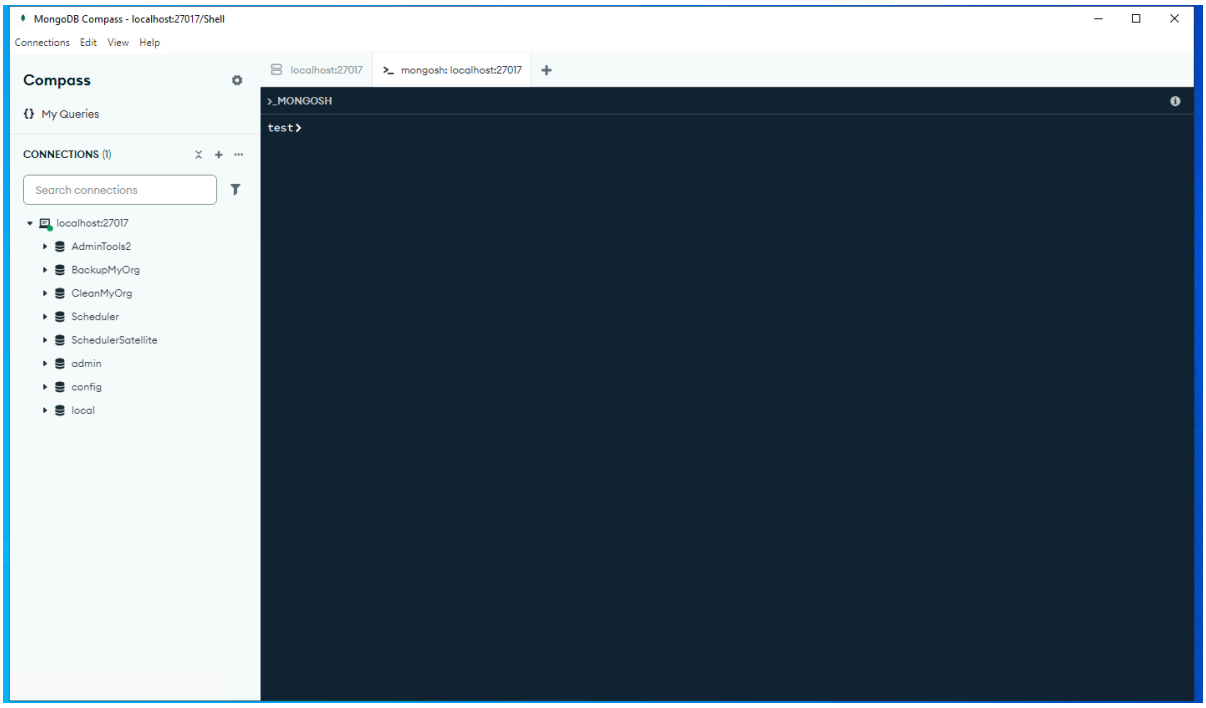
- Be sure to enable HTTPS bindings to run the Scheduler client-side application.
- Use a legitimate signed certificate for your HTTPS binding instead of a self-signed certificate.
- For additional security, keep the client-side application inside your internal network, away from facing the public.

A. Enabling Security on a MongoDB Installation

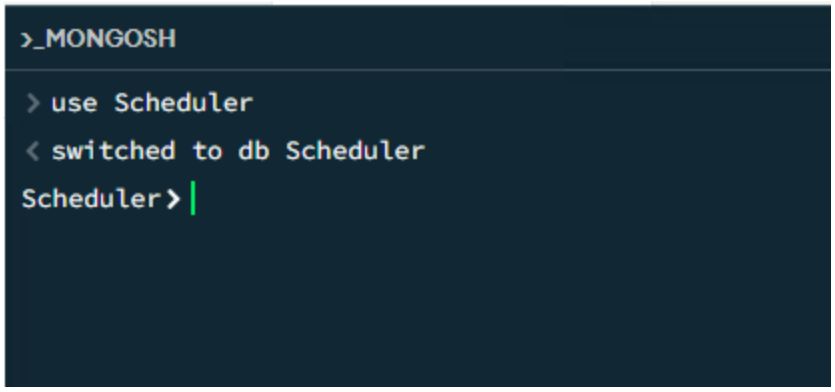
NOTE: If you are running any other GEO Jobe products on the same server, this workflow may cause issues with the other applications unless you also follow the same instructions and adjust the connection information in each product's config/nodeconfig.json.

1. If you have MongoDB version 6 or earlier installed, please skip to step 4.
2. If you have chosen to install MongoDB Compass when you installed MongoDB, Click the "Open MongoDB Shell" in MongoDB Compass. Skip to step 6.



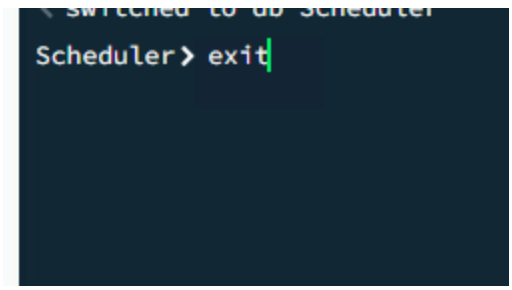


3. If you did not install MongoDB Compass when you installed MongoDB, you can either install it now from the link here, or install Mongo Shell from the link here. One installed, skip to step 6.
4. In Command Prompt, navigate to the MongoDB installation directory with mongo.exe, the default is
   `cd /D "C:\Program Files\MongoDB\Server\x.y\bin"`
5. Type **mongo** from this directory in the command prompt to start the mongo shell. (Note: if you are already using authentication with MongoDB, you will need to log in with administrator credentials.)
6. Type:
   use Scheduler

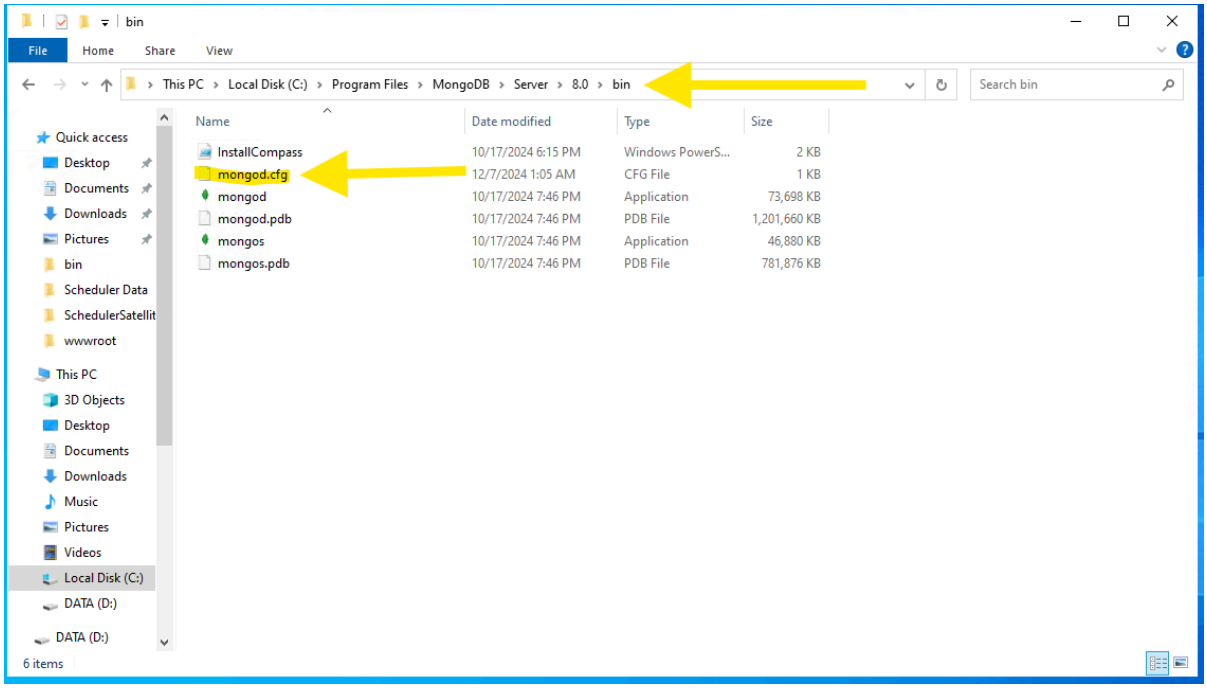


7. Copy and paste in the following lines, changing *yourusername* and *yourpassword* to the desired values:
   db.createUser({"user": "*yourusername*", "pwd":"*yourpassword*","roles":[{ "role": "dbOwner", "db":"Scheduler"}]})
   db.grantRolesToUser("*yourusername*", [{ role: "readWrite", db: "Scheduler" }])

8. Type **exit** to leave the mongo shell.

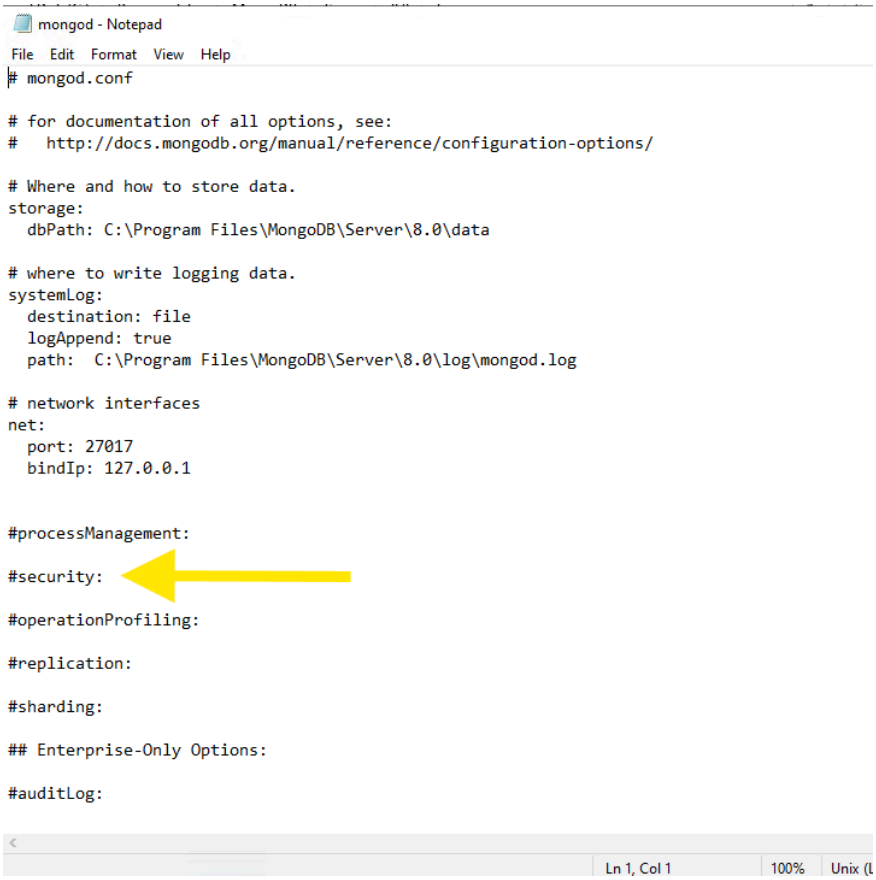


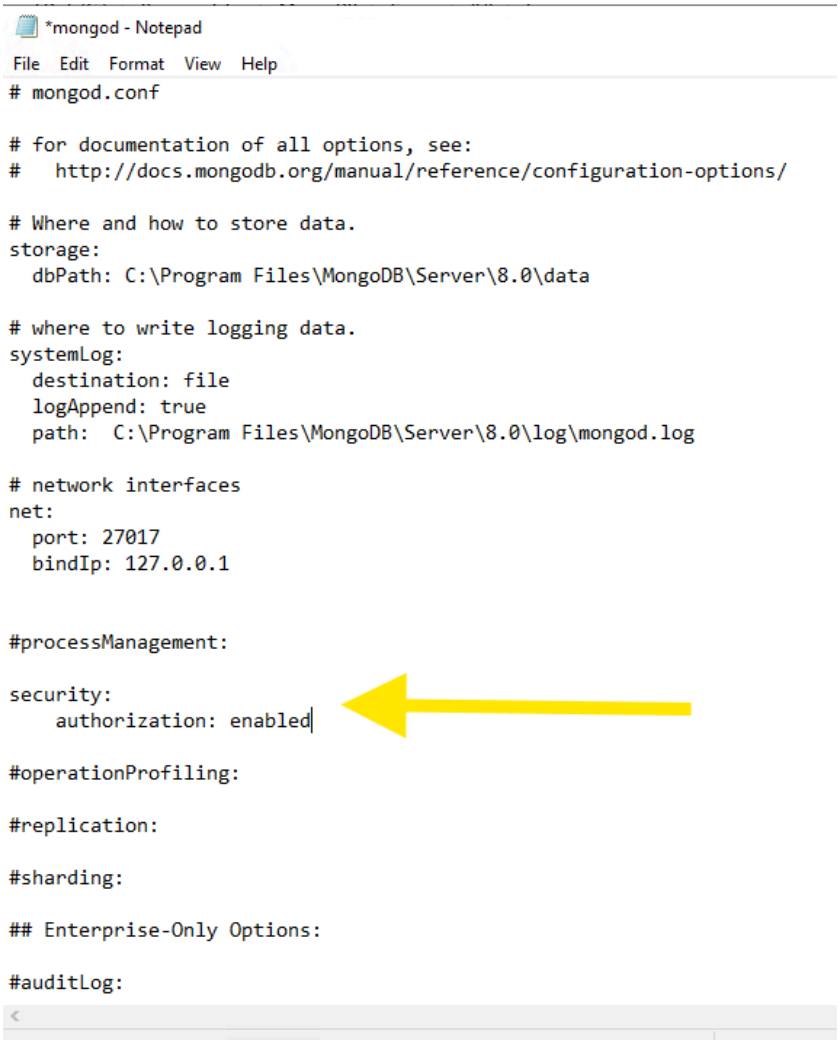
9. To enable mongoDB with authentication, edit the file in the default MongoDB installation directory (x.y is your version number. In this image, the version number is 8.0, but your version may vary) **C:\Program Files\MongoDB\Server\x.y\bin\mongod.cfg**



10. Find the line starting with #security and paste the following lines underneath:

```
security:
    authorization: enabled
```

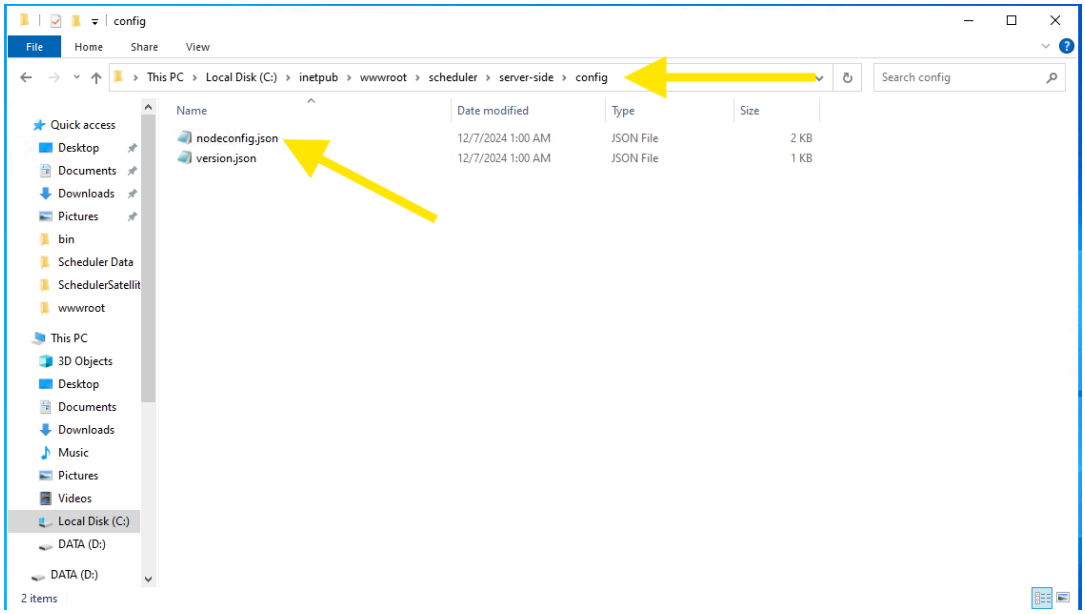

mongod - Notepad
File Edit Format View Help
mongod.conf
for documentation of all options, see:
http://docs.mongodb.org/manual/reference/configuration-options/
Where and how to store data.
storage:
dbPath: C:\Program Files\MongoDB\Server\8.0\data
where to write logging data.
systemLog:
destination: file
logAppend: true
path: C:\Program Files\MongoDB\Server\8.0\log\mongod.log
network interfaces
net:
port: 27017
bindIp: 127.0.0.1
#processManagement:
#security:
#operationProfiling:
#replication:
#sharding:
Enterprise-Only Options:
#auditLog:
Ln 1, Col 1
100%
Unix (L



11. Save the file and close.

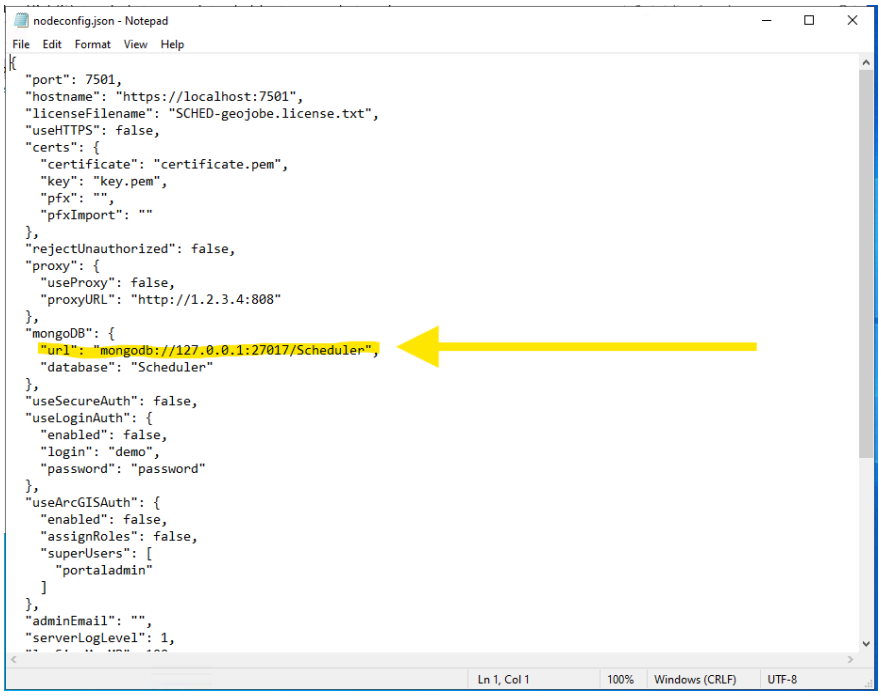
302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

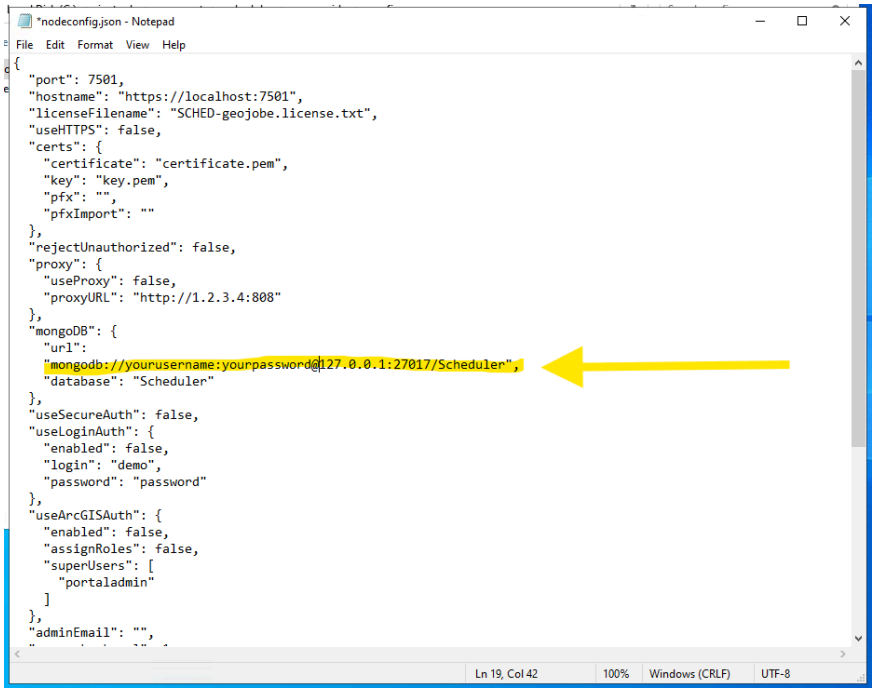
12. In the Schedulerdirectory, edit the file called: **<Scheduler install directory>\Scheduler\server-side\config\nodeConfig.json**



13. Edit the “url” line of “mongoDB” to read:

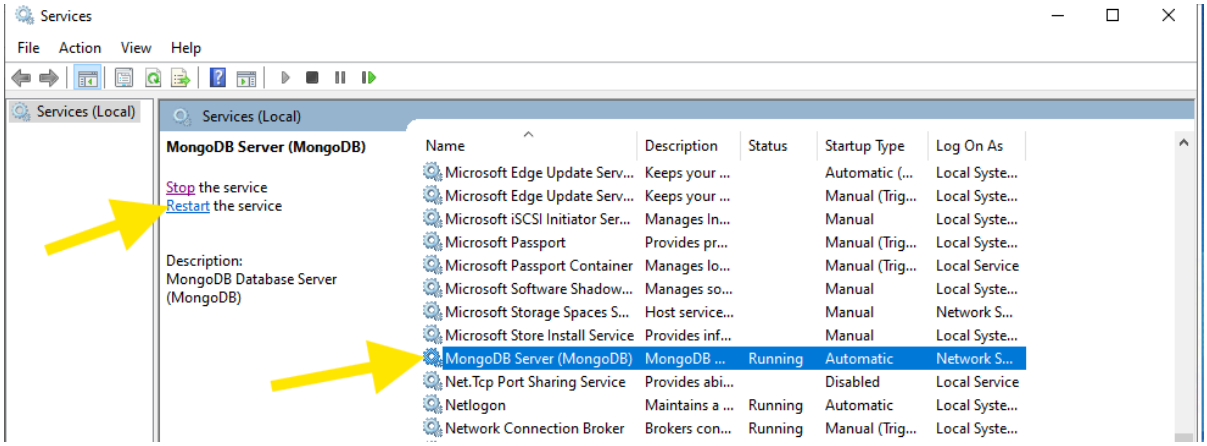
```
"url":
"mongodb://yourusername:yourpassword@localhost:27017/Scheduler
",
```


nodeconfig.json - Notepad
File Edit Format View Help
{
"port": 7501,
"hostname": "https://localhost:7501",
"licenseFilename": "SCHED-geojobe.license.txt",
"useHTTPS": false,
"certs": {
"certificate": "certificate.pem",
"key": "key.pem",
"pfx": "",
"pfxImport": ""
},
"rejectUnauthorized": false,
"proxy": {
"useProxy": false,
"proxyURL": "http://1.2.3.4:808"
},
"mongoDB": {
"url": "mongodb://127.0.0.1:27017/Scheduler",
"database": "Scheduler"
},
"useSecureAuth": false,
"useLoginAuth": {
"enabled": false,
"login": "demo",
"password": "password"
},
"useArcGISAuth": {
"enabled": false,
"assignRoles": false,
"superUsers": [
"portaladmin"
]
},
"adminEmail": "",
"serverLogLevel": 1,
Ln 1, Col 1
100%
Windows (CRLF)
UTF-8

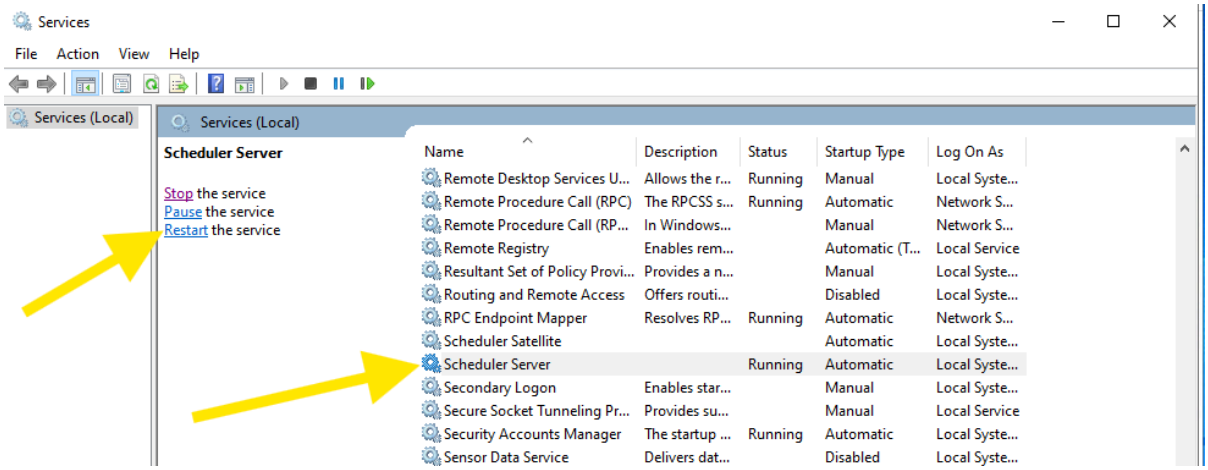

*nodeconfig.json - Notepad
File Edit Format View Help
{
"port": 7501,
"hostname": "https://localhost:7501",
"licenseFilename": "SCHED-geojobe.license.txt",
"useHTTPS": false,
"certs": {
"certificate": "certificate.pem",
"key": "key.pem",
"pfx": "",
"pfxImport": ""
},
"rejectUnauthorized": false,
"proxy": {
"useProxy": false,
"proxyURL": "http://1.2.3.4:808"
},
"mongoDB": {
"url":
"mongodb://yourusername:yourpassword@127.0.0.1:27017/Scheduler",
"database": "Scheduler"
},
"useSecureAuth": false,
"useLoginAuth": {
"enabled": false,
"login": "demo",
"password": "password"
},
"useArcGISAuth": {
"enabled": false,
"assignRoles": false,
"superUsers": [
"portaladmin"
]
},
"adminEmail": "",
Ln 19, Col 42
100%
Windows (CRLF)
UTF-8

14. Save the file and close.

15. Open Windows Services and restart the "**MongoDB Server**" windows service.



16. Restart the "**Scheduler Server**" windows service.



X. Appendix A: Frequently Asked Questions

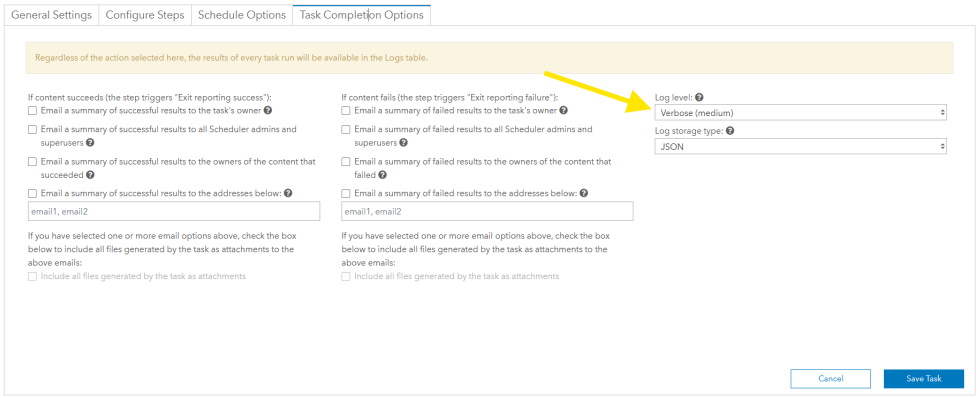
How does Scheduler store data?

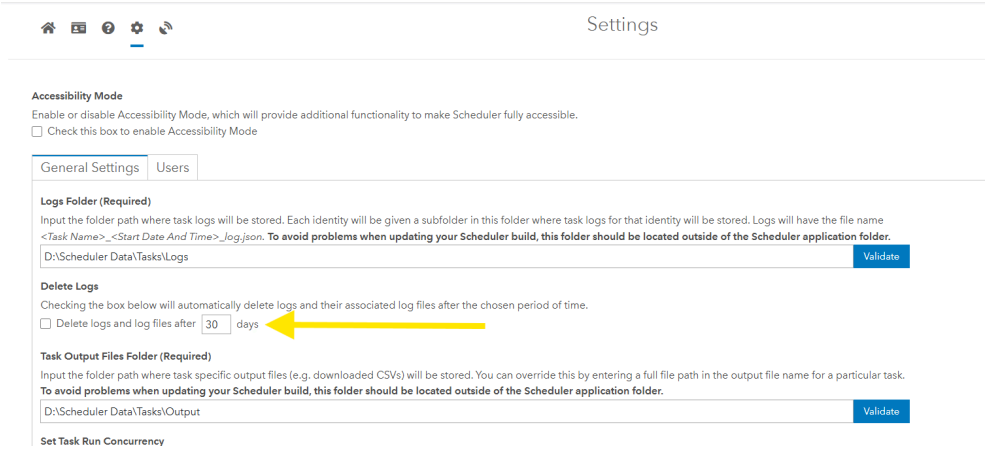
Like our other products, Scheduler uses MongoDB to store data. It also stores log files (as JSON), event collections and event logs (as JSON), and output files generated by tools

(whatever format the user has selected). Any data Scheduler stores will be on the machine where Scheduler is installed. ***Nothing is sent to GEO Jobe or saved to GEO Jobe servers***. ***All passwords stored in MongoDB are encrypted.*** Scheduler can use the same instance of MongoDB as other GEO Jobe products, with each product having its own database within MongoDB.

What is the storage and resources usage?

The common items stored are the databases, including the caches and the log files, as well as any output files that may be generated (for example, if a task exports content to CSV). Storage usage is directly related to the output generated by users, such as (but not limited to) CSV, JSON, or log files. A potential issue with storage comes with generating many or large log files. If you have a large organization, are running many tasks, and/or have set the log level to Verbose or Debug for your tasks, the number of log files and the data they contain will accumulate and can grow quite large. On the Settings page, there is an option to automatically delete log files every X days, and adjusting the task log level (see the Tasks section) can control the amount of content recorded.





In terms of resource usage, the biggest factors are the size of your organization and the specifications of the server running Scheduler.

Resource usage can also depend on the nature of the tasks created. Each tool has a "resource intensiveness" property that describes its resource usage relative to other tools for the same organization, to give users a ballpark idea of whether their task is low-intensity or high-intensity. For high-intensity tasks, consider scheduling them during off hours. If using webhooks, tasks that use webhooks that fire frequently may lead to high resource usage. To mitigate this, you can use event collections. Rather than running a full task, event collections respond to webhooks by simply writing the information to a file, which is significantly less resource intensive. You can then use the event collection as the input for a scheduled task (see the section on Event Collections for more information).

