GEOCOMM

GeoComm GIS Data Hub User Guide

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PUBLIC SAFETY GIS SIMPLIFIED

Corporate Information

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Get Started

Our powerful GeoComm GIS Data Hub is a GIS data management solution that provides functionality to check data quality of your GIS data and convert the data to a standardized format to ensure the timely delivery of GIS data to your 9-1-1 system. Using GeoComm's GIS Data Hub ensures higher accuracy of the data and helps you meet your obligated GIS responsibilities for NG9-1-1.

GIS Data Hub is designed to simplify the user experience. Your system administrator grants access to only content specific to your role and authorized collection(s) and organization(s).

As a GIS Data Hub user, it's a good idea to familiarize yourself with the following information.

Workspace

GIS Data Hub workspace is intuitive to use and provides multiple options for uploading your data files. Get to know the key parts of the workspace. See **"Explore the Workspace" on page 6**.

Select a Collection and an Organization

Select the collection and organization for the data you are uploading. The collection and organization page appears only when you have permissions to more than one collection and/or organization. See **"Select a Collection or an Organization" on page 10**.

Log in and log out

To log in, enter your user name and password in the application's log in page. For additional information on how to log in the first time, password requirements, or how to reset a forgotten password, see **"Log In and Log Out" on the next page**.

To logout, click and Logout.

Use GIS Data Hub with other applications

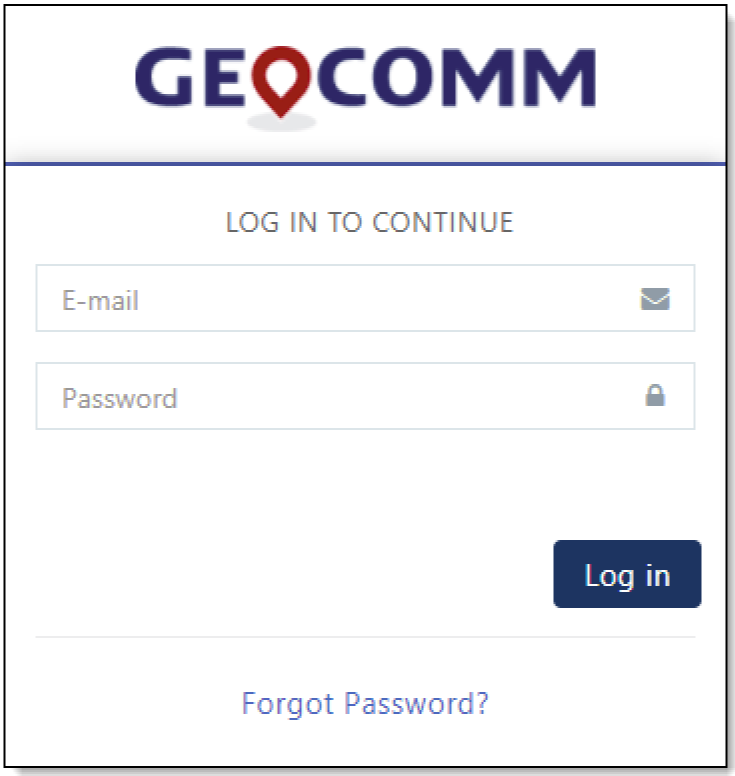
GIS Data Hub integrates with other software applications to assist you in achieving quality GIS data used for these services. Currently, the application is used for meeting NG9-1-1 requirements for ECRF provisioning systems. Specifically, GeoComm’s ECRF, which supports incremental provisioning through an SI Feed with SI Monitor. See **"GIS Data Hub Spatial Interface Functionality" on page 10**.

Log In and Log Out

Follow the information below when logging in or out of the application.

Log in to the application

1. Navigate to the application.
2. In the login window, enter the e-mail used in the application in the **E-mail** field.



3. In **Password**, enter your password.
4. Click **Log in**.

Log in for the first time

When a user is created, a welcome e-mail is sent to the e-mail address added for the user. Complete the following to create a password.

1. From the **Welcome** e-mail, click link in your e-mail to open the **Welcome** log in window.
2. In **Password**, enter your password.

Passwords must be at least 8 characters long, include 1 uppercase letter, 1 special character, and one number.

3. In **Confirm Password**, re-enter the password.
4. Click **Submit**.

A message confirming your account was created appears.

5. Click **Return to Log in** to log in.

Password requirements

Passwords must meet these minimum requirements: 8 characters long, 1 uppercase letter, 1 special character, and 1 number.

Reset a forgotten password

If you have forgotten your password complete the following to reset your password.

1. From the log in window, click the **Forgot Password?** link.
2. In **E-mail**, enter the e-mail used for the application.
3. Check the I'm not a robot check box and complete the verification process.
4. Click **Verify**.
5. Click **Submit**.

An e-mail is sent with a link to reset your password. The link is valid for 24 hours.

