

# HydroAdd Workflow

Michael Tinker 4/30/2020

The Hydrography Addressing Tool (HydroAdd) is a website built by the USGS National Geospatial Program (NGP). It is a platform which allows users to address (make coincident, or reference) their own data to the National Hydrography Dataset (NHD). Users must make their geospatial data available as a web feature service, either from their own server hardware or from a third-party service such as Esri ArcGIS Online (AGOL). The owner of the service layer grants editing permission to other users at the level of the service layer. For example, AGOL allows the owner of the service layer to grant editing permissions to specific users. HydroAdd honors the editing permissions set by the owner of the service layer. HydroAdd then 'consumes' the service from AGOL and displays it in the browser for editing, along with a read-only NHD layer. In this way, a team of users with editing permission can work on common projects with HydroAdd.

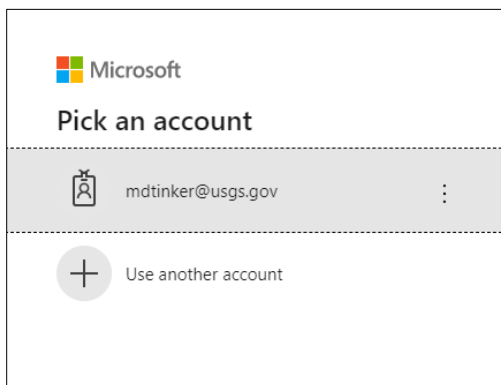
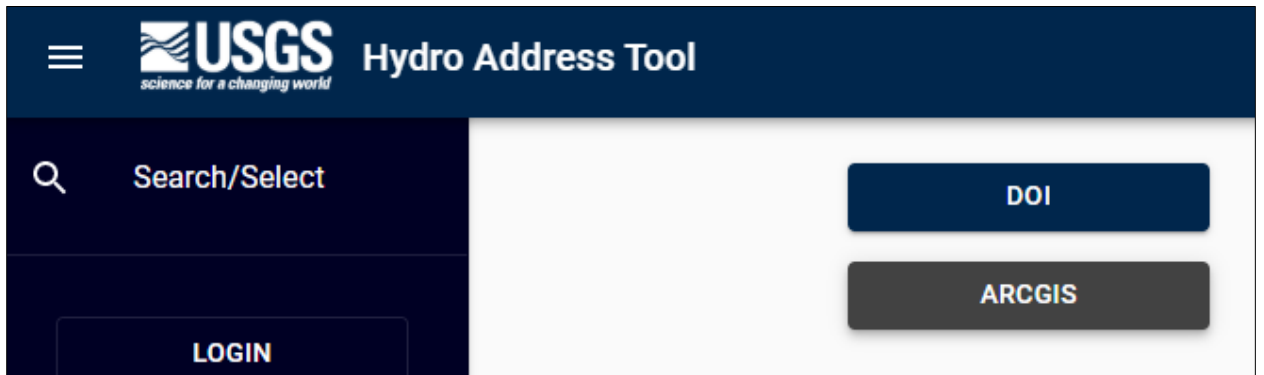
In summary, HydroAdd allows permitted users to update attributes and to edit the geometry of features in a service layer to be coincident with NHD features. Users cannot edit the NHD; it is only a reference layer for display in HydroAdd.

Users will be Federal employees, such as USGS or other DOI employees; or members of the public, such as state, academic, or other users with knowledge of GIS and knowledge of how to create a web feature service.

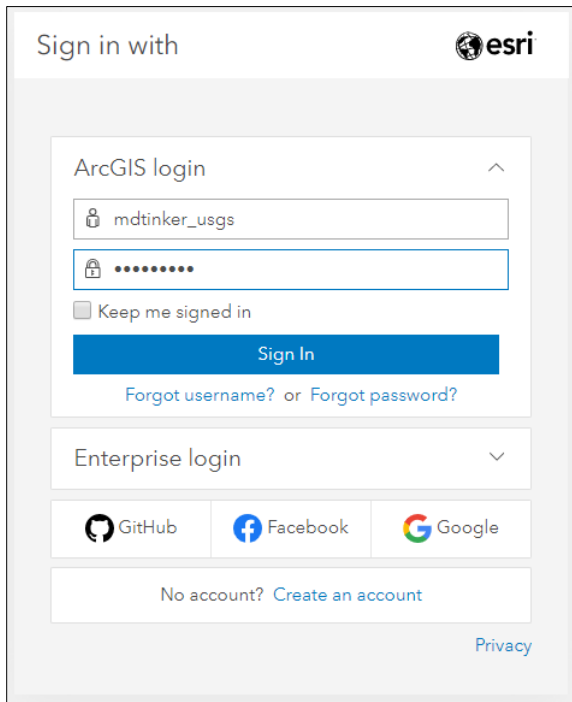
USGS HydroAdd Administrators are a limited group of the USGS NHD Partner Support Team. HydroAdd Administrators must be able to contact users directly in case there are issues with the functioning of HydroAdd that could affect the users' editing work, issues with their user role assignments, problems with their data, or other issues with HydroAdd.