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

Will webhooks overwhelm my server with requests?

Users who hear about webhooks might be concerned that frequent requests from webhooks might overwhelm the machine where Scheduler is installed. Users will need to use their discretion to configure webhooks in a way that is appropriate for the amount of content in their organization and the frequency with which the events they want to watch occur. Beyond that, organization webhooks have a property that will deactivate them after X failures in Y days (where X and Y are configurable, both are 5 by default), at which point they will no longer fire. Feature service webhooks will always deactivate after 5 failures (this property is not configurable). This means that if Scheduler is unable to receive the webhook payloads, for example if the server on which it's running goes down, the webhooks will be deactivated after the given failure limit. This ensures that when Scheduler is able to receive webhook requests again, it won't be hit with all of the webhook requests that accumulated when it was not available, and that your organization will not continue to send requests that fail. (Note: if this occurs, the user will have to reactivate the webhooks if they want to keep using them, which can be done in Scheduler).

Can I use my existing organization and feature service webhooks in Scheduler?

Yes. Scheduler provides an interface to manage all organization and feature service webhooks in all of your licensed organizations, whether they're being used in Scheduler or not. This interface provides all the functionality that is available in Esri's API (activate, deactivate, create, update, delete). A particular webhook can only be used in one application at a time, so if you want to use an existing webhook in Scheduler, it will no longer be able to be used in the application it's currently assigned to. You can change the application that receives a webhook by updating the payload URL in Scheduler. Alternatively, you can use the Export/Import Webhooks functionality to clone

webhooks. Simply export the webhooks to CSV, change the identity, payload URL, or other parameter, then import them.

Can I use the /delete webhook to prevent content from being deleted?

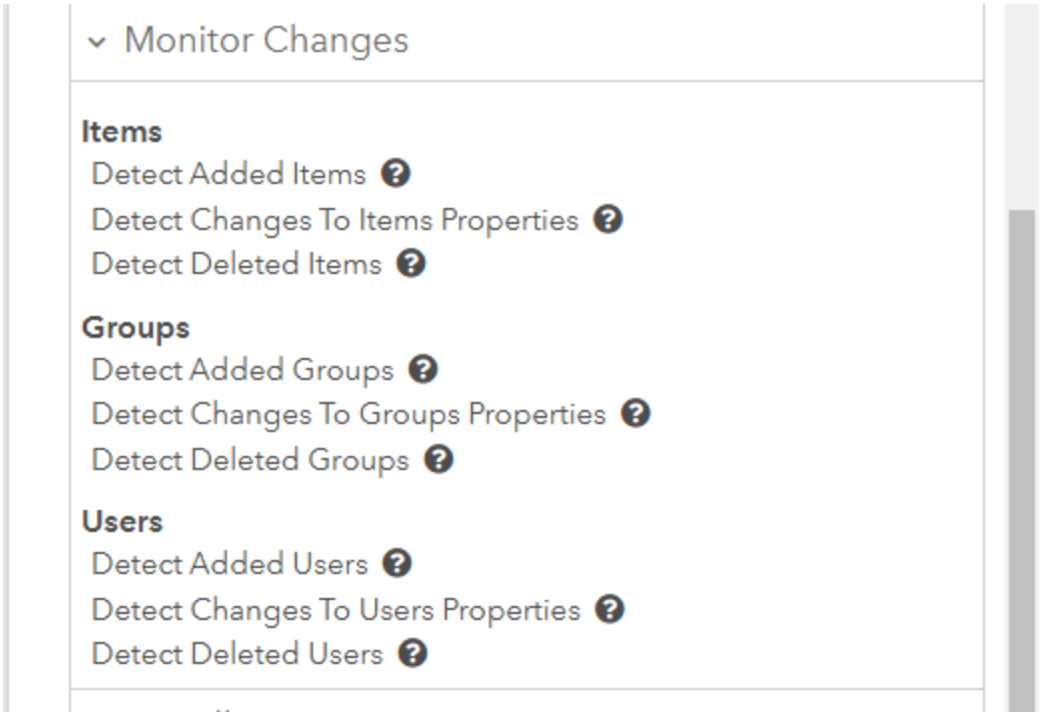
No. The /delete webhook only fires after content has been deleted; by the time the webhook fires, the content is already gone and cannot be accessed in any way. Scheduler can export deleted content based on its record in the cache (in most cases), allowing the user to see what was deleted, but that's all Scheduler can do in this situation. For groups, there is another webhook that will detect when delete protection is removed. It takes time for Scheduler to receive the webhook and run the task, so if the group is deleted immediately after removing delete protection, Scheduler likely won't be able to respond in time. However, if the group is not deleted immediately, Scheduler could detect that delete protection had been removed and then perform a configured task, for example, emailing the person who triggered the webhook and telling them not to delete that group. There is no webhook for removing delete protection for items, but you can use the Monitor Changes tools to detect whether delete protection has been added and/or removed.

What if I have ArcGIS Online and want to watch for changes to content?

Organization webhooks are only available in ArcGIS Enterprise. As an alternative to organization webhooks for ArcGIS Online, our Monitor Changes tools can be used in scheduled tasks to take a snapshot of items, users, and group properties. Each time the tool is run the new snapshot will be compared to the old one, and in this way Scheduler can detect when items, groups, and users have been added, deleted or changed in ArcGIS Online. These tasks will still need to be scheduled rather than triggered, but they

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

are a good option in many cases when you can't use organization webhooks.



What if I want to watch for a type of change that is not captured by webhooks?

Webhooks capture many activities in an organization, but not all. One important activity that users may be interested in watching that Esri does not have a webhook for is adding or removing delete protection from items (there is a webhook for adding or removing delete protection from groups). Additionally, organization webhooks do not always contain the desired level of specificity. For example, the /update webhook fires whenever an item, user or group's details change, such as tags, title, description, etc. However, the /update webhook does not contain information on which of those properties was changed, so there would be no way to trigger a task that ran in response to, for example, changes to tags but not changes to other properties. For both of these cases, users can use the Monitor Changes tools. The Monitor Changes tools can be configured to detect changes to any combination of individual properties for items,

users or groups. For the first example, Detect Changes to Items Properties could be used to find items that have had delete protection changed. Similarly, the Monitor Changes tools could be configured to only watch for changes to tags, and not to any other details.

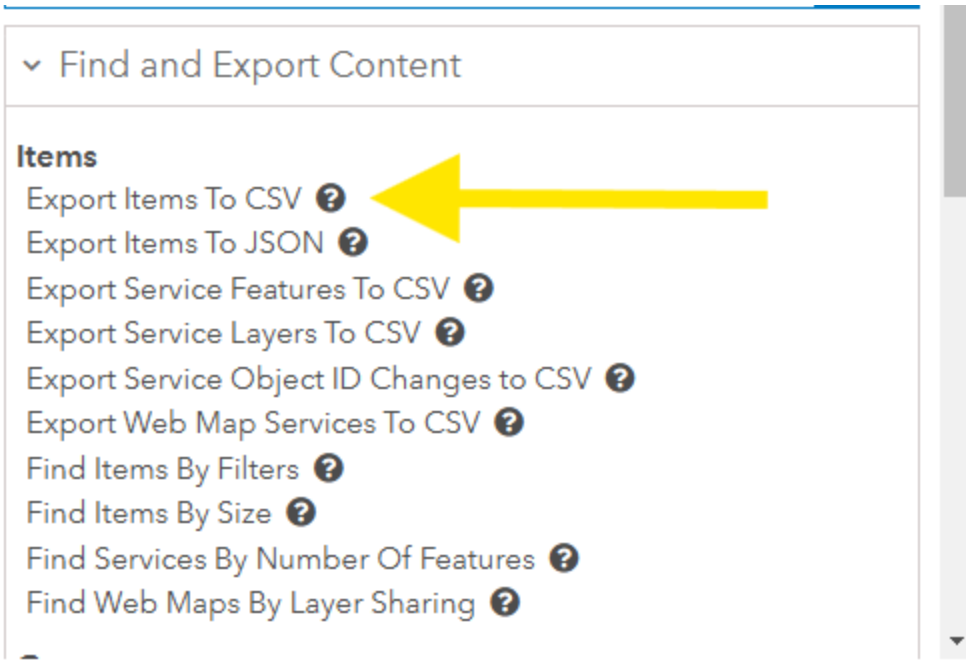
XI. Appendix B: Tool List

Find and Export Content

Export Items To CSV

Description: This tool exports items to a CSV with the selected fields.
Organization Type: ArcGIS Online and Enterprise
Input: Items
Output: Items, File
Resource Intensiveness: Moderate (if including the Groups, Number of Shared Groups, JSON Data, Comments Enabled, Item Control or Size fields) or Low (if not including any of the above fields)
Additional Considerations: You will be given the option to input a file name. If the file name is not unique to each task run, you can choose to append to the file or overwrite it each time the task is run. If you want a file name that will be unique each time the task is run, you can use the Text Generator to include the date and time in the file name. Additionally, including the Groups, Number of Shared Groups, JSON Data, Comments Enabled, Item Control or Size fields will cause the export to take longer, as

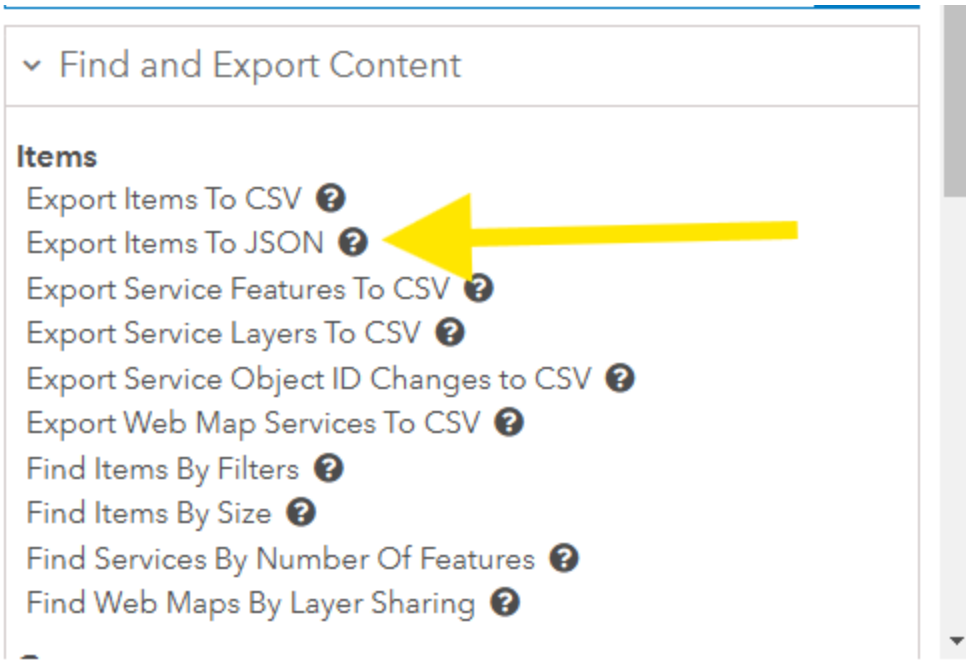
these properties require additional API calls.



Export Items To JSON

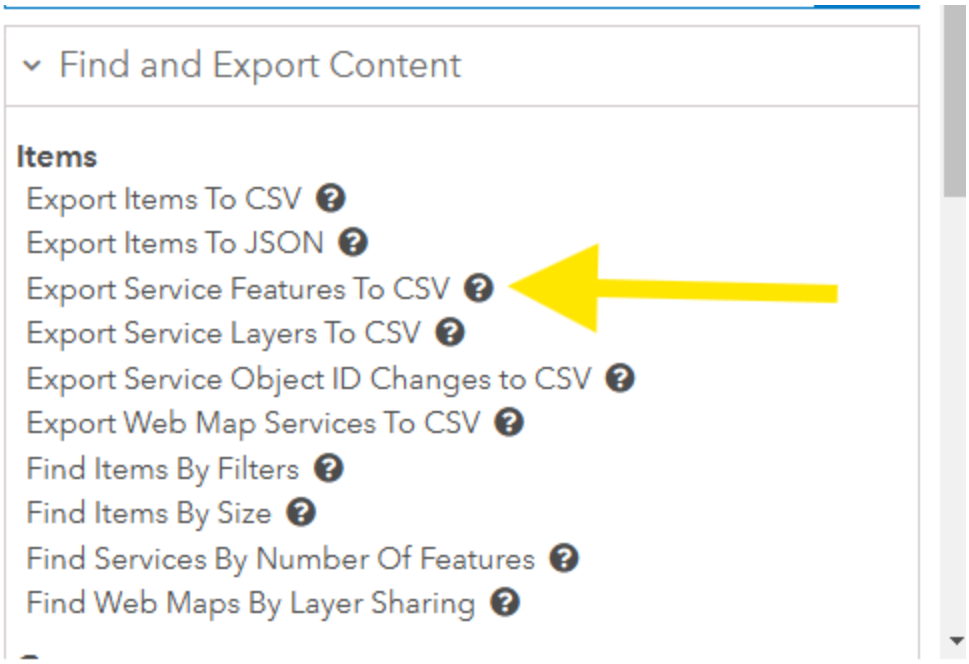
Description: This tool exports items to JSON.
Organization Type: ArcGIS Online and Enterprise
Input: Items
Output: Items, File
Resource Intensiveness: Moderate
Additional Considerations: You will be given the option to input a file name. If the file name is not unique to each task run, you can choose to append to the file or overwrite it each time the task is run. If you want a file name that will be unique each time the task is run, you can use the Text Generator to include the date and time in the file

name.



Export Service Features To CSV

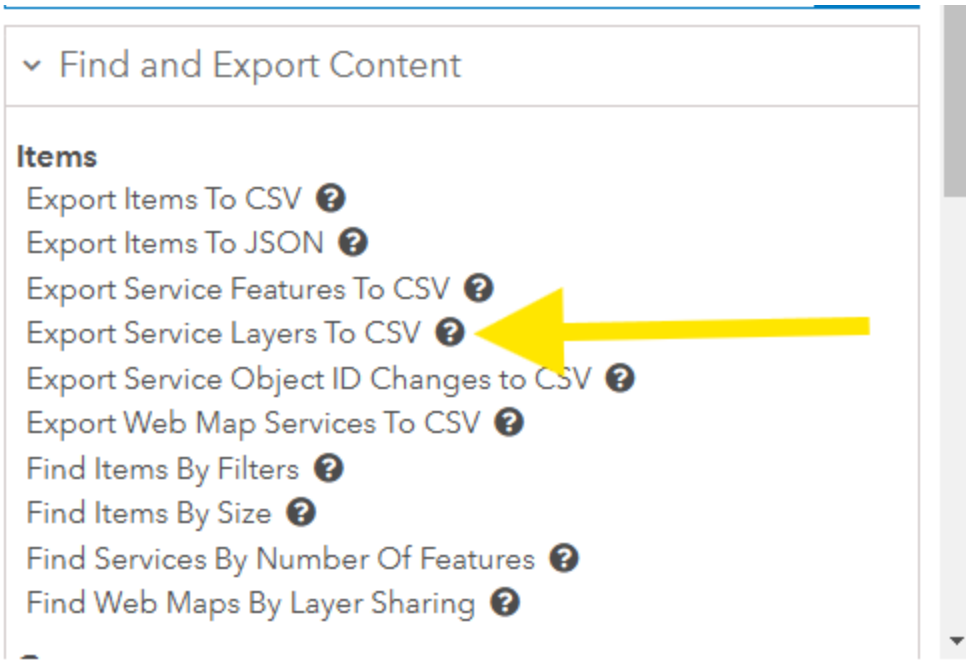
Description: This tool exports features in feature service layers to CSV. The tool creates a zip file with a folder for each service and, within that folder, one CSV for each layer. Users can choose to export all features or features based on a query.
Organization Type: ArcGIS Online and Enterprise
Input: Items
Output: Items (Feature Services, Map Services), File
Resource Intensiveness: Variable depending on the number of features in the service and the options selected.
Additional Considerations: You will be given the option to input a file name for the zip file. If the file name is not unique to each task run, the zip file will be overwritten each time the task is run. If you want a file name that will be unique each time the task is run, you can use the Text Generator to include the date and time in the file name.



Export Service Layers To CSV

Description: This tool exports properties of service layers to CSV. In addition to properties such as field names and extent, it can optionally include the number of features in each layer. If the previous step outputs services with layers, this tool can also be configured to export only those layers from the previous step.
Organization Type: ArcGIS Online and Enterprise
Input: Items
Output: Items (Feature Services, Map Services), File
Resource Intensiveness: Moderate (if exporting all layers) or Low (if exporting layers found in a previous step)

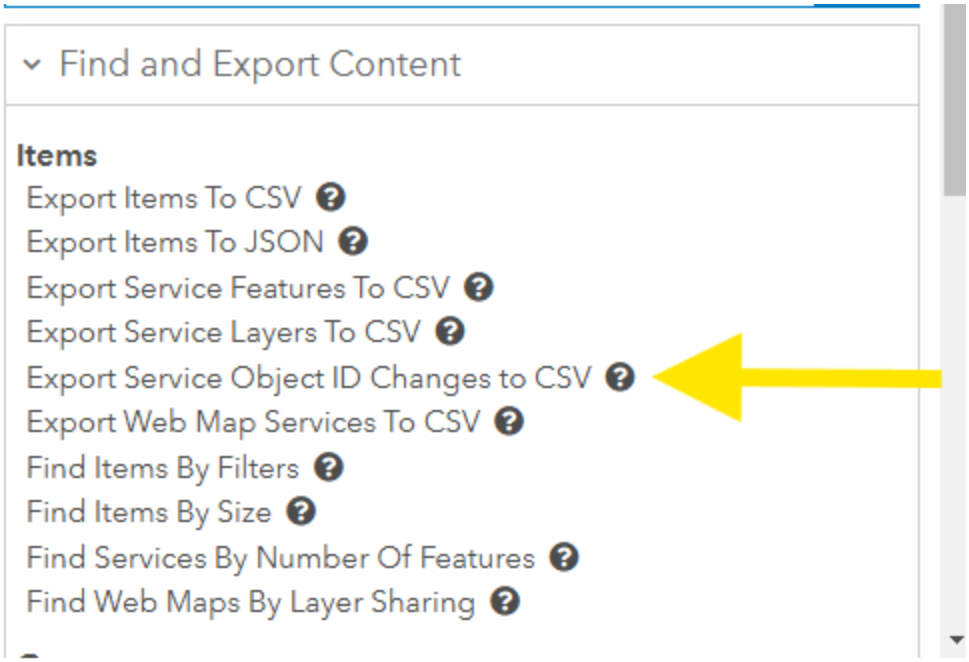
Additional Considerations: None



Export Service Object ID Changes To CSV

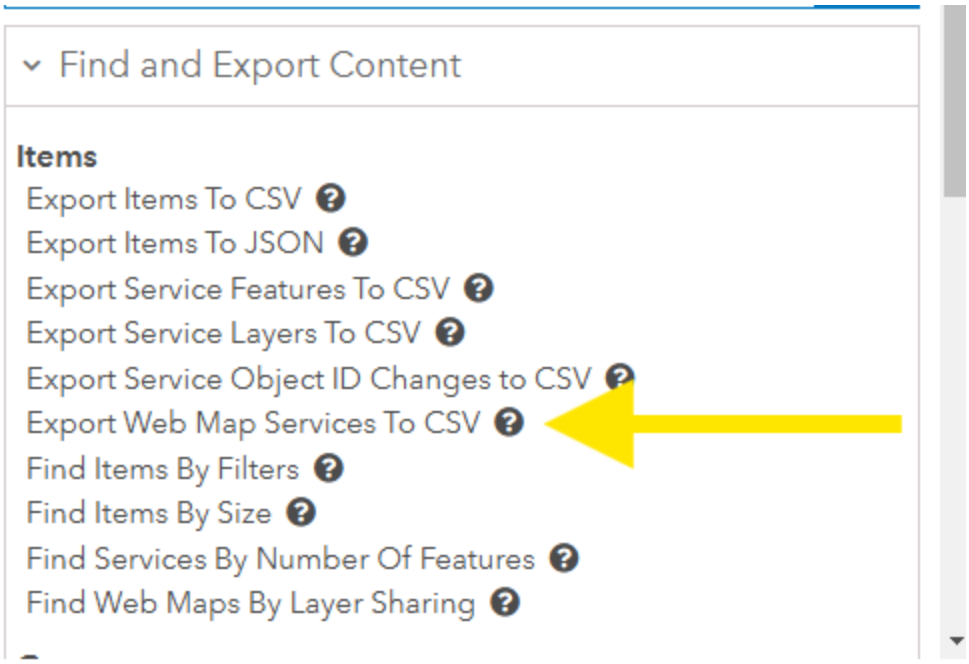
Description: This tool exports changes to Object IDs in service layers to CSV. The resulting CSV will contain the number of features added or deleted in each layer since the last time the task was run.
Organization Type: ArcGIS Online and Enterprise
Input: Items (Feature Services, Map Services)
Output: Items (Feature Services, Map Services), File
Resource Intensiveness: Moderate
Additional Considerations: This tool will only show the number of features added or deleted. It will not include attribute information and it will not find updates to existing features. For more nuanced information about changes to services, we recommend using feature service webhooks. This tool is intended to be used primarily for services where feature service webhooks can't be used. If a new layer is added to a service being tracked by the task after the task has been saved, all of that layer's features will be returned as added features the first time the task was run. You will be given the option to input a file name for the output file. If the file name is not unique to each task run, the output file will be overwritten each time the

task is run. If you want a file name that will be unique each time the task is run, you can use the Text Generator to include the date and time in the file name.



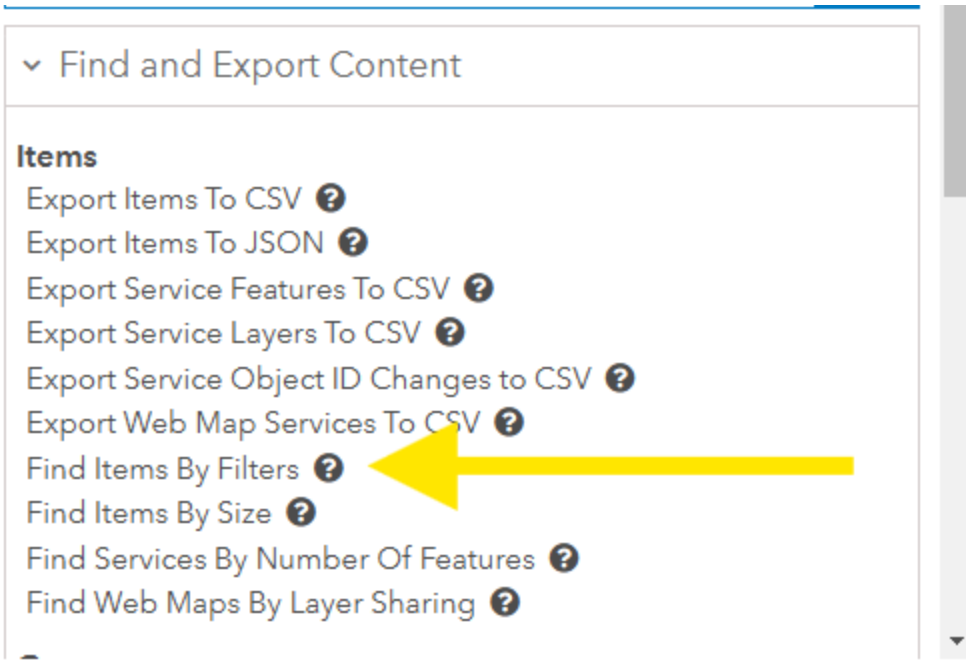
Export Web Map Services To CSV

Description: This tool exports information about web maps services in the form of a CSV. If this tool receives input from a preceding step that outputs web map layers, you will be able to choose whether to export all layers on the web maps or only the layers output by the preceding step.
Organization Type: ArcGIS Online and Enterprise
Input: Items (Web Maps)
Output: Items (Web Maps With Layers), File
Resource Intensiveness: Moderate
Additional Considerations: You will be given the option to input a file name. If the file name is not unique to each task run, you can choose to append to the file or overwrite it each time the task is run. If you want a file name that will be unique each time the task is run, you can use the Text Generator to include the date and time in the file name.



Find Items By Filters

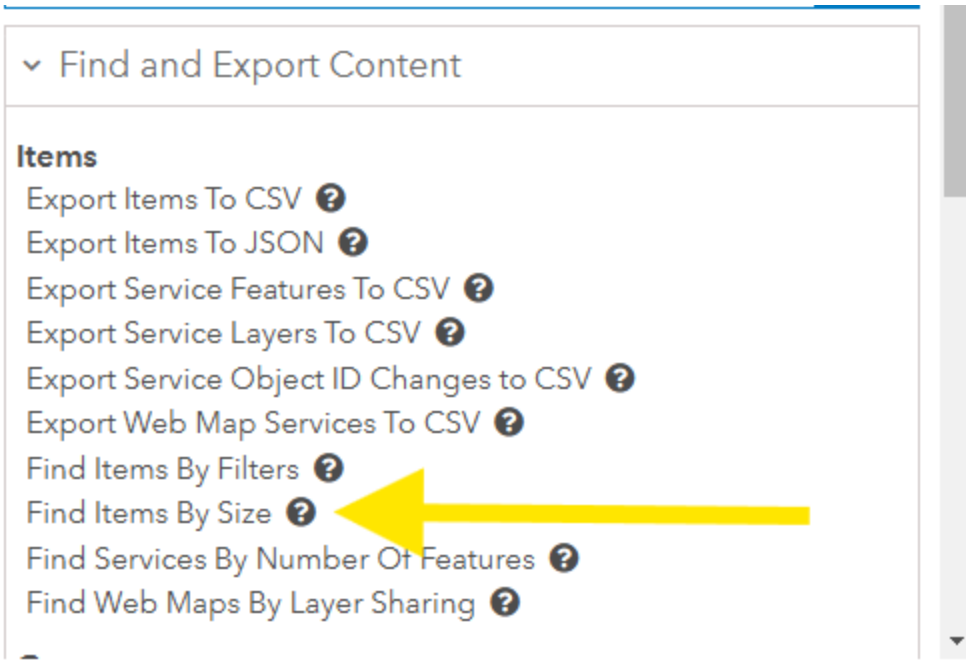
Description: This tool finds items that meet conditions indicated by filters, for the purpose of passing them on to another step.
Organization Type: ArcGIS Online and Enterprise
Input: Items
Output: Items
Resource Intensiveness: Low
Additional Considerations: When running an item tool, you will be able to set filters within the tool. This tool is designed primarily for situations where items are passed to a tool of a different content type (for example, a users tool that acts on the owners of the found items).