Logout of the application

1. To log out, click  and 

.
2. In the verification window that appears, click **Yes**.

*When you use **Logout**, the session cache is immediately removed, allowing another user to log in. If you just close the browser window, there is a delay before the cache is removed, preventing a different user from logging in immediately.*

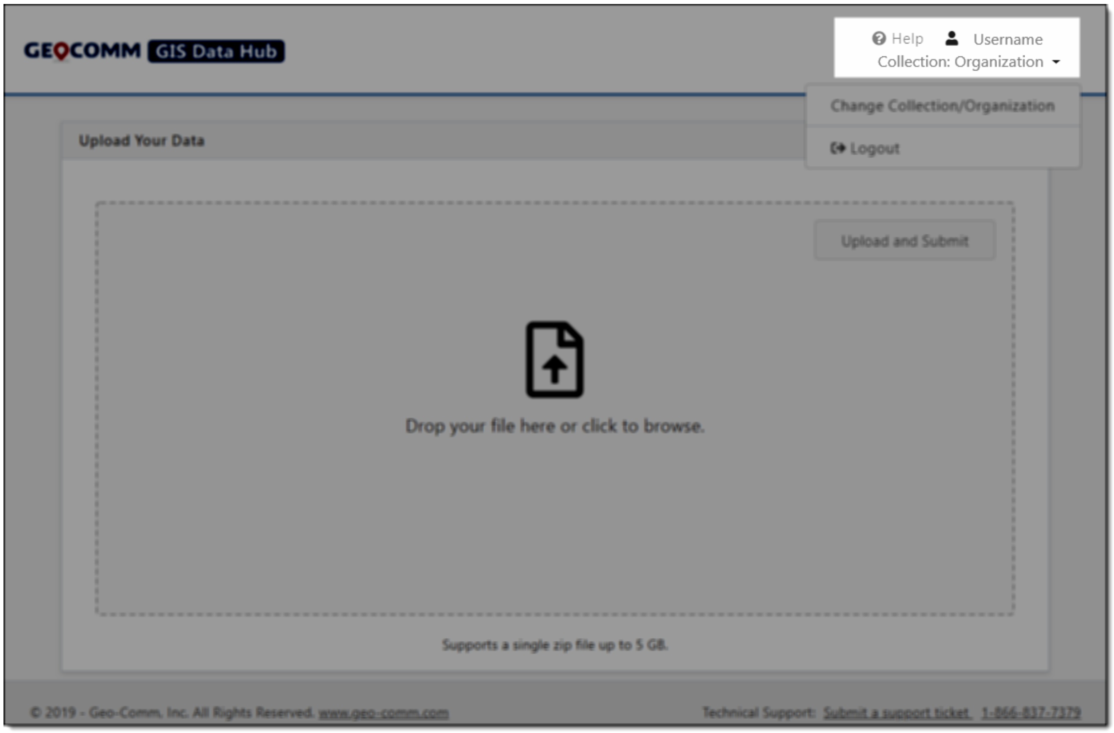
Explore the Workspace

The GIS Data Hub workspace includes functionality to upload mapdata files for processing, user information, the collection and organization you are working with, a link to view on-line help, and the ability to change the collection or organization.

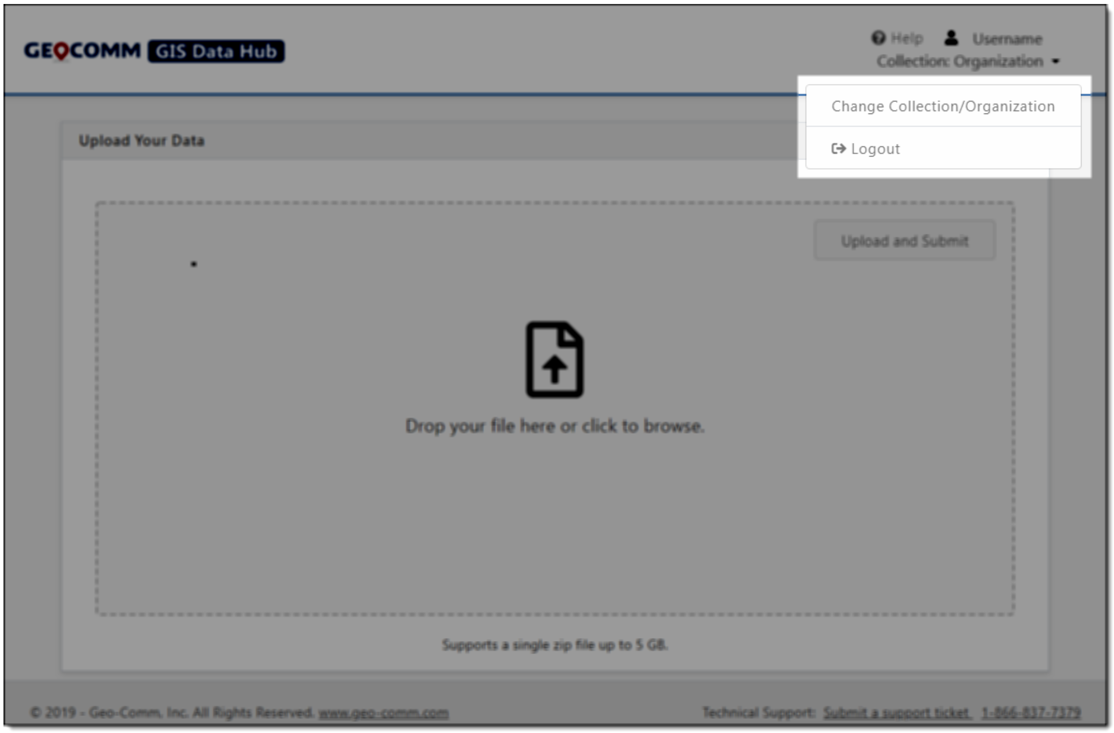
> **Note:** Your permissions determine the collections and organizations you have access to when using the application, therefore, options to select a different collection and organization may not be available.

