

# Backup Utility for ArcGIS Online and Portal for ArcGIS User Guide

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## READ ME

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**We're here to support you.** If you have questions not addressed here or would like a web conference walkthrough, please reach out to us at [support@civiclens.com](mailto:support@civiclens.com).

**7-Zip is recommended for extracting backups.** The default Windows extractor sometimes doesn't like the long names/paths of backup files, and will either throw an error when extracting, or will appear to extract successfully but the extracted FGDB will be incomplete and therefore appear to have no data/features. If you are unable to use 7-Zip, you can rename your backup files to a shorter name and/or move them somewhere with a shorter path and extract them there.

**Consult the status/console window.** If you get a "Something went wrong" warning, review the status/console window to see what the error was.

**Username and password are case sensitive.** "Some\_User.User" is not equivalent to "some\_user.user". Note: If your password starts with a hyphen (-), you must add a leading space when providing it to the application.

**If using SSO or user is MFA-enforced, you must leave the Password field blank (On-Demand version only) and you must register an oAuth application in your portal.** If you wish to authenticate using browser-based single sign-on, or your user has multifactor authentication enabled, you must leave the password field blank. Authentication will be handled by your web browser. See "Single Sign-On/Multifactor Authentication Setup" section in this document for instructions on setting up browser authentication.

**Credentials must have Administrator privileges\*.** This is due to platform requirements for accessing endpoints of items that do not belong to the authenticating user. *\*We also have a non-admin version that backs up just the authenticating user's items.*

**Create a new directory for backups.** Depending on your settings, Windows may limit programmatic access to certain folders (e.g., Documents, Desktop). Creating a new dedicated directory for your backups will help sidestep folder permissions issues.

**Hosted tile layers (tile cache layers and vector tile services) have special handling.**

Hosted tile layers are exported to tile packages or vector tile packages; however, if there is an existing tile package item or vector tile package item with an identical title, the service item is skipped to avoid backing up the same data twice. Tile layers with more than 500,000 tiles cannot be backed up due to platform limitations on tile counts for hosted tile layers.

**Some feature services take a while to export.** Certain feature services (especially large ones with lots of attachments) can take some time while the data is prepared on the server side. The application will move on to the next item after the number of minutes set in the timeout parameter (default is 120), continuing to work on the original service in the background. If any large feature services fail or go to CSV/SHP, increase the value of the timeout parameter.

**Portal for ArcGIS only: Be sure you have available space for temp FGDB exports.** If you're backing up hosted items from Portal for ArcGIS, be sure there is available disk space on your server to accommodate temporary file geodatabase exports during the process. Temporary exports are removed as soon as they are successfully exported.

**Let us know if you want to send scheduled backup confirmation emails from your own SMTP relay.** By default, confirmation emails for scheduled backups come from smtp.gmail.com. We can provide a version on request that allows you to enter your own SMTP relay credentials instead.

Things to watch out for:

- **Windows limits path lengths to 260 characters.** The Backup Utility appends the 32-character item ID to the export file name, plus the item title. Try to keep your backup folder near the drive root, like "C:\AGOL\_BACKUPS"
- **Your item counts may not match what you see in your org content or in administrative reports run from your portal.** This is because there are certain item types that hold no value to back up. Examples are Code Attachment items and Replication Packages. Administrative reports show additional items from offline map area packages (SQLite Geodatabases, *some* Tile Packages, *some* Compact Tile Packages, and *some* Vector Tile Packages) that are just little slices of the actual data, created for offline field collection. Since these are duplicative by definition, we skip them.
- **Avoid spaces in directory names and the backup folder prefix.**

**What item types are included in backups?**

Most item types are backed up by the application by default. Exceptions include items that only reference other items and would therefore be duplicative (e.g., layer copies or views), or anything that's just a pointer to an external application or data. A full list of item types can be found [here](#).

**Do feature service exports come with attachments, domains, and related tables?**

Yes. Feature services are exported as file geodatabases with all attachments, domains, and related tables.

**Does CivicLens have access to my data or credentials?** No. The application does not communicate with us in any way.

**Can I run more than one instance of the application simultaneously?** Yes. If you're using the scheduled version, you'll need to copy-paste the application and parameters.xlsx file into a new folder for each additional instance you wish to run. If you're using the on-demand version, you can just double-click it again to open another instance.

**Can I use the items in my org/portal while the backup is running?** Yes. The backup process will not affect the function of your items.

**What does "Add Item Dependencies" parameter do?** Selecting 'Yes' will write item dependencies to the inventory file in the backup folder. In the case of feature services, this is a list of web map item IDs that consume that service; in the case of web maps, it's a list of feature layer item IDs present in the map, and in the case of dashboards and web mapping applications, it's the associated web map item ID. Evaluating dependencies will increase backup time.

**What does the timeout parameter do?** The timeout parameter specifies how long the application will work on a service before starting the next item. When the timeout limit is reached, the service is sent to its own thread and continues to be processed in the background. The 60-minute default value is more than enough for most orgs, but if you have large feature services that fail, increase this value.

**Can I use a UNC path for the backup location?** Yes.

**How are items restored?** Check out our [Item Restoration Guide](#).

**How are Experience Builder apps and Story Maps handled?** Experience Builder apps and Story Maps are built with a new architecture that stores the item resources in the item itself. The Backup Utility does export the resources for these items, as well as the configuration JSON.

**Why won't my feature service export?** If the feature service is large (multi-GB), try increasing the value of the timeout parameter on the Options tab (Scheduled Version: Cell B19 in parameters.xlsx).

Rarely, a feature service won't export to file geodatabase due to internal issues with the service, even if that service functions as expected in your maps and apps. In our experience, these services will also not be exportable from the item page in your org. If you experience any services that consistently fail on export, let us know and we can help you resolve the issue.

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## TROUBLESHOOTING

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Please don't hesitate to contact us at [support@civiclens.com](mailto:support@civiclens.com). A license purchase includes a small services engagement to get your backups running smoothly, and support is included.

### **Authentication issues**

- If using username/password to authenticate, be sure both your username and password are entered with proper case.
- You cannot use username/password if multifactor authentication is enabled for the user. Enter your username only and follow the browser authentication flow. See "Single Sign-On/Multifactor Authentication Setup" section in this document for instructions on setting up browser authentication.
- Be sure your ArcGIS Online org URL is entered correctly.
- You may need to request whitelisting of your ArcGIS Online or Portal URL.

**Backup ZIP file won't extract.** [7-Zip](#) is highly recommended for extracting backups. Depending on the sort option you select and the directory chosen on your local machine, you may end up with long path names that the default Windows extract utility doesn't like. If you get an error when trying to extract an export, you can either use 7-Zip or move the FGDB zip file (or your entire backup) to a shorter path location and extract it there.

**'TEMP\_FOR\_EXPORT' files left in root folder of portal.** This can happen if the backup process is interrupted before it finishes. You may delete these, or they will eventually be cleared out on their own during a subsequent backup run (the process checks for the number appended to the end of the title, which is a timestamp, and deletes any temporary exports created more than 72 hours ago).

**Differential backups grab a few feature services that haven't actually had edits.** Rarely, the differential backup feature may grab a few extra services which have not actually had feature edits in the past specified number of days. This is because ArcGIS Online considers a settings change (editing, sync, change tracking, etc.) to be an edit to the service.

