GEOCOMM

GeoComm GIS Data Hub User Guide

March 11, 2026

PUBLIC SAFETY GIS SIMPLIFIED

GEOCOMM

Corporate Information

GeoComm, Inc.
1100 W. St. Germain Street, Suite 300
St. Cloud, MN 56301

Office: 320.240.0040
Toll-free: 888.436.2666
E-mail: geocomm@geocomm.com
Website: www.geocomm.com

Copyright © 2026 GeoComm, Inc. All other trademarks are the property of their respective owners.
All rights reserved.

The information contained in this document is the exclusive property. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying or recording, or by any information storage or retrieval system. The software may be used or copied only in accordance with the terms of the license agreement.

The information contained in this document is subject to change without notice. We have taken great care to assure accuracy of this document. However, we assume no responsibility for errors or omissions and no liability for damages resulting from the use of information contained in the document.

Esri Desktop Help topic descriptions and definitions provided courtesy of Esri. Copyright © Esri. All rights reserved.

Table of Contents

Get Started

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.

Your system administrator grants access to content specific to your role and authorized primary account(s) and agency(ies). The assigned permissions determine what functionality you have access to when using the application, therefore, all functionality may not be available to the user.

Important: GIS Data Hub supports standard projection systems only and are unable to support customized systems.

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 to submit and upload your data files, view upload activity, view data targets, and analytics. See **"Explore the Workspace" on the next page**.

Configure Data Targets

Prior to running your data through GIS Data Hub quality control (QC) checks you must first configure the data target by mapping source and target fields in your data to a data target. See **"Data Targets" on page 96**.

Manage Agencies

Primary account users have permissions to add and delete agencies or change the change detection threshold within your primary account. The **Manage Agencies** option appears in the user menu. See **"Manage Agencies" on page 10**.

Switch to A Different Agency

Select the agency for which you want to view the data targets, reports, or submit new data. The **Switch Agency** option appears only when you have permissions to more than one agency. See **"Switch to a Different Agency" on page 13**.

Use GIS Data Hub with Other Applications

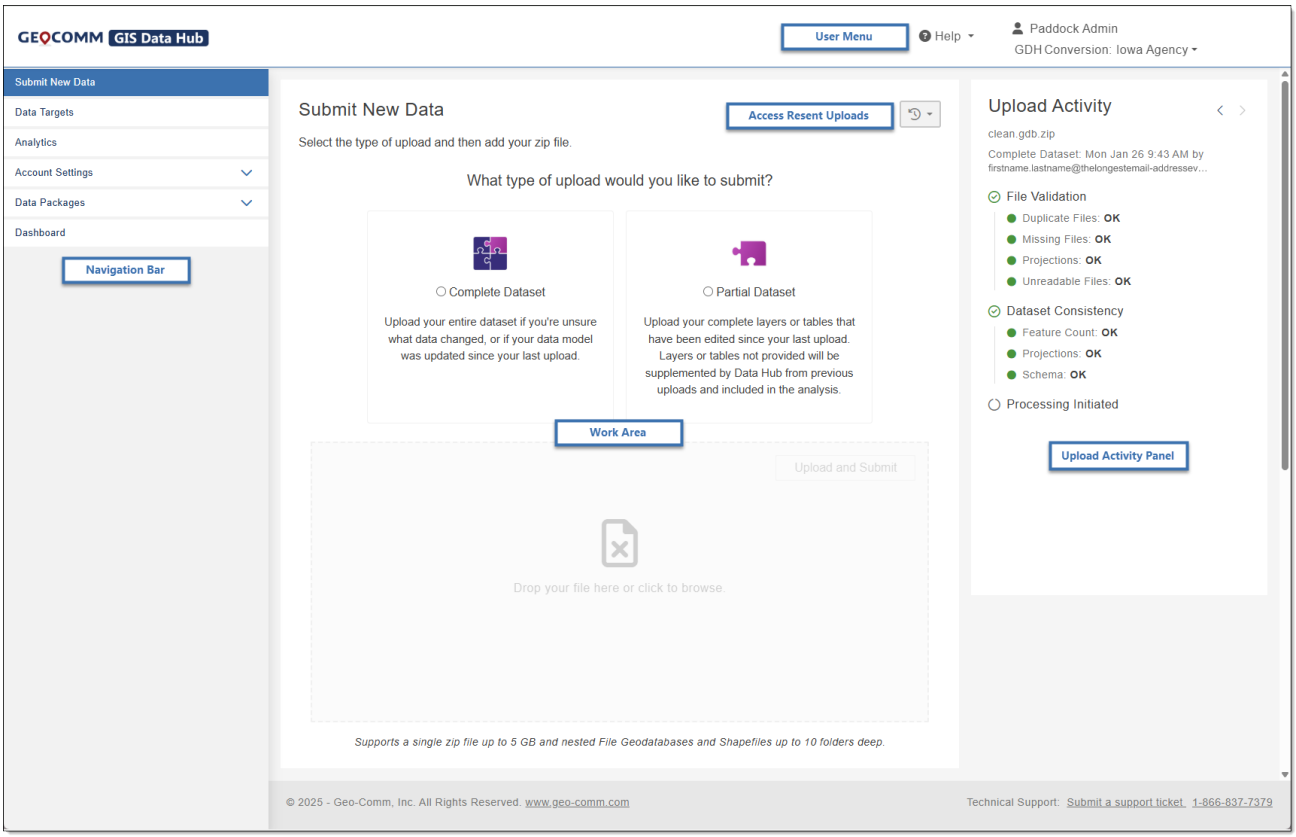
GIS Data Hub integrates with other software applications to assist you in achieving quality GIS data used for these services. Currently, the application is used for meeting NG9-1-1 requirements to provision data to the ECRF, the LVF, the Mapping Data Service, and other functions. Specifically, GeoComm's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

Explore the Workspace

The GIS Data Hub workspace includes functionality to submit and upload new mapdata files for processing, view recent uploads, user information, the primary accounts and agency you are working with, and a link to view on-line help.

> **Note:** Your permissions and role determine what functionality you have access to when using the application.

The application's workspace consists of the following sections.



- **Access Recent Uploads**: Use Access Recent Uploads to view a list of your most recent four uploads. Your files include both full or partial uploads and are available to download regardless if your upload processed successfully or failed to better assist in troubleshooting. For more information, see **"Download Source Data Files" on page 36**.
- **Navigation Bar**: Use the navigation bar to navigate within the application and select functions for submitting new data, working with your data targets to map data layers and fields, viewing quality control check GIS Summary and Fallout reports or Primary Account Reports, manage account setting and data packages, and view critical errors and warnings for your data targets using the Dashboard.
- **User Menu**: From the User Menu you can view user information, identify which the primary account and agency you are working with, switch agencies, manage agencies, access user help, and view application information such as version and date last updated. Use the User Menu drop-down to log out of the application.
- **Upload Activity Pane**: Use the Upload Activity pane to view the status of your upload. The Upload Activity pane provides an upload summary with basic information and processing activity statuses for your upload

including if your job started automatically or if items require further action. For more information, see **"View Upload Activity" on page 24**.

- The **Work Area** changes as you select different features in the **Navigation Bar**. In the image above, **Submit New Data** is selected and the **Submit New Data** page is displayed.

GIS Data Hub Spatial Interface Functionality

GIS Data Hub Emergency Call Routing Function (ECRF) provisioning functionality requires an ECRF service. Contact GeoComm for information on adding this functionality if not already in place.

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 ECRF, LVF, Mapping Data Services, and other NG9-1-1 functions that are NENA i3 compliant, and reads entries from GIS Data Hub and translates the feed entries into a set of instructions to execute against the Next Generation Core Component.*

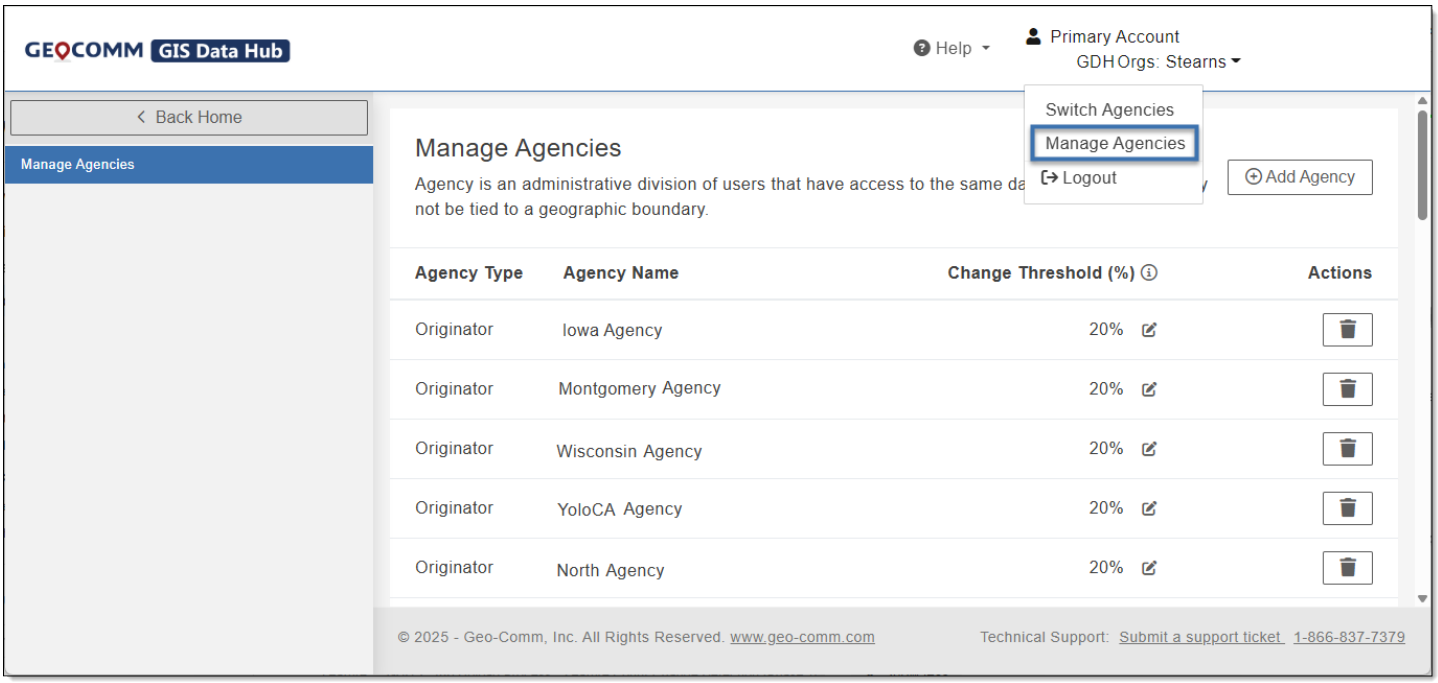
The following information provides a high-level, overall process for provisioning to the ECRF system using the SI Feed.

1. GIS Data User 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.

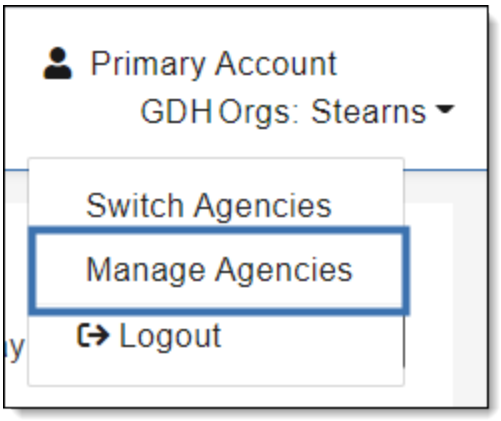
Manage Agencies

If you are a Primary Account User, **Manage Agencies** is added to the user menu and enables you to add and delete agencies within your primary account, so you can work with agencies as needed for your projects.



Add an Agency

1. Click the user menu to expand and select **Manage Agencies**.



*The **Manage Agency** page appears.*

2. Click **Add Agency**.
3. In the **Add Agency** section under **Account Type**, select if the agency is a **Data Originator** or a **Data Subscriber**.
    - **Data Originator**: A data originator is an organization who uploads authoritative data (e.g. city, county) for analysis and sharing.

- **Data Subscriber**: A data subscriber is an organization who collects and fuses originator datasets (e.g. county, state).

4. In the **Agency Name** box, type a friendly name from the Customer Service Management (CSM) to reference the agency.
5. In the **Agency ID** box, type the Globally Unique ID (GUID) that matches the CSM for the agency.

   The Agency ID must match the assigned agency ID from the CSM.
6. Click **Save**.

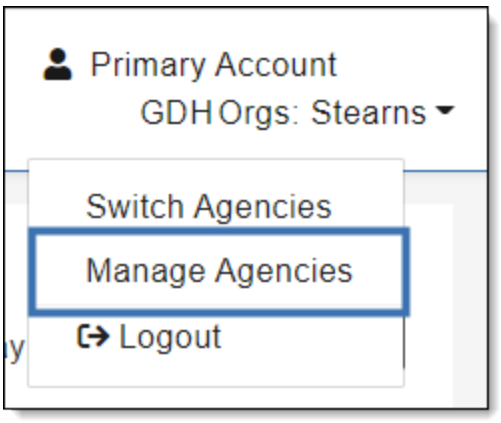
   The agency is added and can be selected from Switch Agencies in the User Menu. See ***"Switch to a Different Agency" on the next page****.*

Change a Threshold for an Agency

The **Change Threshold** configuration allows you to set an acceptable feature count change detection percentage between your uploads before an alert is generated. Setting a percentage helps to prevent accidental data loss and allows you to review your data before a job is ran.

The default threshold is set to 20 percent and is customizable by agency. For example, if the PSAP layer had 10 polygons last upload, but now contains 20 polygons, this change is over 20 percent and would flag for review.

1. Click the user menu to expand and select **Manage Agencies**.



   The ***Manage Agency*** *page appears.*
2. Locate the agency for which you want to change the threshold, and click to edit.
3. In the edit box, enter a threshold value between 1-100. Click **Save**.

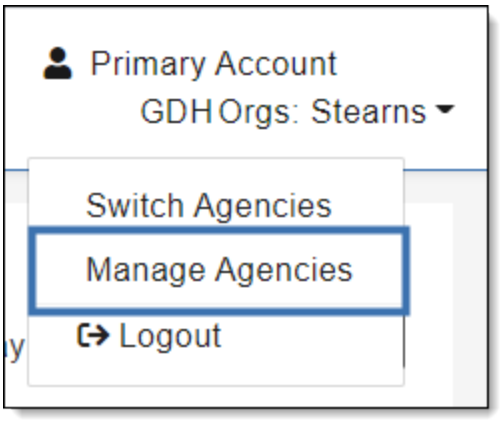
The Change Threshold percentage is updated for the selected agency.

Repeat this process for additional agencies.

> **Note:** Currently agencies cannot opt out of this functionality. To avoid unwanted notifications if large feature count changes are expected, set the configuration to large values.

Delete an Agency in your Primary Account

1. Click the user menu to expand and select **Manage Agencies**.



*The **Manage Agency** page appears.*

2. Locate the agency you want to delete and click **Delete**.
3. Click **Yes, Delete**.

The agency and all associated data are permanently deleted.

Switch to a Different Agency

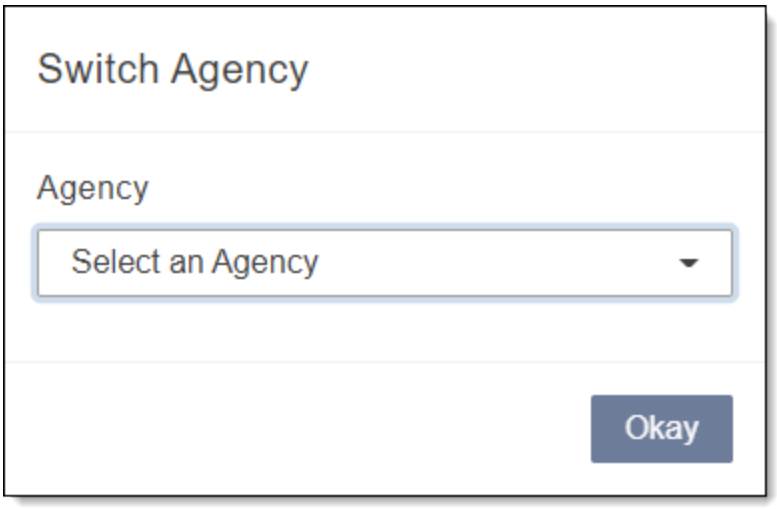
If you have permissions to multiple agencies, when you log in to the application, the **Switch Agency** pop-up appears.

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

Complete the following to switch an agency to use with your data.

Select an Agency at Log In

1. When you log in to the application, the **Switch Agency** pop-up appears

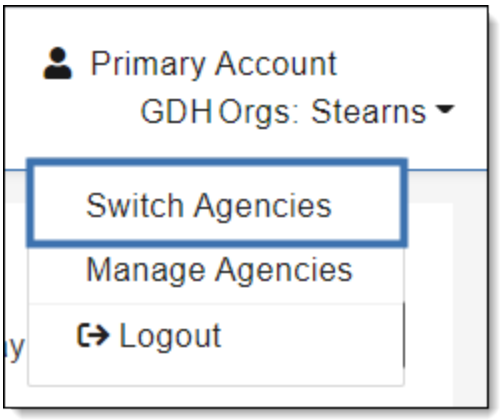


2. Click to expand the **Agency** drop-down, and select the agency you want to work with.
3. Click **Okay**.

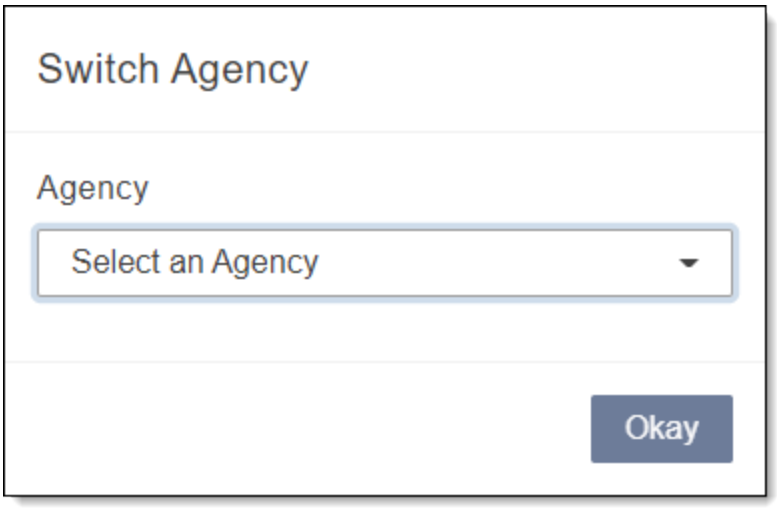
   *The **Submit New Data** page opens.*

Change your Agency

1. Click the user menu to expand and select **Switch Agencies**.



   *The **Switch Agency** pop-up appears.*



2. Click to expand the **Agency** drop-down, and select the agency you want to work with.
3. Click **Okay**.

   The application remains on the page that was active.

Submit New Data

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

GIS Data Hub provides results based on the accuracy and integrity of your submitted dataset. Please note that the most recent version of any layer or table is kept by GIS Data Hub at any given time, regardless of how well it performed against quality control (QC) checks. If your data fails to meet the level of quality you expected, you can upload a different version of that particular layer or table to replace it for future jobs. GeoComm recommends uploading the most quality and accurate version of your data at all times.

When submitting your data, you have the option to submit a complete or partial dataset as defined below. Files should be submitted following the requirements and guidelines detailed here: **"Requirements and Guidelines for Submitting a Data File" on the next page**.

- **Complete Dataset**: Includes ALL layers and tables your agency requires GIS Data Hub to inspect. See **"Submit a Complete Dataset" on page 21**.
- **Partial Dataset**: Includes a SUBSET of layers and tables from the agency's complete dataset. See **"Submit a Partial Dataset" on page 22**.

  Important: To submit a partial dataset, a complete dataset must have been previously submitted.

After you have submitted your data, the **Upload Activity** pane updates to show the data is uploading and processing. See **"View Upload Activity" on page 24**.

There are certain cases where GIS Data Hub recognizes that more information is needed to complete the upload. When this happens, the current upload stops and an e-mail providing additional instructions is sent to the e-mail address that was configured to receive notifications. The following provides some scenarios when the above may occur:

- Two or more data types have the same name. For example, a Roads Shapefile and a Roads Feature Class exists in the data upload.

- An incomplete Shapefile (SHP) is uploaded that is missing a required extension.
- An empty file geodatabase (FGDB) is uploaded.
- A corrupt file is uploaded.
- A feature class or SHP is missing a projection.
- A feature class or SHP with a custom projection is uploaded. These are not supported.

Requirements and Guidelines for Submitting a Data File

- Submit data files as a single zip file no larger than 5 GB.
- Points, multipoints, lines, and polygon feature classes are supported.
- FGDB and SHP's can be nested up to 10 levels deep within the zip file.
  - Nested folders may contain any naming convention.
  - Any data located over 10 levels deep is ignored.
  - Keep in mind that zipping your upload creates an additional level.
  - If preferred, nested folders may be zipped.
- Submit data files as a feature class or table within a single or multiple FGDBs, or as a SHP. These files can include Z or M values.
- Empty or null records can be included in your upload, however, these records are stripped once the data is transformed into the target database.
- Submitted folders that end in .gdb must be geodatabases. Folders ending in .gdb that do not contain GDB artifacts are considered invalid and are skipped. To avoid issues, rename non-GDB's so they do not end with a .gdb extension.
- Single or multiple Excel or CSV files are accepted inside the submitted zip file.

  View more details

  - Acceptable file format types include: .xlsx, .xlsm, and .csv.

    .xls files are not supported.

  - Files can be placed inside the main zip file or nested files within the zip file.

- Excel or CSV files are limited to 100 MB. Files over this limit can be submitted but are not fully supported and also will cause the job to slow down.

  For larger files, consider breaking into multiple files.

- The Excel or CSV files can be included in the zip file with other GDH supported file types or alone.
- When an Excel file is uploaded with multiple sheets, each sheet in the file is converted to an individual database table within GIS Data Hub and used in geodatabase outputs created.
- When a CSV file is uploaded, the individual sheet is converted to a single, individual table. The table name is used as the file name.

  Important: Keep in mind that changing data formats nearly always causes schema changes. This is especially true whenever you change data formats such as switching from an .xlsx to a CSV, changing sheet names in Excel/CSV files, or updating column headers.

  When format changes exist, it is best to make all format changes at once, then notify GeoComm staff after the complete dataset is uploaded so proper configuration changes can be made.

- When naming your Excel or CSV files, the sheet name and column names should be limited to 63 characters.
  - When the file is submitted with character lengths over 63, the column headers from the Excel or CSV files are truncated to the 63 character maximum.
  - Column headers and special characters:
    - Column headers are required. If a header is not included in your file(s), the first values in the Excel or CSV file are used as the header row.
    - **Asterisks**: Column headers from your Excel or CSV files may contain asterisks. The asterisks cannot be the final character in the header.
    - **Asterisks**: Column headers from your Excel or CSV files that exceed 63 characters, and ends in an asterisk, are not supported—they are ignored from the upload. All other headers are read and the job processes as expected.
    - Special characters in your column headers are converted to underscores.

- Tables converted to Excel in ArcMap or ArcGIS Pro may have field name changes or additional fields added during the conversion (i.e., adding Object ID). If using ArcMap or ArcGIS Pro to convert to Excel, verify your field names are correct before submitting your data.
- If processing of the file(s) fails, an e-mail is sent with failure information.

- Multipoint features classes are accepted.

  View more details

  - The object ID of multipoint feature classes are not honored due to each spatial point being "exploded" into one tabular record.
  - When there are identical multipoint features in both the spatial location (coordinate) and attribution, they become one record in the output when "exploded."
  - When swapping data formats (i.e., feature class to SHP, table to CSV), a complete dataset upload must be completed, and field mapping updated as necessary, before running a job.

    Note that data conversion generally create schema changes that could cause a partial upload to fail.

- Various projections for spatial data types can be used, as long as they are not custom projections.

  It is recommended to submit data whenever possible in the projection of the sought after output. This provides greater control over potential spatial data shifts related to re-projections and transformations.

- GIS Data Hub reads up to 500 total data files (feature classes/shapefiles/tables). These files can be nested within the .zip file.
- Feature classes or Shapefiles may contain multiple OBJECTID or FID fields upon upload. Shapefiles with an OBJECTID field must contain non-zero values for that field.
- Invalid file types are ignored and not ingested by GIS Data Hub. Examples of invalid file types include PowerPoint Presentations, PDF files, and Word documents.
- Multiple (up to 25) FGDB's are supported within a single zip file.
- Special Esri data types are supported and can be included in your data upload. However, the data types cannot be used within GIS Data Hub or exported.

View more details

- **Raster Datasets**: May be included with your data upload but it is not recommended due to the size of a raster dataset.
- **Data types that can be uploaded**

  While the following data types may be included in your data upload and will not stop job processing, they cannot be configured for use in any QC check or field mapping.

  - Annotation Feature Classes
  - Attribute Rules
  - Catalog Datasets
  - Dimension Feature Classes
  - Geometric Networks
  - Locators
  - Mosaic Datasets
  - Network Datasets
  - Oriented Imagery
  - Parcel Fabrics
  - Relationship Classes
  - Topologies
  - Trace Networks
  - Trajectory Datasets
  - Utility Networks
- **Data types that must *never* be uploaded**

  If the following data types are included in your data upload to GIS Data Hub, your data upload will fail.

  - 3D Object Feature Classes
  - Linear Referencing Classes (LRS)

    - Multipatch Feature Classes
    - Raster Catalogs

- The following file extensions are required when submitting a SHP: .shp, .shx, .dbf, and .prj.
    - .shp: This file stores the geometry of the feature.
    - .shx: This files stores the index of the geometry.
    - .dbf: This file stores the attribute information for the feature.
    - .prj: This file stores the projection of the SHP.

> **Important:** If changing the file format for the data being uploaded (i.e., uploading a SHP instead of a feature class for a layer that was previously uploaded), it is *highly* recommended that the upload file is in a complete dataset the first time it is uploaded.
>
> *Uploading a complete dataset avoids errors where there have been truncations or name changes to a layer and/or field name as a result of the format conversion. For details on Shapefile limitations see Shapefiles in ArcGIS Pro documentation.*

Submit a Complete Dataset

When submitting a complete dataset, the dataset must include ALL layers and tables the user requires GIS Data Hub to inspect. If a complete dataset is submitted, but a layer is excluded, that layer will not be inspected.

To upload a complete dataset, complete one of the following.

Browse to Upload and Submit New Data Files

Complete the following to browse to a location to submit new data files for processing.

1. In the **Navigation Bar**, select **Submit New Data**.
2. In the **Submit New Data** page, select **Complete Dataset**.
3. Click in the **File Drop Zone**.
4. In the window that opens, browse and select the data file you want to submit.

5. Click **Open**.

   Files should be submitted following the requirements and guidelines described. See ***"Requirements and Guidelines for Submitting a Data File" on page 17****.*

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

6. Click **Upload and Submit**.
7. Click **OK**.

Drag and Drop to Submit New Data Files

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

1. In the **Navigation Bar**, select **Submit New Data**.
2. In the **Submit New Data** page, select **Complete Dataset**.
3. Locate the data file you want to upload and submit for processing.
4. Drag the data file you want to process and drop the file in the **File Drop Zone**.

   Files should be submitted following the requirements and guidelines described. See ***"Requirements and Guidelines for Submitting a Data File" on page 17****.*

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

5. Click **Upload and Submit**.
6. Click **OK**.

Submit a Partial Dataset

Important: To submit a partial dataset, a complete dataset must have been previously submitted.

Use the **Submit New Data - Partial Dataset** option to upload layers or tables that have been edited since your last upload. When submitting a partial dataset, you cannot upload new layers, or data with any schema changes since your last upload. Please submit your complete dataset using the **Submit a Complete Dataset** option if any schema changes were made since your last upload. See **"Submit a Complete Dataset" on page 21**.

Below is general information and restrictions for submitting a partial dataset.

- A complete dataset must have been previously submitted.
- The partial dataset may contain one or more layer and/or table.
- The partial dataset should not include all layers and tables submitted in the complete dataset. Use the Submit a Complete Dataset option to upload this data. See **"Submit a Complete Dataset" on page 21**.
- The partial dataset should not include any inventory changes. If inventory changes are identified in your dataset, you cannot run your data target or upload another partial dataset until a complete dataset is uploaded.
- Layers or tables not provided in the partial dataset will be supplemented by GIS Data Hub from your previous uploads and included in the analysis.

> **Important:** USER RESPONSIBILITY - Users are responsible for making sure the partial upload contains all features or records in the uploaded layer or table. For example, if a roads layer is uploaded, it must contain all roads, not just the roads that were edited since your last upload.

To upload a partial dataset, complete one of the following.

Browse to Upload and Submit New Data Files

Complete the following to browse to a location and upload a partial dataset you want to submit for processing.

1. In the **Navigation Bar**, select **Submit New Data**.
2. In the **Submit New Data** page, select **Partial Dataset**.
3. Click in the **File Drop Zone**.
4. In the window that opens, browse and select the data file you want to submit.
5. Click **Open**.

   Files should be submitted following the requirements and guidelines described. See ***"Requirements and Guidelines for Submitting a Data File" on page 17***.

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

6. Click **Upload and Submit**.
7. Click **OK**.

Drag and Drop to Submit New Data Files

Complete the following to drag and drop the partial dataset you want to upload and submit for processing.

1. In the **Navigation Bar**, select **Submit New Data**.
2. In the **Submit New Data** page, select **Partial Dataset**.
3. Locate the data file you want to upload and submit for processing.
4. Drag the data file you want to process and drop the file in the **File Drop Zone**.

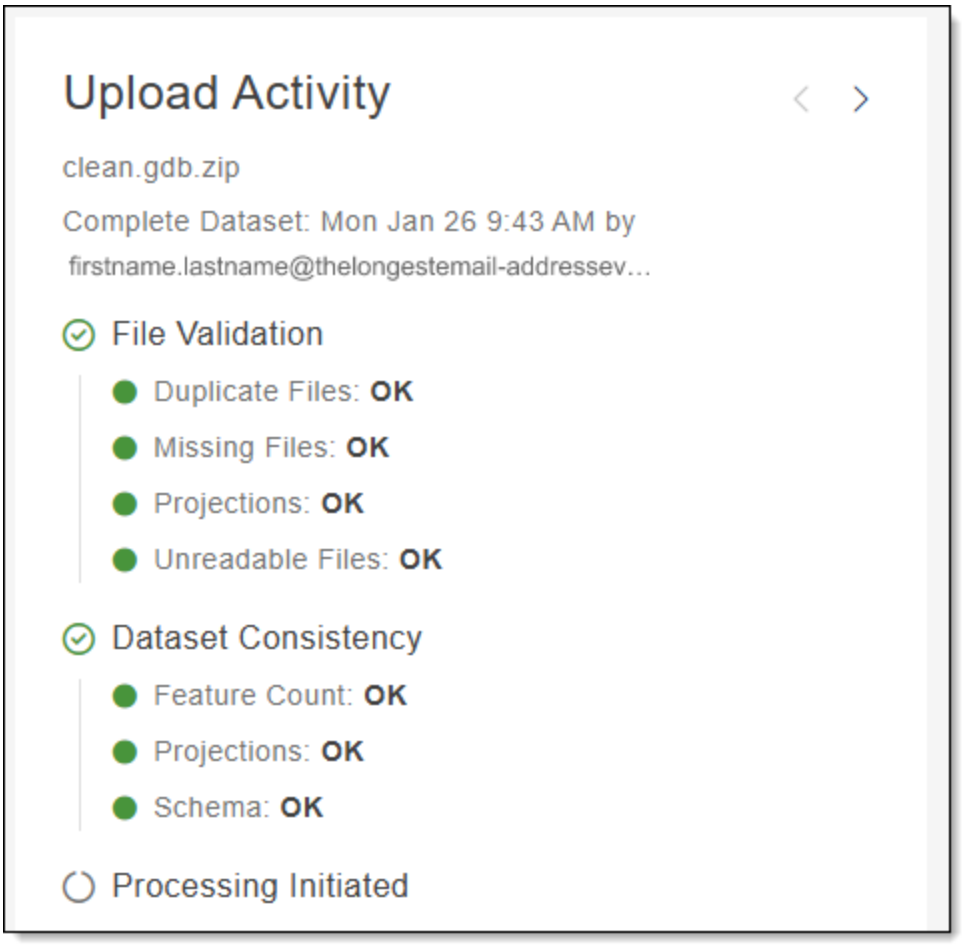
   Files should be submitted following the requirements and guidelines described. See ***"Requirements and Guidelines for Submitting a Data File" on page 17****.*

   If the wrong file is selected, click the ***X*** *to remove the file being submitted. Repeat the steps above to select a different file.*
5. Click **Upload and Submit**.

   Click **OK**.

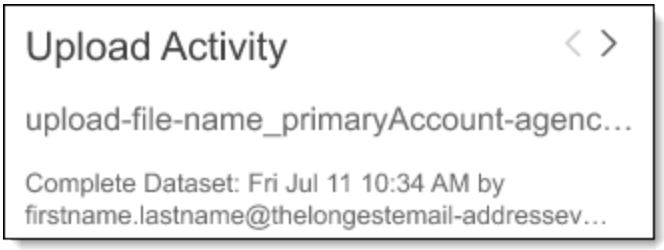
View Upload Activity

When a complete or partial dataset is submitted, the top of the **Upload Activity** pane updates automatically with the upload summary. The **Upload Activity** pane provides a visual resource to view real-time status. It provides feedback throughout the upload process to inform you if your upload will start your job automatically or if manual steps are required. Once populated, the **Upload Activity** pane displays the last 4 uploads for an agency.



The **Upload Activity** pane includes the following sections and uses color coding for easy visualization of your upload as it processes (green = pass, yellow = warnings, and red = failure). The information below describes each section.

- **Upload Summary**: Provides basic information for the upload including zip file name, upload type, upload date and time (in your local time), and the submitter's username. Use the scroll arrows to view information for the last 4 uploads, when available.



- **File Validation**: When an upload is received, the data must be inspected to ensure no readability issues exist before processing can start. File Validation checks confirm the upload contains all the information necessary to process your job. Checks validate that feature classes have associated projections, scan for corrupt files, duplicated file names, and missing files. The file validation indicators alert you if any portion(s) do not pass.

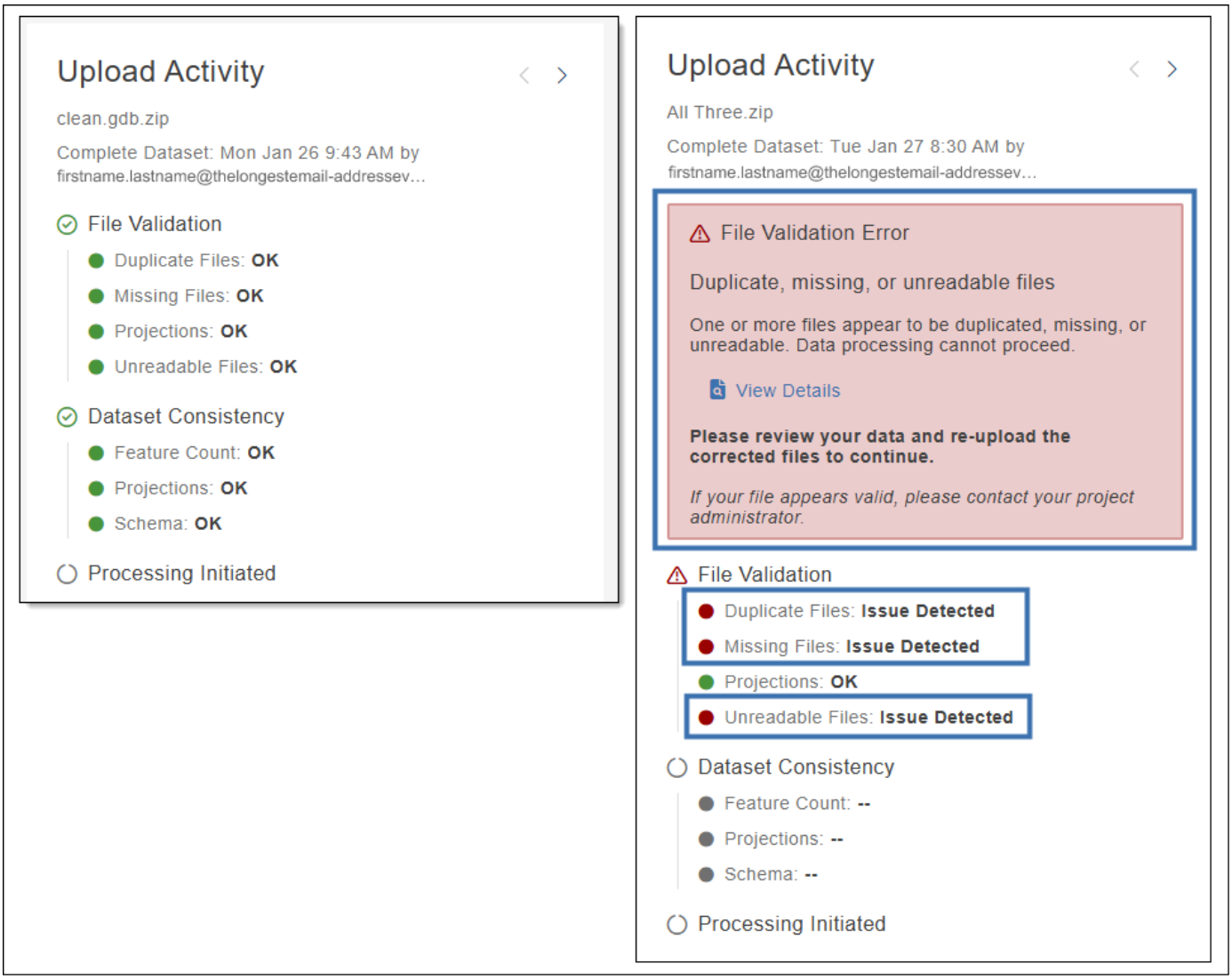
  When the uploaded data begins processing, the file validation indicators—duplicate files, missing files, projections, and unreadable files—are gray. As the file validation process progresses, each indicator, as described below, updates its color to reflect the current status, see **"Processing Status Colors and Symbols" on page 35**.

  Note that if the file validation logic encounters an error, the file validation indicator circle that encountered the error changes to dark gray.

  - **Duplicate Files**: Identifies where duplicate files exist in the uploaded dataset.
  - **Missing Files**: Identifies where missing files exist in the uploaded dataset.
  - **Projections**: Identifies where invalid projection files exist in the uploaded dataset.
  - **Unreadable Files**: Identifies when files exist in the uploaded dataset that are not readable.

  If the upload passes all checks, the indicators are green and a green checkmark is shown by File Validation and processing continues.

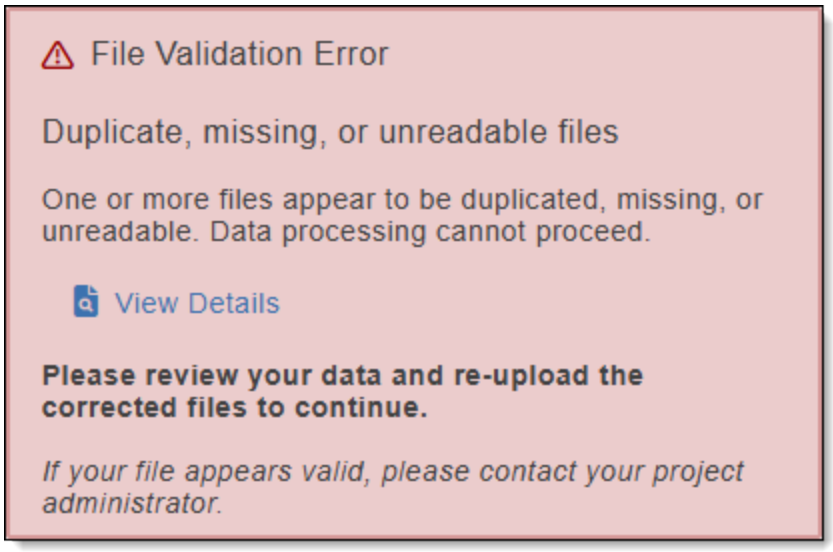
  If the upload fails, each indicator is updated to reflect if it passed or failed, and a red triangle is shown by the File Validation process section. When errors are detected, they must be corrected before retrying to upload your data. To assist with this process, a **File Validation Error** box appears with a link to view additional information for the errors(s) detected.



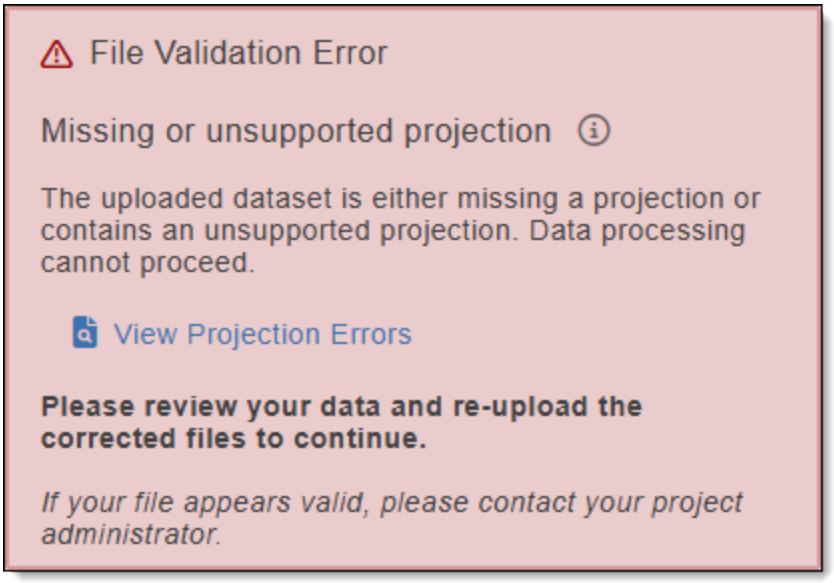
File Validation Errors

The **File Validation Errors** box is shown when the upload needs to be reviewed due to errors found when verifying the dataset. If available, a link is provided to view the errors that were located. File Validation Errors include the following:

- **Missing, Unreadable, or Duplicate Files**: The dataset that was uploaded has one or more files that are duplicated, missing, or are unreadable. When these files are identified, make sure all required files are included, have unique names, and use a supported format before trying again.

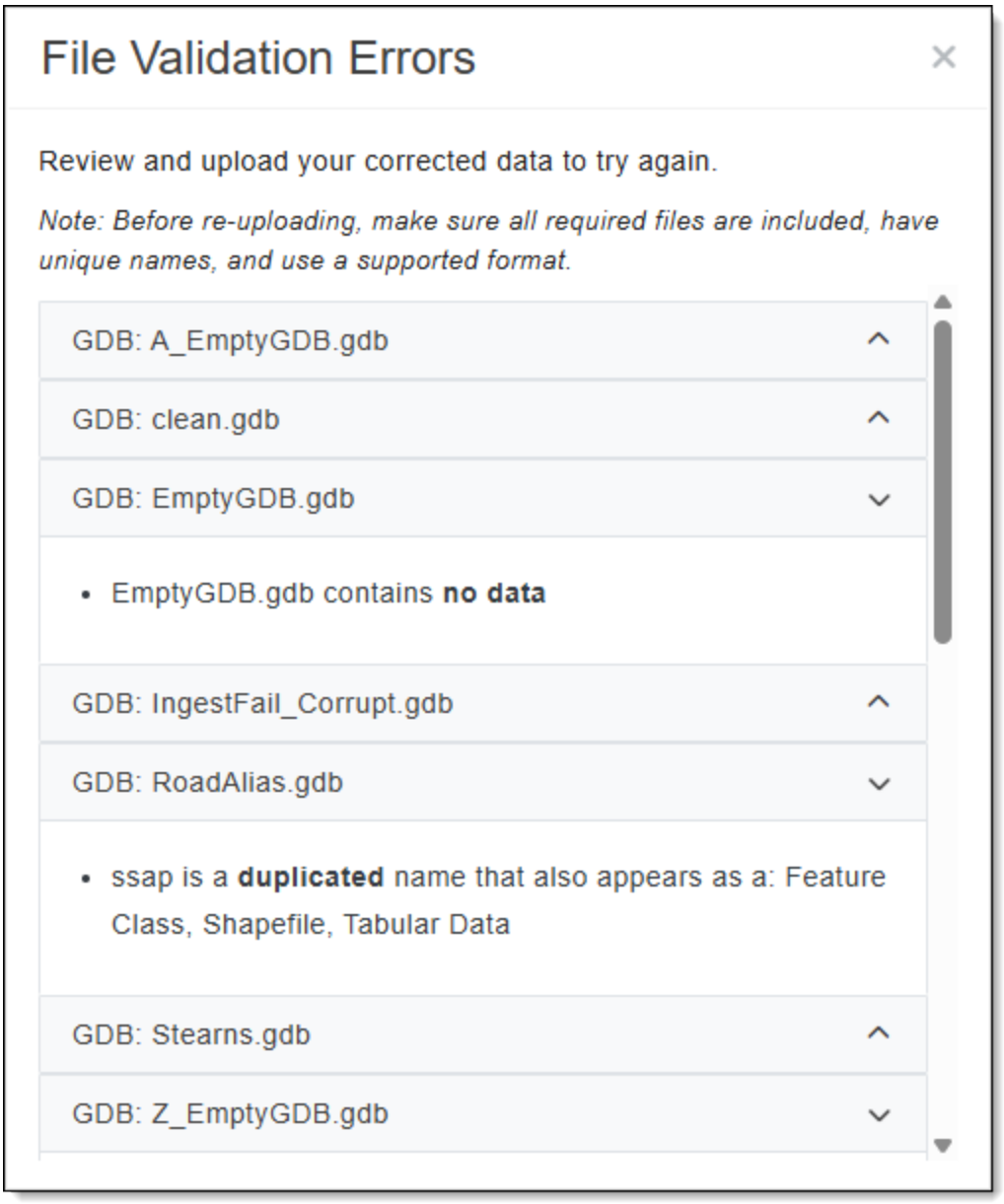


- **Missing or Unsupported Projection**: The dataset that was uploaded is missing a projection or contains an unsupported projection. When this happens, features are unable to be analyzed and the data needs to be corrected before trying again.



Note that the coordinate reference system (CRS) defines how spatial data is projected on the Earth's surface. A missing or unsupported CRS prevents features from being analyzed correctly.

To view a summary of the errors found for your data, click the link to open a dialog box. The dialog box provides a categorized summary of the errors located in your data that need to be corrected. Click ^ to expand or v to collapse each section.



- **Data Consistency**: When an upload is received and file validation passes, GIS Data Hub compares your current upload to the previous successful upload to identify changes as described in the data consistency indicators below.

When the uploaded data begins processing, these data consistency indicators—feature count, projections, and schema—are gray. As the validation process progresses, each indicator updates its color to reflect the current status, see **"Processing Status Colors and Symbols" on page 35**.

Note that if the upload fails, the progress icon stops and the data consistency indicator circles change to dark gray.

- **Feature Count**: Compares feature counts to your previous upload and flags when the counts from one layer changed by more than the designated percentage. This is set to 20 percent by default and is customizable by agency.

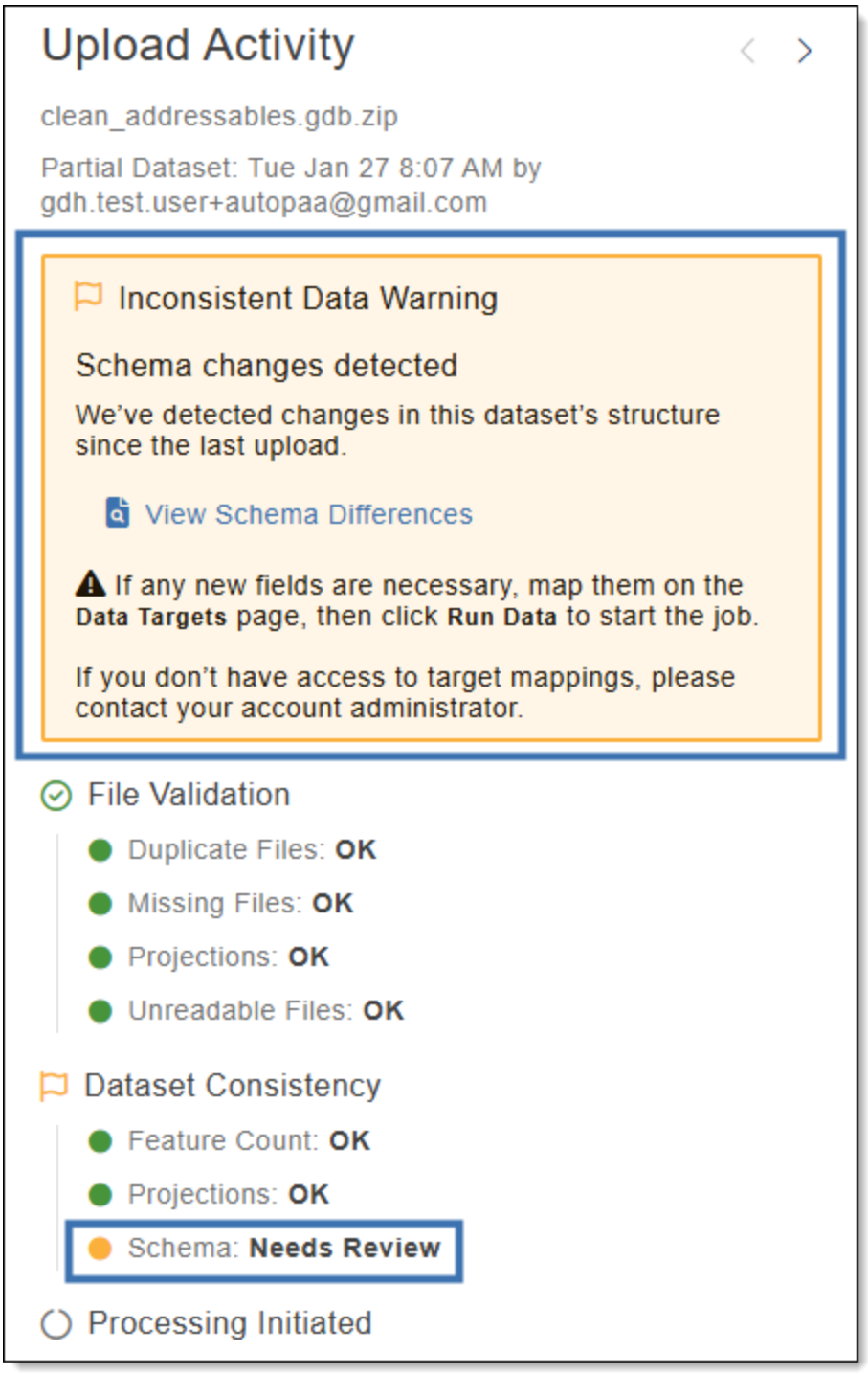
  For example, if the PSAP layer had 10 polygons last upload, but now contains 20 polygons, this change is over 20 percent and would flag for review.

- **Projections**: Compares projections from your current and previous upload. Projection changes to source data may impact spatial alignment and snapping, causing potential changes to quality control check fallouts and export data.

- **Schema**: Compares changes in dataset structure to your previous upload. Searches for modified layer and field names, field types, and lengths.

This dataset consistency process allows you to identify if notable changes were intentional before proceeding with job execution.

When the data consistency indicator is a yellow flag, the upload passed file validation, however, changes were found that require your review. When a change is detected, an **Inconsistent Data Warning** box appears with a link to view additional information for the change(s) detected.

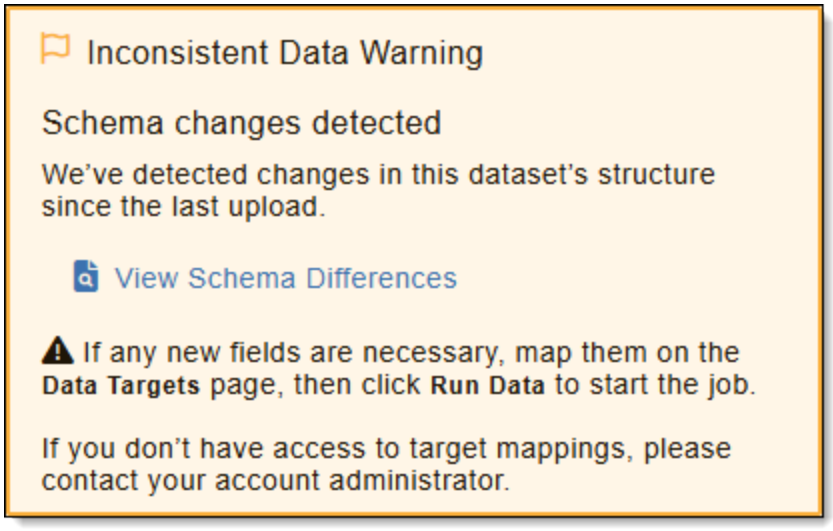


Inconsistent Data Warnings

The **Inconsistent Data Warning** box is shown when the upload needs to be reviewed. If available, a link is provided to view the identified differences when verifying the upload. Inconsistent Data Warnings include

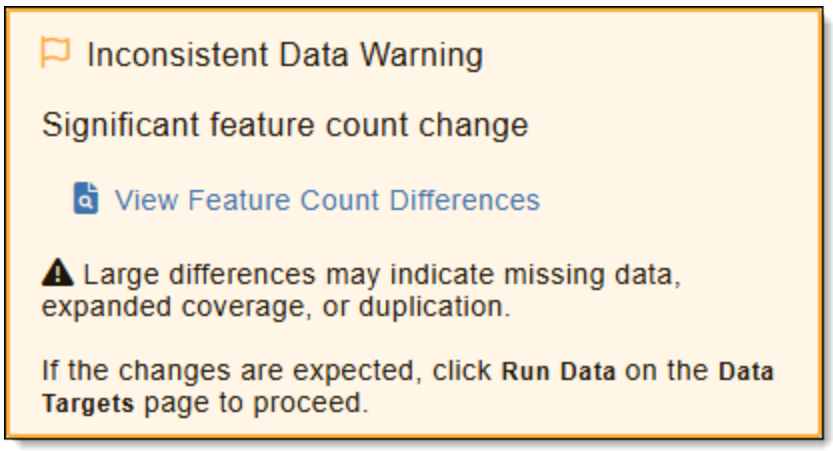
the following:

- **View Schema Differences**: Schema differences include changes located in the dataset's structure since the last upload. When the link is clicked, a dialog box opens providing a list of schema differences that include: added and removed layers, added and removed fields, and modified fields.