The applications workspace consists of the following sections.

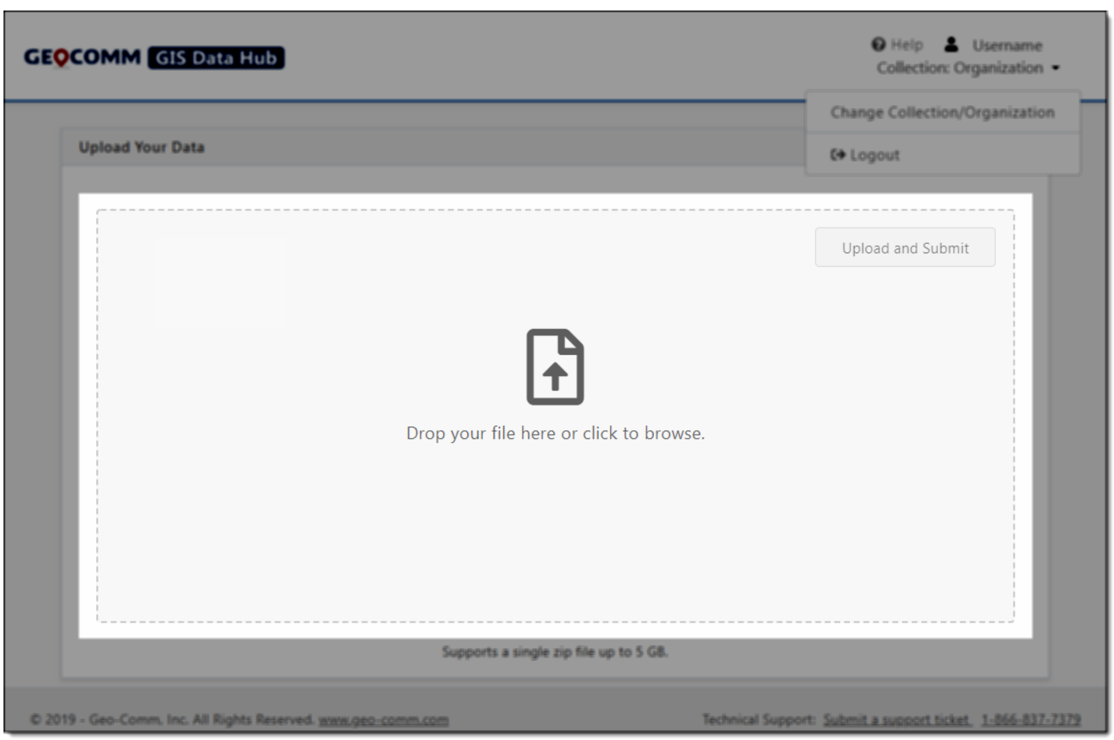
- **User Menu** This is the location to view user information, the collection and organization you are working with, and access user help.



- **User Menu Drop-down** Use this drop-down to log out of the application. When authorized for more than one collection or organization, you have the option to change your collection and/or organization. See **"Log In and Log Out" on page 5** and **"Change Your Collection or Organization" on page 13**.



- The **Upload Your Data** section consists of the **File Drop Zone**. This section is used to drop your data file to upload and submit for processing. See **"Upload Your Data" on page 12**.