Note that differential backups are possible only for ArcGIS Online. Portal for ArcGIS does not currently expose the required property necessary for differential backups.

**Feature service backup fails.** Rarely, a feature service will have persistent issues backing up. If you experience a service that consistently fails, first try increasing the timeout value on the Options tab (Scheduled Version: Cell B19 in the parameters file). If you still experience issues, let us know and we can make some adjustments to your application or otherwise support you in resolving the issue.

**Backup process takes a long time.** Backup time depends primarily on the composition of your portal content. If you have large services with lots of attachments, it takes time for ArcGIS Online (or your server in the case of Portal for ArcGIS) to do the processing required to export feature services as file geodatabases. You can always split your backups by tag, group, folder, or user if you wish to trim your backup time (indeed, this is advisable for orgs/portals with a high number of large feature services).

**[Scheduled Version Only] Application fails to open or start.** Startup issues (nothing happens when you double-click, or you get a “Fatal Error” warning) are caused by one of the following:

- Failing to place parameters.xlsx in the same folder as the application
- Failing to enter your working directory in the Start In field of your Task Manager task
- Renaming parameters.xlsx
- Moving cells around in parameters.xlsx
- Failing to provide required entries in parameters.xlsx
- If your application fails to start, verify the above and try again. If you need a fresh parameters.xlsx, you can download one [here](#) (if Windows gives you a “Can’t Open in Protected Mode” error, just rename the file and it will open in Protected Mode. Just be sure to change the name back to ‘parameters.xlsx’).

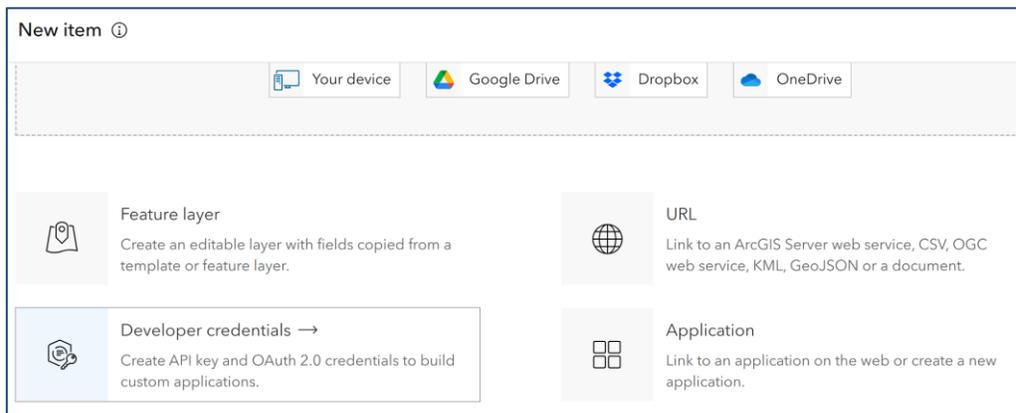
**[Scheduled Version Only] Email confirmation not received.** If you’re not receiving email confirmations despite entering an email address in parameters.xlsx, you may need to whitelist ‘info@civiclens.com’ or check your spam/junk folder. Emails are sent as plain text without attachments.

Your machine also needs to be able to access smtp.gmail.com to make the call to send the email. This is sometimes blocked by default when running on a server.

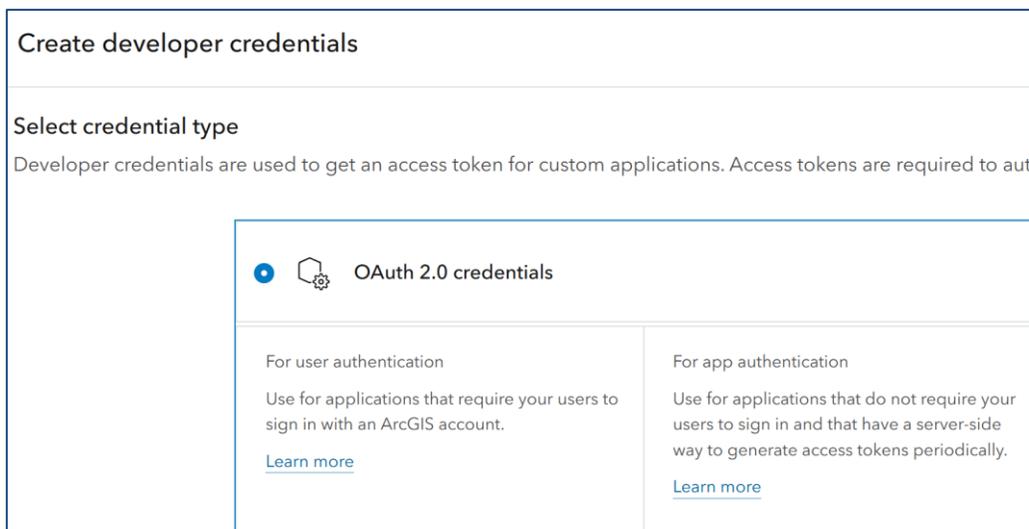
# Single Sign-On/Multifactor Authentication Setup (On-Demand only, Version 4.4.0 or later only)

Follow the steps below to configure single sign-on or to enable backups when multifactor authentication is enforced. If you would like to be walked through this process, contact us at [support@civiclens.com](mailto:support@civiclens.com). SSO/MFA logins are only available for the On-Demand version, as they require user interaction to log in via web browser.

1. On your portal Content tab, click New Item → Developer Credentials:



2. Select oAuth2 credentials and click Next:



3. Add **urn:ietf:wg:oauth:2.0:oob** to Redirect URLs (leave Referrer URLs blank) and click Next:

The screenshot shows a dialog box titled "Create developer credentials". Under the "Redirect URLs" section, there is a text input field containing the URL "urn:ietf:wg:oauth:2.0:oob". Below the input field is a "+ Add" button. The text above the input field reads: "Add allowed URLs to a web page or server endpoint to redirect users to after completing authentication."

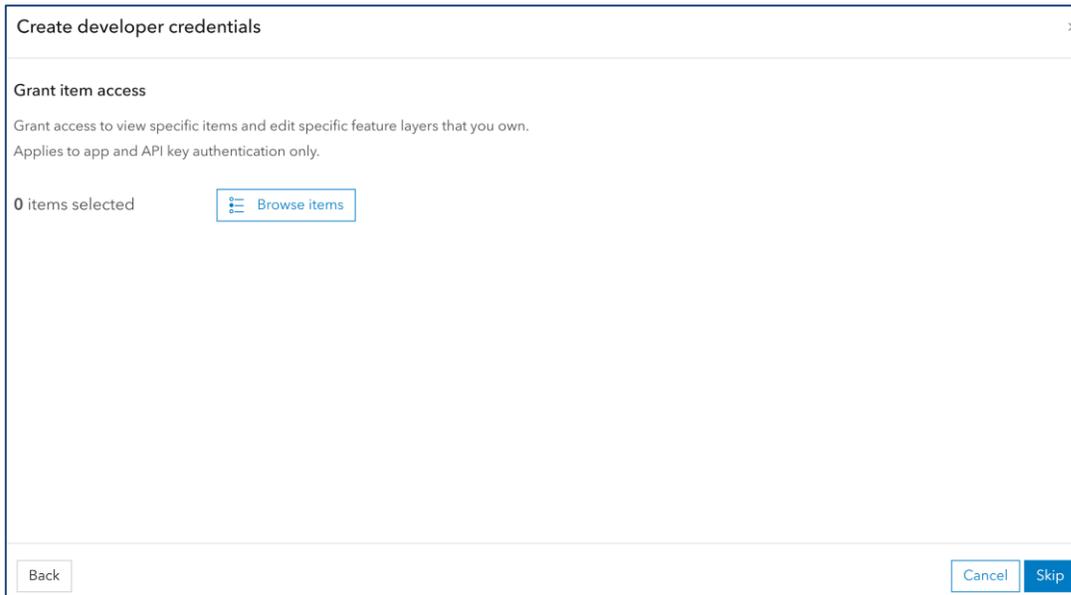
4. Accept defaults for privileges and click Next:

The screenshot shows the "Privileges" section of the "Create developer credentials" dialog. It includes a search bar for privileges and a list of service categories with their respective enablement status and toggle switches:

- Location services**: Enabled: 1/4 (toggle off)
- Basemaps**: Enabled: 1/1 (toggle on)
- Geocoding**: Enabled: 0/1 (toggle off)
- Routing**: Enabled: 0/1 (toggle off)
- Data enrichment**: Enabled: 0/1 (toggle off)

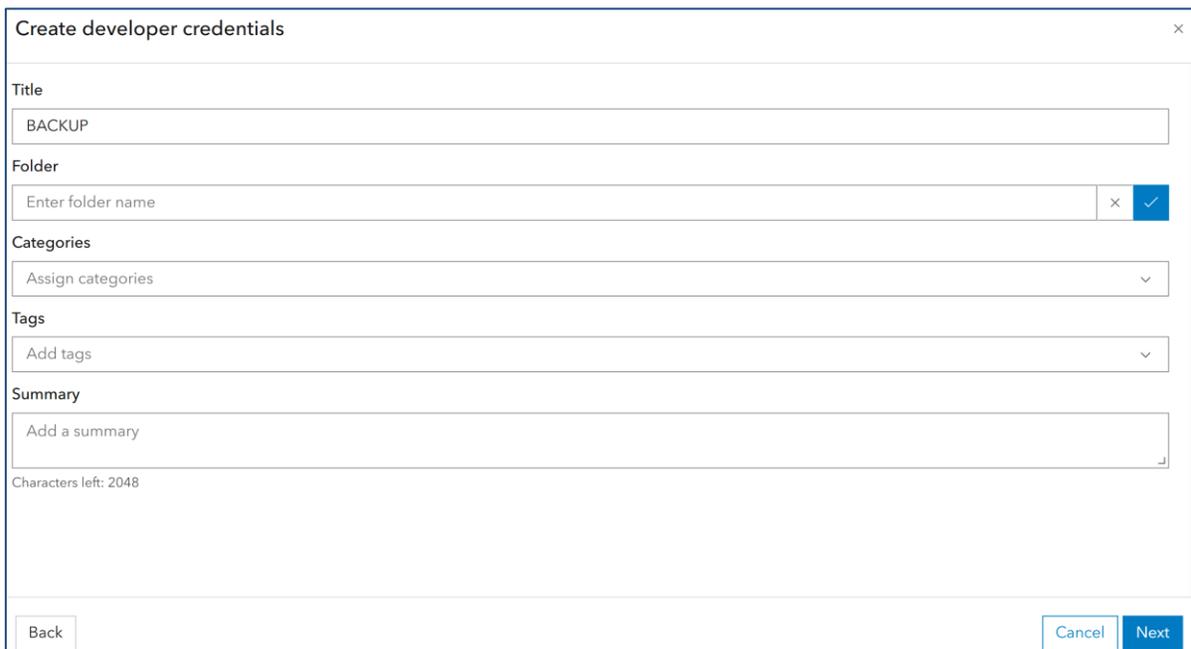
At the bottom of the dialog, there are three buttons: "Back", "Cancel", and "Next".

5. Accept defaults for Grant Item Access (none), and click Skip:



The screenshot shows a dialog box titled "Create developer credentials" with a close button (X) in the top right corner. The main heading is "Grant item access". Below it, there is explanatory text: "Grant access to view specific items and edit specific feature layers that you own. Applies to app and API key authentication only." Underneath, it says "0 items selected" next to a "Browse items" button. At the bottom of the dialog, there are three buttons: "Back" on the left, and "Cancel" and "Skip" on the right.

6. Provide a title and optional tags and click Next:



The screenshot shows the same "Create developer credentials" dialog box, now in a configuration step. It has a close button (X) in the top right. The fields are: "Title" with the text "BACKUP"; "Folder" with a text input field containing "Enter folder name" and a blue checkmark button; "Categories" with a dropdown menu showing "Assign categories"; "Tags" with a dropdown menu showing "Add tags"; and "Summary" with a text area containing "Add a summary" and a character count "Characters left: 2048". At the bottom, there are three buttons: "Back" on the left, and "Cancel" and "Next" on the right.

7. Click Create.

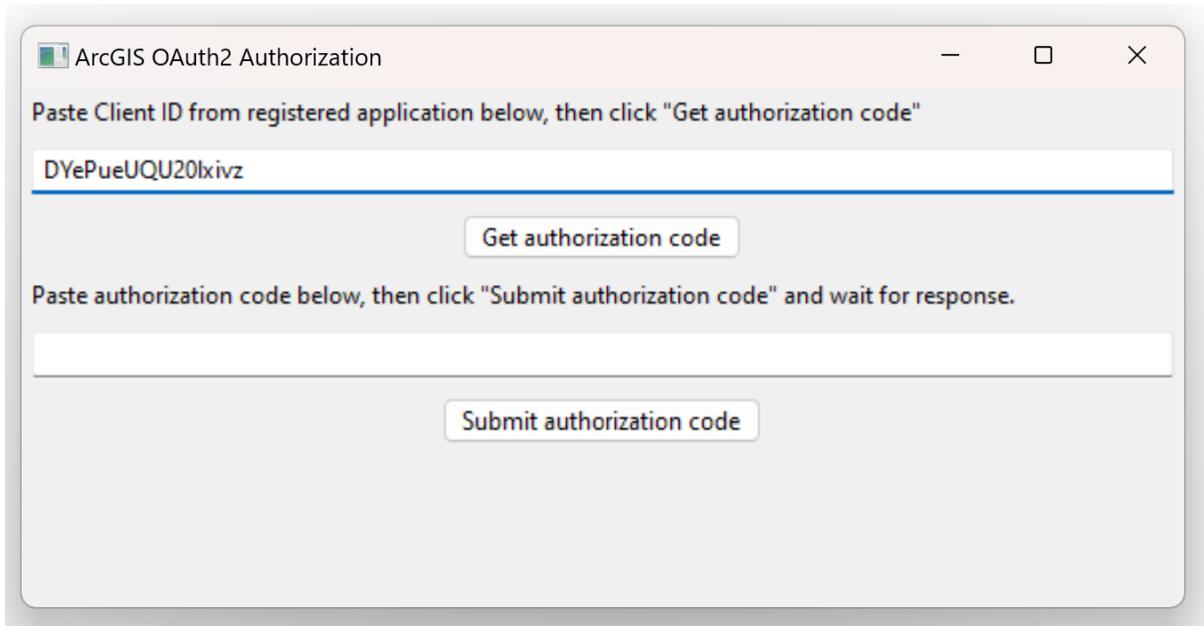
8. The credentials will appear as an “Application” item in your ArcGIS Online organization. On the item page, in the Credentials section, you’ll be provided with a Client ID. This is the only part of the credentials that matter for our workflow:

The screenshot shows the 'Credentials' page in ArcGIS Online. At the top right, there is a 'Manage' link with a gear icon. Below the title, there is a paragraph: 'You can use OAuth 2.0 to authenticate ArcGIS users to access content and location services on behalf of the authenticated user. Learn more in [Security and authentication](#).' Below this, there are three input fields: 'Client ID' with the value 'DYePueUQU20Ixivz', 'Client Secret' with a masked value of dots, and 'Temporary Token' with a long alphanumeric string. A note at the bottom states: 'Short lived token for testing. Will expire in 2 hour(s) (Friday, September 20, 2024 at 2:00:54 PM)'. The 'Client ID' field is highlighted with a red rectangular box.