## Login

1. Users log in with an existing DOI or Esri ArcGIS Online account.



2. If a user has added a web feature service from Esri Arc GIS Online (AGOL), HydroAdd prompts the user for one additional authorization for Esri login credentials.



The screenshot displays the Esri login interface. At the top, it says "Sign in with" followed by the Esri logo. Below this, there are two main sections: "ArcGIS login" and "Enterprise login".

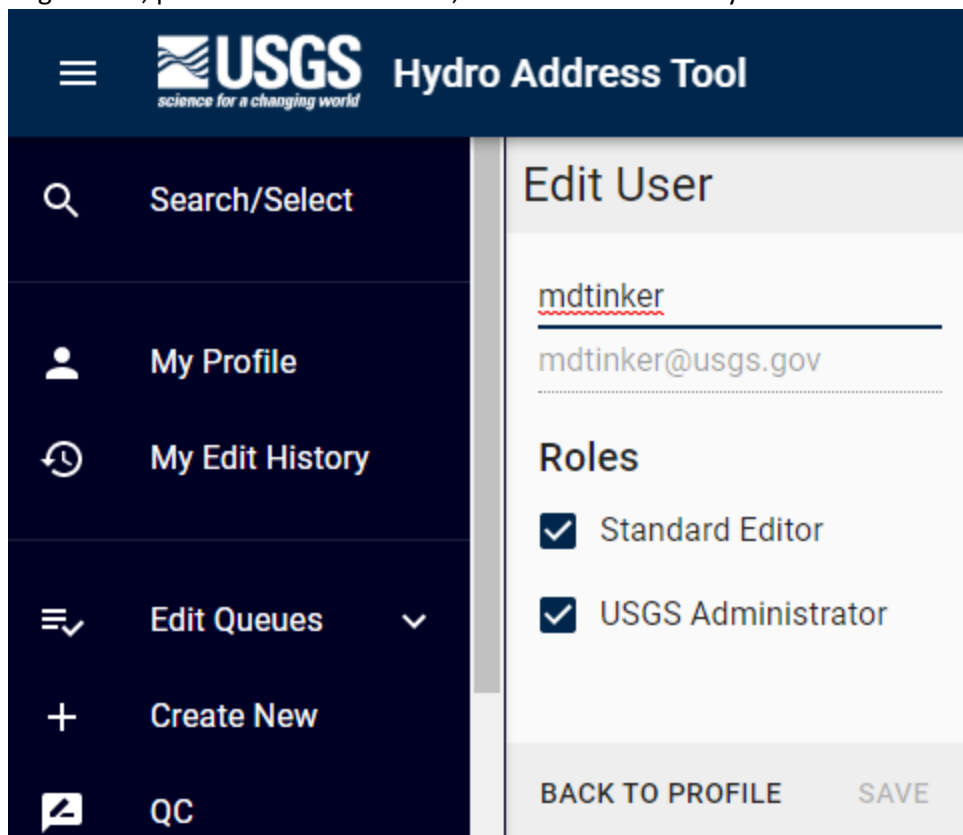
The "ArcGIS login" section includes a username field with the text "mdtinker\_usgs", a password field with masked characters "\*\*\*\*\*", a checkbox for "Keep me signed in", a blue "Sign In" button, and links for "Forgot username?" and "Forgot password?".

The "Enterprise login" section features three social login options: GitHub, Facebook, and Google. Below these is a link for "No account? Create an account" and a "Privacy" link at the bottom right.

## User Profile

After login, users have the option to add a username to their user profile, but this is not required. Recommendation to users is to use a simple username, or nickname, but not full names.