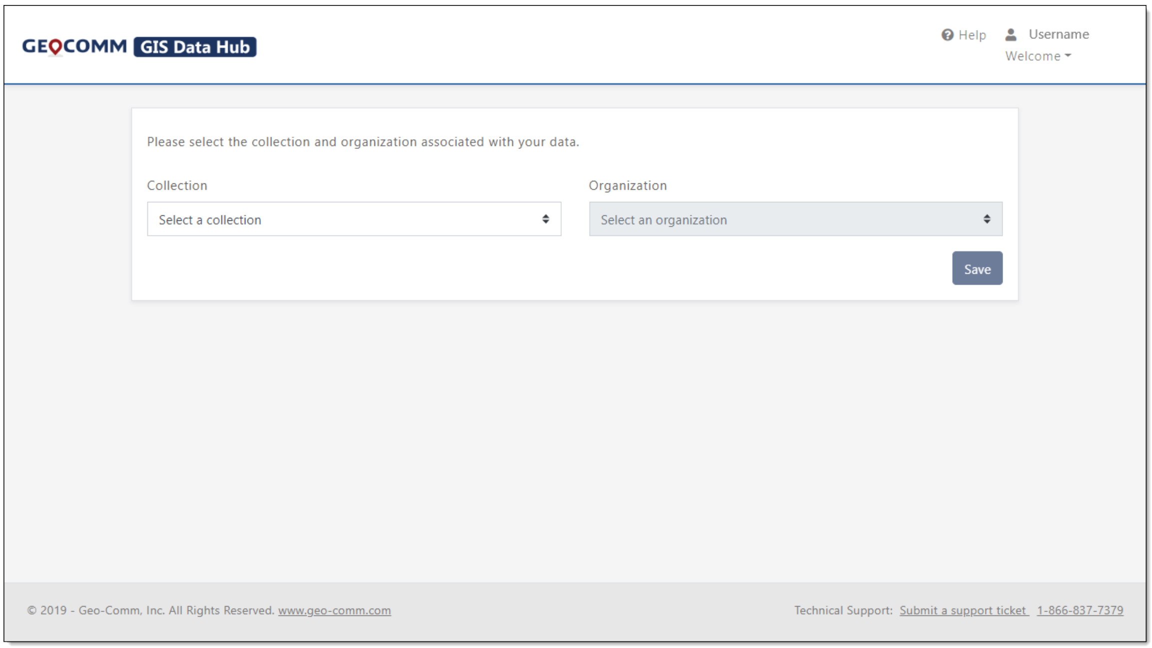


Select a Collection or an Organization

If you have permissions to multiple collections and/or organizations, when you log in to the application, the collection and organization selection page appears.

If you are assigned to a single collection and organization, the application defaults to your assigned collection and organization and you do not need to select.

Complete the following to select the collection or organization to use with your data.



1. Under **Collection** click **Select a collection** to expand the drop-down and select a collection for the data file you are uploading.
2. Under **Organization**, click **Select an organization** to expand the drop-down and select an organization for the data file you are uploading.
3. Click **Save**.

   *The **Upload Your Data** page opens.*

GIS Data Hub Spatial Interface Functionality

GIS Data Hub Emergency Call Routing Function (ECRF) provisioning functionality requires an ECRF service to be purchased. Contact GeoComm for information on adding this functionality.

GIS Data Hub can assist you in preparing your data to meet NG9-1-1 requirements for ECRF services required for Next Generation 9-1-1 systems. GIS Data Hub supports incremental provisioning for GeoComm's ECRF through an SI Feed with SI Monitor.

What is an SI Feed? *The SI Feed is a web service, that is NENA i3 compliant with all ECRFs, and reads entries from GIS Data Hub and translates the feed entries into a set of instructions to execute against the ECRF database.*

The following information provides a high-level, overall process for provisioning to an ECRF system using the SI Feed.

1. GIS Data maintainer uploads your updated data.
2. GIS Data Hub ingests data and completes data inventory.
3. GIS Data Hub pulls out changes from the updated data.
4. GIS Data Hub provides changes in the NENA-compliant SI Feed service.
5. ECRF SI Monitor queries the SI feed for updates.
6. When updates are detected, ECRF pulls updates.

For additional information, please contact GeoComm.

Upload Your Data

Upload your existing dataset to quickly, and automatically, run it through a series of predefined quality control checks and transform data schema into a standard data model. Once processed, your GIS professionals can use the results to easily identify where there are opportunities to improve quality in the data.

When uploading data, files should be submitted as a FGDB, and all data must be in a .zip file.

> **Note:** If you are assigned to a single collection and organization, the application defaults to your assigned collection and organization and you do not need to select.

Browse to upload your data files

Complete the following to browse to a location to upload your data file for processing.

1. From the **Upload Your Data** page, click in the **File Drop Zone**.
2. Browse to and select the data file you want to upload.
3. Click **Open**.

   Files should be submitted as a FGDB and all data being submitted must be in a .zip file.

   If the wrong file is selected, click the X for the file being uploaded to remove. Repeat the steps above to select a different file.

4. Click **Upload and Submit**.

   A status bar shows you the progress of the upload. A confirmation message appears once complete.

5. Click **OK**.
6. Repeat the steps above to upload another data file.

Drag and drop to upload your data files

Complete the following to drag and drop the data file you want to upload for processing.

1. Open the application to the **Upload Your Data** page.
2. Locate the data file you want to upload for processing.
3. Drag the data file you want to process and drop the file in the **File Drop Zone**.