Find Items By Size

Description: This tool finds items based on their size, either by finding all items above or below a certain size, or by finding a selected number of the largest items.
Organization Type: ArcGIS Online and Enterprise
Input: Items
Output: Items
Resource Intensiveness: Moderate

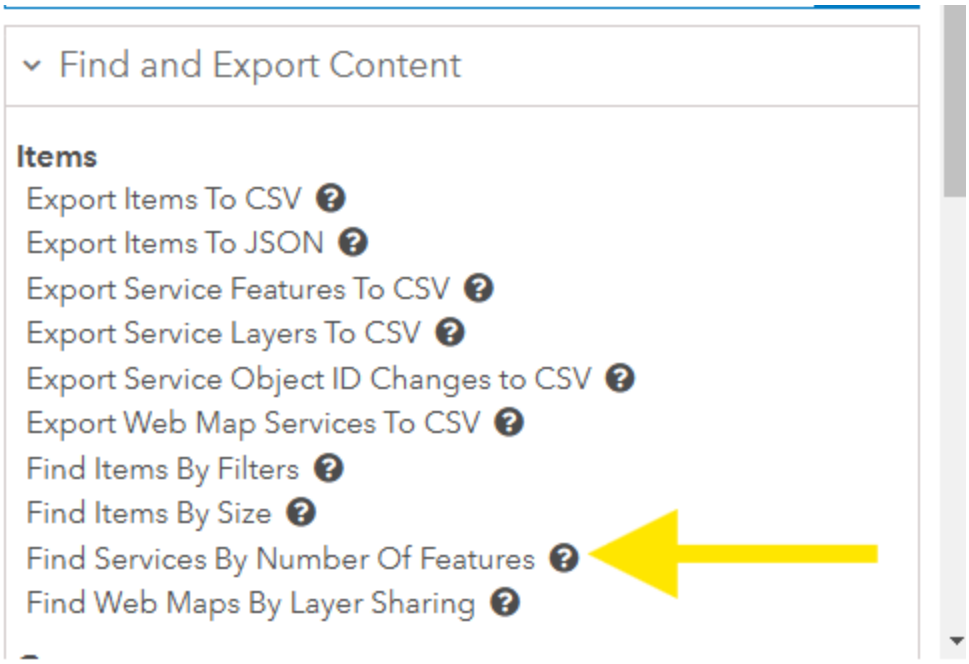
Additional Considerations: None



Find Services By Number Of Features

Description: This tool finds services based on the number of features they contain. You can choose to search for services with greater than or less than a certain number of features. By default, a service is returned if at least one layer matches the criteria, however, you can choose to only include certain layers from a service when checking for number of features, or to exclude certain layers.
Organization Type: ArcGIS Online and Enterprise
Input: Items (Feature Services, Map Services)
Output: Items (Feature Services, Map Services)
Resource Intensiveness: Moderate

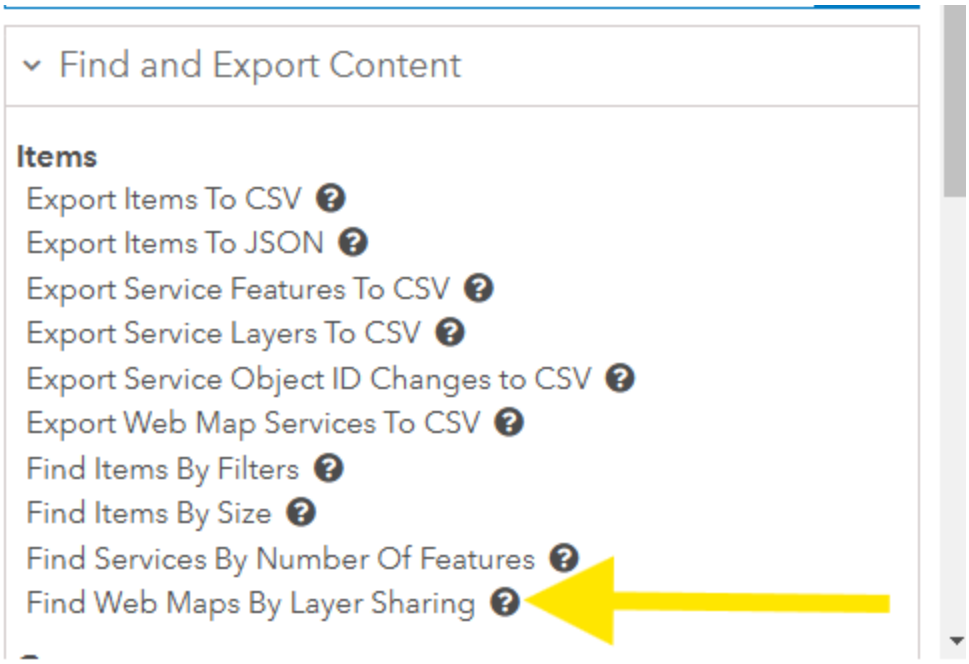
Additional Considerations: None



Find Web Maps By Layer Sharing

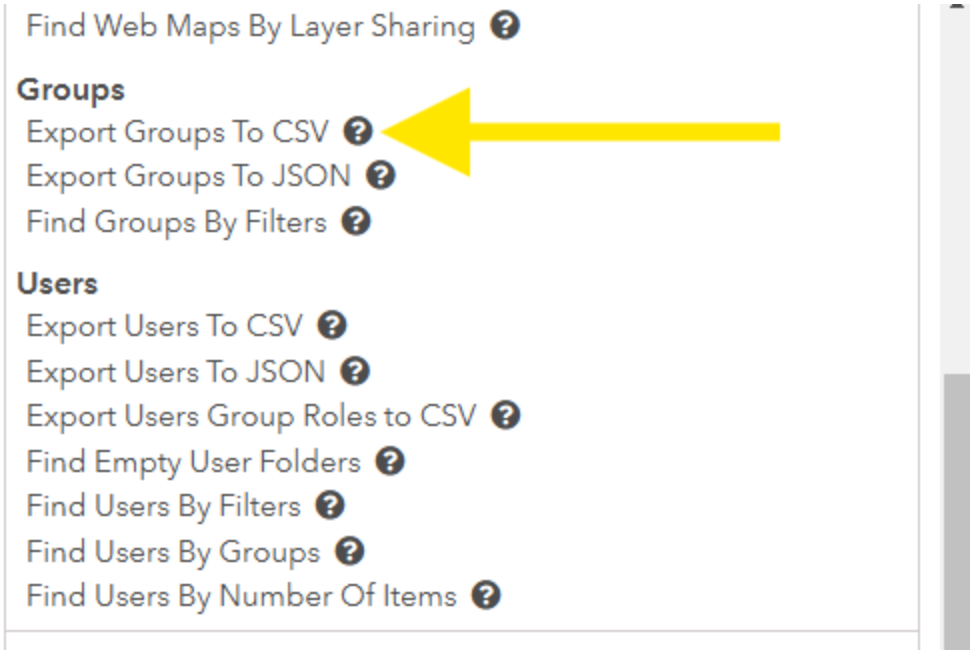
Description: This tool finds web map layers whose corresponding items have the indicated sharing level. The additional option to find layers not publicly accessible finds any layers that would interfere with a web map being publicly accessible, whether because their sharing level is org or private, or because they're not publicly accessible via their URL.
Organization Type: ArcGIS Online and Enterprise
Input: Items (Web Maps)
Output: Items (Web Maps With Layers)
Resource Intensiveness: High

Additional Considerations: None



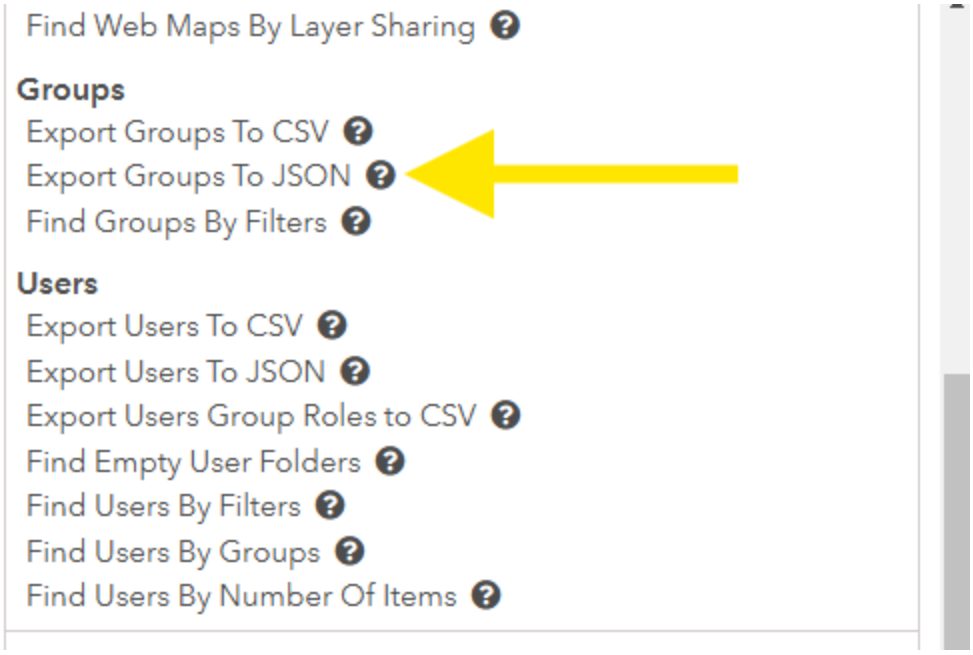
Export Groups To CSV

Description: This tool exports groups to a CSV with the selected fields.
Organization Type: ArcGIS Online and Enterprise
Input: Groups
Output: Groups, File
Resource Intensiveness: Moderate (if including the Provider Group Name, Users or User Membership fields) or Low (if not including any of the above fields)
Additional Considerations: You will be given the option to input a file name. If the file name is not unique to each task run, you can choose to append to the file or overwrite it each time the task is run. If you want a file name that will be unique each time the task is run, you can use the Text Generator to include the date and time in the file name. Additionally, including the Provider Group Name, Users or User Membership fields will cause the export to take longer, as these properties require additional API calls.



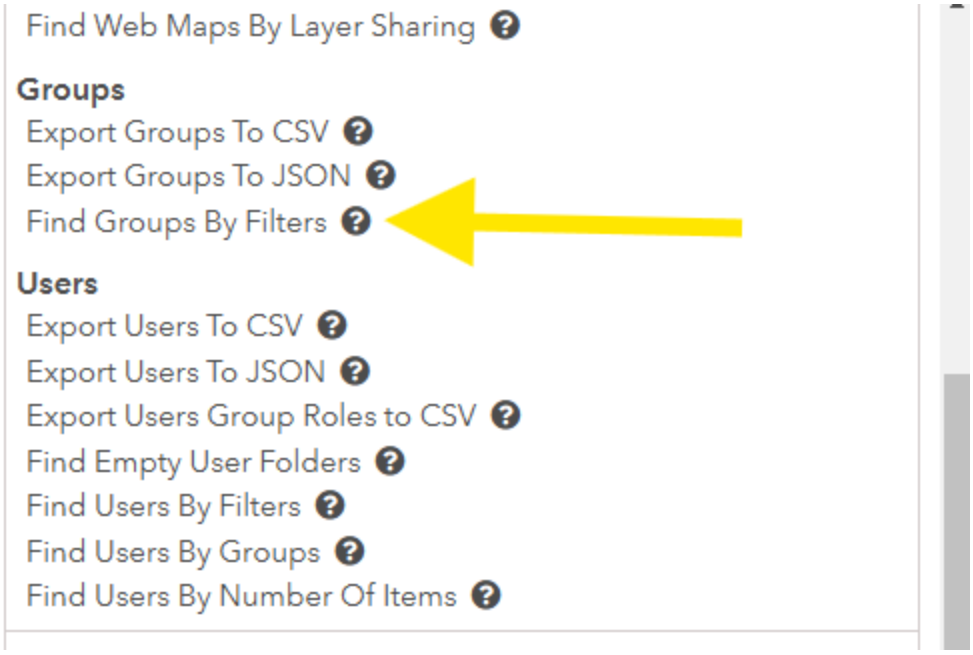
Export Groups To JSON

Description: This tool exports groups to JSON.
Organization Type: ArcGIS Online and Enterprise
Input: Groups
Output: Groups, File
Resource Intensiveness: Low
Additional Considerations: You will be given the option to input a file name. If the file name is not unique to each task run, you can choose to append to the file or overwrite it each time the task is run. If you want a file name that will be unique each time the task is run, you can use the Text Generator to include the date and time in the file name.



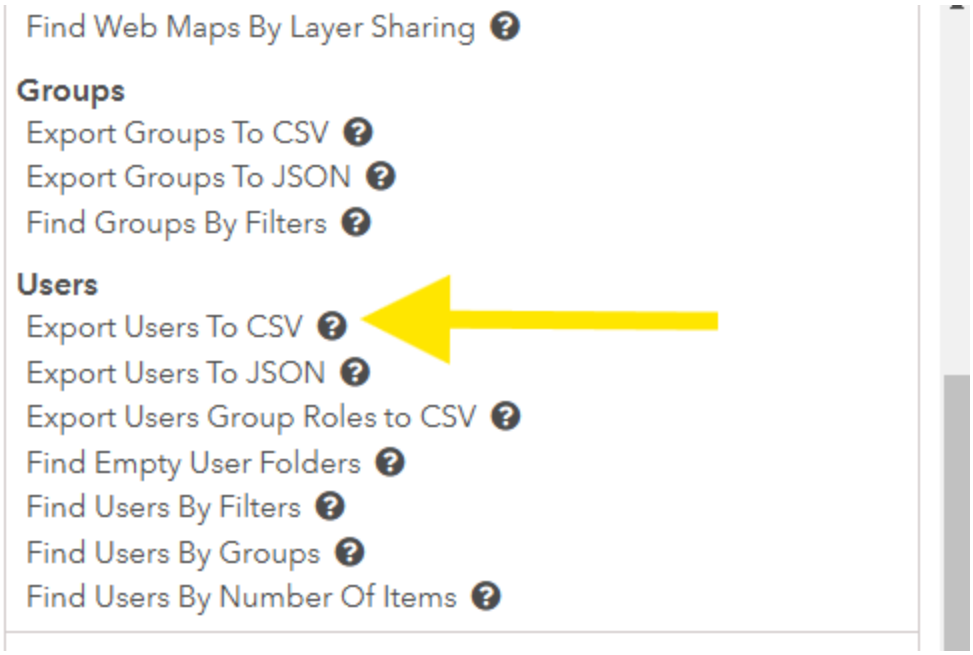
Find Groups By Filters

Description: This tool exports groups to JSON.
Organization Type: ArcGIS Online and Enterprise
Input: Groups
Output: Groups
Resource Intensiveness: Low
Additional Considerations: When running a group tool, you will be able to set filters within the tool. This tool is designed primarily for situations where groups are passed to a tool of a different content type (for example, a users tool that acts on the owners of the found groups).



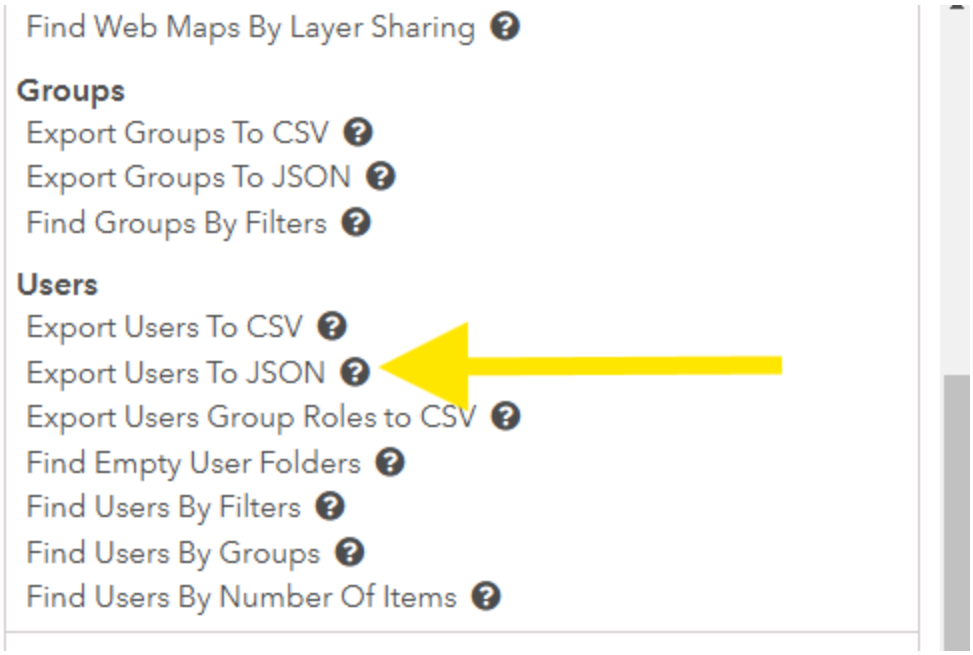
Export Users To CSV

Description: This tool exports users to a CSV with the selected fields.
Organization Type: ArcGIS Online and Enterprise
Input: Users
Output: Users, File
Resource Intensiveness: Moderate (if including the Groups or Entitlements fields) or Low (if not including either of the above fields)
Additional Considerations: You will be given the option to input a file name. If the file name is not unique to each task run, you can choose to append to the file or overwrite it each time the task is run. If you want a file name that will be unique each time the task is run, you can use the Text Generator to include the date and time in the file name. Additionally, including the Groups or Entitlements fields will cause the export to take longer, as these properties require additional API calls.



Export Users To JSON

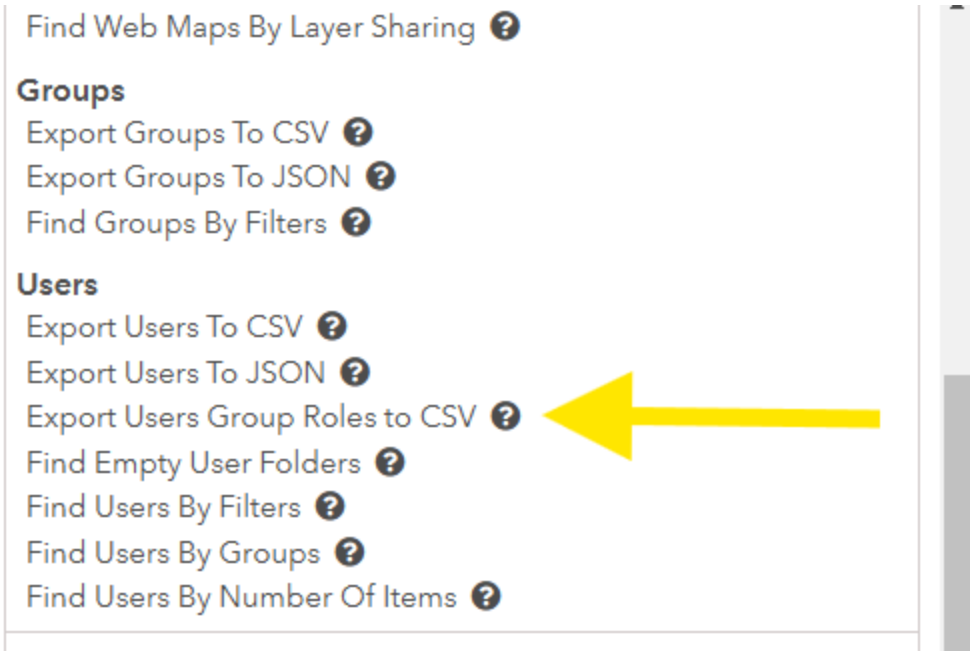
Description: This tool exports users to JSON.
Organization Type: ArcGIS Online and Enterprise
Input: Users
Output: Users, File
Resource Intensiveness: Moderate
Additional Considerations: You will be given the option to input a file name. If the file name is not unique to each task run, you can choose to append to the file or overwrite it each time the task is run. If you want a file name that will be unique each time the task is run, you can use the Text Generator to include the date and time in the file name.



Export Users Group Roles to CSV

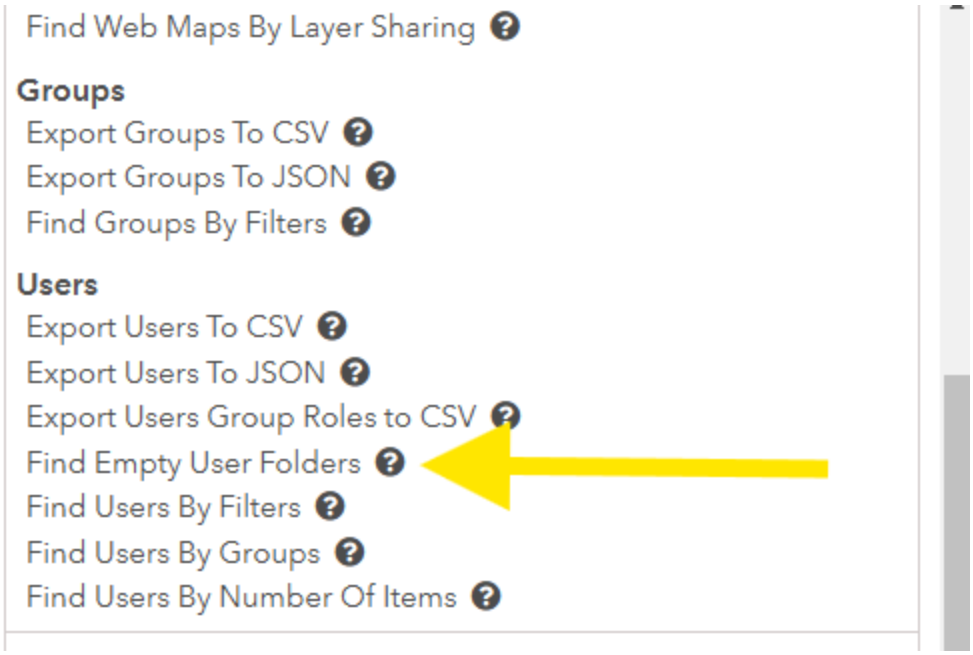
Description: This tool exports information about user group roles. It can export information about only certain roles (member, manager or owner) or all roles, and about all groups in the organization, or groups that pass selected filters. The output CSV will contain one row per group per user.
Organization Type: ArcGIS Online and Enterprise
Input: Users
Output: Users, File
Resource Intensiveness: Moderate
Additional Considerations: You will be given the option to input a file name. If the file name is not unique to each task run, you can choose to append to the file or overwrite it each time the task is run. If you want a file name that will be unique each time the task is run, you can use the Text Generator to include the date and time in the file name.

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



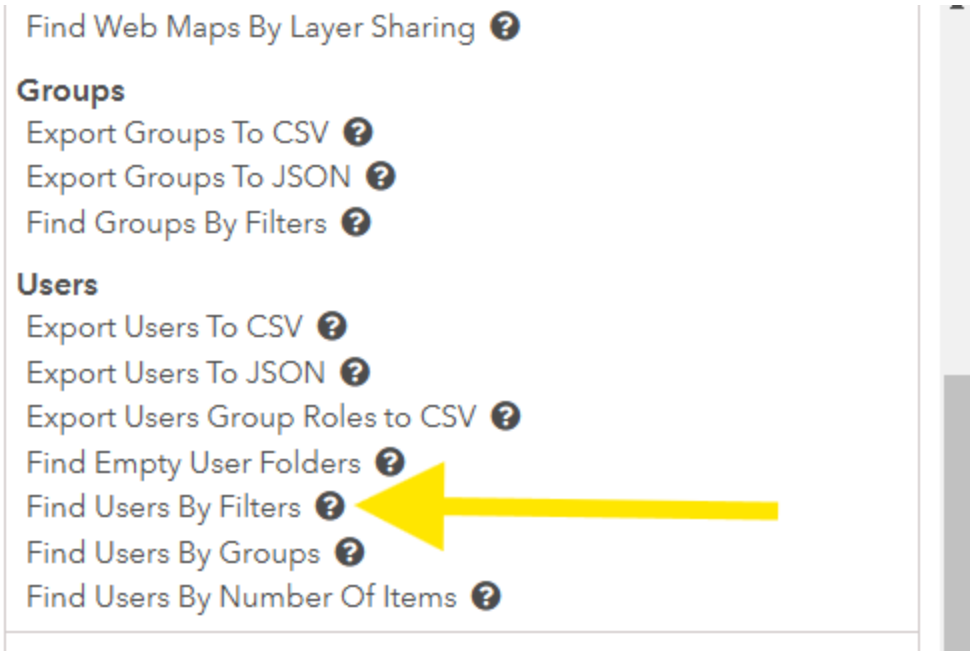
Find Empty User Folders

Description: This tool finds user folders with no items.
Organization Type: ArcGIS Online and Enterprise
Input: Users
Output: Users, Folders
Resource Intensiveness: Moderate
Additional Considerations: None



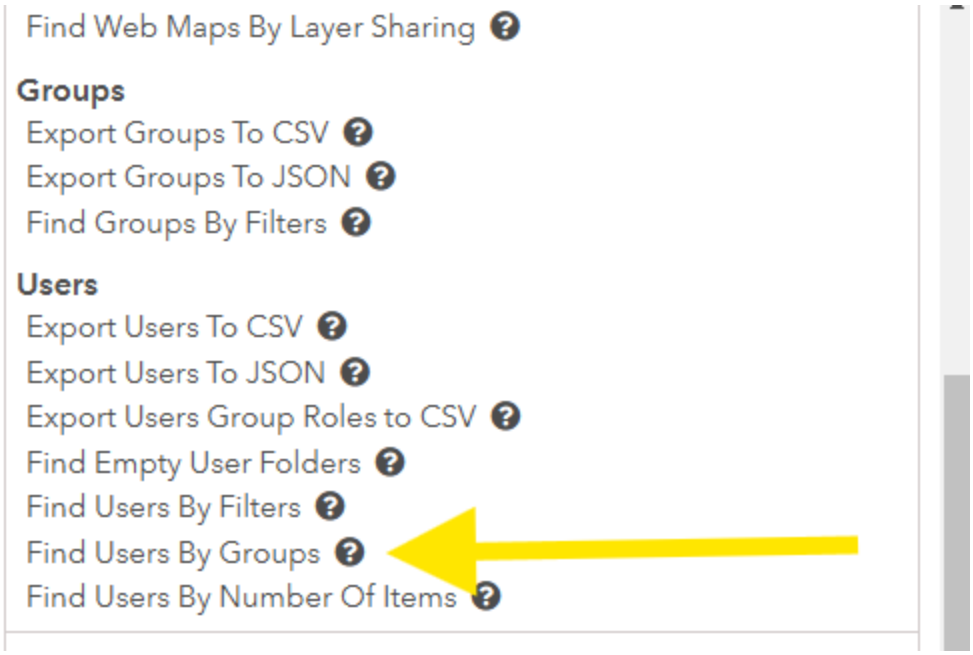
Find Users by Filters

Description: This tool finds users that meet conditions indicated by filters, for the purpose of passing them on to another step.
Organization Type: ArcGIS Online and Enterprise
Input: Users
Output: Users
Resource Intensiveness: Low
Additional Considerations: When running a users tool, you will be able to set filters within the tool. This tool is designed primarily for situations where users are passed to a tool of a different content type (for example, an items tool that acts on items owned by the found users).



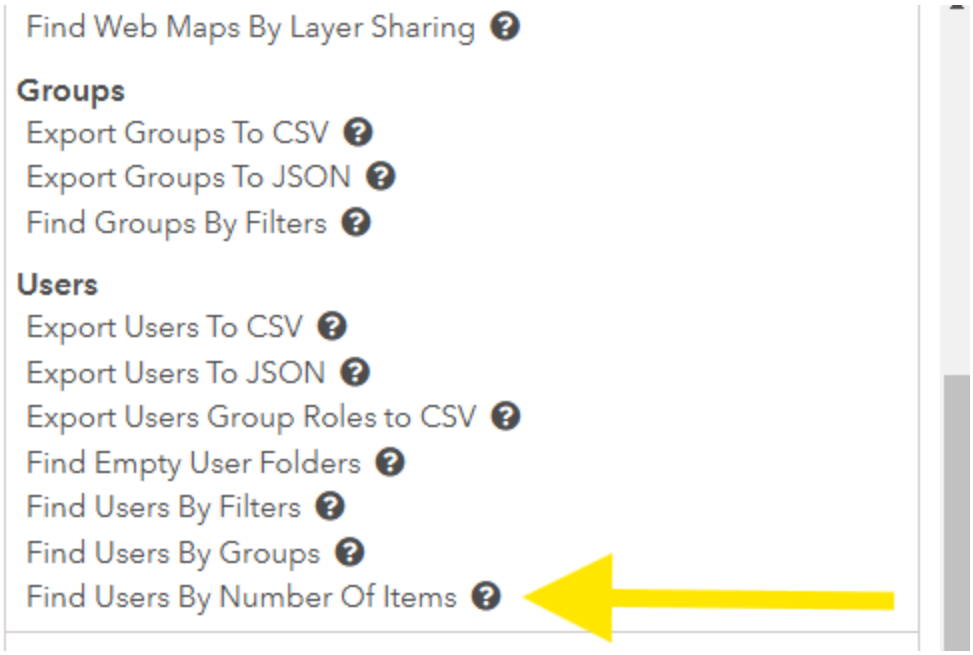
Find Users by Groups

Description: This tool finds users who have the selected role(s) in groups that meet the conditions indicated by the filters.
Organization Type: ArcGIS Online and Enterprise
Input: Users
Output: Users
Resource Intensiveness: Low
Additional Considerations: None



Find Users By Number Of Items

Description: This tool finds users based on the number of items they own. You can choose to search for users with greater than or less than a certain number of items.
Organization Type: ArcGIS Online and Enterprise
Input: Users
Output: Users
Resource Intensiveness: Low
Additional Considerations: None

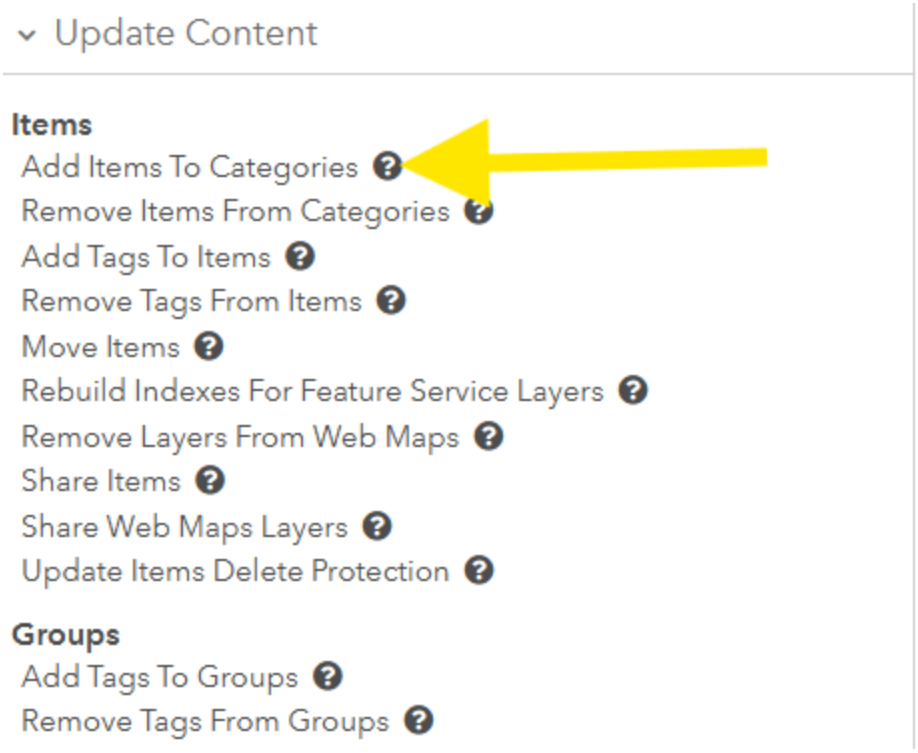


Update Content

Add Items To Categories

Description: This tool adds items to one or more categories.
Organization Type: ArcGIS Online and Enterprise
Input: Items
Output: Items
Resource Intensiveness: Moderate
Additional Considerations: An item cannot be assigned to more than 20 categories.