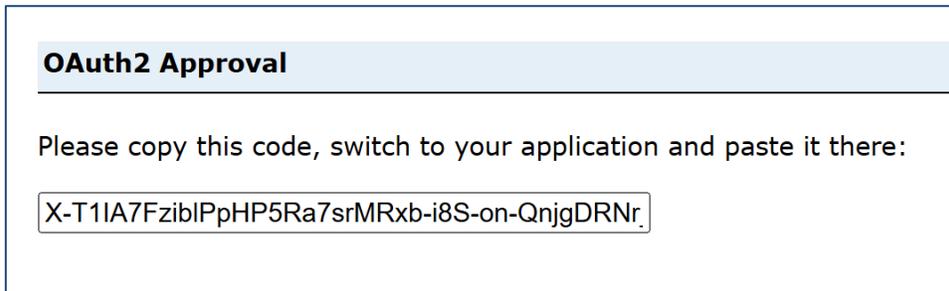
9. Open the Backup Utility and enter your URL, username, save directory, and export folder prefix, **but leave the Password field blank**, then click Start.

The screenshot shows the 'Main' configuration page of the Backup Utility. It has several sections: 'URL' with 'Portal/org URL' set to 'https://example.com'; 'Save Directory' with 'Location to store backup (cannot be drive root)' set to 'c:\AGOL\_BACKUPS' and a 'Browse' button; 'Username' with 'CASE SENSITIVE' and 'SomeUser@example.com\_Example'; 'Export Folder Prefix' with 'Timestamp will be appended to folder name' and 'BACKUP'; 'Password' with the instruction 'LEAVE BLANK TO USE SINGLE SIGN-ON OR IF MULTIFACTOR AUTH IS ENABLED FOR USER' and an empty input field; and 'Deep/Quick Item Search' with a dropdown menu set to 'Quick'. The 'Password' field is highlighted with a red rectangular box.

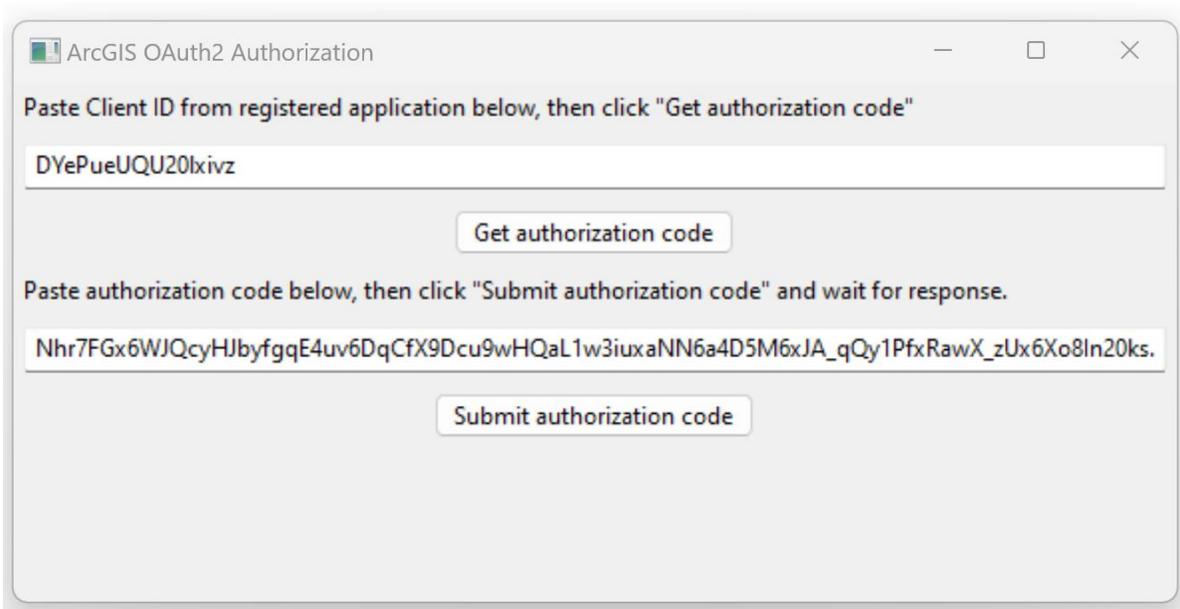
10. Paste your Client ID from Step 8 in the first field and click "Get authorization code":



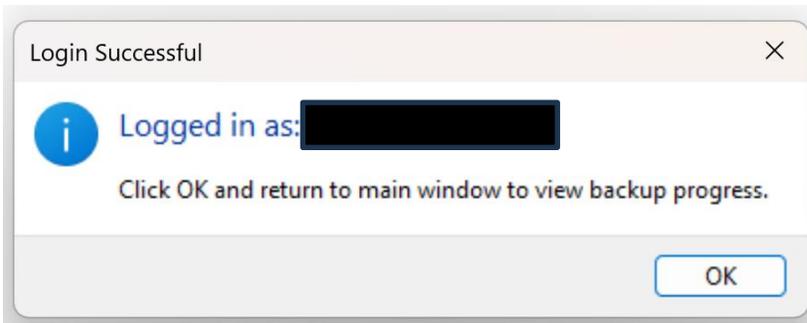
11. Your default web browser will open. Follow the prompts to log in, then you will be redirected to a page with an authorization code:



12. Copy this code into the second field on the ArcGIS OAuth2 Authorization window and click "Submit authorization code":



13. Wait a few moments, then you should see your authorization results:



14. Click OK and return to the Backup Utility to view your backup progress.

# Scheduled Backup Setup

Follow the steps below to configure scheduled backups. If you would like to be walked through this process, contact us at [support@civiclens.com](mailto:support@civiclens.com).

Please pay special attention to the following:

1. The parameters file must be in the same folder as the application.
2. The parameters file must have valid entries for all fields marked Required.
3. The parameters file must not have been renamed (it must remain 'parameters.xlsx') unless using the --file argument (see below).
4. The directory must be provided in the Start In field as shown in Step 7 below.