   Files should be submitted as a FGDB and all data being submitted must be in a .zip file.

If the wrong file is selected, click the X for the file being uploaded to remove. Repeat the steps above to select a different file.

4. Click **Upload and Submit**.

   A status bar shows you the progress of the upload. A confirmation message appears once complete.

5. Click **OK**.
6. Repeat the steps above to upload another data file.

Change your Collection or Organization

If you are assigned to more than one collection and/or organization, complete the following to select a different collection and/or organization associated with your data.

1. Click the **User Menu** to expand the **User Menu Drop-down**.
2. Select **Change Collection/Organization**.
3. In the **Edit Collection/Organization** pop-up, click **Choose Collection** to expand the drop-down and select a collection for the data file you are uploading.
4. Click **Choose Organization** to expand the drop-down and select an organization for the data file you are uploading.
5. Click **Save**.

   *The **Upload Your Data** window opens.*

Change Your Collection or Organization

If you are assigned to more than one collection and/or organization, complete the following to select a different collection and/or organization associated with your data.

1. Click the **User Menu** to expand the **User Menu Drop-down**.
2. Select **Change Collection/Organization**.
3. In the **Edit Collection/Organization** pop-up, click **Choose Collection** to expand the drop-down and select a collection for the data file you are uploading.
4. Click **Choose Organization** to expand the drop-down and select an organization for the data file you are uploading.
5. Click **Save**.

   *The **Upload Your Data** window opens.*

QC Checks

GIS Data Hub can perform quality control (QC) checks on submitted GIS data to ensure addresses are synchronized, roads are connected, standards are met, errors are identified, and more. When executed, the application begins the process of running a series of quality control checks to ensure current, accurate data.

There are many QC checks that may be processed to ensure data quality. The following is a list of available QC checks that may be processed depending on your specific needs.

Complex Geometry

Identifies records in which the geometry attribution is outside of the normal acceptable geometry to ensure the geometry attribution is valid. See **"Complex Geometry" below**.

Duplicate Values

Identifies where data records occur multiple times in the dataset. See **"Duplicate Values" on page 17**.

Empty Geometry

Identifies records in a feature class with empty geometry records. See **"Empty Geometry" on page 18**.

Multipart Geometry

Identifies geometric objects that contain more than one geometry. See **"Multipart Geometry" on page 19**.

Polygon Compare (Gaps)

Identifies where gaps exist in a polygon boundary layer. See **"Polygon Compare (Gaps)" on page 21**.

Complex Geometry

The **Complex Geometry** quality control (QC) check identifies records in which the geometry attribution is outside of the normal acceptable geometry to ensure the geometry attribution is valid. A complex geometry is identified when false information is returned, features have too many vertices, or the geometry type does not return required values. This information is used to identify geometries which would not be valid for a consuming application and would require repair prior to provisioning.

The Complex Geometry QC check compiles results which fall within each category and provides a total count of these particular instances for identified failure categories, as well as reporting details for the primary key, failure category, failure detail, and failure geometry point.

EXAMPLE

The example below shows possible error messages you may receive when a record passes or fails the **Complex Geometry** QC check.

Error Message	Table	Primary Key
Esbs id:esbs@123 is invalid: Ring Self-intersection	Emergency Service Boundary	esbs@123
RoadCenterline id: roadcenterline@456 is complex, geometry type: ST_MultiCurve	Road Centerline	roadcenterline@456
Auth_Boundary id: authboundary@789 exceeds vertex threshold: 2000000	Authoritative Boundary	authboundary@789

Required QC prerequisites

To run this check, a table in the target or source dataset with spatial geometry attribution is required.

Configure QC parameters

The following parameters can be specifically configured for the Complex Geometry QC check.

- **Data Endpoint** Pre-transformed (source) or a post transformed (target) dataset.
- **Table Names** A mapped table name.
- **Vertices Threshold** An upper to limit the number of vertices a single geometry can contain.
- **Max Errors** Maximum number of errors which render a singular error message.
- **Max Instances** Maximum number of errors grouped by failure category which would result in a single error message for the category.

What does the Complex Geometry QC check output include?

The following is information that is included in this QC check output.

- Client Name/Project Name
- Number of fallouts detected
- Latitude and longitude of a point interpolated from the fallout projected.

- Full table name of the fallout table, primary key of record, fallout category (invalid geometry, nonstandard geometry, and vertex threshold), and a failure detail correlating to the fallout category.

To view a list of common fallout message(s) see **QC Check Fallout Messages** > **"Complex Geometry" on page 23**.

Duplicate Values

The **Duplicate Values** quality control (QC) check identifies where data records occur multiple times in the dataset. Duplicate values may occur when there are several records that contain the same information. The Duplicate Values QC check identifies duplicates by comparing values in your dataset to the other records to identify those containing duplicate information. The results of the check can then be used to resolve duplicate values by removing them or entering the correct data.