  Note that if any new fields are necessary, you must first map them before manually starting your job(s). See **"Layer and Field Mapping" on page 99**. If this change is unexpected, upload a new dataset.

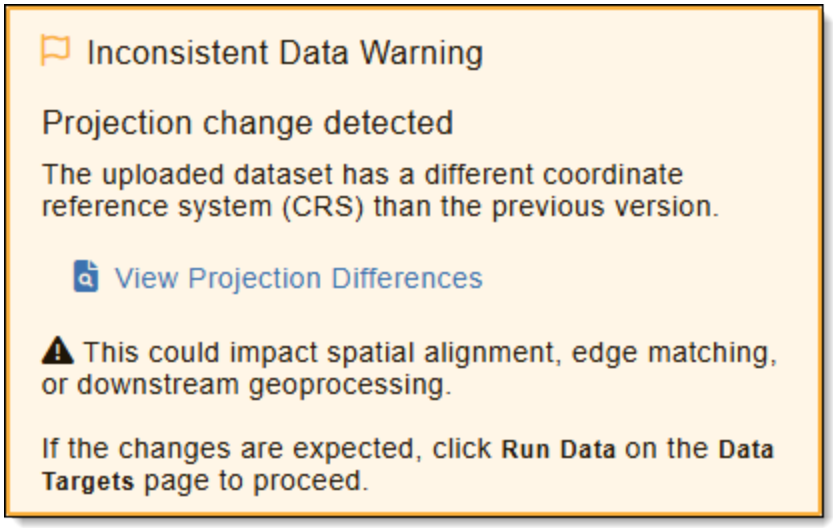
- **View Feature Count Differences**: Feature count differences are located by comparing layers and tables that existed in the previous successful upload to the current upload and identifying any changes of more than 20 percent. When the link is clicked, the differences included in the dialog box are: previous feature count, current feature count, percentage of change, and feature count change.



When this warning is shown, upload a new dataset if this change is unexpected or accept the change by manually starting your job(s). To manually run your job(s), see **"Enable and Run Data Targets" on page 98**.

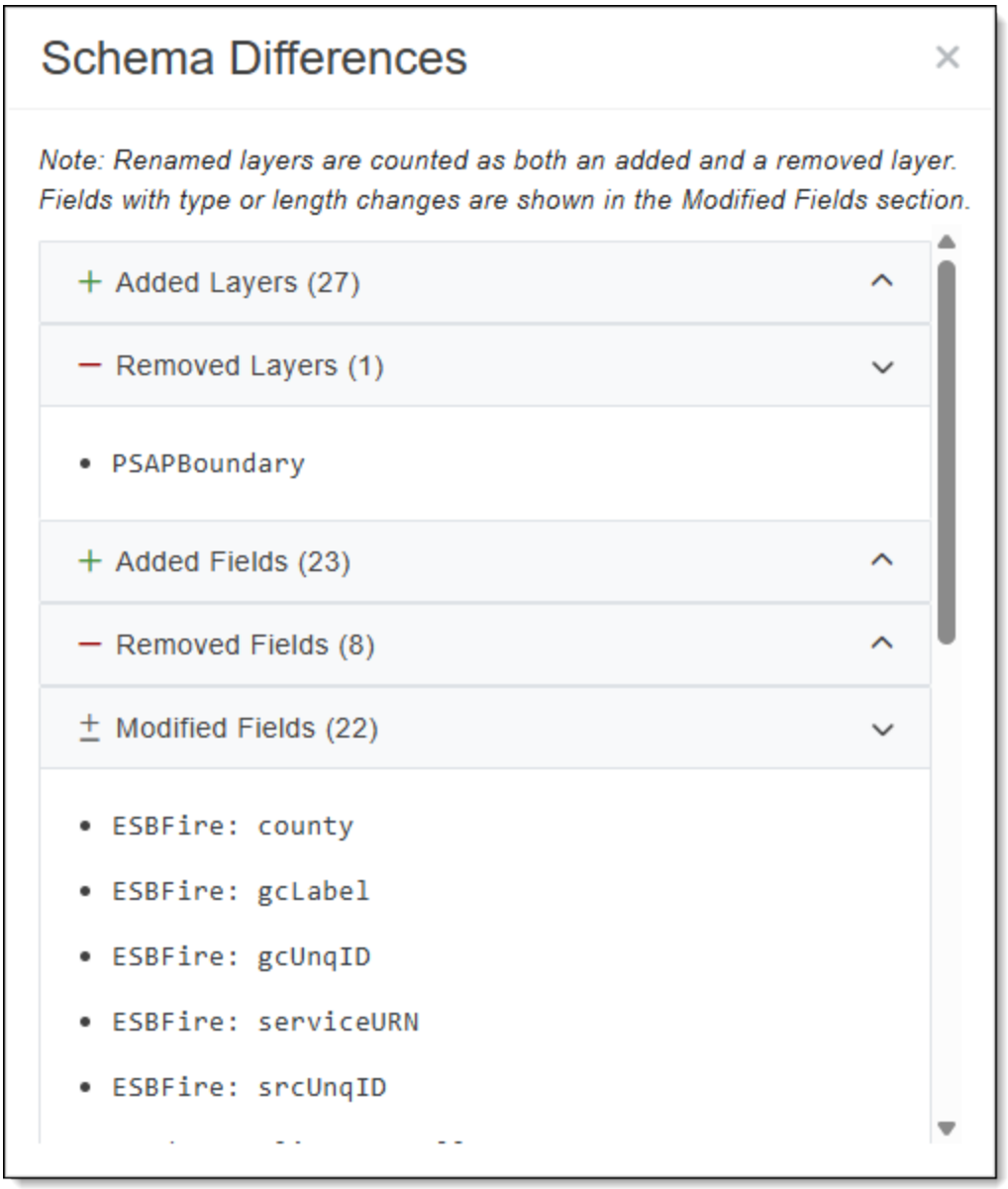
> **Note:** The threshold for change detection is determined by your administrator. The default is 20 percent, however this percentage may vary by agency.

- **Projection Change Detected**: When projection changes are detected from your previous successful upload, a warning alerts you that there are differences and provides information on the projection change that was identified. When the link is clicked, a dialog box opens providing a list of projection differences that include: feature class or Shapefile name, previous projection, and current projection information.



When this warning is shown, upload a new dataset if this change is unexpected or accept the change by manually starting your job(s). To run your job(s), see **"Enable and Run Data Targets" on page 98**.

To view a summary of the differences found for your data, click the link to open a dialog box. The dialog box provides a categorized summary of the differences in your data. Click ^ to expand or v to collapse each section. When applicable, the plus or minus signs by each section indicate if the data differences were an increase, decrease, or if modifications were made from your last successful data upload. The example that follows shows a summary of the Schema Differences dialog box.



- **Processing Initiated**: Processing Initiated provides a real-time visual on the status of automatic job runs for enabled data targets. As the uploaded data is being validated, Processing Initiated updates as follows:
  - **In Progress**: A spinning wheel indicating the upload is processing.
  - **Green Checkmark**: All verification checks passed and all jobs for enabled data targets have automatically started processing.
  - **Yellow Flag**: This upload will not automatically run all jobs. Changes were found that require your review as well as manual steps to start your job(s). To run your job(s), see **"Enable and Run Data Targets" on**

page 98.

- **Not Applied**: Identified as a open gray circle  , indicates that a job run was not attempted due to either of the following:
  - A File Validation failure. Upload a correct dataset and try again.
  - No enabled data targets found. Enable a data target to allow an automatic job run with your next upload.

Processing Status Colors and Symbols

As the upload processes, different indicators let you know the status using the following colors and symbols.

Symbols		Descriptions of When Used
	In Progress	All Sections: A spinning wheel indicating the upload is processing.
	Green Check-mark	File Validation: The process passed. Data Consistency: The upload passed file validation and all data consistency checks. Processing Initiated: All jobs for enabled data targets are running with the current upload.
	Yellow Flag	Data Consistency: File validation passed; however, changes were found that require your attention. Review the Upload Activity pane for further details and either upload a new dataset if the changes were not intentional, or manually start your job to approve the changes. Processing Initiated: Any job fails to start automatically. Manual steps are required to start the job. Refer to the Upload Activity Pane for further details.
	Red Triangle	File Validation: The upload failed the file validation checks. Your data must be corrected and re-uploaded. Data Consistency: Data consistency checks failed to run correctly. Try your upload again then reach out to GeoComm for help.
	Not Applied	Data Consistency: The process did not run. File validation failed so no data consistency checks ran. Processing Initiated: No job runs were attempted.
	Green Circle	File Validation: The upload passes file validation and has begun data consistency verification. Data Consistency: The upload passes file validation and data consistency verification and all jobs for your data targets have started automatically.

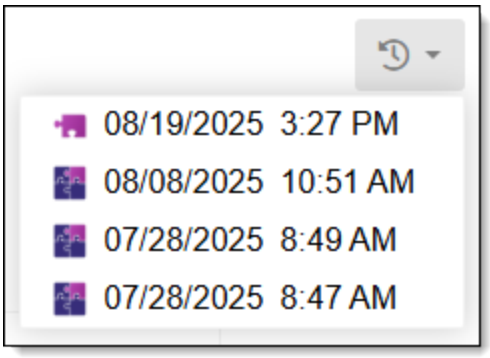
Symbols		Descriptions of When Used
	Yellow Circle	Data Consistency: The upload was successful and passes file validation but there were issues found during the data consistency verification that require your attention and are identified in the Upload Activity pane. Manual steps are also required to start your job(s).
	Red Circle	File Validation: The upload verification process detected an issue with the upload and further processing cannot occur. Data Consistency: The process has encountered an error.
	Gray Circle	File Validation: Processing has not started. When dark gray, an error was encountered. Data Consistency: Processing has not started or the upload has failed.

Table 1. *Processing Status Colors and Symbols*

Download Source Data Files

There may be times when submitted source data needs to be reviewed to troubleshoot unexpected results. From the **Submit New Data** page, authorized users have the ability to download source data for these reviews.

Uploaded data is added to the access recent uploads list—the list includes your most recent four uploads, partial or complete. Your files will be available regardless if your upload processed successfully or failed to better assist in troubleshooting.



As additional uploads are submitted, the oldest files are automatically deleted from the list. If no data files are available to download, the button is gray (inactive) and a message alerting you that recent uploads are not available is shown if selected.

Complete the following to download previously submitted source data files.

1. From the Side Panel, select **Submit New Data**.
2. In the upper right corner, click the **Access recent uploads**  button.

   A list of available uploads are shown.
3. In the **Access recent uploads** drop-down, select the date of the source data files you want to download.

   *The **Access recent uploads** button shows a progress indicator while the data is downloading. When the download is complete, or if it fails, a confirmation message is shown in the upper right corner and the file is added to your downloads folder.*

   The name of the zip file created is: GDH_Source_Upload_YYMMDD_HHMM (user's local time).

   > **Note:** If the system's gdh_complete_dataset is missing, this implies a processing error occurred with your data upload. Reach out to your GeoComm team for assistance with failed uploads, see **"Contact Us" on page 255**.

   What's Included in the GDH Source Upload Zip File?

   The following provides some additional details for what is included in the zip file.

   - The zip file includes your source data as you uploaded it.
   - GIS Data Hub's standardized version of your data, where all feature classes, Shapefiles, CSV's, excel documents, and tables are combined into one geodatabase (GDB).
   - A standardized GDB is included as a zip file called "gdh_complete_dataset".
   - Your zipped source data is provided exactly as it was uploaded other than the zip file name being updated to lowercase.

> **Important:** GIS Data Hub uses updated technology that may be incompatible with older versions of ArcGIS Pro or ArcMap. Therefore, viewing GIS Data Hub's normalized dataset with all your data may require a newer version of ArcGIS Pro to view.

Features

The application provides features such as the Data Targets and Analytics to help users manage their data submissions and fallout reports.

Account Settings

Use Account Settings to setup distribution lists for the recipients to receive e-mail notifications for specific data activity and set up configuration settings for your data targets. See **"Account Settings" on the next page**.

Analytics

Analytics provides reports for your Quality Control (QC) check processing and fallout error messages from your latest data runs. See **"Analytics" on page 79**.

Dashboard

Use the Dashboard to view GIS readiness results of your data targets by displaying reports of any critical errors and warnings for the selected data target and specified date range.

Data Packages

Use Data Packages to download available packages for use in other systems and agencies, make corrections using an ArcGIS product, manage packages, templates, and locators, and view the latest package download activity. See **"Data Packages" on page 116**.

Data Targets

Use Data Targets to view available Data Target Cards to consume your data uploads and identify errors which require correction before running the data submission through GIS Data Hub quality control (QC) checks. See **"Data Targets" on page 96**.

Exception Codes

Use Exception Codes to exclude a feature or tabular record from a particular action in GIS Data Hub. See **"Exception Code Basics" on page 235**.

Account Settings

Account Settings enables you to setup distribution lists for the recipients to receive e-mail alerts for specific data activity and set up configuration settings for your data targets.

Data Target Configuration

Data Target Configuration enables approved users to manage data target configurations such as edit a data target name, add a layer, add or edit layers and layer fields, delete a layer, or assign a Quality Control (QC) check to a layer and more. See **"Data Target Configuration" below**.

E-mail Notifications

E-mail Notifications account setting allows you to define recipient distribution lists to receive e-mail alerts for specific data activity and notification types. See **"E-mail Notifications" on page 68**.

Fallouts and QC Configuration

Fallouts and QC Configuration allows approved users the ability to configure QC check fallouts to be grouped together based on a the reference field. See **"Fallouts and QC Configuration" on page 72**.

GIS Data Merging

GIS Data Merging allows the results from multiple originator agency data sets to be merged into a single file geodatabase. See **"GIS Data Merging" on page 76**.

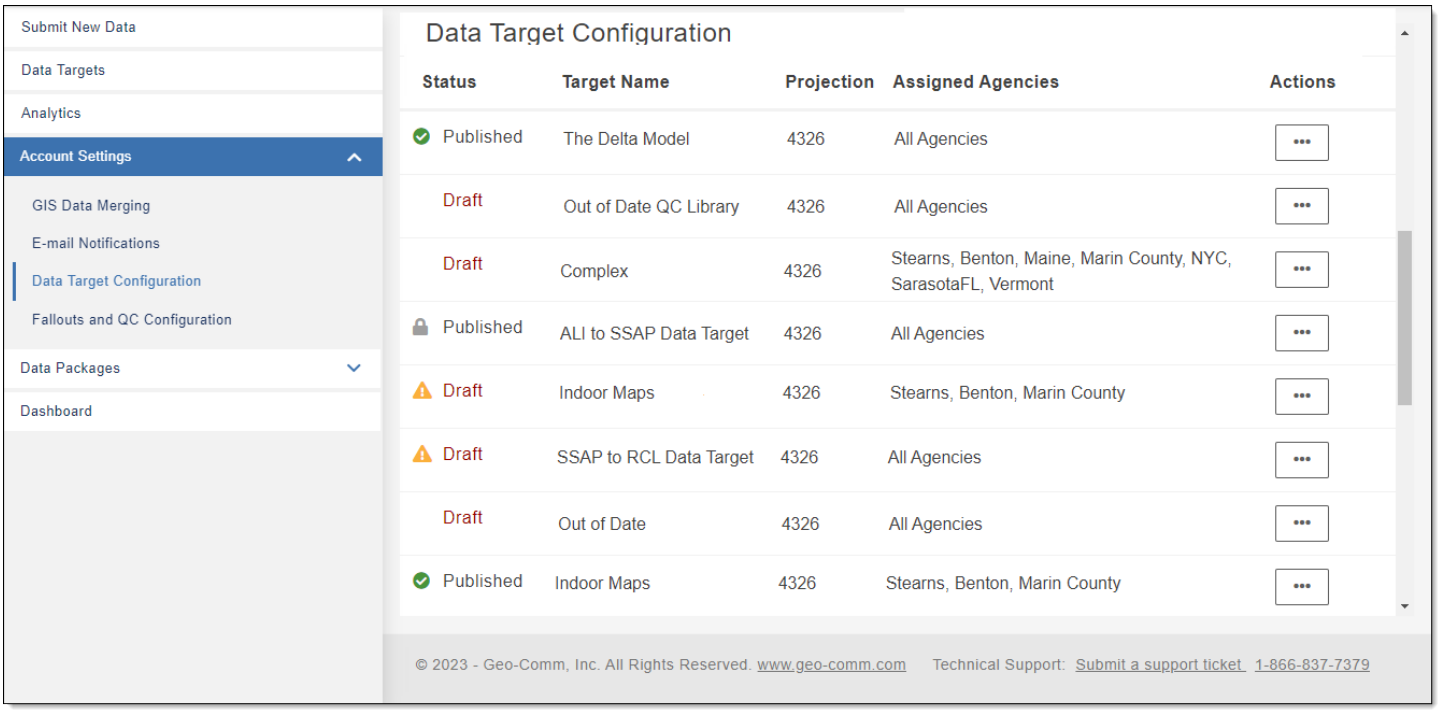
Data Target Configuration

Data Target Configuration functionality may not be available to all users.

Data Target Configuration enables approved users the ability to manage the configuration of data targets. These users have the ability to assign agencies, edit a data target name or projection, add layer(s), edit existing layer fields, add a field, copy a layer, delete a layer, or assign a Quality Control (QC) check to a layer and more.

By default, GeoComm UDM Default and NENA Default data targets are available to all agencies in the Data Target Configuration.

Data Target Configuration Workspace



- **Status**: Identifies the current status for each target data. The following statuses are available.
  - **Published (locked)**: Assigned to standard data targets created for the application and cannot be edited or deleted. The data target can be copied to create a new data target where you can make changes to the configuration.
  - **Published (green checkmark)**: Assigned to data targets that have been published and added to the Data Target list where layer and field mapping can be completed and the **Data Target** used to run data.
  - **Draft**: Assigned to data targets that are being set up and have not been published.
- **Target Name**: Identifies the target name assigned to the data target.
- **Projection**: Provides the spatial reference identifier (SRID) for the coordinate system used for exported data.
- **Assigned Agencies**: Provides a list of agencies that are assigned to the data target and enables authorized users the ability to assign or remove agencies from the data target. See **"Assign or Remove Agencies from a Data Target" on the next page**.
- **Actions**: Provides a list of actions available when working with the selected data target that may include the following:

  Available actions vary depending on the current status of the data target.

- **Edit**: Enables you to edit the configuration for the selected data target. See **"Edit a Data Target's Configuration" on page 43**.

  *If changes are made to a published data target, the status automatically changes to draft and the **Data Target** is removed from the **Data Targets** list. Publish the target to add back to **Data Targets**.*

- **Publish**: Use **Publish** to publish data targets. These data targets are then added to the Data Target list where layer and field mapping can be completed and used to run data. See **"Publish a Data Target Configuration" on the next page**.
- **Copy**: Use to copy an existing data target and customize the configuration to create a new data target. See **"Copy a Data Target Configuration" on the next page**.
- **Delete**: Delete the selected data target configuration. See **"Delete a Data Target Configuration" on page 43**.

Assign or Remove Agencies from a Data Target

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Data Target Configuration**.
3. Locate the **Data Target Configuration** whose agencies you want to edit and click the data target row.

   *The **Assigned Agencies** list appears.*

4. To assign an agency to a data target complete the following.
   - In **Assigned Agencies**, click in the **Add another agency** box.
   - In the **All Agencies** list that opens, click to select and assign the agency to the data target.
   - Repeat to assign another agency.

     The agency is added to the data target, and the agency now has data available in Analytics and in Dashboard reporting.

5. To remove an agency from a data target complete the following.
   - In **Assigned Agencies**, click the **X** that follows the agency name.
   - Click **Yes, Delete** to confirm and remove the agency from the data target.

     The agency is removed from the data target, and the agency no longer has the data available in

Analytics or in Dashboard reporting.

- Repeat to remove another agency.

Edit a Data Target Configuration

The **Edit** action enables you to edit the configuration for the selected data target. Here you can perform such tasks as the following: Update the title or projections, add or delete layer(s), edit or copy layers, and enable or disable exception code usage. See **"Edit a Data Target's Configuration" on the next page**.

Publish a Data Target Configuration

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Data Target Configuration**.
3. Locate the **Data Target Configuration** you want to publish.
4. In the **Actions** column, select  to view available actions.
5. To publish data targets, select **Publish** and **OK** to confirm.

   *A confirmation message confirming the data target was published appears, the status of the data target in the **Data Target Configuration** list changes to **Published**, and the data target is published to the **Data Targets**.*

Copy a Data Target Configuration

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Data Target Configuration**.
3. Locate the **Data Target Configuration** you want to copy.
4. In the **Actions** column, select  to view available actions.
5. Select **Copy**.

   The Copy <target name> form opens.
6. In the **Target Name** box, enter a name for the target you are copying.
7. Click **Save**.

   *The data target is added to the **Data Target Configuration** list as a draft where you can add agencies and publish the data target.*

Delete a Data Target Configuration

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Data Target Configuration**.
3. Locate the **Data Target Configuration** you want to delete.
4. In the **Actions** column, select ••• to view available actions.
5. Select **Delete**.

   A warning confirming the deletion of the data target configuration appears.
6. Click **Yes, Delete** to confirm.

   *The data target is removed from the **Data Target Configuration** list.*

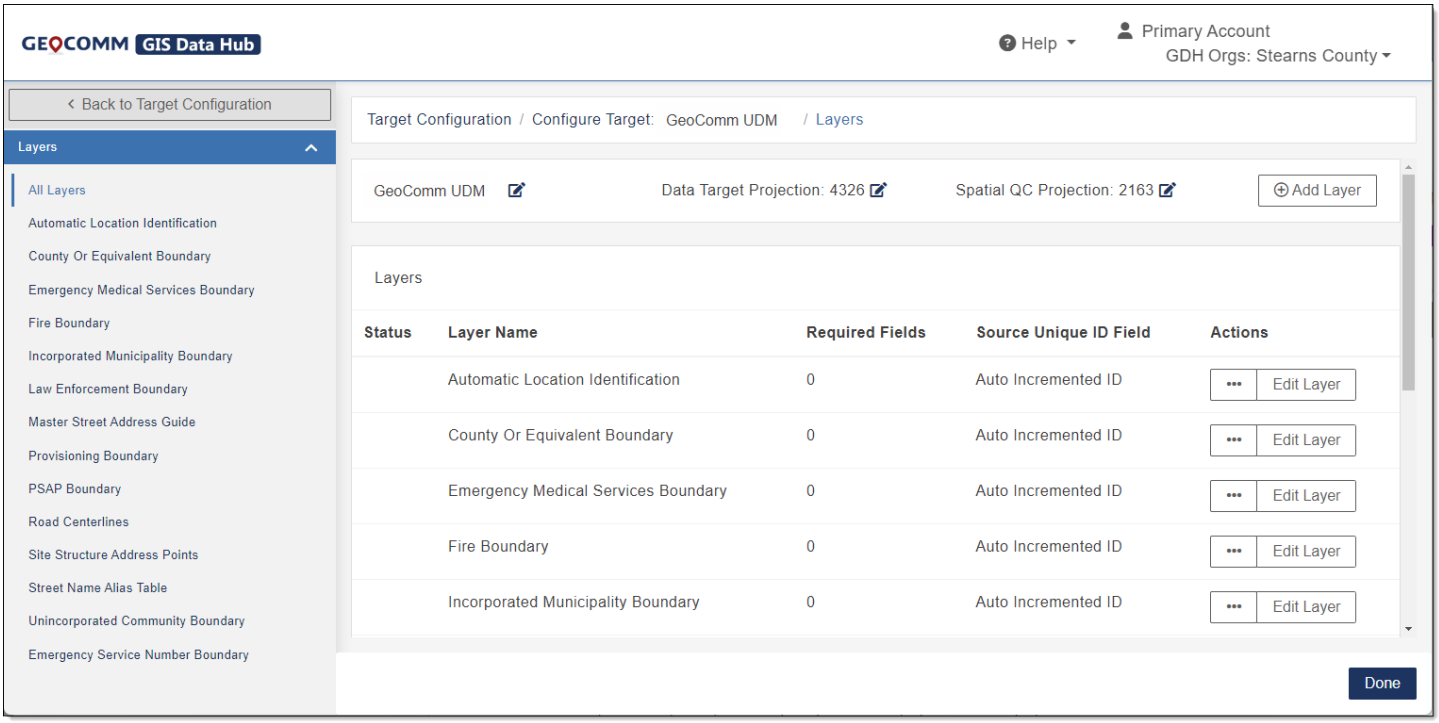
Edit a Data Target's Configuration

The **Edit** option from the **Action** menu enables you to edit the configuration for the selected data target. From the **Target Configuration** page, you can make edits such as: update the title or projection, add, edit, or delete layers and fields, edit or copy layers, enable or disable exception code usage, update the globally unique ID field, and even add quality control checks.

Important: If changes are made to a published data target, the status automatically changes to draft and the **Data Target** is removed from the **Data Targets** list. Publish the target to add back to the **Data Targets** list.

Target Configuration Workspace

The **Target Configuration** workspace consists of the following sections.



- **Layer Panel**: The **Layer Panel** displays a list of the layers for the selected data target. Clicking a layer opens the target configuration page for the selected layer.
- **Data Target Configuration Title**: The title provides a description of the data target you are configuring.
- **Target Name, Data Target Projection, Spatial QC Projection, and Add Layer**: This section consists of the following options that can be edited or added for the data target you are configuring.
  - **Target Name**: The title of the data target you are configuring.
  - **Data Target Projection**: Shows the current data target projection and enables you to enter a different projection. The default setting is 4326 (WGS1984). If a projected coordinate system is entered, this projection system is used to run spatial QC checks.
  - **Spatial QC Projection**: Shows the current spatial QC projection and enables you to enter a different projection. The Spatial QC Projection is required when the Data Target Projection is a geographic coordinate system since geographic coordinate systems cannot be used to run spatial QC checks. The

default setting is 2163 (US National Equal Area).

- **Add Layer**: Allows you to add a layer or table to the data target.

- **Target Configuration Grid**: The grid consists of the following sections.
  - **Status**: Identifies when a QC check is not configured correctly for the layer by adding an alert symbol  to the **Status** column.
  - **Layer Name**: Identifies the layer within the application that can be configured for use with selected QC checks.
  - **Required Fields**: Shows the number of required fields for this particular layer and allows you to set the fields within a layer to required. See **"Configure Data Target Layer Fields" on page 52** to set a field in a layer to required.
  - **Source Unique ID Field**: Identifies the unique identifier (ID) the application uses to process your data. This field is not used for reporting. Only unique ID fields in the QC check set up area are used for reporting.
  - **Actions**: Provides a list of actions available when working with the selected layer that may include the following:
    - **Edit Layer**: Enables you to adjust the configuration for the selected layer such as changing the layer name, field names, adding new fields, making particular fields a requirement, and setting up QC checks where the layer in question should be used.

      *If changes are made to a published data target, the status automatically changes to draft and the **Data Target** is removed from the **Data Targets** list. Publish the target to add back to **Data Targets**.*

    - **Copy**: Use to duplicate an existing layer which then can be edited to create a new layer based on a pre-existing layer, instead of having to create a new layer from the beginning. With this method, all fields in the pre-existing layer are copied.
    - **Delete**: Delete the selected layer.

- **Done**: Changes made to the Data Target Configuration are saved and the Data Target is updated.

Edit a Data Target Name

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Data Target Configuration**.
3. Locate the data target you want to edit.

4. In the **Actions** column, select  to view available actions and select **Edit**.

   The Target Configuration - Layers window opens.

5. By the **Data Target** name, click  to open the **Edit <Target Name>** form.
6. In the **Target Name** field, type the new target name.
7. Click **Save**.
8. When you are finished making changes to the **Target Configuration** page, in the lower right corner, click **Done**.

   Changes made to the target configurations are saved—the Data Target is updated.

Edit a Data Target Projection

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Data Target Configuration**.
3. Locate the data target you want to edit.
4. In the **Actions** column, select  to view available actions and select **Edit**.

   The Target Configuration - Layers window opens.

5. By **Data Target Projection**, click  to enable editing.
6. In the **Data Target Projection** field, use the arrows or type the new spatial reference identifier (SRID) of the data target projection you want to use.
7. Click **Save**.
8. When you are finished making changes to the **Target Configuration** page, in the lower right corner, click **Done**.

   Changes made to the target configuration are saved—the Data Target is updated.

Edit a Spatial QC Projection

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Data Target Configuration**.
3. Locate the data target you want to edit.
4. In the **Actions** column, select  to view available actions and select **Edit**.

The Target Configuration - Layers window opens.

5. By **Spatial QC Projection**, click  to enable editing.
6. In the **Spatial QC Projection** field, use the arrows or type the new SRID of the spatial QC projection you want to use.

   Changing the Spatial QC Projection is a global change and changes all spatial checks for the data target.

   > **Note:** This is only required if your data target projection is in a geographic coordinate system since spatial QC checks require a projected coordinate system. Your data target is still created in the requested geographic coordinate system, but your spatial checks will run using this projected coordinate system.

7. Click **Save**.
8. When you are finished making changes to the **Target Configuration** page, in the lower right corner, click **Done**.

   Changes made to the target configuration are saved—the Data Target is updated.

   > **Note:** When editing the **Spatial QC Projection** field, click  to reset to the default setting.

Add a New Layer

Add Layer allows you to add a new layer to the grid where it can be edited for use and assigned to a QC check or the layer can be mapped to your data targets. See **"Map Your Data Layers" on page 102**.

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Data Target Configuration**.
3. Locate the data target you want to edit.
4. In the **Actions** column, select  to view available actions and select **Edit**.

   The Target Configuration - Layers window opens.

5. In the upper right of the page, click **Add Layer**.

   *The **New Layer** form opens.*

6. In the **Layer Label** field, type a friendly name to reference the layer in the application.
7. In the **Layer Name** field, type the feature class or table name.
8. If the layer contains geometry, select the **Contains Geometry** check box.
9. In **Geometry Type**, select the type (Point, Line, or Polygon) of geometry.
10. Click **Save**.

    *The new layer is added to the **Layers** list.*
11. When you are finished making changes to the **Target Configuration** page, in the lower right corner, click **Done**.

    Changes made to the target configuration are saved—the Data Target is updated.

Edit a Layer

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Data Target Configuration**.
3. Locate the data target you want to edit.
4. In the **Actions** column, select  to view available actions and select **Edit**.

    The Target Configuration - Layers window opens.
5. Locate the layer you want to edit.
6. In the **Actions** column, select **Edit Layer**.

    The edit layer page for the selected layer opens.

    1. In the edit layer page complete any of the following.

        Change the Layer Name

        1. By the layer name, click edit  .
        2. In the **Layer Label** field, type a friendly name to reference the layer in the application.
        3. In the **Layer Name** field, type the feature class or table name.
        4. Click **Save**.

        Edit Exception Code Field

        Use the **Exception Code Field** to exclude a feature or tabular record from a particular action in GIS Data Hub.

The **Exception Code Field** defaults to **None** unless a field in the layer is named gcexception or gc_exception. If a field is found with either of these field names, the **Exception Code Field** drop-down is prefilled with that field name. If your exception codes are located in data target field other than gcexception or gc_exception, the field can be selected from the drop-down. See **"Exception Code Basics" on page 235** for additional information on exception codes.

Complete the following to edit the **Exception Code Field** drop-down.

1. Expand the selected layer name to show the **Exception Code Field**.
2. Expand the **Exception Code Field** drop-down and click to select the field in your data target where your exception code is located.

   A confirmation message is shown.

3. Click **Done**.

   Important: The **Exception Code Field** drop-down must be mapped to the field in your data target that contains your exception codes. If that field is not gcexception or gc_exception, then manually select the correct field to ensure exception codes are enabled for that layer in your data target. Additionally, the source data must be field mapped for GIS Data Hub to read and apply any exception codes correctly. See **"Map a Target Field in a Data Layer" on page 107** to map your data layer field in your data target.

Edit Global Unique ID

When **Global Unique ID** is configured, all layers/tables with the configured parameter are scanned and their unique ID field is checked globally for uniqueness. This field defaults to none which is used when you do not want your data checked globally.

Additionally, the **Global Unique ID** field can be used during your data's transformation validation to provide the unique ID for the record or feature in the fallout report when applicable. The fallout report uses values from the configured **Global Unique ID** parameter, tying a transformational validation fallout to a specific feature within the layer. This also applies to tables.

> **Note:** If the Global Unique ID is not set for the selected layer, the Object ID is used. It is recommended that the Global Unique ID is always configured.

Complete the following to edit the **Global Unique ID** field.

1. Expand the selected layer name to show the **Global Unique ID** field.
2. Expand the **Global Unique ID** drop-down and click to select the field you want to use.

   A confirmation message is shown.
3. (Optional) If using the Global ID for transformational fallouts and want to configure the Report Column QC check setting, see **"Configure Data Target QC Checks" on page 61**.
4. Click **Done**.

Edit the Extras Field

The **Extras** parameter is used when configuring a SI Feed data structure. Please contact the GIS Maintenance Support Team for assistance.

Add, Edit, or Delete Layer Fields

In **Fields**, you can add a field, edit a field, or delete a field for a layer. See **"Configure Data Target Layer Fields" on page 52**.

Add, Edit, or Delete Quality (QC) Checks

In Quality Control (QC) Checks, you can add a QC check to a layer, edit settings for a QC check, or delete a QC check for a layer. See **"Configure Data Target QC Checks" on page 61**.

7. When you are finished making changes, in the lower right corner, click **Done**.

   Changes made to the target configuration are saved—the Data Target is updated.

   Map layers for the Data Target must be mapped before running the data target. See ***"Layer and Field Mapping" on page 99***.

Copy a Layer

Use to copy an existing layer when the fields needed are similar. Once copied, the new layer can be edited.

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Data Target Configuration**.

3. Locate the **Data Target Configuration** you want to edit.
4. In the **Actions** column, select  to view available actions and select **Edit**.

   The Target Configuration - Layers window opens.
5. Locate the layer you want to copy.
6. In the **Actions** column, select  to view available actions and select **Copy**.

   *The **Copy <Layer Name>** form for the selected data target opens.*
7. In the **Layer Name** field, type the new layer name.
8. Click **Save**.

   *The layer is added to the **Layers** list.*
9. When you are finished making changes to the **Target Configuration** page, in the lower right corner, click **Done**.

   Changes made to the target configuration are saved—the Data Target is updated.

Delete a Layer

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Data Target Configuration**.
3. Locate the **Data Target Configuration** you want to edit.
4. In the **Actions** column, select  to view available actions and select **Edit**.

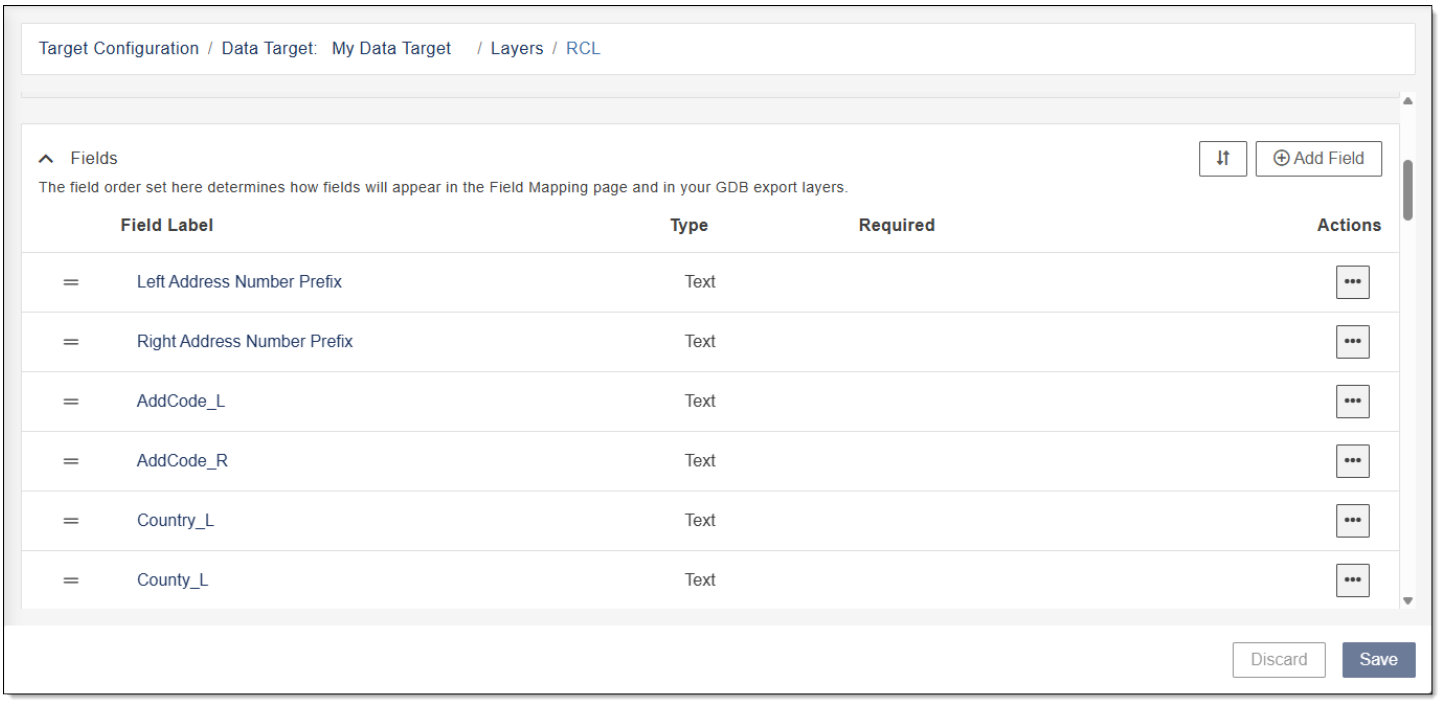
   The Target Configuration - Layers window opens.
5. Locate the layer you want to delete.
6. In the **Actions** column, select  to view available actions and select **Delete**.
7. Click **Yes, Delete** to confirm.

   *The layer is removed from the **Layers** list.*
8. When you are finished making changes to the **Target Configuration** page, in the lower right corner, click **Done**.

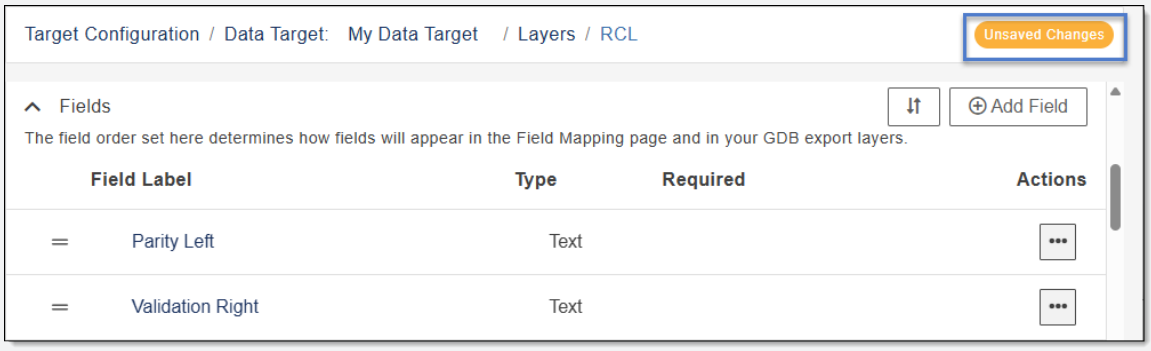
   Changes made to the target configuration are saved—the Data Target is updated.

Configure Data Target Layer Fields

The Configure Data Target Fields for a Layer section of **Data Target Configuration** enables you to add new fields for a layer, edit an existing field for a layer, delete a field for a layer, and customize how the fields appear in the Field Mapping page and in your geodatabase (GDB) output.



Important: Once you are satisfied, don't forget to save your changes—unsaved changes are lost if your session ends! A warning indicator in the upper-right hand corner lets you know when there are pending changes. Click the **Save** button at the bottom right corner to permanently save all changes applied to your fields.



Add a Custom Field to a Layer

Complete the following to add a custom field to a layer.

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Data Target Configuration**.
3. Locate the data target you want to edit.
4. In the **Actions** column, select  to view available actions and select **Edit**.

   The Target Configuration - Layers window opens.
5. Locate the layer you want to edit.
6. In the **Actions** column, select **Edit Layer**.
7. Expand **Fields** to view a list of **Field Labels** and **Actions** for the layer.
8. Click **Add Field**.
9. Click in the **Enter a column name** box and enter a friendly name for the new field.
10. Click **Save**  to save or **X** to delete.
11. Locate the new field in the **Field Label** list and configure the settings.
    - **Field Name**: Click in the **Field Name** box and type a field name with no spaces (e.g. St_PreTyp). This field is case sensitive.
    - **Required**: Mark the **Required** check box to make the field mandatory for a particular layer. Fields that are required are identified in the **Required** column of the **Fields** list.
    - **Type**: Select the type of field: **Text**, **Integer** (numbers without decimal points), **Float** (numbers with decimal points), or **Date**.
    - **Max Characters**: When the type selected is **Text**, enter the maximum allowable characters for the field.

      By default, text fields are defaulted to 255 characters.

      The field length for text fields range between 1 and 10,485,760. When using ArcMap, the max character field length limit is 255. When using ArcGIS Pro, the max character field length limit is 10,485,760.

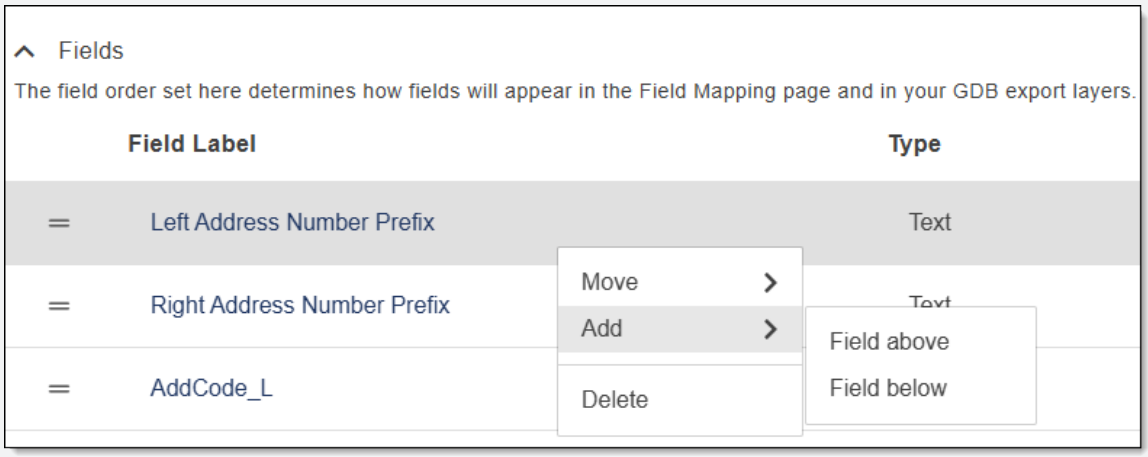
      If a field length is entered outside the allowable range, the Max Characters box is highlighted in red and a warning is shown. Enter a valid field length to correct and click anywhere on the page to remove the warning.

If a field is saved with an invalid Max Characters entry a yellow warning is shown  *, and you cannot publish the layer until it is corrected.*

- **Description**: Enter a description for the new field. For example, if the field name is Street Name Pre Type, the description may be: *A word or phrase that precedes the Street Name element and identifies a type of thoroughfare in a complete street name.*

12. If finished click **Save** in the lower right corner or to cancel and undo all of your changes, click **Discard**.
13. To view the next field in the **Field Label** list, click **Next Field**.

Tip: To quickly add a custom field, follow the instruction above to locate the **Fields** section. Right-click on the field row where you want to add the field, select **Add** and choose **Field above** or **Field below**. You can then configure the settings for the new field.



Edit Settings for a Data Target Layer Field

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Data Target Configuration**.
3. Locate the data target you want to edit.
4. In the **Actions** column, select  to view available actions and select **Edit**.

   The Target Configuration - Layers window opens.

5. Locate the layer you want to edit.
6. In the **Actions** column, select **Edit Layer**.

7. Expand **Fields** to view a list of **Field Labels** and **Actions** for the field.
8. Locate the field in the **Field Label** list click to select and expand the settings for the field.

   To collapse the field, click in the gray area of the field name.
9. Click in the **Field Name** box to edit the name shown in the Field Label list.
10. Complete any of the following to edit the settings for the field.
    - **Field Name**: Click in the **Field Name** box and type a field name with no spaces (e.g. St_PreTyp). This field is case sensitive.
    - **Type**: Select the type of field: **Text**, **Integer** (numbers without decimal points), **Float** (numbers with decimal points), or **Date**.
    - **Max Characters**: When the type selected is **Text**, enter the maximum allowable characters for the field.

      By default, text fields are defaulted to 255 characters.

      The field length for text fields range between 1 and 10,485,760. When using ArcMap, the max character field length limit is 255. When using ArcGIS Pro, the max character field length limit is 10,485,760.

      If a field length is entered outside the allowable range, the Max Characters box is highlighted in red and a warning is shown. Enter a valid field length to correct and click anywhere on the page to remove the warning.

      If a field is saved with an invalid Max Characters entry a yellow warning is shown  *, and you cannot publish the layer until it is corrected.*
    - **Description**: Enter a description for the new field. For example, if the field name is Street Name Pre Type, the description may be: *A word or phrase that precedes the Street Name element and identifies a type of thoroughfare in a complete street name.*
    - **Required**: Mark the **Required** check box to make the field mandatory for a particular layer. Fields that are required are identified in the **Required** column of the **Fields** list.
11. If finished click **Save** in the lower right corner or to cancel and undo all of your changes, click **Discard**.
12. To view the next field in the list, click **Next Field**.

Delete a Data Target Layer Field

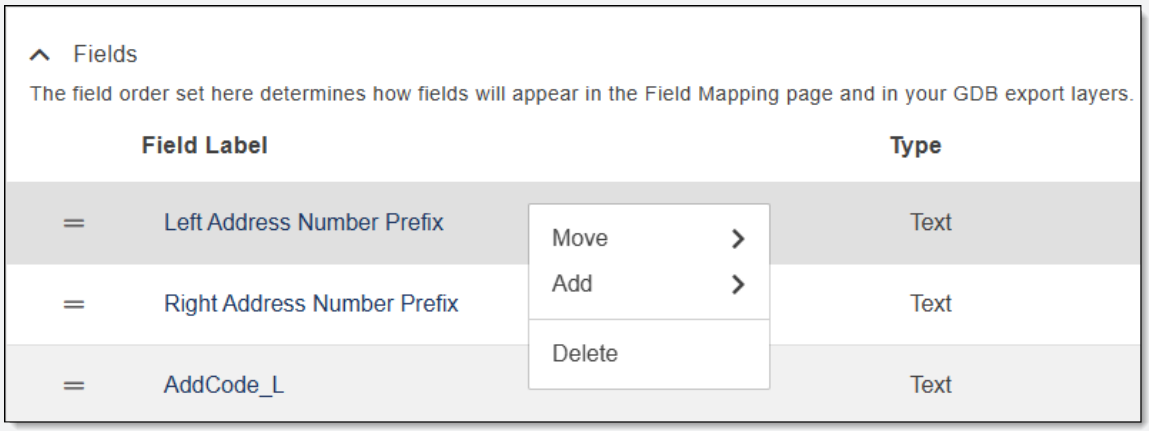
1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Data Target Configuration**.
3. Locate the data target you want to edit.
4. In the **Actions** column, select ••• to view available actions and select **Edit**.

   The Target Configuration - Layers window opens.
5. Locate the layer you want to edit.
6. Expand **Fields** to view a list of **Field Labels** and **Actions**.
7. In the **Field Label** list, locate the field you want to delete.
8. In the Actions column, select ••• for the field you want to delete.

   The field highlights and a pop-up with available actions opens.
9. Click **Delete**.

   A confirmation message appears confirming you want to delete the field.
10. Click **Yes, Delete** to confirm or click **Cancel**.

Tip: To quickly delete a field, follow the instruction above to locate the field you want to delete, then right-click on the field and select **Delete**.



Customize the Order of the Data Target Layer Fields

There are different ways you can customize the field order to change how the fields appear in the Field Mapping page and in your GDB output. Use the following to customize your fields order.

Sort All Fields

The **Sort All Fields** tool allows you to sort all the field labels in alphabetical order from A to Z or Z to A or by Field Type (e.g., Text, Date). When sorting fields alphabetically, the actual field names are used, not the field alias.

Complete the following to use the **Sort All Fields** tool.

1. From the **Fields** section, click **Sort All Fields** to open a list of sort options.
2. From the list, select the option you want to use to sort the fields.

   A confirmation message appears asking you to confirm your selection.

   Important: Use caution when selecting the sort option of **Field Type**. If this option is selected, and confirmed and saved, you must manually move the fields to restore to the original order.
3. Click **Confirm** to apply the changes or select **Cancel**.

Move a Field Using Drag and Drop

Complete the following to move fields in your list to the order you want them to appear in the Field Mapping page and in your GDB layers using the drag and drop function.

1. Locate the field you want to move in the **Field Label** column.
2. Hover over the grip lines in the field you want to move.

   The row highlights, a hand allowing you to grab the field appears, and a message informing you that you can drag and drop to reorder the fields is shown.

   Note that only one field can be moved at a time using the drag and drop function. To move multiple fields at once, see ***"Move a Field Using Actions" on the next page*** *or* ***"Move a Field using the Right-Click Menu" on page 59****.*
3. Left-click and hold the field you want to move.
4. Drag the field to the location where you want it moved to in the list.

As you drag the field, the location where the field will be placed is highlighted in blue.

5. Release the mouse button to drop the field into place.

   The field moved remains highlighted.

6. Repeat for any other fields you want moved.
7. To save your changes click **Save** or to cancel and undo all of your changes, click **Discard**.

   A confirmation message is shown when complete.

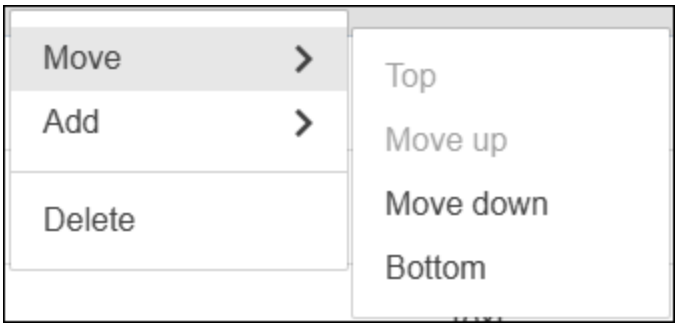
Move a Field Using Actions

Complete the following to move fields in your list to the order you want them to appear in the Field Mapping page and in your GDB layers using **Actions**.

1. Locate the field you want to move in the **Field Label** column.
2. (Optional) To move more than one field at a time, press and hold control and click the grip lines for all the fields you want to move.

   Selected fields are highlighted.

3. In the field under the **Actions** column, select .
4. In the pop-up that opens, hover over **Move**, then click to select an option to move the field up, down, to the top or to the bottom.



   *The field(s) is highlighted and moves to the location selected. If multiple fields were selected, they remain in the order they were in the **Fields** section.*

5. To save your changes click **Save** or to cancel and undo all of your changes, click **Discard**.

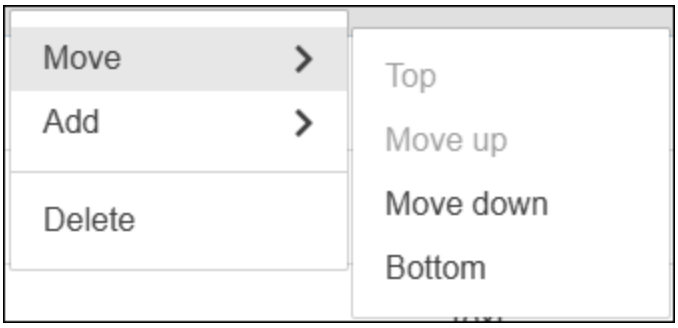
   A confirmation message is shown when complete.

Move a Field using the Right-Click Menu

Complete the following to move fields in your list to the order you want them to appear in the Field Mapping page and in your GDB layers using the right-click menu.

1. Locate the field you want to move in the **Field Label** column.
2. (Optional) To move more than one field at a time, press and hold control and click the grip lines for all the fields you want to move.

   Selected fields are highlighted.
3. Hover over the field(s) you want to move and right-click.
4. In the pop-up that opens, hover over **Move**, then click to select an option to move the field(s) up, down, to the top or to the bottom.



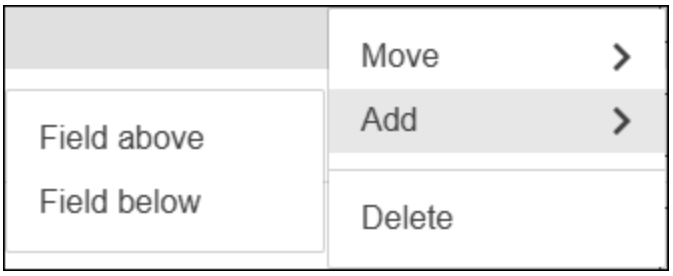
   *The field(s) is highlighted and moves to the location selected. If multiple fields were selected, they remain in the order they were in the **Fields** section.*
5. To save your changes click **Save** or to cancel and undo all of your changes, click **Discard**.

   A confirmation message is shown when complete.

Shortcuts to Add a Field

Add a Field Using Actions

1. Locate the row in the **Field Label** column where you want to add a new field.
2. In the field under the **Actions** column, click .
3. In the pop-up that opens, hover over **Add**, then click to select an option to add a new field above or below the highlighted field.



*The field is added based on your selection, has a Field Label of **New Field**, and a warning is shown alerting you that the new field is not configured. Click the new field to expand and see **"Add a Custom Field to a Layer" on page 53** for instruction on configuring the new field.*

4. To save your changes click **Save** or to cancel and undo all of your changes, click **Discard**.

   A confirmation message is shown when complete.