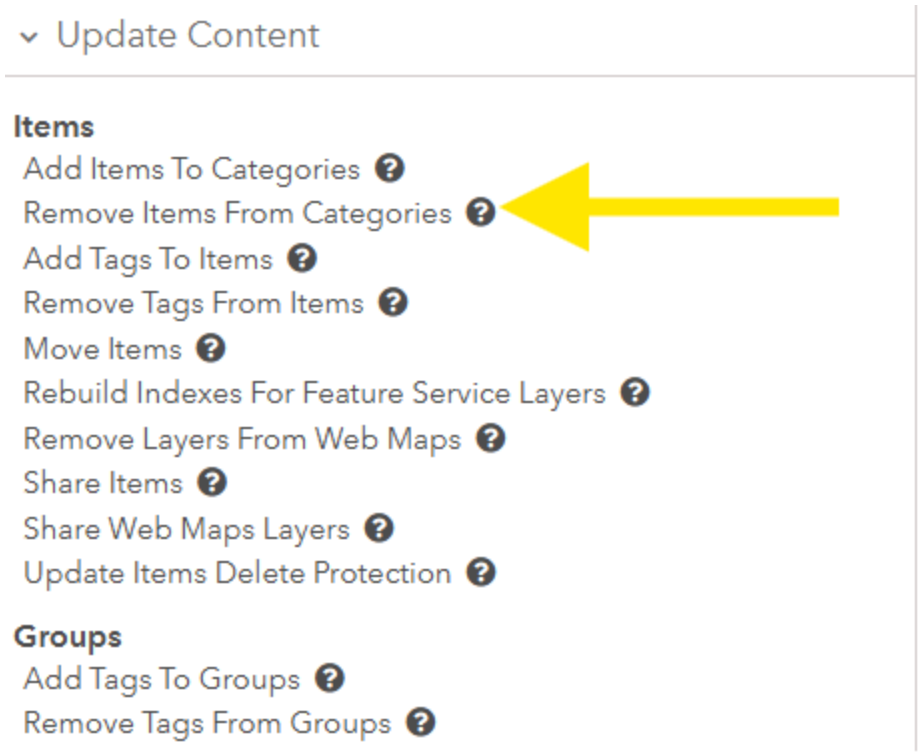
302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



Remove Items From Categories

Description: This tool removes items from one or more categories.
Organization Type: ArcGIS Online and Enterprise
Input: Items
Output: Items
Resource Intensiveness: Moderate
Additional Considerations: None

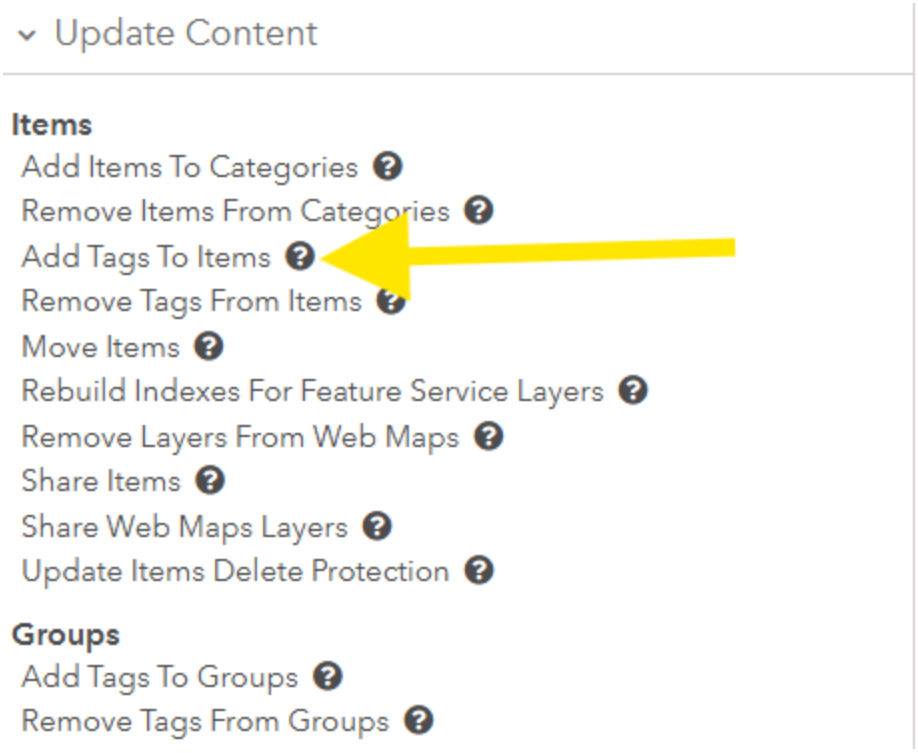
302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



Add Tags To Items

Description: This tool adds tags to items, either appending to existing tags or replacing them.
Organization Type: ArcGIS Online and Enterprise
Input: Items
Output: Items
Resource Intensiveness: Moderate
Additional Considerations: None

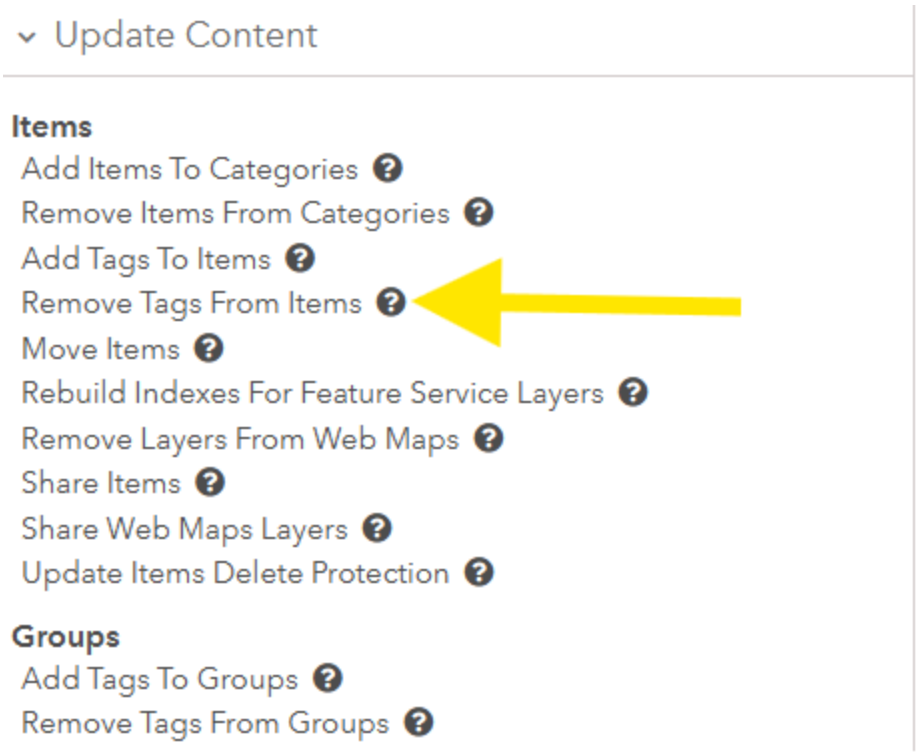
302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



Remove Tags From Items

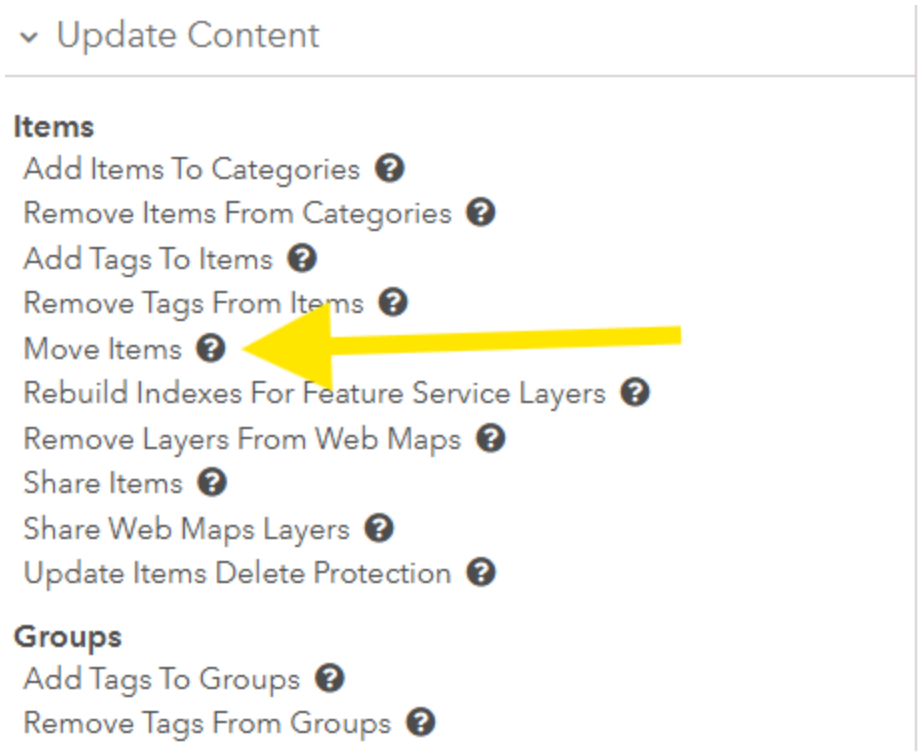
Description: This tool removes tags from items.
Organization Type: ArcGIS Online and Enterprise
Input: Items
Output: Items
Resource Intensiveness: Moderate
Additional Considerations: If the tool is running on a version of Enterprise that requires items to have at least one tag, the tool will not remove an item's last tag.

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



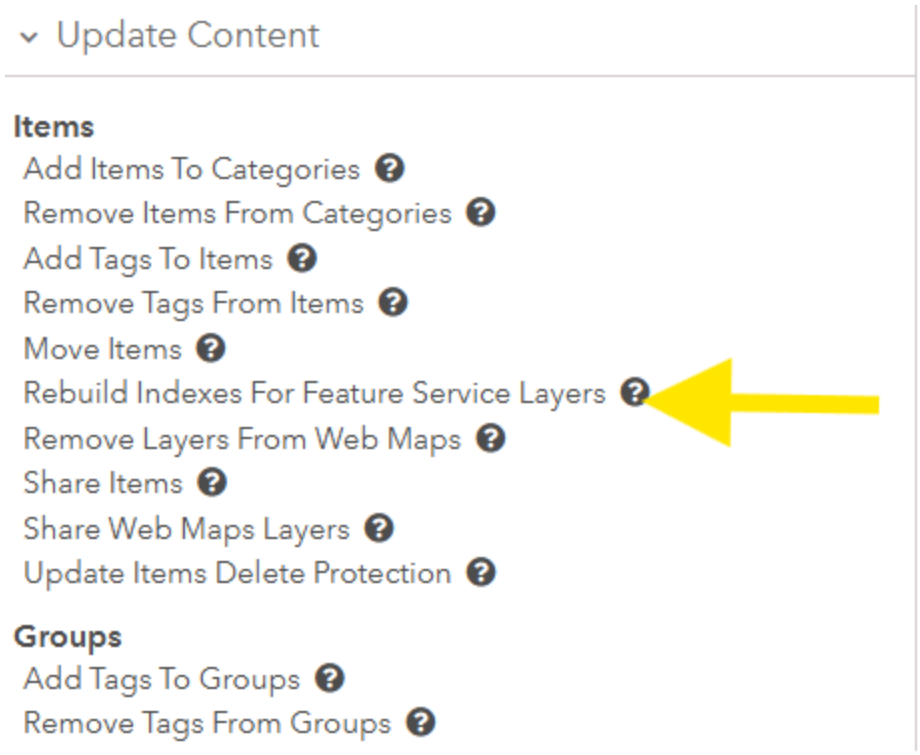
Move Items

Description: This tool moves items either to a different owner or to a different folder belonging to the same owner. If moving the items to a new owner, the user can choose whether to move the item to a folder with the same name as the source folder, or select a different folder belonging to that owner. If a folder with the selected name does not already exist for the selected user, one will be created. If the folder name is left blank, the items will be moved to the root folder.
Organization Type: ArcGIS Online and Enterprise
Input: Items
Output: Items
Resource Intensiveness: Moderate
Additional Considerations: Some types of related items, such as views, cannot be moved themselves, and instead will be moved when their parent item is moved. If a user selects one of these items without also selecting its parent item, the item will fail to be moved. If a user moves a parent item, its related items will be moved even if they were not selected.



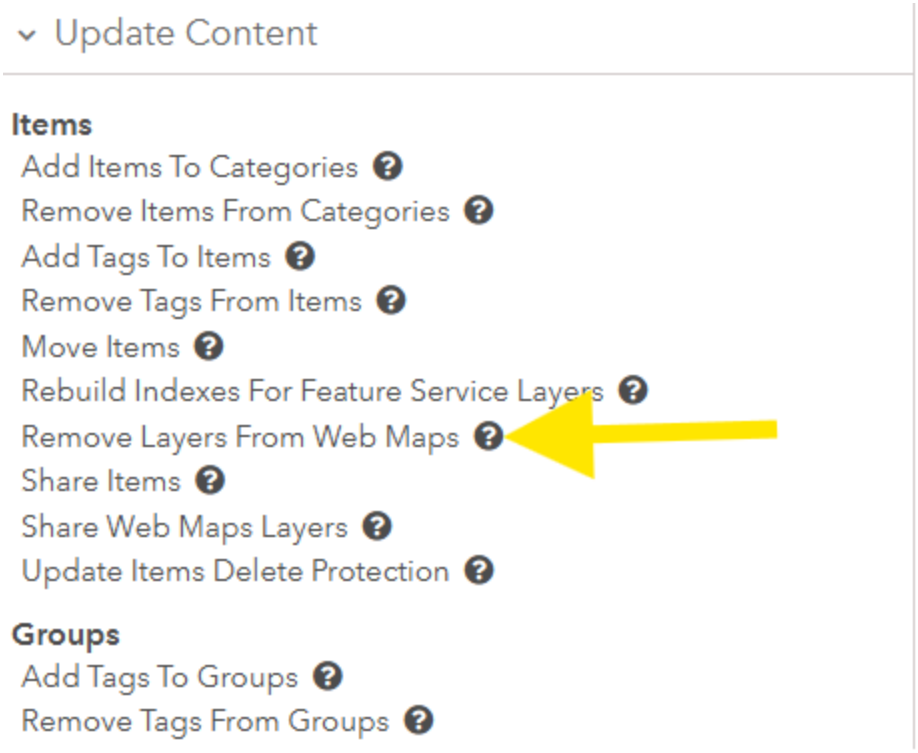
Rebuild Indexes For Feature Service Layers

Description: This tool rebuilds the spatial indexes of hosted feature service layers in ArcGIS Online, which can improve performance.
Organization Type: ArcGIS Online only
Input: Items (Hosted feature services)
Output: Items (Hosted feature services)
Resource Intensiveness: Moderate
Additional Considerations: None



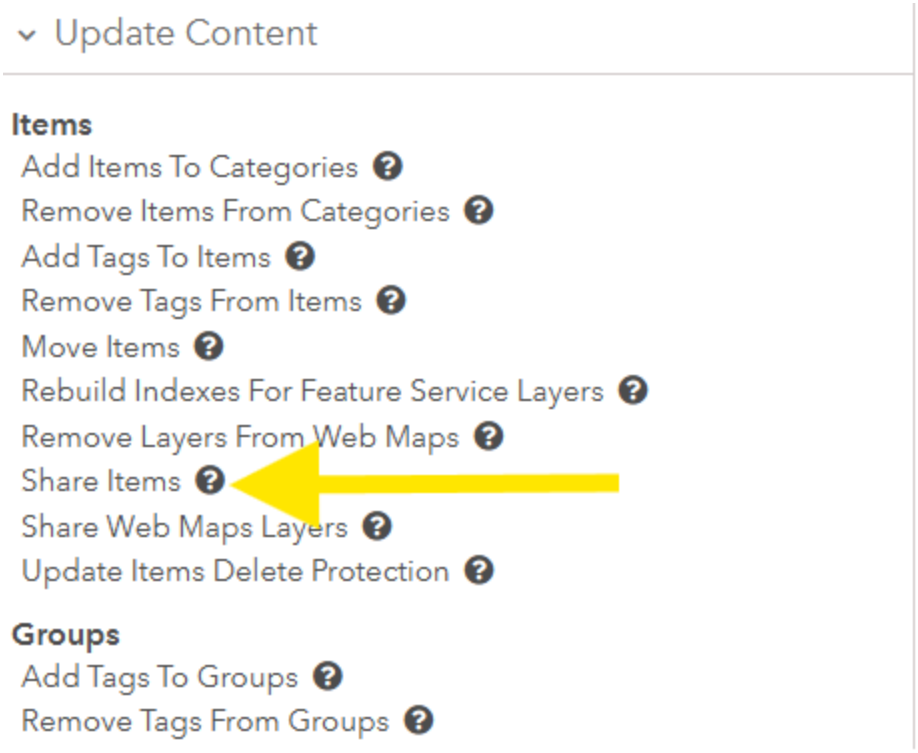
Remove Layers From Web Maps

Description: This tool removes layers from web maps. It takes as its input layers from web maps in previous steps.
Organization Type: ArcGIS Online and Enterprise
Input: Items (Web Maps With Layers)
Output: Items (Web Maps With Layers)
Resource Intensiveness: Moderate
Additional Considerations: None



Share Items

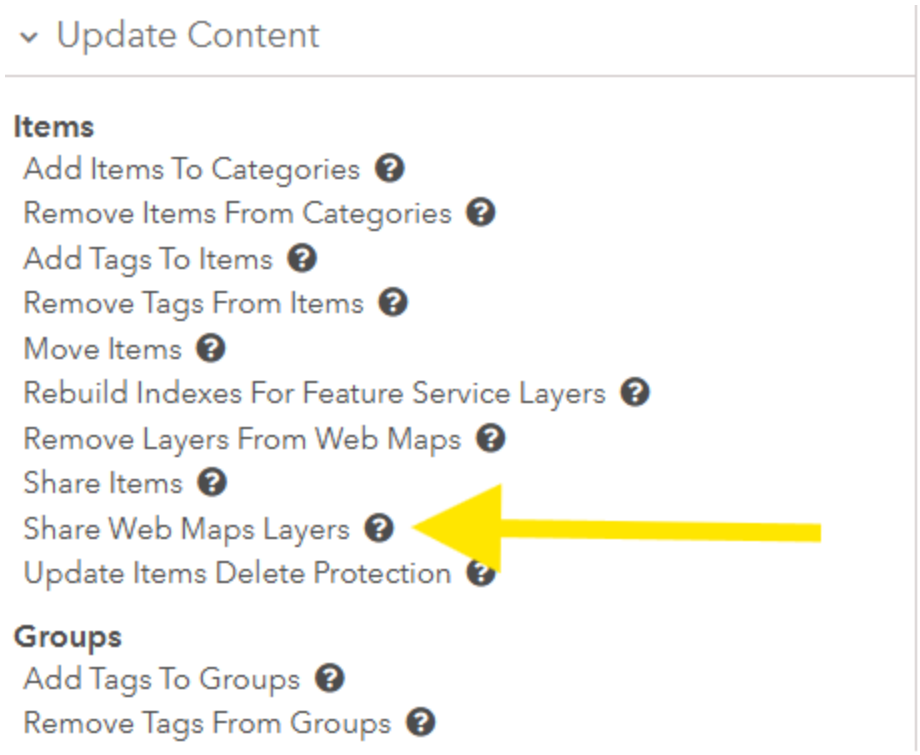
Description: This tool updates the sharing (access) property of items.
Organization Type: ArcGIS Online and Enterprise
Input: Items
Output: Items
Resource Intensiveness: Moderate
Additional Considerations: None



Share Web Map Layers

Description: This tool updates the sharing (access) property of layers on web maps. Optionally, the user can share web map layers that belong to another of your organizations that is licensed for Scheduler, provided that it has a current token.
Organization Type: ArcGIS Online and Enterprise
Input: Items (Web Maps)
Output: Items (Web Maps With Layers)
Resource Intensiveness: High
Additional Considerations: A user cannot update the sharing of layers that belong to an organization not licensed for Scheduler. Additionally, because one of the primary uses of this tool is to ensure that all layers of a publicly shared web map are also shared publicly, a map will only be reported as a success if all layers are shared successfully.

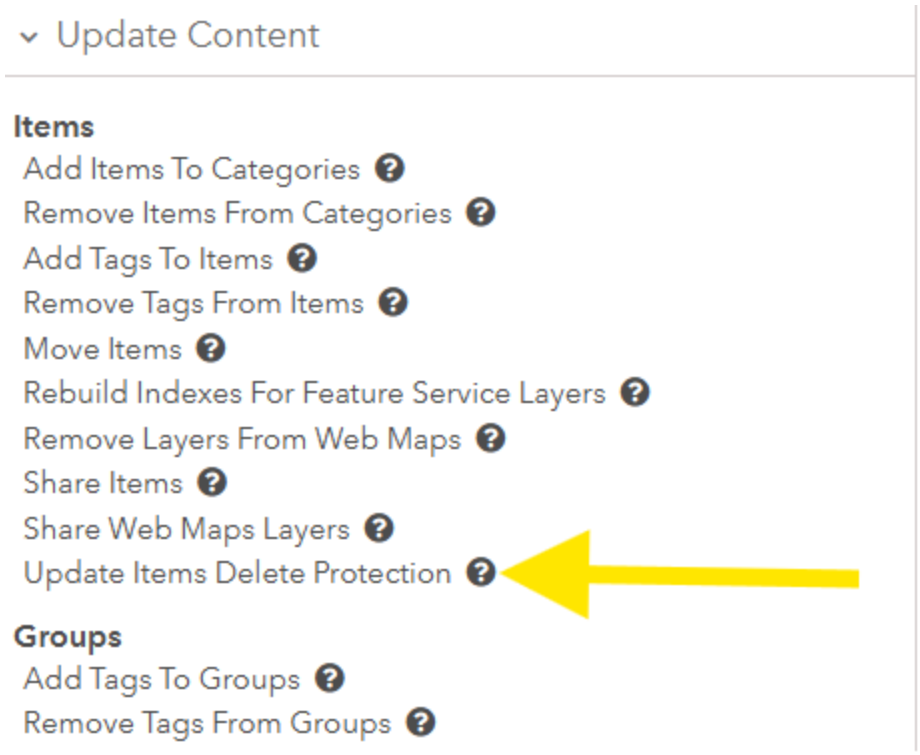
302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



Update Items Delete Protection

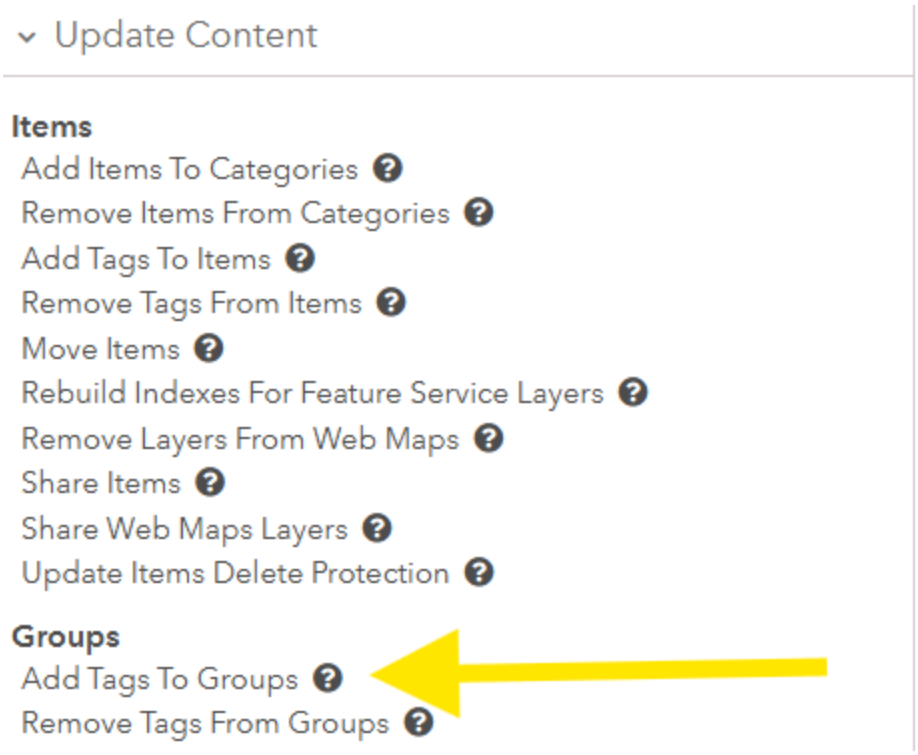
Description: This tool enables or disables delete protection for items.
Organization Type: ArcGIS Online and Enterprise
Input: Items
Output: Items
Resource Intensiveness: Moderate
Additional Considerations: None

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



Add Tags To Groups

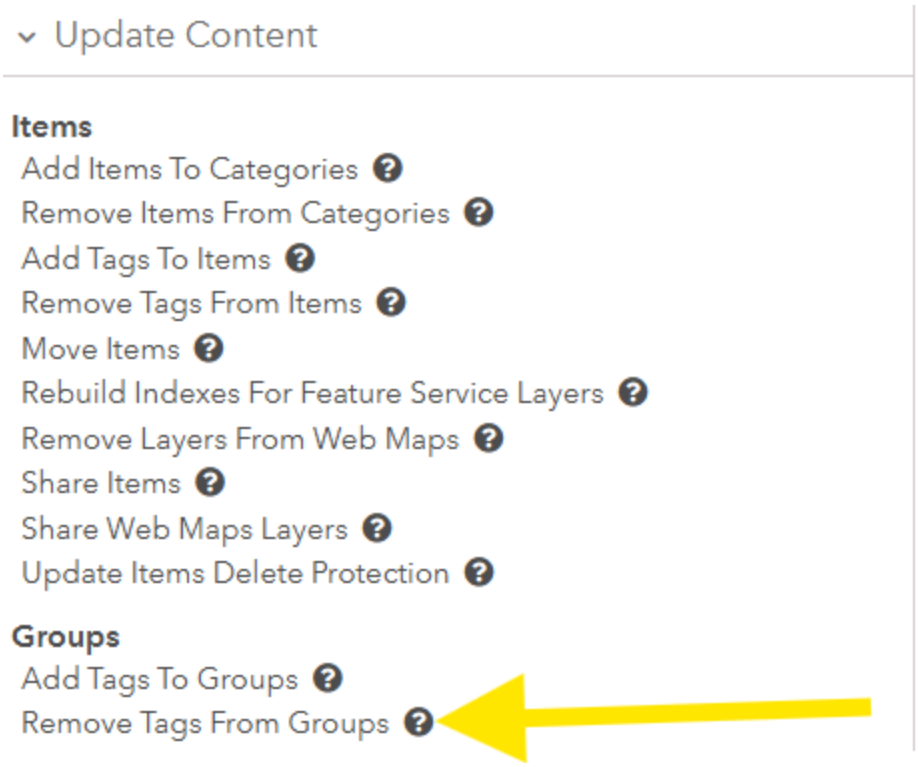
Description: This tool adds tags to groups, either appending to existing tags or replacing them.
Organization Type: ArcGIS Online and Enterprise
Input: Groups
Output: Groups
Resource Intensiveness: Moderate
Additional Considerations: None



Remove Tags From Groups

Description: This tool removes tags from groups.
Organization Type: ArcGIS Online and Enterprise
Input: Groups
Output: Groups
Resource Intensiveness: Moderate
Additional Considerations: If the tool is running on an organization whose version requires groups to have at least one tag, the tool will not remove a group's last tag.

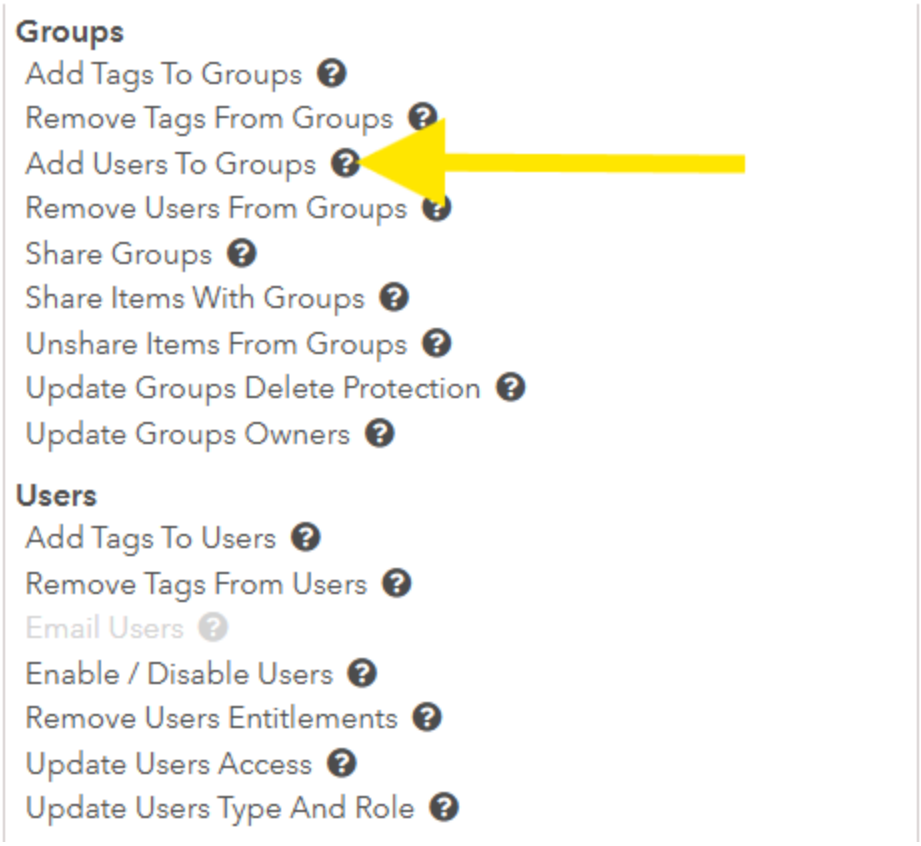
302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



Add Users To Groups

Description: This tool adds users to groups. The Scheduler user has the option to wait for the user to accept an invitation, or add the user immediately. The tool takes groups as its primary input and users as its secondary input. Groups can come from another step, or by selecting the "all content", "quick filter" or "event collection" input options. Users must come from another step.
Organization Type: ArcGIS Online and Enterprise
Input: Groups, Users
Output: Groups
Resource Intensiveness: Moderate
Additional Considerations: Only users with permission to own items can be added to groups with the shared update capability.

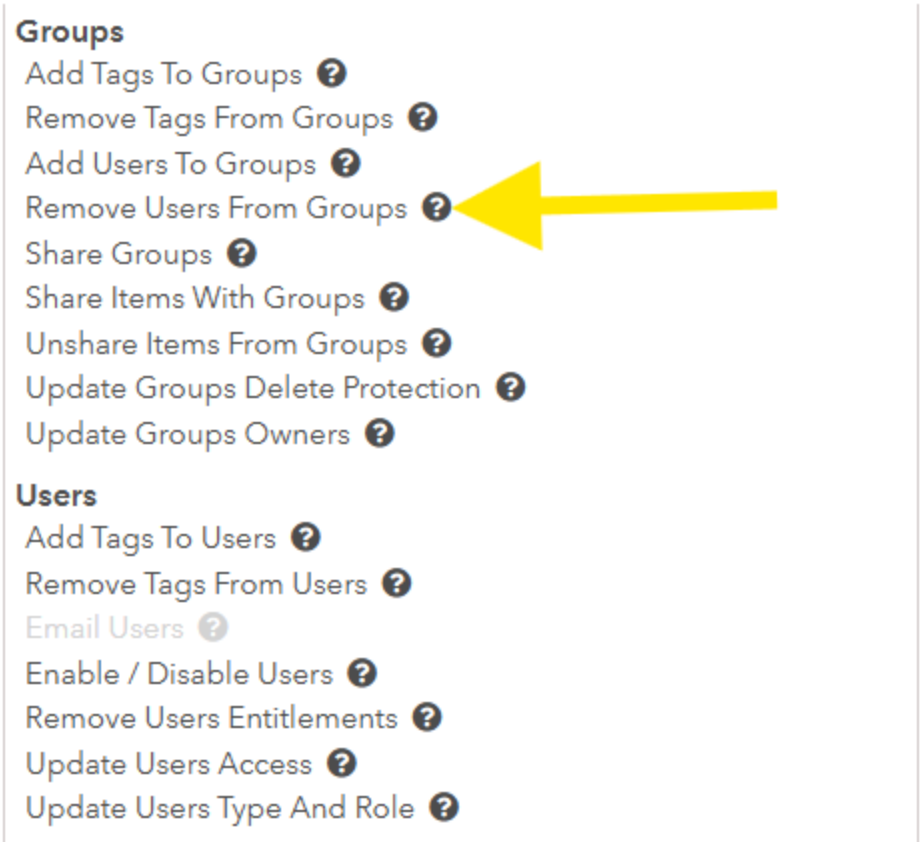
302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



Remove Users From Groups

Description: This tool removes users from groups. It takes groups as its primary input and users as its secondary input. Groups can come from another step, or by selecting the "all content", "quick filter" or "event collection" input options. Users must come from another step.
Organization Type: ArcGIS Online and Enterprise
Input: Groups, Users
Output: Groups
Resource Intensiveness: Moderate
Additional Considerations: Because every group must have an owner, this tool cannot remove a group's owner.