EXAMPLE

In this example, the QC check has been configured to check the predirectional, street name, floor, and unit number columns in the Site/Structure Address Point feature class.

Record Number	Predirectional	Street Name	Floor	Unit Number	Result
1	N	First Street	4	413	Duplicate of record 4 – all values match
2	S	First Street	4	413	No duplicates – Predirectional does not match
3	N	First Street	4	414	No duplicates – Unit number does not match
4	N	First Street	4	413	Duplicate of record 1 – all values match

Required QC prerequisites

To run this check, a feature class is required.

Configure QC parameters

The following parameters can be specifically configured for the Duplicate Values QC check.

- The QC check runs on the table(s) and column(s) defined by the consuming product and can be customized to run on any table or column.

What does the Duplicate Values QC check output include?

The following is information that is included in this QC check output.

- Client Name/Project Name
- Latitude and longitude of the point of the fallout
- Number of fallouts detected
- Data endpoint that caused the fallout
- Layer where fallout appears

To view a list of common fallout message(s) see **QC Check Fallout Messages** > **"Duplicate Values" on page 24**.

Empty Geometry

The **Empty Geometry** quality control (QC) check identifies records in a feature class with empty geometry records. Identification of empty geometry is required in order to identify features which should have geometry but do not have a qualifying geometry. This information can then be utilized to identify features which require geometry attribution.

EXAMPLE

This example shows possible error messages that may be received when a record passes or fails the Empty Geometry QC check.

Table	Srcunquid	Error
auth_boundary	auth@123	source auth_boundary srcunqid: auth@123 geometry attribution is null or empty geometry at DataEndpoints SOURCE

Required QC prerequisites

To run this check, a table with geometry attribution is required.

Configure QC parameters

The following parameters can be specifically configured for the Empty Geometry QC check.

- **Data Endpoint** Configure to run on source or target data.
- **Table Names** The QC check operates on all mapped tables with geometry attribution.

What does the Empty Geometry QC check output include?

The following is information that is included in this QC check output.

- Client Name/Project Name
- Number of fallouts detected
- Full table name
- ID of record with empty geometry attribution
- Data endpoint in which the empty geometry was performed upon.

To view a list of common fallout message(s) see **QC Check Fallout Messages** > **"Empty Geometry" on page 24**.

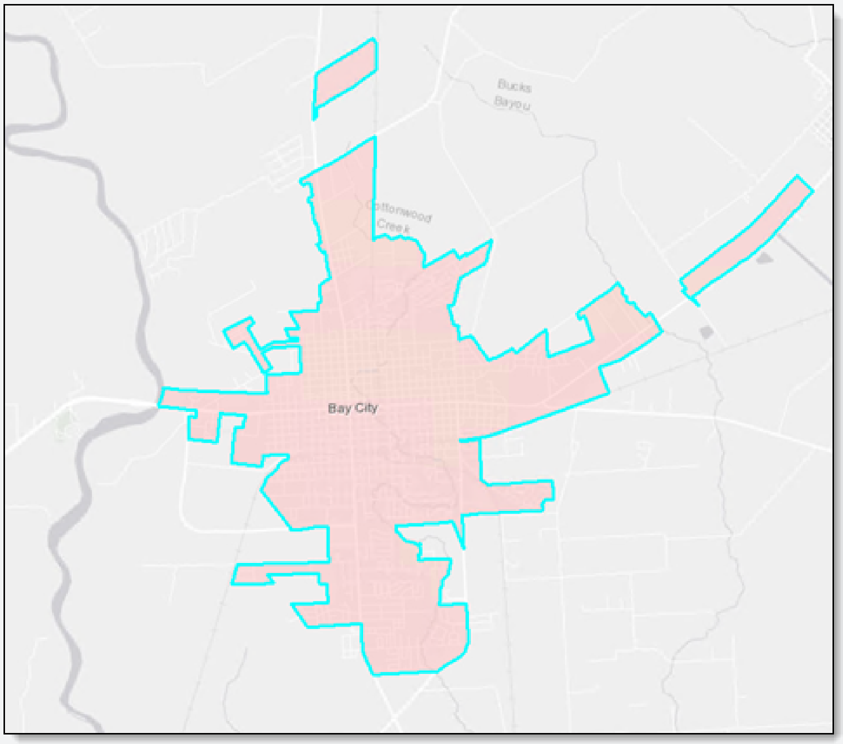
Multipart Geometry

The **Multipart Geometry** quality control (QC) check identifies geometric objects that contain more than one geometry. Specifically, the check identifies multipart features that may lead to unexpected behavior in a consuming application. As a result, layers where multipart geometries exist are identified along with the number of geometries per fallout, and the layer where the fallout exists.

Multipart features are geometric objects which are a collection of more than one geometry.