## New in Version 4.4.0: Specify parameters file using --file argument

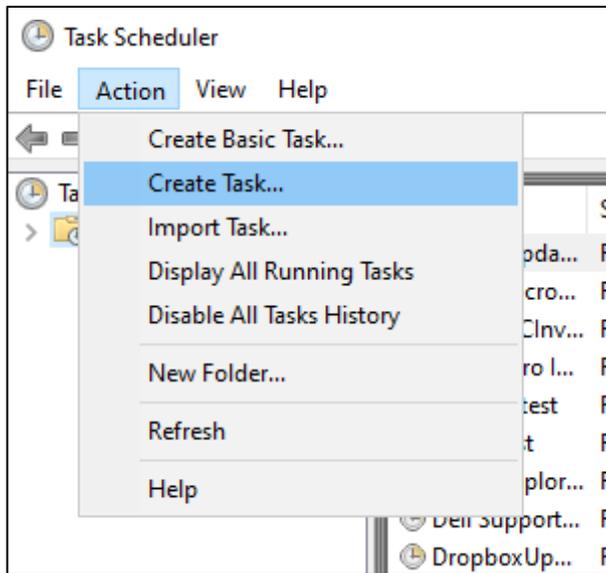
You can now keep multiple parameters files (with different configurations) without the need to copy and paste the application, and you can name the parameters file anything you like (must have .xlsx or .csv extension).

See "Using --file argument to specify the parameters file" below.

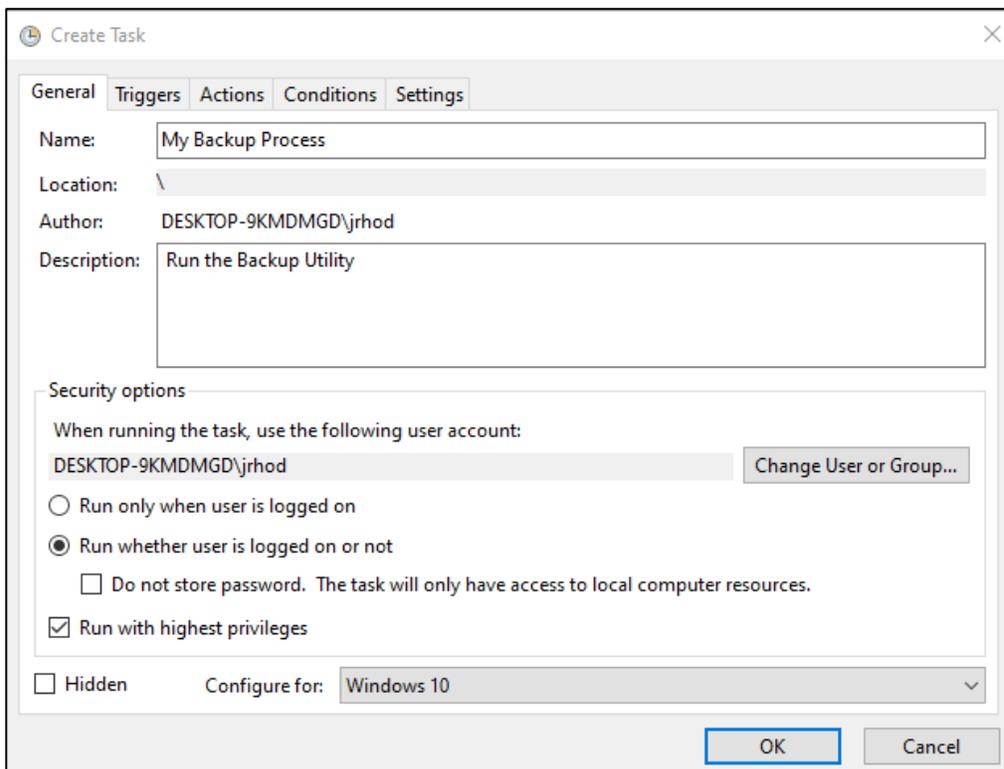
## Standard method (no --file argument)

If you wish to use the --file argument to specify a parameters file, skip to the "Using --file argument to specify the parameters file" section. This section describes a simpler setup that requires the parameters file to be in the same folder as the application.

1. Download the application and the [parameters.xlsx](#) file and place them in the same folder. You can save the parameters file as a CSV instead if you like.
2. Open parameters.xlsx and enter your parameters. Do not rename parameters.xlsx. *If you would like to store your ArcGIS password in Windows Credential Manager instead of directly in the spreadsheet, see Page 21.*
3. Double-click the application to start a backup and test your parameters. It's best to let the backup finish, but you can abort it if you wish by simply closing the console window. Note that if you abort the backup while items are exporting, you may be left with a stray 'TEMP\_FOR\_EXPORT' file geodatabase in your org content (you can just delete it).
4. Open Task Scheduler and click Action > Create Task:

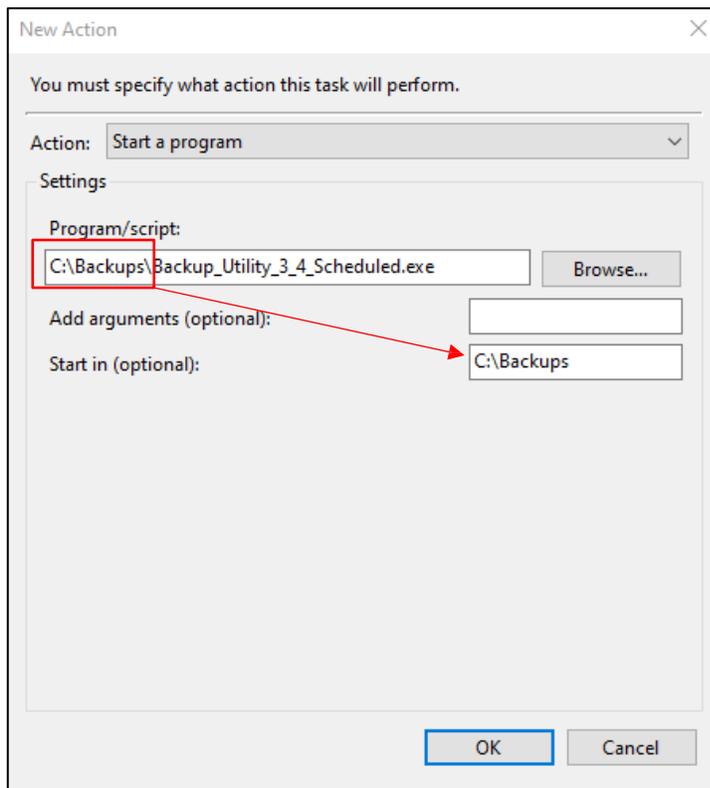


5. On the General tab, provide a name and description, and select your security options. Configuring your security options as shown below is ideal, although your overall machine settings will dictate whether you need to run with highest privileges or under a specific user account. Select the Triggers tab, click New, and configure an interval.

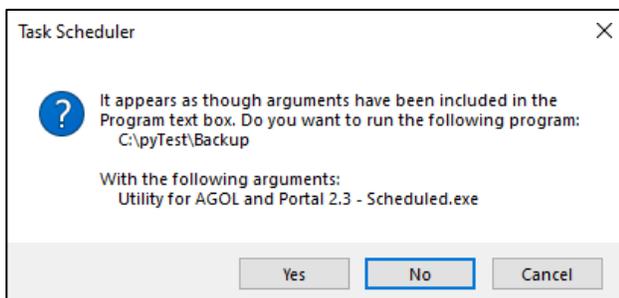


If you wish to see a console window showing progress while the application runs, you must select "Run only when user is logged on". Otherwise, the application will run non-interactively (in the background).