- Standard Editors can view their own profile, but not the profiles of other users.
- Standard Editors can view the edits that have occurred in their service layer by other users but cannot determine which users performed the edits.
- USGS HydroAdd Administrators can view the profiles of all users.
- USGS HydroAdd Administrators can also view editing activity of all users, by username and email.
- USGS HydroAdd Administrators are a limited group of the USGS NHD Partner Support Team . HydroAdd Administrators must be able to contact users directly in case there are issues with the functioning of HydroAdd that could affect the users' editing work, issues with their user role assignments, problems with their data, or other issues with HydroAdd.



## Workflow for creating or updating the web service layer with HydroAdd

HydroAdd allows users to address their own data to the NHD. HydroAdd displays the user's web feature service from AGOL, along with the NHD. Users update their own data with HydroAdd to make their data coincident to the NHD features. Users can only edit their own data as it exists in their own web feature service. Users cannot edit the NHD; it is only a reference layer for display in the HydroAdd.

## Add a service layer from ArcGIS Online

1. User adds a service layer from AGOL

### Add a New Service

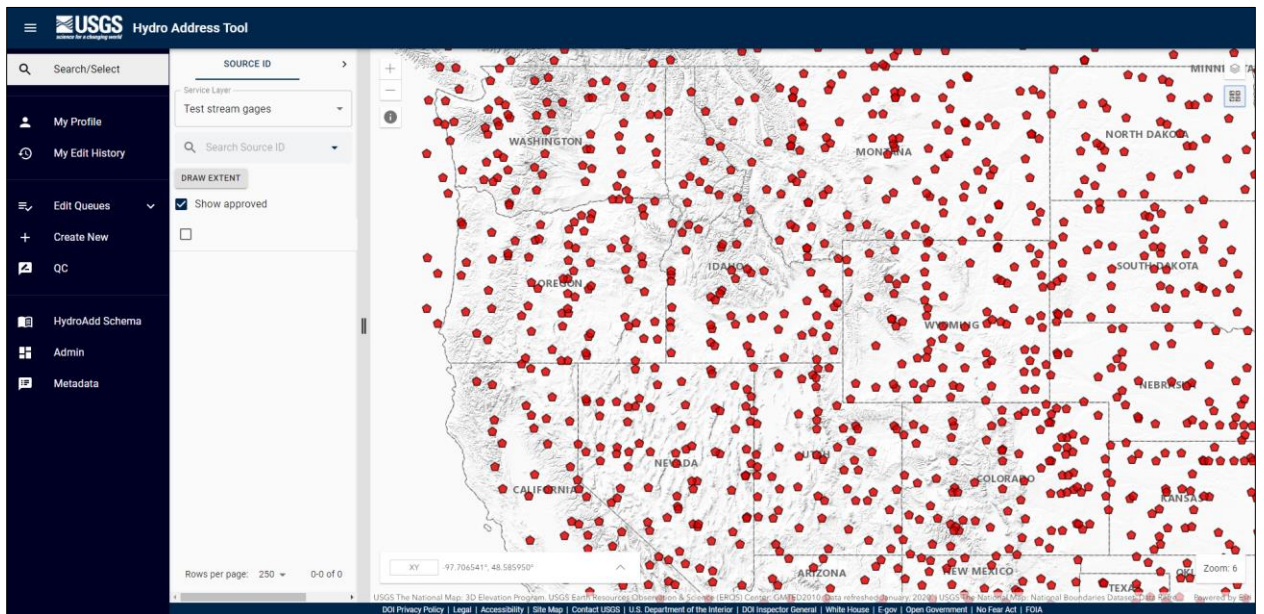
Nickname \*  
Test stream gages

Service URL \*  
https://services.arcgis.com/v01gqwM5QqNysAAi/arcgis/rest/services/

Visible

CANCEL SUBMIT

2. User's AGOL service layer data becomes visible in HydroAdd.



3. Users select data they wish to add to an edit queue.

**USGS** science for a changing world **Hydro Address Tool**

Search/Select

- My Profile
- My Edit History
- Edit Queues
- Create New
- QC
- HydroAdd Schema
- Admin
- Metadata

**SOURCE ID**

Service Layer: Test stream gages

Search Source ID

DRAW EXTENT CLEAR EXTENT

Show approved

<input type="checkbox"/>	2020		
<input type="checkbox"/>	25	Edit	
<input type="checkbox"/>	2599		
<input type="checkbox"/>	4667		
<input type="checkbox"/>	4699		

The map displays a topographic terrain view with several red pentagonal markers scattered across the landscape. A rectangular orange box highlights a specific area, which is shown in a zoomed-in view below. This zoomed view contains several circular markers: five green circles and one blue circle, all positioned within the orange boundary.