EXAMPLES

One common occurrence of multipart geometries is when an Incorporated Municipality includes some annexations. In the example below, there are 3 separate polygons that are all associated to 1 feature for Bay City. To pass the Multipart Geometry QC Check, these polygons would need to be separated into 3 distinct features.



Required QC prerequisites

To run this check, one or more of the following feature classes are required.

- Polygon
- Line

Configure QC parameters

There are no parameters that can be configured for this QC check.

What does the Multipart Geometry QC check output include?

The following is information that is included in this QC check output.

- Client Name/Project Name
- Latitude and longitude of a representative point of the fallout
- Number of fallouts detected
- Number of geometries per fallout
- Layer where fallout appears

To view a list of common fallout message(s) see **QC Check Fallout Messages** > **"Multipart Geometry" on page 25**.

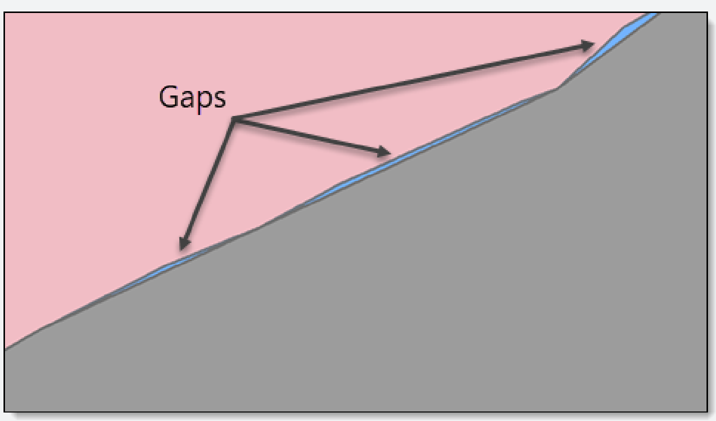
Polygon Compare (Gaps)

The **Polygon Compare (**Gaps**)** quality control (QC) check identifies where gaps exist in a polygon boundary layer when compared to a reference layer to ensure that no gaps exist that could affect the application consuming the information. The QC check results can be used to identify the gaps in a polygon layer and can be evaluated to determine if the gap is appropriate (a lake for example) or if the boundary layer needs to be corrected to eliminate the gap. If gaps are identified, a report is generated identifying the areas where gaps exist.

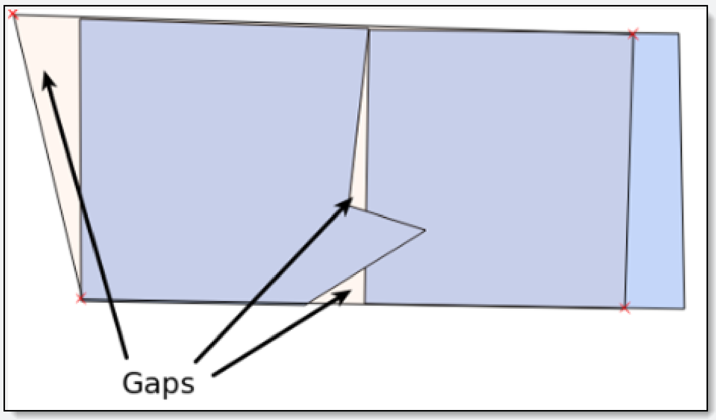
The Polygon Compare (Gaps) QC check can be configured to identify different values specified as a minimum gap size or using a results buffer. With both of these options, minimum gap size requirements are set, the QC check identifies if the gaps meet the requirements to be considered an error, and/or if the gap is large enough to be considered an error.

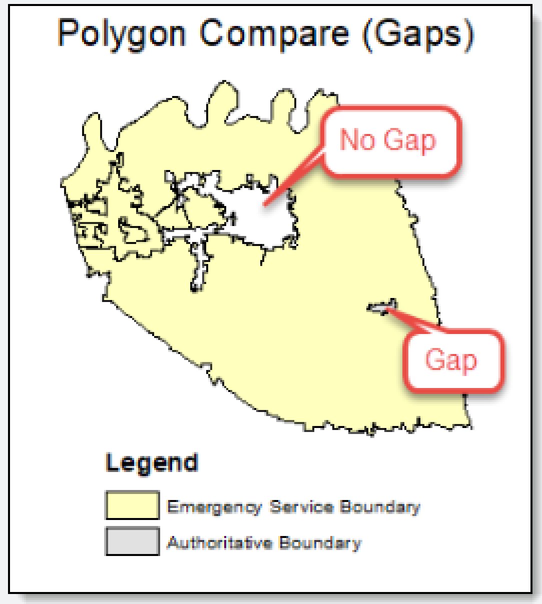
EXAMPLES

Gaps are most often found in sliver polygons along an edge. In this example, the Authoritative Boundary is in blue and the Fire Boundary is pink. The two boundaries are not perfectly aligned, resulting in some areas where the Fire Boundary does not cover the Authoritative Boundary. Anywhere where you see the blue Authoritative Boundary would be reported as a gap.