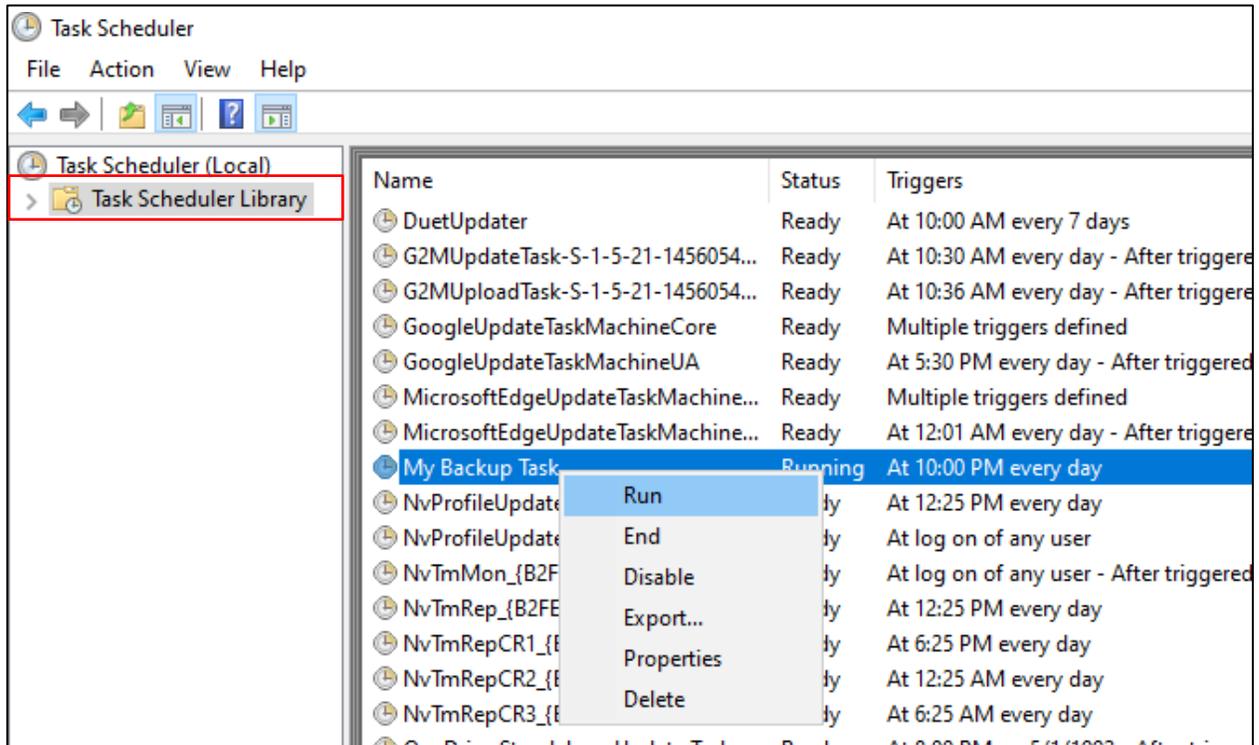
6. Select the Action tab, click New, then click Browse and select the Backup Utility application.
7. IMPORTANT: Enter your working directory (the directory where you put the exe and parameters.xlsx) in the 'Start In' field:



*If the following message appears, it's because the exe name or path has spaces. Click Cancel, rename the exe and/or path to remove spaces, and restart the task configuration.*



8. Select your preferences on the Conditions and Settings tabs. On the Settings tab, under "If the task is already running, then the following rule applies", it's advisable to select "Run a new instance in parallel."
9. Click Task Scheduler Library in the upper left. Your tasks will appear in the top pane in the main Task Manager window. Find your new task, right-click and select Run to test it. The application should start in about 30 seconds. If it fails to start, see the Troubleshooting section above.



**IMPORTANT**

Depending on your task configuration (see Step 4), you may or may not see a console window appear during the process. If you do see a console window, it's best to leave it alone while it's running. If you do interact with it, note the following:

If you click anywhere or select text in the console window, it may pause the process/console window output (this is a Windows feature) until you press the Escape key or right-click anywhere in the window. While the backup is running, do not try to copy text from the console window using CTRL-C, as this is a standard Windows command that may interrupt part of the process.

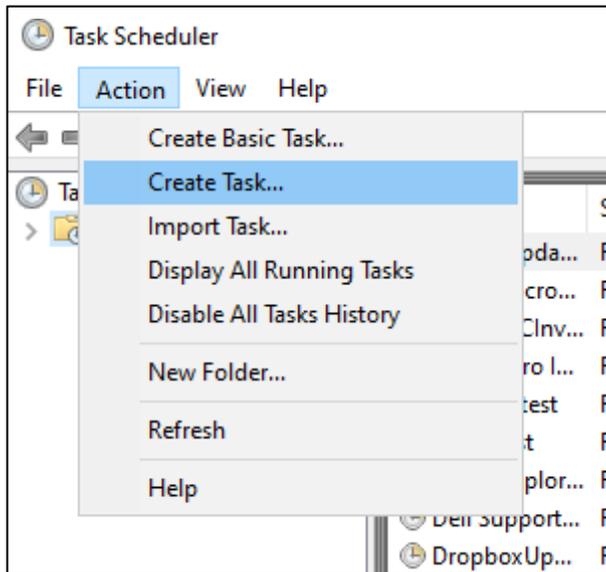
## Using the --flag argument to specify the parameters file

As of Version 4.4.0, you can now explicitly pass a path to your parameters file, which can have any name as long as it's an XLSX or CSV file. **Do not use spaces in the name of the parameters file or the path.** This is useful if you want to set up multiple backup configurations.

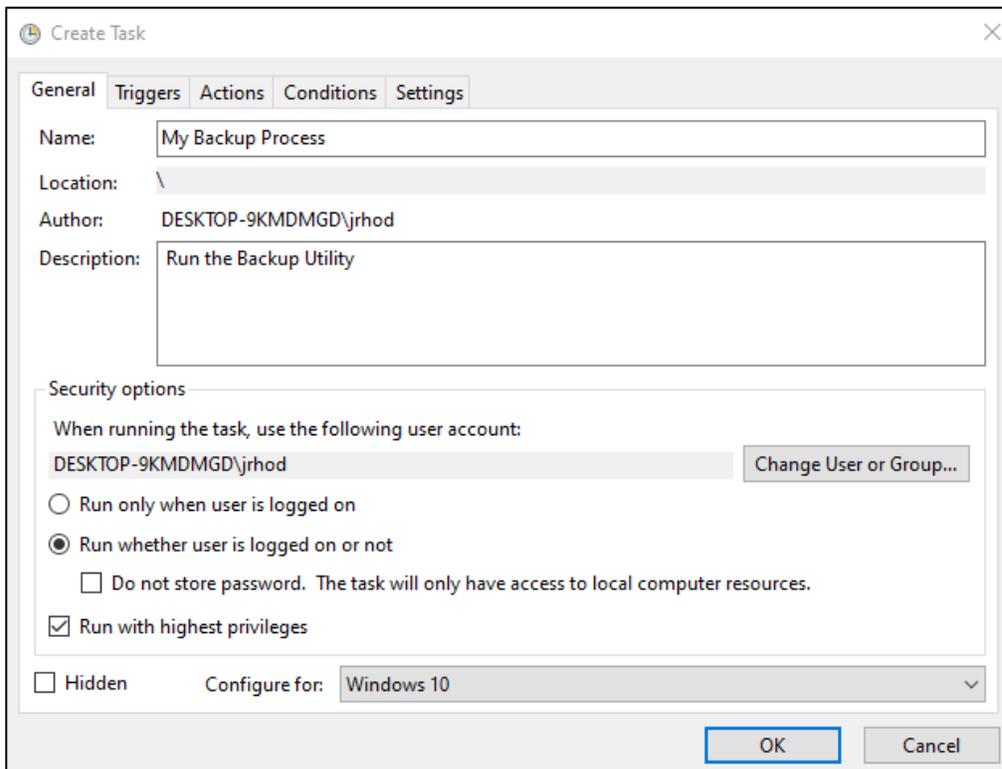
1. Download the application and the [parameters.xlsx](#) file. You can put the parameters file anywhere you like, and you can keep multiple parameters files in the same folder.
2. Open the parameters file and enter your parameters. *If you would like to store your ArcGIS password in Windows Credential Manager instead of directly in the spreadsheet, see Page 21. This is highly recommended.*

Unless you have a parameters file named parameters.xlsx or parameters.csv in the same folder as the application, you **must** provide an argument to specify the path to the parameters file, or the application will do nothing.