Add a Field Using the Right-Click Menu

1. Locate the field in the **Field Label** column where you want to add a new field.
2. Hover over the field and right-click.
3. In the pop-up that opens, hover over **Add**, then click to select an option to add a new field above or below the highlighted field.

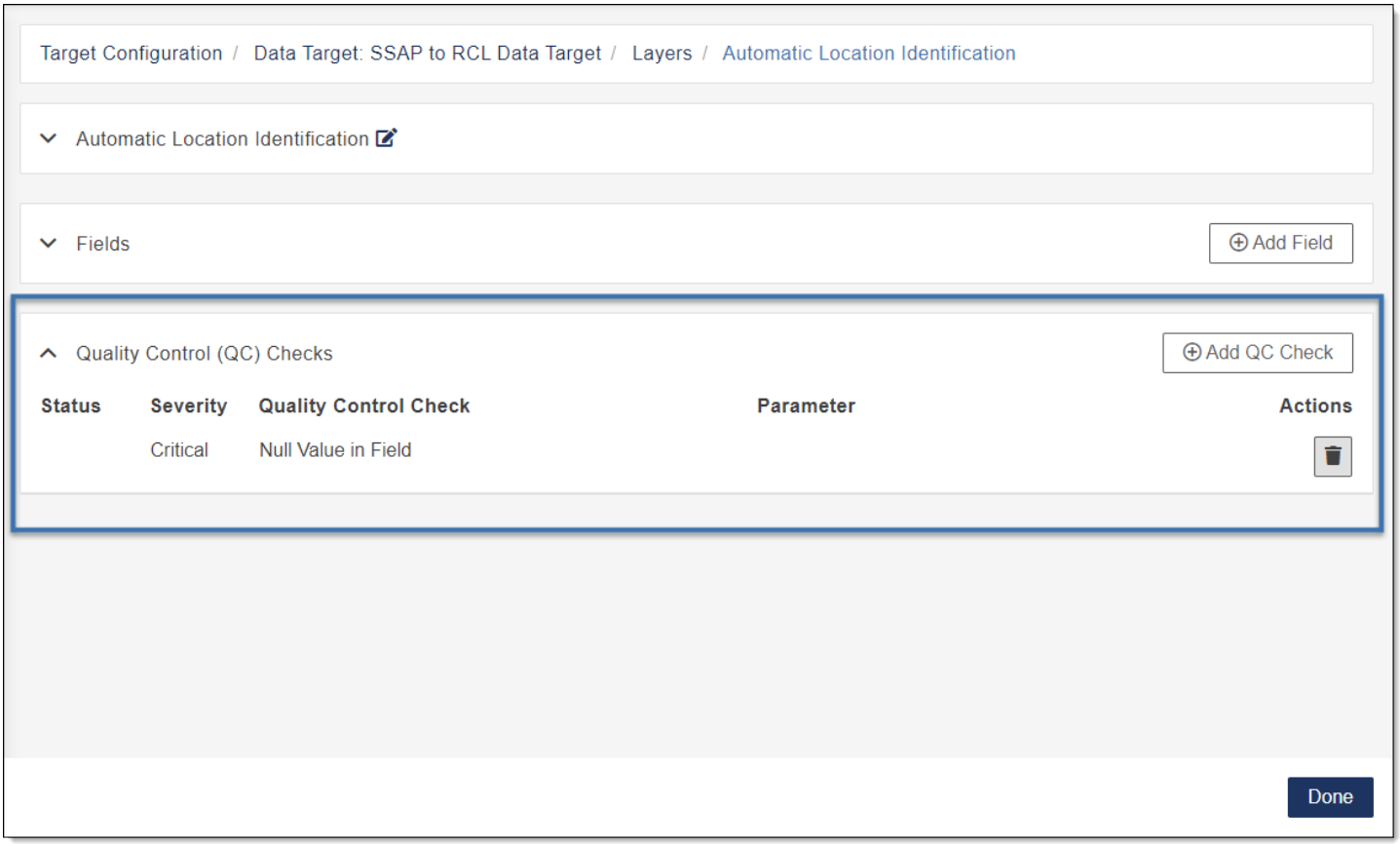
*The field is added based on your selection, has a Field Label of **New Field**, and a warning icon ⚠ is shown alerting you that the new field is not configured. Click the new field to expand and see **"Add a Custom Field to a Layer" on page 53** for instruction on configuring the new field.*

4. To save your changes click **Save** or to cancel and undo all of your changes, click **Discard**.

   A confirmation message is shown when complete.

Configure Data Target QC Checks

The Configure Quality Control Checks section of **Data Target Configuration** enables you to add a new QC check, edit an existing QC check, or delete a QC check for a given layer or table.



Add a QC Check to a Layer

Complete the following to add a QC check to a layer.

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Data Target Configuration**.
3. Locate the **Data Target Configuration** you want to edit.
4. In the **Actions** column, select ••• to view available actions and select **Edit**.

   The Target Configuration - Layers window opens.

5. Locate the layer you want to edit and select **Edit Layer**.

   The Target Configuration - Layers window opens for the layer selected.

6. Scroll to the **Quality Control (QC) Checks** section.
7. Expand **Quality Control (QC) Checks** to view a list of QC Checks for the layer.
8. Click **Add QC Check**.
9. Click in the **Select a Quality Control Check** box to view a list of QC checks, click to select.

   If the QC check is available for the layer it is added to the Quality Control QC Checks list and configurable settings are shown.

   The QC check will show an alert symbol  *until the QC check is configured for the layer.*
10. Configure the settings shown for the selected QC check. Refer to the specific QC check for information on configuring the QC check's parameters, see **"QC Checks" on page 144**.
11. To save, click **Done** in the lower right corner.

Edit QC Check Settings for a Data Target Layer

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Data Target Configuration**.
3. Locate the **Data Target Configuration** you want to edit.
4. In the **Actions** column, select  to view available actions and select **Edit**.

   The Target Configuration - Layers window opens.
5. Locate the layer you want to edit and select **Edit Layer**.

   The Target Configuration - Layers window opens for the layer selected.
6. Scroll to the **Quality Control (QC) Checks** section.
7. Expand **Quality Control (QC) Checks** to view a list of QC Checks for the layer.
8. In the **Quality Control Check** column, locate the QC check you want to edit and click the row to expand and view settings.
9. Edit the configuration settings as needed for the QC check. Refer to the specific QC check details for information on configuring the QC check's parameters, see **"QC Checks" on page 144**.
10. To save, click **Done** in the lower right corner.

Delete a QC Check from a Data Target Layer

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Data Target Configuration**.
3. Locate the **Data Target Configuration** you want to edit.
4. In the **Actions** column, select  to view available actions and select **Edit**.

   The Target Configuration - Layers window opens.

5. Locate the layer you want to edit and select **Edit Layer**.

   The Target Configuration - Layers window opens for the layer selected.

6. Scroll to the **Quality Control (QC) Checks** section.
7. Expand **Quality Control (QC) Checks** to view a list of QC checks for the layer.
8. In the **Quality Control Check** column, locate the QC check you want to delete.
9. Click **Delete**  .
10. Click **Yes, Delete** to confirm.

QC Check Settings

Additional Acceptable Values

Additional Acceptable Values allows users to add additional pre-set values to your list of acceptable values for the Acceptable Values quality control (QC) check. Using these options, null values, empty strings, and whitespaces can easily be added to your acceptable values list like any other value on this list.

By default, the list of pre-set options available are disabled. When disabled, the following values will trigger a fallout: Null Values, Empty Strings, Blanks, or Whitespace (one or more spaces).

Examples

- **Null Values, Empty Strings, or Blanks is Enabled**: You configured this QC check on your RCL Pre-Directional field and the acceptable values list includes: N, S, E, and W.

  Because this option is enabled, any null values, empty strings, or blank spaces found will not trigger fallouts for the QC check.

- **Null Values, Empty Strings, or Blanks is Disabled**: You configured this QC check on your County boundary's Name field and the acceptable values list includes all the county names in your region.

  Because this option is disabled, null values, empty strings, and blank spaces are not added to your list of acceptable values and will trigger a fallout when found. This allows these fields to be identified so the missing value can be updated.

- **Whitespace (one or more spaces) is Enabled**: When enabled, the whitespace values is added to your list of acceptable values allowing the configured field to contain whitespace. When this option is enabled, any whitespace found will not trigger fallouts for the QC check.
- **Whitespace (one or more spaces) is Disabled**: When disabled, the whitespace value is not added to your list of acceptable values. When this option is enabled, any whitespace values found will trigger a fallout.

Add or Remove Additional Acceptable Values

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Data Target Configuration**.
3. Locate the **Data Target Configuration** you want to edit.
4. In the **Actions** column, select  to view available actions and select **Edit**.

   The Target Configuration - Layers window opens.

5. Locate the layer you want to edit and select **Edit Layer**.

   The Target Configuration - Layers window opens for the layer selected.

6. Scroll to the **Quality Control (QC) Checks** section.
7. Expand **Quality Control (QC) Checks** to view a list of QC Checks for the layer.
8. In the **Quality Control Check** column, locate the QC check you want to edit and click the row to expand and view settings.
9. In the **Additional Acceptable Values** section, click the check box(es) to enable or disable the selected additional acceptable values.

   When a check box is checked, the additional acceptable values listed are enabled. When unchecked, the additional acceptable values listed are disabled.

10. To save, click **Done** in the lower right corner.

Additional Unacceptable Values

Additional Unacceptable Values allows users to add additional pre-set values to your list of unacceptable values for the Unacceptable Values quality control (QC) check. Using these options, leading, trailing, null, and whitespace values can easily be added to your unacceptable values list like any other value on this list.

By default, the list of pre-set options available are disabled. When disabled, the following values do not trigger a fallout: Leading Spaces, Null Values, Trailing Spaces, Whitespace with spaces only, and Whitespace with multiple spaces between words.

Add or Remove Additional Unacceptable Values

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Data Target Configuration**.
3. Locate the **Data Target Configuration** you want to edit.
4. In the **Actions** column, select  to view available actions and select **Edit**.

   The Target Configuration - Layers window opens.

5. Locate the layer you want to edit and select **Edit Layer**.

   The Target Configuration - Layers window opens for the layer selected.

6. Scroll to the **Quality Control (QC) Checks** section.
7. Expand **Quality Control (QC) Checks** to view a list of QC Checks for the layer.
8. In the **Quality Control Check** column, locate the QC check you want to edit and click the row to expand and view settings.
9. In the **Additional Unacceptable Values** section, click the check box(es) to enable or disable the selected additional unacceptable values. When a check box is checked, the additional unacceptable values selected are enabled.

   When the check box(es) are unchecked, the additional unacceptable value(s) listed are disabled.

   Additional values include the following:

   - **Leading spaces (One or more space)**: Select this option to add leading spaces to the unacceptable values list when one or more space is located before the first text character.
   - **Null Values**: Select this option to search and flag null values.

- **Trailing spaces (One or more space)**: Select this option to add trailing spaces to the unacceptable values list when one or more space is located after the last text character.
- **Whitespace (Contains just spaces)**: Select this option to add whitespace to the unacceptable values list when the entire value is one or more space.
- **Whitespace (Contains multiple spaces between words)**: Select this option to add whitespace to the unacceptable values list when there are multiple spaces between words.

10. To save, click **Done** in the lower right corner.

Case Sensitivity

Case Sensitivity allows users to decide whether case sensitivity should impact accuracy during comparison style checks.

The **Case Sensitivity** setting can be enabled or disabled for any qualifying Quality Control (QC) check. When the setting is enabled, upper or lower text casing must match as the comparison is carried out. When disabled (default), upper or lower text casing is not considered during the comparison.

> **Note:** In most cases, turning case sensitivity on and enforcing match casing provides stricter criteria requiring more precise data.

Examples

- The Point to Polygon Attribute Compare QC check is configured on an MSAG Community polygon and MSAG Community field and it finds the following:
  - Point record's MSAG Community Field Value: My Awesome Community
  - Polygon record's MSAG Community Field Value: MY AWESOME COMMUNITY

    Results

    - **Case Sensitivity is Enabled**: When case sensitivity is enabled, match casing is enforced. Therefore, this scenario would flag and create a fallout because one example is upper cased while the other is proper cased. They do not match but should.

    - **Case Sensitivity is Disabled**: If case sensitivity is disabled, casing is not considered. Therefore, the example shown does not create a fallout because the values are a direct match.

- The Duplicate Value check is the only check made stricter by ignoring casing. For example, the Duplicate Value QC check is configured on a street full name field and finds two records:
    - N Main St
    - N MAIN ST

    Results

    - **Case Sensitivity is Enabled**: When case sensitivity is enabled, match casing is enforced. Therefore, this scenario would not flag a fallout because one instance is upper cased while the other is proper cased.
    - **Case Sensitivity is Disabled**: If case sensitivity is disabled, casing is not considered. Therefore, this example is flagged as a fallout.

QC Checks with Case Sensitivity Configurability

NENA standards and Esri do not enforce case sensitivity. However, the following QC checks can be configured to apply case sensitivity.

- Acceptable Values
- All Synchronization Checks
    - ALI to RCL
    - ALI to SSAP
    - MSAG to RCL
    - SSAP to MSAG
    - SSAP to RCL
- Duplicate Values
- Field Comparison
- Line to Polygon Attribute Compare

- Point to Polygon Attribute Compare
- Unacceptable Values

Add or Remove Case Sensitivity

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Data Target Configuration**.
3. Locate the **Data Target Configuration** you want to edit.
4. In the **Actions** column, select  to view available actions and select **Edit**.

   The Target Configuration - Layers window opens.

5. Locate the layer you want to edit and select **Edit Layer**.

   The Target Configuration - Layers window opens for the layer selected.

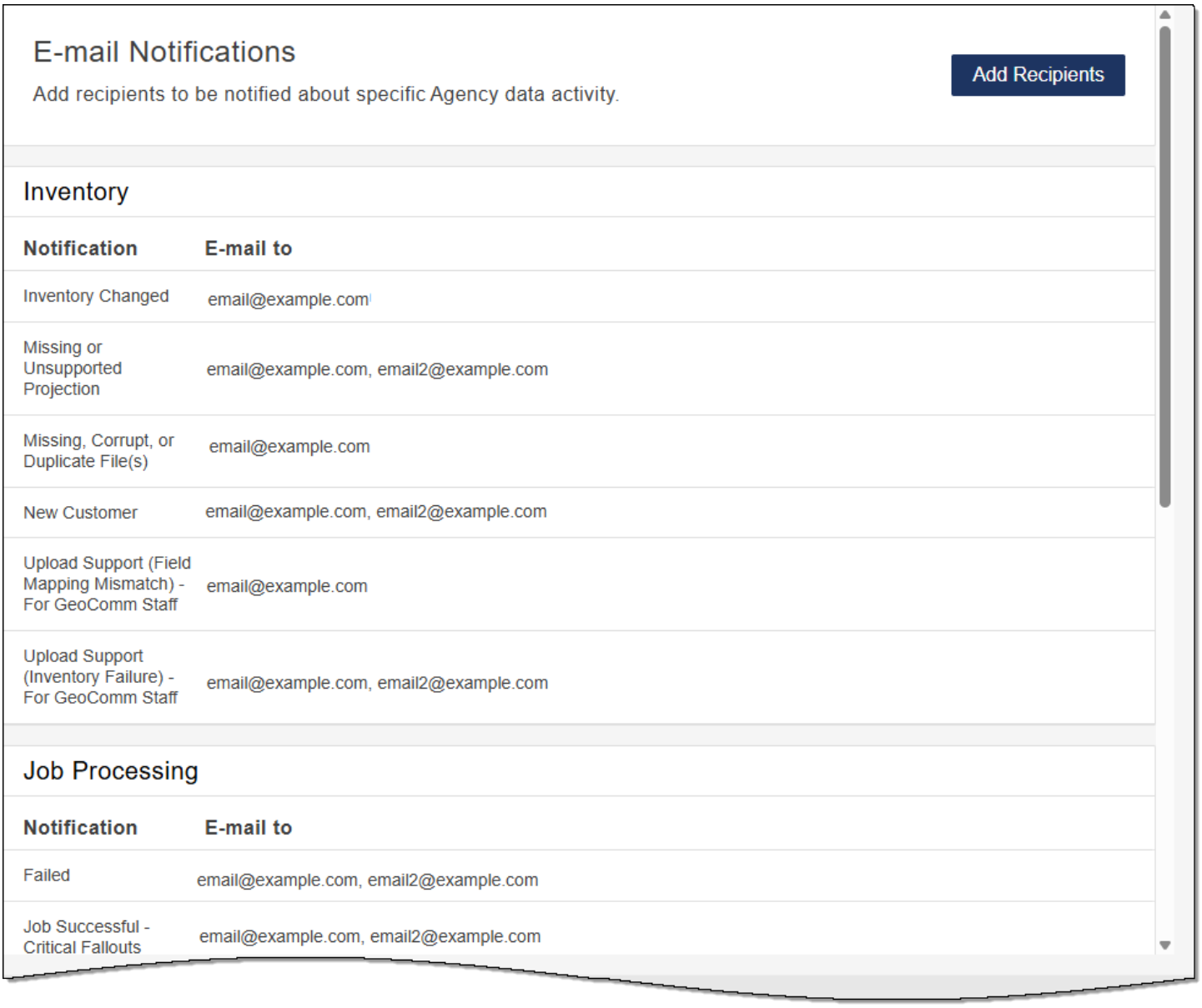
6. Scroll to the **Quality Control (QC) Checks** section.
7. Expand **Quality Control (QC) Checks** to view a list of QC Checks for the layer.
8. In the **Quality Control Check** column, locate the QC check you want to edit and click the row to expand and view settings.
9. In the **Case Sensitivity** section, click the **Match Case** check box to enable or disable case sensitivity.

   *When the **Match Case** check box is checked, case sensitivity is enabled. When unchecked, casing is disabled.*

10. To save, click **Done** in the lower right corner.

E-mail Notifications

Use **E-mail Notifications** to setup distribution lists for the recipients to receive e-mail alerts related to job activity. E-mail notifications can alert the user to different system-related category alerts such as those associated to **Inventory**, **Job Processing**, **GIS Data Merging**, **MMPK Build**, and **MSAG Build**.



Add Inventory Notification Recipients

Complete the following for each inventory notification option where you want to add an e-mail recipient(s).

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **E-mail Notifications**.
3. In the **Inventory** section, locate the notification type (e.g., New Customer, Inventory Changed) for which you want to add an e-mail recipient, click to select.
4. In the **E-mail to** box that appears, enter an e-mail address for each recipient.

5. Click **Save**.

   *The recipient(s) e-mail address is added to the **E-mail to** column.*

Add Job Processing Notification Recipients

Complete the following for each job processing notification option where you want to add an e-mail recipient(s). The e-mail notification is sent once the job is finished processing and the report is ready.

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **E-mail Notifications**.
3. In the **Job Processing** section, locate the notification type (e.g., Failed, Job Successful - No Fallouts Found) for which you want to add an e-mail recipient, click to select.
4. In the **E-mail to** box that appears, enter an e-mail address for each recipient.
5. Click **Save**.

   The recipient(s) e-mail address is added to the **E-mail to** column.

Add GIS Data Merging Notification Recipients

Complete the following for each GIS Data Merging notification option where you want to add an e-mail recipient(s).

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **E-mail Notifications**.
3. In the **GIS Data Merging** section, locate the notification type (e.g., Successful Merge) for which you want to add an e-mail recipient, click to select.
4. In the **E-mail to** box that appears, enter an e-mail address for each recipient.
5. Click **Save**.

   *The recipient(s) e-mail address is added to the **E-mail to** column.*

Add MMPK Build Notification Recipients

Complete the following for each Mobile Map Package (MMPK) build notification option where you want to add an e-mail recipient(s).

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **E-mail Notifications**.

3. In the **MMPK Build** section, locate the notification type (e.g., Successful, Failed) for which you want to add an e-mail recipient, click to select.
4. In the **E-mail to** box that appears, enter an e-mail address for each recipient.
5. Click **Save**.

   *The recipient(s) e-mail address is added to the **E-mail to** column.*

Add MSAG Build Notification Recipients

Complete the following for each MSAG Build notification option where you want to add an e-mail recipient(s).

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **E-mail Notifications**.
3. In the **MSAG Build** section, locate the notification type (e.g., Successful, Failed) for which you want to add an e-mail recipient, click to select.
4. In the **E-mail to** box that appears, enter an e-mail address for each recipient.
5. Click **Save**.

   *The recipient(s) e-mail address is added to the **E-mail to** column.*

Add Recipient(s) to Multiple Notification Types

Complete the following to add e-mail notifications for a recipient(s) to multiple categories and options.

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **E-mail Notifications**.
3. Click **Add Recipients**.

   *The **Add Recipients for <agency name>** form opens.*
4. In the **E-mail Addresses** box, enter an e-mail address for each recipient.
5. Complete one of the following.
   - **Send All Notifications to the Recipients**: To send e-mail notifications for all notification types, click the **Send All Notifications** check box.
   - **Send Select Notification(s) to the Recipients**: To send e-mail notification for select notification types, click the check box by each notification type in the **Inventory**, **Job Processing**, **GIS Data Merging**, **MMPK Build**, and/or **MSAG Build** lists.

6. Click **Save**.

   *The recipient(s) e-mail address is added to the **E-mail to** column for each notification type selected.*

Remove a Recipient(s) from a Notification

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **E-mail Notifications**.
3. Locate the recipient(s) in the **E-mail Notification** list.
4. Click the notification type from the list (e.g., Inventory > New Customer).

   The E-mail to box appears showing all recipients.

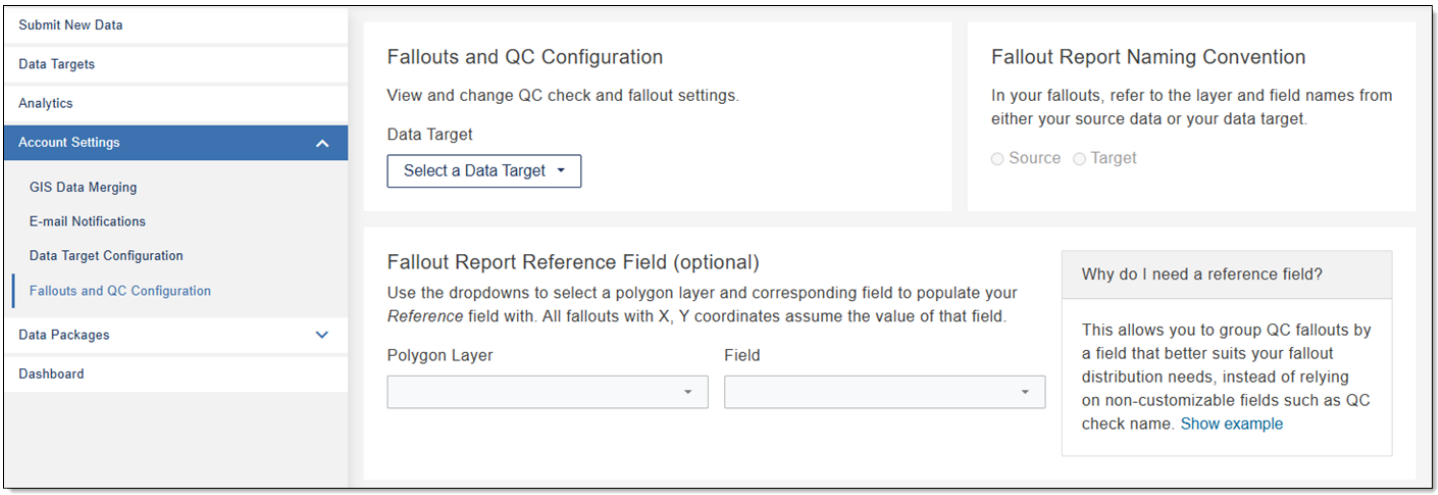
5. Complete one of the following.
   - **Remove Individual Recipient(s)**: To remove individual recipients, in the **E-mail to** box, click the X following the recipients e-mail address.
   - **Remove All Recipients**: To remove all recipients, click the X at the end of the **E-mail to** box.
6. Click **Save**.

   *The recipient(s) e-mail address(es) is removed from the **E-mail to** column.*

Fallouts and QC Configuration

Fallouts and QC Configuration enables approved users the ability to configure Quality Control (QC) check fallouts to be grouped together based on the reference field. By grouping the fallouts by the reference field, the fallout report is better organized and therefore, enables a quicker distribution of fallouts to users for correction.

Additionally, users can select if they want the fallouts in the fallout report to be configured to leverage their Source or Target data naming convention. Choosing Source allows the fallouts, when possible, to utilize the source layer and field names. Choosing Target allows the fallouts to standardize based on the data target's schema.



Note: The **Reference Field** is populated in WGS1984, therefore, fallouts near boundary edges could see unwanted populated values when compared to a user's projected source data. This result is expected.

Note: The **Fallout Naming Convention** setting requires that fields in the fallout information are mapped to the source data. If the Source naming convention is selected but the fields in a fallout are unmapped, the Target field is used instead.

Reference Field Population Prerequisites

The following prerequisites must exist before configuring the **Fallouts and QC Configuration** section.

- The selected data target polygon and field parameter needs to be populated. See **"Layer and Field Mapping" on page 99**.
- All source data that is feeding into the data target polygon and layer needs to be field mapped. If not field mapped, the field populates as blank in the report.
- The fallouts must have X, Y coordinates, otherwise the field will be blank in the report.

Reference Field Population Expected Results and Behavior

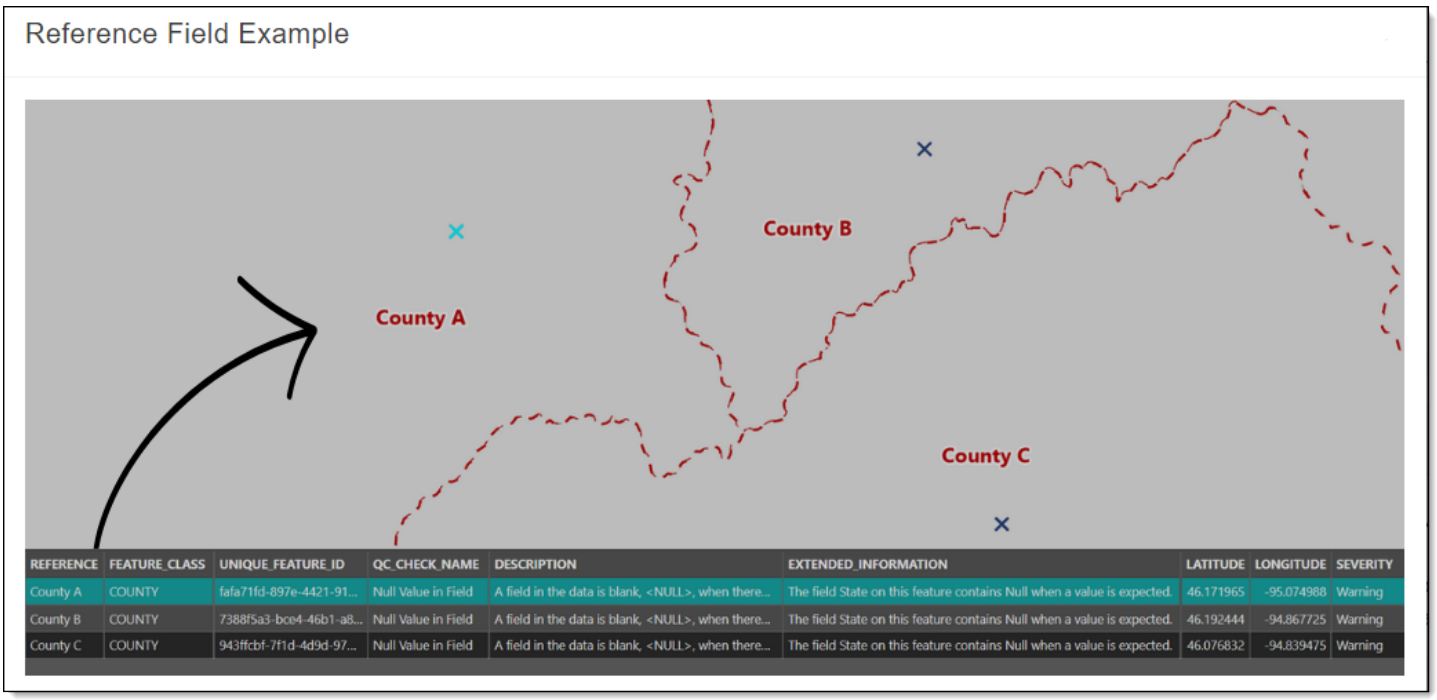
When configuring the reference **Field**, the following is expected results and behavior.

- All fallouts with X, Y coordinates populate the Reference based on the value in the configured field of the polygon it intersects.

- Fallouts near boundary edges could see undesirable populated values when compared to a user's projected source data. This is due to the reference field being populated in WGS1984.
- If a fallout lies within multiple polygons, then a list of the polygons it intersects is populated in alphabetical order.
- If a fallout lies completely outside of all polygons within the selected layer, then the field is blank, even if it contains a X, Y coordinate.

Reference Field Example

In this example, a County layer and County Name field were used. As a result, fallouts with an X, Y coordinate populate the reference **Field** with the name of the county they are located within.



REFERENCE	FEATURE_CLASS	UNIQUE_FEATURE_ID	QC_CHECK_NAME	DESCRIPTION	EXTENDED_INFORMATION	LATITUDE	LONGITUDE	SEVERITY
County A	COUNTY	fafa71fd-897e-4421-91...	Null Value in Field	A field in the data is blank, <NULL>, when there...	The field State on this feature contains Null when a value is expected.	46.171965	-95.074968	Warning
County B	COUNTY	7388f5a3-bce4-46b1-a8...	Null Value in Field	A field in the data is blank, <NULL>, when there...	The field State on this feature contains Null when a value is expected.	46.192444	-94.867725	Warning
County C	COUNTY	943ffcbf-7f1d-4d9d-97...	Null Value in Field	A field in the data is blank, <NULL>, when there...	The field State on this feature contains Null when a value is expected.	46.076832	-94.839475	Warning

Select QC Fallouts Naming Convention

Complete the following to select if your fallouts should use the layer and field names from your source data, or your chosen data target. By default, **Target** is selected.

- **Source**: Source naming convention is more familiar for data originators, as it ties directly to their uploaded data.

- **Target**: Data target schema is better when multiple entities need to share a standardized fallout language. The layer and field names of the data target are used in this case, which allows for easier collaboration between neighboring agencies whose source data may have different names.

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Fallouts and QC Configuration**.
3. In the **Data Target** field, click the arrow to expand the drop-down and select the Data Target you want to configure.

   This field is pre-filled when only one data target is assigned.
4. In the **Fallout Report Naming Convention** section, click the radio button to select **Source** or **Target**.
   - **Source**: If **Source** is selected, all QC check fallouts (CSV/GDB) use the source data names when referring to layer, table, field, or column information in the fallouts.
   - **Target**: If **Target** is selected, all QC check fallouts (CSV/GDB) use the data target's names when referring to layers, table, field, or column information within the fallouts.

   The selection is automatically saved.

Important: QC checks that scan the source data directly (Complex Geometry, Empty Geometry, and Exception Code Formatting) always use the **Source** naming convention regardless of the option chosen by the user in the Fallout Naming Convention.

Configure QC Check Fallouts to be Grouped by a Field

1. In the **Navigation Bar**, select **Account Settings**.
2. From **Account Settings**, select **Fallouts and QC Configuration**.
3. In the **Data Target** field, click the arrow to expand the drop-down and select the Data Target you want to configure.

   This field is pre-filled when only one data target is assigned.
4. In the **Polygon Layer** field of the **Fallout Report Reference Field** section, click the arrow to expand the drop-down. Select the Polygon Layer to populate your reference field.

   *To remove your selection and change back to blank, select **Not applicable**.*

5. In the **Field** field of the **Fallout Report Reference Field** section, click the arrow to expand the drop-down. Select the Field to populate your reference field.

   *To remove your selection and change back to blank, select **Not applicable**.*

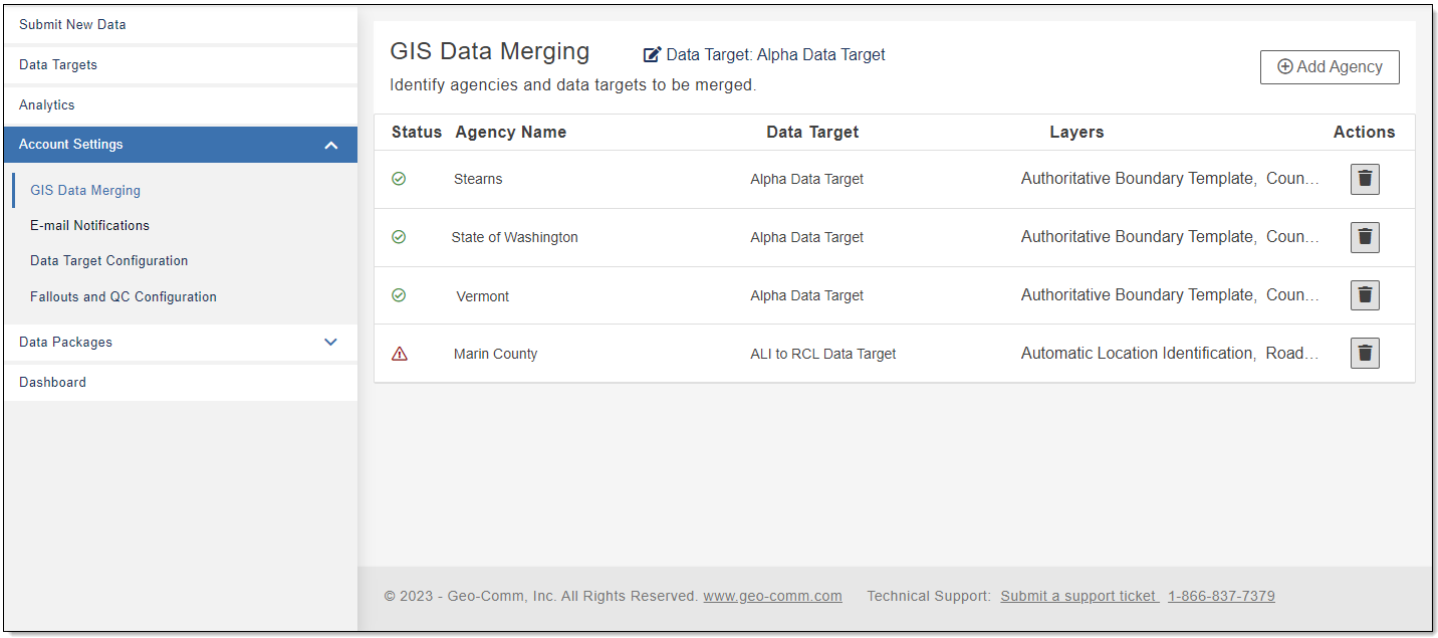
GIS Data Merging

GIS Data Merging allows authorized users the ability to configure multiple data originator agency data sets and merge the results for these agencies into a single file geodatabase which can be downloaded.

The merged file geodatabase is updated each time an agency runs their data target.

GIS Data Merging Workspace

The **GIS Data Merging** workspace is available for agencies that are subscriber agencies. The workspace consists of a grid with the following information.



- **GIS Data Merging Data Target Name**: Identifies the data target used for the merged data set.
- **Status**: Provides the configuration status for the agencies and data targets to be merged.

  Status Descriptions

- **Success**: The agency data target and layers are set up successfully.
- **Warning**: There are errors in the set up of the layers for the selected data target.

- **Agency Name**: The data originator agencies whose data set will be merged when a successful run is completed and included in the merged data set.
- **Data Target**: The agency data target that will be run by the agency and included in the merged gdb file.
- **Layers**: Identifies the layer(s) from the data originator data target to be included in the merged data set. The selected data target must include equivalent layers for the merged data set. Click on any row to expand and view a complete list of all layers in the data target.
- **Actions**: Clicking deletes the agency from the merged data set removes all data for the agency from the merged data set including any past merges that have not been downloaded.
- **Add Agency**. Provides the ability to add and set up an additional agency to the merged data set.

Select a New Merged Data Target

> **Note:** Skip steps 1 to 3 if you are already logged in as a data subscriber agency.

1. Click the **User Menu** and select **Switch Agencies**.
2. In the **Switch Agency** pop-up, click to expand the **Agency** drop-down, and select the data subscriber agency you want to work with.
3. Click **Okay**.
4. In the **Navigation Bar**, select **Account Settings**.
5. Under **Account Settings**, select **GIS Data Merging**.
6. By the Data Target name, click to open the **Set Data Target** form.
7. In the **Merged Data Target** field, expand the drop-down and click to select a data target.

   When choosing a data target, select the data target you want your data to look like when merged (ie., the layers to be included).

   The target schema for the selected data target is moved over, it does not include the quality control checks.

   > **Note:** Selecting **Clear selection** removes all merge settings, and data will no longer be merged to the

merged data set.

8. Click **Save**.

Add a New Agency to be Included in the Merged Data Set

1. In the **Navigation Bar**, select **Account Settings**.
2. Under **Account Settings**, select **GIS Data Merging**.
3. In the **GIS Data Merging** window, click ⊕ Add Agency to add another row to the grid.
4. In the **Select an Agency** field, expand the drop-down and click to select an agency to add to the merged data set.

   The data set for the agency selected will be merged when a successful run is completed and included in the merged data set.
5. In the **Actions** column, click **Save**  .
6. In the **Select the Agency Data Set** field, expand the drop-down and click to select the data target for the agency that will be included in the merged data set.

   *The layers included in the data target are shown and added to the **Layers** column.*

   Important: If there are errors in the layers field for the selected agency data set, the agency will not be included in the merged data set.

   To be included in the merged data set, the originating target layer can have extra layers as long as all of the layers that exist in the originating target layer are included in the subscriber target layer.

   Example

This is correct		This is incorrect	
Originator Layer	Subscriber Layer	Originator Layer	Subscriber Layer
1	1	1	1
2		2	2

This is correct		This is incorrect	
Originator Layer	Subscriber Layer	Originator Layer	Subscriber Layer
3	3		3
4		4	4
5			5

***Table 1**. Example of the target layer setup needed when adding a new agency to a merged data set.*

7. Click the row to collapse that data.

View a Merged Data Set

Once the GIS Data Merging process is setup, when an agency runs their data it automatically updates the merged data set. The merged data set is available to the data subscriber and each data originator that is part of the merged data set and has required permissions. You can view this information by going to **Data Packages** > **Available Packages** and downloading the package (e.g., targetname_mergedgdb.zip).

Delete an Agency from the Merged Data Set

Important: Deleting an agency from the merged data set removes all data for the agency from the merged data set including any past merges that have not been downloaded.

1. In the **Navigation Bar**, select **Account Settings**.
2. Under **Account Settings**, select **GIS Data Merging**.
3. Locate the agency you want to remove and in the **Actions** column, click **Delete** .
4. Click **Yes, Remove**.

Analytics

Analytics enables you to view reports for your Quality Control (QC) check processing and fallout messages from your latest data runs. **Analytics** also allows GIS Data Hub primary account users the ability to view fallout messages for agencies in their primary account.

GIS Data Summary and Fallout Reports

The **GIS Summary Report** provides a summary of your GIS data run showing an overview of the Quality Control (QC) checks. The GIS Fallout Report includes detailed fallout message information for your GIS data run. See **"View GIS Data Summary and Fallout Reports" below**.

Primary Account Reports

The **Primary Account Report** provides a summary of Quality Control (QC) check results for agencies in the primary account. See **"View Primary Account Reports" on page 91**.

Job Processing Report

The **Job Processing Report** provides a summary of the time it takes to process a job for each of your agencies after a data submission. See **"View Job Processing Report" on page 89**.

View GIS Data Summary and Fallout Reports

The **GIS Summary Report** and **GIS Fallout Report** provide fallout information for your last 20 data runs. Depending on the report type, report data can be exported or downloaded to a comma-separated value (CSV) or file geodatabase (FGDB) allowing you the ability to customize the view of your data. The reports are saved for one calendar year (365 days) and then are automatically deleted.

The **GIS Summary Report** includes an overview of your GIS data run showing a summary of the Quality Control (QC) check results and can be generated for jobs ran within one calendar year (365 days) provided that the job card is visible in the Analytics page. The GIS Summary Report is sorted by layer name and QC severity level.

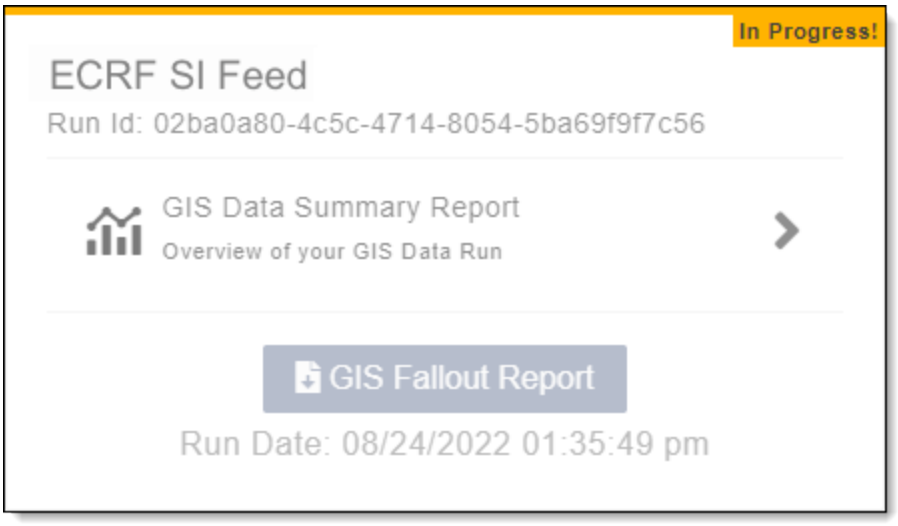
The **GIS Fallout Report** provides detailed fallout error descriptions to assist in correcting your data.

Data Report Card Elements

Data Report Cards are created when running your Data Targets and enables you to view and export a summary of fallout details or download a detailed fallout report. Data Report Cards are arranged starting with the most recent.

Each Data Report Card consists of the following components.

- **Title and Run ID**: Identifies the Data Target selected, and the Run ID assigned for the Data Target.
- **GIS Data Summary Report**: Provides a link to view a summary of fallout errors for the latest GIS data run.
- **GIS Fallout Report and Run Date**: Enables you to download a **GIS Fallout Report** that includes fallout error messages for the run date and time stamp indicated on the Data Report Card.
- **Status Banner**: Enables you to track the report status for the GIS Data Summary and Fallout reports. The status banner is shown when a submission is in progress, indicating the requested data is not yet available. Once the processing is complete, the banner is removed and data is available for your use.



View a GIS Data Summary Report

Complete the following to view a GIS Data Summary Report.

1. In the **Navigation Bar**, click **Analytics**.
2. Expand the **Select a Data Target** drop-down and select a data target.

   Available Data Report Cards are shown.
3. (Optional) To filter the list to a specific date and time, click **Filter** and select.

   GIS Data Summary Reports can be generated for jobs ran within one calendar year (365 days)provided that the job card is visible in the Analytics page.
4. Locate the **Data Report Card** for the data target you want to view.
5. Click  to view the **GIS Data Summary Report**.

   A progress bar displays while the report is being generated. Once the report is complete, the page refreshes and the GIS Data Summary Report opens.

   See ***"GIS Data Summary Report Content Descriptions" on page 85*** *for additional details on the information included in the report.*

Download a GIS Fallout Report

Complete the following to download a GIS Fallout Report.

1. In the **Navigation Bar**, click **Analytics**.
2. Expand the **Select a Data Target** drop-down and select a data target.

   Available Data Report Cards are shown.
3. (Optional) To filter the list to a specific date and time, click **Filter** and select.
4. Locate the **Data Report Card** for the data target you want to view fallout details for.
5. Click 

to download the **GIS Fallout Report**.

   A progress bar displays while the report is being generated. Once the report is complete, a zip file containing a CSV or FGDB for the GIS Fallout Report is created and downloaded.

   The CSV or FGDB for the GIS Fallout Report exports up to 100,000 QC fallouts. If you exceed 100,000 fallouts, the following message is displayed, "This QC check has reached the 100,000 count limit. Fallouts

must be corrected for more records to display." When you receive this message, correct the fallouts in the report to display additional QC fallouts. See ***"View Additional Fallouts When The Count Exceeds Limits" on page 88*** *for additional information on reducing error counts.*

Transformation validation fallout reports are limited to 10,000 fallouts.

6. Open the file that was downloaded to view your fallout results.

   The fallout results display which feature classes fell out, the QC check they failed, the severity level, general and detailed descriptions, and more.

   See ***"GIS Fallout Report Content Descriptions" below*** *for additional details on the information included in the report.*

7. (Optional) Format to modify the file view as needed.
8. (Optional) Click **Save as** to save the file.

GIS Fallout Report Content Descriptions

The **GIS Fallout Report** includes the following information.

- **Feature Class**: Defines which layer caused that particular fallout to occur. If multiple layers are scanned within a QC check, then the Feature Class field populates with the layer that is primarily being inspected.

  For example, in the SSAP to RCL Synchronization check, the Site Structure Address Points (SSAP's) are being compared against the roadcenterlines (RCL's). As a result, this field would populate with SSAP as the attribute. For polygon comparison checks, if the FIRE layer is being compared against the EMS layer, this field would populate with FIRE.

- **Unique Feature ID**: An exclusive identifier that distinguishes a feature from all other features in a particular dataset. The Unique Feature ID is configured by the user for each specific QC check and can be used to identify which feature within a dataset created that particular fallout. The Unique Feature ID relies on the user to maintain a truly exclusive identification for each feature within their dataset to be effective.
- **QC Check Name**: The title of which QC check triggered the fallout record.
- **Description**: A brief summary describing what the QC check is scanning for.
- **Extended Information**: A detailed description of why a particular feature, or features, failed a QC check. The Extended Information field is a dynamic field that populates differently to accommodate a wide variety of QC

checks. Additionally, this field is the most direct in providing actionable information to help correct the perceived deficiency.

- **Latitude**: The Y coordinate of a coordinate pair. This angular metric represents how far this location is North or South of the Equator. If this attribute is available for the QC check, the Latitude field is populated.

  When populated, it represents the center of the point, line, or polygon that triggered the fallout. An exception is for Feature Not Split at Polygon, where it represents the Y coordinate of the line/polygon point of intersection.

- **Longitude**: The X coordinate of a coordinate pair. This angular metric represents how far this location is East or West of the Prime Meridian. If this attribute is available for the QC check, the Longitude field is populated.

  When populated, it represents the center of the point, line, or polygon that triggered the fallout. An exception is for Feature Not Split at Polygon, where it represents the X coordinate of the line/polygon point of intersection.

- **Reference**: This field is not currently used.
- **Severity**: Identifies the importance for each QC fallout record to determine the criticality for correction. Values set to Critical and Warning are configured by the user for each specific QC check. Values are set to Informational automatically by GIS Data Hub for field mapping related fallout records.

  The severity levels are defined as follows:

  - **Critical**: Refers to features that failed a QC check set up used to prevent data deemed unacceptable from being provisioned as either a data package, a GIS derived MSAG, or the NG9-1-1 Spatial Interface. These records require user action and are the most urgent to correct.
  - **Warning**: Refers to features that failed a QC check set up used to notify users that the data may not be optimal for consuming applications and other uses. These records require user action however, are less urgent than those set to a severity level of critical.
  - **Informational**: Refers to transformational items meant to better inform the user. These items are not likely to require any action on behalf of the user.

Transformational Fallout Messages

The GIS Fallout Report may include transformational fallout messages if errors occur when processing a job that can be corrected or when there are report configuration errors that may cause unexpected results. The two primary transformational error types are as follows:

- Transformation Validation Task: Something went wrong converting your data from source to your data target schema that is not specific to your data upload.
- Transformation Data Validation Task: Something went wrong converting your data from source to your data target that is specific to the data you last uploaded.

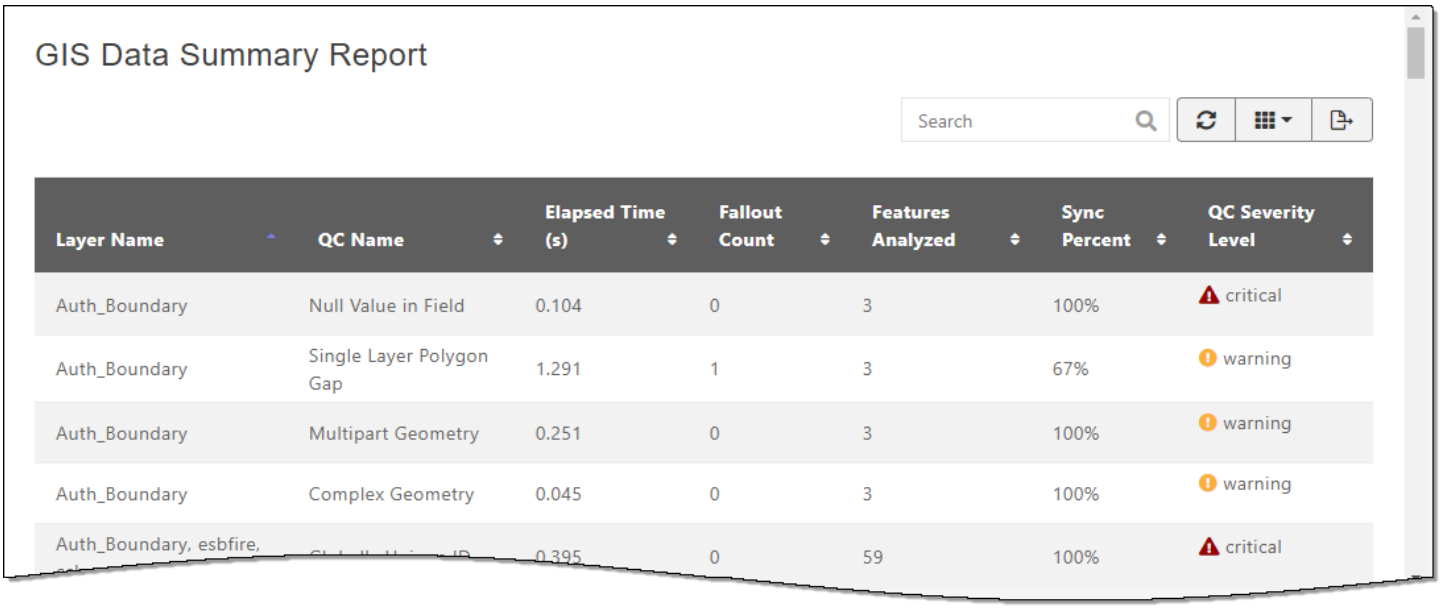
The transformational fallouts in the GIS Fallout Report provide a description of the error to help understand the underlying problem, and when available, a suggestion for correction. It is important that transformational fallouts identified as *Critical* are corrected before the job is processed again to ensure it can process successfully.

Additionally, for any critical level transformational fallouts, configured users receive an e-mail alerting them to the failure so they can view the GIS Fallout Report and correct the error(s).

> **Note:** Informational messages in your fallout report do not include actionable tasks for correction.

GIS Data Summary Report Content Descriptions

The **GIS Data Summary Report** includes the following information.



Layer Name	QC Name	Elapsed Time (s)	Fallout Count	Features Analyzed	Sync Percent	QC Severity Level
Auth_Boundary	Null Value in Field	0.104	0	3	100%	critical
Auth_Boundary	Single Layer Polygon Gap	1.291	1	3	67%	warning
Auth_Boundary	Multipart Geometry	0.251	0	3	100%	warning
Auth_Boundary	Complex Geometry	0.045	0	3	100%	warning
Auth_Boundary, esbfire,		0.395	0	59	100%	critical

- **Layer Name**: The layer the QC check ran against.
- **QC Name**: The name of the QC check that was run.
- **Elapsed Time(s)**: The time it took to run the QC check for the specified layer.
- **Fallout Count**: The number of fallouts that occurred for the layer in the QC check.
- **Features Analyzed**: The total number of features that were analyzed in the layer when the QC check was run.

There may be times where the Features Analyzed exceeds the total features in your submitted data. This is due to GIS Data Hub exploding any multipoint features into individual points. The Features Analyzed data in the GIS Summary Report includes a total of all individual analyzed points.

For the Acceptable Feature Count QC check, the Features Analyzed column of these reports will always state a count of one.

- **Sync Percent**: The percent of data processed in the QC check that was successful and is good.
- **QC Severity Level**: The severity level assigned for the QC check fallout that occurred. Warnings include the following starting with the most severe.
  -  **Critical**: A **Critical** severity level is assigned when the QC check must not fail. If the QC check fails, it prevents export package outputs, as the source data is deemed unsatisfactory to produce them.
  -  **Warning**: A **Warning** severity level is assigned when the QC check is not critical. Failure of warning level QC checks still create package outputs. Any fallouts point the user to the data issue so it may be inspected and rectified as necessary.
- **Toolbar**: The toolbar provides tools to search the report, refresh the results, customize columns, and export the report. See **"GIS Data Summary Report Toolbar" below**.

GIS Data Summary Report Toolbar

The GIS Data Summary Report toolbar provides tools to search the report, refresh the results, customize columns, and export a report.

Search

Enables you to search the GIS Data Summary Report.

1. Click in the **Search** box and enter complete or partial search criteria.

   The more information provided, the more the search is narrowed down.

   Matching search results are displayed, and the search criteria is highlighted.

   You can use the sort function when search results are displayed to rearrange the results.
2. To clear the search results, delete the search criteria or click **Refresh**  .

Refresh

Refreshes results in the report and clears **Search**.

In the GIS Data Summary Report toolbar, click **Refresh** to refresh or clear **Search**.

Columns

Add, remove, or sort the columns shown in the report and when exporting a file.

Add or Remove Columns

1. In the GIS Data Summary Report toolbar, click **Columns**.
2. In the **Columns** drop-down do one of the following.
   - **Add a column**: Click the check box(es) to add a checkmark. This adds the selected column to the report.
   - **Remove a column**: If the check box(es) is checked, click the check box(es) to deselect and remove the column from the report.
3. To close the window, click **Columns** or click outside of the drop-down.