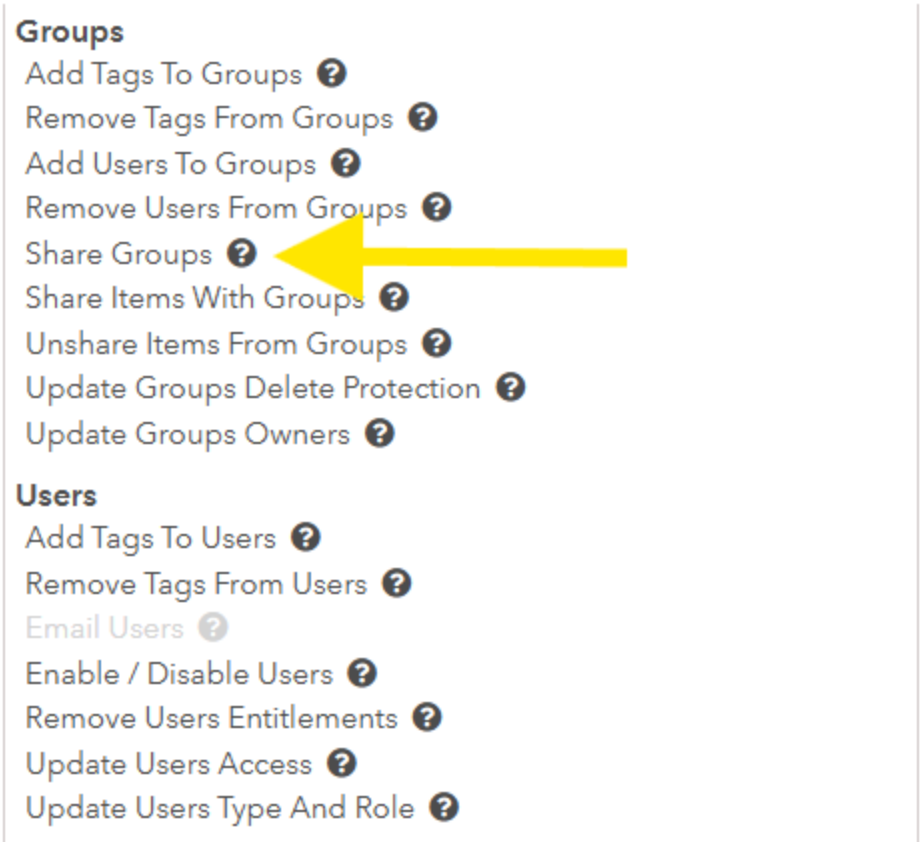
302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



Share Groups

Description: This tool updates the sharing (access) property of groups.
Organization Type: ArcGIS Online and Enterprise
Input: Groups
Output: Groups
Resource Intensiveness: Moderate
Additional Considerations: None

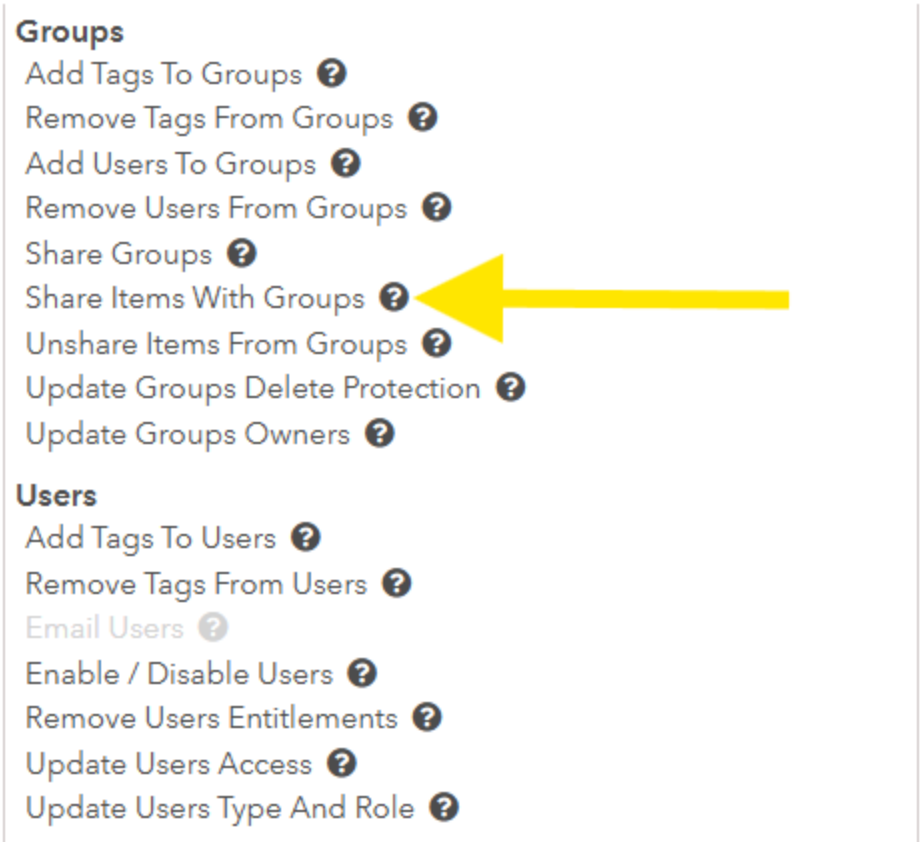
302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



Share Items With Groups

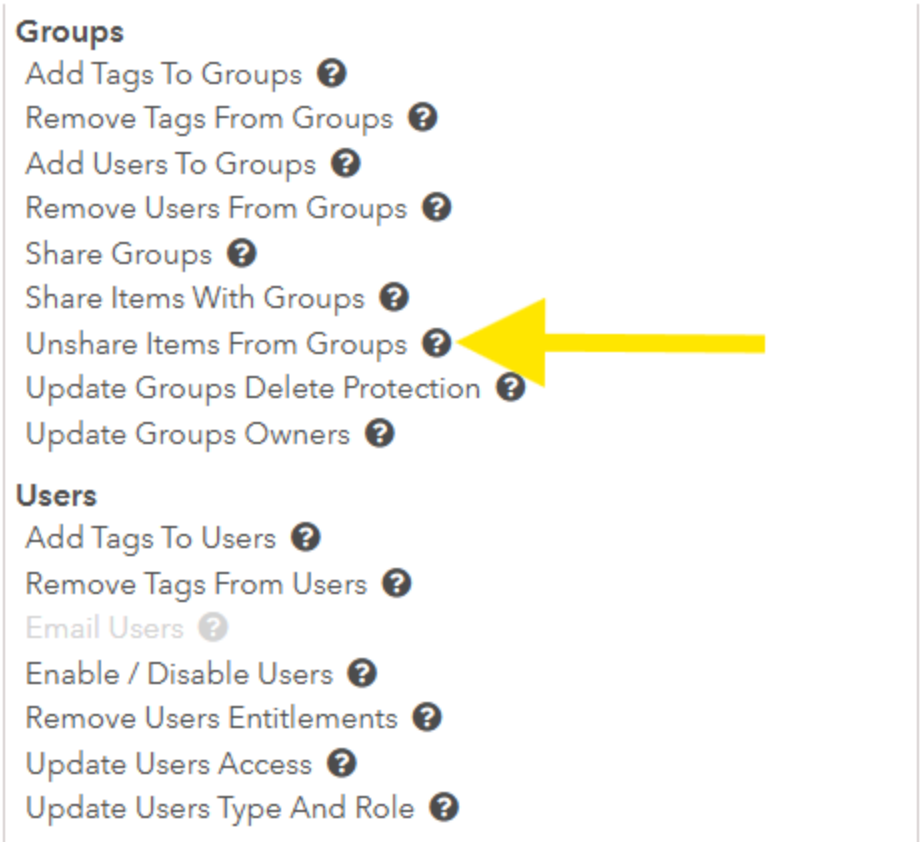
Description: This tool adds (shares) items to groups. The tool takes groups as its primary input and items as its secondary input. Groups can come from another step, or by selecting the "all content", "quick filter" or "event collection" input options. Items must come from another step.
Organization Type: ArcGIS Online and Enterprise
Input: Groups, Items
Output: Groups
Resource Intensiveness: Moderate
Additional Considerations: If the owners of the items aren't already members of the groups, they will be added.

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



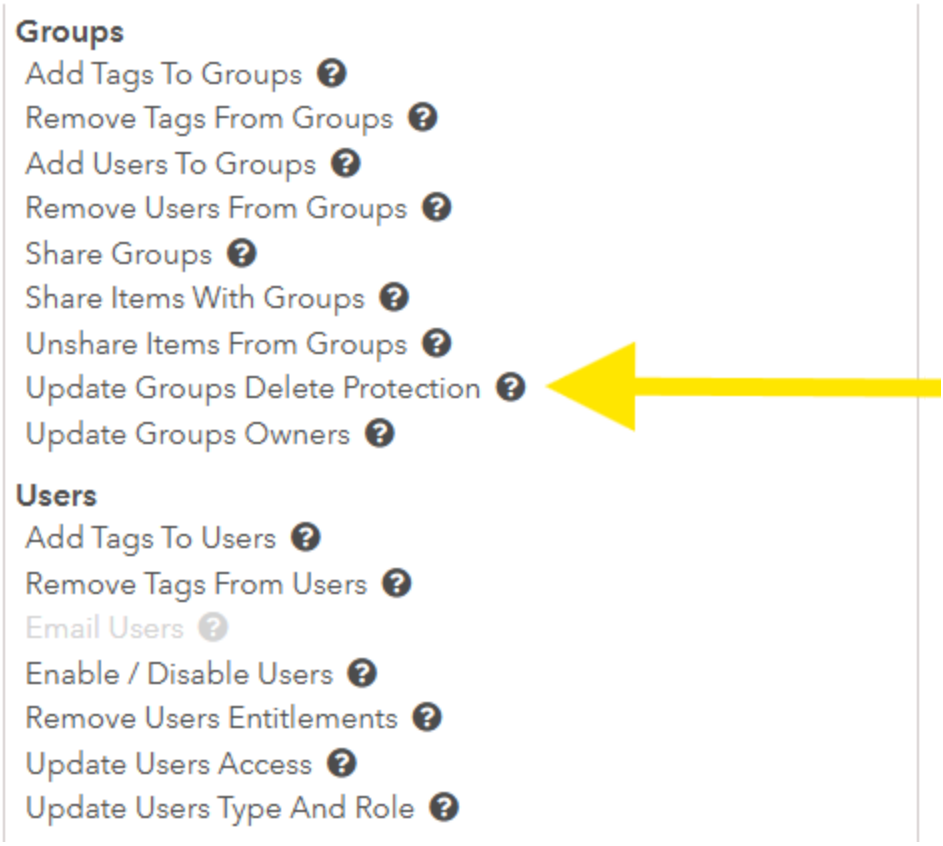
Unshare Items From Groups

Description: This tool removes (unshares) items from groups. The tool takes groups as its primary input and items as its secondary input. Groups can come from another step, or by selecting the "all content", "quick filter" or "event collection" input options. Items must come from another step.
Organization Type: ArcGIS Online and Enterprise
Input: Groups, Items
Output: Groups
Resource Intensiveness: Moderate
Additional Considerations: None



Update Groups Delete Protection

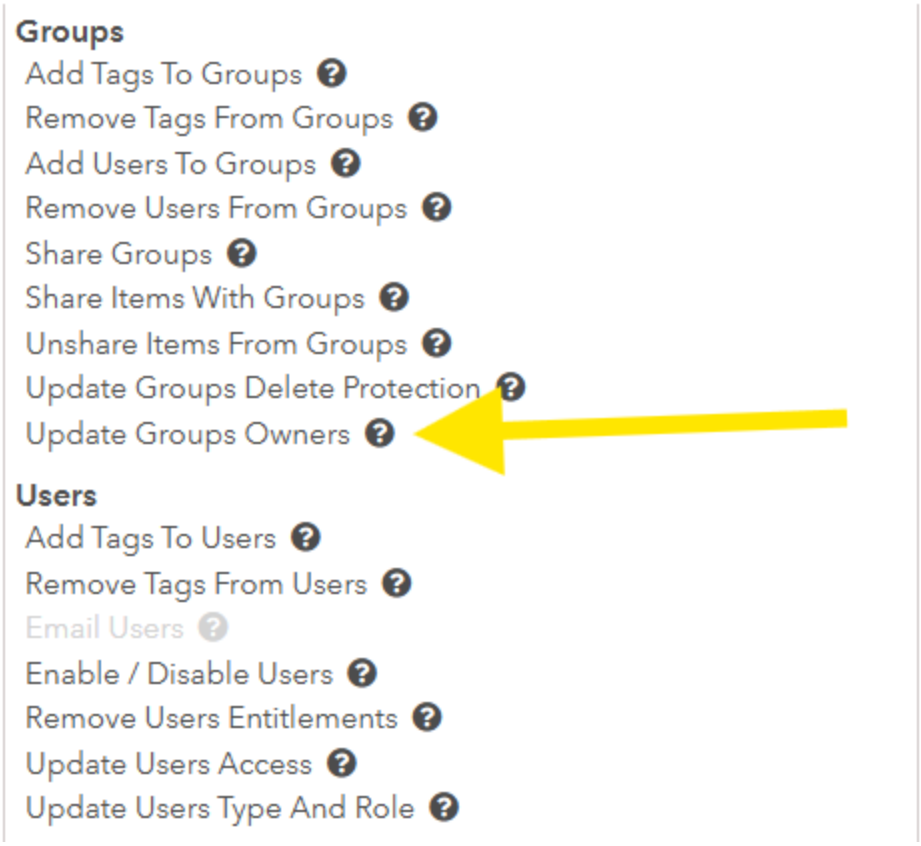
Description: This tool enables or disables delete protection for groups.
Organization Type: ArcGIS Online and Enterprise
Input: Groups
Output: Groups
Resource Intensiveness: Moderate
Additional Considerations: None



Update Groups Owners

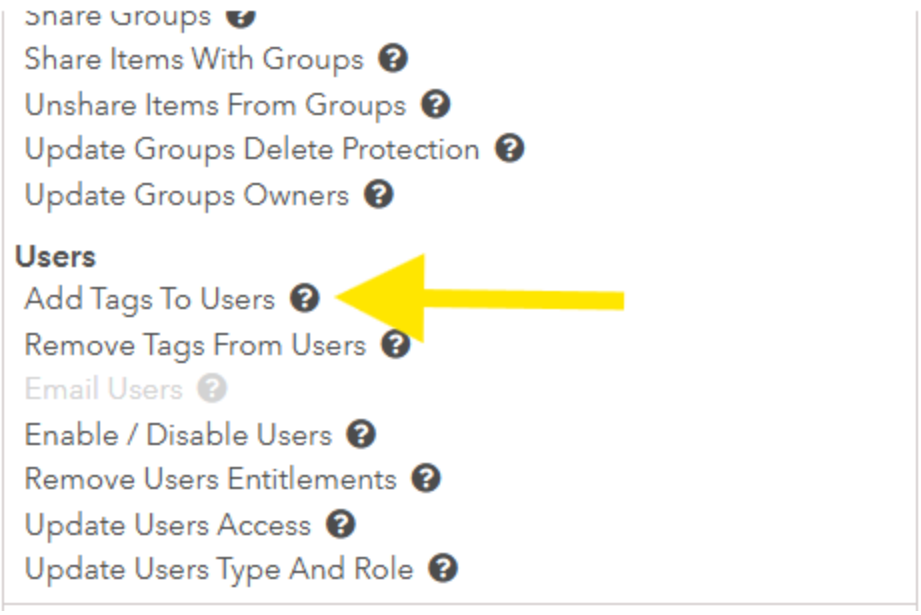
Description: This tool updates the ownership of groups.
Organization Type: ArcGIS Online and Enterprise
Input: Groups
Output: Groups
Resource Intensiveness: Moderate
Additional Considerations: None

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



Add Tags To Users

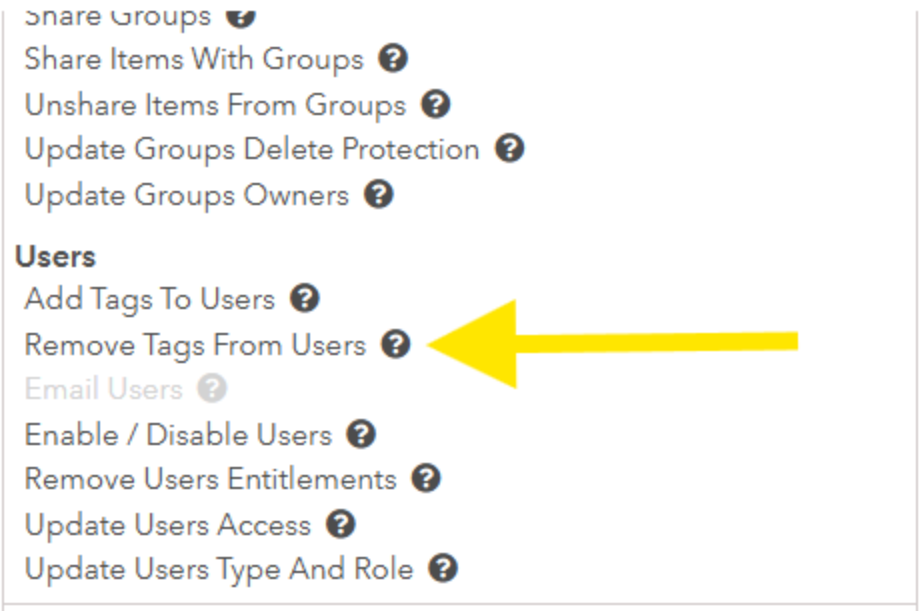
Description: This tool adds tags to users, either appending to existing tags or replacing them.
Organization Type: ArcGIS Online and Enterprise
Input: Users
Output: Users
Resource Intensiveness: Moderate
Additional Considerations: None



Remove Tags From Users

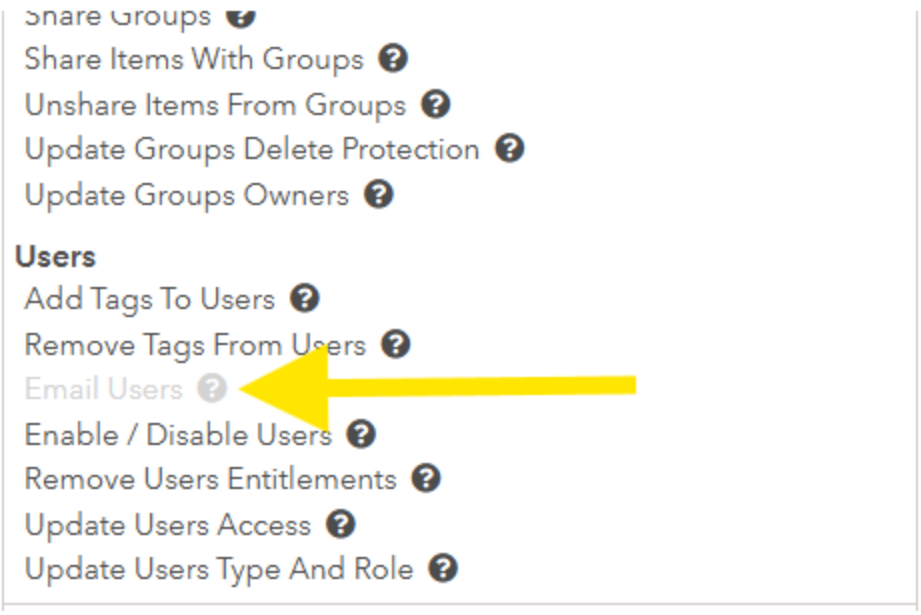
Description: This tool removes tags from users.
Organization Type: ArcGIS Online and Enterprise
Input: Users
Output: Users
Resource Intensiveness: Moderate
Additional Considerations: If the tool is running on an organization whose version requires users to have at least one tag, the tool will not remove a user's last tag.

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



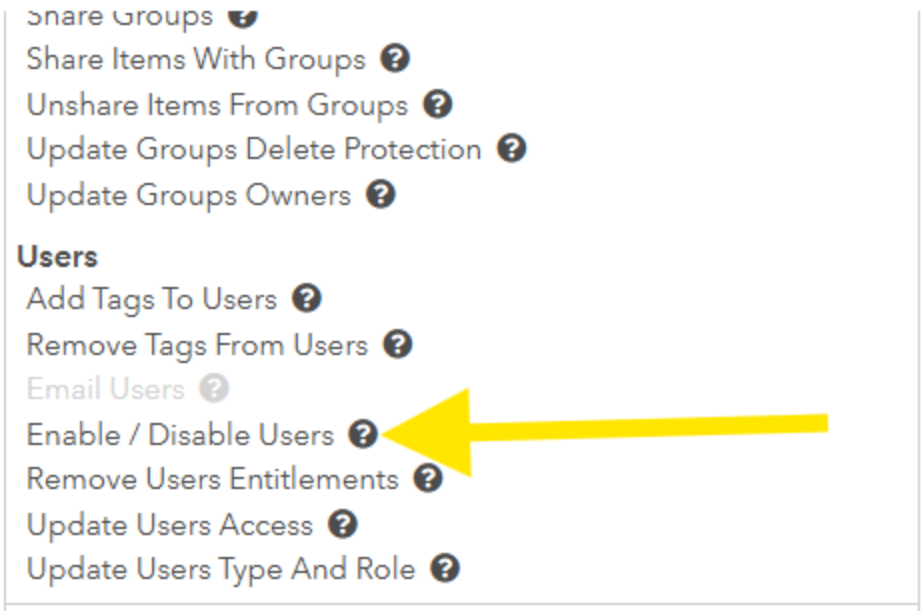
Email Users

Description: This tool emails users in the organization, using the email address in their organization profile. Optionally, a user can choose to include all files generated in previous steps as attachments.
Organization Type: ArcGIS Online and Enterprise
Input: Users
Output: Users
Resource Intensiveness: Moderate
Additional Considerations: Users must have valid email addresses in their organization profiles. Additionally, email settings for Scheduler must be set on the Settings page.



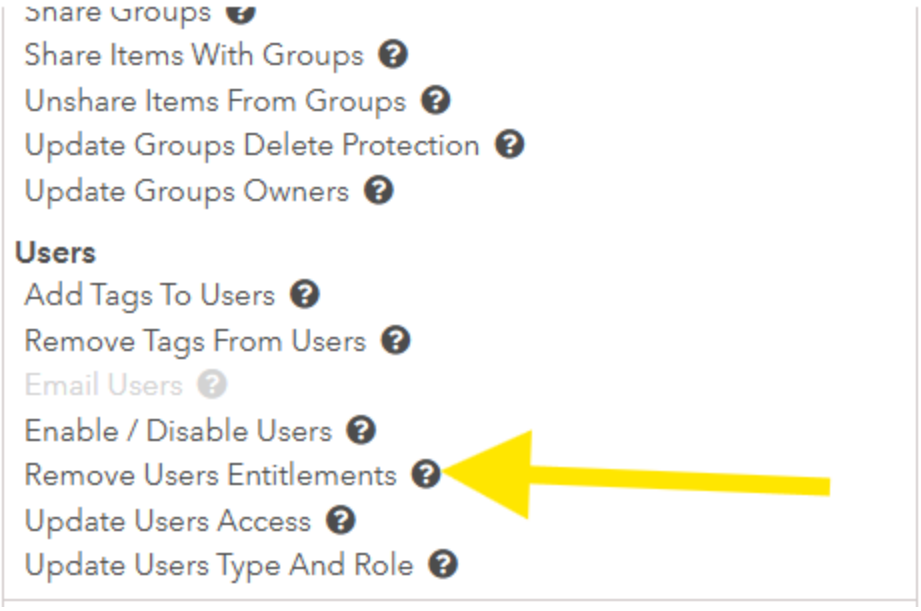
Enable / Disable Users

Description: This tool enables or disables a user's ability to login.
Organization Type: ArcGIS Online and Enterprise
Input: Users
Output: Users
Resource Intensiveness: Moderate
Additional Considerations: None



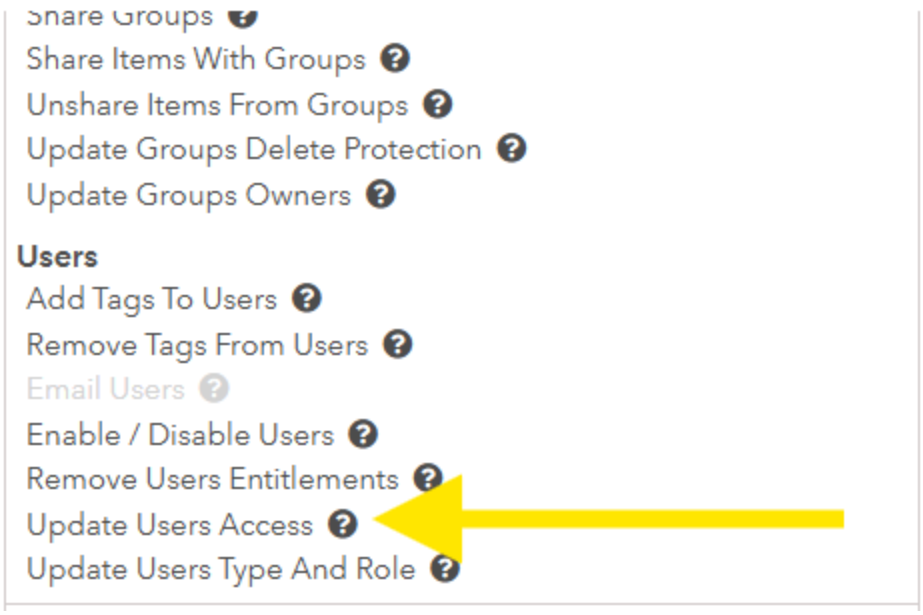
Remove Users Entitlements

Description: This tool removes entitlements (licenses) from users.
Organization Type: ArcGIS Online and Enterprise
Input: Users
Output: Users
Resource Intensiveness: Moderate
Additional Considerations: None



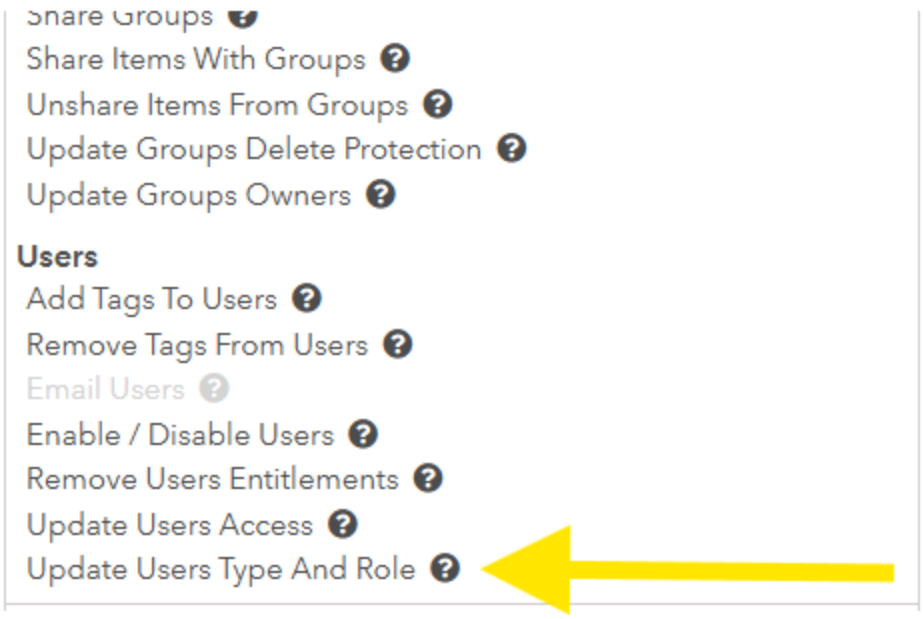
Update Users Access

Description: This tool updates the sharing (access) property of users.
Organization Type: ArcGIS Online and Enterprise
Input: Users
Output: Users
Resource Intensiveness: Moderate
Additional Considerations: None



Update Users Type And Role

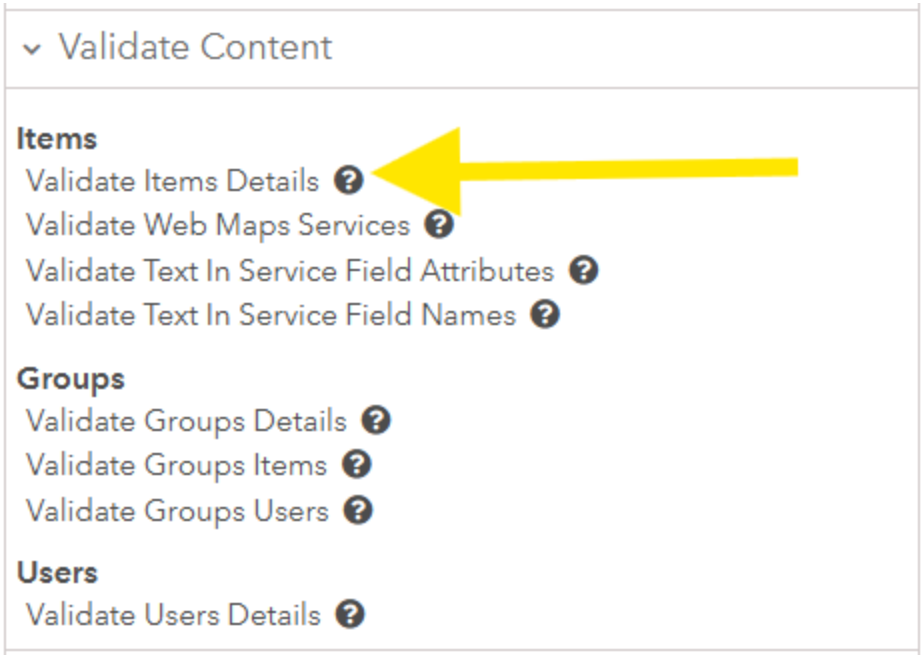
Description: This tool updates a user's type and role.
Organization Type: ArcGIS Online and Enterprise
Input: Users
Output: Users
Resource Intensiveness: Moderate
Additional Considerations: The organization must have enough of the given license type for the users selected.