3. Open Task Scheduler and click Action > Create Task:

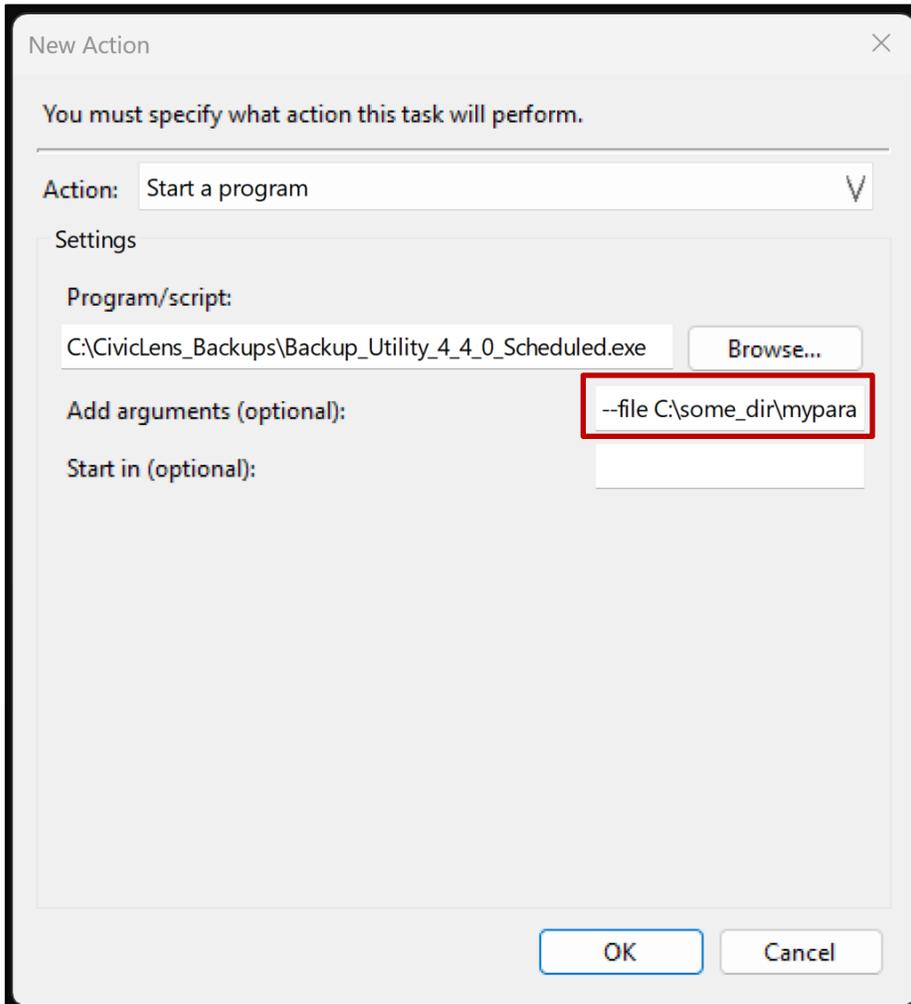


4. On the General tab, provide a name and description, and select your security options. Configuring your security options as shown below is ideal, although your overall machine settings will dictate whether you need to run with highest privileges or under a specific user account. Select the Triggers tab, click New, and configure an interval.

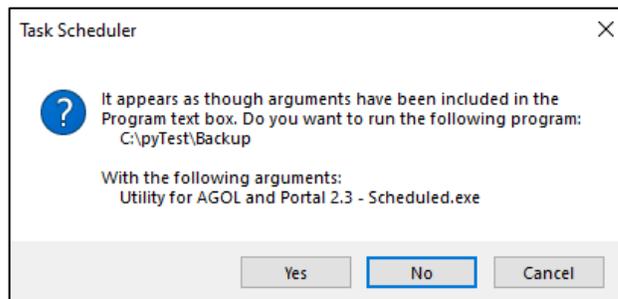


If you wish to see a console window showing progress while the application runs, you must select "Run only when user is logged on". Otherwise, the application will run non-interactively (in the background).

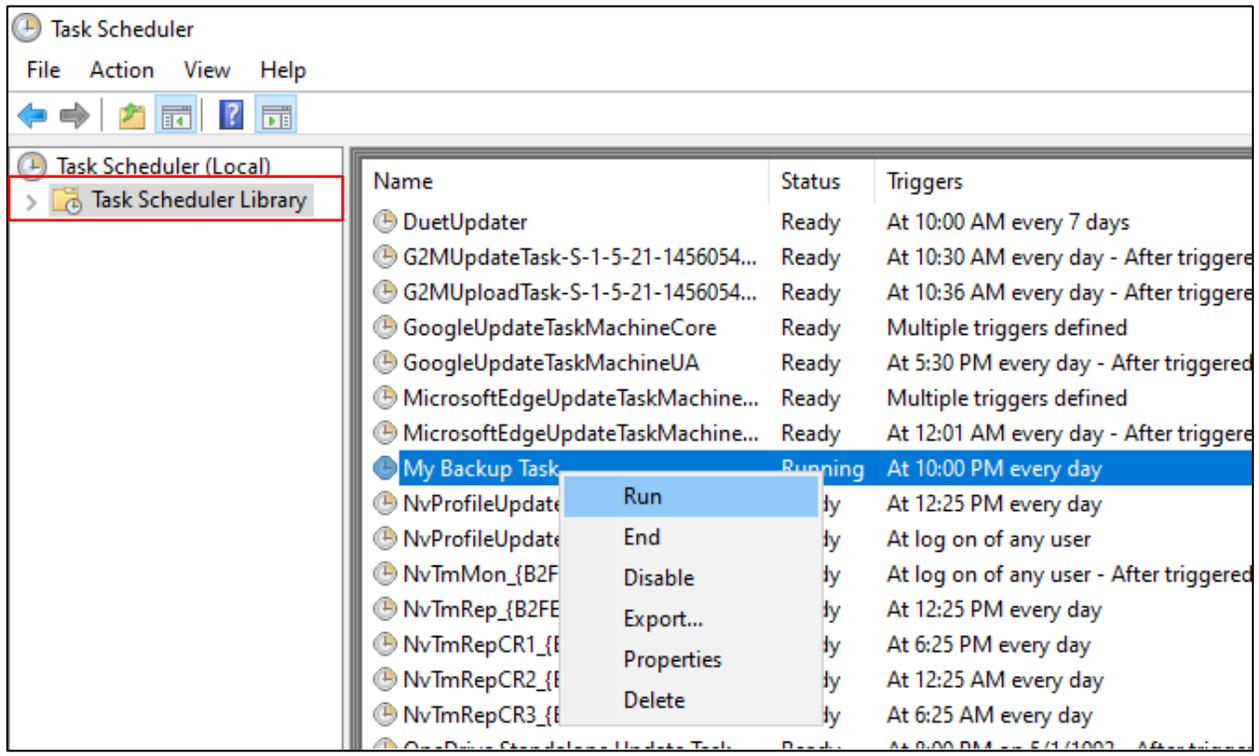
5. Select the Action tab, click New, then click Browse and select the Backup Utility application.
6. IMPORTANT: In the Add arguments box, enter **--file C:\Path\To\Your\Parameters\File.xlsx (or csv)**. You must avoid spaces in the file name and the path. Note the double dash before "file".