Sort Columns

When a column is sorted, rows are rearranged in either ascending or descending order for the contents in the column selected.

Click a column header to sort the columns in ascending order or descending order.

The arrows change to a single blue arrow either pointing up for ascending or down for descending.

Click the header again to change the sort direction.

To return to the original sort, click the column header until the two white arrows are shown.

Export a Report

The GIS Data Summary Report can be exported using the **Export** tool. This tool allows you the ability to select and sort the columns to include in the report and only export the data shown.

To export a report, complete the following from the **GIS Data Summary Report**.

1. **Select the Columns to Include in the Export File**: Expand the **Columns** drop-down and select the columns to include in the report. For additional information, see **"Columns" above**.

2. **Sort the Columns**: Use the sort arrows to sort the columns to the preferred order. For more information, see **"Sort Columns" on the previous page**.
3. **Export the File**: In the GIS Data Summary Report toolbar, click **Export**  .

   A CSV is created that includes the data selected in the report.
4. Open the file that was downloaded to view results.
5. (Optional) Format to modify the file view as needed.
6. (Optional) Click **Save as** to save the file.

View Additional Fallouts When The Count Exceeds Limits

In order to see additional fallouts once the limit is reached, pre-existing fallouts must be corrected. For example, if there are 99,999 Unacceptable Value fallouts, and 100 are fixed, then 100 new Unacceptable Value fallouts will be visible in the GIS Fallout Report when the updated data is resubmitted to GIS Data Hub.

> **Note:** The metrics in the GIS Data Summary Report reflects a comprehensive and complete fallout count for all quality control (QC) checks, even if they are limited within the GIS Fallout Report.

Reduce Error Counts Using Esri

Field Calculation within the Esri environment can be used to mass correct certain types of errors. This style of clean up works well for QC checks such as Unacceptable Value, Acceptable Value, and Null Value In Field.

To complete a mass correction using Esri, from the GIS Fallout Report, select all records with the incorrect value in a particular field and use Field Calculation in Esri to update those records' attributes for that field. Note that in GeoComm's experience, field calculations such as this are best done in an active edit session. When using an active session, if a mistake is made, canceling your edit session allows you to revert your changes.

Additionally, when performing these edits on larger datasets, be prepared to wait while the calculations are performed. Interrupting the desktop application while this process occurs can lead to data corruption.

For more information on using Esri's Field Calculations, see the Esri help guide or reach out to GeoComm GIS for additional services.

View All Fallout Records When The Count Exceeds Limits

While CSV's do not inherently have a record limit, Microsoft Excel has limitations on the number of rows (records) in a file. If your total fallout count exceeds the record limitations, currently 1,048,576, and you wish to view all of them in Microsoft Excel, you have the following options:

- In Microsoft Excel, use Save As to save multiple CSV reports, so you do not lose any data.
- Use Power Query in conjunction with Excel PivotTables.

For more information, please refer to Microsoft Excel's help. As a viable alternative, you can directly view the CSV or FGDB in ArcMap or ArcGIS® Pro by importing it into your table of contents.

View Job Processing Report

The **Job Processing Report** is a tool available for users to monitor the performance of GeoComm GIS Data Hub. The report shows a list of your agencies and provides details on the time it takes to run a job on your uploaded data. The report can be viewed in the application or downloaded as a CSV file allowing the ability to customize the view of the data.

The Job Processing Report is organized in alphabetical order with the newest job at the top. These reports are viewable for 12 months at which time they are removed.

Important: The Job Processing Report is not real-time and is updated on an interval schedule. Therefore, you may not see information for your recently uploaded data in the Job Processing Report even though the upload is completed and the data is available in other reports. Once a job finishes, it typically appears in the Job Processing Report within five minutes.

View and Download a Job Processing Report

Complete the following if you are a primary account administrator to view and/or download the **Job Processing Report**.

1. In the **Navigation Bar**, click **Analytics**.
2. **View the Report**: In the **Job Processing Report** card, click **View and Download**.

   When the report has completed processing, the Job Processing Report opens.

*See **"Job Processing Report Content Descriptions" below** for additional details on the information included in the report.*

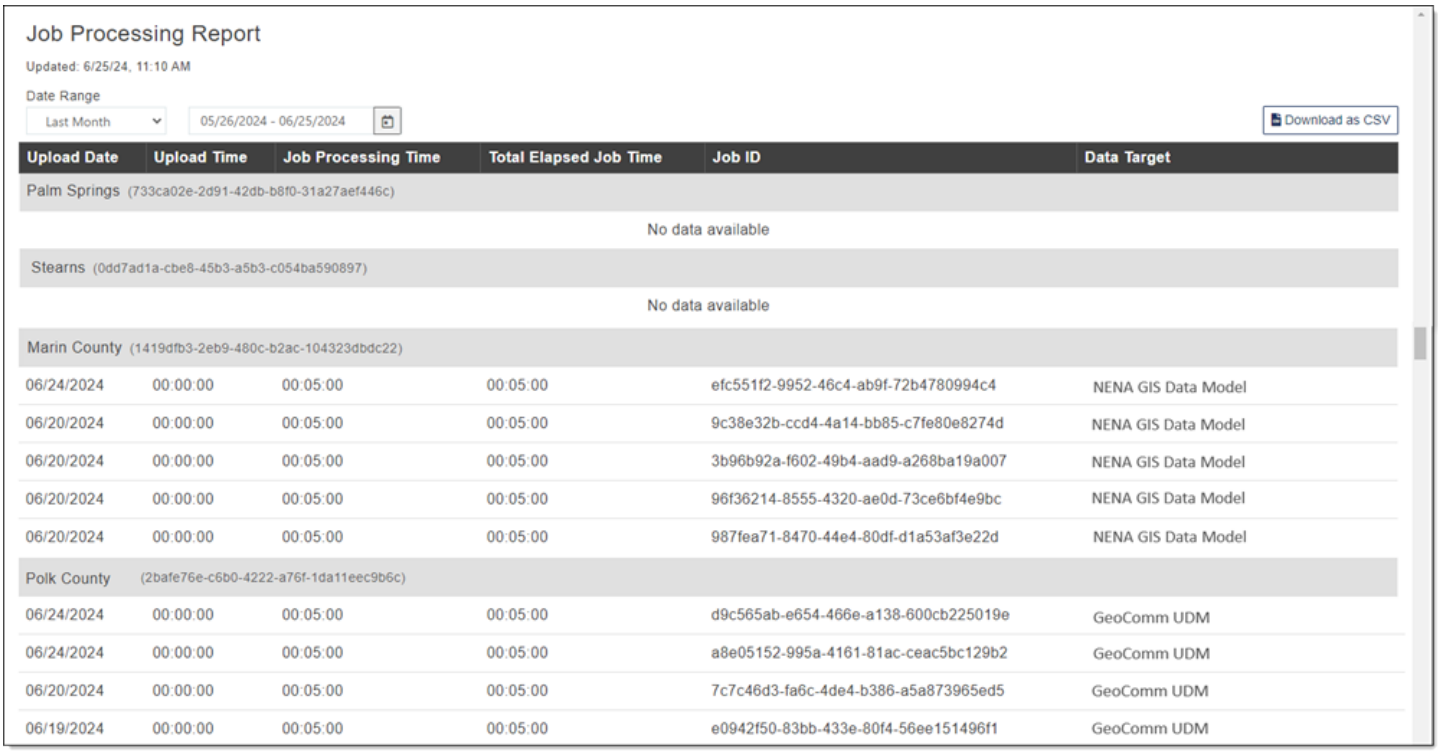
3. **Download the Report**: While viewing the **Job Processing Report**, click **Download as CSV**.

   The report is downloaded in CSV format allowing the ability to customize the view of the data.

   *See **"Job Processing Report Content Descriptions" below** for additional details on the information included in the report.*

Job Processing Report Content Descriptions

The **Job Processing Report** includes the following information. If an agency has yet to run a job, **No Data Available** is shown for that agency.



Job Processing Report

Updated: 6/25/24, 11:10 AM

Date Range: Last Month | 05/26/2024 - 06/25/2024 | Download as CSV

Upload Date	Upload Time	Job Processing Time	Total Elapsed Job Time	Job ID	Data Target
Palm Springs (733ca02e-2d91-42db-b8f0-31a27aef446c)					
			No data available		
Stearns (0dd7ad1a-cbe8-45b3-a5b3-c054ba590897)					
			No data available		
Marin County (1419dfb3-2eb9-480c-b2ac-104323dbdc22)					
06/24/2024	00:00:00	00:05:00	00:05:00	efc551f2-9952-46c4-ab9f-72b4780994c4	NENA GIS Data Model
06/20/2024	00:00:00	00:05:00	00:05:00	9c38e32b-ccd4-4a14-bb85-c7fe80e8274d	NENA GIS Data Model
06/20/2024	00:00:00	00:05:00	00:05:00	3b96b92a-f602-49b4-aad9-a268ba19a007	NENA GIS Data Model
06/20/2024	00:00:00	00:05:00	00:05:00	96f36214-8555-4320-ae0d-73ce6bf4e9bc	NENA GIS Data Model
06/20/2024	00:00:00	00:05:00	00:05:00	987fea71-8470-44e4-80df-d1a53af3e22d	NENA GIS Data Model
Polk County (2bafe76e-c6b0-4222-a76f-1da11eec9b6c)					
06/24/2024	00:00:00	00:05:00	00:05:00	d9c565ab-e654-466e-a138-600cb225019e	GeoComm UDM
06/24/2024	00:00:00	00:05:00	00:05:00	a8e05152-995a-4161-81ac-ceac5bc129b2	GeoComm UDM
06/20/2024	00:00:00	00:05:00	00:05:00	7c7c46d3-fa6c-4de4-b386-a5a873965ed5	GeoComm UDM
06/19/2024	00:00:00	00:05:00	00:05:00	e0942f50-83bb-433e-80f4-56ee151496f1	GeoComm UDM

- **Date Range and Date Picker**: The date range for the data shown in the displayed report. The default is **Last Month**. Click the drop-down to change the date range and/or click the calendar to select a date range.
- **Upload Date**: The date the data was uploaded to GeoComm GIS Data Hub via the Submit New Data process.

  *To view the actual run date for the data target, in **Analytics**, click the **Data Target** drop-down, select the data target and view the run date on the Data Target Card.*

- **Upload Time**: The amount of time it took to upload the data once it was submitted.
- **Job Processing Time**: The total time it took GeoComm GIS Data Hub to start and run a job using the newly uploaded data.
- **Total Elapsed Job Time**: The combined amount of time for uploading and processing the data.
- **Job ID**: The ID for the job that was processed.

  This information is the same as the **Run ID** located in **Analytics**. Click the **Data Target** drop-down, select the data target and view the Run ID on the Data Target Card.
- **Data Target**: The name of the data target.
- **Download as CSV**: Enables you to download a copy of the Job Processing Report in CSV format.

  Only agencies with data in the Job Processing Report are included in the CSV file.

  Important: The upload date in the Job Processing Report is based on the user's local time when the data was uploaded.

View Primary Account Reports

A **Primary Account Report** is built when requested by primary account users. The report provides a summary of Quality Control (QC) checks for agencies in the primary account. The report is divided by each agency then sorted by agency, layer name, and QC severity level. Additionally, the report can be downloaded as a CSV file allowing the ability to customize the view of the data.

View and Download a Primary Account Report

Complete the following if you are a primary account user and want to view and/or download the **Primary Account Report**.

1. In the **Navigation Bar**, click **Analytics**.
2. View the report: In the **Primary Account Report** card, click **View and Download**.

*When the report has completed processing, the Primary Account Report opens. During processing, the **View and Download** button is not active.*

*See **"Primary Account Report Content Descriptions" below** for additional details on the information included in the report.*

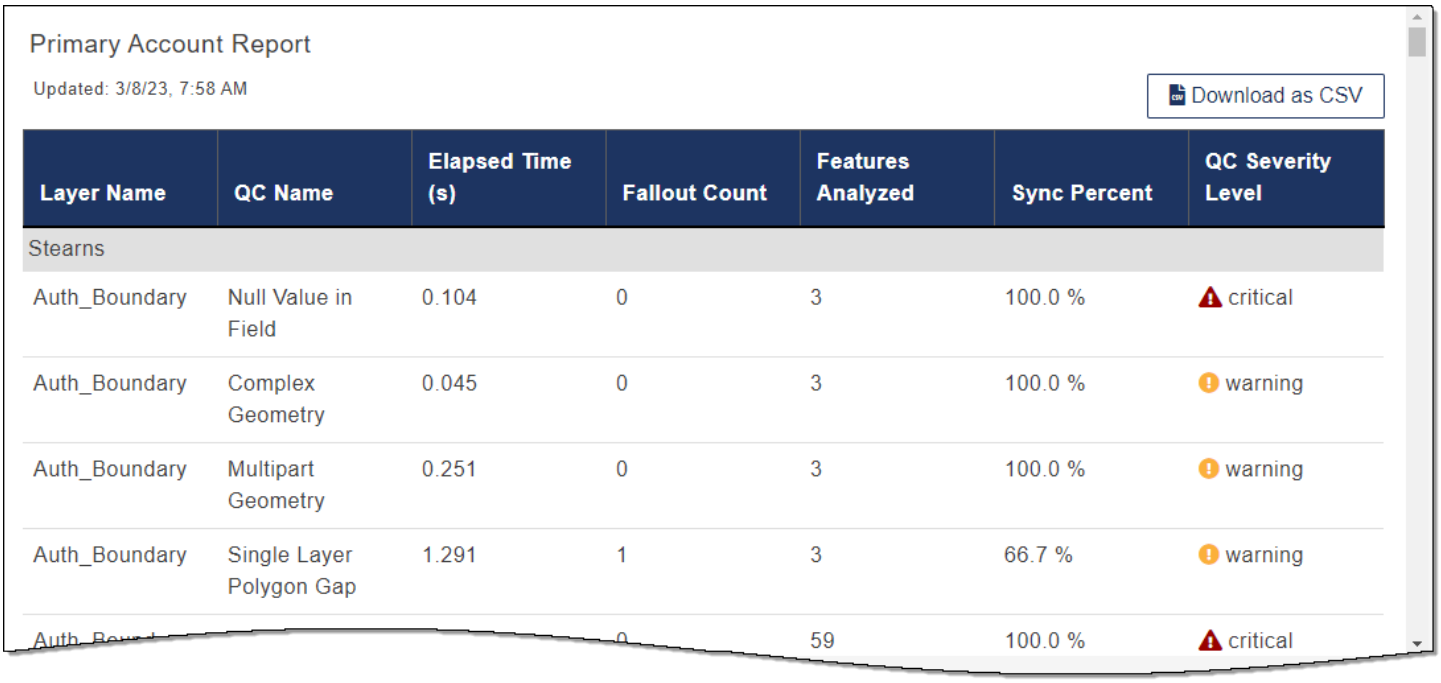
3. Download the report: While viewing the **Primary Account Report**, click **Download as CSV**.

   The report is downloaded in CSV format.

   *See **"Primary Account Report Content Descriptions" below** for additional details on the information included in the report.*

Primary Account Report Content Descriptions

The **Primary Account Report** includes the following information.



Primary Account Report

Updated: 3/8/23, 7:58 AM

Download as CSV

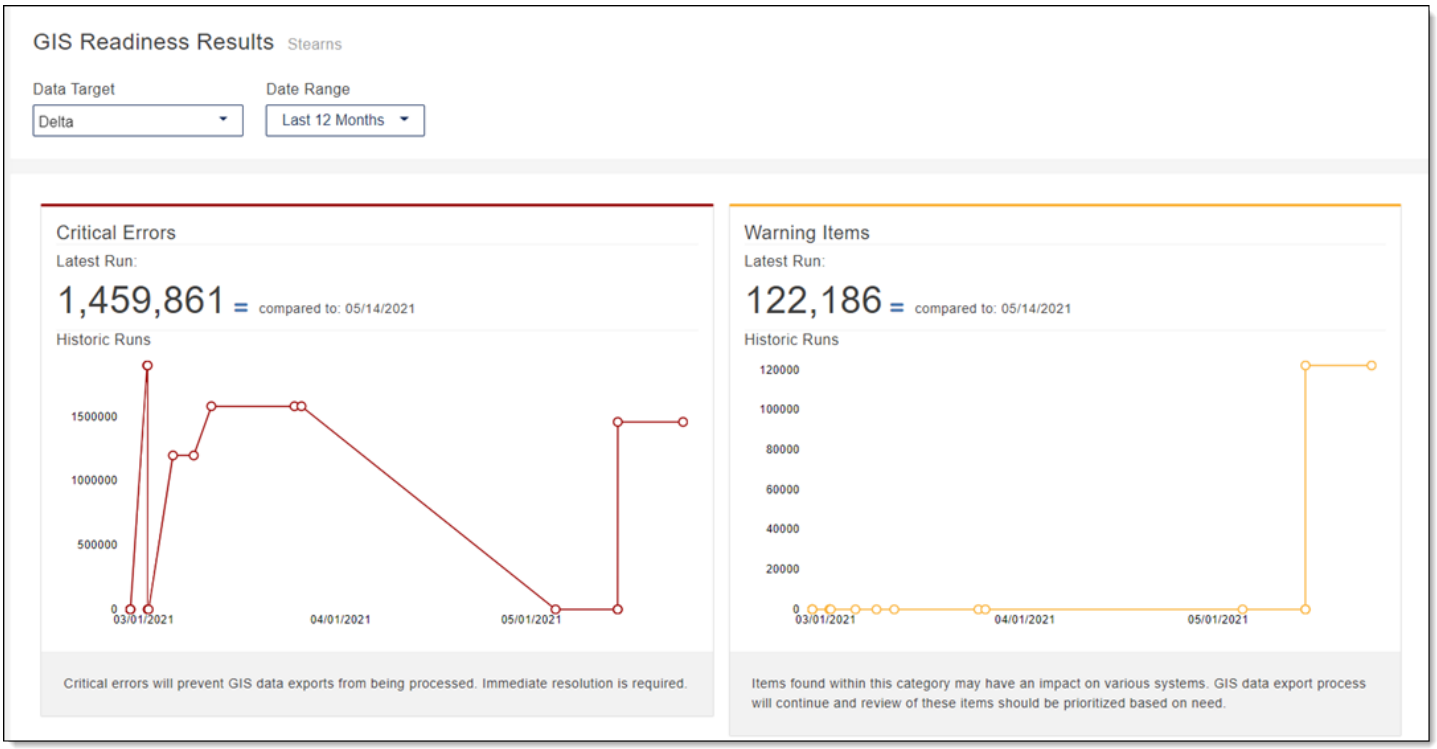
Layer Name	QC Name	Elapsed Time (s)	Fallout Count	Features Analyzed	Sync Percent	QC Severity Level
Stearns						
Auth_Boundary	Null Value in Field	0.104	0	3	100.0 %	critical
Auth_Boundary	Complex Geometry	0.045	0	3	100.0 %	warning
Auth_Boundary	Multipart Geometry	0.251	0	3	100.0 %	warning
Auth_Boundary	Single Layer Polygon Gap	1.291	1	3	66.7 %	warning
Auth_Boundary			0	59	100.0 %	critical

- **Date & Time**: The date and time the report was last updated.
- **Agency**: The name of the agency for the data that follows in the Primary Account Report.
- **Layer Name**: The layer the QC check ran against.
- **QC Name**: The title of which QC check was running when the feature failed, and the fallout occurred.
- **Elapsed Time(s)**: The time it took to run the QC check for the specified layer.
- **Fallout Count**: The number of fallouts that occurred for the layer in the QC check.

- **Features Analyzed**: The total number of features that were analyzed in the layer when the QC check was run.
- **Sync Percent**: The percent of data processed in the QC check that was successful and is good.
- **QC Severity Level**: The severity level assigned for the QC check fallout that occurred. Warnings include the following starting with the most severe.
  - **Critical**: There is no export data package created.
  - **Warning**: A data package was created with errors.
  - **Info**: A data package was created.
- **Download as CSV**: Enables you to download a copy of the Primary Account Report in CSV format.

Dashboard

The **Dashboard** enables you to track the health and status of your data at a glance on a single, easy to read dashboard page that outlines critical and warning level reporting. These reports allow you to identify critical errors that will prevent your GIS data exports from being processed and to identify, review, and prioritize items that may impact various systems so they can be corrected.



Parts of the Dashboard Results Graphs

The Dashboard results graphs provide a quick view of your GIS Readiness by identifying **Critical Errors** and **Warning Items** for a selected Data Target and the time selected in the Date Range.

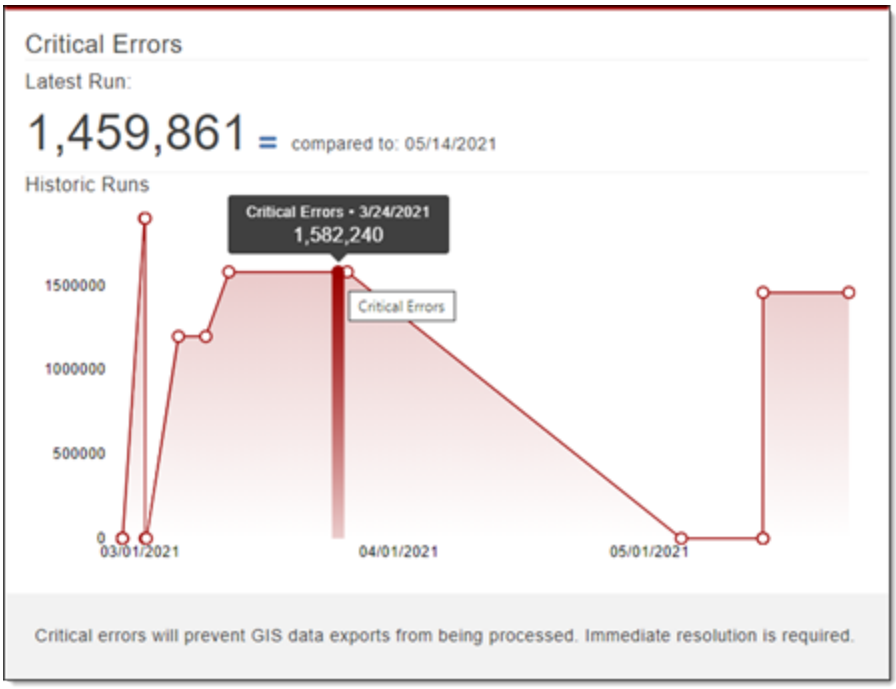
The Dashboard graphs consist of the following parts.

- **Latest Run**: Provides the difference between the critical errors or warning count from the most recent run and the immediate previous run.
  - **Equal Sign**: Identifies that the comparison number is the same as the last time a run was completed.
  - **Up Arrow**: Identifies when the comparison number is larger than the last time a run was completed.
  - **Down Arrow**: Identifies when the comparison number is smaller than the last time a run was completed.
- **Historic Runs**: Provides a graph of the critical errors and warning counts reported for the selected Data Target and the time selected in the Date Range.
- **X Axis**: The date of run.
- **Y Axis**: The count of errors or warnings reported.

View GIS Readiness Results from the Dashboard

1. In the **Navigation Bar**, select **Dashboard**.
2. In the **GIS Readiness Results** page, click in the **Data Target** box to select a data target.
3. In the **GIS Readiness Results** page, click in the **Date Range** box to select a date range.

   Results can be generated for jobs ran within one calendar year (365 days).
4. The **GIS Readiness Results** page updates with results of the **Critical Errors** and **Warning Items** for the selected Data Target and the time selected in the Date Range.
5. To view the number of errors or warning items for a historic data run date, hold your mouse over one of the points in the graph.



   Errors or warnings are viewable in Analytics so you can determine corrective action, see **"View GIS Data Summary and Fallout Reports" on page 80**.
6. Select a new Data Target or Date Range to view other results.

View Errors and Warnings for your GIS Readiness Results

To view errors and warnings for your GIS Readiness Results so corrective action can be taken, see **"View GIS Data Summary and Fallout Reports" on page 80**.

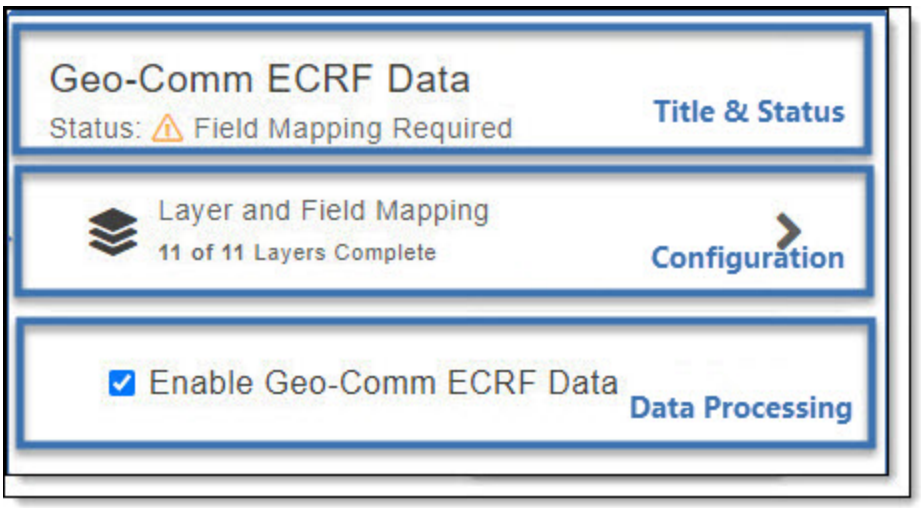
Data Targets

Data Targets shows available Data Target Cards created based on data target requirements needed to ingest your data into the specified GeoComm product. Data Targets provide a means to consistently consume your data uploads and identify errors which require correction before running the data submission through GIS Data Hub quality control (QC) checks. Using **Layer and Field Mapping**, users can map layers in the data upload to the data target prior to running the data submission.

Important: Permission is required to configure and/or run data targets. See your administrator if you have questions on your permissions.

Data Target Cards

Data Target Cards are created from a data target of defined requirements needed to ingest the data into the GeoComm product identified in the data target. Each Data Target Card consists of the following components.



- **Title and Status**: Identifies the GeoComm product data target for the Data Target Card and the status. The status identifies any alerts (e.g., Field and Layer Mapping Required) or processing status (e.g., Ready to Run). See **"Data Target Status and Processing Descriptions" on the next page**.
- **Configuration**: Identifies the layers that are mapped or need to be mapped and provides a link to complete the configuration.

- **Data Processing**: Enables you to select the Data Target Cards whose data you want to run through the quality control check process. The data target is enabled when the card is outlined in blue and the **Enable** check box is marked. When set to enabled, jobs run automatically after a successful upload when your schema matches.

Configure Layer and Field Mapping

Prior to running your data, you must map the layers in your data to the data target. See **"Layer and Field Mapping" on page 99**.

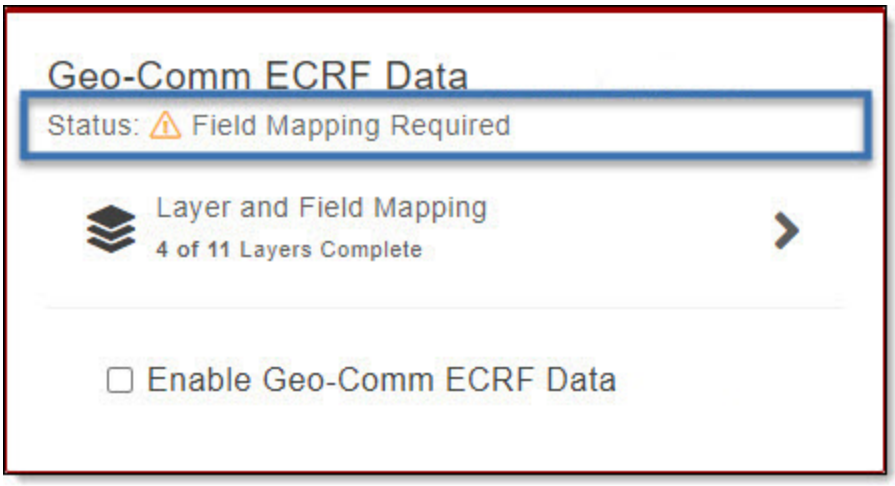
Enable and Run a Data Target

Before you can enable and run a data target through the quality control checks, field mapping must be completed and the Data Target Card status must be **Ready to Run**. See **"Layer and Field Mapping" on page 99** to configure a data target's field mapping or **"Enable and Run Data Targets" on the next page** to run the data target.

Once layer and field mapping is complete and the data target is set to enabled, jobs run automatically after a successful upload when your schema matches.

Data Target Status and Processing Descriptions

The **Data Target Card** status and description is in the header of the card. The card is also outlined with a coordinating color as described below.



- **Upload in Progress**: This status is assigned when the data target is in the process of uploading and inventory is being created. When in this status, you cannot update the layer and field mapping. The **Data Target Card** is outlined in **Yellow**.

- **Field and Layer Mapping Required**: This status is assigned when the upload and inventory is complete but there are layers or fields that need to be mapped. This status is also shown when there is a change detected in the submitted updated data that needs to be mapped. The **Data Target Card** is outlined in **Gray**.
- **Ready to Run**: This status is assigned when the field and layer mapping is complete, and the data target is ready to be processed. The **Data Target Card** is outlined in **Gray**.

Note: When the **Enable** check box is marked, the **Data Target Card** is outlined in **Blue**. Only Data Targets with completed mappings may be Enabled. After a successful upload, Enabled Data Targets run jobs automatically when the schema matches the previous upload. The **Enable** check box remains selected for subsequent data runs.

Note: When there are Source Field or Source Layer errors (e.g., layer missing, field type not changed, field changes detected), the **Data Target Card** is outlined in **Red**.

Enable and Run Data Targets

Before you can enable and run a data target through the quality control check process, layer and field mapping must be completed and the Data Target Card status must be **Ready to Run**. See **"Layer and Field Mapping" on the next page** to configure a data target's layer and field mapping.

Note: You cannot run a data target when a partial dataset was uploaded inventory changes. If this happens, the run button is disabled, and an alert is shown on the Data Targets page informing you that a complete dataset must be uploaded before you can run your data.

Once mapping is finished, complete the following to run the data target.

1. In the **Navigation Bar**, click **Data Targets**.
2. Locate the **Data Target Card(s)** for the data target(s) you want to run.
3. Verify the status is **Ready to Run**.

   If the status has an alert, correct before continuing.
4. Click the **Enable** check box in the **Data Target Card** (e.g., Enable GeoComm ECRF Data Target v13).

*The outline of the Data Target Card changes to blue and the **Enable** counter at the bottom of the page shows the number of data targets selected.*

5. Click **Run Data**.

   A confirmation message is shown.

6. Click **Yes, Run Data**.
7. Click **OK**.

> **Note:** The **Enable** check box remains selected for subsequent data runs. When a card is enabled and all mapping is complete, jobs run automatically after a successful upload when your schema matches.

Layer and Field Mapping

Layer and Field Mapping allows you to view and field map your source data to your selected data target. Target fields are assigned a status to identify which fields need to be mapped prior to submitting your data for processing. When a source layer is missing data or requires changes due to a recent data upload, the source layer is red, and the status shows as an alert or a warning.

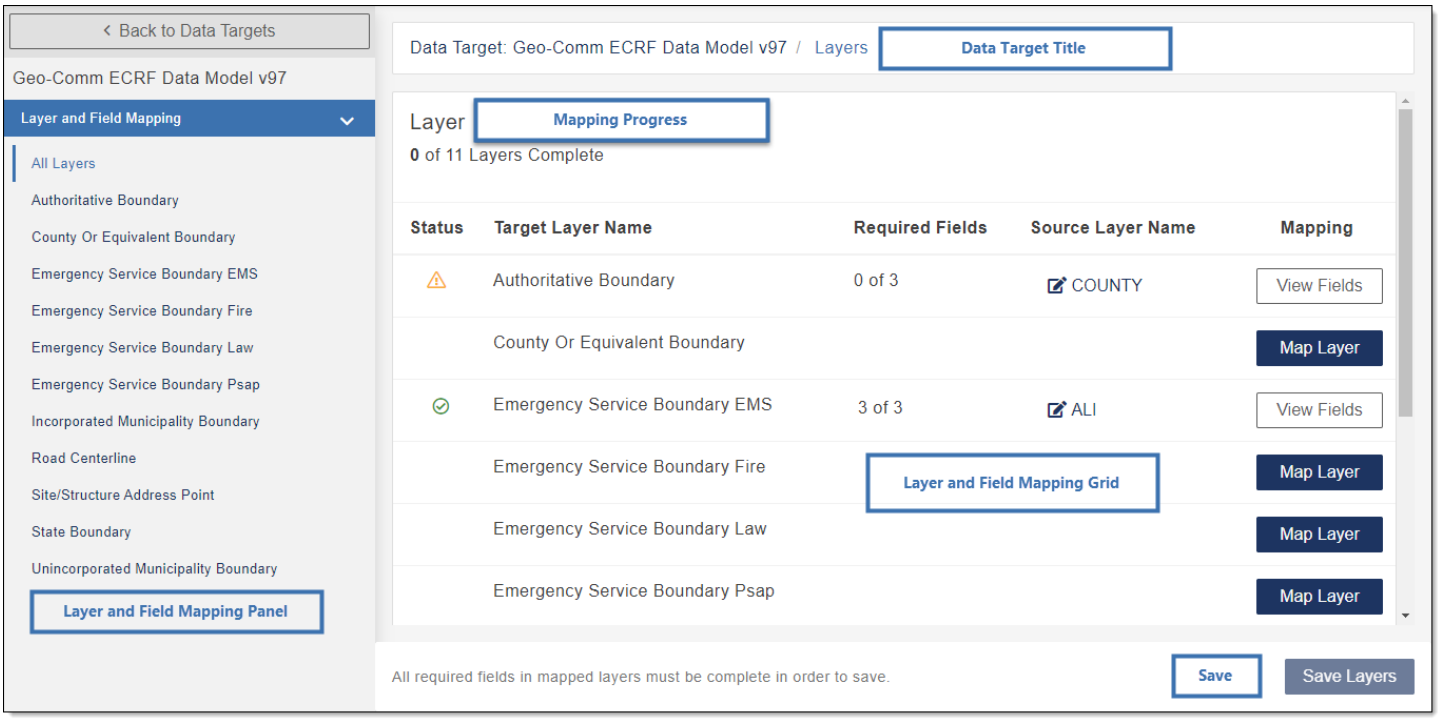
> **Important:** Prior to processing your data target you must map the layers and required fields in your data to the data target. When mapping layers, only compatible field types can be selected.

> **Important:** When mapping the layers be extremely careful not to map a special Esri data type, these data types are not supported for field and layer mapping. See **"Submit New Data" on page 16** for additional details.

> **Note:** The following ArcGIS Pro fields can be inputted into GIS Data Hub, however, the fields currently cannot be exported. The fields include: Big Integer, Date Only, Time Only, and Timestamp Offset. For additional information see **"Using ArcGIS Pro Fields in GIS Data Hub" on page 104**.

Layer and Field Mapping Workspace

The **Layers and Field Mapping** workspace consists of the following sections.



- **Layer and Field Mapping Panel**: The navigation bar in the **Layer and Field Mapping Panel** displays a list of the layers for the selected data target. Clicking a layer opens the field mapping page.
- **Data Target Title**: The title provides the name of the data target you are configuring.
- **Mapping Progress**: Shows the number of total layers in the data target and the number of layers that are mapped.
- **Layer and Field Mapping Grid**: The grid consists of the following sections.
  - **Status** Provides the status for a layer.

    Status Descriptions

    - **Success**: The field is successfully mapped.
    - **Alert**: There are required field changes detected.
    - **Warning**: There is a source layer missing.

  - **Target Layer Name**: Identifies the layer within the application that is associated with the needed output.
  - **Required Fields**: Shows the number of required fields and how many of those fields are mapped.
  - **Source Layer Name**: Identifies the layer name from the customer's uploaded source data.

  - **Mapping**: The mapping function identifies which layers are not mapped and provides a **Map Layer** link to enable you to map the layer. Mapping also provides a **View Fields** link where you can view, edit and map the fields for the layer.

- **Save Layers**: Changes made to the map layers and fields are saved and the Data Target Card is updated.

View Layers in Your Data

1. In the **Navigation Bar**, select **Data Targets**.
2. Locate the Data Target Card whose map layer(s) you want to view.
3. Click **Layer and Field Mapping**.

   *The **Layer** configuration window opens showing all layers in the **Layer and Field Mapping** navigation bar and grid.*

Map Your Data Layers

Map Layers in new or updated data that is submitted must be mapped prior to running the data through GIS Data Hub. See **"Map Your Data Layers" on the next page**.

View and Edit Target Layer Fields

Required target layer fields in new or updated data that is submitted must be mapped to a source layer prior to running the data through GIS Data Hub. See **"View and Edit Target Layer Fields" on page 105**.

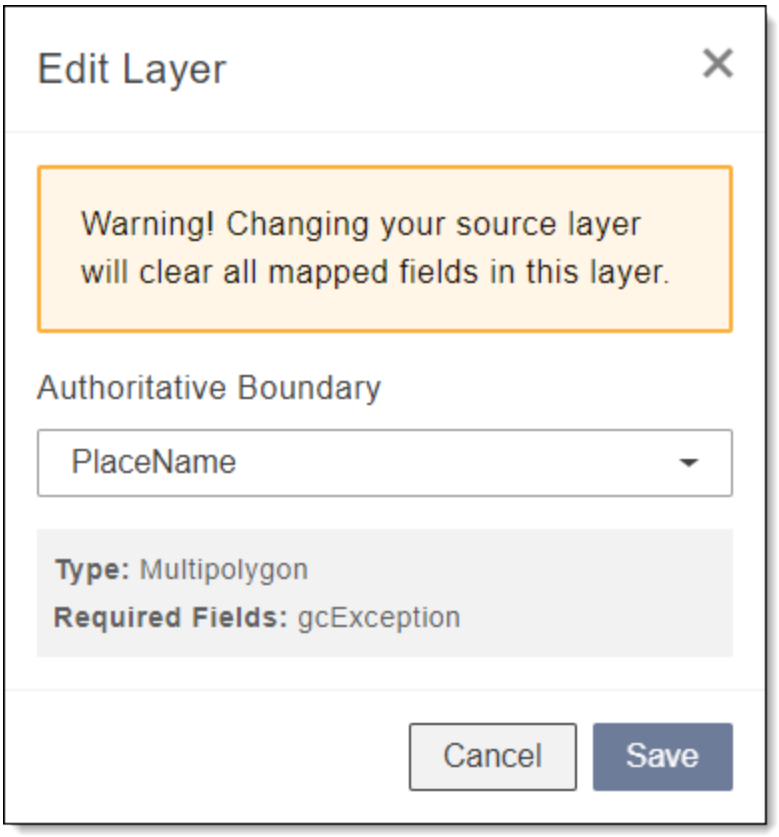
Edit a Source Layer

1. In the **Navigation Bar**, select **Data Targets**.
2. Locate the Data Target Card whose source layer you want to edit.
3. Click **Layer and Field Mapping**.

   *The **Layer** configuration window opens.*

4. In the **Target Layer Name** column, locate the target layer whose source layer you want to edit.
5. In the **Source Layer Name** column, click the source layer name.

*The **Edit Layer** pop-up opens displaying the target layer name, type of map layer, and required fields.*



6. Under the source layer name, expand the drop-down and select a source data.

   Changing the source layer clears all mapped fields for the layer.

7. Click **Save**.

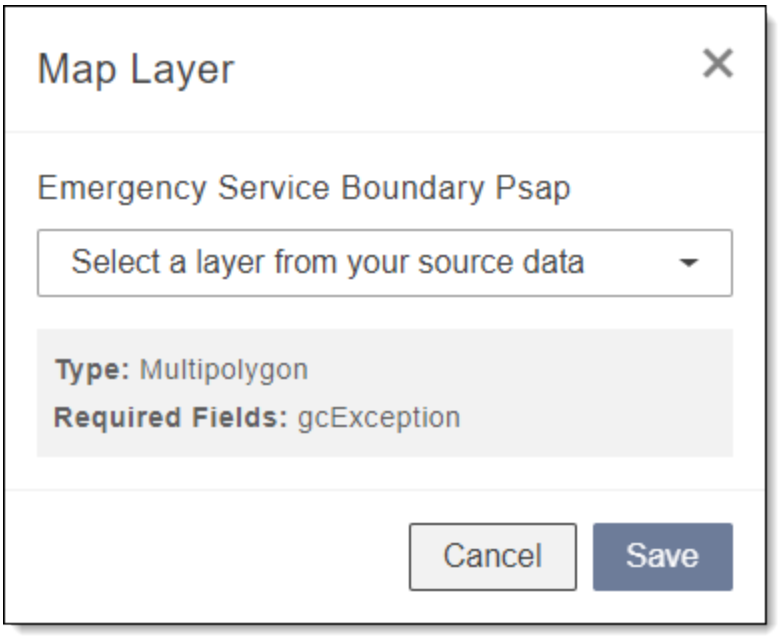
Map Your Data Layers

1. In the **Navigation Bar**, select **Data Targets**.
2. Locate the Data Target Card whose map layer you want to edit.
3. Click **Layer and Field Mapping**.

   *The **Layer** configuration window opens.*

4. In the **Target Layer Name** column, locate the target layer whose map layer you want to edit.
5. In the **Mapping** column, click the **Map Layer**.

*The **Map Layer** pop-up opens displaying the target layer name, type of map layer, and required fields.*



6. In the **Selected a layer from your source data** box, expand the drop-down and select a layer from your source data that the target layer should be mapped to.
7. Click **Save**.

   The target layer fields mapping page opens. All fields flagged as required must be mapped before continuing.
8. To map a field, click a field name.
9. Click in the **Select a field from your data or insert text** box and complete one of the following.
   - **Select a Source Field**: Select a source field to map the target field to and view the description in the center of the row.

     When adding a date, use the date picker that appears when the field is selected.
   - **Insert Text**: In the **Select a field from your data or insert text** box, type text that meets the **Type** (e.g., Number, Date) and **Max Characters** requirements in the center column. Click **Insert as Text**.

> **Note:** ArcGIS Pro fields, Big Integer, Date Only, Time Only, and Timestamp Offset, can be inputted into GIS Data Hub but cannot be exported. For additional details, see **"Using ArcGIS Pro Fields in GIS Data Hub" below**.

10. To map the target field to another source field, expand the **Add another field** drop-down and repeat the **Select a Field** or **Insert Text** step above.
11. (Optional) If multiple fields are mapped, by default, the fields are separated with a space. To remove the space, click the checkmark in the **Add space between fields** check box.
12. To continue to the next field, click **Next Field**.

    The center column in the row is updated with the selection and a green checkmark appears before the field name indicating complete.

13. Click **Done**.

    The field mapping page closes and you return to the layer mapping page.

    *If you have not finished mapping all required fields and select **Done**, changes made are saved, but layer is not complete until all required fields are mapped.*

14. Repeat to map additional map layers and fields.
15. When finished, click **Save Layers**.

    > **Note:** At least one layer and all required fields must be mapped before saving layers.

> **Tip:** To open the **Map Layer** pop-up for unmapped layers, click the layer in the **Layer and Field Mapping** navigation bar.

Using ArcGIS Pro Fields in GIS Data Hub

When using ArcGIS Pro, Big Integer, Date Only, Time Only, and Timestamp Offset fields can be inputted into GIS Data Hub, however, the fields currently cannot be exported.

When using these new fields, data is copied from source to target as follows:

- **Big Integer**: Big Integer fields, when mapped to Integer fields, are copied in their entirety as long as they are less than or equal to 32 bits. If the Big Integer value is over 32 bits, they are converted to 0 to alert you that

the field could not be fully transcribed.

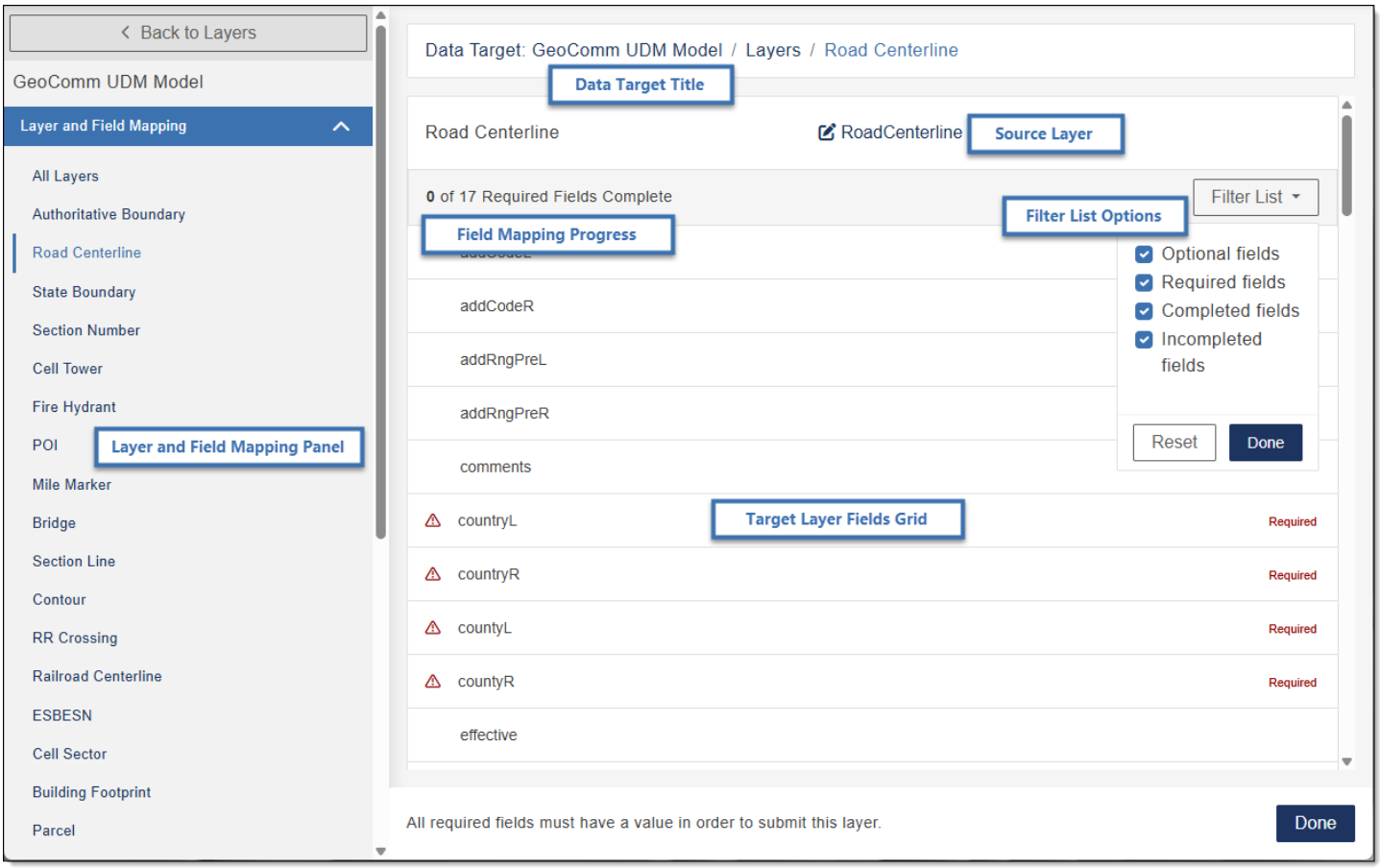
- **Date Only**: Date Only fields, when mapped to Date/Time fields, retain the date value only.
- **Time Only**: Time Only fields, when mapped to Date/Time fields, retain the time value from the source data, while populating the data portion with a default date of 1970-01-01. Note that if the conversion fails, the field populates with a default value of: 1970-01-01 00:00:00+00.
- **Timestamp Offset**: Timestamp Offset fields, when mapped to Date/Time fields, retain the date and time values from the source data. Note that the Coordinated Universal Time (UTC) data is not retained.

View and Edit Target Layer Fields

> **Note:** Changes are automatically saved when you leave the Edit Target Layer Fields page.

Edit Target Layer Fields Workspace

The **Edit Target Layer Fields** workspace consists of the following sections.



- **Layer and Field Mapping Panel**: The navigation bar in the **Layer and Field Mapping Panel** displays a list of the layers for the selected data target. Clicking a layer opens the field mapping page.
- **Data Target Title**: The title provides the name of the data target you are configuring, as well as the selected layer.
- **Source Layer**: Identifies the layer name from the customer's uploaded source data.
- **Filter List Options**: The **Filter List** allows you to filter the list of fields to view only **Optional**, **Required**, **Completed**, or **Incompleted** fields.
- **Field Mapping Progress**: Shows current and total number of required fields to be mapped from the source to the target for this layer or table.
- **Target Layer Fields Grid**: The grid consists of the following sections.
  - **Status** The status is shown prior to the field name when a field is required to be mapped. Fields that are required are identified by "Required" in the grid and display a red warning triangle when empty.

    Status Descriptions

- **Success**: The field is successfully mapped.
- **Alert**: The source and target field types do not match and should be reviewed to minimize the risk of data loss. Ensure the source data is well suited for the target field before running any jobs.
- **Warning**: Required fields must be mapped in order to run your job.

- **Target Fields**: Lists all target fields for the selected layer and identifies any required fields that must be mapped. Select a target field name to open a drop-down and view, edit, or map the fields for the layer. Note, you are selecting the field from the source data that best represents the field in the data target.
- **Mapping**: Shows the target fields that are mapped for the data layer.

- **Done**: Select when you have finished mapping your target fields for the layer. Changes made are saved and the Data Target Card is updated.

View Target Layer Fields

To view target fields for a layer, the layer must first be mapped.

1. In the **Navigation Bar**, select **Data Targets**.
2. Locate the Data Target Card whose map layer(s) you want to view.
3. Click **Layer and Field Mapping**.

   *The **Layer** configuration window opens.*
4. In the **Target Layer Name** column, locate the layer whose fields you want to view.
5. Click **View Fields**.

> **Tip:** To open **View Fields**, click the layer in the **Layer and Field Mapping** navigation bar for any layer that has been mapped.

Map a Target Field in a Data Layer

1. In the **Navigation Bar**, select **Data Targets**.
2. Locate the Data Target Card whose field(s) you want to edit.
3. Click **Layer and Field Mapping**.

   *The **Layer** configuration window opens.*

4. In the **Target Layer Name** column, locate the target layer whose field(s) you want to edit.
5. In the **Mapping** column, click the **View Fields**.

   A list of the target fields for the layer is shown.

6. Click a target field name.

   Options for field mapping are shown.

7. Select the field mapping option you want to set up and map the correct field(s) to complete your selection. See **"Field Mapping " below**for additional details.

   Notes

   > **Note:** Only one mapping type can be selected per field. For example you can not select Field Mapping and Spatial Lookup.

   > **Note:** The Layer must be mapped before you can map the field.

   > **Note:** Truncation during job runs - When data is transformed from source to target, any source value that exceeds the target field length is truncated to fit.
   > If using regular field mapping or conditional field mapping, a truncation will trigger a critical fallout notification. However, tabular and spatial field mapping do not support truncation fallouts, so no notification is generated in those cases.

Field Mapping

Field Mapping allows you to complete basic one to one mapping. Select this option, click in the **Select a field from your data or insert text** box, and complete one of the following to choose the source of the field to map to your data target.

- **Select a Source Field**: Select a source field to map the target field to and view the description in the center of the row.

  When adding a date, use the date picker that appears when the field is selected.

- **Insert as Text**: In the **Select a field from your data or insert text** box, type text that meets requirements shown following the text box (e.g., Type: Text, Max Characters: 2). Click **Insert as Text**.
- To map another source field, click **Add another field** to expand and repeat the **Select a Source Field** or **Insert as Text** step above.
- (Optional) If multiple fields are mapped, by default, the fields are separated with a space. To remove the space, click the checkmark in the **Add space between fields** check box.

Spatial Lookup

Spatial Lookup allows users to select a field within a polygon layer to populate a point or line field value based on the relationship between the feature and the polygon layer. This functionality is useful to ensure data synchronization between layers when attributes are not maintained in the source data.

For example, should the user want to populate the County Name field in their Address Points layer, they could map a spatial lookup to pull values from the County Name field within the County Boundary layer to populate the County field in their Address Points layer. The end result is an Address Points layer whose County field matches the polygons in the County Boundary layer within the data target.

Select the Spatial Lookup option and complete the following to setup Spatial Lookup.

- **Segment Side**: Select the segment side, **Left** or **Right**.

  *A description for the segment is shown to the right and includes **Description**, **Type**, and **Max Characters**.*

  Selecting a segment side is only available when field mapping a line segment.

- **Offset (meters)**: Enter the offset value in meters or click in the box and use the up and down arrows to set the value.

- **Spatial Lookup From**: Select **Source** or **Target**.

  Source and **Target** work the same with the exception of where each option gets its information. Select **Source** to use data from the layers in the data uploaded or select **Target** to use data from the layers in the target.

  The example below describes a scenario when selecting **Source**.

Example

Scenario: You are Field Mapping the Site Structure Address Point (SSAP) layers for the County field using Spatial Lookup.

Setup: In this scenario, the following field mapping set up was completed.

1. County field was selected.
2. The Spatial Lookup option for the field mapping type was selected.
3. County Boundary in the Layer Name drop-down was selected.
4. County in the Field Name drop-down was selected.

Result:

- The system identifies the polygon in the County Boundary where the address point is located using a spatial lookup and pulls the information from that polygon's County field data.
- When the address point gets created in the target layer, the County field name is pulled from the County Boundary's County field (e.g., Benton, Stearns) and adds the county name to the SSAP's County field.
- **Source**: Select **Source** to use the data in its original projection.
- **Target**: Select **Target** to use the data in the projection set by the data target.

Conditional Lookup

Conditional Lookup allows users to select an optional field population methodology should their first chosen field produce a blank or null result. Users can select a field from their data or insert a text string. This does not overwrite existing user data.

For example, should the user want to populate the Municipality field in the NENA data schema, they would first map to the Municipality field in their source data and then add “UNINCORPORATED” as a backup should the Municipality field be blank. This satisfies NENA requirements for NG9-1-1 by ensuring records with no value in their Municipality field contain the text “UNINCORPORATED” instead.