In this example, the sections marked as **Gaps** are gaps because the Emergency Service Boundary does not cover the Authoritative Boundary. The space labeled **No Gap** is not a gap because the Authoritative Boundary does not cover that space.





Required QC prerequisites

To run this check, the following is required.

- Multiple polygon feature classes

Configure QC parameters

The following parameters can be specifically configured for the Polygon Compare (Gaps) QC check.

- **Tolerance** The default is 0 square meters.
- **Result Buffer** The default is 0 square meters.

What does the Polygon Compare (Gaps) QC check output include?

The following is information that is included in this QC check output.

- Client Name/Project Name
- Latitude and longitude of the centroid of the fallout
- Number of fallouts detected
- Layer where fallout appears

To view a list of common fallout message(s) see **QC Check Fallout Messages** > **"Polygon Compare (Gaps)" on page 25**.

QC Check Fallout Messages

During quality check (QC) check processing, if errors are located, a fallout report is generated and sent to the designated administrator so it can be corrected.

The following is a list of common fallout messages for each QC, when they are generated, and suggestions for correction.

Complex Geometry

Fallout message	When generated	Handling
The total number of rows which contain complex geometry attribution: [total errors] exceeds the maximum error threshold of [max_errors] for Complex Geometry.	When the total number of errors across all fallout categories exceeds Max Errors.	Review the entire dataset for arcs, Bezier curves, or high vertex counts. Simplify geometry or repair geometry with ArcGIS tools.
[Table name] total number instances: [instance count] of invalid geometries which exceeds the maximum number of instances: [Max Instances] for record level reporting.	When the total number of errors for invalid geometries exceeds the maximum number of instances for record level reporting.	Review dataset for invalid geometries, repair geometry, or check geometry with Esri tools.
[Table name] total number instances: [instance count] of nonstandard geometries which exceeds the maximum number of instances: [Max Instances] for record level reporting.	When the total number of errors for nonstandard geometries exceeds the maximum number of instances for record level reporting.	Review the data set for arcs or Bezier curves.
[Table name] total number of instances: [instance count] which passes the vertex threshold	When the total number of errors exceeding the vertex threshold surpasses the maximum number	Review the data set for high vertex counts (!shape!.pointcount).

Fallout message	When generated	Handling
exceeding the maximum number of instances: [Max Instances] for record level reporting.	of instances for record level reporting.	
[Table name] id: [primary key] is invalid: [ST_IsValidReason]	When the total number of instances of invalid geometries is lower then Max Instances, a record level reporting message is provided.	Review specific records for invalid geometry, self-intersection is a common reason for invalid geometries.
[Table name] id: [primary key] is complex, geometry type: [ST_GeometryType]	When the total number of instances of nonstandard geometries is lower then Max Instances, a record level reporting message is provided.	Review specific records for complex geometries such as arcs or Bezier curves.
[Table name] id: [primary key] exceeds vertex threshold: count [ST_NPoints]	When the total number of instances of geometries is lower then Max Instances, a record level reporting message is provided.	Review specific records for a high vertex count.

Table 1. *Complex Geometry QC check fallout messages*

Duplicate Values

Fallout message	When generated	Handling
[data endpoint].ssap IDs: [id1, id2, id3, etc.] are duplicates of each other	When duplicate values are discovered.	Fix the data that is causing the duplicate by either correcting it or removing it.

Table 2. *Duplicate Values QC check fallout messages*

Empty Geometry

Fallout message	When generated	Handling
[table full name] [id column]: [id] geometry attribution is null or empty geometry at [data end-point]	When a record is identified as hav-ing empty geometry attribution.	Review geometry for missing attri-bution or empty geometry.

Table 3. *Empty Geometry QC check fallout messages*

Multipart Geometry

Fallout message	When generated	Handling
[layer name] id: [id] is multipart, [x] geometries detected	When a multipart geometry is detected in the data.	Convert the multipart geometry to single part geometries.

Table 4. *Multipart Geometry QC check fallout messages*

Polygon Compare (Gaps)

Fallout message	When generated	Handling
Gap detected between [data end-point].[layer] and [data endpoint].[reference layer] at DataEndpoints.	When a portion of the layer is not covered by the reference layer.	Correct the boundary with the gap.

Table 5. *Polygon Compare (Gaps) QC check fallout messages*

Resources

See the following additional resources for more information.

- **"Contact Us" below**
- **"PDFs" below**

Contact Us

Geo-Comm, Inc.
601 West St. Germain Street
St. Cloud, MN 56301
Phone: 1.888.436.2666
Contact us by e-mail

Technical Support
Phone: 1.866.837.7379
E-mail Software Technical Support
E-mail GIS Maintenance Bureau
GoToAssist

PDFs

The following PDF is available for download from the application's online help.

GeoComm GIS Data Hub User Guide

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