Validate Content

Validate Items Details

Description: This tool checks items for validity based on whether the item has one or more of the following: a description, a summary, access and use constraints (terms of use), credits (attribution), valid metadata, a thumbnail, at least the selected number of tags, no more than the selected number of tags, at least the selected number of categories, and/or no more than the selected number of categories. Items that meet the criteria will be returned as successful results, while items that don't meet the criteria or that cannot be accessed will be returned as failed results.
Organization Type: ArcGIS Online and Enterprise
Input: Items
Output: Items
Resource Intensiveness: Moderate (if validating metadata) or Low (if not validating metadata)
Additional Considerations: None



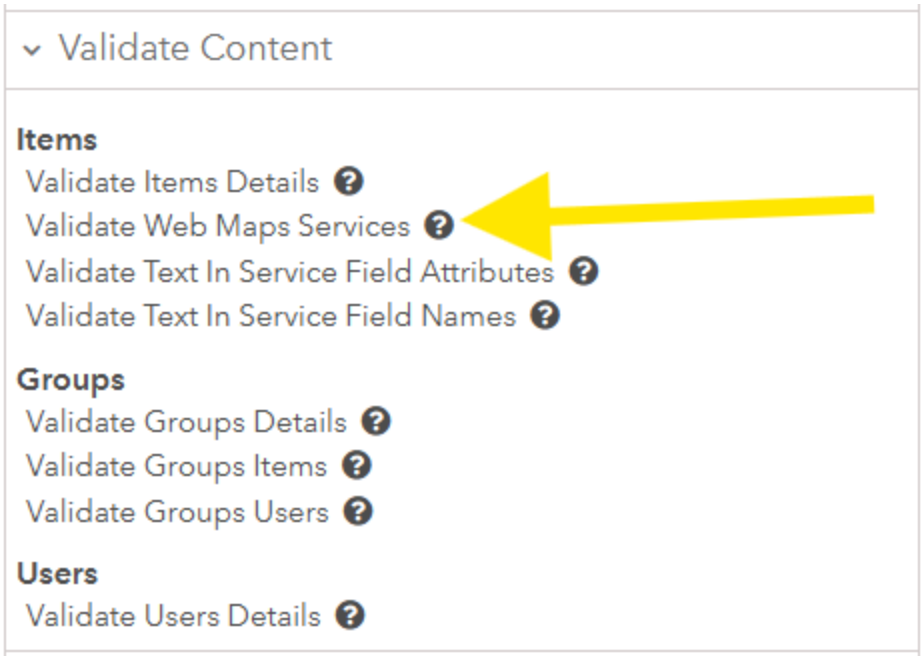
Validate Web Maps Services

Description: This tool validates the services on web maps. Web maps whose layers are valid will be returned as successful results, while web maps with one or more invalid layers will be returned as failed results. There are several issues a user can choose to check for:

- "Services that return a valid response" checks to see whether a service with a URL returns a success response. Services that return an error response or that time out will fail this check.
- "Services whose item ID is found in the organization" checks to see whether the service's item ID corresponds to an item in the organization the web map belongs to. Services that don't have an item ID, services whose item ID corresponds to an item that has been deleted, or services whose item ID belongs to another organization will fail this check.
- "Services whose URL matches the accompanying item ID" finds services that have an item ID that corresponds to an item with the same URL as the service. Services that don't have an item ID property or whose item ID corresponds to an item with a different URL will fail this check**.**

Organization Type: ArcGIS Online and Enterprise
Input: Items (Web Maps)
Output: Items (Web Maps With Layers)
Resource Intensiveness: High

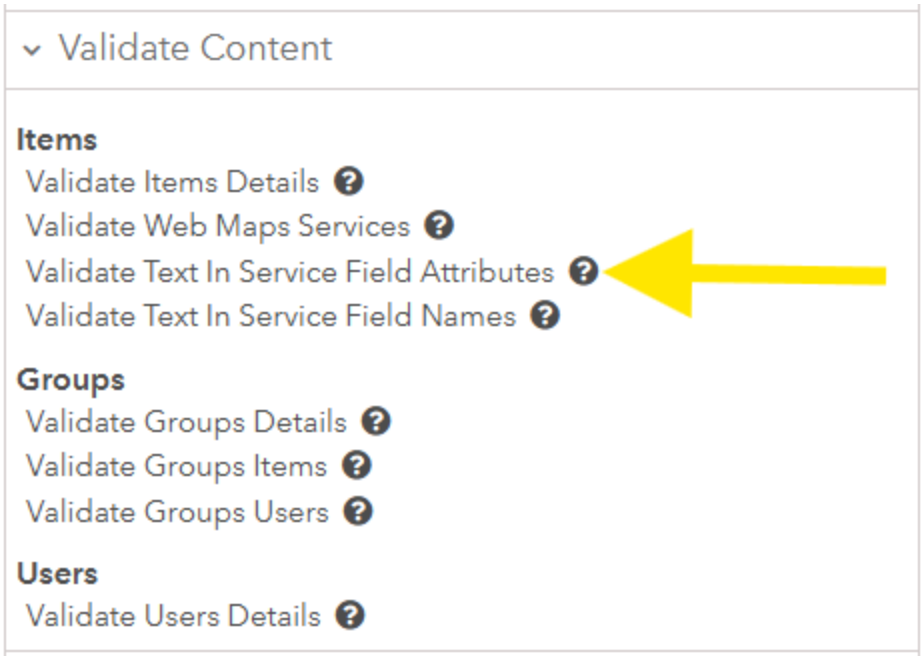
Additional Considerations: Services that return an invalid response will not be able to be displayed on a map. A missing or invalid item ID won't affect the service's ability to be displayed on a map, but it may affect the service's ability to display saved popups, symbology, labels, etc. It will also affect the service's ability to be found as a dependency of the map, which will interfere with tools, including some GEO Jobe tools, that rely on dependency trees.



Validate Text In Service Field Attributes

Description: This tool searches for text in service fields. The user can type in text to search for or search by custom regular expression. Users can choose whether valid services are those that contain or do not contain the input text. Among other things, this tool can be used to ensure that publicly accessible services do not contain sensitive information.
Organization Type: ArcGIS Online and Enterprise
Input: Items (Feature Services, Map Services, Tables)
Output: Items (Feature Services, Map Services, Tables)
Resource Intensiveness: High (if searching for plain text) or Very High (if searching by regular expression). If searching by regular expression, resource intensity will depend on the number of features in the service and the maximum number of features that can be returned by a query.

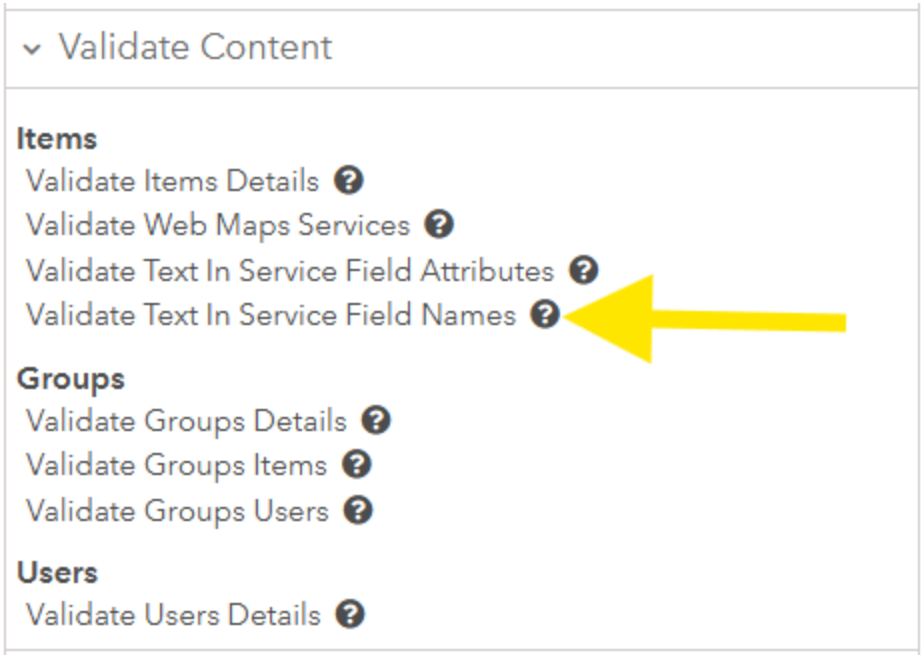
Additional Considerations: Services that return an invalid response will not be able to be displayed on a map. A missing or invalid item ID won't affect the service's ability to be displayed on a map, but it may affect the service's ability to display saved popups, symbology, labels, etc. It will also affect the service's ability to be found as a dependency of the map, which will interfere with tools, including some GEO Jobe tools, that rely on dependency trees.



Validate Text In Service Field Names

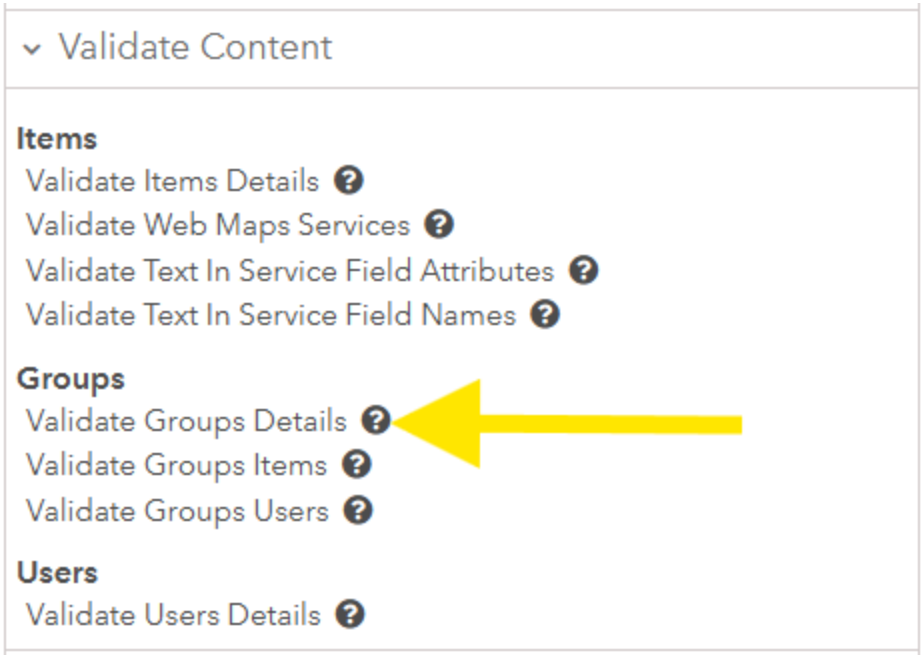
Description: This tool searches for text in service field names. You can type in text to search for or search by custom regular expression. You can choose whether valid services are those that contain or do not contain the input text in any of their field names. Among other things, this tool can be used to ensure that publicly accessible services do not contain sensitive information.
Organization Type: ArcGIS Online and Enterprise
Input: Items (Feature Services, Map Services)
Output: Items (Feature Services or Map Services With Layers)
Resource Intensiveness: Moderate
Additional Considerations: None

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



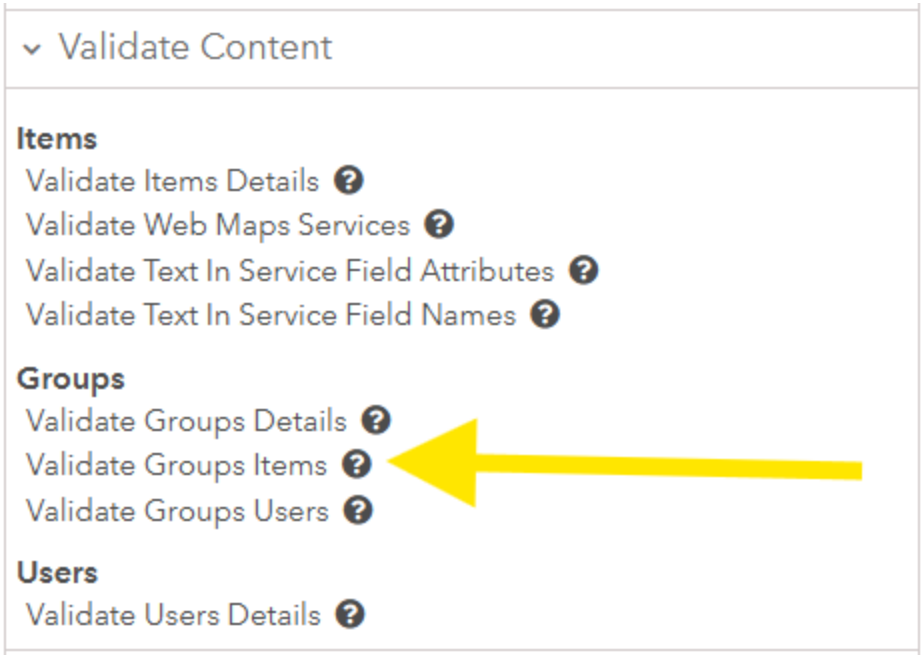
Validate Groups Details

Description: This tool checks a group's details for validity based on whether the group has one or more of the following: a description, a summary, a thumbnail, at least the selected number of tags, and/or no more than the selected number of tags. Groups that meet the criteria will be returned as successful results, while groups that don't meet the criteria or that cannot be accessed will be returned as failed results.
Organization Type: ArcGIS Online and Enterprise
Input: Groups
Output: Groups
Resource Intensiveness: Low
Additional Considerations: None



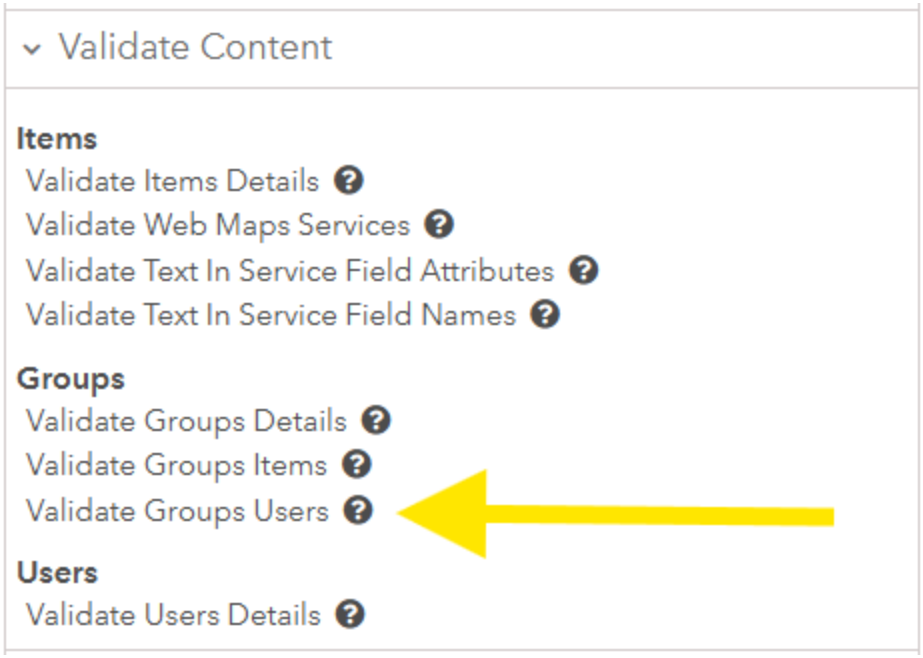
Validate Groups Items

Description: This tool checks a group's details for validity based on whether the group has one or more of the following: group has at least the selected number of items, group has no more than the selected number of items, the sharing level of the items is equal to/higher than/lower than the sharing level of the group, items have a description, items have a summary, items have access and use constraints (terms of use), items have credits (attribution), items have valid metadata, items have a thumbnail, items have at least the selected number of tags, items have no more than the selected number of tags, items have at least the selected number of categories, and/or items have no more than the selected number of categories. Groups that meet the criteria will be returned as successful results, while groups that don't meet the criteria or that cannot be accessed will be returned as failed results.
Organization Type: ArcGIS Online and Enterprise
Input: Groups
Output: Groups
Resource Intensiveness: Moderate
Additional Considerations: None



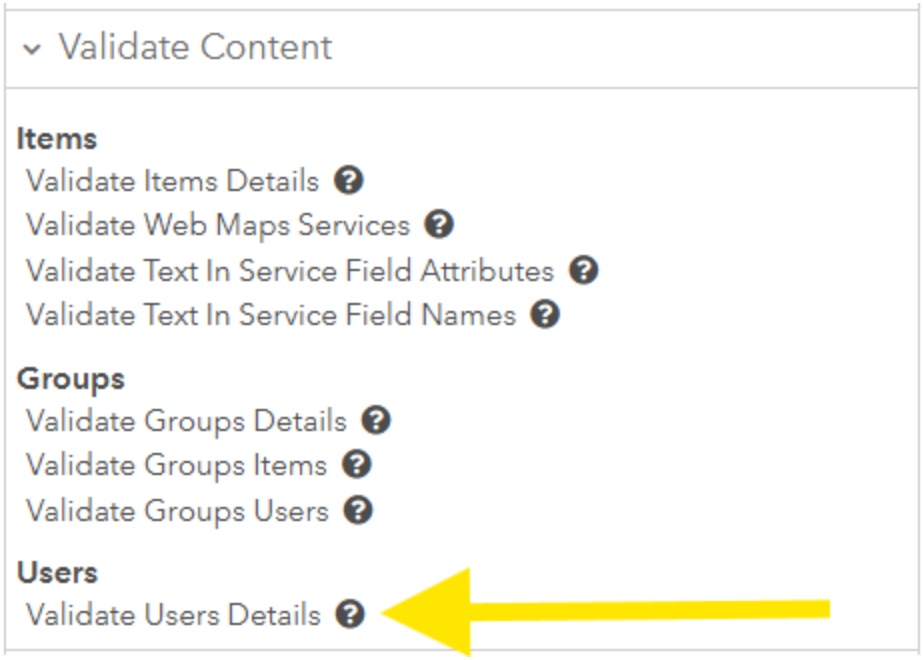
Validate Groups Users

Description: This tool checks a group's users for validity based on one or more of the following: group has at least the selected number of users, group has no more than the selected number of users, users have a description, users have a thumbnail, users have an email, users have ever logged in, users are enabled to login, users have Multi-Factor Authentication (MFA) enabled, users have at least the selected number of tags, users have no more than the selected number of tags, users have at least the selected number of categories, and/or users have no more than the selected number of categories. Groups that meet the criteria will be returned as successful results, while groups that don't meet the criteria or that cannot be accessed will be returned as failed results.
Organization Type: ArcGIS Online and Enterprise
Input: Groups
Output: Groups
Resource Intensiveness: Moderate
Additional Considerations: None



Validate Users Details

Description: This tool checks a user's details for validity based on whether the user has one or more of the following: a description, a summary, an email address, last login date (has logged in), an enabled account, MFA enabled, a thumbnail, at least the selected number of tags, no more than the selected number of tags, at least the selected number of categories, and/or no more than the selected number of categories. Users that meet the criteria will be returned as successful results, while users that don't meet the criteria or that cannot be accessed will be returned as failed results.
Organization Type: ArcGIS Online and Enterprise
Input: Users
Output: Users
Resource Intensiveness: Low
Additional Considerations: None

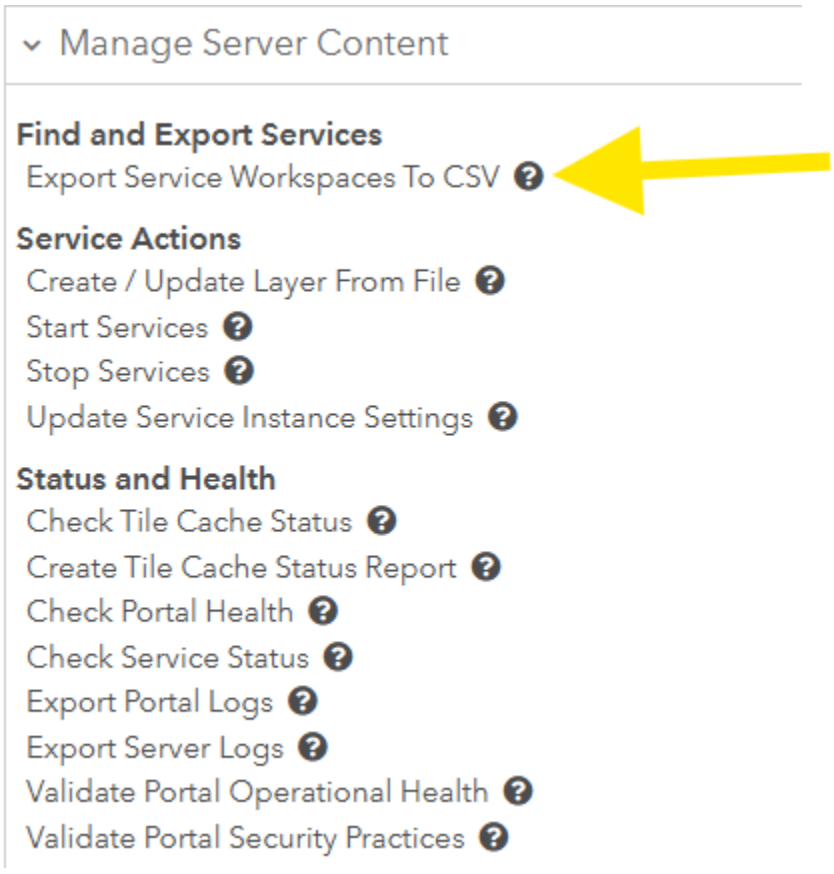


Manage Server Content

Export Service Workspaces to CSV

Description: This tool exports service workspaces (manifest data) to CSV. This includes properties such as the source machine and database a service uses.
Connection Type: ArcGIS Server Machine
Input: Services
Output: Services, File
Resource Intensiveness: Moderate
Additional Considerations: You will be given the option to input a file name for the output file. If the file name is not unique to each task run, the output file will be overwritten each time the task is run. If you want a file name that will be unique each time the task is run, you can use the Text Generator to include the date and time in the file name.

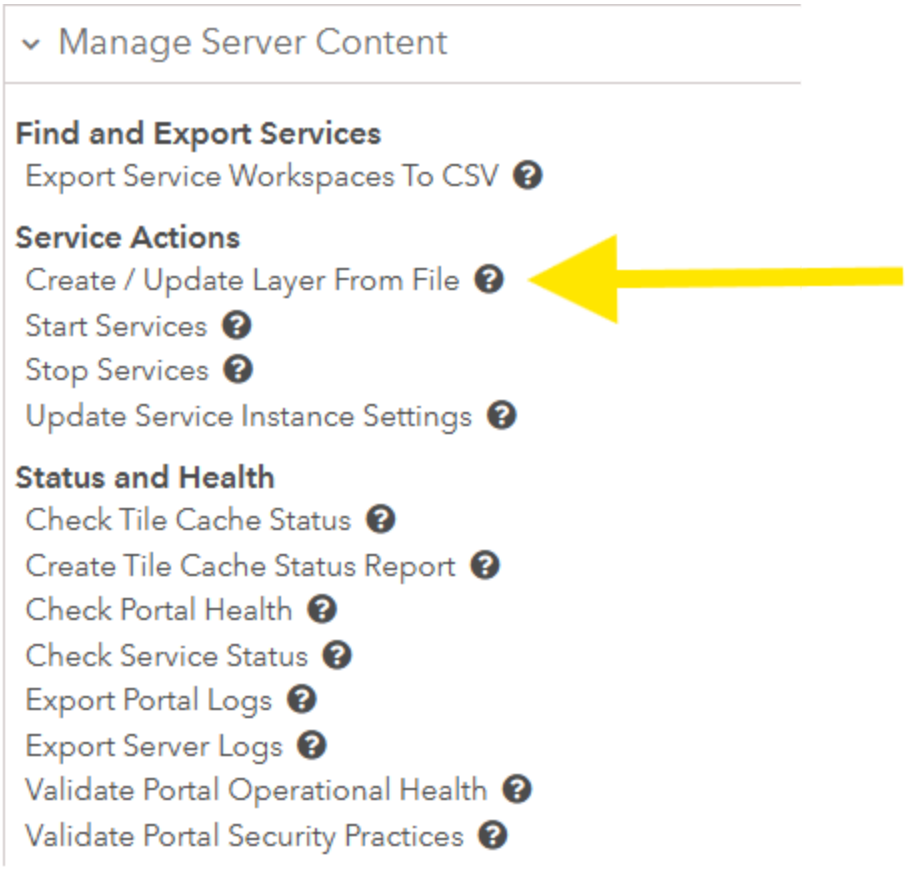
302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



Create / Update Layer From File

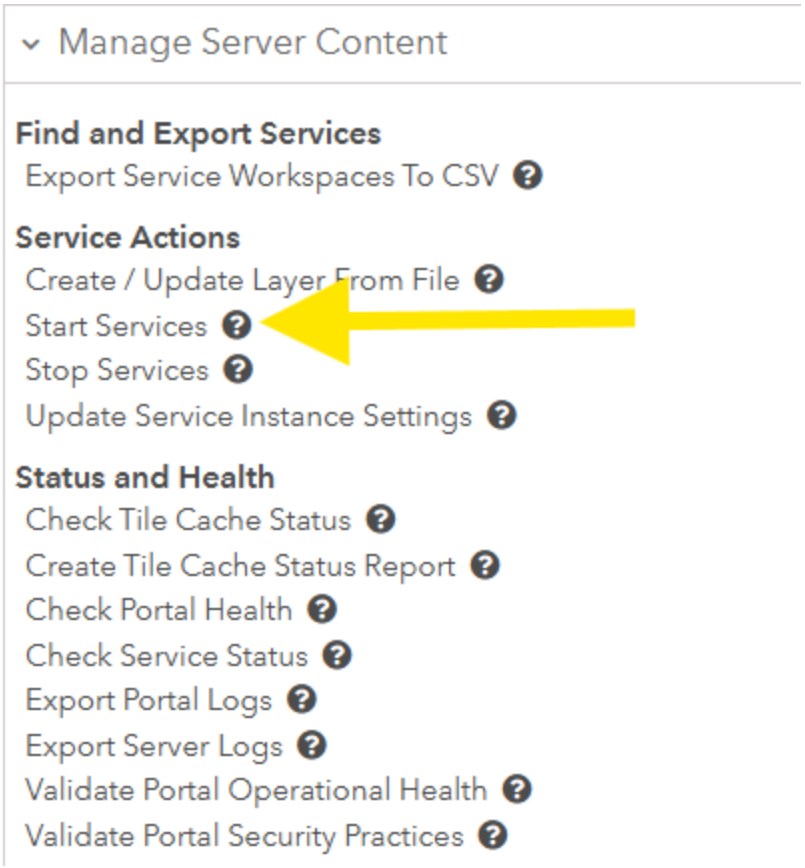
Description: This tool publishes a service from a CSV or GeoJSON, or creates a KML layer from a KML file. When the tool runs for the first time, it will create a service or layer if one with the given name does not exist already. Subsequent runs of the tool will update the existing service or layer.
Organization Type: ArcGIS Online and Enterprise
Input: File
Output: Service / Layer
Resource Intensiveness: Variable depending on the size of the file
Additional Considerations: The file must be located on the machine where Scheduler is installed. When creating a layer from a CSV, you will be asked to specify the fields, if any, used for location information. The schema of a CSV layer, including the location fields, field names and field types, cannot be changed after the layer is initially created.

For KML files, due to caching in your organization, changes to a KML layer may not immediately appear in Map Viewer. If this happens, you can cause Map Viewer to display the latest data by logging out and logging back in, or by opening the map in private browsing.



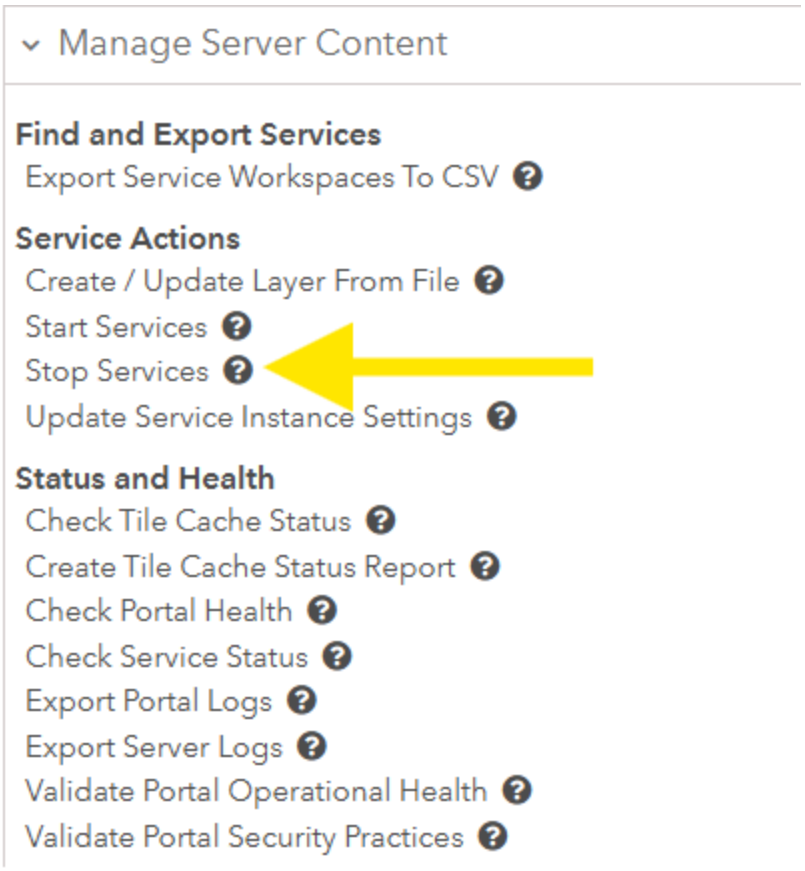
Start Services

Description: This tool starts Enterprise services.
Connection Type: ArcGIS Server Machine
Input: Services
Output: Services
Resource Intensiveness: Low
Additional Considerations: None



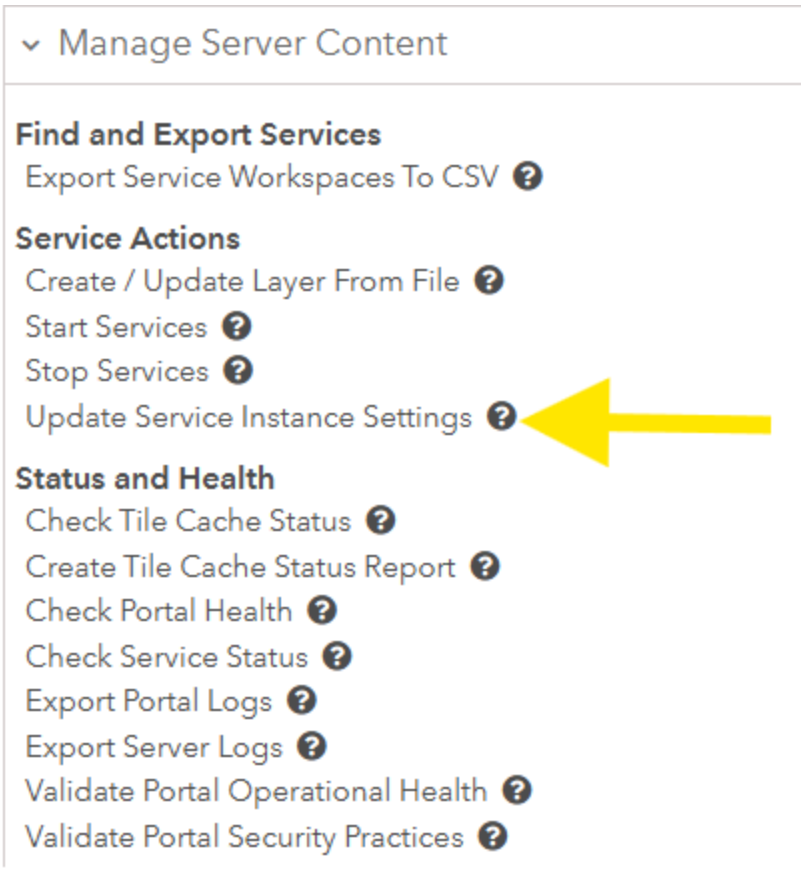
Stop Services

Description: This tool stops Enterprise services.
Connection Type: ArcGIS Server Machine
Input: Services
Output: Services
Resource Intensiveness: Low
Additional Considerations: None



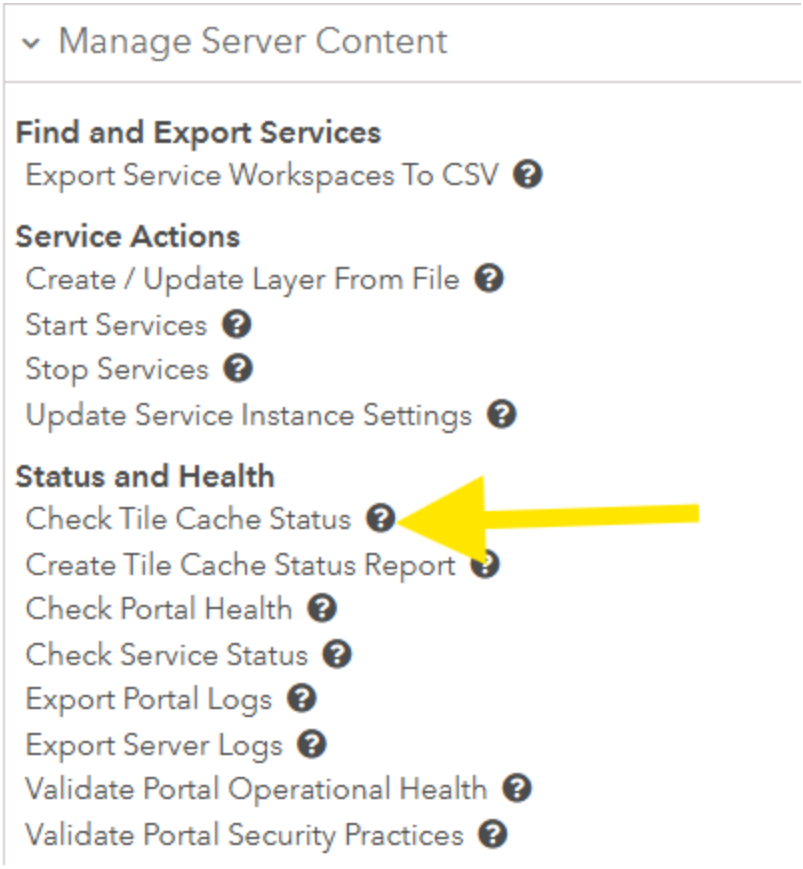
Update Service Instance Settings

Description: This tool updates services' instance types, changing them from shared to dedicated or vice versa. If the new instance type is dedicated, the tool also sets the minimum and maximum number of instances per machine. More information about configuring instance settings can be found here: Configure Service Instance Settings.
Connection Type: ArcGIS Server Machine
Input: Services
Output: Services
Resource Intensiveness: Low
Additional Considerations: Only map services published from ArcGIS Pro can use the shared pool. Additionally, map services using the shared pool can only have the feature access, WFS, WMS and KML capabilities; all other capabilities must be turned off.