> **Note:** Conditional Lookup populates fields that are null or blank and does not overwrite existing data.

Select this option and complete the following to setup Conditional Lookup.

- **Field Name**: Use **Field Name** to select a field from your data or insert text for the field to be populated with the conditional field data when this data field is null or blank.

  Click the **Field Name - Select a field from your data or insert text** box and complete one of the following.

  - **Select a Field Name**: Select a field name to populate with the information selected in the **Conditional Field Name** below if the field name is null or blank.
  - **Insert as Text**: In the **Field Name** > **Select a field from your data or insert text** box, type text to be populated with the conditional field data below when the field is null or blank. Text entered must meet the requirements shown following the **Field Name** box, (e.g., Type: Text and Max Characters: 2). Click **Insert as Text**.
  - To add another field name, click **Add another field** to expand and repeat the **Select a Field Name** or **Insert as Text** step above.
  - (Optional) If multiple fields are selected, by default, the fields are separated with a space. To remove the space, click the checkmark in the **Add space between fields** check box.

- **Conditional Field Name**: Use **Conditional Field Name** to select a field from your data or insert text to be added to the **Field Name** selected above if the value is null or blank.

  Click the **Conditional Field Name - Select a field from your data or insert text** box and complete one of the following.

  - **Select a Conditional Field Name**: Select a conditional field name in the **Conditional Field Name** box that should be used if the selected field name above is null or blank.
  - **Insert as Text**: In the **Conditional Field Name** > **Select a field from your data or insert as text** box, type text that should be used if the selected field name above is null or blank. Text entered must meet the requirements shown following the **Field Name** box, (e.g., Type: Text and Max Characters: 2). Click **Insert as Text**.
  - To add anther conditional field name, click **Add another field** to expand and repeat the **Conditional Field Name** or **Insert Text** step above.

If multiple fields are selected, all field data must be null or blank before initiating the selections in the conditional field name.

If multiple fields are setup, the field names are populated with the conditional field names, respectively.

- (Optional) If multiple fields are selected, by default, the fields are separated with a space. To remove the space, click the checkmark in the **Add space between fields** check box.

Tabular Lookup

Tabular Lookup allows users to populate a field based on a table. It utilizes a common field to link records from the source layer to records in a user defined table.

For example, should a user want to populate their PSAP URN field within their ESN layer, they can setup the tabular lookup. It would link the ESN layer to the user defined table via the ESN field, and use the associated PSAP URN values from that table to populate the chosen attributes. The result would be an ESN layer with populated PSAP URN values in the data target.

Select this option and complete the following to setup Tabular Lookup.

- **Field Name (Source)**: Use **Field Name (Source)** to select a field from your data or insert text for the field to be populated with the tabular field data in the second column of the .csv file when the data from the source field matches the data in the first column of the .csv file.

  Click the **Field Name (Source) - Select a field from your data or insert text** box and complete one of the following.

  - **Select a Field Name**: Select a field name to populate with the second column of data from the uploaded .csv file when the field data matches the data in the first column of the uploaded .csv file.
  - **Insert as Text**: In the **Field Name** > **Select a field from your data or insert text** box, type text to be populated with the second column of data from the uploaded .csv file when the field data matches the data in the first column of the uploaded .csv file. Text entered must meet the requirements shown following the **Field Name** box, (e.g., Type: Text and Max Characters: 2). Click **Insert as Text**.
  - To add another field name, click **Add another field** to expand and repeat the **Select a Field Name** or **Insert as Text** step above.

- (Optional) If multiple fields are selected, by default, the fields are separated with a space. To remove the space, click the checkmark in the **Add space between fields** check box.

- **File Drop Zone**: Use the file drop zone to add a .csv file to use for Tabular Lookup field mapping.

  Browse to Upload File

  Complete the following to browse to a location and upload your .csv file.

  - Click in the **File Drop Zone**.
  - Browse to, and select the data file you want to upload.
  - Click **Open**.

    Files must be a single .csv file with two columns and have a maximum file size of 3 MB.

    If the wrong file is selected, click  *to delete. Repeat the steps above to select a different file.*

  Drag and Drop to Upload File

  Complete the following to drag and drop the .csv file you want to upload.

  - Locate the .csv file you want to upload and submit for processing.
  - Drag the data file you want to upload and drop the file in the **File Drop Zone**.

    Files must be a single .csv file with two columns and have a maximum file size of 3 MB.

    If the wrong file is selected, click  *to delete. Repeat the steps above to select a different file.*

8. To continue to the next field, click **Next Field**.

   The center column in the row is updated with the selection and a green checkmark appears before the field name indicating complete.

9. Repeat until all required fields have been mapped.
10. Click **Done**.

    *If you have not finished mapping all required fields and select **Done**. Changes made are saved but the layer is not complete until all required fields are mapped.*

Remove a Mapped Source Field

1. In the **Navigation Bar**, select **Data Targets**.
2. Locate the Data Target Card whose field(s) you want to edit.

3. Click **Layer and Field Mapping**.

   *The **Layer** configuration window opens.*

4. In the **Target Layer Name** column, locate the target layer whose field(s) you want to remove.
5. In the **Mapping** column, click the **View Fields**.

   A list of the target fields for the layer are shown.

6. Select the target field name for the source field you want to remove.
7. Click the X in the mapped source field box.

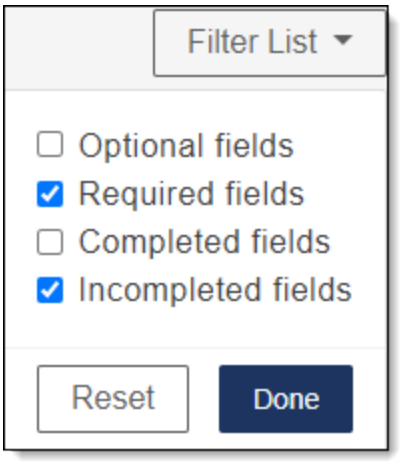
   The target field is no longer mapped to the source field.

8. Click **Done**.

Filter the Target Fields List

1. To filter the target field list, click **Filter List**.
2. Click the check boxes to add or remove the checkmark(s).
3. Click **Done**.

   *Items selected are filtered for you to view and **Filter List** changes to **Filtered**.*



Note: To return to the default filter, open the filter list and click **Reset**.

Edit Source Layer from View Fields

Note: A Source Layer must be mapped to edit the layer from field mapping.

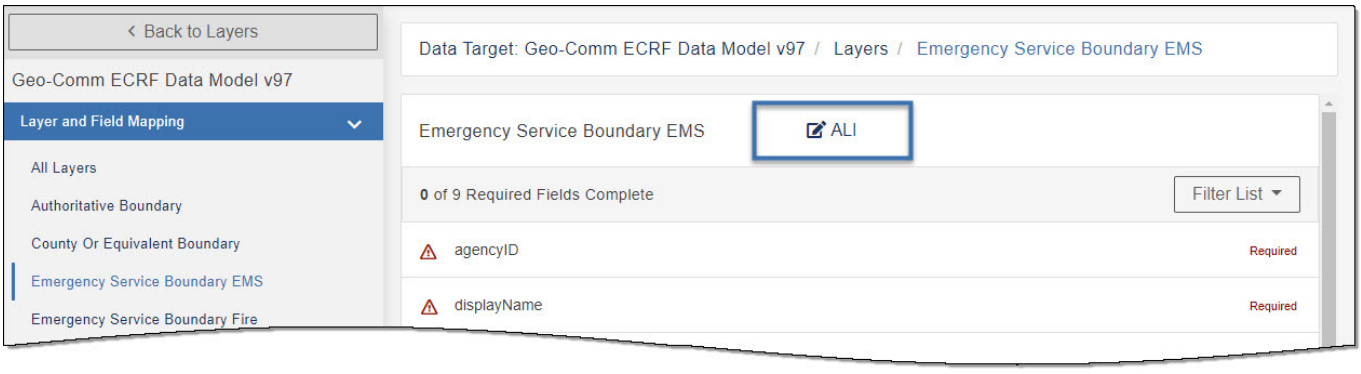
1. In the **Navigation Bar**, select **Data Targets**.
2. Locate the Data Target Card whose source layer you want to edit.
3. Click **Layer and Field Mapping**.

   *The **Layer** configuration window opens.*

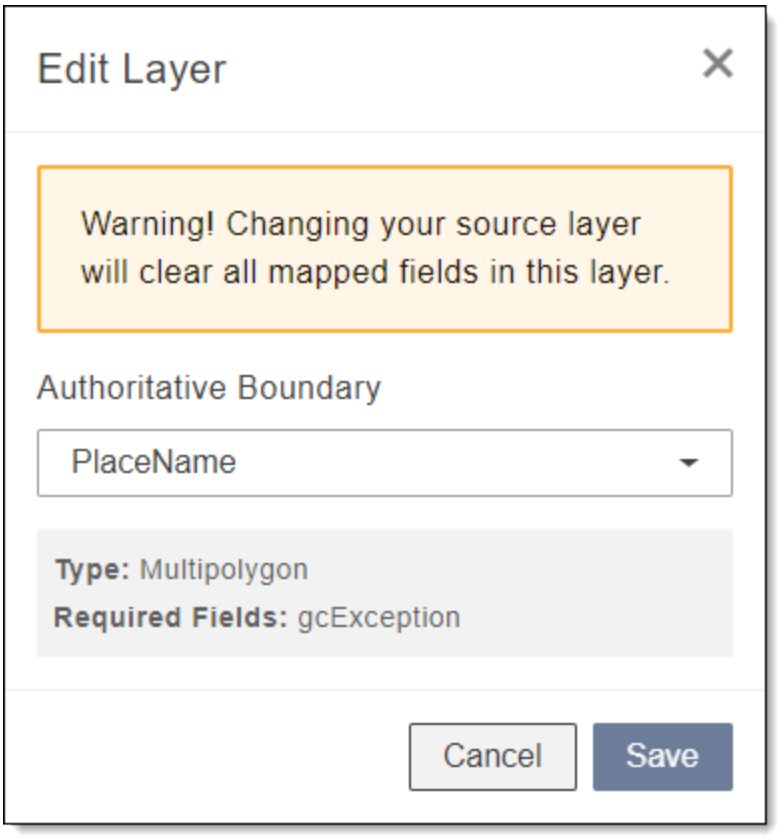
4. In the **Target Layer Name** column, locate the target layer whose source layer you want to edit.
5. In the **Mapping** column, click **View Fields**.

   A list of the fields for the layer is shown.

6. In the title bar, click the source layer.



*The **Edit Layer** pop-up opens displaying the target layer name, type of map layer, and required fields.*



7. Under the source layer name, expand the drop-down and select a source data.

   Changing the source layer clears all mapped fields for the layer.

8. Click **Save**.
9. Click **Done**.

Data Packages

Data Packages configuration is available for use by the primary account user or managing agency.

Data Packages enable you to download available packages for use in other systems and agencies. From the **Manage Packages** option, authorized users can create and manage packages and view the latest package download activity.

Available Packages

Depending on the type of package, use **Available Packages** to download the package for use in other products or systems, or to open in an ArcGIS product to make needed modifications. Alternatively, users with the correct permissions can upload files for assigned agencies to download at their discretion. See **"Available Packages" below**.

Manage Packages

Use **Manage Packages** to add, edit, or delete packages, manage templates and locators, manage produced package types, and view the latest package download activity. See **"Manage Packages" on page 119**.

Available Packages

There are two types of packages in **Available Packages**. System generated packages are located under the **GIS Data Hub Packages** and packages that were uploaded by the primary account are located under **Supplied Packages** (e.g., <primary account name> Supplied Packages).

GIS Data Hub Packages

GIS Data Hub packages are packages created from your Data Target data runs after GIS Data Hub processes are complete. These packages can be downloaded for use in another product or system or opened in an ArcGIS product to make needed modifications. If the GIS Data Hub Package has multiple data runs, a history of the last 3 data packages are available for download. For more information on Data Targets, see **"Data Targets" on page 96**.

While viewing the **Available Packages** page, click **Refresh**  to update and view the most recent available packages.

GIS Data Hub Package Retention Times

To ensure data is retained for an appropriate duration and securely disposed of once the information is no longer needed, GIS Data Hub automatically deletes data when it reaches a predetermined time frame. This process not only ensures that sensitive information is handled responsibly, it helps in preventing system overloads from accumulating excessive data.

The following information provides details on how long Export packages are retained in GIS Data Hub. Export packages include: GIS geodatabase (GDB) Exports, Mobile Map Packages (MMPK), and Master Street Address Guides (MSAG).

- Exports packages are retained for a maximum period of 120 days.
- Only packages that were successfully built are retained, regardless if the overall job succeeded or failed.
- The following number of packages, per agency, are available in the Available Packages section of GIS Data Hub, unless they have been previously deleted based on the set time for deletion.
  - 4 output GDB's
  - 4 MMPK's
  - 20 full MSAG builds
  - 20 delta MSAG builds

Supplied Packages

Supplied packages are packages created, managed, and uploaded by the primary account's administrator using **Manage Packages**. Once uploaded, these packages are available for download and use by assigned agencies under the primary account. For more information on Manage Packages, see **"Manage Packages" on the next page**.

Download Available Packages

1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Available Packages**.
3. Click to select the data package you want to download.

   A confirmation message is shown, and the package is downloaded as a zip file.

Download a Past GIS Data Hub Package

The past three GIS Data Hub Packages are available for download. If the package does not have historic packages, the  *button is inactive.*

1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Available Packages**.

3. In the **GIS Data Hub Packages** list, locate the package you want to download and click  to view available historic packages.
4. Select the date for the GIS Data Hub package to download.

   A confirmation message is shown, and the package is downloaded as a zip file.

Refresh GIS Data Hub Packages

1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Available Packages**.
3. Click **Refresh**  to refresh the **GIS Data Hub Packages** list.

Manage Packages

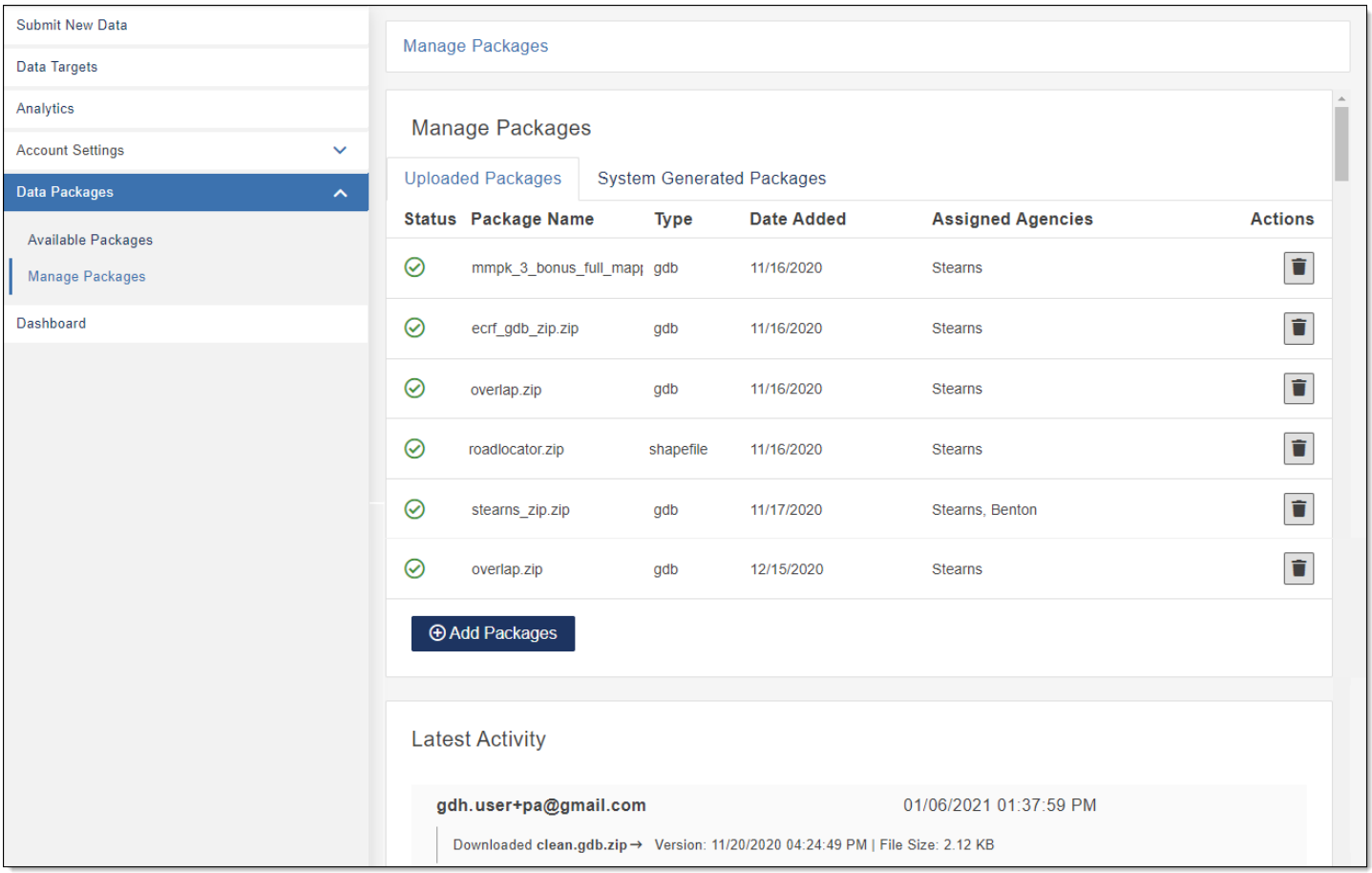
Manage Packages consists of Uploaded Packages and System Generated Packages. It also displays the latest activity that has occurred in the Available Packages page for historical tracking. Use **Manage Packages** to add, edit, or delete packages, manage templates and locators, and view the latest package download activity.

Uploaded Packages Tab

Use the **Uploaded Packages** tab to view a list of the available uploaded packages, add a new to an agency, or to delete a package.

Uploaded Packages Workspace

The **Uploaded Packages** tab consists of a grid with the following information.



- **Status**: Identifies when a package upload completed successfully by adding a green checkmark.
- **Package Name**: The name assigned to the data package file.
- **Type**: The type of data file such as geodatabase (GDB), Shapefile (SHP), or Mobile Map Packages (MMPK).
- **Date Added**: The date the data was added to **Manage Packages**.
- **Assigned Agencies**: Agencies that are assigned to the data package. These agencies are able to download the assigned package in the Available Packages page.
- **Actions**: Clicking deletes the data package.
- **Add Packages**: Provides the ability to add packages by uploading one or more zip files and selecting the agency(ies) to receive the package.
- **Latest Activity**: Provides a record of the last 20 data packages that were downloaded including the user that downloaded the package on the Available Packages page.

Note: When there are additional **Latest Activity** pages, click the page number or arrows « 1 2 » to scroll through the additional pages.

Add a Data Package

1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Manage Packages**.
3. In the **Uploaded Packages** tab, click **Add Packages**.
4. (Optional) In the **Add Package** form under **File Type**, select the type of file being added.
5. (Optional) In **Assigned Agencies**, click **Select an agency** box to view a list of agencies the package can be added to. Click an agency name to select.
6. To add another agency, click the **Add another agency** box and select another agency.
7. Click **Next**.
8. In Step 2 of **Add Packages**, in the file drop zone complete one of the following to upload the file and distribute to the selected agencies.
   - Drop and drag the data files to the file drop zone.
   - Click the file drop zone to browse to and select the data files.

   All data submitted must be in a .zip file.
9. Click **Upload** and **Submit**.

   The package is uploaded and added to the Uploaded Packages tab. The package is then available to users with the correct permissions in the assigned agencies in the Available Packages page.

Delete an Uploaded Package

1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Manage Packages**.
3. In the **Uploaded Packages** tab, locate the package you want to delete and click **Delete** 🗑.
4. Click **Yes, Delete**.

View Uploaded Packages Download Activity

To keep informed on the agency(ies) that are downloading data packages, **Latest Activity** provides a list of the last 20 data packages that were downloaded including the package name, date and time downloaded, and the user that downloaded the package.

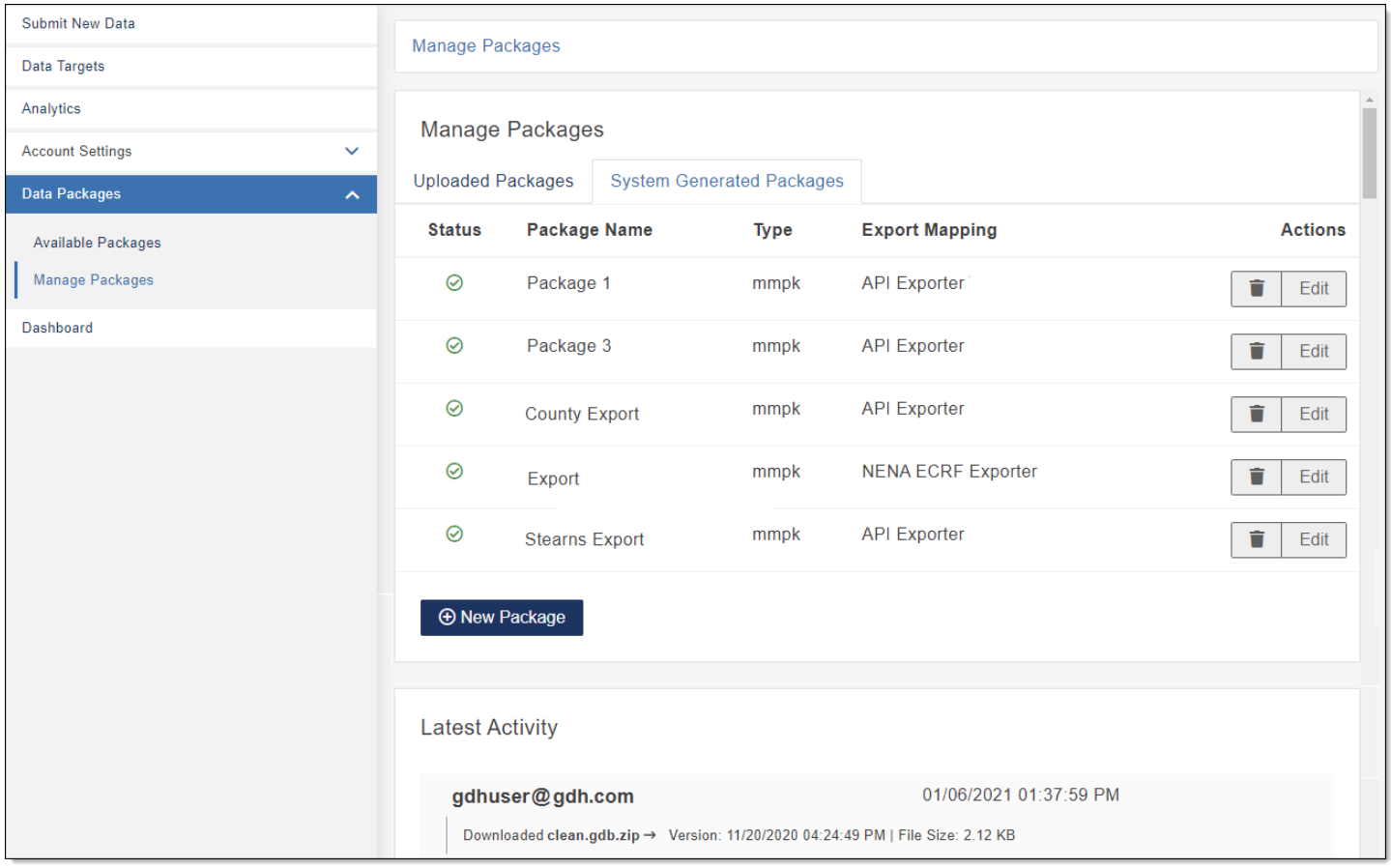
System Generated Packages Tab

A system generated package is created when a data target run is completed and there are system generated packages configured.

Use the **System Generated Packages** tab to manage your packages. From the **System Generated Packages** tab you can view the latest downloaded packages, create new packages, edit existing package settings, edit locators and enable custom locators, or delete package settings.

System Generated Packages Workspace Descriptions

The **System Generated Packages** tab consists of a grid with the following information and these sections.



- **Status**: Identifies when a package upload completed successfully by adding a green checkmark  .
- **Package Name**: The name assigned to the package settings.
- **Type**: The type of data package (e.g., MMPK).
- **Export Mapping**: The export mapping chosen for the package.
- **Actions**: Provides actions available when working with the selected system generated package that includes the following:
  - **Edit**: Enables you to edit the configuration for the selected package including export mapping, display templates, and locators.
  - **Delete**: Click  to delete the system generated package.
- **New Package**: Provides the ability to add any of the following new packages.
  - **Mobile Map Package (MMPK)**. Adds a new MMPK and allows you to configure its settings by uploading one or more zip files.
  - **NENA GIS derived MSAG**. Adds a new NENA GIS derived MSAG package for a data target allowing you to select the type of package, then map the GIS layers to show in the MSAG.
  - **Pipe Delimited GIS derived MSAG**. Adds a new Pipe Delimited GIS derived MSAG for a data target allowing you to select the type of package, data target, SFTP delivery location and time, and data target layers for field mapping.
- **Latest Activity**: Provides a record of the last 20 packages that were downloaded including the user that downloaded the package.

Note: When there are additional **Latest Activity** pages, an option to page is shown. Click the page number or arrows 

to scroll through additional pages.

Add a New System Generated Package - MMPK

When adding a new MMPK system generated package, you must define the type of template file and locators to use for the package by completing the following.

Step 1: Create a New Package

1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Manage Packages**.
3. In the **System Generated Packages** tab, click **New Package**.
4. In the **New Package** form, enter the package name in the **Package Name** box.
5. Under **Type**, select **Mobile Map Package (MMPK)** for the type of package you want to create.
6. Click **Save**.

Step 2: Define Package Export Mapping and Display Template

The map created when adding a package uses the Export Mapping selections you make.

7. Click in the **Data Target** box to view a list of available data targets.
8. From the list, select the data target that the MMPK will be built upon when a job runs in that agency.

   If the MMPK needs to support an additional specific data target, create a separate package and select the appropriate data target.

   *If the MMPK must run for all enabled data targets, choose the **All Data Targets** option.*

   *If **All Data Targets** is selected in the **Data Target** box, but only a specific data target is required for this MMPK, use the drop-down to choose that specific data target.*
9. Click in the **Export Mapping** box to view a list of export mapping options. Click an option to select the export mapping for the package.
10. To automate SFTP delivery, click the **Automated SFTP Delivery** check box to select.

    Automated SFTP Delivery automatically delivers the file to the ftp site and adds the file to the System Generated Packages list.
11. Click in the **Display Template** box to view a list of available templates for displaying data. Click a template type to select.
12. Click in the **Esri Version** box to view a list of available Esri versions. Click to select the version of ArcGIS

you would like to use to build your locators and MMPK.

13. In **Map Type**, select the type of map **Standard Map** or **Indoor Map**.

Step 3: Define Package Locators

The **Locators** section allows you to use the default locators or to enable custom locators to include in your composite locator that are compatible with your selected Esri version. By default, the locator settings are set to use default locators.

14. If using the default, composite locator, see **"Edit MMPK System Generated Packages" on page 130** for additional information on using composite locators.

15. If selecting to use a custom locator, in the **Locators** section, click the **Enable Custom Locators** slider.

    The slider turns blue and custom locators are enabled.

    If a custom locator has been uploaded multiple times, the most recent version is used.

16. Click in the **Address Points** box to view available options. Click to select an address points locator.

17. Click in the **Roads** box to view available options. Click to select a roads locator.

    When Address Points has a locator, a Roads locator is optional or if Roads has a locator, an Address Points locator is optional.

18. (Optional) Click in the **Campus/Buildings** box to view available options. Click to select a campus/buildings locator.

19. Click **Save Package**.

    The package settings are saved and added to the System Generated Packages tab.

    To create a custom locator, see ***"Add a Custom Locator" on page 136***.

Add a New System Generated Package - NENA GIS Derived MSAG

When adding a new system generated NENA GIS Derived MSAG or GIS Derived MSAG Delta package, you must select the type of produced package(s) and field map the GIS layers for the selected data target by completing the following.

Step 1: Create a New Package

1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Manage Packages**.
3. In the **System Generated Packages** tab, click **New Package**.
4. In the **New Package** form, enter the package name in the **Package Name** box.
5. Under **Type**, select **NENA GIS Derived Master Street Address Guide (MSAG)** for the type of package you want to create.
6. Click **Save**.

Step 2: Select a Data Target

7. In **Data Target**, click in the **Select Data Target** box to view a list of available data targets, click a data target to select.

Step 3: Select Produced Package

8. In **Produced Packages** select the package type you want to produce.
   - **Individual**: The MSAG is created for a single dataset.
   - **Merged**: The MSAG is created by merging multiple datasets to a single package. You may want to select this option to merge datasets submitted by multiple agencies.

Step 4: Select MSAG Option

9. In **MSAG Options** select one or more of the following MSAG options you want to produce.
   - **GIS Derived MSAG Delta**: The MSAG is created and contains only changes (i.e., inserts and deletes) from the previously generated MSAG.
   - **MSAG Data Exchange CSV**: Populates MSAG records into a CSV with headers.

     The base format for the MSAG follows version 2.1 format for MSAG Data Exchange per NENA Standard NENA-STA-015.10-2018. This format includes the following headers: Prefix Directional, Street Name, Street Suffix, Post Directional, Low Range, High Range, Community Name, State, Odd/Even, ESN, Extract

Date, PSAP ID, County ID, Exchange, General Use, TAR Code, Function of Change, Reserved, Expanded Extract Date, and End of Record columns.

Step 5: (Optional) Select a Delivery Location and Time

> **Note:** All fields are required when completing the Delivery section information.

10. Expand the **Delivery** section and in **Delivery Location**, enter the STFP address to deliver the data package including user name and password information.

    The user name, password, and delivery information is retained once the package is saved .

11. In **Start Time**, click in the **Select Time Zone** box and click to select the time zone to use for starting processing and use the up/down arrows to set the time.

Step 6: Select a GIS Layer Table and Map Fields

12. In **GIS Layer**, click in the **Select Table** box to view a list of available layers, click a layer to select and open a table with fields for the layer.
13. (Optional) Click **Filter List** to filter the fields shown in the table. Add a checkmark to select the fields you want to filter and display in the table. Click **Done** to save.
    - **Optional fields**: Fields that are optional for the GIS Derived MSAG.
    - **Required fields**: Fields that are required for the GIS Derived MSAG.
    - **Completed fields**: Fields that have already been mapped for the GIS Derived MSAG.
    - **Incompleted fields**: Fields that are incomplete and need to be mapped for the GIS Derived MSAG.
14. In the data table, click to select a field and expand and view mapping options.
15. Click in the **Select a field from your data or insert text** box and complete one of the following.
    - **Select a Field from your data**: Select a source field to map to the target field and show in the MSAG.
    - **Insert text**: In the **Select a field from your data or insert text** box, type the text that meets the Type (e.g., Number Date or Text) and **Max Characters** requirements. Click **Insert as Text**.
16. To map the field to another target field, click in the **Add another field** box and repeat the **Select a Field from your data** or **Insert Text** step above.

    *If more than one field is added, the **Add space between fields** option appears. Leave the box checked to add a space between the fields, or click to uncheck the box and concatenate all fields without spaces.*

17. To continue to the next field, click **Next Field**.

    The field is updated with the selection and a green checkmark appears before the field name indicating complete.

18. Repeat to map additional fields.
19. Click **Save Package**.

    The package is created, added to your System Generated Packages tab, and available for download in Available Packages once a successful data run has completed.

Add a New System Generated Package - Pipe Delimited GIS Derived MSAG

Creating a Pipe Delimited GIS Derived MSAG data package allows you to map RCL and SSAP data source fields to GIS based MSAG fields so you can maintain the data in its current schema. When adding a new system generated Pipe Delimited GIS derived MSAG package, you must select the type of produced package, set delivery information, and field map the layers for the selected data target by completing the following.

Step 1: Create a New Package

1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Manage Packages**.
3. In the **System Generated Packages** tab, click **New Package**.
4. In the **New Package** form, enter the package name in the **Package Name** box.
5. Under **Type**, select **Pipe Delimited GIS Derived Master Street Address Guide (MSAG)** for the type of package you want to create.
6. Click **Save**.

Step 2: Select a Data Target

7. In **Data Target**, click in the **Select Data Target** box to view a list of available data targets, click a data target to select.

Step 3: Select the Type of Pipe Delimited GIS Derived MSAG Package(s) to Produce

8. In **Produced Packages** select the following package type(s) you want to produce.
   - **Individual**: The MSAG is created for a single dataset.
   - **Merged**: The MSAG is created by merging multiple datasets to a single package. You may want to select this option to merge datasets submitted by multiple agencies.

Step 4: Select a Delivery Location and Time

9. Expand the **Delivery** section and in **Delivery Location**, enter the STFP address to deliver the data package including user name and password information.

   The user name, password, and delivery information is retained once the package is saved.

10. In **Start Time**, click in the **Select Time Zone** box and click to select the time zone to use for starting processing and use the up/down arrows to set the time.

Step 5: Select Table and Map Fields

11. In **RCL Layer**, click in the **Select Table** box to view a list of available layers, click a layer to select and open a table with fields for the layer.
12. (Optional) Click **Filter List** to filter the fields shown in the table. Add a checkmark to select the fields you want to filter and display in the table. Click **Done** to save.
    - **Optional fields**: Fields that are optional for the Pipe Delimited GIS Derived MSAG.
    - **Required fields**: Fields that are required for the Pipe Delimited GIS Derived MSAG.
    - **Completed fields**: Fields that have already been mapped for the Pipe Delimited GIS Derived MSAG.
    - **Incompleted fields**: Fields that are incomplete and need to be mapped for the Pipe Delimited GIS Derived MSAG.
13. In the data table, click to select a field and expand and view mapping options.
14. Click in the **Select a field from your data or insert text** box and complete one of the following.
    - **Select a Field from your data**: Select a source field to map to the target field and show in the MSAG.
    - **Insert text**: In the **Select a field from your data or insert text** box, type the text that meets the Type (e.g., Number Date or Text) and **Max Characters** requirements. Click **Insert as Text**.
15. To map the field to another target field, click in the **Add another field** box and repeat the **Select a Field from your data** or **Insert Text** step above.

    *If more than one field is added, the **Add space between fields** option appears. Leave the box checked to add a space between the fields, or click to uncheck the box and concatenate all fields without spaces.*

16. To continue to the next field, click **Next Field**.

    The field is updated with the selection and a green checkmark appears before the field name indicating complete.

17. Repeat to map additional fields.
18. Repeat the steps above for the **SSAP Layer** section in the package.
19. Click **Save Package**.

    The package is created, added to your System Generated Packages tab. This package is then processed daily at the time configured when new data has successfully been processed through the system and the created file is sent to the specified SFTP site. Note that the created Pipe Delimited GIS Derived MSAG file is only available on the SFTP site.

Edit System Generated Packages

The **Edit** action enables you to edit the configuration for the selected package that includes items such as package name, export mapping, template display type, and locators. See **"Edit MMPK System Generated Packages" below** or **"Edit MSAG System Generated Packages" on page 138**.

Delete a System Generated Package

1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Manage Packages**.
3. In the **System Generated Packages** tab, locate the package you want to delete and click **Delete**  .
4. Click **Yes, Delete**.

View System Generated Packages Download Activity

To keep informed on the user(s) that are downloading system generated packages, **Latest Activity** provides a list the last 20 packages that were downloaded including the package name, date and time downloaded, and the user that downloaded the package.

Edit MMPK System Generated Packages

The Manage Packages **Edit** option for the system generated Mobile Map Packages (MMPK) enables you to edit the configuration for the selected data package. From the **Manage Packages** page, you can make edits to the package title, data target or export mapping, display template, Esri version, and map type, as well as manage locators.

By default, MMPK System Generated Packages use composite locators. The following information provides general information for using composite locators with MMPK system generated packages.

- The locator field mapping must correspond to the existing data target field names.
- ArcMap and ArcGIS Pro style locators are supported. Use the correct Esri Version for your locator type.

  Note that ArcMap and ArcGIS Pro locators cannot be used together in any MMPK build as they are incompatible with each other.
- Composite locators contain the following single locators in the order listed. When using a composite locator, the locator searches by the single locator in the same order.
  1. Address_Refine
  2. Roads_Refine
  3. Campus_Refine (when it exists)

GIS Data Hub accepts custom ArcMap style locators, but they must contain the following three files: .lox, .loc, and .xml with the same file name. Additionally, custom ArcGIS Pro formatted locators are accepted. With this locator type, the uploaded zipped file must include ArcGIS Pro formatted locators containing the following two files: .loc and .loz with the same file name.

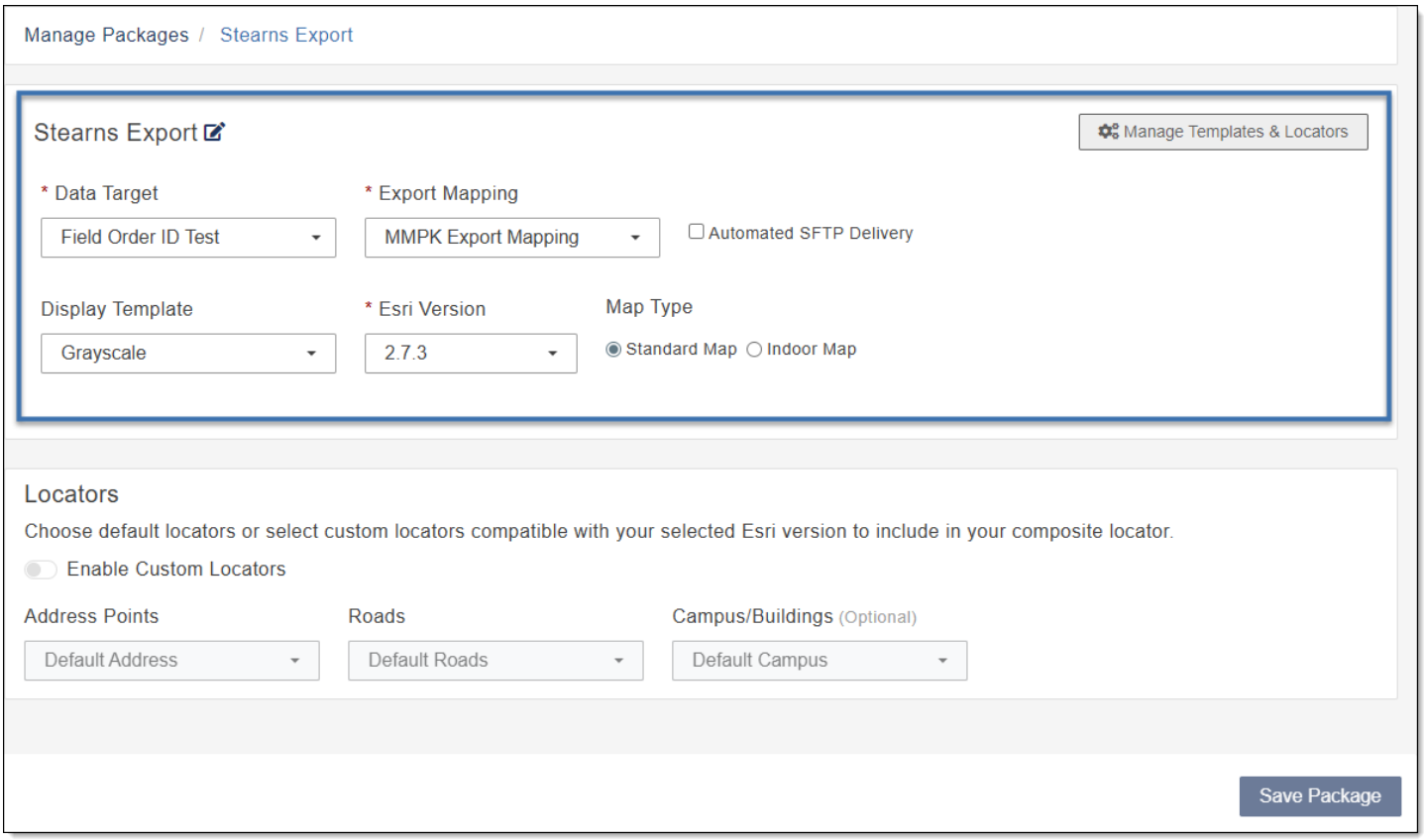
Note: Using .locb sub-file for ArcMap locators offline use is not supported. To upload ArcMap locators configured for offline use, delete the .locb, zip, and upload again.

Edit a Package Name

1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Manage Packages**.
3. Select the **System Generated Packages** tab.
4. Locate the package you want to edit and select **Edit**.
5. By the package name, click  to open the **Edit Package** form.
6. In the **Package Name** field, type the new package name.
7. Click **Save**.

Edit Export Mapping and Templates

When editing a system generated package, the map created uses the Export Mapping selections you make.



1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Manage Packages**.
3. Select the **System Generated Packages** tab.
4. Locate the MMPK package you want to edit and select **Edit**.
5. Click in the **Data Target** box to view a list of available data targets.
6. From the list, select the data target that the MMPK will be built upon when a job runs in that agency.

   If the MMPK needs to support additional data targets, create a separate package and select the appropriate data target.

   *Use the **All Data Targets** option in the **Data Target** drop-down to create an MMPK for every enabled data target.*
7. Click in the **Export Mapping** box to view a list of export mapping options. Click an option to select the export mapping for the package.
8. To automate SFTP delivery, click the **Automated SFTP Delivery** check box to select.

Automated SFTP Delivery automatically delivers the file to the ftp site and adds the file to the System Generated Packages list.

9. Click in the **Display Template** box to view a list of available templates for displaying data. Click a template type to select.
10. Click in the **Esri Version** box to view a list of available Esri versions. Click to select the version of ArcGIS you would like to use to build your locators and MMPK.

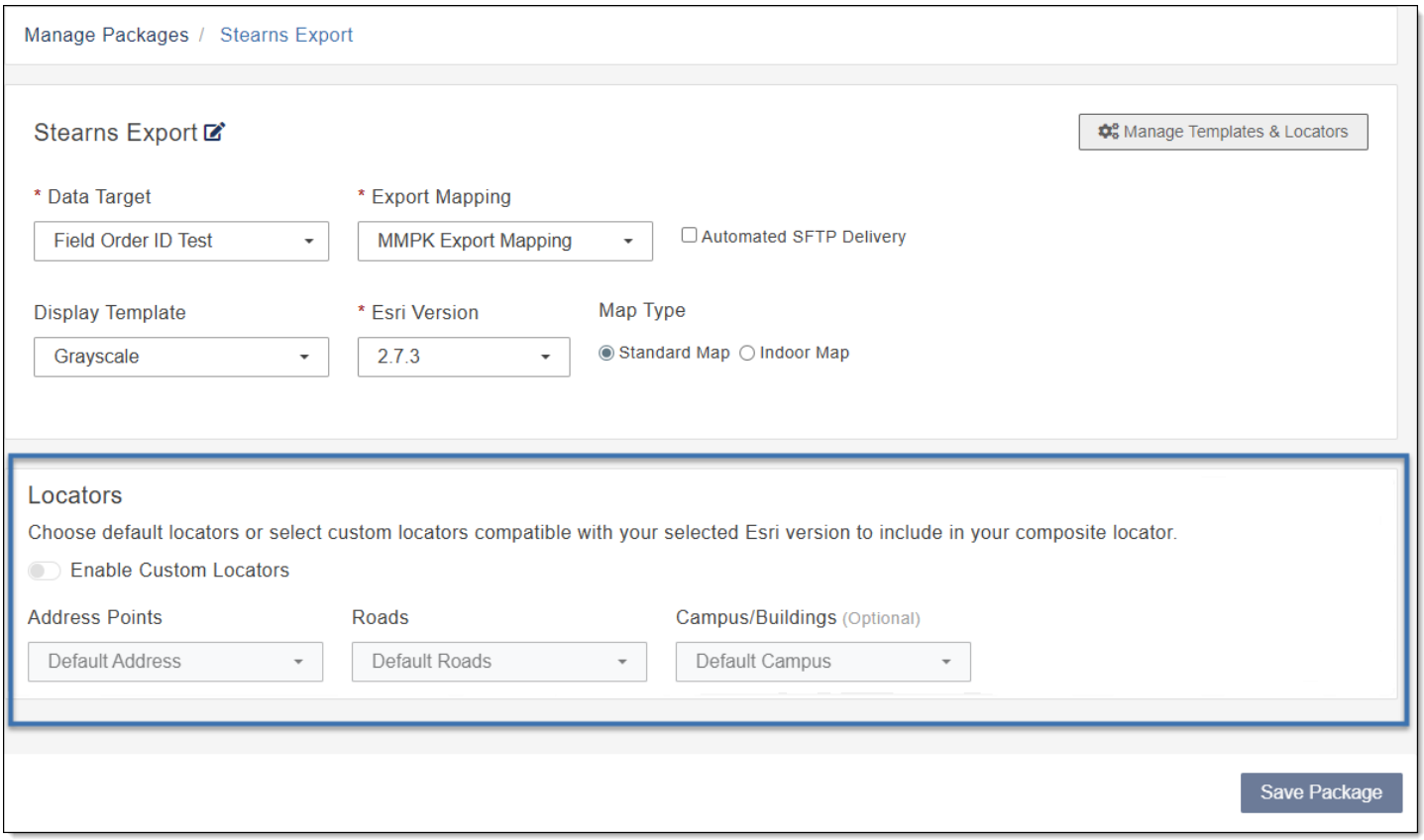
    *If using a custom locator, see **"Edit Locators" below** for information on configuring the custom locator.*

    > **Tip:** To confirm what version of ArcGIS Pro was used to make your MMPK, open the MMPK in notepad and search for *description* to see the Esri Version.

11. In **Map Type**, select the type of map **Standard Map** or **Indoor Map**.
12. Click **Save Package**.

Edit Locators

When editing a system generated package, the map created uses the default Locator selections unless you enable and select custom locators. If using custom locators, your locators must match the Esri version you selected (i.e., Esri version 3.3.0 uses ArcPro formatted locators while Esri Version 2.7.3 uses ArcMap formatted locators). Note that Indoor maps do not require locators.



1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Manage Packages**.
3. Select the **System Generated Packages** tab.
4. Locate the MMPK package you want to edit and select **Edit**.
5. In **Locators** section, click the **Enable Custom Locators** slider to enable and create a custom locator for the MMPK.

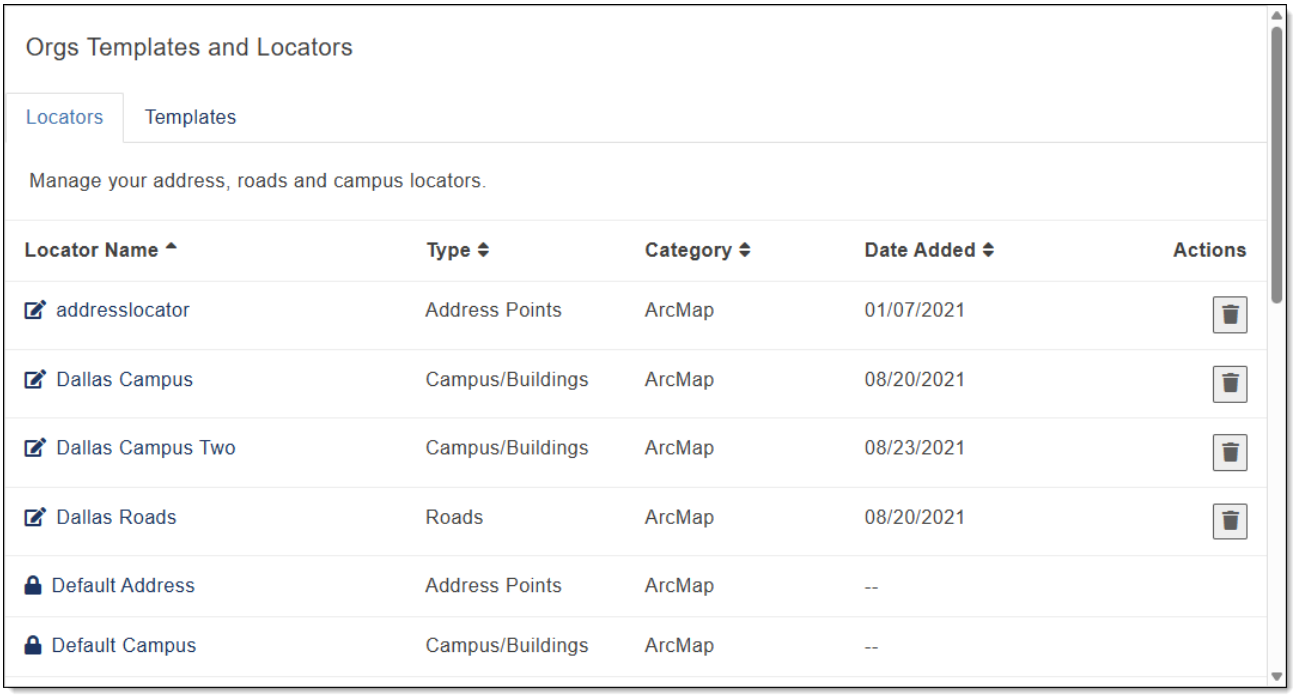
   The slider turns blue and custom locators are enabled.

   When using custom locators, you have the option to utilize the default locators available in the Address, Roads, and Campus/Buildings drop-down menus, as well as your own custom locators. Note that the locator most recently modified is used if various locators contain the same name.
6. Click in the **Address Points** box to view available options. Click to select an address points locator.
7. Click in the **Roads** box to view available options. Click to select a roads locator.

When Address Points has a locator, a Roads locator is optional or if Roads has a locator, an Address Points locator is optional.

8. (Optional) Click in the **Campus/Buildings** box to view available options. Click to select a campus/buildings locator or select **None** to not use a locator for this option.
9. Click **Save Package**.

Manage Package Locators



Edit a Locator Name

1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Manage Packages**.
3. Select the **System Generated Packages** tab.
4. Locate the MMPK package you want to edit and select **Edit**.
5. Select **Manage Templates and Locators** in the upper right corner.
6. Select the **Locators** tab.
7. In the **Locator Name** column, click  by the locator name you want to edit. In the text box that opens type the new locator name.
8. Click **Save**.

Add a Custom Locator

1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Manage Packages**.
3. Select the **System Generated Packages** tab.
4. Locate the MMPK package you want to edit and select **Edit**.
5. Select **Manage Templates and Locators** in the upper right corner.
6. Select the **Locators** tab.
7. Click **Add Locator**.

   *The **Add Locator** form opens.*
8. In the **Add Locator** form **Locator Name** box, enter a name for the new locator.
9. In **Locator Type**, select the type of locator: **Address Points**, **Roads**, or **Campus/Buildings**.
10. Click **Next**.
11. In the file drop zone, complete one of the following to upload the locator file. The zip file must include the following file types with the same file name, and must only contain one locator per zip file. *ArcMap Locators: .loc, .loc.xml, and .lox or ArcGIS Pro Locators: .loc and .loz*
    - Drop and drag the locator file to the file drop zone.
    - Click the file drop zone to browse to and select the locator file.
12. Click **Upload and Submit** to add the locator or click **X** to cancel or **Back** to modify locator information.

    The new locator is added to the locator list.

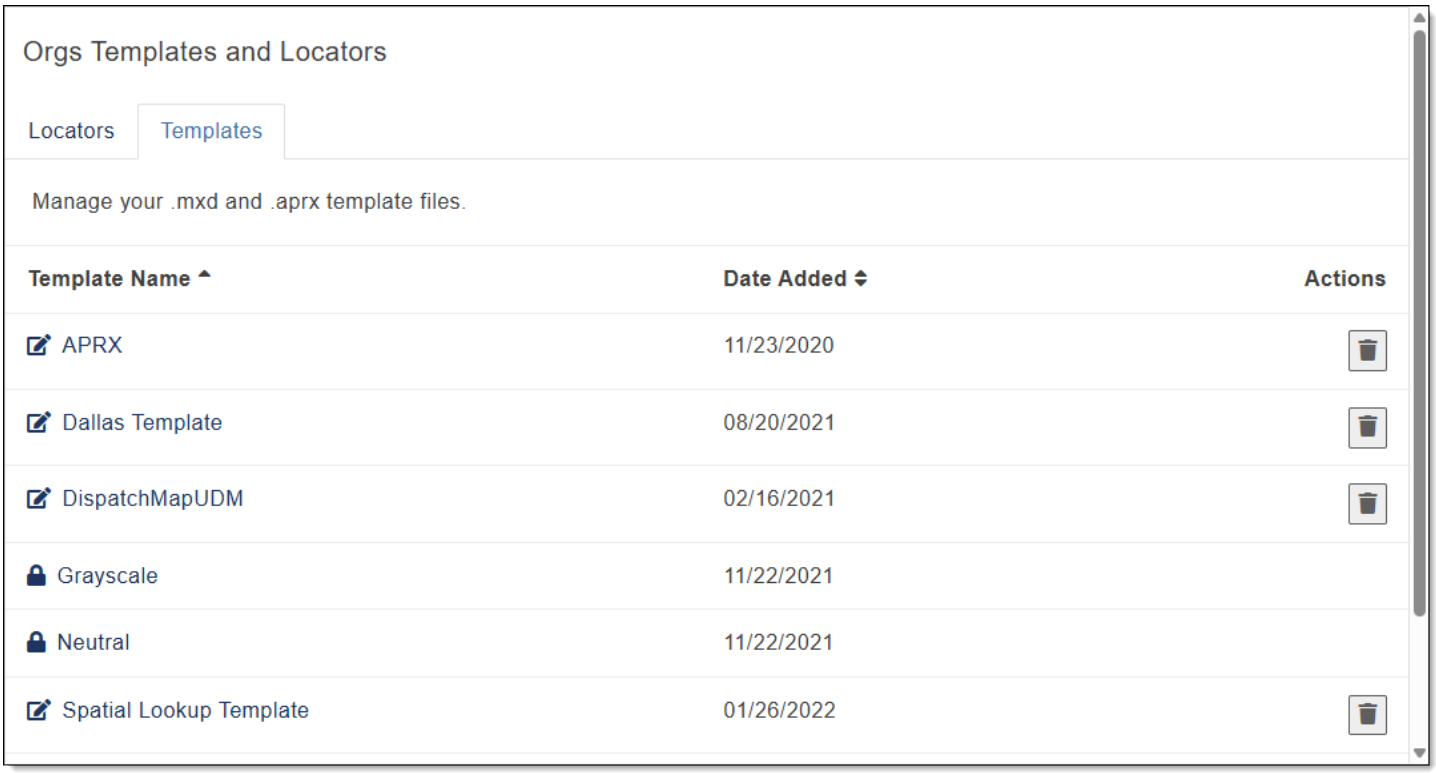
    The locator most recently modified is used if various locators contain the same name.