*If the following message appears, it's because the exe name, parameters file name, or path has spaces. Click Cancel, rename the exe and/or path to remove spaces, and restart the task configuration.*



7. Select your preferences on the Conditions and Settings tabs. On the Settings tab, under "If the task is already running, then the following rule applies", it's advisable to select "Run a new instance in parallel."
8. Click Task Scheduler Library in the upper left. Your tasks will appear in the top pane in the main Task Manager window. Find your new task, right-click and select Run to test it. The application should start in about 30 seconds. If it fails to start, see the Troubleshooting section above.



**IMPORTANT**

Depending on your task configuration (see Step 4), you may or may not see a console window appear during the process. If you do see a console window, it's best to leave it alone while it's running. If you do interact with it, note the following:

If you click anywhere or select text in the console window, it may pause the process/console window output (this is a Windows feature) until you press the Escape key or right-click anywhere in the window. While the backup is running, do not try to copy text from the console window using CTRL-C, as this is a standard Windows command that may interrupt part of the process.

# Storing ArcGIS Password in Windows Credential Manager

You can enter your ArcGIS credentials directly in the parameters.xlsx file, or you can choose to store them in Windows Credential Manager by doing the following:

1. Open Windows Credential Manager, Select Windows Credentials, and click 'Add a generic credential'.
2. Enter your connection URL in the 'Internet or network address' field, provide your ArcGIS credentials, and click OK.

Type the website address and your credential information

Make sure that the user name and password that you type can be used to access the location.

Internet or network address:

User name:

Password:

3. In parameters.xlsx, enter "wcm" (lowercase, without quotes) for your ArcGIS password. The ArcGIS Username in cell B4 must match **exactly (including case)** the username provided to Windows Credential Manager.

URL or ArcGIS Online short name	https://civiclens-demo.maps.arcgis.com
ArcGIS Username	some_user.user
ArcGIS Password	wcm

## IMPORTANT:

- Values must match exactly and are case sensitive.
- The user running the scheduled task must have access to your credentials store (if using a service account, for example).

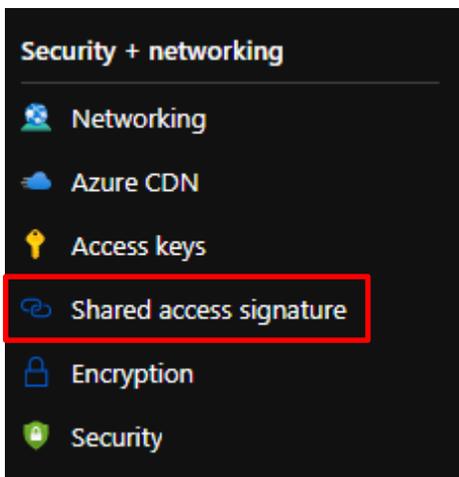
# Transferring backups to Azure Blob storage

The process described below applies only to the Azure Blob versions of the Backup Utility, available at <https://civiclens.com/downloads>.

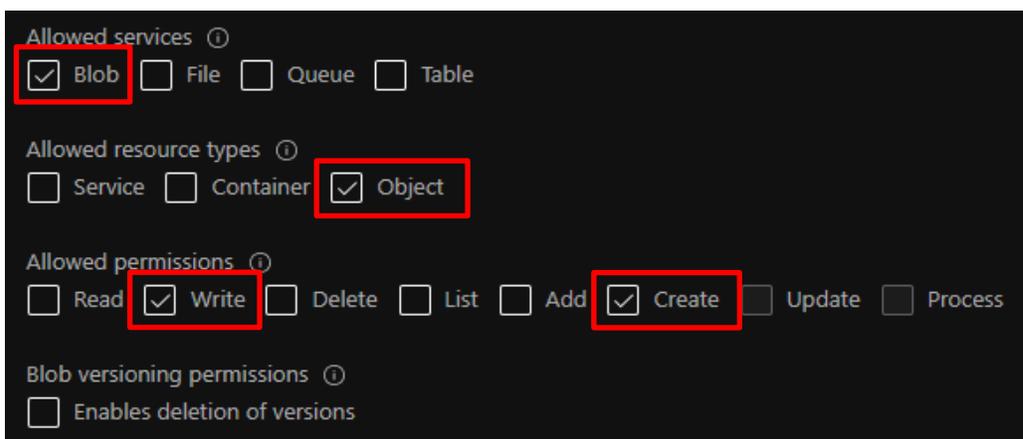
## Generate a connection string in Azure portal

A connection string is how the Backup Utility authenticates to your Azure storage container and defines the service endpoint for the container. Although you may use your Azure account's generic connection string, you may wish to configure one with minimal (upload-only) access by using a Shared Access Signature (SAS), which is described here:

1. Log into Azure portal in your browser and navigate to Storage Accounts → [your\_storage\_account].
2. In the list on the left, under Security + Networking, select Shared Access Signature:



3. Set Allowed Services, Allowed Resource Types, Allowed Permissions, and Blob Versioning Permissions as shown below:



4. Set an expiry date/time as desired. Note that the expiry defaults to 8 hours from the present time, so you'll probably want to extend this to keep from having to constantly regenerate a connection string.
5. Select a Signing Key\* or accept the default, then click Generate SAS and Connection String.
6. A generated connection string will appear. Copy the string and provide it to the Backup Utility in the appropriate field.

\*If you or another Azure administrator regenerates the key used to sign the connection string, the string will no longer work, and a new connection string will need to be generated. This is an Azure security feature.

If this occurs, you'll see an "authentication failed/signature did not match" error in the console window, Full\_log.log, Results.txt, and the confirmation email (if you've configured your parameters to receive emails), and a local copy of your backup will be retained.

### Storing Azure Credentials in Windows Credential Manager - Backup Utility v3.9.2 or later (scheduled version only)

You can enter your Azure connection string directly in the parameters.xlsx file, or you can choose to store it in Windows Credential Manager by doing the following:

1. Open Windows Credential Manager, Select Windows Credentials, and click 'Add a generic credential'.
2. Enter 'CIVICLENS\_AZURE' in the 'Internet or network address' field.
3. Enter your container name in the User name field.
4. Copy your connection string to the Password field.

Type the website address and your credential information

Make sure that the user name and password that you type can be used to access the location.

Internet or network address:

User name:  ← Must match Cell B24

Password:  ← Your Azure connection string

5. In parameters.xlsx, enter "wcm" (without quotes) for your Azure connection string.