Check Tile Cache Status

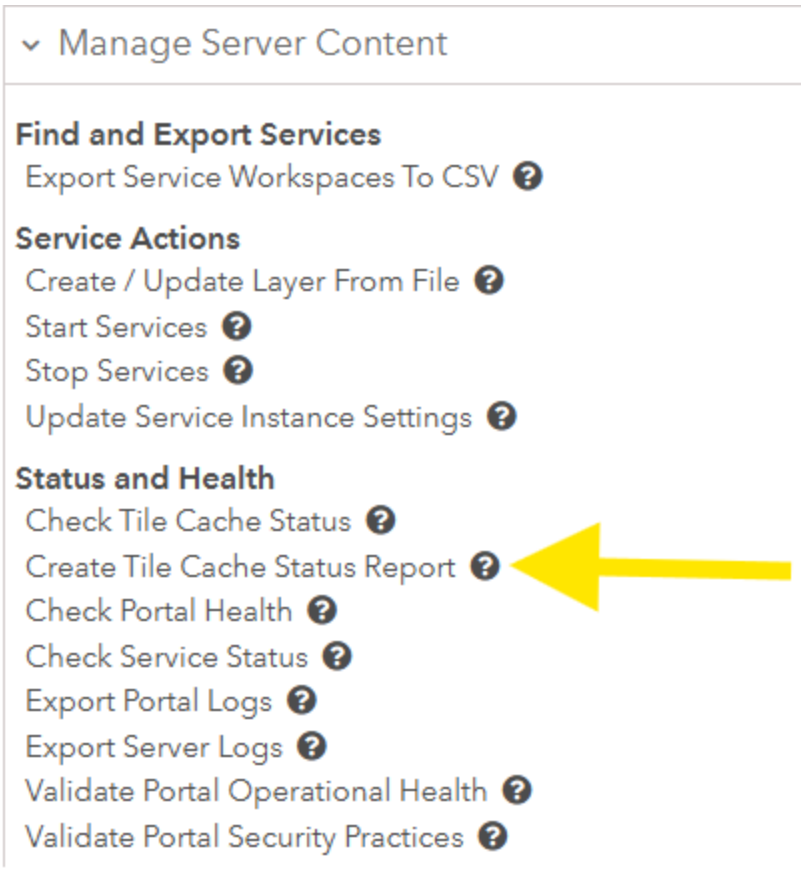
Description: This tool checks the status of a tile cache to determine whether caching is sufficiently complete, based either on the total percentage of tiles cached or the percentage of each level cached.
Connection Type: ArcGIS Server Machine
Input: Services (Map Service or Tile Services)
Output: Services (Map Service or Tile Services)
Resource Intensiveness: Moderate
Additional Considerations: None



Create Tile Cache Status Report

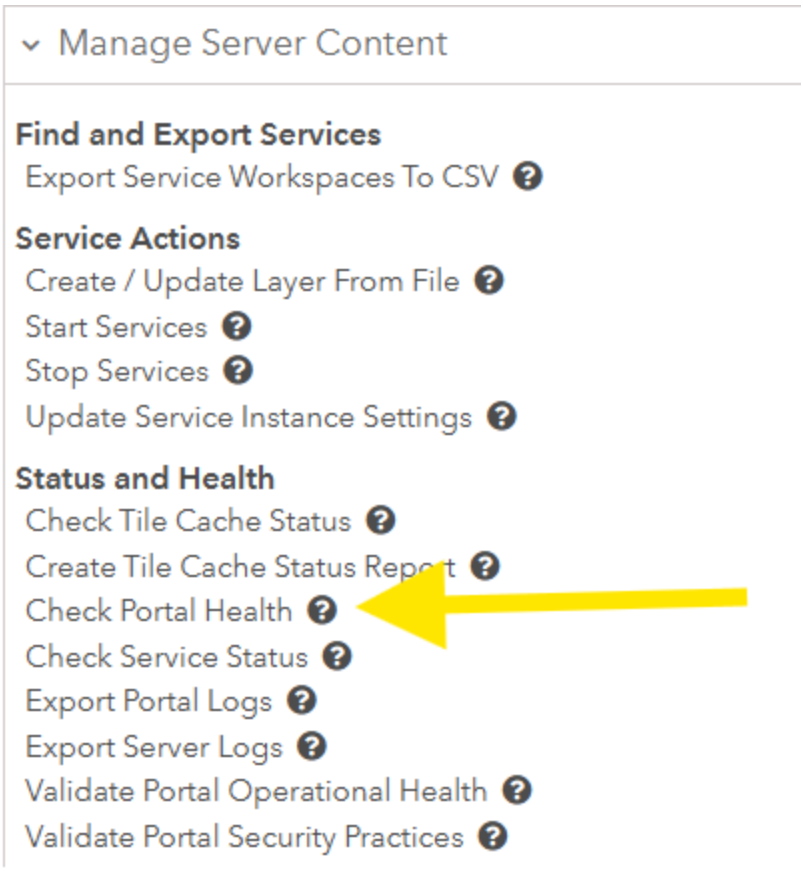
Description: This tool creates a CSV report of the status of a tile cache, including the percentage complete for each level.
Connection Type: ArcGIS Server Machine
Input: Services (Map Services or Tile Services)
Output: File
Resource Intensiveness: Moderate
Additional Considerations: None

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



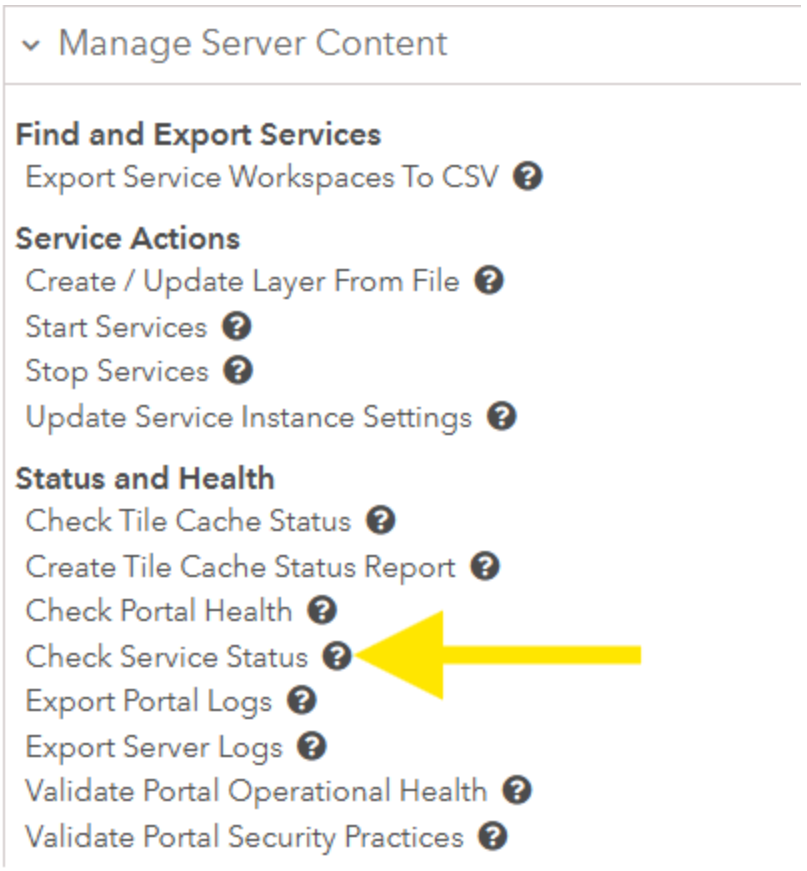
Check Portal Health

Description: This tool runs Esri's portal health check to ensure that all portal machines are running and free of problems.
Organization Type: Enterprise only
Input: Portals
Output: Portals
Resource Intensiveness: Low
Additional Considerations: None



Check Service Status

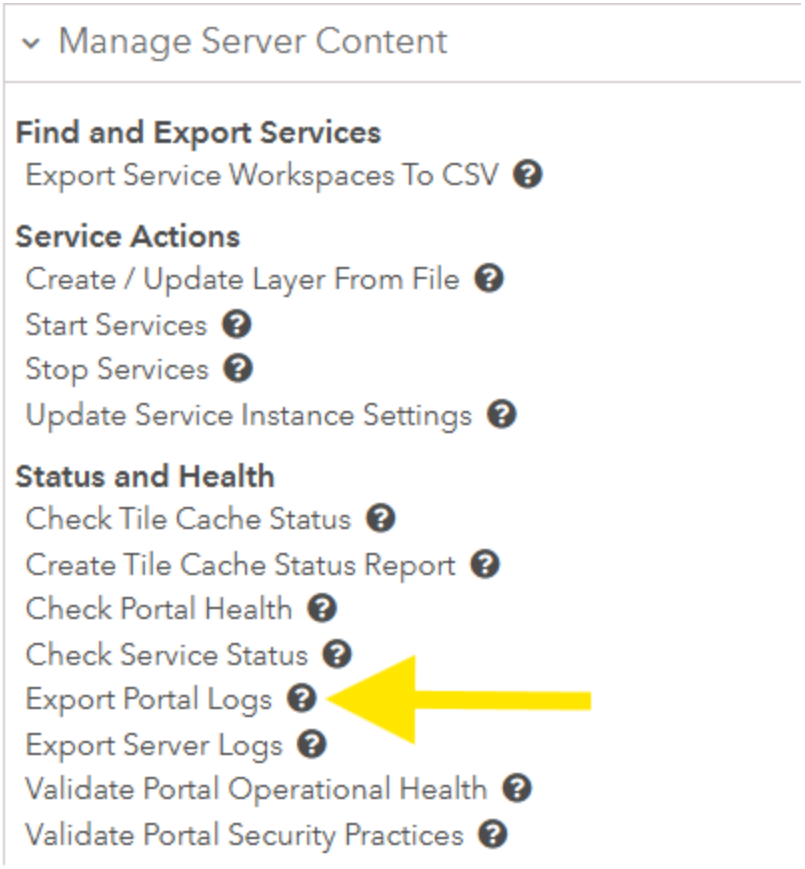
Description: This tool checks the status of individual services. Services that are running will be returned as successful results, while those that are stopped or have errors will be returned as failed results.
Connection Type: ArcGIS Server Machine
Input: Services
Output: Service
Resource Intensiveness: Low
Additional Considerations: None



Export Portal Logs

Description: This tool exports portal logs based on a variety of criteria.
Organization Type: Enterprise only
Input: Portals
Output: File
Resource Intensiveness: Variable depending on the options selected
Additional Considerations: The options you select within the tool will be superseded by your portal's log settings. Regardless of the log level you select in the tool's options, the tool can only return logs at the level you have selected for the portal to record. If you select the Debug log level option, but your portal log level is set to Warning, then the tool will only return logs with severity level of Warning and above. Additionally, the tool can only return logs for the time period that you have selected for the portal to retain logs. If you select logs for the last 180 days, but your portal is set to retain logs for 90 days, then the tool will only return logs for the last 90 days. You can find out more about portal log settings here: Specify portal log settings.

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

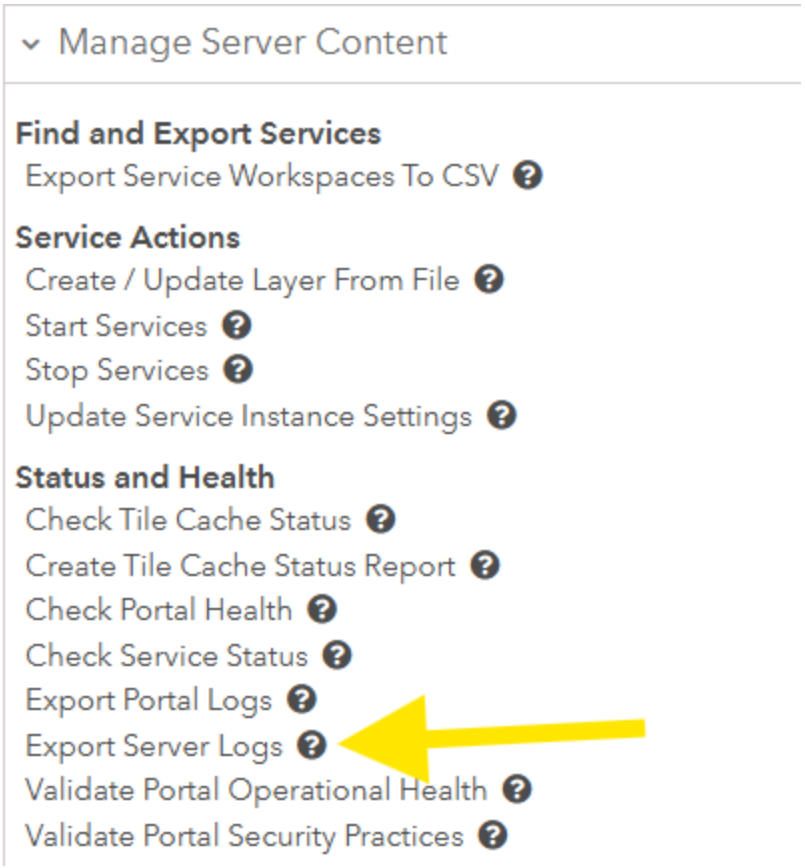


Export Server Logs

Description: This tool exports server logs based on a variety of criteria.
Connection Type: ArcGIS Server Machine
Input: ArcGIS Server Machines
Output: File
Resource Intensiveness: Variable depending on the options selected
Additional Considerations: This tool creates a snapshot of server logs from a particular period of time using Esri's REST API. It does not require Scheduler Satellite. For more comprehensive viewing and filtering of server logs, or to use server logs to trigger tasks, you can configure Scheduler Satellite on the server machine.

The options you select within the tool will be superseded by your server's log settings. Regardless of the log level you select in the tool's options, the tool can only return logs at the level you have selected for the server to record. If you select the Debug log level option, but your server log level is set to Warning, then the tool will only return logs with severity level of Warning and above. Additionally, the tool can only

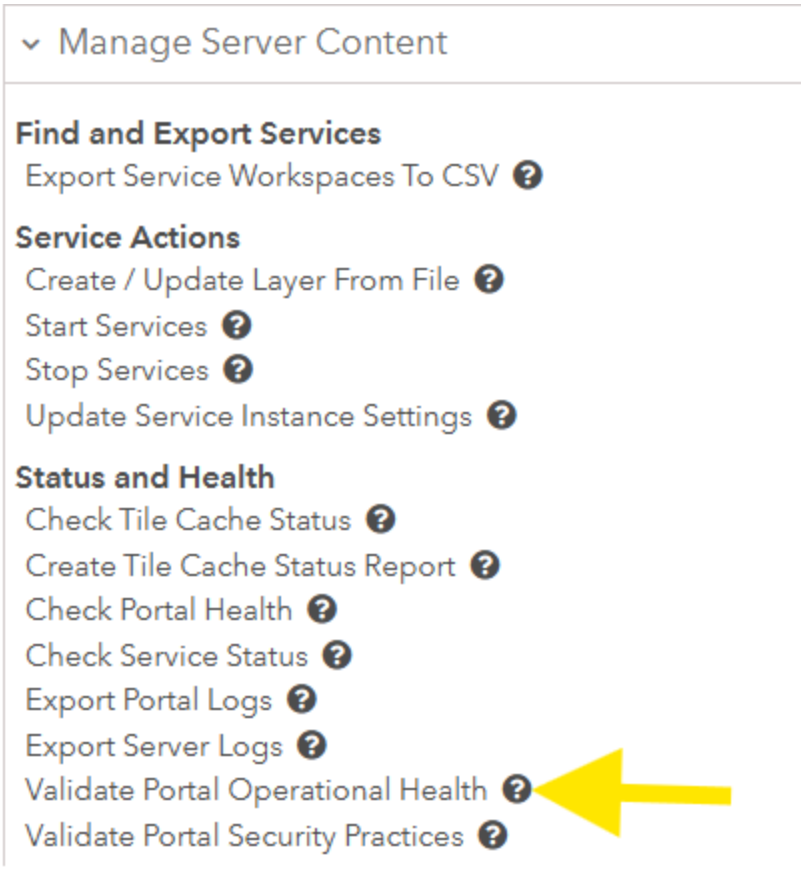
return logs for the time period that you have selected for the server to retain logs. If you select logs for the last 180 days, but your server is set to retain logs for 90 days, then the tool will only return logs for the last 90 days. You can find out more about server log settings here: [Specify server log settings](#).



Validate Portal Operational Health

Description: This tool checks for common issues with your organization's operational health and exports any issues found to a CSV. This tool checks for common issues with your organization's operational health and exports any issues found to a CSV. The tool runs the same scans as a script that Esri provides with some versions of Enterprise. You can find out more about those scans here: [Scan your organization for operational health issues](#).
Organization Type: Enterprise only
Input: Portals
Output: File

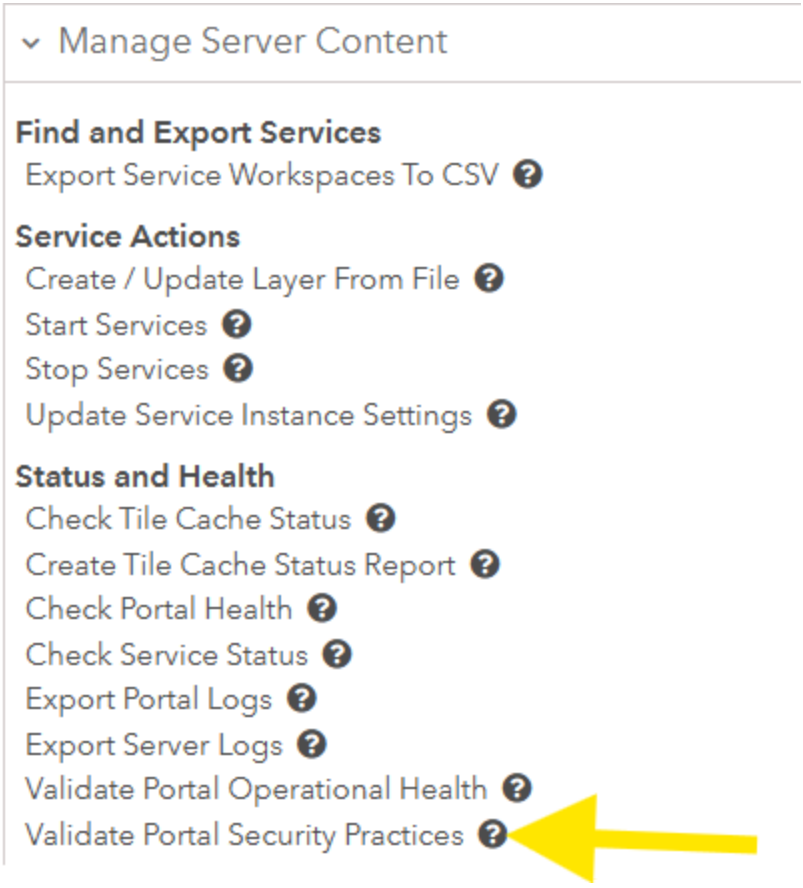
Resource Intensiveness: Variable depending on the options selected
Additional Considerations: None



Validate Portal Security Practices

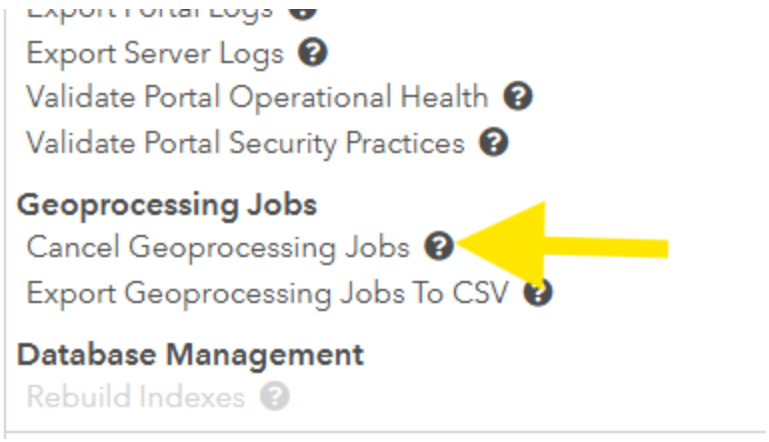
Description: This tool checks for common issues with portal security and exports any issues found to a CSV. The tool runs the same scans as a script that Esri provides with some versions of Enterprise. You can find out more about those scans here: Scan your portal for security best practices.
Organization Type: Enterprise only
Input: Portals
Output: File
Resource Intensiveness: Variable depending on the options selected
Additional Considerations: None

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)



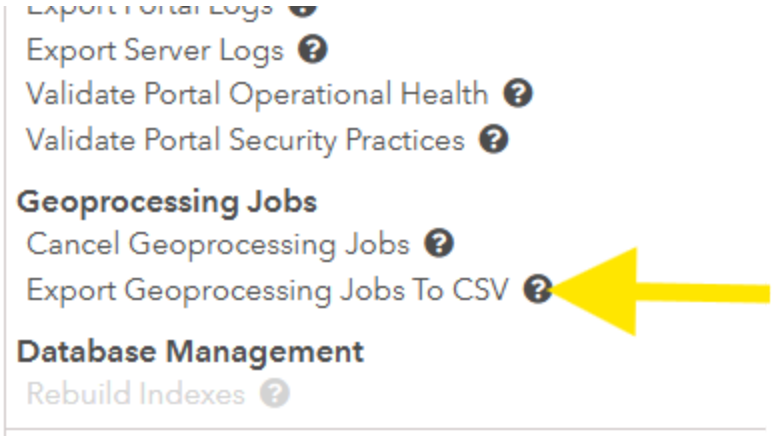
Cancel Geoprocessing Jobs

Description: This tool cancels geoprocessing jobs that have been running for a certain period of time and may be stuck.
Connection Type: ArcGIS Server Machine
Input: Services
Output: Services
Resource Intensiveness: Moderate
Additional Considerations: None



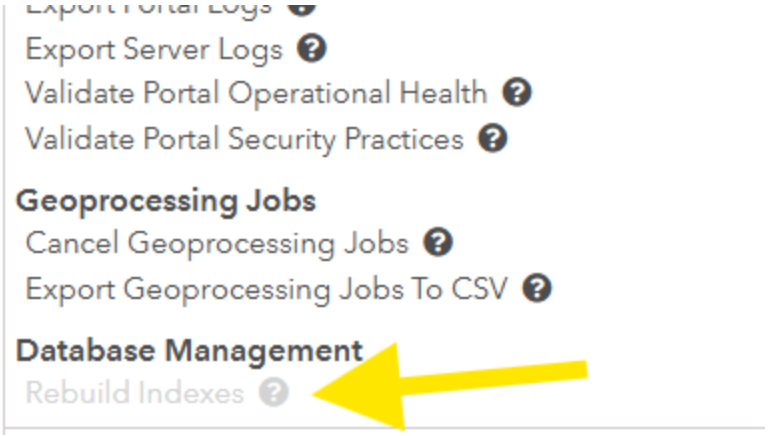
Export Geoprocessing Jobs To CSV

Description: This tool cancels geoprocessing jobs that have been running for a certain period of time and may be stuck.
Connection Type: ArcGIS Server Machine
Input: Services
Output: Services, File
Resource Intensiveness: Low
Additional Considerations: The tool can only return geoprocessing jobs for the time period that you have configured the server to retain geoprocessing jobs (the default is 6 hours). If you select geoprocessing jobs for the last 12 hours, but your server is set to retain geoprocessing jobs for 6 hours, then the tool will only return geoprocessing jobs for the last 6 hours. You can find out more about retaining geoprocessing jobs here: Work with current geoprocessing jobs in Manager.



Rebuild Indexes

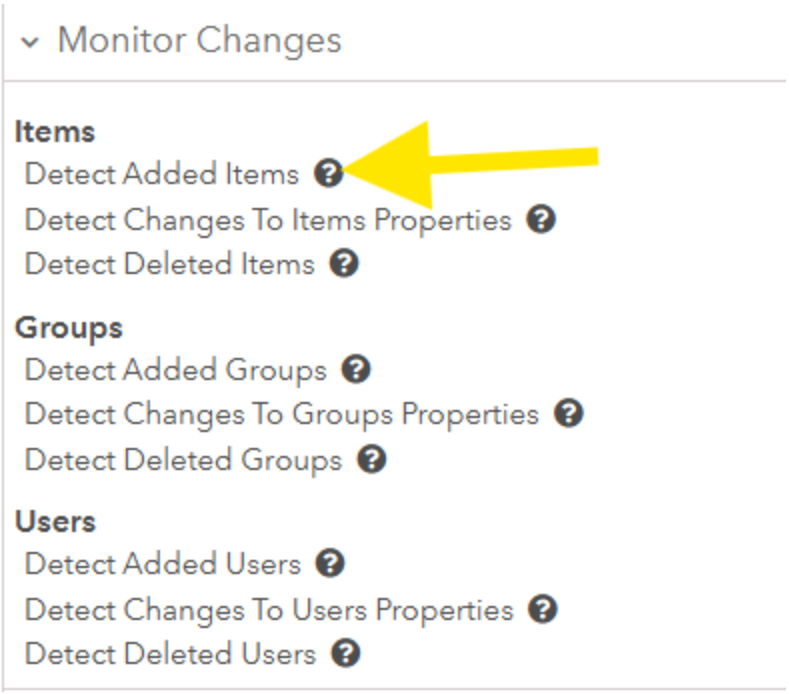
Description: This tool rebuilds the indexes of tables in a database, which can improve database performance.
Connection Type: Database
Input: Database Tables
Output: Database Tables
Resource Intensiveness: Moderate
Additional Considerations: Rebuilding indexes can negatively impact database performance while the tool is running. GEO Jobe recommends that this operation be performed outside of peak hours.



Monitor Changes

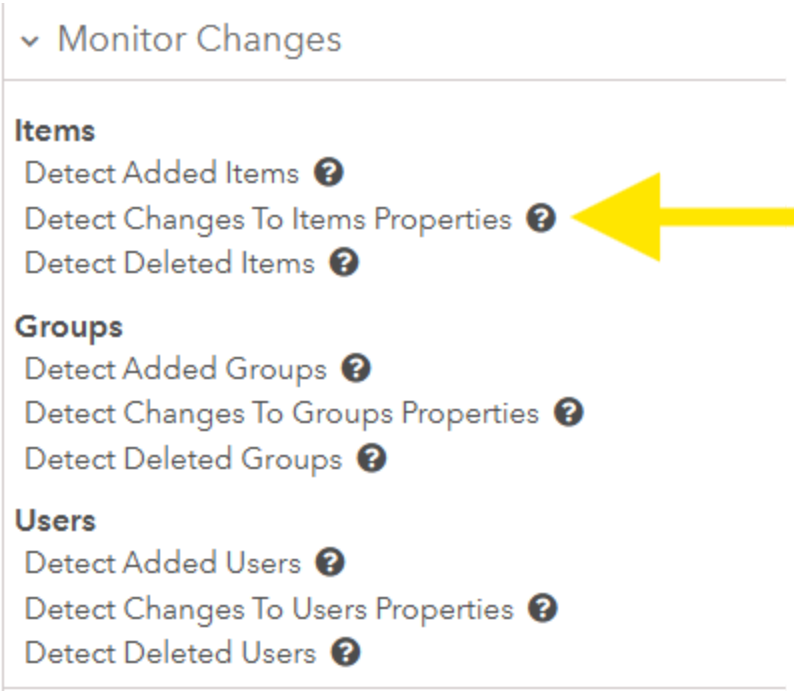
Detect Added Items

Description: This tool finds items that have been added since the last time the task ran. Each time the tool runs, Scheduler will compare the current items in the organization against a snapshot of items taken the last time the tool was run. If an item is in the current organization but not the snapshot, it will be marked as added.
Organization Type: ArcGIS Online and Enterprise
Input: Items
Output: Items
Resource Intensiveness: Moderate
Additional Considerations: For Enterprise organizations, GEO Jobe recommends the use of webhooks for monitoring most changes to content. This tool is primarily meant to provide an alternative to organization webhooks for ArcGIS Online organizations.