Delete a Locator

1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Manage Packages**.
3. Select the **System Generated Packages** tab.
4. Locate the MMPK package you want to edit and select **Edit**.
5. Select **Manage Templates and Locators** in the upper right corner.
6. Select the **Locators** tab.
7. In the **Locator Name** column, find the locator you want to delete.
8. In the **Actions** column, click  to delete.

9. Click **Delete** to confirm.

Manage Templates



Edit a Template Name

1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Manage Packages**.
3. Select the **System Generated Packages** tab.
4. Locate the package you want to edit and select **Edit**.
5. Select **Manage Templates and Locators** in the upper right corner.
6. Select the **Templates** tab.
7. In the **Template Name** column, click  by the template name you want to edit. In the text box that opens type the new template name.
8. Click **Save**.

Add a Custom Template

1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Manage Packages**.

3. Select the **System Generated Packages** tab.
4. Locate the package you want to edit and select **Edit**.
5. Select **Manage Templates and Locators** in the upper right corner.
6. Select the **Templates** tab.
7. Click **Add Template**.

   *The **New Template** form opens.*
8. In the **New Template** form in the **Template Name** box, enter a name for the new template.
9. In the file drop zone, complete one of the following to upload the template file. The file must be an mxd or aprx file.
   - Drop and drag the template file to the file drop zone.
   - Click the file drop zone to browse to and select the template file.
10. Click **Upload**.
11. Click **Save** or click **Cancel** to delete.

    The new template is added to the templates list.

Delete a Template

1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Manage Packages**.
3. Select the **System Generated Packages** tab.
4. Locate the package you want to edit and select **Edit**.
5. Select **Manage Templates and Locators** in the upper right corner.
6. Select the **Templates** tab.
7. In the **Template Name** column, find the template you want to delete.
8. In the **Actions** column, click  to delete.
9. Click **Delete** to confirm.

Edit MSAG System Generated Packages

The Manage Packages **Edit** option for MSAG System Generated Packages enables you to edit the configuration for the selected data package. From the **Manage Packages** page, you can make edits to the packages

configuration such as the package title, select the data target and type of package produced, delivery, and configure the selected GIS layer.

Edit a Package Name

1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Manage Packages**.
3. Select the **System Generated Packages** tab.
4. Locate the package you want to edit and select **Edit**.
5. By the package name, click  to open the **Edit Package** form.
6. In the **Package Name** field, type the new package name.
7. Click **Save**.

Select a New Produced Package Type or Data Target

1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Manage Packages**.
3. Select the **System Generated Packages** tab.
4. Locate the MSAG package you want to edit and select **Edit**.
5. To select a new data target, click in the **Data Target** box to view a list of available data targets and click to select.
6. **NENA GIS derived MSAG packages**. To select a new produced package type, click the radio button by the package type to select or deselect the package you want to produce.
   - **Individual**: The MSAG is created for a single dataset.
   - **Merged**: The MSAG is created by merging multiple datasets to a single package. You may want to select this option to merge datasets submitted by multiple agencies.
7. **Pipe Delimited GIS derived MSAG packages**. To select a new produced package type, click the radio button for the package type you want to produce.
   - **Individual**: The MSAG is created for a single dataset.
   - **Merged**: The MSAG is created by merging multiple datasets to a single package. You may want to select this option to merge datasets submitted by multiple agencies.
8. Click **Save Package**.

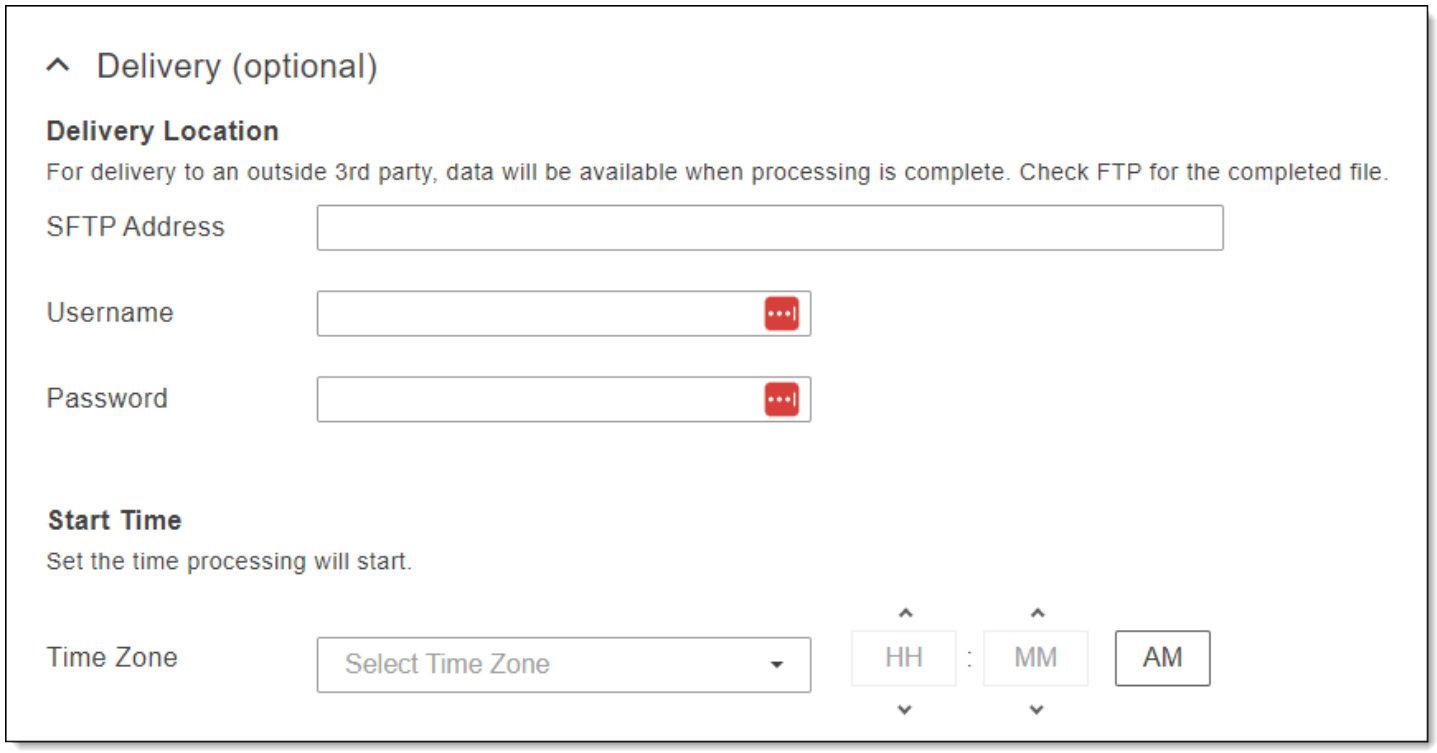
Edit MSAG Options

1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Manage Packages**.
3. Select the **System Generated Packages** tab.
4. Locate the MSAG package you want to edit and select **Edit**.

5. In **MSAG Options** select one or more of the following MSAG options you want to produce.
   - **GIS Derived MSAG Delta**: The MSAG is created and contains only changes (i.e., inserts and deletes) from the previously generated MSAG.
   - **MSAG Data Exchange CSV**: Populates MSAG records into a CSV with headers based on NENA v2.1 Format for MSAG Data Exchange.

     The base format for the MSAG follows version 2.1 format for MSAG Data Exchange per NENA Standard NENA-STA-015.10-2018. This format includes the following headers: Prefix Directional, Street Name, Street Suffix, Post Directional, Low Range, High Range, Community Name, State, Odd/Even, ESN, Extract Date, PSAP ID, County ID, Exchange, General Use, TAR Code, Function of Change, Reserved, Expanded Extract Date, and End of Record columns.
6. Click **Save Package**.

Edit Delivery Information



Complete the following to update any of the following: SFTP Address, Username, Password, or Start Time.

1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Manage Packages**.

3. Select the **System Generated Packages** tab.
4. Locate the MSAG package you want to edit and select **Edit**.
5. Expand the **Delivery** section and complete any of the following.
   - To change the Delivery Location, in the **SFTP Address** box, enter the new STFP address to deliver the data package.
   - To change the user name, in the **Username** box, enter the user name.
   - To change the password, click  then enter your password in the **Password** box.

     If you clicked the pencil and then decide you do not want to change your password, refresh the page to discard. If you do not refresh the page, your previously saved password is lost.

     The user name, password, and delivery information is retained once the package is saved.
6. In **Start Time**, click in the **Select Time Zone** box and click to select the time zone to use for starting processing and use the up/down arrows to set the time.
7. Click **Save Package**.

Edit Layers and Field Mapping

1. In the **Navigation Bar**, select **Data Packages**.
2. Under **Data Packages**, select **Manage Packages**.
3. Select the **System Generated Packages** tab.
4. Locate the MSAG package you want to edit and select **Edit**.

5. Locate the layer you want to edit, click in the **Select Table** box to view a list of available layers, click a layer to select and open a table with fields for the layer.
6. (Optional) Click **Filter List** to filter the fields shown in the table. Add a checkmark to select the fields you want to filter and display in the table. Click **Done** to save.
    - **Optional fields**: Fields that are optional for the MSAG package.
    - **Required fields**: Fields that are required for the MSAG package.
    - **Completed fields**: Fields that have already been mapped for the MSAG package.
    - **Incompleted fields**: Fields that are incomplete and need to be mapped for the MSAG package.
7. In the data table, click to select a field and expand and view mapping options.
8. Click in the **Select a field from your data or insert text** box and complete one of the following.
    - **Select a Field from your data**: Select a source field to map to the target field and show in the MSAG.
    - **Insert text**: In the **Select a field from your data or insert text** box, type the text that meets the Type (e.g., Number Date or Text) and **Max Characters** requirements. Click **Insert as Text**.

      *If more than one field is added, the **Add space between fields** option appears. Leave the box checked to add a space between the fields, or click to uncheck the box and concatenate all fields without spaces.*
9. To map the field to another target field, click in the **Add another field** box and repeat the **Select a Field from your data** or **Insert Text** step above.
10. To continue to the next field, click **Next Field**.

    The field is updated with the selection and a green checkmark appears before the field name indicating complete.
11. Repeat to edit and map additional fields.
12. Click **Save Package**.

    The package is updated in the System Generated Packages tab and available for download in Available Packages once a successful data run is completed.

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 check categories and links to the individual QC checks that may be processed depending on your specific needs.

Attribute QC Checks

These checks find errors at the feature level for attributes such as field comparisons, duplicate values, and unique IDs. See **"Attribute QC Checks" below**.

Geometry QC Checks

These checks find errors in the data's geometry such as identifying gaps or overlaps in polygons or roads that are not split at boundaries. See **"Geometry QC Checks" on page 174**.

Ingest Validation QC Checks

This check validates and modifies flagged information. See **"Ingest Validation QC Checks" on page 197**.

Synchronization QC Checks

These checks find errors where the address data is mismatched and does not accurately synchronize some or all of the following: full street name, address number, address suffix, zone parity, block, and or address range. See **"Synchronization QC Checks" on page 200**.

For information on using exception codes, and a list of available QC check exception codes see **"Exception Code Basics" on page 235**.

Attribute QC Checks

Following is a list of common Attribute QC checks that may be processed.

Acceptable Feature Count

Identifies feature counts that do not meet the designated requirements. See **"Acceptable Feature Count" on the next page**.

Acceptable Values

Identifies features containing values outside of a defined list. Any features with values that do not match the acceptable values list will create a fallout. See **"Acceptable Values" on page 153**.

Address Range Overlaps

Identifies where address range values overlap with the same or another road segment. See **"Address Range Overlaps" on page 154**.

Duplicate Values

Identifies features that are duplicated within a dataset. Duplicate Values occur when two or more records contain identical attribute values, identical geometry, or both, based on the configured parameters. See **"Duplicate Values" on page 156**.

Exception Code Formatting

Identifies entries that contain invalidly formatted exception codes. See **"Exception Code Formatting" on page 158**.

Field Comparison

Identifies incorrect comparisons across two or more fields in a single layer. Creates a fallout when the comparison made fails to match the configured parameters. See **"Field Comparison" on page 160**.

Globally Unique IDs

Verifies that all IDs in a specified ID field or column are unique across feature classes or tables. See **"Globally Unique ID" on page 162**.

Line to Polygon Attribute Compare

Identifies an attribute mismatch between a line feature and the polygon it intersects. Highlights attribute discrepancies between a line segment and its corresponding polygon. See **"Line to Polygon Attribute Compare" on page 163**.

Null Value in Field

Identifies features where a value should exist, but a null or blank attribute is found instead. See **"Null Value in Field" on page 167**.

Point to Polygon Attribute Compare

Identifies an attribute mismatch between a point feature and the polygon it intersects. Highlights attribute discrepancies between a point and its corresponding polygon. See **"Point to Polygon Attribute Compare" on page 169**.

Unacceptable Values

Identifies features containing forbidden values as defined by the user. Any features with values that match the unacceptable values list will create a fallout. See **"Unacceptable Values" on page 172**.

Acceptable Feature Count

The **Acceptable Feature Count** quality control (QC) check identifies record counts in a layer or table and compares that count to parameters established by the user. It allows end users to manage feature counts within their data submission, ensuring feature classes and tables contain records. A fallout generates whenever the record count of a layer or table do not meet the designated requirements. As a result, this QC check can confirm your data meets one of the following expectations:

- contains no more than a maximum number of features
- contains at least a certain number of features
- contains a range of features
- contains a specific feature count

The GIS Data Summary and Primary Account reports will reflect a Sync Percent of 100% if the layer or table satisfies this QC check's parameters. If the layer/table fails to meet the designated feature counts, then the QC check generates a fallout and Sync Percent is 0%. The Features Analyzed column of these reports will always have a count of 1, regardless of the number of records scanned within the user's layer/table. This is by design, and is an exception to the usual use of this column. For this QC check only, Features Analyzed refers to the number of feature classes or tables scanned for this particular check.

Required QC Prerequisites

To run this check, a table or a single part feature class is required.

Feature classes with multipart features are heavily discouraged. This QC check does not count the number of visible features. It counts the number of records present in the attribute table. If a feature class contains multipart features, explode the data to convert them to single parts before ingesting into GeoComm GIS Data Hub for best results.

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

The following parameters can be specifically configured for the Acceptable Feature Count check.

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **Layer or Table Name**: The name of the feature class or table this QC check should inspect.
- **Acceptable Minimum Range**: The smallest number of features you'd expect to see in this layer or table. If you expect a specific feature count in your data, then type that value in both the Acceptable Maximum and Acceptable Minimum Range boxes to generate a fallout if your data fails to match that exact record count.
  - This parameter is mandatory.
  - Positive whole numbers can be used.
  - Zero can be used.
- **Acceptable Maximum Range**: The largest number of features you'd expect to see in this layer or table. If you expect a specific feature count in your data, then type that particular value in both the Acceptable Maximum and Acceptable Minimum Range boxes to generate a fallout if your data fails to match that exact record count.
  - This parameter is optional.
  - Positive whole numbers can be used.
  - Zero is not allowed.

What Does the Acceptable Feature Count QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Feature class where the fallout appears

- Extended information providing more details about the fallout
- Feature count of the inspected layer or table

Examples - Fallout Report Records

The example below shows a sample of possible error messages you may receive when a record fails the Acceptable Feature Count QC check.

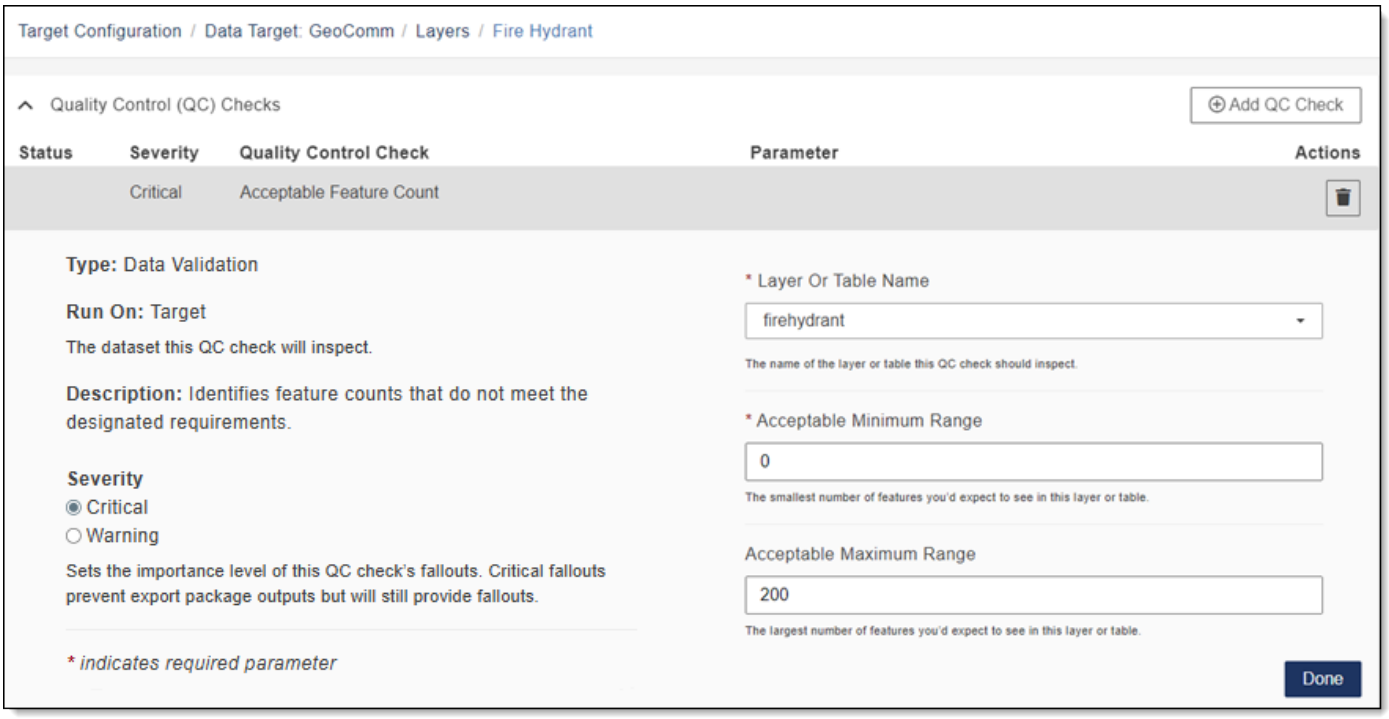
Feature_Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Severity
PSAP Boundary	Not Applicable	Acceptable Feature Count	Feature counts do not meet the designated requirements	The PSAP Boundary layer should have at least 125 feature(s). The feature count for this layer: 5	Critical
Fire Boundary	Not Applicable	Acceptable Feature Count	Feature counts do not meet the designated requirements	The Fire Boundary layer should not have more than 125 feature(s). The feature count for this layer: 532	Critical
Mile Marker	Not Applicable	Acceptable Feature Count	Feature counts do not meet the designated requirements	The Mile Marker layer should have 125 feature(s) exactly. The feature count for this layer: 250	Warning
Road Alias (table)	Not Applicable	Acceptable Feature Count	Feature counts do not meet the designated requirements	The Road Alias table should have between 125 – 350 features. The feature count for this table: 475	Warning

Examples - Configuration

The information below provides examples to use when configuring the Acceptable Feature Count QC check.

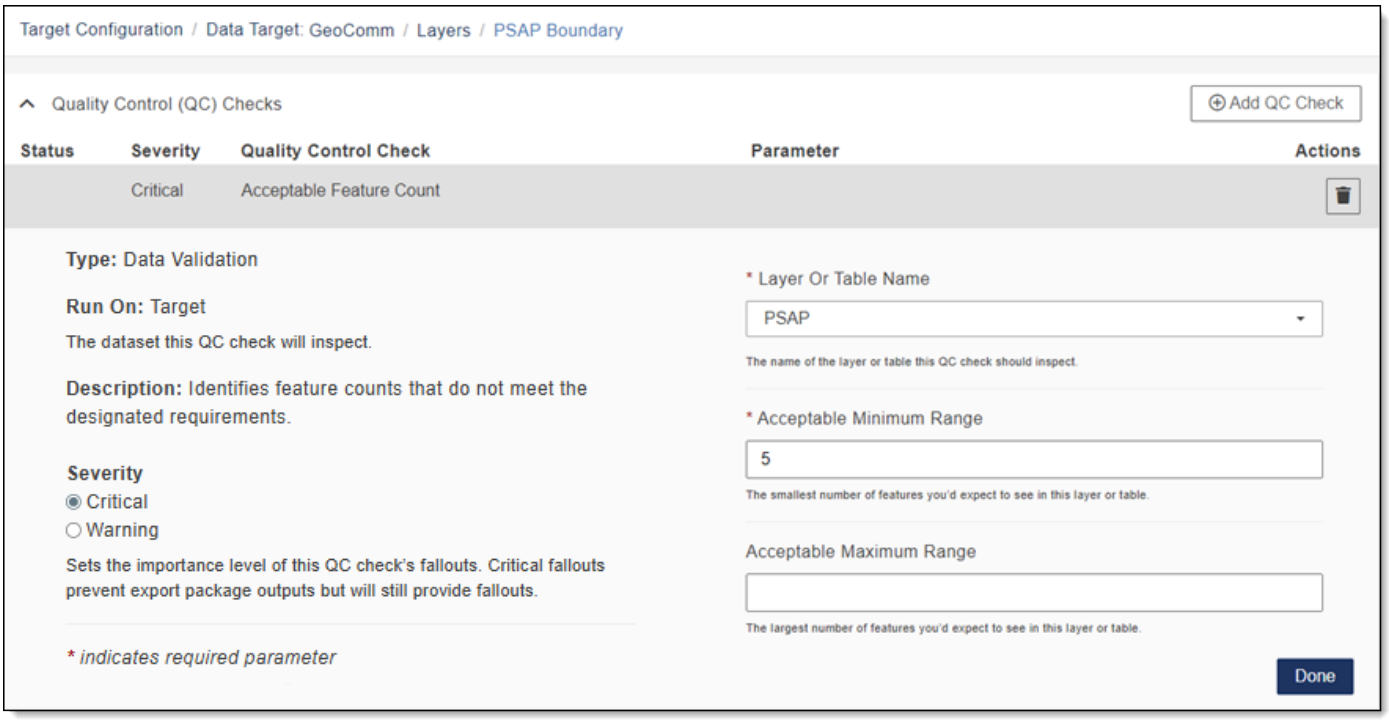
- **Must contain no more than this number of features**: Your fire hydrant layer contains 200 point features and you want to ensure none are ever added without your knowledge. To configure the QC check to get these results, enter 200 in the **Acceptable Maximum Range** box. In the **Acceptable Minimum Range** box, enter 0. With this configuration, a fallout occurs if there are ever more than 200 fire hydrant features in that

layer.



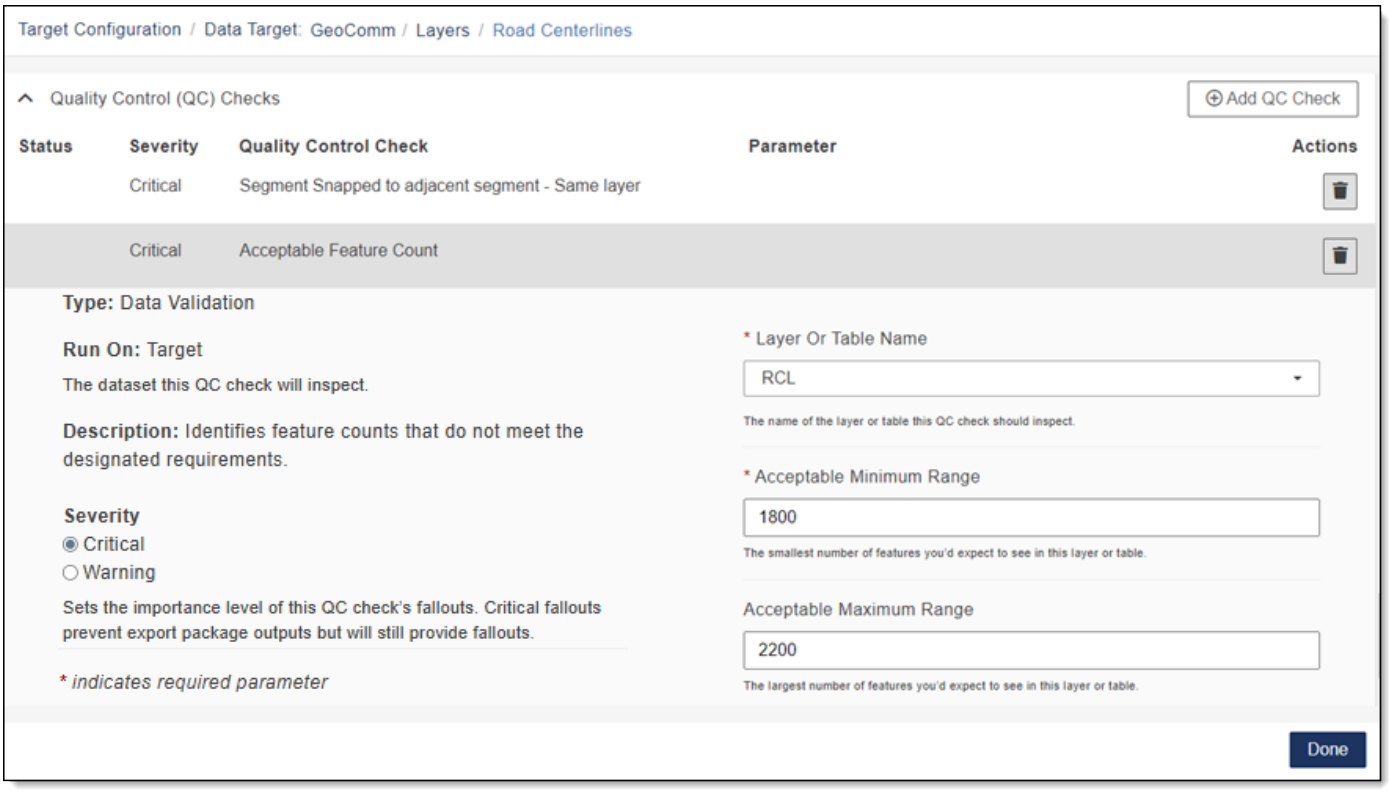
- **Must contain at least this number of features**: Your PSAP/ECC boundary contains 5 features and you want to know if there are ever less than 5 PSAP/ECC polygons within that feature class. To configure the QC check to get these results, enter the value of 5 in the **Acceptable Minimum Range** box. With this

configuration, a fallout will occur whenever that layer processes with less than 5 features.



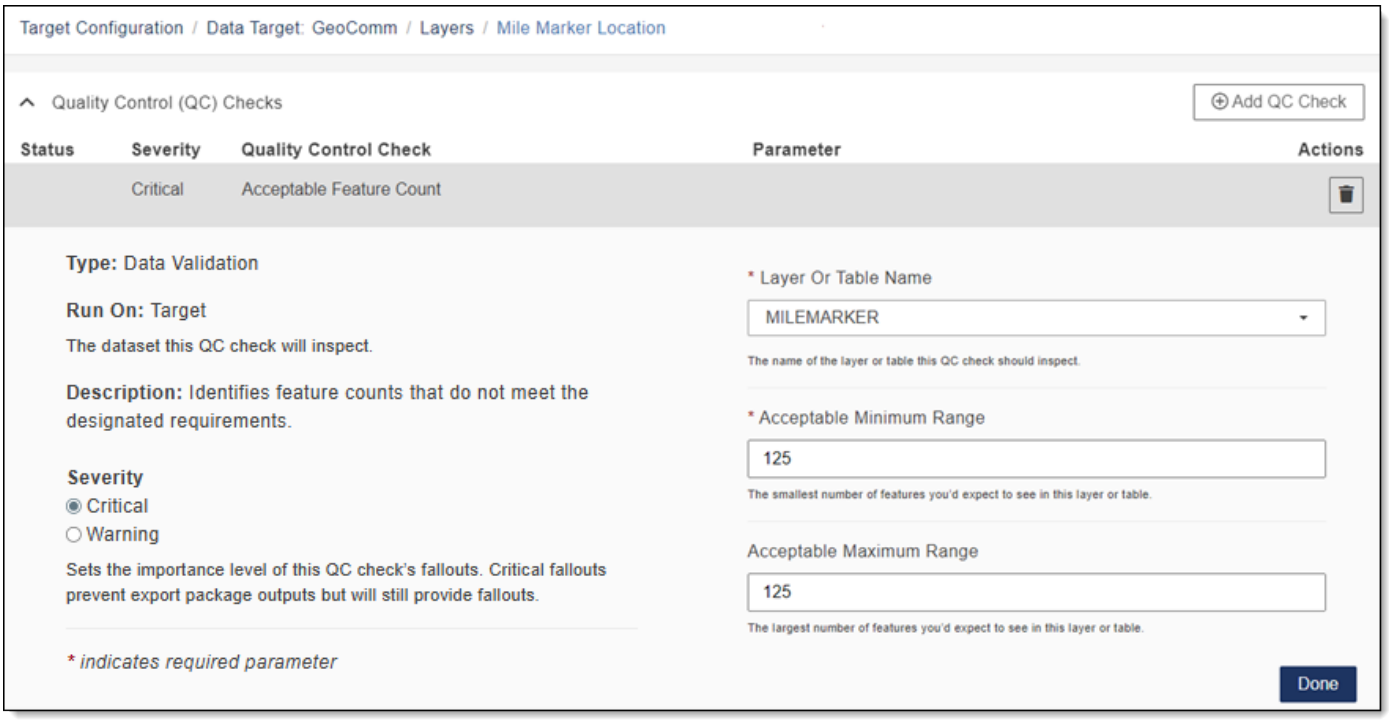
- **Scanning for a range of feature counts**: Your data contains 2,000 roads in your roadcenterline feature class and you want to know if there are ever less than 1,800 or more than 2,200 roads in that layer. To configure the QC check to get these results, enter the value of 1,800 in the **Acceptable Minimum Range** box. In the **Acceptable Maximum Range** box, enter the value of 2,200. With this configuration, a fallout will

occur whenever that layer processes with less than 1,800 roads or more than 2,200 roads.



- **Scanning for a specific feature count**: Your data contains a Mile Markers feature class with 125 mile markers and you want to have this QC check warn you if there are ever more or less than exactly 125 mile markers in this layer. To configure the QC check to get these results, enter the value of 125 in the **Acceptable Maximum Range** and **Acceptable Minimum Range** boxes. This configuration ensures that if you ever have

more or less than 125 mile markers in your data, you are informed via a fallout record.



Unable to Successfully Process QC Check

There may be times when the Acceptable Feature Count check is unable to successfully process, therefore, a single fallout is created in the Fallout report as described below.

- **Unable to Determine Record Count**: If the Acceptable Feature Count QC check is unable to determine the record count of a feature class or table, a fallout is created. The extended information in the Fallout report states, "The feature counts could not be calculated. Please confirm the validity of this data and try again."
- **Unable to Determine if QC Parameters are Met**: If the Acceptable Feature Count check cannot determine whether the QC parameters are met, a fallout is created. The extended information in the Fallout report states, "The feature counts could not be compared against the user's requirements. Please confirm the QC check's parameters were set up correctly and try again."

These types of fallouts have a Severity level of Critical even if the user configured the QC check to run with a Severity level of Warning. This is due to the possibility of corrupt data when the QC check cannot determine a count. Creating a fallout in this scenario ensures the user has complete control over what data feeds into consuming application.

Additionally in these cases, the GIS Data Summary report will reflect a Critical Severity level to match the Fallout report.

Acceptable Values

The **Acceptable Values** quality control (QC) check identifies features containing values outside of a defined list. Any records with values that do not match the acceptable values list will create a fallout. For example, if there is one acceptable value for the service urn in an emergency services boundary layer, that value can be provided and the user is notified if any values in that field do not contain that specific value.

Required QC Prerequisites

To run this check, a feature class or table is required.

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

This QC check can be configured to run on any field or column. The list of acceptable values is configurable for easy customization.

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

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **Layer or Table Name**: The name of the layer or table this QC check should inspect.
- **Reporting Unique ID**: A unique identifier in the layer or table that can be used to uniquely identify a singular feature.
- **Field Name or Column Name**: The name of the field or column this QC check should inspect.
- **Acceptable Values List**: A list of all acceptable values this layer or table may contain.
- **Case Sensitivity**: Select **Match Case** to enable and maintain the integrity of upper or lower case text in your data. See **"Case Sensitivity" on page 66**.
- **Additional Acceptable Values**: Select the additional value(s) you want to add to the acceptable values list. See **"Additional Acceptable Values" on page 63**.

What Does the Acceptable Values QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Unique ID
- Feature class where the fallout appears
- Extended information providing more details about the fallout

Examples - Fallout Report Records

The example below shows a possible error message you may receive when a record fails the Acceptable Values QC check. The extended information provides the layer/table name and the layer's field/column field name where the value(s) fall outside the defined list; the value that triggered the fallout is also provided.

Feature_Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
FIRE	{FD628419-ED3B-4962-89B4-82CD823771C6}@911MN.DST.MN.US	Acceptable Values	Detects attributes that do not match a defined list in the DisplayName field	The FIRE_BND layer's DisplayName field contains the following value(s) that fall outside the defined list: County	45.564519	-94.197627	Swift
FIRE	{FD628419-ED3B-4962-89B4-82CD823771C6}@911MN.DST.MN.US	Acceptable Values	Detects attributes that do not match a defined list in the DisplayName field	The FIRE_BND layer's DisplayName field contains the following value(s) that fall outside the defined list: Null/Empty Value	45.564519	-94.197627	Swift
FIRE	{99BF91BF-B8BD-446F-9812-835837555777}@ABC911.MN.US	Acceptable Values	Detects attributes that do not match a defined list in the DisplayName field	The FIRE_BND layer's DisplayName field contains the following value(s) that fall outside the defined list: Whitespace	45.564519	-94.197627	Swift

Address Range Overlaps

The **Address Range Overlaps** quality control (QC) check identifies road centerline segments in which address range attribution overlaps. Roads must have matching address range prefix designations, street full name, and "zone" values to be compared against each other.

> **Note:** 0-0 road ranges are significant and taken into account for range comparisons *only* when they contain address number prefix (AdNumPre) values. To configure, see **"Configure QC Parameters" on the next page**.

Required QC Prerequisites

To run this check, a road centerline layer is required.

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

The following parameters can be specifically configured for the Address Range Overlaps QC check.

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **Road Centerline (RCL) Layer Name**: The name of the road centerline layer.
- **Reporting Unique ID**: A unique identifier in the layer or table that can be used to uniquely identify a singular feature.
- **Left Address Number Prefix**: Represents the address number prefix on the left side of the road segment.
- **Right Address Number Prefix**: Represents the address number prefix on the right side of the road segment.
- **Left FROM Address**: Represents the address number on the FROM node on the left side of the road segment.
- **Left TO Address**: Represents the address number on the TO node on the left side of the road segment.
- **Right FROM Address**: Represents the address number on the FROM node on the right side of the road segment.
- **Right TO Address**: Represents the address number on the TO node on the right side of the road segment.
- **Street Full Name**: A list of street name fields that form the entire street name. For example: St_Full_Name, or St_PreMod, St_PreDir, St_PreTyp, St_PreSep, St_Name, St_PosTyp, St_PosDir, and St_PosMod.
- **Left Road Zone(s)**: Additional fields that make this range unique compared to others in this layer. Ensure the list order is the same in both Road Zone parameters when used.
- **Right Road Zone(s)**: Additional fields that make this range unique compared to others in this layer. Ensure the list order is the same in both Road Zone parameters when used.
- **Excluded Road Names**: Road names that are not evaluated. Type a name and press ENTER to add it to the exclusion list. For example: Driveway, Alley.

- **0-0 Address Range**: Select to include roads with 0-0 address ranges and AdNumPre values in the comparison. If the check box is not selected, roads with 0-0 address ranges are ignored.

What Does the Address Range Overlaps QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Unique ID
- Feature class where the fallout appears
- Number of fallouts detected when fallouts exceed GIS Data Hub reporting thresholds
- Extended information providing more details about the fallout

Examples - Fallout Report Records

The example below shows error messages you may receive when a record fails the Address Range Overlaps QC check.

Feature Class	QC_Check_Name	Description	Extended Information
roadcenterline	Address Range Overlaps	Address range values overlap with another road segment	110495 : SAFFRON ST address ranges overlap with itself fromL: 513 – toL: 515 fromR: 513 – toR:515

Duplicate Values

The **Duplicate Values** quality control (QC) check identifies instances where data records appear multiple times within a dataset. The check identifies duplicates by examining attributes, geometry, or both. Geometry duplicates must be identical, while attribute duplicates are detected by matching values within features in the same layer. Additionally, Duplicate Values treats null values, blank spaces, and whitespace-only values as identical.

Each duplicated feature is flagged with a fallout, making it easy to identify and address duplicated values on your map through selections in your attribute table.

When using the Duplicate Values QC check, all configured fields must be duplicated for this QC check to flag that feature for review. To identify if attributes are duplicated or geometry is stacked, create one QC check for the geometry and one or more for the individual attributes requiring inspection.

Required QC Prerequisites

To run this check, a feature class or table is required.

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

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

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **Layer or Table Name**: The name of the layer or table this QC check should inspect.
- **Reporting Unique ID**: A unique identifier in the layer or table that can be used to uniquely identify a singular feature.
- **Fields or Columns Used to Identify Duplicates**: Choose which field(s) should be inspected for duplicate values. Use geometry to search for stacked features, or combine geometry with attributes for even stricter matching.
- **Case Sensitivity**: Select **Match Case** to enable and maintain the integrity of upper or lower case text in your data. See **"Case Sensitivity" on page 66**.

What Does the Duplicate Values QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Feature class where the fallout appears
- Unique ID
- Extended information providing more details about the fallout

Examples - Fallout Report Records

The examples below show possible error messages you may receive when a feature is found to have duplicate attributes, geometry, or both when the Duplicate Values QC check is run. The extended information provides details of what was duplicated, type, and how many instances. Note that a fallout for each duplicate found is added to the report (i.e., 5 features that duplicate will trigger 5 fallouts in the report).

Feature_Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
SiteStructureAddressPoints	{47C95600-0D80-4970-8568-572AE04B12C0}@ABC911.MN.US	Duplicate Values	Feature is duplicated based on the defined parameters – Attribute only	Null, blank, or whitespace value has 2 instances of attribute duplicates.	7045702.7	260313.185	Collin
SiteStructureAddressPoints	{99BF91BF-B8BD-446F-9812-835837555777}@ABC911.MN.US	Duplicate Values	Feature is duplicated based on the defined parameters – Attribute only	Null, blank, or whitespace value has 2 instances of attribute duplicates.	7045702.7	260313.185	Collin
RoadCenterlines	{909F9157-F328-4711-95C2-FB146579B0E2}@ABC911.DST.MN.US	Duplicate Values	Feature is duplicated based on the defined parameters – Geometry only	2 instances of stacked geometry duplicates.	7047167.4	256411.656	Jefferson
RoadCenterlines	{AB367425-BDF1-41A1-A7A6-3EDC652E669F}@911.DST.MN.US	Duplicate Values	Feature is duplicated based on the defined parameters – Geometry only	2 instances of stacked geometry duplicates.	7047167.4	256411.656	Jefferson
SiteStructureAddressPoints	{113C66F3-77B7-4058-B9F8-19084B39E620}@ABC911.MN.US	Duplicate Values	Feature is duplicated based on the defined parameters – Attribute and geometry	2701 SUNSET RIDGE DR has 2 instances of both stacked geometry and attribute duplicates.	7014095.5	258969.438	Lincoln
SiteStructureAddressPoints	{58474636-D28-4E91-B752-99F435BC1D8E}@ABC911.MN.US	Duplicate Values	Feature is duplicated based on the defined parameters – Attribute and geometry	2701 SUNSET RIDGE DR has 2 instances of both stacked geometry and attribute duplicates.	7014095.5	258969.438	Lincoln

Exception Code Formatting

The **Exception Code Formatting** quality control (QC) check identifies entries that contain invalid exception code formats, allowing for the correction of formatting issues to ensure exception codes are applied correctly.

Required QC Prerequisites

To run this check, a feature with an exception field is required.

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

The following parameters can be specifically configured for the Exception Code Formatting QC check.

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **Layer or Table Name**: The name of the layer or table this QC check should inspect.
- **Reporting Unique ID**: A unique identifier in the layer or table that can be used to uniquely identify a singular feature.
- **Exception Code Field or Column**: The field or column that contains the exception codes for this layer or table.

What Does the Exception Code Formatting QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Unique feature ID of the record with the invalid exception codes
- A list of invalid exception codes for the record
- Extended information providing more details about the fallout
- Latitude and longitude of the fallout's location (when applicable)

Examples - Fallout Report Records

The example below shows a possible error message you may receive when a record fails the Exception Code Formatting QC check. The extended information provides the value of the exception code that does not match the required format.

Feature_Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
RCL		Exception Code Formatting	Invalid formatting identified in exception code field – column/field name	Exception code does not match the required format (ABC, 123): 12 3	32.963129	-96.516259	

Note: When a layer has a configured exception code field, the ID automatically populates from the layer's Global Unique ID for easier identification. When the global unique ID cannot be configured, the source object ID is used instead.

For accurate unique IDs when uploading multipart GIS data, it is recommended that the Global Unique ID is always configured.

Examples - Issues Reported

In this example, there are scenarios when running the QC check using the default exception code. The QC check results show the exception codes that were (pass) and were not (fail) formatted correctly.

ID	Exception Code Field Example	Description	Result
1	123	The exception code is three numbers or characters.	Pass
2	ABC	The exception code is three numbers or characters.	Pass
3	1234	The exception code is longer (or shorter) than three numbers or characters.	Fail
4	123, 1234	An exception code is longer than three numbers or characters.	Fail
5	123, 121, 126	The exception codes are three letters or characters and separated by a comma.	Pass
6	123, 1234, 124	The exception code is longer (or shorter) than three numbers or characters.	Fail
7	ABC, 123	The exception codes are three letters or characters and separated by a comma.	Pass
8	'NULL' (text)	The text spelling out the word *null* is four characters. The exception code is longer than three numbers or characters.	Fail

Field Comparison

The **Field Comparison** quality control (QC) check identifies features that contain an invalid comparison. Specifically, the check reports comparisons across two or more fields in a single layer. Both tables and feature classes can be used. Field Comparison creates a fallout when the comparison made fails to match the configured parameters, and can be used to:

- **Compare like fields**. For example, comparing a street name field to a legacy street name field where the value should be identical: St_Name = Legacy_St_Name
- **Compare parsed fields against concatenated fields**. For example, combining separate street name fields to compare against a street full name field: St_PreDir + St_Name + St_Typ + St_PosDir = St_FullName.
- **Compare numeric fields**. For example, verifying that road ranges ascend correctly, smaller address ranges in the FROM field and larger (or equal) address ranges in the TO field: FromAddrL <= ToAddrL
- **Compare against geometry fields**. For instance, to identify road segments shorter than 5 feet (unit of measurement is pulled from the QC projection): GeometryField > 5

Required QC Prerequisites

There are no prerequisites required to run this check.

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

The following parameters can be specifically configured for the Field Comparison QC check.

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **Layer Name**: The name of the layer or table this QC check should inspect.
- **Reporting Unique ID**: A unique identifier in the layer that can be used to uniquely identify a singular feature.
- **Compare This**: Field(s) or column(s) that will provide the baseline for comparison.
- **Using This Operator**: The operator to use in the comparison. Specifies the relationship between the two parameters.
- **Against That**: Field(s) or column(s) that will be compared against the baseline.
- **Case Sensitivity**: Select **Match Case** to enable and maintain the integrity of upper or lower case text in your data. See **"Case Sensitivity" on page 66**.

Note: Geometry can be used when running Field Comparison. When configuring, type {GeometryField} in either the Compare This or Against That parameter. Input the numeric value you want to compare it against in the opposite field. The unit of measurement is automatically detected based on the projection. Any features that do not meet the specified criteria create a fallout. Use this, for example, to flag roads shorter than 5 feet or polygons smaller than 50 square feet.

What Does the Field Comparison QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Unique feature identifier from the table
- Extended information providing more details about the fallout
- Latitude and longitude of the fallout's location (when applicable)

Examples - Fallout Report Records

The example below shows a possible error message you may receive when a record fails the Field Comparison QC check. The extended information provides the detected and expected results when comparing two or more fields in a single layer.

> **Note:** Geometry or number comparisons display multiple decimal places—this is expected.

Feature_Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
RCL	{B5B4DC05-0E7C-4013-A143-F0CAD2DDAFC1}@NTC911.TX.US	Field Comparison	Field value does not match the expected criteria	The following comparison is inaccurate – Geometry (US ft) is greater than or equal to 5- as 4.25 (US ft) is not greater than or equal to 5 (US ft).	33.10584573	-96.72893864	Collin
RCL	{B8EF0E16-BBE2-4339-A6C5-CCA9BE81206F}@NTC911.TX.US	Field Comparison	Field value does not match the expected criteria	The following comparison is inaccurate – Geometry (US ft) is greater than or equal to 5 – as 4.25 (US ft) is not greater than or equal to 5 (US ft).	33.00537	-96.00971	Rockwall
RCL	{ED5FBE04-F17E-4F4F-B606-F16463FE024F}@NTC911.TX.US	Field Comparison	Field value does not match the expected criteria	The following comparison is inaccurate – AddNumber + AddNum_Suf + StreetFullName is equal to Address – as 300 Venice Blvd is not equal to 3000 Venice Blvd.	32.883179	-96.425389	Rockwall
SSAP	{RG7FNT19-G46R-5W2B-J557-F16486YR939D}@NTC911.TX.US	Field Comparison	Field value does not match the expected criteria	The following comparison is inaccurate – AddNumber + ZipCode is equal to SSAP_ID – as concatenating numbers is not supported. Update and try again.	32.883085	-96.425275	Rockwall
RCL	{ED5FBE04-F17E-4F4F-B606-F16463FE024F}@NTC911.TX.US	Field Comparison	Field value does not match the expected criteria	The following comparison is inaccurate – AddNumber + AddNum_Suf + StreetFullName is greater than Address. Text comparisons must use "equal" or "not equal to" operators. Update and try again.	33.00537	-96.00971	Rockwall
SSAP	{06F45220-3DD74FF4-B5A6-FDE1F8468474}@NTC911.TX.US	Field Comparison	Field value does not match the expected criteria – Invalid geometry comparison	The following comparison is invalid – Geometry (US ft) is greater than or equal to 5. Comparisons made on a layer's geometry are only compatible with line or polygon layers. A point feature class was used instead. Update and try again.	33.105845	-96.728938	Collin
SSAP	{06F45220-3DD74FF4-B5A6-FDE1F8468474}@NTC911.TX.US	Field Comparison	Field value does not meet the expected criteria – Field does not exist	The comparison cannot be made because the Name field does not exist in the layer or table. Update and try again.	33.105845	-96.728938	Collin

Globally Unique ID

The **Globally Unique ID** quality control (QC) check verifies all identifiers (IDs) within a specified ID field are unique across all configured feature classes or tables. Each duplicated ID reports a fallout allowing you to

spatially see the duplicate on the map with the correct feature class name populated in the fallout. The specific feature classes or tables that share that unique ID are listed in the extended information. Fallouts triggered by tables contain no latitude or longitude coordinate information, and therefore, are summarized into one record for that table's non-unique IDs.

Required QC Prerequisites

To run this check, two or more feature classes or tables are required.

Configure QC Parameters

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

What Does the Globally Unique ID QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Unique ID as is defined in the source data
- Latitude and longitude for feature classes only
- Extended information providing more details about the fallout

Examples - Fallout Report Records

The example below shows data that will or will not produce error messages when a record fails the Globally Unique ID QC check.

FEATURE_CLASS	UNIQUE_FEATURE_ID	QC_CHECK_NAME	DESCRIPTION	EXTENDED_INFORMATION	LATITUDE	LONGITUDE	REFERENCE	SEVERITY
		Transformation Validation Task	Inventory field ('ALITWO', 'TN') is not being converted	Inventory field ('ALITWO', 'TN') is not being converted				Informational
		Transformation Validation Task	Inventory field ('ALITWO', 'LOCATION') is not being converted	Inventory field ('ALITWO', 'LOCATION') is not being converted				Informational
		Transformation Validation Task	Inventory field ('ALITWO', 'MSAG_SYS') is not being converted	Inventory field ('ALITWO', 'MSAG_SYS') is not being converted				Informational
		Transformation Validation Task	Inventory field ('ALITWO', 'COID') is not being converted	Inventory field ('ALITWO', 'COID') is not being converted				Informational
		Transformation Validation Task	Inventory field ('MSAG', 'ModDate') is not being converted	Inventory field ('MSAG', 'ModDate') is not being converted				Informational
		Transformation Validation Task	Inventory field ('MSAG', 'DATE_EXTRACTED') is not being converted	Inventory field ('MSAG', 'DATE_EXTRACTED') is not being converted				Informational
		Transformation Validation Task	Inventory field ('MSAG', 'MSAG_SYS') is not being converted	Inventory field ('MSAG', 'MSAG_SYS') is not being converted				Informational
		Transformation Validation Task	Inventory field ('MSAG', 'ENTITY') is not being converted	Inventory field ('MSAG', 'ENTITY') is not being converted				Informational
		Transformation Validation Task	Inventory field ('MSAG', 'MSAG_COID') is not being converted	Inventory field ('MSAG', 'MSAG_COID') is not being converted				Informational
		Transformation Validation Task	Inventory field ('County', 'OBJECTID') is not being converted	Inventory field ('County', 'OBJECTID') is not being converted				Informational
		Transformation Validation Task	Inventory field ('County', 'Shape_Area') is not being converted	Inventory field ('County', 'Shape_Area') is not being converted				Informational

Line to Polygon Attribute Compare

The **Line to Polygon Attribute Compare** quality control (QC) check scans for an attribute mismatch between a line feature and the polygon it intersects, comparing the values in user designated fields to make sure they match.

> **Tip: Projection-Based Unit** is used in this check. **Projection-Based Unit** indicates the unit of measurement is pulled from the Spatial QC Projection this data target uses. If no Spatial QC Projection is used in this data target, the unit is pulled from the Data Target's projection.

Required QC Prerequisites

To run this check, the following are required.

- A line feature class with attribution
- A polygon feature class with attribution such as Municipal, EMS, Law, Fire, ESZ, PSAP, County or State fields

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

The following parameters can be specifically configured for the Line to Polygon Attribute Compare QC check.

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **Line Layer Name**: The name of the line layer this QC check should inspect.
- **Reporting Unique ID**: A unique identifier in the layer that can be used to uniquely identify a singular feature.
- **Line Attribute to Compare**: The field in the line segment to be compared against the intersecting polygon.
- **Polygon Layer Name**: The name of the polygon layer this QC check should inspect. For example: County_Boundary or PSAP_Boundary.
- **Polygon Attribute to Compare**: The polygon field to be compared against the intersecting line segment.
- **Offset (Projection-Based Unit)**: Choose to offset the line to the left or right. Distance is based on the line's projection. 0 is recommended. A positive value shifts the line to the right-hand side, a negative value shifts it left. Useful if the line features are close to a boundary.
- **Inspection Criteria**: Select if all lines should be inspected or only those within a polygon boundary. By default, **Inspect all lines in my layer** is selected.

- **Inspect Only Lines Covered by a Polygon**. Select this option to have the QC check ignore all lines that are not covered by a polygon boundary configured in the QC check.
- **Inspect All Lines in my Layer**. Select this option to have the QC check scan all lines in this layer and flag lines segments not covered by a boundary.

- **Case Sensitivity**: Select **Match Case** to enable and maintain the integrity of upper or lower case text in your data. See **"Case Sensitivity" on page 66**.

What Does the Line to Polygon Attribute Compare QC check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Feature class where the fallout appears
- Extended information providing more details about the fallout
- Identifier of the line that fails the comparison
- The detected and expected results for the QC check
- Latitude and longitude of the fallout's location

Examples - Fallout Report Records

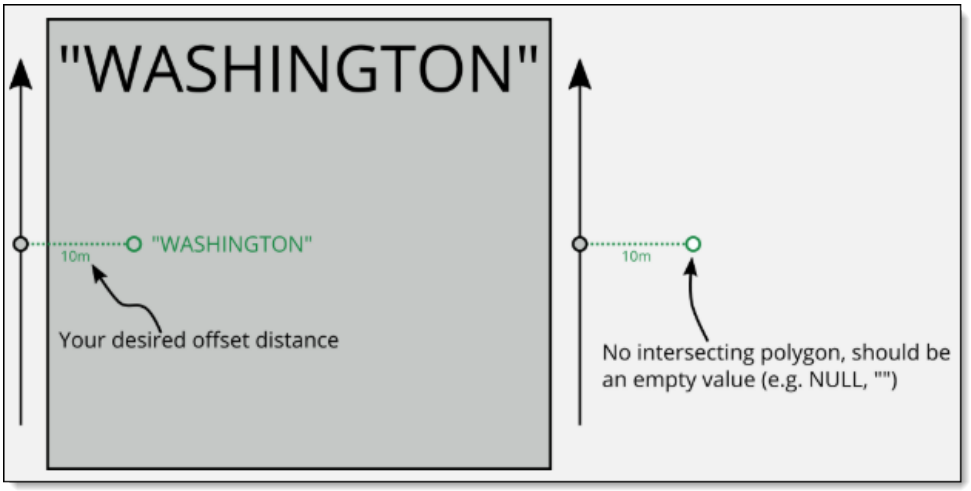
The example below shows a possible error message you may receive when a record fails the Line to Polygon Attribute Compare QC check. The extended information provides the detected and expected results when comparing the polygon's attribute against the line layer's attribute for the chosen field.