# Edit Service Layer

1. Users then edit the items in the queue.

The screenshot shows the USGS Hydro Address Tool interface. On the left is a navigation sidebar with options: Search/Select, My Profile, My Edit History, Edit Queues (selected), Create New, QC, HydroAdd Schema, Admin, and Metadata. The main panel is titled "Hydro Address Tool" and displays "Edit Queue Name: Test gages" and "Service Layer: Test stream gages". Below this is a "DELETE EDIT QUEUE" button and a search filter for "Filter by Source ID". A list of items in the queue is shown, each with a checkbox and a "Test gages" label. The list includes items with Source IDs 2020, 2597, 2599, 4667, 4699, 4701, and 4967. At the bottom of the list, it says "Rows per page: 10" and "1-7 of 7". To the right of the list is a map of the Pacific Northwest region, showing counties such as Mason Co, Thurston Co, Pierce Co, Grays Harbor Co, Pacific Co, Lewis Co, Washington, Wapikakum Co, Cowlitz Co, Skamania Co, Clatsop Co, and Clark Co. The map shows several green dots representing test gages and red dots representing other features. A coordinate box at the bottom of the map shows "XY -123.562864°, 46.562905°".

The screenshot shows the USGS Hydro Address Tool interface with the details of a specific hydro address. The left sidebar is the same as in the previous screenshot. The main panel is titled "Hydro Address Tool" and displays the details for a hydro address with ID "57003" and "Address Date 4/29/2020 8:48:14 am". The details are organized into several sections:

- Feature Information:** FeatureType: 57003, On Network: No, Source ID: 09CB002, Source Agency: WATER SURVEY OF CANAD., Source Dataset: HYDAT Database, format : n, Source Feature URL: https://wateroffice.ec.gc.ca/
- Catchment:** Catchment: HU, Reach Code: 19070402020109, Measure: 72.77861, Reach SM Date: 10/22/2018 4:31:09 am
- Reach Information:** Original Reach Code: 0/14, Original Measure: 0, Original RC Match: No
- QC Information:** Snap Tolerance: 0, In QC Tolerance: No, QC Approved: Yes

On the right side of the details panel is a map showing a blue river network with a red dot indicating the location of the hydro address.

- When the user is done editing their data with HydroAdd, they can retrieve their data from AGOL.

The screenshot displays the ArcGIS Online interface for a user named Michael Tinker (mdtinker\_USGS). The browser address bar shows the URL: [usgs.maps.arcgis.com/home/item.html?id=26e54e6a513345bf954141add79b648f](https://usgs.maps.arcgis.com/home/item.html?id=26e54e6a513345bf954141add79b648f). The main content area shows the item details for 'HydroAddQC2', which is a Feature Layer (hosted) by mdtinker\_USGS. The item was created on Mar 22, 2020, updated on Mar 23, 2020, and has a view count of 30. The 'Layers' section lists two layers: 'HydroAddressPointswithQC2500RandomV10' and 'HydroAddressPoints5000RandomV9'. Both layers have an 'Export To' dropdown menu highlighted with a red box. On the right side, the 'Export Data' option in the 'Export Data' dropdown menu is also highlighted with a red box. The 'Details' section shows the source as 'Feature Service', created from 'HydroAddQC2', with a service definition data last updated on Apr 3, 2020, at 12:37:11 PM, and a size of 2 MB. The item has a rating of five stars.



## Administrator Functions

USGS Administrators of HydroAdd can view all user profiles in the Admin panel, including username, user email, and their associated service layers.

The screenshot shows the USGS Hydro Address Tool Admin panel. The top navigation bar includes the USGS logo and the title 'Hydro Address Tool'. Below the navigation bar, there are four summary cards: '10 Total Users', '35 Feature Additions', '615 Feature Edits', and '11 Feature Deletions'. The main content area is divided into two sections. The upper section is a table of feature modifications, and the lower section is a table of user profiles.