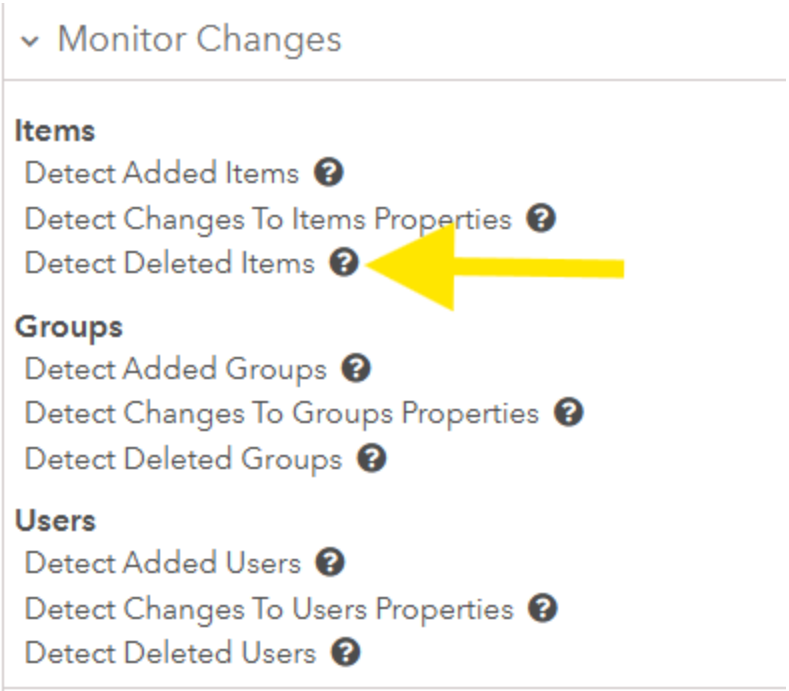
Detect Changes To Items Properties

Description: This tool finds items whose properties have changed since the last time the task ran. The first time the task is run, the user can choose whether to return all content indicated by the step input, or only content that has changed since the task was created. For all future times the task is run, it will return the content indicated by the step input whose selected properties have changed since the last time the task was run.
Organization Type: ArcGIS Online and Enterprise
Input: Items
Output: Items
Resource Intensiveness: Moderate
Additional Considerations: For Enterprise organizations, GEO Jobe recommends the use of webhooks for monitoring most changes to content. This tool is primarily meant to provide an alternative to organization webhooks for ArcGIS Online organizations, as well as to watch for certain changes that aren't captured by webhooks. To track changes to item properties, Scheduler stores the selected properties in a separate cache and compares them to the item's current properties each time the tool is run.



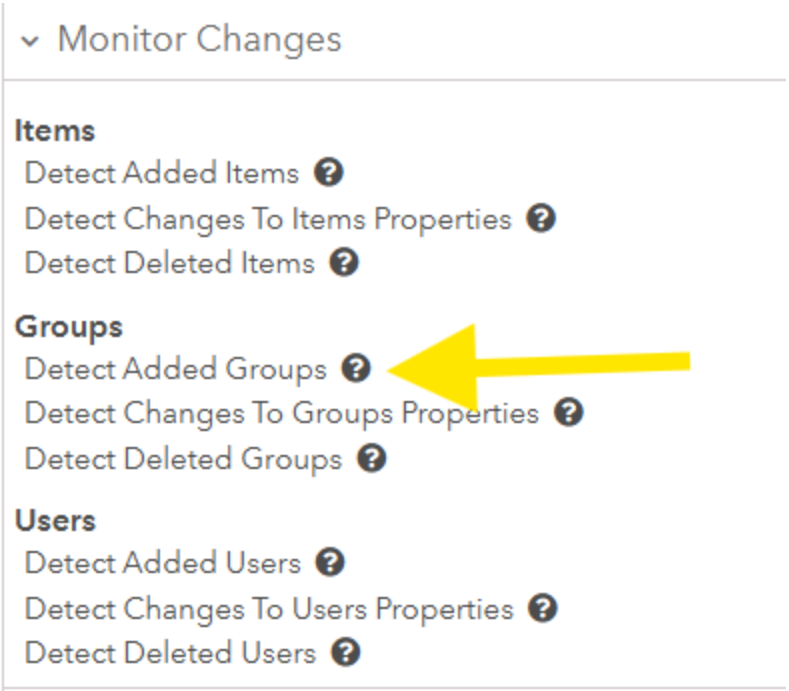
Detect Deleted Items

Description: This tool finds items that have been deleted since the last time the task ran. Each time the tool runs, Scheduler will compare the current items in the organization against a snapshot of items taken the last time the tool was run. If an item is in the snapshot but not the organization, it will be marked as deleted. The deleted item will then be removed from the cache after it is found by the tool. If a record of the deleted item is desired, it should be exported to CSV or JSON.
Organization Type: ArcGIS Online and Enterprise
Input: Items
Output: Items
Resource Intensiveness: Moderate
Additional Considerations: For Enterprise organizations, GEO Jobe recommends the use of webhooks for monitoring most changes to content. This tool is primarily meant to provide an alternative to organization webhooks for ArcGIS Online organizations. To track items that have been deleted, Scheduler stores items to be watched in a separate cache and compares them to see whether an item has been deleted.



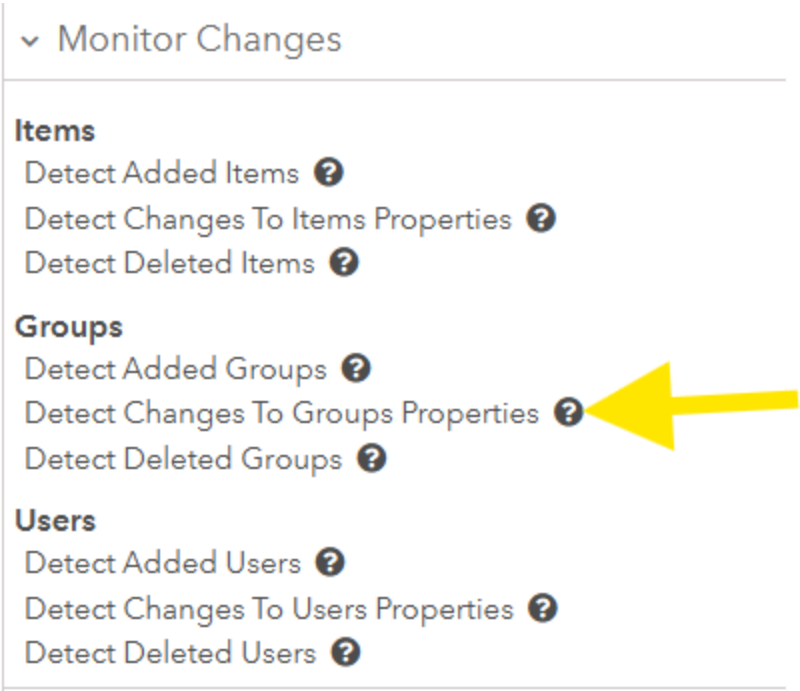
Detect Added Groups

Description: This tool finds groups that have been added since the last time the task ran. Each time the tool runs, Scheduler will compare the current groups in the organization against a snapshot of groups taken the last time the tool was run. If a group is in the current organization but not the snapshot, it will be marked as added.
Organization Type: ArcGIS Online and Enterprise
Input: Groups
Output: Groups
Resource Intensiveness: Moderate
Additional Considerations: For Enterprise organizations, GEO Jobe recommends the use of webhooks for monitoring most changes to content. This tool is primarily meant to provide an alternative to organization webhooks for ArcGIS Online organizations.



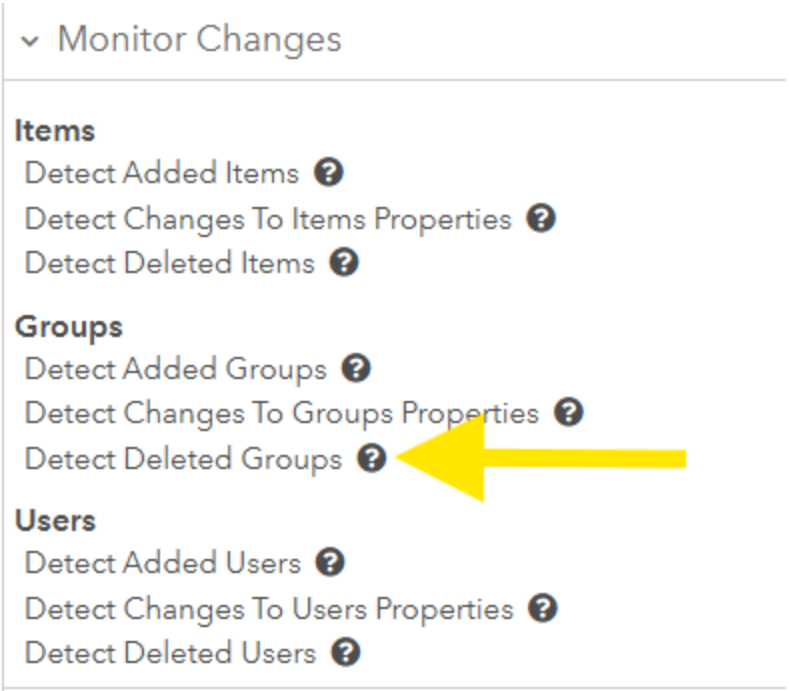
Detect Changes To Groups Properties

Description: This tool finds groups whose properties have changed since the last time the task ran. The first time the task is run, the user can choose whether to return all content indicated by the step input, or only content that has changed since the task was created. For all future times the task is run, it will return the content indicated by the step input whose selected properties have changed since the last time the task was run.
Organization Type: ArcGIS Online and Enterprise
Input: Groups
Output: Groups
Resource Intensiveness: Moderate
Additional Considerations: For Enterprise organizations, GEO Jobe recommends the use of webhooks for monitoring most changes to content. This tool is primarily meant to provide an alternative to organization webhooks for ArcGIS Online organizations, as well as to watch for certain changes that aren't captured by webhooks. To track changes to group properties, Scheduler stores the selected properties in a separate cache and compares them to the group's current properties each time the tool is run.



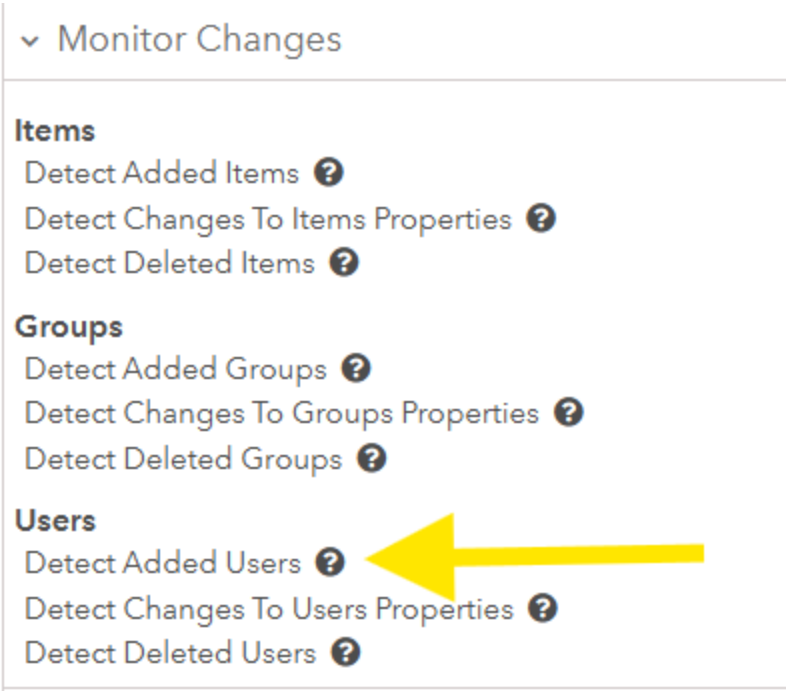
Detect Deleted Groups

Description: This tool finds groups that have been deleted since the last time the task ran. Each time the tool runs, Scheduler will compare the current groups in the organization against a snapshot of groups taken the last time the tool was run. If a group is in the snapshot but not the organization, it will be marked as deleted. The deleted group will then be removed from the cache after it is found by the tool. If a record of the deleted group is desired, it should be exported to CSV or JSON.
Organization Type: ArcGIS Online and Enterprise
Input: Groups
Output: Groups
Resource Intensiveness: Moderate
Additional Considerations: For Enterprise organizations, GEO Jobe recommends the use of webhooks for monitoring most changes to content. This tool is primarily meant to provide an alternative to organization webhooks for ArcGIS Online organizations. To track groups that have been deleted, Scheduler stores groups to be watched in a separate cache and compares them to see whether a group has been deleted.



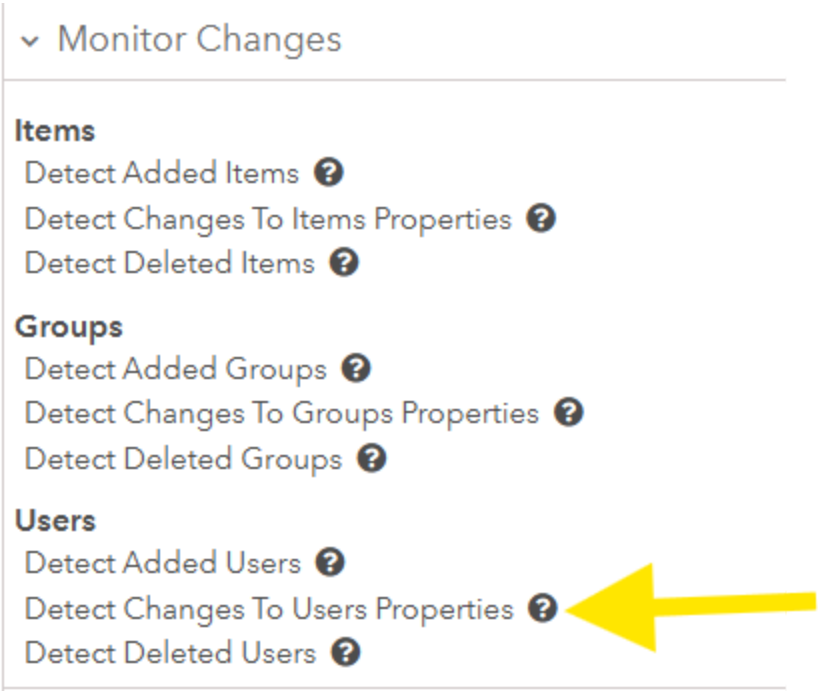
Detect Added Users

Description: This tool finds users that have been added since the last time the task ran. Each time the tool runs, Scheduler will compare the current users in the organization against a snapshot of users taken the last time the tool was run. If a user is in the current organization but not the snapshot, it will be marked as added.
Organization Type: ArcGIS Online and Enterprise
Input: Users
Output: Users
Resource Intensiveness: Moderate
Additional Considerations: For Enterprise organizations, GEO Jobe recommends the use of webhooks for monitoring most changes to content. This tool is primarily meant to provide an alternative to organization webhooks for ArcGIS Online organizations.



Detect Changes To Users Properties

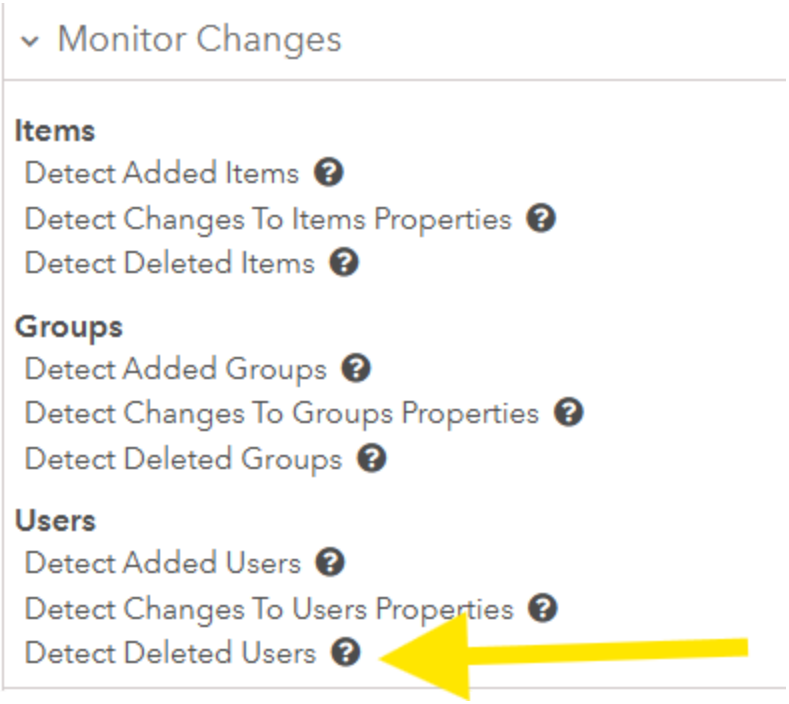
Description: This tool finds users whose properties have changed since the last time the task ran. The first time the task is run, the user can choose whether to return all content indicated by the step input, or only content that has changed since the task was created. For all future times the task is run, it will return the content indicated by the step input whose selected properties have changed since the last time the task was run.
Organization Type: ArcGIS Online and Enterprise
Input: Users
Output: Users
Resource Intensiveness: Moderate
Additional Considerations: For Enterprise organizations, GEO Jobe recommends the use of webhooks for monitoring most changes to content. This tool is primarily meant to provide an alternative to organization webhooks for ArcGIS Online organizations, as well as to watch for certain changes that aren't captured by webhooks. To track changes to user properties, Scheduler stores the selected properties in a separate cache and compares them to the user's current properties each time the tool is run.



Detect Deleted Users

Description: This tool finds users that have been deleted since the last time the task ran. Each time the tool runs, Scheduler will compare the current users in the organization against a snapshot of users taken the last time the tool was run. If a user is in the snapshot but not the organization, it will be marked as deleted. The deleted user will then be removed from the cache after it is found by the tool. If a record of the deleted user is desired, it should be exported to CSV or JSON.
Organization Type: ArcGIS Online and Enterprise
Input: Users
Output: Users
Resource Intensiveness: Moderate
Additional Considerations: For Enterprise organizations, GEO Jobe recommends the use of webhooks for monitoring most changes to content. This tool is primarily meant to provide an alternative to organization webhooks for ArcGIS Online organizations. To track users that have been deleted, Scheduler stores users to be watched in a separate cache and compares them to see whether a user has been deleted.

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

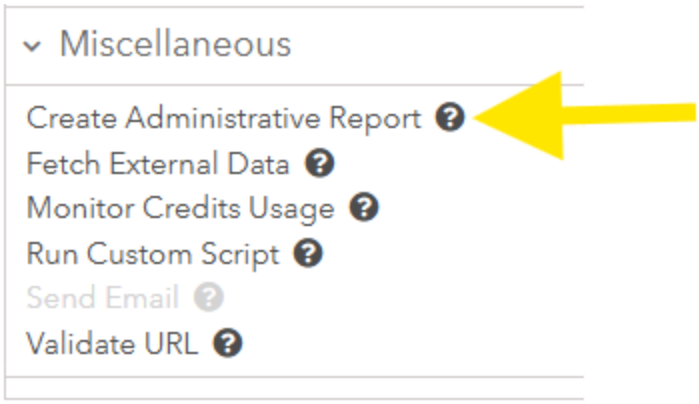


Miscellaneous

Create Administrative Report

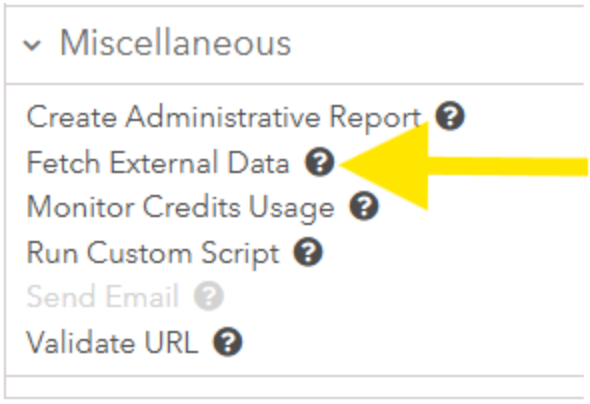
Description: This tool creates and downloads one or more administrative reports. All report types are supported for ArcGIS Online. Item and Member reports are supported for Enterprise 10.9 and above. Administrative reports are not supported for Enterprise 10.8 and below.
Organization Type: ArcGIS Online (all report types) and Enterprise 10.9+ (Item and Member reports only)
Input: None
Output: Administrative Reports, Files
Resource Intensiveness: Moderate (for reports covering longer time periods) or Low (for reports covering shorter time periods or snapshots)
Additional Considerations: Some administrative reports are generated for a selected time period, while others are snapshots of your organization at the time the report is made. For reports that use time periods (Activity, Credit, Item View Count and Service Usage reports), if you select the past day, the report will be generated for the previous day from 12:00 AM to 11:59 PM. if you select the past week, the report will be generated for the most recent full week starting Monday at 12:00 AM and ending Sunday at 11:59 PM (for example, if the task runs on Thursday, the report will be from the preceding full

week from Monday to Sunday). If you select the past month, quarter or year, the report will be generated for the most recent full month, quarter or year starting on the first day at 12:00 AM and ending on the last day at 11:59 PM. You can only create one administrative report of a given type for a given time period (for example, you can only create one Activity report for a particular week), so your task should not run more frequently than the selected report time period. Reports that generate snapshots (Item and Member reports) cannot be created more than once per hour.



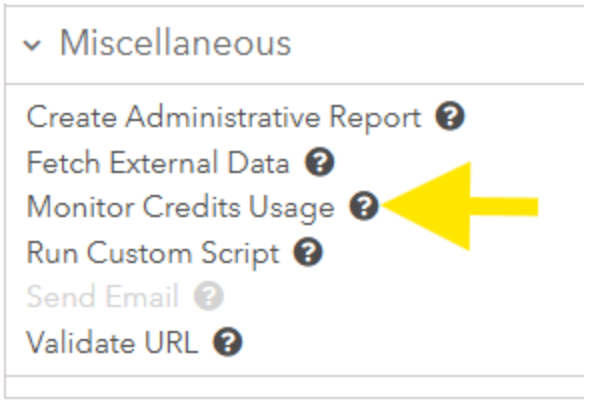
Fetch External Data

Description: This tool fetches data from an external URL and writes it to a file. Supported formats are CSV, GeoJSON and KML. JSON is supported if the query is not paginated.
Organization Type: N/A
Input: None
Output: File
Resource Intensiveness: Variable depending on the nature of the data
Additional Considerations: This tool does not support fetching data that is paginated or that requires any form of authentication (other than a static token, client key or similar that can be entered as a query parameter).



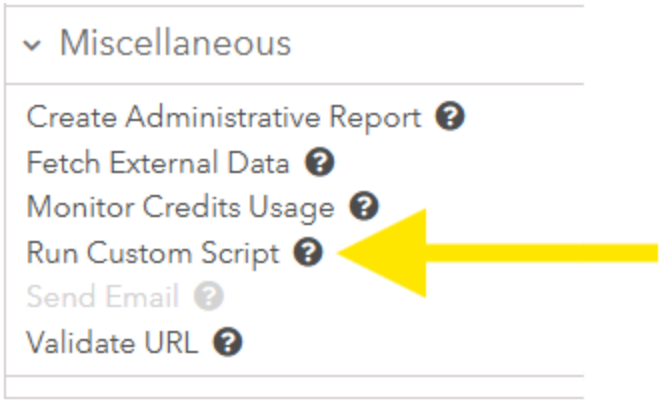
Monitor Credits Usage

Description: This tool runs checks to monitor an organization's credits usage. Organizations can be monitored for one or more of the following: total credits are below a certain amount, credits usage in the last 24 hours is below a certain amount, daily credits usage has increased by a certain percentage compared to the average usage of the past seven days, daily credits usage has decreased by a certain percentage compared to the average usage of the past seven days, and/or the organization has a certain number of days' worth of credits left, based on the average credits usage per day over the past seven days.
Organization Type: ArcGIS Online only
Input: None
Output: None
Resource Intensiveness: Low
Additional Considerations: None



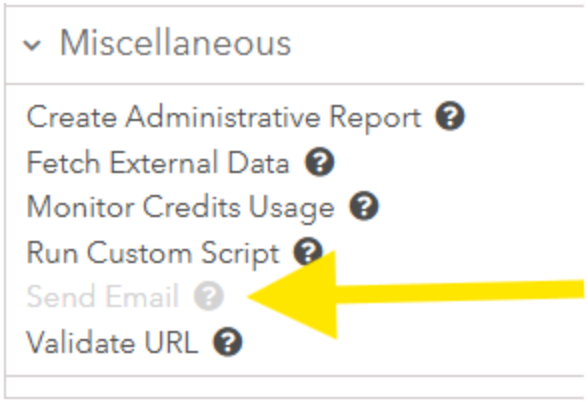
Run Custom Script

Description: This tool runs a custom script on the server Scheduler is installed on, either as a file or as a command line command.
Organization Type: N/A
Input: Custom Script
Output: None
Resource Intensiveness: Variable depending on the nature of the script
Additional Considerations: If you are using ArcPy, make sure the service user of Scheduler is a user that also has access to ArcGIS Pro.



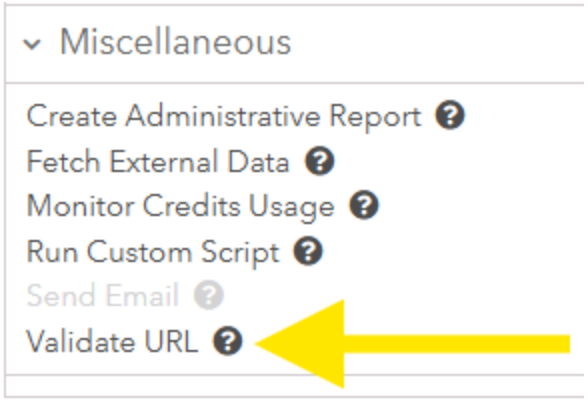
Send Email

Description: This tool sends an email to a list of addresses. Optionally, the files generated by previous steps can be included as attachments.
Organization Type: N/A
Input: None
Output: None
Resource Intensiveness: Low
Additional Considerations: Email settings must be configured for Scheduler on the Settings page to use this tool.



Validate URL

Description: This tool validates one or more URLs to see whether they are returning a valid response, which is defined as any 200 or 300 level response..
Organization Type: N/A
Input: None
Output: None
Resource Intensiveness: Low
Additional Considerations: None



XI. Additional Assistance

If you require additional assistance with using or maintaining Scheduler for ArcGIS, or if you have a feature request , please contact GEO Jobe's Support Division. You can do so

through the live chat on our website (https://geo-jobe.com), via phone (+1 844.436.5623, ext. 2), or through email (support@geo-jobe.com).

If you would like to renew or expand your license, please contact GEO Jobe's Sales Department. They can be contacted via phone (+1 844.436.5623, ext. 1) or email (sales@geo-jobe.com).

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

XII. Glossary

API - An API, or Application Programming Interface, is the way different software applications communicate.

ArcGIS Enterprise - Esri's software for creating maps, processing and interpreting data with a geospatial context, and presenting that information in an accessible way.

ArcGIS Server- Responds to requests issued to the GIS web services. ArcGIS Server can draw maps, run tools, serve imagery, synchronize databases, project geometry, search for data, and perform many other operations offered by ArcGIS.

CSV - CSV stands for "Comma-Separated Values". This is a file format that allows information from a table to be stored in plain-text.

Federated Server - integrates the security and sharing models of your Portal for ArcGIS with one or more ArcGIS Server sites. Federation is optional with the following exception: Configuring your site with a Security Assertion Markup Language (SAML) identity provider requires federation.

Geoprocessing - A framework and set of tools for processing geographic and related data. The comprehensive suite of geoprocessing tools can be used to perform spatial analysis or manage GIS data in an automated way. Geoprocessing is for everyone that uses ArcGIS Pro.

Internal Superuser - This superuser account will login with credentials saved to Scheduler and will not interact with the organization to login. The internal superuser account can serve as a backup account in case you are not able to login with your organization credentials. Superusers are able to perform all functions on all licensed identities.

JSON - An open standard file format and data interchange format that uses human-readable text to store and transmit data objects consisting of attribute–value pairs and arrays. It is a common data format with diverse uses in electronic data interchange, including that of web applications with servers.

MongoDB - A source-available cross-platform document-oriented database program. Classified as a NoSQL database program, MongoDB uses JSON-like documents with optional schemas.

Multi-factor authentication (MFA) - A multi-step account login process that requires users to enter more information than just a password. For example, along with the password, users might be asked to enter a code sent via text or email, answer a secret question, or scan a fingerprint.

Organization Superuser - This superuser account will login with credentials from one of the ArcGIS organizations licensed for Scheduler. Superusers are able to perform all functions on all licensed identities.

Rest API- REST is a software architectural style that was created to guide the design and development of the architecture for the World Wide Web. REST defines a set of constraints for how the architecture of a distributed, Internet-scale hypermedia system, such as the Web, should behave.

SMTP - The Simple Mail Transfer Protocol is an Internet standard communication protocol for electronic mail transmission. Mail servers and other message transfer agents use SMTP to send and receive mail messages.

SQL Server - Is a relational database management system (RDBMS). Applications and tools connect to a SQL Server instance or database, and communicate using Transact-SQL (T-SQL).

Superuser - In computing, the superuser is a special user account used for system administration. Specifically in Scheduler for ArcGIS, a superuser can perform all activities, including creating, editing, and deleting users, identities, and connections.

Superusers can also access and use all identities licensed for Scheduler. Scheduler must have at least one superuser to function. There are two types of superusers for Scheduler, organization superusers and internal superusers.

Tile Caching - Is the process by which images are downloaded and saved to a cache for faster retrieval, thus improving performance of client applications.

Unix time - Unix time is a representation of a date and time as the number of seconds that have passed since January 1st, 1970.

Webhooks - The term webhook generally means posting an event to another system over the web through an API.

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

XIII. Index

Local Host

MongoDB

Portal

Properties

Publishing

Requirements

Satellite

Scripts

Security

Server

Storage

Superuser

Tasks

Templates

Tokens

Tools

Unix time

URL

Users

Viewers

302 Courthouse Road, Suite H
Gulfport, MS 39503
(844) GEO-JOBE (436-5623)

Webhooks