> **Note:** Only mismatches are included in the fallouts. If an attribute matches the line, it is not included in the report.

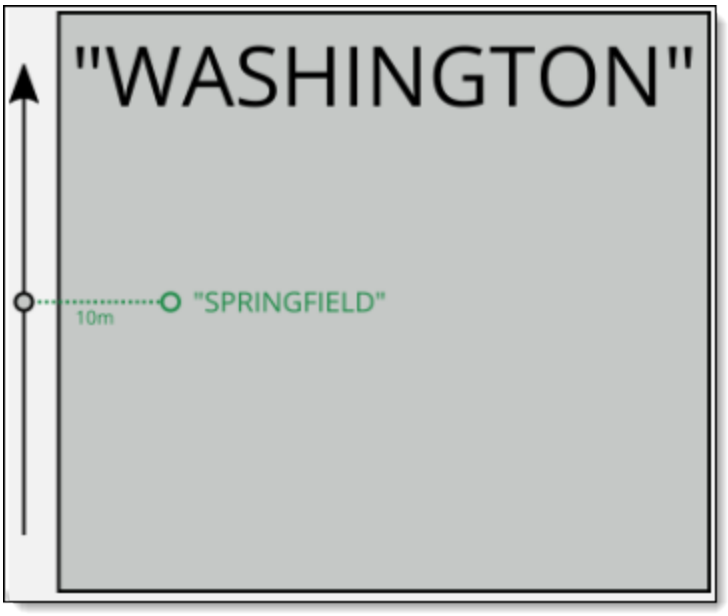
Feature_Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
RCL	{CF7EFDAE-6CA2-4F70-AA8A-1A168EF43178}@AGENCY.DST.CA.US	Line to Polygon Attribute Compare	RCL line feature's attributes do not match intersecting City polygon – No Intersecting Polygon	The RCL layer's City field does not match the City polygon's value in the City_Name field – Detected: LA. Expected: N/A (This line does not intersect any polygon). The RCL layer's City field does not match the City polygon's value in the City_Name field – Detected: Null. Expected: N/A (This line does not intersect any polygon).	34.049057	-117.783364	Los Angeles
RCL	{FA35A61C-5FF4-4BB3-8689-F690A541A864}@AGENCY.DST.CA.US	Line to Polygon Attribute Compare	RCL line feature's attributes do not match intersecting City polygon – Single Intersecting Polygon	The RCL layer's City field does not match the City polygon's value in the City_Name field – Detected: LA. Expected: Los Angeles	34.049057	-117.783364	Los Angeles
RCL	{6582C188-897E-4A46-8564-4ABAC56341C8}@AGENCY.DST.CA.US	Line to Polygon Attribute Compare	RCL line feature's attributes do not match intersecting City polygon – Multiple Intersecting Polygons	The RCL layer's City field does not match the City polygon's value in the City_Name field – Detected: LA. Expected: Los Angeles, Riverside, Culver City	34.049057	-117.783364	Los Angeles

Examples - Issues Reported

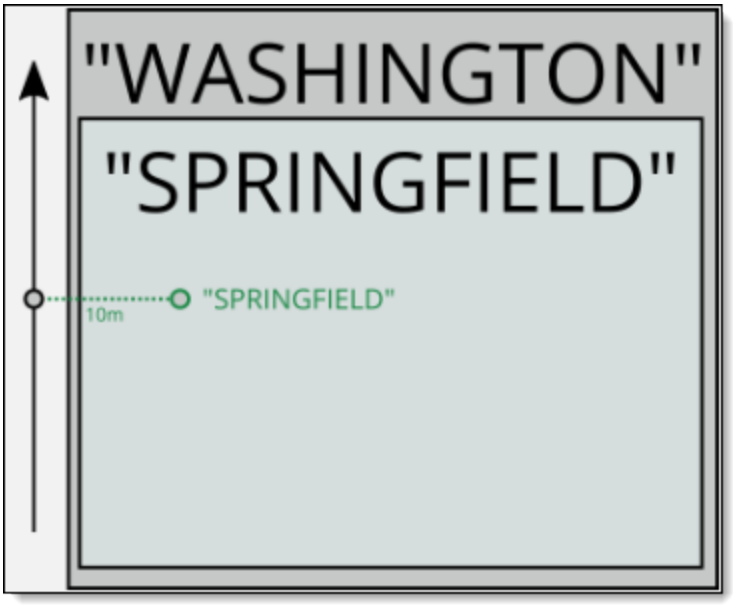
- In this example, the feature was expected to not have a value.



- In this example, the feature failed an attribute comparison with an intersecting polygon (expected "WASHINGTON", result "SPRINGFIELD").



- In this example, the feature intersects multiple polygons.



Null Value in Field

The **Null Value in Field** quality control (QC) check identifies features where a value should exist, but a <null> or blank attribute is found instead.

Required QC Prerequisites

To run this check, a table or feature class is required.

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

The following parameters can be specifically configured for the Null Value in Field QC check.

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **Layer Name**: The name of the layer this QC check should inspect.
- **Reporting Unique ID**: A unique identifier in the layer that can be used to uniquely identify a singular feature.
- **Fields To Inspect**: Choose one or more fields to inspect for null values (or empty strings when that option is enabled).
- **Expand Search To Include Empty Strings**: Search and detect empty strings/blank spaces. Expand the drop-down to select **Include only fields with null values in my results** or **Include empty strings/blank spaces in my results**.

What Does the Null Value in Field QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Feature Class where the fallout appears
- Unique ID of the fallout record
- Extended information providing more details about the fallout

Examples - Fallout Report Records

The example below shows possible error messages you may receive when a record fails the Null Value in Field QC check.

Feature_ Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
RCL	{H855508-3974-43D5-B13B-F7CE12C92AG3}@NCT911.DST.TX.US	Null Value in Field	Detects null or blanks in fields that should have a value	The RoadCenterlines layer contains null values or blanks in the following inspected fields. Null: St_FullName	32.950769	-96.570911	Collin

Point to Polygon Attribute Compare

The **Point to Polygon Attribute Compare** quality control (QC) check scans for an attribute mismatch between the point feature and the polygon it intersects, comparing the values in user designated fields to make sure they match.

Required QC Prerequisites

To run this check, the following prerequisites are required.

- A point feature class with attribution
- A polygon feature class with attribution such as Municipal, EMS, Law, Fire, ESZ, PSAP, County, or State fields

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

The following parameters can be specifically configured for the Point to Polygon Attribute Compare QC check.

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **Point Layer Name**: The name of the point layer this QC check should inspect.
- **Reporting Unique ID**: A unique identifier in the layer that can be used to uniquely identify a singular feature.
- **Point Attribute to Compare**: The field in a point feature to be compared against the intersecting polygon.
- **Polygon Layer Name**: The name of the polygon layer this QC check should inspect. For example: County_Boundary or PSAP_Boundary.
- **Polygon Attribute to Compare**: The polygon field to be compared against the intersecting point.
- **Inspection Criteria**: Select if all points should be inspected or only those within a polygon boundary. By default, **Inspect all points in my layer** is selected.

- **Inspect Only Points Covered by a Polygon**. Select this option to have the QC check ignore all points that are not covered by a polygon boundary configured in the QC check.
- **Inspect All Lines in my Layer**. Select this option to have the QC check scan all points in this layer and flag points not covered by a boundary.

- **Case Sensitivity**: Select **Match Case** to enable and maintain the integrity of upper or lower case text in your data. See **"Case Sensitivity" on page 66**.

What Does the Point to Polygon Attribute Compare QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Unique feature ID
- Identifier of the point that fails the comparison
- Extended information providing more details about the fallout
- Latitude and longitude of the fallout's location

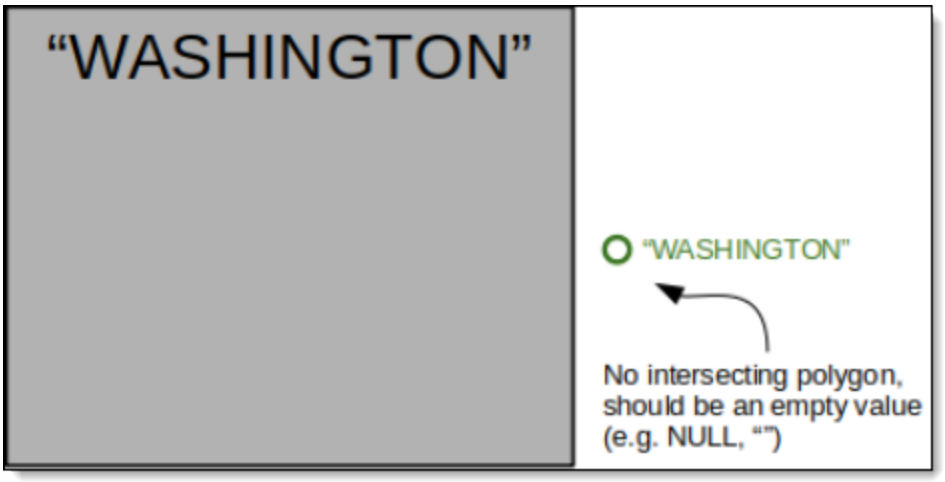
Examples - Fallout Report Records

The example below shows a possible error message you may receive when a record fails the Point to Polygon Attribute Compare QC check. The extended information provides the detected and expected results when comparing the polygon's attribute against the point layer's attribute for the chosen field.

Feature_Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
SSAP	{CF7EFDAE-6CA2-4F70-AA8A-1A168EF43178}@AGENCY.DST.CA.US	Point to Polygon Attribute Compare	SSAP point feature's attributes do not match intersection City polygon – No intersecting polygon	The SSAP layer's City field does not match the City polygon's value in the City_Name field – Detected: LA. Expected: N/A (This point does not intersect any polygon).	34.049057	-117.783364	Los Angeles
SSAP	{FA35A61C-5FF4-4BB3-8689-F690A541A864}@AGENCY.DST.CA.US	Point to Polygon Attribute Compare	SSAP point feature's attributes do not match intersection City polygon – Single intersecting polygon	The SSAP layer's City field does not match the City polygon's value in the City Name field – Detected: LA. Expected Los Angeles. The SSAP layer's City field does not match the City polygon's value in the City_Name field – Detected: Null. Expected Los Angeles.	34.049057	-117.783364	Los Angeles
SSAP	{6582C188-897E-4A46-8564-4ABAC56341C8}@AGENCY.DST.CA.US	Point to Polygon Attribute Compare	SSAP point feature's attributes do not match intersection City polygon – Multiple intersecting polygons	The SSAP layer's City field does not match the City polygon's value in the City_Name field – Detected: LA. Expected: Los Angeles, Riverside, Culver City.	34.049057	-117.783364	Los Angeles

Examples - Issues Reported

- In this example, the feature was expected to not have a value.



- In this example, the feature failed an attribute comparison with an intersecting polygon (expected "WASHINGTON", result "SPRINGFIELD").

- In this example, the feature intersects multiple polygons.

Unacceptable Values

The **Unacceptable Values** quality control (QC) check identifies features containing forbidden values as defined by the user. Any features with values that match the unacceptable values list will create a fallout. This QC check can also be used to identify unacceptable values such as leading or trailing spaces and whitespaces.

Required QC Prerequisites

To run this check, a feature class or table is required.

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

This QC check can be configured to run on any field or column with a list of defined forbidden values.

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

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check’s fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **Layer or Table Name**: The name of the layer or table this QC check should inspect.
- **Reporting Unique ID**: A unique identifier in the layer or table that can be used to uniquely identify a singular feature.
- **Field Name or Column Name**: The name of the field or column this QC check should inspect.

- **Unacceptable Values List**: A list of all unacceptable values this layer or table should not contain.
- **Remove Extra Spaces**: Remove leading and trailing spaces, spaces that appear at the beginning or end of a value. Does not trim spaces between values. Converts values of only spaces to null values.
  - Select **Yes** to flag unacceptable values even if they contain extra spaces.
  - Select **No** to scan my data as is to flag leading, trailing, or whitespaces.
- **Case Sensitivity**: Select **Match Case** to enable and maintain the integrity of upper or lower case text in your data. See **"Case Sensitivity" on page 66**.
- **Additional Unacceptable Values**: Select the additional value(s) you want to add to the unacceptable values list. See **"Additional Unacceptable Values" on page 65**.

What Does the Unacceptable Values QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Unique ID
- Value that is not acceptable
- Extended information providing more details about the fallout
- Latitude and longitude of the fallout's location

Examples - Fallout Report Records

The example below shows possible error messages you may receive when a record fails the Unacceptable Values QC check. The extended information provides the layer/table name and the layer's field/column name where the unacceptable value was located along with the value that was triggered the fallout.

Feature_Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
FIRE_BND	{FD628419-ED3B-4962-89B4-82CD823771C6}@911MN.DST.MN.US	Unacceptable Values	Detects fields containing unacceptable values in the DisplayName field	Basic fallout examples: The FIRE_BND layer's DisplayName field contains the following unacceptable value(s): County	45.564519	-94.197627	Ramsey
FIRE_BND	{FD628419-ED3B-4962-89B4-82CD823771C6}@911MN.DST.MN.US	Unacceptable Values	Detects fields containing unacceptable values in the DisplayName field	Leading space examples: The FIRE_BND layer's DisplayName field contains the following unacceptable value(s): County, Leading Space	45.564519	-94.197627	Ramsey
FIRE_BND	{99BF91BF-B8BD-446F-9812-835837555777}@ABC911.MN.US	Unacceptable Values	Detects fields containing unacceptable values in the DisplayName field	Trailing space examples: The FIRE_BND layer's DisplayName field contains the following unacceptable value(s): County, Trailing Space The FIRE_BND layer's DisplayName field contains the following unacceptable value(s): County, Leading Space, Trailing Space	45.564519	-94.197627	Ramsey
FIRE_BND	{CB46DDA5-E542-4720-B946-F4ECBCA38A96}@DST.MN.US	Unacceptable Values	Detects fields containing unacceptable values in the DisplayName field	Whitespace examples: The FIRE_BND layer's DisplayName field contains the following unacceptable value(s): Whitespace	45.564519	-94.197627	Ramsey

Geometry QC Checks

Following is a list of common Geometry QC checks that may be processed. Additional or variations of these checks, including the check name, may apply to your site based on your QC check configuration.

Complex Geometry

Identifies invalid and complex geometry. See **"Complex Geometry" on the next page**.

Empty Geometry

Identifies records in a feature class with no associated geometry. An empty geometry record is a feature within a feature class that contains an attribute record, but no geometry. See **"Empty Geometry" on page 177**.

Features Not Split at Polygon

Identifies where a line feature crosses a polygon feature without being split into two lines at the intersection point. See **"Features Not Split at Polygon " on page 178**

Features Outside of Polygon

Identifies when a point or line feature is located outside of a designated polygon layer. The feature is not covered by the polygon layer. See **"Features Outside of Polygon" on page 181**.

Multipart Geometry

Identifies features that contain more than one geometry per record. For example, if clicking Hawaii in an attribute table selects several islands, these islands are multipart geometries. See **"Multipart Geometry" on page 183**.

Polygon - Multi-Layer Gap

Identifies where gaps exist in a polygon layer when compared to another authoritative polygon layer. See **"Polygon - Multi-Layer Gap" on page 185**.

Polygon - Multi-Layer Overhang

Identifies overhangs where one polygon layer extends beyond the outer limits of another polygon layer. See **"Polygon - Multi-Layer Overhang" on page 188**.

Polygon - Single Layer Overlap

Identifies overlaps where a polygon intersects with other polygons within that layer. See **"Polygon - Single Layer Overlap" on page 193**.

Polygon - Single Layer Gap

Identifies gaps where a polygon is not properly aligned to other polygons within that layer. See **"Polygon - Single Layer Gap" on page 191**.

Segment Snapped to Adjacent Segment - Same Layer

Identifies line segments that are not snapped to another nearby line segment. See **"Segment Snapped to Adjacent Segment - Same Layer" on page 195**.

Complex Geometry

The **Complex Geometry** quality control (QC) check identifies records in which the geometry's properties are outside of the normal acceptable geometrical attributes for most public safety applications.

Note: GIS Data Hub supports empty geometry and complex geometry upon upload; however, empty geometry records are not transferred into the target dataset and complex geometry is simplified. As a result, Complex Geometry is only allowed to run on Source datasets. Please note this QC check does not modify data.

Required QC Prerequisites

To run this check, a feature class in the source dataset with geometry attribution is required; point, line, or polygon.

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

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

- **Run On**: Non-configurable. This QC check inspects the source dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **Layer Name**: The name of the layer this QC check should inspect.
- **Reporting Unique ID**: A unique identifier in the layer that can be used to uniquely identify a singular feature.
- **Vertices Threshold**: The maximum number of vertices a singular feature may contain.

What Does the Complex Geometry QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Feature class where the fallout appears
- Unique ID as is defined in the source data
- Extended information providing more details about the fallout
- Latitude and longitude of the fallout's location

Examples - Fallout Report Records

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

Feature_ Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
EMS	{3AF31EAE-C0CD-43ED-8591-732BA41FE8DA}@NCT911.DST.TX.US	Complex Geometry	Complex geometry detected in feature – Self-intersecting loops	EMS Layer - Self intersecting loops were found: {3AF31EAE-C0CD-43ED-8591-732BA41FE8DA}@NCT911.DST.TX.US	33.190003	-96.425051	Rockwall
Exchange	{E526451A-AA5C-4FD9-89D6-1E881662B943}@NCT911.DST.TX.US	Complex Geometry	Complex geometry detected in feature – Noon-standard geometry	Exchange Layer - ST_MultiSurface non-standard geometry was found: {E526451A-AA5C-4FD9-89D6-1E881662B943}@NCT911.DST.TX.US	32.982795	-96.271402	Rockwall
Exchange	{E526451A-AA5C-4FD9-89D6-1E881662B943}@NCT911.DST.TX.US	Complex Geometry	Complex geometry detected in feature – Max vertex count	Exchange Layer - Vertex count exceeds the maximum configured value (30,000): {E526451A-AA5C-4FD9-89D6-1E881662B943}@NCT911.DST.TX.US	32.982795	-96.271402	Rockwall

Empty Geometry

The **Empty Geometry** quality control (QC) check identifies features in a spatial feature class that contain an attribute record but no geometry.

> **Note:** GIS Data Hub supports empty geometry and complex geometry upon upload; however, empty geometry records are not transferred into the target dataset and complex geometry is simplified. As a result, Empty Geometry is only allowed to run on Source datasets. Please note this QC check does not modify data.

Required QC Prerequisites

To run this check, a feature is required.

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

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

- **Run On**: Non-configurable. This QC check inspects the source dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.

- **Layer Name**: The name of the layer this QC check should inspect.
- **Reporting Unique ID**: A unique identifier in the layer that can be used to uniquely identify a singular feature.

What Does the Empty Geometry QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Number of fallouts detected when fallouts exceed GIS Data Hub reporting thresholds
- Feature class where the fallout appears
- Extended information providing more details about the fallout

Examples - Fallout Report Records

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

Feature_Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
RCL	{51951821-5F89-46CF-AA66-D720F07F7DF7}@NCT911.DST.TX.US	Empty Geometry	Feature has empty geometry	No geometry exists for this feature			

Features Not Split at Polygon

Potential issues in consuming applications arise when a linear feature (e.g., road centerline) starts in one polygon feature and continues into another polygon feature. The Features Not Split at Polygon quality control (QC) check identifies where line features cross a polygon feature in defined layers without being split at the intersection point.

Note: By default, this QC check accounts for snapping tolerance. Individual polygon features with over 1 million vertices are simplified to ensure performance. **Projection-Based Unit** is used in this check. **Projection-Based Unit** indicates the unit of measurement is pulled from the Spatial QC Projection this data target uses. If no Spatial QC Projection is used in this data target, the unit is pulled from the Data Target's projection.

Note: By default, Features Not Split at Polygon accounts for snapping tolerance within GIS editing applications. The following are applied automatically when the **Tolerance** parameter is configured.
- **Feet**: When configured to 0, the check runs with built-in tolerance of 0.0087 feet for all spatial reference systems measured in feet like most state plane projections.
- **Meters**: When configured to 0, the check runs with built-in tolerance of 0.0027 meters for all spatial reference systems measured in meters.

Required QC Prerequisites

To run this check, the following feature classes are required.

- Line feature class
- Polygon feature class

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

The following parameters can be specifically configured for the Features Not Split at Polygon QC check.

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **Line Layer Name**: The name of the line layer this QC check should inspect. For example: Road Centerline or Railroad.
- **Line Reporting Unique ID**: A unique identifier in the line layer that can be used to uniquely identify a singular feature. If not configured, the source object ID is used instead.
- **Polygon Layer Name**: The name of the polygon layer this QC check should inspect. For example: County_Boundary or PSAP_Boundary.
- **Polygon Reporting Unique ID**: A unique identifier in the polygon layer that can be used to uniquely identify a singular feature.
- **Tolerance (Projection-Based Unit)**: Choose how far a line can extend beyond a boundary edge before it is flagged. Distance is projection based. 0 requires the line to be split at the intersection. 5 would allow a line to

cross a boundary up to 5 meters pass the intersection without creating a fallout, assuming your projection is in meters.

What Does Features Not Split at Polygon QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Feature class where the fallout appears
- Unique Feature ID used to identify and associate a fallout to a specific record in the dataset
- Extended information providing more details about the fallout
- Latitude and Longitude of the fallout's location

Examples - Fallout Report Records

The example below shows a possible error message you may receive when a record fails the Features Not Split at Polygon QC check. The extended information provides the layer and/or field names, and a unique identifier to associate a fallout to a specific record in the dataset.

Feature_ Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
RCL	66963{42DAA750-0E05-4D65-BF0B-3717EC5DD657}@NCT911.DST.TX.US	Features Not Split at Polygon	RoadCenterlines segment is not split at the PSAP boundary	RoadCenterlines segment (66963{42DAA750-0E05-4D65-BF0B-3717EC5DD657}@NCT911.DST.TX.US) is not split at the PSAP boundary ({3750A19A-B4E0-4332-84D5-644C1321E9D4}@NCT911.DST.TX.US)	33.00318	-96.2986	Hunt

Examples - Issues Reported

The example below uses the roads against county boundaries to identify the road features that intersect edge of the county boundary and removes all other features from the roads layer that do not meet this condition. Those roads are then inspected to ensure they are split at the boundary location.

Features Outside of Polygon

The **Features Outside of Polygon** quality control (QC) check identifies where points (e.g. site/structure address points) and/or lines (e.g., road centerlines) are located outside of a designated polygon layer such as a provisioning boundary. The feature is not covered by the polygon layer.

Note: By default, this QC check accounts for snapping tolerance. Individual polygon features with over 1 million vertices are simplified to ensure performance. **Projection-Based Unit** is used in this check. **Projection-Based Unit** indicates the unit of measurement is pulled from the Spatial QC Projection this data target uses. If no Spatial QC Projection is used in this data target, the unit is pulled from the Data Target's projection.

Note: By default, Features Outside of Polygon accounts for snapping tolerance within GIS editing applications. The following are applied automatically when the **Tolerance** parameter is configured.
- **Feet**: When configured to 0, the check runs with built-in tolerance of 0.0087 feet for all spatial reference systems measured in feet like most state plane projections.
- **Meters**: When configured to 0, the check runs with built-in tolerance of 0.0027 meters for all spatial reference systems measured in meters.

Required QC Prerequisites

To run this check, the following feature classes are required.

- Point or line feature class
- Polygon feature class

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

The following parameters can be specifically configured for the Features Outside of Polygon QC check.

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **Point or Line Layer Name**: The name of the point or line layer this QC check should inspect.
- **Reporting Unique ID**: A unique identifier in the layer that can be used to uniquely identify a singular feature. If not configured, the source object ID is used instead.
- **Polygon Layer Name**: The name of the polygon layer this QC check should inspect. For example: County_Boundary or PSAP_Boundary.
- **Tolerance (Projection-Based Unit)**: Choose how far a feature can extend beyond a polygon before it is flagged. Distance is projection based. 0 requires the feature to be entirely inside the polygon. 5 would allow the feature to be up to 5 meters outside the polygon without creating a fallout, assuming your projection is in meters.

What Does the Features Outside of Polygon QC Check Output Include?

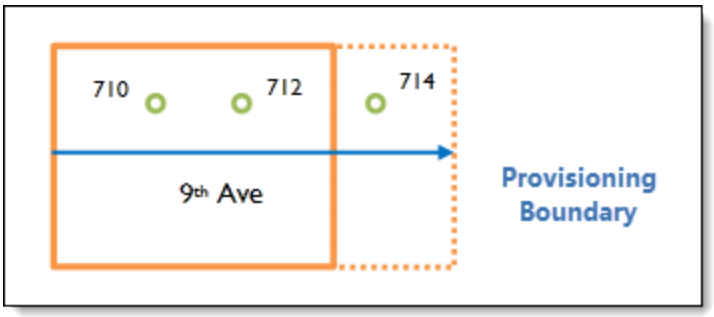
The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Feature class where the fallout appears
- Unique ID of the fallout record
- Extended information providing more details about the fallout
- Latitude and Longitude of the fallout's location

Examples - Issues Reported

One example is when the provisioning boundary is the GIS polygon layer showing the 9-1-1 program boundaries. It is important to verify that all road centerlines and site/structure address points are within the provisioning boundary to ensure all addresses in the 9-1-1 program area are covered. In addition, this helps ensure there will be no duplication of data that a neighboring 9-1-1 program is responsible for.

In this example, the road centerline and site/structure address points are not completely within the provisioning boundary (solid orange line).



Multipart Geometry

The **Multipart Geometry** quality control (QC) check identifies features that contain more than one geometry per record. For example, if clicking Hawaii in an attribute table selects several islands, these islands are multipart geometries.

Required QC Prerequisites

To run this check, one of the following feature classes is required.

- Point
- Line
- Polygon

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

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

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **Layer Name**: The name of the layer this QC check should inspect.
- **Reporting Unique ID**: A unique identifier in the layer that can be used to uniquely identify a singular feature.

What Does the Multipart Geometry QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Unique ID as is defined in the source data
- Feature class where the fallout appears
- Extended information providing more details about the fallout
- Latitude and Longitude of the fallout's location

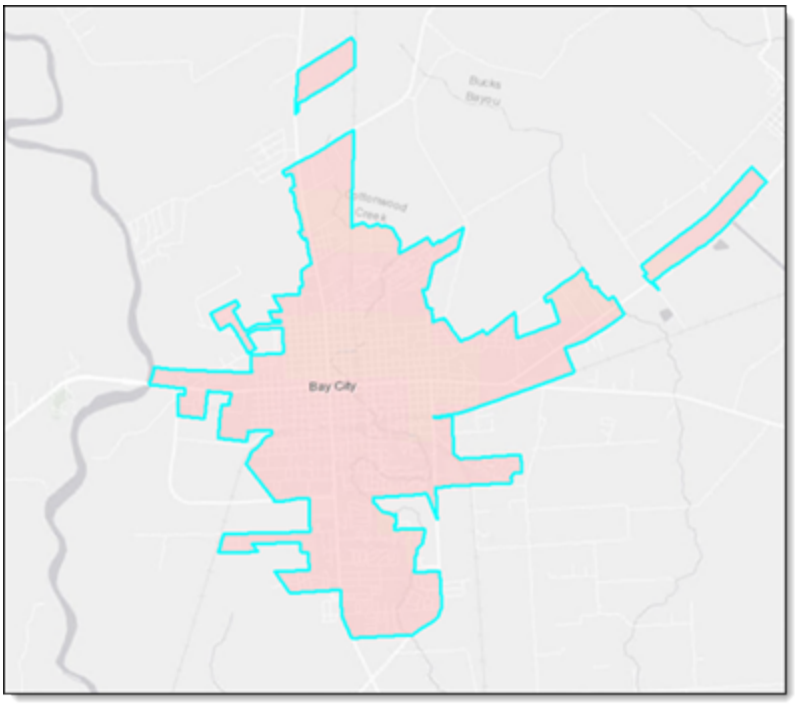
Examples - Fallout Report Records

The example below shows a possible error message you may receive when a record fails the Multipart Geometry QC check.

Feature_ Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
Exchange	{7061911B-98AE-4CF9-990C-A3E869E70FD3}@NCT911.DST.TX.US	Multipart Geometry	Feature is multipart - Requires conversion to single part features	18 geometries detected for this single Exchange feature ({7061911B-98AE-4CF9-990C-A3E869E70FD3}@NCT911.DST.TX.US)	33.040743	-96.549376	Rockwall

Examples - Issues Reported

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.



Polygon - Multi-Layer Gap

The **Polygon - Multi-Layer Gap** quality control (QC) check identifies where gaps exist in a polygon layer when compared to another authoritative polygon layer. For example, using a Provisioning Boundary as the authoritative polygon layer and comparing your Fire Boundary against it. Any gaps in your Fire Boundary as compared to the Provisioning Boundary will flag to ensure your Fire Boundary fully covers your Provisioning Boundary once all fallouts are fixed.

Note: By default, this QC check accounts for snapping tolerance. Polygon features with over 1 million vertices will be simplified to ensure performance. **Projection-Based Unit** is used in this check. **Projection-Based Unit** indicates the unit of measurement is pulled from the Spatial QC Projection this data target uses. If no Spatial QC Projection is used in this data target, the unit is pulled from the Data Target's projection.

Note: By default, Polygon - Multi-Layer Gap accounts for snapping tolerance within GIS editing applications. The following are applied automatically when the **Sliver Filter** parameter is configured.
- **Feet**: When configured to 0, the check runs with built-in tolerance of 0.0087 feet for all spatial reference systems measured in feet like most state plane projections.

Meters: When configured to 0, the check runs with built-in tolerance of 0.0027 meters for all spatial eference systems measured in meters.

Required QC Prerequisites

To run this check, two polygon feature classes are required.

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

The following parameters can be specifically configured for the Polygon - Multi-Layer Gap QC check.

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **Polygon Layer to Validate**: The polygon layer that will be analyzed for gaps compared to the baseline layer. For example: Fire_Boundary or EMS_Boundary.
- **Reporting Unique ID**: A unique identifier in the validation polygon that can be used to uniquely identify a singular feature.
- **Baseline Polygon Layer Name**: The authoritative polygon layer used as the standard for comparison. Serves as the control layer against which gaps are detected. For example: Provisioning_Boundary or PSAP_ Boundary.
- **Smallest Gap to Report (Projection-Based Unit)**: Use to ignore gaps smaller than a specified square area. 0 is recommended and enforces the highest level of accuracy.
- **Sliver Filter (Projection-Based Unit)**: Shrinks gap dimensions from all sides by this set distance to remove slivers from the results. 0 is strongly recommended and enforces the highest level of accuracy. For example, a 0.5 ft filter would shrink a 50 ft × 1 ft gap to 49 ft × 0 ft, excluding it from the fallouts.

What does the Polygon - Multi-Layer Gap QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Feature class where the fallout appears

- Extended information providing more details about the fallout
- Latitude and Longitude of the fallout's location

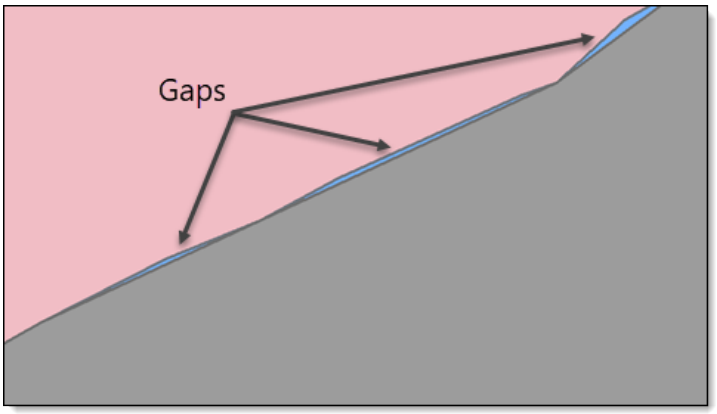
Examples - Fallout Report Records

The example below shows possible error messages you may receive when a record fails the Polygon - Multi-Layer Gap check. The extended information provides the base layer name, the layer it was compared to, and the size of the gap detected in either square meters or feet. The unique feature ID displays the ID's of the polygons surrounding the gap, helping to pinpoint the gap referenced by the fallout

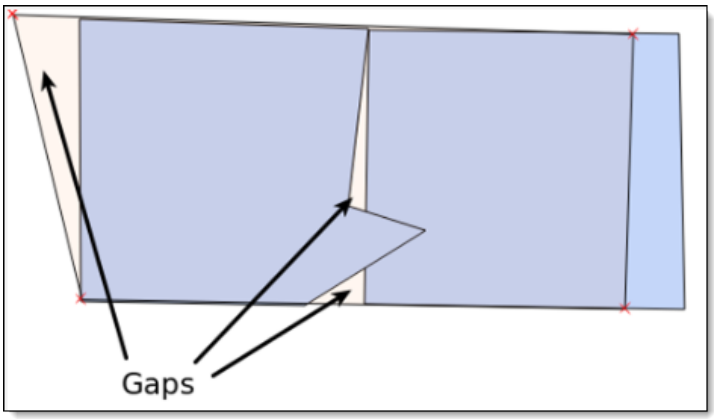
Feature_Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
FIRE	{909F9157-F328-4711-95C2-FB146579B0E2}@911.DST.MN.US	Polygon Multi-Layer Gap	Feature class contains gaps when compared to a polygon from another layer	FIRE layer has a gap compared to PSAP layer: Gap of 33,003.91758 square meters detected.	33.021873	-96.838124	Jefferson

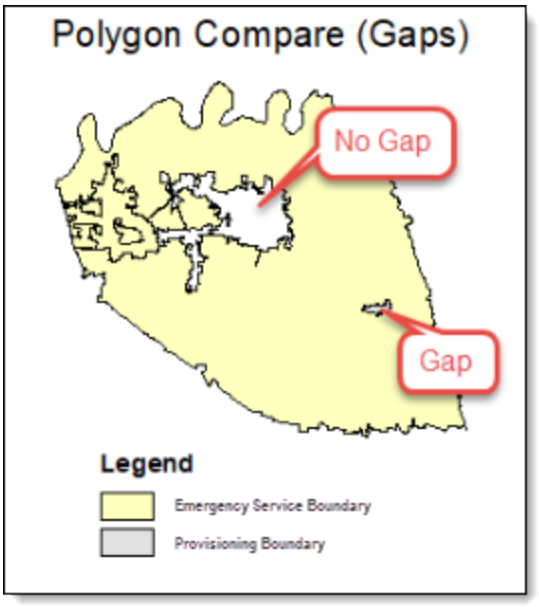
Examples - Issues Reported

Gaps are most often found in sliver polygons along an edge. In this example, the Provisioning 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 Provisioning Boundary. Anywhere where you see the blue Provisioning Boundary would be reported as a gap.

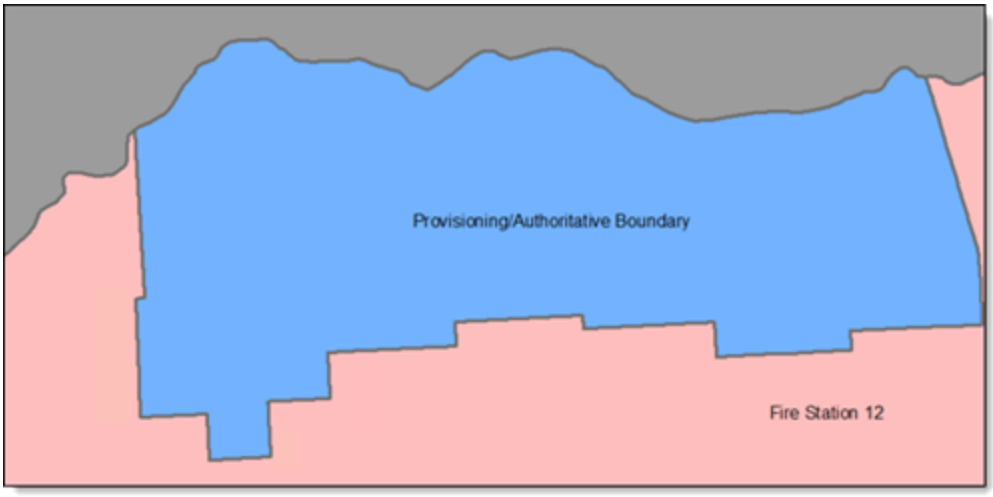


In this example, the sections marked as **Gaps** are gaps because the Emergency Service Boundary does not cover the Authoritative Boundary. The space labeled **No Gap** is not a gap because the Authoritative Boundary does not cover that space.





In this example, the area in blue would be reported as a gap because there is no coverage by the Fire Boundary in an area where the Authoritative Boundary exists.



Polygon - Multi-Layer Overhang

The **Polygon - Multi-Layer Overhang** quality control (QC) check identifies where one polygon layer extends beyond the outer limits of another polygon layer to ensure that no overhangs exist. For example, configuring this QC check on your Law Boundary and comparing it against your County Boundary would flag any overhangs where the Law boundary extends past the County Boundary.

Note: By default, this QC check accounts for snapping tolerance. Polygon features with over 1 million vertices will be simplified to ensure performance. **Projection-Based Unit** is used in this check. **Projection-Based Unit** indicates the unit of measurement is pulled from the Spatial QC Projection this data target uses. If no Spatial QC Projection is used in this data target, the unit is pulled from the Data Target's projection.

Note: By default, Polygon - Multi-Layer Overhang accounts for snapping tolerance within GIS editing applications. The following are applied automatically when the **Sliver Filter** parameter is configured.
- **Feet**: When configured to 0, the check runs with built-in tolerance of 0.0087 feet for all spatial reference systems measured in feet like most state plane projections.
- **Meters**: When configured to 0, the check runs with built-in tolerance of 0.0027 meters for all spatial reference systems measured in meters.

Required QC Prerequisites

To run this check, multiple polygon feature classes are required.

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

The following parameters can be specifically configured for the Polygon - Multi-Layer Overhang QC check.

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **Polygon Layer to Validate**: The polygon layer that will be analyzed for overhangs compared to the baseline layer. For example: Law_Boundary or EMS_Boundary.
- **Reporting Unique ID**: A unique identifier in the validation polygon that can be used to uniquely identify a singular feature.
- **Baseline Polygon Layer Name**: The authoritative polygon layer used as the standard for comparison. Serves as the control layer against which overhangs are detected. For example: Provisioning_Boundary or PSAP_Boundary.
- **Smallest Overhang to Report (Projection-Based Unit)**: Use to ignore overhangs smaller than a specified square area. 0 enforces the highest level of accuracy.

- **Sliver Filter (Projection-Based Unit)**: Shrinks overhang dimensions from all sides by this set distance to remove slivers from the results. 0 is strongly recommended and enforces the highest level of accuracy. For example, a 0.5 ft filter would shrink a 50 ft × 1 ft overhang to 49 ft × 0 ft, excluding it from the fallouts.

What Does the Polygon - Multi-Layer Overhang QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Feature class where the fallout appears
- Extended information providing more details about the fallout
- Latitude and longitude of the fallout's location

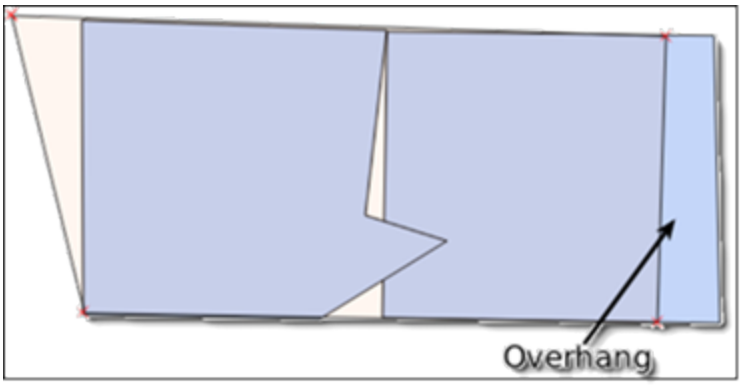
Examples - Fallout Report Records

The example below shows a possible error message you may receive when a record fails the Polygon - Multi-Layer Overhang QC check. The extended information provides the layers where one feature class extends past a polygon from another layer in either square meters or feet. The unique feature ID displays the ID's of polygons surrounding the overhang, helping pinpoint the issue referenced by the fallout.

Feature_Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
Fire	{AB367425-BDF1-41A1-A7A6-3EDC652E669F}@911.DST.MN.US	Polygon – Multi-Layer Overhang	Feature class extends past a polygon from another layer	Fire layer extends past the PSAP layer: Overhang of 13,809,286,992.0478 square feet detected.	32.800347	-96.758668	Collin

Examples - Issues Reported

In this example, the section marked as **Overhang** is an overhang because the area of the polygon layer extends beyond the reference polygon layer.



Polygon - Single Layer Gap

The **Polygon - Single Layer Gap** quality control (QC) check identifies where gaps exist between polygons of the same layer.

> **Note:** By default, this QC check accounts for snapping tolerance. Polygon features with over 1 million vertices will be simplified to ensure performance. **Projection-Based Unit** is used in this check. **Projection-Based Unit** indicates the unit of measurement is pulled from the Spatial QC Projection this data target uses. If no Spatial QC Projection is used in this data target, the unit is pulled from the Data Target's projection.

> **Note:** By default, Polygon - Single Layer Gap accounts for snapping tolerance within GIS editing applications. The following are applied automatically when the **Sliver Filter** parameter is configured.
> - **Feet**: When configured to 0, the check runs with built-in tolerance of 0.0087 feet for all spatial reference systems measured in feet like most state plane projections.
> - **Meters**: When configured to 0, the check runs with built-in tolerance of 0.0027 meters for all spatial reference systems measured in meters.

Required QC Prerequisites

To run this check, the polygon feature class is required.

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

The following parameters can be specifically configured for the Polygon - Single Layer Gap QC check.

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **Polygon Layer Name**: The polygon layer that will be analyzed for gaps. For example: Law_Boundary or EMS_Boundary.

- **Reporting Unique ID**: A unique identifier in the polygon layer that can be used to uniquely identify a singular feature.
- **Smallest Gap to Report (Projection-Based Unit)**: Use to ignore gaps smaller than a specified square area. 0 enforces the highest level of accuracy.
- **Sliver Filter (Projection-Based Unit)**: Shrinks gap dimensions from all sides by this set distance to remove slivers from the results. 0 is strongly recommended and enforces the highest level of accuracy. For example, a 0.5 ft filter would shrink a 50 ft × 1 ft gap to 49 ft × 0 ft, excluding it from the fallouts.

What Does the Polygon - Single Layer Gap QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Feature class where the fallout appears
- Extended information providing more details about the fallout
- Latitude and Longitude of the fallout's location

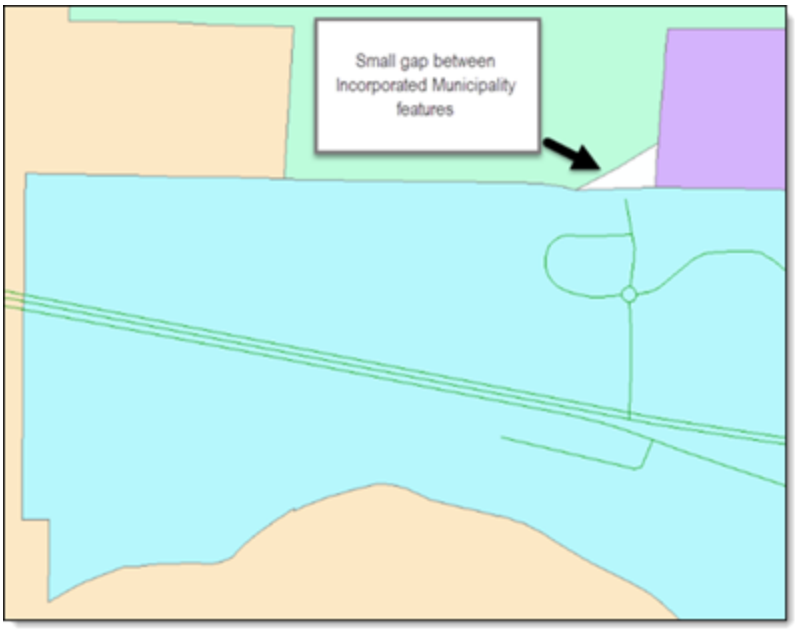
Examples - Fallout Report Records

The example below shows a possible error message you may receive when a record fails the Polygon - Single Layer Gap QC check. The extended information provides the layer name and the size of the gap detected in either square meters or feet. The unique feature ID displays the ID's of the polygons surrounding the gap, helping pinpoint the gap referenced by the fallout.

Feature_Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
Exchange	{679369B2-EE61-4981-BF9A-FEDFD34F81B6}@911.DST.MN.US, {BB654493-3692-4CA3-95E3-B3F829B8D822}@911.DST.MN.US	Polygon – Single Layer Gap	Identifies gaps between polygons	Exchange layer: Possible unintentional gap of 73,794,303.37512 square feet detected.	32.853745	-96.630395	Hunt

Examples - Issues Reported

This example demonstrates that a small gap between features of an incorporated municipality feature class.



Polygon - Single Layer Overlap

Overlaps occur when there are areas that are covered by more than one polygon feature. The **Polygon - Single Layer Overlap** quality control (QC) check identifies areas where geometry overlaps exist within a polygon layer.

Note: By default, this QC check accounts for snapping tolerance. Polygon features with over 1 million vertices will be simplified to ensure performance. **Projection-Based Unit** is used in this check. **Projection-Based Unit** indicates the unit of measurement is pulled from the Spatial QC Projection this data target uses. If no Spatial QC Projection is used in this data target, the unit is pulled from the Data Target's projection.

Note: By default, Polygon - Single Layer Overlap accounts for snapping tolerance within GIS editing applications. The following are applied automatically when the **Sliver Filter** parameter is configured.
- **Feet**: When configured to 0, the check runs with built-in tolerance of 0.0087 feet for all spatial reference systems measured in feet like most state plane projections.
- **Meters**: When configured to 0, the check runs with built-in tolerance of 0.0027 meters for all spatial reference systems measured in meters.

Required QC Prerequisites

To run this check, a polygon feature class is required.

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

The following parameters can be specifically configured for the Polygon - Single Layer Overlap QC check.

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **Polygon Layer Name**: The polygon layer that will be analyzed for overlaps. For example: Law_Boundary or EMS_Boundary.
- **Reporting Unique ID**: A unique identifier in the polygon layer that can be used to uniquely identify a singular feature.
- **Smallest Overlap to Report (Projection-Based Unit)**: Use to ignore overlaps smaller than a specified square area. 0 enforces the highest level of accuracy.
- **Sliver Filter (Projection-Based Unit)**: Shrinks overlap dimensions from all sides by this set distance to remove slivers from the results. 0 is strongly recommended and enforces the highest level of accuracy. For example, a 0.5 ft filter would shrink a 50 ft × 1 ft overlap to 49 ft × 0 ft, excluding it from the fallouts.

What Does the Polygon - Single Layer Overlap QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Feature class where the fallout appears
- Extended information providing more details about the fallout
- Latitude and Longitude of the fallout's location

Examples - Fallout Report Records

The example below shows a possible error message you may receive when a record fails the Polygon - Single Layer Overlap QC check. The extended information provides the layer name, the polygons that overlap, and the size of the overlap detected in either square meters or feet.

Feature_Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
Fire	{130A2597-2C2E-4E5E-99B6-95833CF34605}@911.DST.MN.US | {22092FF3-7CCD-4105-8F4A-B34ABD5E063F}@911.DST.MN.US	Polygon – Single Layer Overlap	Identifies overlaps between polygons	Fire layer. Overlap of 1.949547 square feet detected. {130A2597-2C2E-4E5E-99B6-95833CF34605}@911.DST.MN.US overlaps with {22092FF3-7CCD-4105-8F4A-B34ABD5E063F}@911.DST.MN.US.	32.983937	-96.246251	Rockwell

Examples - Issues Reported

In the example below, the boundaries between ESN 001 and ESN 002 do not aligned perfectly. A polygon overlap is detected here.

Segment Snapped to Adjacent Segment - Same Layer

The **Segment Snapped to Adjacent Segment - Same Layer** quality control (QC) check identifies line segments that are not snapped to another nearby line segment.

> **Tip: Projection-Based Unit** is used in this check. **Projection-Based Unit** indicates the unit of measurement is pulled from the Spatial QC Projection this data target uses. If no Spatial QC Projection is used in this data target, the unit is pulled from the Data Target's projection.

Required QC Prerequisites

To run this check, a line feature class is required.

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

The following parameters can be specifically configured for the Segment Snapped to Adjacent Segment - Same Layer QC check.

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **Line Layer Name**: The name of the line layer this QC check should inspect.
- **Reporting Unique ID**: A unique identifier in the layer that can be used to uniquely identify a singular feature.
- **Search Radius (Projection-Based Unit)**: The distance from a line segment's start or end point used to locate nearby segments for snapping evaluation. Segments beyond this distance are ignored; those within it are checked for proper snapping and flagged if unsnapped.
- **Snapping Tolerance (Projection-Based Unit)**: The max distance two nearby line segments can be from each other before they are considered not snapped together. For example, setting this to 0.25 meters would allow any two lines within 0.25 meters of each other to be analyzed as being snapped together, creating no fallout. Default is 0. Accuracy is best when a value smaller than 1 is used.
- **Sensitivity Level**: Determines how strictly this QC check reports segment snap connectivity issues.
  - Select **High** to flag all segments with minor gaps or partial connections.
  - Select **Low** to flag segments that are not connected to any other segment.

What Does the Segment Snapped to Adjacent Segment - Same Layer QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Unique ID as is defined in the source data
- Feature class where fallout appears
- Extended information providing more details about the fallout
- Latitude and Longitude of the fallout's location

Examples - Fallout Report Records

The examples below shows possible error messages you may receive when a record fails the Segment Snapped to Adjacent Segment - Same Layer check. The extended information provides the segment node and the distance in either square meters or feet of the adjacent segment.

Feature_Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
RCL	1026@uniqueID.state	Segment Snapped to Adjacent Segment – Same Layer	Adjacent segments are not snapped together	Segment node TO is within 5 meters of another segment not the snapped.	32.984681	-96.537272	Lincoln
RCL	1027@uniqueID.state	Segment Snapped to Adjacent Segment – Same Layer	Adjacent segments are not snapped together	Segment node FROM is within 5 meters of another segment but not snapped.	32.982365	-96.332488	Lincoln

Ingest Validation QC Checks

The Ingest Validation quality control (QC) check category includes any QC check where the user can identify features they require GIS Data Hub to modify. The identification of these features could be via an exception code, or some other unique identifier. These are configurable to ensure data is only modified when the user requires it.

Roads Need Zero Ranges

The **Roads Need Zero Ranges** quality control (QC) check identifies and removes address range values from roads and replaces those values with 0. The user must flag the segment to be updated with a 701 or 702 exception code in their exception code field.

The 701 and 702 exception codes work as follows.

- The 701 exception code replaces the road's left side ranges with 0.
- The 702 exception code replaces the road's right side ranges with 0.
- When both the 701 and 702 exception codes are used, the road's left and right sides are both replaced with 0.

  Note that the records are zeroed out before any data validation QC checks run.

This QC check may be required when your data contains placeholder range values due to the needs of other consuming applications such as CAD systems, but in reality the road range itself should be represented by a zero address range for Next Generation 9-1-1 purposes.

Required QC Prerequisites

To run this check, the following prerequisites must be met.

- The data target exception code field is populated by the administrator. See **"Turning On Exception Codes" on page 236**.
- The source's exception code field is field mapped. See **"Turning On Exception Codes" on page 236**.
- The Roads Need Zero Ranges QC check is properly configured. See **"Configure Data Target QC Checks" on page 61**.
- 701 and/or 702 values are added to your records that need to be updated by GIS Data Hub.

Configure the QC Parameters

> **Note:** Only road segments with a 701 or 702 exception code are modified when this check is configured. All other road segments will have their values modified.

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

The following parameters can be specifically configured for the Roads Need Zero Ranges QC check.

- **Run On**: Non-configurable. This QC check modifies the target dataset. Updates occur before data validation QC checks run.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **Layer Name**: The name of the feature class this QC check should modify.
- **Left FROM Address**: Represents the address number on the FROM node on the left side of the road segment.
- **Left TO Address**: Represents the address number on the TO node on the left side of the road segment.
- **Right FROM Address**: Represents the address number on the FROM node on the right side of the road segment.
- **Right TO Address**: Represents the address number on the TO node on the right side of the road segment.
- **Parity Left**: Indicates whether the left side of the road segment contains odd, even, both, or zero address range values. This value is updated to the user inputted Zero Parity Value when populated. This parameter is

optional.

When either Parity parameter (left or right) is configured, both must be populated before the check can run.

- **Parity Right**: Indicates whether the right side of the road segment contains odd, even, both, or zero address range values. This value is updated to the user inputted Zero Parity Value when populated.

  When either Parity parameter (left or right) is configured, both must be populated before the check can run.

- **Zero Parity Value**: The parity value in your data target schema that represents a road segment with a 0-0 address range. For example: Z, Zero, 0.
- **Validation Left**: Indicates whether the left side of the road segment should be used for civic location validation. This value is updated to **N** when populated. This parameter is optional.
- **Validation Right**: Indicates whether the right side of the road segment should be used for civic location validation. This value is updated to **N** when populated. This parameter is optional.

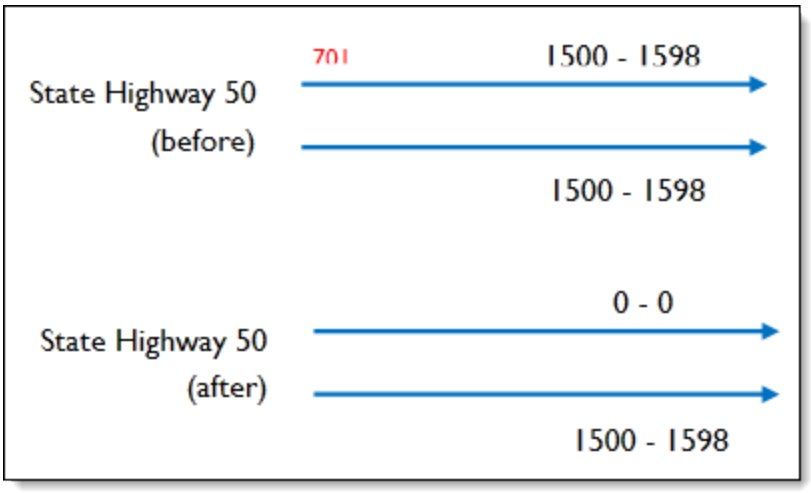
What Does the Ingest Validation - Roads Need Zero Ranges Output Include

Ingest validation QC checks do not produce a fallout as a standard practice. A fallout is produced only when the QC check is misconfigured. If this happens, update the configuration settings and try again.