Feature Modification	Date	Source ID	User	Service Uri
<a href="#">Edit</a>	03-03-2020	13270800	Alex	<a href="https://services.arcgis.com/v01ggwM50qNysAAI/arcgis/rest/services/HydroAdd_data/FeatureServer/0">https://services.arcgis.com/v01ggwM50qNysAAI/arcgis/rest/services/HydroAdd_data/FeatureServer/0</a>
<a href="#">Edit</a>	03-03-2020	13270800	Alex	<a href="https://services.arcgis.com/v01ggwM50qNysAAI/arcgis/rest/services/HydroAdd_data/FeatureServer/0">https://services.arcgis.com/v01ggwM50qNysAAI/arcgis/rest/services/HydroAdd_data/FeatureServer/0</a>
<a href="#">Edit</a>	03-03-2020	13270800	Alex	<a href="https://services.arcgis.com/v01ggwM50qNysAAI/arcgis/rest/services/HydroAdd_data/FeatureServer/0">https://services.arcgis.com/v01ggwM50qNysAAI/arcgis/rest/services/HydroAdd_data/FeatureServer/0</a>
<a href="#">Edit</a>	03-03-2020	13289500	Alex	<a href="https://services.arcgis.com/v01ggwM50qNysAAI/arcgis/rest/services/HydroAdd_data/FeatureServer/0">https://services.arcgis.com/v01ggwM50qNysAAI/arcgis/rest/services/HydroAdd_data/FeatureServer/0</a>
<a href="#">Edit</a>	03-03-2020	12334510	mdtinker_gmail	<a href="https://services.arcgis.com/v01ggwM50qNysAAI/arcgis/rest/services/HydroAddDC/FeatureServer/0">https://services.arcgis.com/v01ggwM50qNysAAI/arcgis/rest/services/HydroAddDC/FeatureServer/0</a>
<a href="#">Edit</a>	03-03-2020	12340000	mdtinker_gmail	<a href="https://services.arcgis.com/v01ggwM50qNysAAI/arcgis/rest/services/HydroAddDC/FeatureServer/0">https://services.arcgis.com/v01ggwM50qNysAAI/arcgis/rest/services/HydroAddDC/FeatureServer/0</a>
<a href="#">Edit</a>	03-04-2020	12334000	mdtinker	<a href="https://services.arcgis.com/v01ggwM50qNysAAI/arcgis/rest/services/HydroAddDC/FeatureServer/0">https://services.arcgis.com/v01ggwM50qNysAAI/arcgis/rest/services/HydroAddDC/FeatureServer/0</a>
<a href="#">Edit</a>	03-04-2020	1000562	mdtinker	<a href="https://services.arcgis.com/v01ggwM50qNysAAI/arcgis/rest/services/HydroAddDC/FeatureServer/3">https://services.arcgis.com/v01ggwM50qNysAAI/arcgis/rest/services/HydroAddDC/FeatureServer/3</a>
<a href="#">Edit</a>	03-04-2020	1000562	mdtinker	<a href="https://services.arcgis.com/v01ggwM50qNysAAI/arcgis/rest/services/HydroAddDC/FeatureServer/3">https://services.arcgis.com/v01ggwM50qNysAAI/arcgis/rest/services/HydroAddDC/FeatureServer/3</a>
<a href="#">Edit</a>	03-05-2020	4700992	mdtinker	<a href="https://services.arcgis.com/v01ggwM50qNysAAI/arcgis/rest/services/HydroAddDC/FeatureServer/3">https://services.arcgis.com/v01ggwM50qNysAAI/arcgis/rest/services/HydroAddDC/FeatureServer/3</a>

User Display Name	Contact Email	Created At	Last Login Time
mdtinker_gmail	mdtinker@gmail.com	03-03-2020	04-30-2020
michaeltinker	michaeltinker@outlook.com	03-24-2020	03-26-2020
mdtinker	mdtinker@usgs.gov	03-04-2020	04-30-2020
joe-gov	jpantoga@usgs.gov	03-03-2020	04-23-2020

Administrators can also search for users by username.

The screenshot shows the USGS Hydro Address Tool Admin panel with the 'USERS' tab selected. A search bar is visible with the text 'Search users'. Below the search bar, a table lists the users and their creation dates.

Display name	Created
mdtinker_gmail	Tue, Mar 3, 2020 1:40 PM
michaeltinker	Tue, Mar 24, 2020 3:18 PM
mdtinker	Wed, Mar 4, 2020 8:23 AM
joe-gov	Tue, Mar 3, 2020 8:25 AM