> **Note:** Ingest validation fallouts are included in the Fallout Report but are not included in the Summary Report.

Example

In this example, one segment of State Highway 50 is flagged with a 701 code, meaning the range on the left side of the highway is zeroed out before running QC checks.



Synchronization QC Checks

Following is a list of Synchronization QC checks that may be processed.

> **Note:** Synchronization QC checks can have leading zeros in the Emergency Service Number (ESN) fields for any of the layers or tables used in the QC check. The leading zeros will not negatively affect the comparison and an accurate fallout for the synchronization check is created, including accurately displaying your data with any leading zeros.

ALI to RCL

Identifies Automatic Location Identification (ALI) records that do not correspond to a road segment in the road centerlines (RCL) layer. See **"ALI to RCL Synchronization" on the next page**.

ALI to SSAP

Identifies Automatic Location Identification (ALI) records that do not correspond to an address point in the Site/Structure Address Point (SSAP) layer. See **"ALI to SSAP Synchronization" on page 206**.

MSAG to RCL

Identifies Master Street Address Guide (MSAG) records that do not correspond to a road segment in the road centerlines (RCL) layer. See **"MSAG to RCL Synchronization" on page 211**.

SSAP to MSAG

Identifies Site/Structure Address Points (SSAPs) that do not correspond to a record in the Master Street Address Guide (MSAG) table. See **"SSAP to MSAG Synchronization" on page 219**.

SSAP to RCL

Identifies Site/Structure Address Points (SSAPs) that do not correspond to a road segment in the road centerlines (RCL) layer. See **"SSAP to RCL Synchronization" on page 224**.

ALI to RCL Synchronization

The **ALI to RCL Synchronization** quality control (QC) check identifies where the Automatic Location Information (ALI) address data is inconsistent with Road Centerline (RCL) address data.

> **Note:** Synchronization QC checks can have leading zeros in the Emergency Service Number (ESN) fields for any of the layers or tables used in the QC check. The leading zeros will not negatively affect the comparison and an accurate fallout for the synchronization check is created, including accurately displaying your data with any leading zeros.

Required QC Prerequisites

To run this check, an ALI table and road centerline feature class are required.

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

The following parameters can be specifically configured for the ALI to RCL Synchronization QC check.

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **ALI Table Name**: The name of the ALI table.

- **ALI - Reporting Unique ID**: A unique identifier in the ALI table that can be used to uniquely identify a singular feature.
- **ALI - Address Number Prefix***: Represents the ALI record's address number prefix.
- **ALI - Address Number**: Represents the ALI record's address number.
- **ALI - Address Number Suffix***: Represents the ALI record's address number suffix.
- **ALI - Street Full Name**: A list of street name fields that form the entire street name. For example: LSt_PreDir, LSt_Name, LSt_Typ, LSt_PosDir.
- **Telephone Number (Tel)***: Represents the telephone number of an ALI record.
- **ALI - Emergency Service Number (ESN)**: Represents the ALI record's Emergency Service Number (ESN).
- **ALI - MSAG Community**: Represents the ALI record's Master Street Address Guide (MSAG) Community.
- **Road Centerline (RCL) Layer Name**: The name of the road centerline layer.
- **RCL - Reporting Unique ID**: A unique identifier in the Roads layer that can be used to uniquely identify a singular feature.
- **RCL - Left Address Number Prefix**: Represents the address number prefix on the left side of the road segment.
- **RCL - Right Address Number Prefix**: Represents the address number prefix on the right side of the road segment.
- **RCL - Left FROM Address**: Represents the address number on the FROM node on the left side of the road segment.
- **RCL - Left TO Address**: Represents the address number on the TO node on the left side of the road segment.
- **RCL - Right FROM Address**: Represents the address number on the FROM node on the right side of the road segment.
- **RCL - Right TO Address**: Represents the address number on the TO node on the right side of the road segment.
- **RCL - Parity Left**: Indicates whether the left side of the road segment contains odd, even, both, or zero address range values.

- **RCL - Parity Right**: Indicates whether the right side of the road segment contains odd, even, both, or zero address range values.
- **RCL - Street Full Name**: A list of street name fields that form the entire street name. For example: LSt_ PreDir, LSt_Name, LSt_Typ, LSt_PosDir.
- **RCL - ESN Left**: Represents the Emergency Service Number (ESN) on the left side of the road segment.
- **RCL - ESN Right**: Represents the Emergency Service Number (ESN) on the right side of the road segment.
- **RCL - MSAG Community Name Left**: Represents the MSAG Community name on the left side of the road segment.
- **RCL - MSAG Community Name Right**: Represents the MSAG Community name on the right side of the road segment.
- **Case Sensitivity**: Select **Match Case** to enable and maintain the integrity of upper or lower case text in your data. See **"Case Sensitivity" on page 66**.

*When configuring the Address Prefix, Address Number Suffix, or Telephone Number, *Address* in the extended information of the fallout report is populated if a value exists in the *Address* field for a particular record. In the following examples, we will use address 1600 Venice Blvd, and how it will appear if the correct field has been configured and a value exists for that address.

Example Type	Field Value	Fallout Report Result
ALI - Address Number Prefix	Address Prefix = 3W2N-	Address: **3W2N**-1600 Venice Blvd.
ALI - Address Number Suffix	Address Number Suffix = B	Address: 1600 **B** Venice Blvd.
ALI - Address Number Suffix	Address Suffix = 1/2	Address: 1600 **1/2** Venice Blvd.
Telephone Number (Tel)	Telephone Number (Tel) = 9876543	Address: 1600 Venice Blvd, Tel: **9876543**.

Table 1. *ALI to RCL Synchronization Check Configuration and Fallout Result Examples*

What Does the ALI to RCL Synchronization QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check

- Unique identifier of the ALI record not matching road centerlines
- Specific failure information – criteria causing ALI record to fail. The fallout message values are added to the Extended Information description field in the fallout report. The message identifies specific fallout messaging values to assist in the identification of mismatching ALI records or road centerline features. These features display up to the first 5 values listed in alphanumeric order. This list exists for the following features.
  - RCL's Unique ID
  - RCL's ESN
  - RCL's MSAG Community
  - RCL's AdNumPre
- Extended information providing more details about the fallout

Examples - Fallout Report Records

The examples below shows possible error messages you may receive when a record fails the ALI to RCL Synchronization QC check. The extended information provides the detected and expected results when verifying that addresses in the ALI can be properly placed onto a corresponding road segment in the RCL layer. To view additional information on when a fallout record is generated, see **"ALI to RCL Synchronization Subchecks" on page 243**.

Feature_Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
ALI	254118@NTC911	ALI to RCL Synchronization	Address number is either missing or invalid	Address: 0 CEDAR BLUFF CT | Community: ALEDO | ESN: 285			Parker
ALI	141269@NTC911	ALI to RCL Synchronization	Address number fully matches multiple road segments (matches full street name, fits within its ranges, matches community/ESN)	Address: 1012 PALO PINTO ST, Tel: 1234567 | Community: WEATHERFORD | ESN: 295 | Corresponding RCL Unique ID: {CF7EFDAE-6CA2-4F70-AA8A-1A168EF43178}@NTC911.TX.US, {FA35A61C-5FF4-4BB3-8689-F690A541A864}@NTC911.TX.US			Parker
ALI		ALI to RCL Synchronization	Address can be placed on both the left and right side of the corresponding road segment	Address: 1309 CHARLES ST | Community: WEATHERFORD | ESN: 295 | Corresponding RCL Unique ID: {B8EF0E16-BBE2-4339-A6C5-CCA9BE81206F}@NCT911.DST.TX.US | For 3 identical ALI records			Parker
ALI		ALI to RCL Synchronization	No matching full street name found between the ALI record and the road segment	Address: 10001 A JACK FINNEY BLVD | Community: GREENVILLE | ESN: 79 | For 50 identical ALI records			Hunt
ALI	24687@NTC911	ALI to RCL Synchronization	Address only corresponds to road segments with zero or missing ranges	Address: 1095 MEAD DR, Tel: 98765432 | Community: PROSPER | ESN: 121 | Corresponding RCL Unique ID: 15063@nct911.org, 69487@nct911.org			Collin
ALI		ALI to RCL Synchronization	Address number is lower than all corresponding road ranges	Address: 1025 AMBER WAY | Community: ROCKWALL COUNTY | ESN: 22 | For 3 identical ALI records			Rockwall
ALI	24692@NTC911	ALI to RCL Synchronization	Address number is higher than all corresponding road ranges	Address: 1016 HAYMARKET RD | Community: BALCH SPRINGS | ESN: 311			Dallas
ALI	141322@NTC911	ALI to RCL Synchronization	Address number parity does not match the corresponding road segments	Address: 1309 CHARLES ST | Community: WEATHERFORD | ESN: 295 | Corresponding RCL Unique ID: {D2674104-4B4F-4933-8B2C-909B1D88E6A5}@nct911.org			Parker
ALI	160561@NTC911	ALI to RCL Synchronization	Address only corresponds to a road segment with a different ESN	Address: 14921 STATE HIGHWAY 205 | Community: KAUFMAN COUNTY | ESN: 81 | Corresponding RCL ESN: 79, 121			Kaufman
ALI	266366@NTC911	ALI to RCL Synchronization	Address only corresponds to a road segment with a different community	Address: 14921 STATE HIGHWAY 205 | Community: KAUFMAN COUNTY | ESN: 81 | Corresponding RCL Community: TERRELL			Kaufman
ALI	160370@NTC911	ALI to RCL Synchronization	Address only corresponds to a road segment with a different community and ESN	Address: 1001 S CENTRAL EXPY | Community: MCKINNEY | ESN: 361 | Corresponding RCL Community: PROSPER, ROCKWALL COUNTY | Corresponding RCL ESN: 22, 121			Collin
ALI	141180@NTC911	ALI to RCL Synchronization	Address AdNumPre value does not match the road segment	Address: N-502 E 6TH ST | Community: WEATHERFORD | ESN: 295 | Road AdNumPre: S- | Road Street Full Name: E 6TH ST			Parker

Note: Note that if there are multiple results with identical results (e.g., same error with the same address), the records are grouped together in the report and a quantity is listed. In these cases, the ALI unique ID and telephone number is not provided and the ALI address should be used for identification.

For information on using exception codes see **"Exception Code Basics" on page 235** or to view a list of subchecks completed when running the ALI to RCL Synchronization QC check and any exception codes for each subcheck, see **"ALI to RCL Synchronization Subchecks" on page 243**.

ALI to SSAP Synchronization

The **ALI to SSAP Synchronization** quality control (QC) check identifies where Automatic Location Information (ALI) address data is inconsistent with Site/Structure Address Points (SSAP's) by processing ALI records through a series of checks to ensure they are present in the SSAP layer.

> **Note:** Synchronization QC checks can have leading zeros in the Emergency Service Number (ESN) fields for any of the layers or tables used in the QC check. The leading zeros will not negatively affect the comparison and an accurate fallout for the synchronization check is created, including accurately displaying your data with any leading zeros.

Required QC Prerequisites

To run this check, the following are required.

- ALI table
- SSAP feature class

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

The following required parameters can be specifically configured for the ALI to SSAP Synchronization QC check.

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **ALI Table Name**: The name of the ALI table.
- **ALI - Reporting Unique ID**: A unique identifier in the ALI table that can be used to uniquely identify a singular feature.

- **ALI - Address Number Prefix**: Represents the ALI record's address number prefix. Populate this parameter to have address prefix information included in the extended information field of the fallout report if one exists.

  For example, if the Address Number Prefix is configured and the record includes a prefix value of 3W2N, the report will show 3W2N-1600 Venice Blvd in the extended information field, not 1600 Venice Blvd.

- **ALI - Address Number**: Represents the ALI record's address number. May represent the address number prefix and address number when those values exist in one field.

  0 address numbers are significant and taken into account only when they contain AdNumPre values.

- **ALI - Address Number Suffix**: Represents the ALI record's address number suffix. Populate this parameter to have address suffix information included in the extended information field of the fallout report if one exists.

  For example, if the Address Number Suffix is configured and the record includes a suffix value of B, the report will show 1600 B Venice Blvd in the extended information field, not 1600 Venice Blvd. Note that null, empty strings, or whitespace do not count as a value.

- **ALI - Street Full Name**: A list of street name fields that form the entire street name. For example: LSt_PreDir, LSt_Name, LSt_Typ, LSt_PosDir.

- **ALI - Telephone Number (Tel)**: Represents the telephone number of an ALI record. Populate this parameter to include the ALI's telephone number in the fallout report's extended information field if one exists.

  For example, if the telephone is configured and the record includes a telephone value of 123-456-7890, the report will show 1600 Venice Blvd, Tel: 123-456-7890 in the extended information field, not 1600 Venice Blvd. Note that null, empty strings, or whitespace do not count as a value.

- **ALI - Additional Location**: Represents additional location information of an ALI record. Should only be used when this field is expected to match the SSAP field.

- **ALI - Emergency Service Number (ESN)**: Represents the ALI record's Emergency Service Number (ESN).

- **ALI - MSAG Community**: Represents the ALI record's Master Street Address Guide (MSAG) Community.

- **SSAP Layer Name**: The name of the SSAP layer.

- **SSAP - Address Number Prefix**: Represents the SSAP's address number prefix. Populate this parameter to have address prefix information included in the extended information field of the fallout report if one exists.

For example, if the Address Number Prefix is configured and the record includes a prefix value of 3W2N, the report will show 3W2N-1600 Venice Blvd in the extended information field, not 1600 Venice Blvd.

- **SSAP - Address Number**: Represents the SSAP's address number.

  0 address numbers are significant and taken into account only when they contain AdNumPre values.

- **SSAP - Address Number Suffix**: Represents the SSAP's address number suffix.
- **SSAP - Street Full Name**: A list of street name fields that form the entire street name. For example: LSt_PreDir, LSt_Name, LSt_Typ, LSt_PosDir.
- **SSAP Additional Location**: Represents additional location information of an SSAP. Should only be used when this field is expected to match the ALI field.
- **SSAP - Emergency Service Number (ESN)**: Represents the SSAP's Emergency Service Number (ESN).
- **SSAP - MSAG Community**: Represents the SSAP's Master Street Address Guide (MSAG) Community.
- **Case Sensitivity**: Select **Match Case** to enable and maintain the integrity of upper or lower case text in your data. See **"Case Sensitivity" on page 66**.

What Does the ALI to SSAP Synchronization QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Unique identifier of the ALI record not matching SSAP
- Specific failure information – criteria causing ALI to SSAP comparison record to fail. The fallout message values are added to the Extended Information description field in the fallout report. The message identifies specific fallout messaging values to assist in the identification of mismatching fields for the ALI records and SSAP features. The extended information in the fallout report provides up to the first 5 ID values listed in alphanumeric order if applicable. ID's are provided for the following comparisons when multiple address points contain matching information against an ALI record:
  - Address Number Prefix
  - Address Number Suffix

    - ESN
    - MSAG Community
- ALI records with identical full addresses, ESN, and Communities that trigger the same fallout (telephone and unique ID's can be different) will cause the fallout message to be rolled up, listing the number of ALI records that have the same exact fallout. This makes the fallouts easier to review for ALI records that contain the same full address.

  Note that Summary Reports consider each ALI record as independent. For example, if five ALI records are grouped together into one fallout in the Fallout Report, the Summary Report still counts every fallout record (in this example five) and not the grouped count of one.

Examples - Fallout Report Records

The examples below shows possible error messages you may receive when a record fails the ALI to SSAP Synchronization QC check. The extended information provides the detected and expected results when verifying that addresses in the ALI contains a corresponding address point in the SSAP layer.

Feature_Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information
ALI		ALI to SSAP Synchronization	Address number is either missing or invalid	Address: - E HIGH ST | Community: TERRELL | ESN: 81 | For 2 identical ALI records
ALI	243773@NCT911	ALI to SSAP Synchronization	No matching full street name found between the ALI record and the SSAP layer	Address: 1010 W RALPH HALL PKWY, Tel: 1234567000 | Community: ROCKWALL | ESN: 23
ALI		ALI to SSAP Synchronization	Address number from ALI record does not match any address point	Address: 4100 VISTA LN | Community: KAUFMAN | ESN: 94 | For 98 identical ALI records
ALI	253893@NCT911	ALI to SSAP Synchronization	Address only corresponds to an address point with a different ESN	Address: 5178 COUNTY ROAD 2658, Tel: 9726352576 | Community: HUNT COUNTY | ESN: 24 | Corresponding SSAP ESN: 48
ALI	225381@NCT911	ALI to SSAP Synchronization	Address only corresponds to an address point with a different community	Address: 122 TIMBERBLUFF LN, Tel: 9724220500 | Community: MURPHYS LAW | ESN: 363 | Corresponding SSAP Community: MURPHY
ALI		ALI to SSAP Synchronization	Address only corresponds to an address point with a different community and ESN	Address: 110 E MAIN ST| Community: CAMPBELL | ESN: 56 | Corresponding SSAP Community: FORNEY | Corresponding SSAP ESN: 80 | For 2 identical ALI records
ALI	225388@NCT911	ALI to SSAP Synchronization	Address adnumpre value does not match the address point	Address: 1302 THIRTEENTH ST, Tel: 218-1104 | Community: WESTSHORE | ESN: 103 | SSAP AdNumPre: Blank | SSAP Street Full Name: THIRTEENTH ST
ALI	190247@NCT911	ALI to SSAP Synchronization	Address adnumsuf value does not match the address point	Address: 9 B LAKEWAY DR, Tel: 9727715392 | Community: HEATH | ESN: 21 | SSAP AdNumSuf: Blank | SSAP Street Full Name: Lakeway DR
ALI	243773@NCT911	ALI to SSAP Synchronization	No matching full street name found between the ALI record and the SSAP layer	Address: 1010 W RALPH HALL PKWY, Tel: 123456700 | Community: ROCKWALL | ESN: 23|
ALI		ALI to SSAP Synchronization	Address number from ALI record does not match any address point	Address: 4100 VISTA LN | Community: KAUFMAN | ESN: 94 | For 98 identical ALI records
ALI	253893@NCT911	ALI to SSAP Synchronization	Address only corresponds to an address point with a different ESN	Address:5178 COUNTY ROAD 2658, Tel: 972352576 | Community: HUNT COUNTY| ESN: 24 | Corresponding SSAP ESN: 48
ALI	225381@NCT911	ALI to SSAP Synchronization	Address only corresponds to an address point with a different community	Address: 122 TIMBERBLUFF LN, Tel: 9724220500 | Community: MURPHYS | ESN: 363 | Corresponding SSAP Community: MURPHY
ALI		ALI to SSAP Synchronization	Address only corresponds to an address point with a different community and ESN	Address: 110 E MAINT ST | Community: CAMPBELL | ESN: 56 | Corresponding SSAP Community: FORNEY | Corresponding SSAP ESN: 80 | For 2 identical ALI records

Note: Note that if there are multiple results with identical results (e.g., same error with the same address), the records are grouped together in the report and a quantity is listed.

Examples - Issues Reported

In these examples, multiple scenarios are shown defining when a record fails or passes the ALI to SSAP Synchronization QC check.

ALI				SSAP				Result	Notes
Address	Community	ESN	Additional Location	Address	Community	ESN	Additional Location		
105 St N	Cass	285	MN	105 St N	Cass	285	MN	Pass	The ALI matches the SSAP.
105 St N	Cass	285	MN	---	---	---	---	Fail	The street full name does not exist in the SSAP layer – mismatching full street name will flag.
105 St N	Cass	285	MN	105 St N	Cass	200	MN	Fail	The ESN values do not match – mismatching ESN will flag.
105 St N	Cass	285	MN	105 St N	Clay	285	MN	Fail	The Community values do not match – mismatching Community will flag.
105 St N	Cass	285	MN	105 St N	Cass	285	CA	Fail	The Additional Location field was optionally configured, and the values do not match – mismatching additional location will flag.

For information on using exception codes see **"Exception Code Basics" on page 235** or to view a list of subchecks completed when running the ALI to SSAP Synchronization QC check and any exception codes for each subcheck, **"ALI to SSAP Synchronization Subchecks" on page 245**.

MSAG to RCL Synchronization

The **MSAG to RCL Synchronization** quality control (QC) check identifies Master Street Address Guide (MSAG) records that do not correspond to a road segment in the road centerlines (RCL) layer.

> **Note:** Synchronization QC checks can have leading zeros in the Emergency Service Number (ESN) fields for any of the layers or tables used in the QC check. The leading zeros will not negatively affect the comparison and an accurate fallout for the synchronization check is created, including accurately displaying your data with any leading zeros.

Required QC Prerequisites

To run this check, the following is required.

- MSAG table
- Road centerline feature class with road name, address range, and zone information

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

The following parameters can be specifically configured for the MSAG to RCL Synchronization QC check.

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **MSAG Name**: The name of the MSAG table.
- **MSAG - Reporting Unique ID**: A unique identifier in the MSAG table that can be used to uniquely identify a singular feature.
- **MSAG - Address Number Prefix**: Represents the address number prefix on the MSAG record.
- **MSAG - Low Range**: Represents the MSAG record's low range.
- **MSAG - High Range**: Represents the MSAG record's high range.
- **MSAG - Street Full Name**: A list of street name fields that form the entire street name. For example: LSt_PreDir, LSt_Name, LSt_Typ, LSt_PosDir.
- **MSAG - Odd/Even/Both (OEB)**: Indicates whether the MSAG record contains odd, even, or both range values.
- **MSAG - Emergency Service Number (ESN)**: Represents the MSAG record's Emergency Service Number (ESN).
- **MSAG - MSAG Community**: Represents the MSAG record's MSAG Community.
- **Road Centerline (RCL) Name**: The name of the road centerline layer.
- **RCL - Unique ID**: A unique identifier in the Roads layer that can be used to uniquely identify a singular feature.
- **RCL - Left Address Number Prefix**: Represents the address number prefix on the left side of the road segment.
- **RCL - Right Address Number Prefix**: Represents the address number prefix on the right side of the road segment.
- **RCL - Left FROM Address**: Represents the address number on the FROM node on the left side of the road segment.
- **RCL - Left TO Address**: Represents the address number on the TO node on the left side of the road segment.

- **RCL - Right FROM Address**: Represents the address number on the FROM node on the right side of the road segment.
- **RCL - Right TO Address**: Represents the address number on the TO node on the right side of the road segment.
- **RCL - Parity Left**: Indicates whether the left side of the road segment contains odd, even, both or zero address range values.
- **RCL - Parity Right**: Indicates whether the right side of the road segment contains odd, even, both or zero address range values.
- **RCL - Street Full Name**: A list of street name fields that form the entire street name. For example: LSt_ PreDir, LSt_Name, LSt_Typ, LSt_PosDir.
- **RCL - ESN Left**: Represents the Emergency Service Number (ESN) on the left side of the road segment.
- **RCL - ESN Right**: Represents the Emergency Service Number (ESN) on the right side of the road segment.
- **RCL - MSAG Community Name Left**: Represent the MSAG Community Name on the left side of the road segment.
- **RCL - MSAG Community Name Right**: Represent the MSAG Community Name on the right side of the road segment.
- **Case Sensitivity**: Select **Match Case** to enable and maintain the integrity of upper or lower case text in your data. See **"Case Sensitivity" on page 66**.

What Does the MSAG to RCL Synchronization QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Unique identifier of the MSAG record not matching road centerlines
- Low and high range of the MSAG record not matching road centerlines
- Street name of MSAG record not matching road centerlines
- Specific failure information – criteria causing MSAG to RCL comparison record to fail. The fallout message values are added to the Extended Information description field in the fallout report. The message identifies specific fallout messaging values to assist in the identification of mismatching fields for the MSAG records and road centerline features. These features display up to the first 5 values listed in alphanumeric order. This

list exists for the following features.

- RCL's AdNumPre
- RCL's Unique ID
- MSAG's ESN
- MSAG's MSAG Community

Examples - Issues Reported

There are many examples when completing MSAG to RCL Synchronization QC checks. Below are some examples.

MSAG Record's Low and High Range Value Do Not Match Parity

The MSAG record's low and/or high range value conflict with the MSAG's listed parity values. In this example, Venice Blvd has a parity value that does not match correctly against the MSAG's low and high ranges. The MSAG record must be corrected before further analysis can be conducted.

MSAG Related Fallout						
Low Range	High Range	AdNumPre	Street Full Name	Community	ESN	Parity
100	198		Venice Blvd	Rockwall	323	ODD
201	300	75-	Venice Blvd	Rockwall	323	EVEN

Corresponding Road Centerline									
Left From	Left To	Right From	Right To	AdNumPre	Street Full Name	Community	ESN	Parity Left	Parity Right
100	198	101	197		Venice Blvd	Rockwall	323	EVEN	ODD
200	300	201	299	75-	Venice Blvd	Rockwall	323	EVEN	ODD

MSAG Record's Low Range is Greater Than the High Range

The MSAG record's low range value is larger than the record's high range value. In this example, Washington Blvd's low range of 2000 is larger than its high range of 1098. The MSAG record must be corrected before further analysis can be conducted.

MSAG Related Fallout					
Low Range	High Range	AdNumPre	Street Full Name	Community	ESN
2000	1098		Washington Blvd	Rockwall	323

Corresponding Road Centerline							
Left From	Left To	Right From	Right To	AdNumPre	Street Full Name	Community	ESN
1000	1098	1001	1097		Washington Blvd	Rockwall	323

MSAG Record Can Be Placed on Multiple Road Segments

The MSAG record matches multiple road segments with the same street full name and address ranges. In this example, there are at least two La Cienega Blvd's that cover the 4001-4207 address range with the same ESN and MSAG Community.

MSAG Related Fallout						
Low Range	High Range	AdNumPre	Street Full Name	Community	ESN	Corresponding RCL Unique ID
4001	4207		La Cienega Blvd	Rockwall	213	uniqueID_1@nct911.org uniqueID_2@nct911.org

Corresponding Road Centerline								
Left From	Left To	Right From	Right To	AdNum Pre	Street Full Name	Community	ESN	Unique ID
4001	4207	4002	4206		La Cienega Blvd	Rockwall	323	uniqueID_1@nct911.org
3901	4399	3900	4398		La Cienega Blvd	Rockwall	323	uniqueID_2@nct911.org

MSAG Record Can Be Placed Multiple Times on a Single Road Segment

The MSAG record matches both sides of the same road segment with the same street full name and address ranges. In this example, E Santa Monica St's matching road segment covers the 751-799 address range on both sides of the road. The road contains the correct ESN and MSAG Community values but needs to be updated so only one side reflects the MSAG record's address range values.

MSAG Related Fallout						
Low Range	High Range	AdNumPre	Street Full Name	Community	ESN	Corresponding RCL Unique ID
751	799		E Santa Monica St	Rockwall	323	uniqueID@nct911.org

Corresponding Road Centerline								
Left From	Left To	Right From	Right To	AdNum Pre	Street Full Name	Community	ESN	Unique ID
751	799	701	799		E Santa Monica St	Rockwall	323	uniqueID_1@nct911.org

MSAG Record Has No Matching RCL Street Name

The MSAG record's full street name does not exist in the in the road centerline (RCL) layer. In this example, Quincy St is not present in the RCL layer.

MSAG Related Fallout					
Low Range	High Range	AdNumPre	Street Full Name	Community	ESN
4001	4207		Quincy St	Rockwall	202
2001	2207	194-A	Quincy St	Rockwall	202

Corresponding Road Centerline								
Left From	Left To	Right From	Right To	AdNum Pre	Street Full Name	Community	ESN	Unique ID
					N/A because none exist			

MSAG Record Only Corresponds to Road Segment with Zero/Missing Ranges

The MSAG record's full street name only matches road centerlines that have a blank or 0-0 address range. In this example, Adams Dr exists in the RCL layer only as a road with zero or blank address ranges.

MSAG Related Fallout						
Low Range	High Range	AdNumPre	Street Full Name	Community	ESN	Corresponding RCL Unique ID
3001	3099	N87W137	Adams Dr	Rockwall	202	uniqueID_1@nct911.org uniqueID_2@nct911.org

Corresponding Road Centerline								
Left From	Left To	Right From	Right To	AdNumPre	Street Full Name	Community	ESN	Unique ID
0	0	0	0	N87W137	Adams Dr	Rockwall	323	uniqueID_1@nct911.org
0	0	0	0	N87W137	Adams Dr	Rockwall	323	uniqueID_2@nct911.org

MSAG Record Only Corresponds to a Road Segment with a Different MSAG Community and ESN

The MSAG record only matches road centerlines with the same street full name, but different MSAG Community and ESN values. In this example, Culver Dr exists in the RCL layer, but the roads contain the wrong MSAG Community and ESN values as compared to the MSAG record. Typically, the road attributes are updated to ensure accuracy.

MSAG Related Fallout							
Low Range	High Range	AdNumPre	Street Full Name	Community	ESN	Corresponding RCL Community	Corresponding RCL ESN
750	798		Culver Dr	Rockwall	714	Fate, Heath	213, 310

Corresponding Road Centerline								
Left From	Left To	Right From	Right To	AdNum Pre	Street Full Name	Community	ESN	Unique ID
751	799	750	798		Culver Dr	Fate	213	uniqueID_1@nct911.org
701	799	700	798		Culver Dr	Heath	310	uniqueID_2@nct911.org

MSAG Record Only Corresponds to a Road Segment with a Different ESN

The MSAG record only matches road centerlines with the same street full name, but different ESN values. In this example, Crenshaw Blvd SW exists in the RCL layer, but roads contain the wrong ESN values as compared to the MSAG record. Typically, the road attributes are updated to ensure accuracy.

MSAG Related Fallout						
Low Range	High Range	AdNumPre	Street Full Name	Community	ESN	Corresponding RCL ESN
100	198	125-	Crenshaw Blvd SW	Rockwall	323	012, 085, 248

Corresponding Road Centerline								
Left From	Left To	Right From	Right To	AdNum Pre	Street Full Name	Community	ESN	Unique ID
100	198	101	199	125-	Crenshaw Blvd SW	Rockwall	012	uniqueID_1@nct911.org
100	298	101	299	125-	Crenshaw Blvd SW	Rockwall	085	uniqueID_2@nct911.org
100	150	101	149	125-	Crenshaw Blvd SW	Rockwall	248	uniqueID_3@nct911.org

MSAG Record Only Corresponds to a Road Segment with a Different MSAG Community

The MSAG record only matches road centerlines with the same street full name, but different MSAG Community values. In this example, Adams Blvd exists in the RCL layer, but the roads contain the wrong MSAG Community values as compared to the MSAG record. Typically, the road attributes are updated to ensure accuracy.

MSAG Related Fallout						
Low Range	High Range	AdNumPre	Street Full Name	Community	ESN	Corresponding RCL Community
200	298		Adams Blvd	Rockwall	323	Addison, Waco

Corresponding Road Centerline								
Left From	Left To	Right From	Right To	AdNum Pre	Street Full Name	Community	ESN	Unique ID
200	298	201	299		Adams Blvd	Addison	323	uniqueID_1@nct911.org
150	300	151	299		Adams Blvd	Waco	323	uniqueID_2@nct911.org

MSAG Record AdNumPre Value Does Not Match Road Segment

The MSAG record matches a road centerline's street full name, ESN, MSAG Community and address ranges but fails to match its address number prefix, causing the mismatch. In this example, La Brea Blvd exists in the road centerline and matches every value in the MSAG record except for the address number prefix value.

MSAG Related Fallout					
Low Range	High Range	AdNumPre	Street Full Name	Community	ESN
401	499	22-	La Brea Blvd	Rockwall	323

Corresponding Road Centerline								
Left From	Left To	Right From	Right To	AdNum Pre	Street Full Name	Community	ESN	Unique ID
401	499	400	498		La Brea Blvd	Rockwall	323	uniqueID_1@nct911.org

MSAG Record Falls in a Gap Within the Corresponding Road Ranges

The MSAG record matches a road centerline's street full name, ESN, and MSAG Community, but the MSAG's address range is not entirely covered by the road's address range. In this example, NE Jefferson Blvd exists in the RCL layer but its range of 401-449 does not entirely cover the MSAG record.

MSAG Related Fallout					
Low Range	High Range	AdNumPre	Street Full Name	Community	ESN
401	499		NE Jefferson Blvd	Rockwall	323

Corresponding Road Centerline								
Left From	Left To	Right From	Right To	AdNum Pre	Street Full Name	Community	ESN	Unique ID
401	449	400	448		NE Jefferson Blvd	Rockwall	323	uniqueID_1@nct911.org

SSAP to MSAG Synchronization

The **SSAP to MSAG Synchronization** quality control (QC) check compares address points to the Master Street Address Guide (MSAG) to see if any addresses in the Site/Structure Address Points (SSAP) data are not present in the MSAG.

Note: Synchronization QC checks can have leading zeros in the Emergency Service Number (ESN) fields for any of the layers or tables used in the QC check. The leading zeros will not negatively affect the comparison and an accurate fallout for the synchronization check is created, including accurately displaying your data with any leading zeros.

Note: Leading or trailing spaces will not be trimmed in any fields used for comparison. To fix issues caused by such spaces, remove the extra space in your source data.

Required QC Prerequisites

To run this check, a MSAG and SSAP feature class are required.

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

The following parameters can be specifically configured for the SSAP to MSAG Synchronization QC check.

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **SSAP Layer Name**: The name of the SSAP layer.

- **SSAP - Reporting Unique ID**: A unique identifier in the SSAP layer that can be used to uniquely identify a singular feature.
- **SSAP - Address Number Prefix**: Represents the SSAP's address number prefix. Populate this parameter to have address prefix information included in the extended information field of the fallout report if one exists.

  For example, if the Address Number Prefix is configured and the record includes a prefix value of 3W2N, the report will show 3W2N-1600 Venice Blvd in the extended information field, not 1600 Venice Blvd.
- **SSAP - Address Number**: Represents the SSAP's address number.
- **SSAP - Address Number Suffix**: Represents the SSAP's address number suffix. Populate this parameter to have address suffix information included in the extended information field of the fallout report if one exists.

  For example, when Address Number Suffix is configured and the record includes a suffix value of B, the report shows 1600 B Venice Blvd in the extended information field, not 1600 Venice Blvd. Note that null, empty strings, or whitespace do not count as a value.
- **SSAP - Street Full Name**: A list of street name fields that form the entire street name. For example: LSt_ PreDir, LSt_Name, LSt_Typ, LSt_PosDir.
- **SSAP - Sub-addressing**: Represents sub-addressing fields such as structure/building, wing, or unit to better distinguish the specific address point in question. Order listed here will reflect in the fallout messaging. Populate this parameter to have sub-addressing included in the extended information field of the fallout report if one exists.

  For example, if the Sub-addressing parameter is configured, and the record includes a sub-addressing value of Room 305, the report will show 1600 Venice Blvd, Room 305 in the extended information field, not 1600 Venice Blvd.
- **SSAP - Emergency Service Number (ESN)**: Represents the SSAP's Emergency Service Number (ESN).
- **SSAP - MSAG Community**: Represents the SSAP's Master Street Address Guide (MSAG) Community.
- **MSAG Table Name**: The name of the MSAG table.
- **MSAG - Reporting Unique ID**: A unique identifier in the MSAG table that can be used to uniquely identify a singular feature.
- **MSAG - Address Number Prefix**: Represents the address number prefix on the MSAG record.
- **MSAG - Low Range**: Represents the MSAG record's low range.

- **MSAG - High Range**: Represents the MSAG record's high range.
- **MSAG - Street Full Name**: A list of street name fields that form the entire street name. For example: LSt_PreDir, LSt_Name, LSt_Typ, LSt_PosDir.
- **MSAG - Odd/Even/Both (OEB)**: Indicates whether the MSAG record contains odd, even, or both range values.
- **MSAG - Emergency Service Number (ESN)**: Represents the MSAG record's Emergency Service Number (ESN).
- **MSAG - MSAG Community**: Represents the MSAG record's MSAG Community.
- **Case Sensitivity**: Select **Match Case** to enable and maintain the integrity of upper or lower case text in your data. See **"Case Sensitivity" on page 66**.

What Does the SSAP to MSAG Synchronization QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Unique identifier of the SSAP record
- Specific failure information - criteria causing the SSAP to MSAG comparison record to fail. The fallout message values are added to the Extended Information description field in the fallout report. The message identifies specific fallout messaging values to assist in the identification of mismatching fields for the SSAP and MSAG records. The extended information in the fallout report provides up to the first 5 ID values listed in alphanumeric order, if applicable.
  - MSAG - Reporting Unique ID
  - MSAG - Emergency Service Number (ESN)
  - MSAG - Community
  - MSAG - Address Number Prefix
- Latitude and Longitude coordinates

Examples - Fallout Report Records

The examples below shows possible error messages you may receive when a record fails the SSAP to MSAG Synchronization QC check. The extended information provides the detected and expected results when

verifying that addresses in the SSAP contain a corresponding record in the MSAG.

Feature_Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
SSAP	{5AC2B6E6-F87D-43EE-AD40-A2B6EE3624B2}@NCT911.DST.TX.US	SSAP TO MSAG Synchronization	Address number is either missing or invalid	Address: - 0 HILLSIDE DR | Community: FORNEY | ESN: 00080	32.765693	-96.479061	KAUFMAN
SSAP	{0440E71E-0558-4B21-99BC-EF26CB7E221F}@NCT911.DST.TX.US	SSAP TO MSAG Synchronization	Address number fully matches multiple MSAG records (matches full street name, fits within its ranges, matches community/ESN)	Address: 2129 WHISPERING SAGE BLVD | Community: HUNT COUNTY | ESN: 00024 | Corresponding MSAG Unique ID: 52504nct911.dst.us, 52505nctc911.dst.us	32.986368	-96.27642	HUNT
SSAP	{CE5FE6BC-2FAC-4D52-AF58-F898D008CF7E}@NCT911.DST.TX.US	SSAP TO MSAG Synchronization	No matching full street name found between the address point and the MSAG records	Address: 2099 VINSON RD | Community: COLLIN COUNTY | ESN: 00368	32.98313	-96.517244	COLLIN
SSAP	{BT9GD3HQ-6PUE-8V15-PD37-A492G462SB2Q}@NCT911.DST.TX.US	SSAP TO MSAG Synchronization	Address only corresponds to MSAG records with zero or missing ranges	Address: 5 SANTA MONICA BLVD | Community: COLLIN COUNTY | ESN: 00257 | Corresponding MSAG Unique ID: Not configured	32.98317	-96.517241	COLLIN
SSAP	{04829032-C10B-419C-9931-29FC241EE81E}@NCT911.DST.TX.US	SSAP TO MSAG Synchronization	Address number is lower than all corresponding MSAG ranges	Address: 111 E AUTUMN HILL BLF | Community: LAVON | ESN: 00126	33.011807	-96.434424	COLLIN
SSAP	{89B1373D-A72C-4A30-BA48-8699DA679612}@NCT911.DST.TX.US	SSAP TO MSAG Synchronization	Address number is higher than all corresponding MSAG ranges	Address: 9999 PLEASANT VALLEY PL | Community: SACHSE | ESN: 00100	32.956051	-96.55767	DALLAS
SSAP	{FB6E931C-3C69-4850-8DC7-3CA52136F4D9}@NCT911.DST.TX.US	SSAP TO MSAG Synchronization	Address number parity does not match the corresponding MSAG records	Address: 15492 COUNTY ROAD 335 | Community: KAUFMAN COUNTY | ESN: 00102 | Corresponding MSAG Unique ID: 50009nct911.dst.us	32.837812	-96076348	KAUFMAN
SSAP	{0919432A-B09E-4F54-8F8B-435DB595C94C}@NCT911.DST.TX.US	SSAP TO MSAG Synchronization	Address only corresponds to an MSAG record with a different ESN	Address: 17263 STATE HIGHWAY 205 | Community: KAUFMAN COUNTY | ESN: 00086 | Corresponding MSAG ESN: 00022	32.812397	-96.347152	KAUFMAN
SSAP	{45459988-DAEB-4913-BB83-7360662C6BAE}@NCT911.DST.TX.US	SSAP TO MSAG Synchronization	Address only corresponds to an MSAG record with a different community	Address: 2620 LINDBERG ST | Community: ROCKWALL | ESN: 00023 | Corresponding MSAG Community: ROCKWALL	32.889162	-96.423817	ROCKWALL
SSAP	{L2W62597-K9B5-6ET1-4Y64-62804ZF32945}@NCT911.DST.TX.US	SSAP TO MSAG Synchronization	Address only corresponds to an MSAG record with a different community and ESN	Address: - 1463 CRENSHAW RD | Community: ROCKWALL COUNTY | ESN: 0027 | Corresponding MSAG Community: ROYSE CITY | Corresponding MSAG ESN: 00024	32.925077	-96.317727	ROCKWALL
SSAP	{E4D36440-D1C8-4DB0-8E52-33253EC11860}@NCT911.DST.TX.US	SSAP TO MSAG Synchronization	SSAP record's adnumpre value does not match the MSAG record	Address: A-102 ALLEN HEIGHTS ST | Community: ALLEN | ESN: 00350 | MSAG AdNumPre: AB-, AA- | MSAG Street Full Name: ALLEN HEIGHTS ST	33.07433	-96.646437	COLLIN
SSAP	{C9D5591E-A87C-4F57-8856-A381252DFE89}@NCT911.DST.TX.US	SSAP TO MSAG Synchronization	Address number falls in a gap within the corresponding MSAG ranges	Address: 2930 PLEASANT VALLEY RD | Community: SACHSE | ESN: 00100	32.952095	-96.572533	DALLAS

Examples - Issues Reported

In these examples, multiple scenarios are shown defining when a record fails or passes the SSAP to MSAG Synchronization QC check.

- **Pass**: This is an example of a good match that passes the QC check.

SSAP					
Address Number	**Street Name**	**Post Dir**	**Street Full Name**	**Community**	**ESN**
105	King	St	King St	Cass	285
MSAG					
Low Range	**High Range**	**Odd/Even/Both**	**Street Full Name**	**Community**	**ESN**
101	199	Odd	King St	Cass	285

- **Fail**: This example shows when the QC check fails due to the Street Full Name field being mismatched. There is no MSAG with a matching street name.

SSAP					
Address Number	**Street Name**	**Post Dir**	**Street Full Name**	**Community**	**ESN**
105	King	St	King St	Cass	285
MSAG					
Low Range	**High Range**	**Odd/Even/Both**	**Street Full Name**	**Community**	**ESN**
101	199	Odd	Queen St	Cass	285

- **Fail**: This example shows when the QC check fails due to the Address Number being below the matching MSAG's range.

SSAP					
Address Number	**Street Name**	**Post Dir**	**Street Full Name**	**Community**	**ESN**
105	King	St	King St	Cass	285
MSAG					
Low Range	**High Range**	**Odd/Even/Both**	**Street Full Name**	**Community**	**ESN**
111	199	Odd	King St	Cass	285

- **Fail**: This example shows when the QC check fails due to the Address Number being out of parity with the MSAG range.

SSAP					
Address Number	Street Name	Post Dir	Street Full Name	Community	ESN
105	King	St	King St	Cass	285
MSAG					
Low Range	High Range	Odd/Even/Both	Street Full Name	Community	ESN
100	198	Even	King St	Cass	285

- **Fail**: This example shows when the QC check fails because the ESN field is mismatched.

SSAP					
Address Number	Street Name	Post Dir	Street Full Name	Community	ESN
105	King	St	King St	Cass	285
MSAG					
Low Range	High Range	Odd/Even/Both	Street Full Name	Community	ESN
101	199	Odd	King St	Cass	300

- **Fail**: This example shows when the QC check fails because the Community field is mismatched

SSAP					
Address Number	Street Name	Post Dir	Street Full Name	Community	ESN
105	King	St	King St	Cass	285
MSAG					
Low Range	High Range	Odd/Even/Both	Street Full Name	Community	ESN
101	199	Odd	King St	Clay	285

For information on using exception codes see **"Exception Code Basics" on page 235** or to view a list of subchecks completed when running the SSAP to MSAG Synchronization QC check and any exception codes for each subcheck, see **"SSAP to MSAG Synchronization Subchecks" on page 247**.

SSAP to RCL Synchronization

The **SSAP to RCL Synchronization** quality control (QC) check identifies where the Site/Structure Address Point (SSAP) address data is inconsistent with Road Centerline (RCL) data. This ensures that every address in the SSAP layer can be properly placed onto a corresponding road segment in the RCL layer.

Tip: Projection-Based Unit is used in this check. **Projection-Based Unit** indicates the unit of measurement is pulled from the Spatial QC Projection this data target uses. If no Spatial QC Projection is used in this data target, the unit is pulled from the Data Target's projection.

Required QC Prerequisites

To run this check, the SSAP and RCL feature classes are required.

Configure QC Parameters

Configurations for QC check parameters contain filters to prevent selecting incompatible field types.

The following parameters can be specifically configured for the SSAP to RCL Synchronization QC check.

- **Run On**: Non-configurable. This QC check inspects the target dataset.
- **Severity**: Sets the importance level of this QC check's fallouts. Critical fallouts prevent export package outputs but will still provide fallouts.
- **SSAP Layer Name**: The name of the SSAP layer.
- **SSAP - Reporting Unique ID**: A unique identifier in the SSAP layer that can be used to uniquely identify a singular feature.
- **SSAP - Address Number Prefix**: Represents the SSAP's address number prefix. Populate this parameter to have address prefix information included in the extended information field of the fallout report if one exists.
- *For example, if the Address Number Prefix is configured and the record includes a prefix value of **3W2N**, the report will show **3W2N-**1600 Venice Blvd in the extended information field, not 1600 Venice Blvd.*
- **SSAP - Address Number**: Represents the SSAP's address number.
- **SSAP - Address Number Suffix**: Represents the SSAP's address number suffix. Populate this parameter to have address suffix information included in the extended information field of the fallout report if one exists.

  *For example, if the Address Number Suffix is configured and the record includes a suffix value of **B**, the report will show 1600 **B** Venice Blvd in the extended information field, not 1600 Venice Blvd. Note that null, empty strings, or whitespace do not count as a value.*
- **SSAP - Street Full Name**: A list of street name fields that form the entire street name. For example: St_PreMod, St_PreDir, St_PreTyp, St_PreSep, St_Name, St_PosTyp, St_PosDir, and St_PosMod.

- **SSAP - Sub-addressing**: Represents sub-addressing fields such as structure/building, wing, or unit to better distinguish the specific address point in question. Order listed here will reflect in the fallout messaging. Populate this parameter to have sub-addressing included in the extended information field of the fallout report if one exists.

  *For example, if the sub-addressing parameter is configured, and the record includes a sub-addressing value of **Room 305**, the report will show 1600 Venice Blvd, **Room 305** in the extended information field, not 1600 Venice Blvd.*
- **SSAP - Emergency Service Number (ESN)**: Represents the SSAP's Emergency Service Number (ESN).
- **SSAP - MSAG Community**: Represents the SSAP's Master Street Address Guide (MSAG) Community.
- **Road Centerline (RCL) Layer Name**: The name of the road centerline layer.
- **RCL - Reporting Unique ID**: A unique identifier in the Roads layer that can be used to uniquely identify a singular feature.
- **RCL - Left Address Number Prefix**: Represents the address number prefix on the left side of the road segment.
- **RCL - Right Address Number Prefix**: Represents the address number prefix on the right side of the road segment.
- **RCL - Left FROM Address**: Represents the address number on the FROM node on the left side of the road segment.
- **RCL - Left TO Address**: Represents the address number on the TO node on the left side of the road segment.
- **RCL - Right FROM Address**: Represents the address number on the FROM node on the right side of the road segment.
- **RCL - Right TO Address**: Represents the address number on the TO node on the right side of the road segment.
- **RCL - Parity Left**: Indicates whether the left side of the road segment contains odd, even, both, or zero address range values.
- **RCL - Parity Right**: Indicates whether the right side of the road segment contains odd, even, both, or zero address range values.

- **RCL - Street Full Name**: A list of street name fields that form the entire street name. For example: St_PreMod, St_PreDir, St_PreTyp, St_PreSep, St_Name, St_PosTyp, St_PosDir, and St_PosMod.
- **RCL - ESN Left**: Represents the Emergency Service Number (ESN) on the left side of the road segment.
- **RCL - ESN Right**: Represents the Emergency Service Number (ESN) on the right side of the road segment.
- **RCL - MSAG Community Name Left**: Represents the MSAG Community name on the left side of the road segment.
- **RCL - MSAG Community Name Right**: Represents the MSAG Community name on the right side of the road segment.
- **RCL - Offset Distance (Projection-Based Unit)**: The distance to offset a point from the road when calculating its position for the Wrong Block subcheck.
- **Case Sensitivity**: Select **Match Case** to enable and maintain the integrity of upper or lower case text in your data. See **"Case Sensitivity" on page 66**.

What Does the SSAP to RCL Synchronization QC Check Output Include?

The following information is included for this QC check's fallout output.

- QC check name
- Description of the QC check
- Unique identifier of the SSAP record not matching road centerlines
- Specific failure information - A description of what caused the SSAP record to fail. The fallout message values are added to the Extended Information description field in the fallout report. The message identifies specific fallout messaging values to assist in the identification of mismatching SSAP records or road centerline features.

Examples - Fallout Report Records

The examples below shows possible error messages you may receive when a record fails the SSAP to RCL Synchronization QC check. The extended information provides the detected and expected results when verifying that addresses in the SSAP can be properly placed onto a corresponding road segment in the RCL layer.

Feature_Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
SSAP	{0176E570-DFC3-4BFF-9C18-CB157A309220}@NCT911.DST.TX.US	SSAP to RCL Synchronization	Address number is either missing or invalid	Address: 0 HILLSIDE DR | Community: FORNEY | ESN: 00080 | Populate the correct address number for that address point.	32.765522	-96.479204	Kaufman
SSAP	{0D597AC2-F0CB-4511-9346-688233AE1A83}@NCT911.DST.TX.US	SSAP to RCL Synchronization	Address number fully matches multiple road segments (matches full street name, fits within its ranges, matches community/ESN)	Address: 825 APPLE HILL DR | Community: ALLEN | ESN: 00350 | Corresponding RCL Unique ID: {02D01C05-7EB2-4459-BCB0-59676839E57C}@NCT911.DST.TX.US, {02D01C05-7EB2-4459-BCB0-59676839E57C}@NCT911.DST.TX.US | Ensure a road segment includes the correct address ranges and required attributes for this address point.	33.086368	-96.713123	Collin
SSAP	{774BE614-783E-4B1A-9063-561951B15BB1}@NCT911.DST.TX.US	SSAP to RCL Synchronization	Address can be placed on both the left and right side of the corresponding road segment	Address: 933 OLIVIA WAY | Community: ALLEN | ESN: 00350 | Corresponding RCL Unique ID: {6BD7542D-42E4-4D8B-919E-304B5D9BC3FC}@NCT911.DST.TX.US | Ensure a road segment includes the correct address ranges and required attributes for this address point.	33.08511	-96.696553	Collin
SSAP	{619421C0-7CBD-48D0-8F09-EE04952EDE2D}@NCT911.DST.TX.US	SSAP to RCL Synchronization	No matching full street name found between the address point and the road segment	Address: 1701 CHAPARRAL RD RD | Community: ALLEN | ESN: 00350 | Ensure the address point and road segment's full street name match.	33.077064	-96.626773	Collin
SSAP	{234C076E-EE28-4D36-9830-2D0F07791B8A}@NCT911.DST.TX.US	SSAP to RCL Synchronization	Address only corresponds to road segments with zero or missing ranges	Address: 1175 S GREENVILLE AVE | Community: JOSEPHINE | ESN: 00117 | Corresponding RCL Unique ID: {AEFE5B76-C6B7-466C-914A-30FC8AA3FDCC}@NCT911.DST.TX.US, {79FD44F6-B54D-4B89-AE47-56DE4FAAF456}@NCT911.DST.TX.US | Ensure a road segment includes the correct address ranges and required attributes for this address point.	33.065318	-96.309537	Hunt

Feature_Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
SSAP	{7B62828D-FAFB-4BC5-8179-73A607FFCA47}@NCT911.DST.TX.US	SSAP to RCL Synchronization	Address number is lower than all corresponding road ranges	Address: 165 W MOORE AVE | Community: TERRELL | ESN: 00081 | Ensure a road segment includes the correct address ranges and required attributes for this address point.	32.737003	-96.287162	Kaufman
SSAP	{B7ED74F7-6953-4569-9524-C06BC40CA99E}@NCT911.DST.TX.US	SSAP to RCL Synchronization	Address number is higher than all corresponding road ranges	Address: 1836 E BETHANY DR, Unit 100 | Community: ALLEN | ESN: 00350 | Ensure a road segment includes the correct address ranges and required attributes for this address point.	33.085092	-96.620642	Collin
SSAP	{3527AD64-3875-4888-87E7-5A6D51404CE9}@NCT911.DST.TX.US	SSAP to RCL Synchronization	Address number parity does not match the corresponding road segments	Address: 7023 COVEY CT | Community: SACHSE | ESN: 00100 | Ensure a road segment includes the correct address ranges and required attributes for this address point.	32.985538	-96.586608	Collin
SSAP	{6F31DFFE-1565-47F5-AC4A-E7919C1917C0}@NCT911.DST.TX.US	SSAP to RCL Synchronization	Address only corresponds to a road segment with a different ESN	Address: 4580 FM 6 | Community: HUNT COUNTY | ESN: 00400 | Corresponding RCL ESN: 00117 | Ensure a road segment includes the correct address ranges and required attributes for this address point.	33.062747	-96.287432	Hunt
SSAP	{272B57EB-B7CE-4347-9AFE-42F85E91053A}@NCT911.DST.TX.US	SSAP to RCL Synchronization	Address only corresponds to a road segment with a different community	Address: 5615 FM 6 | Community: JOSEPHINEZ | ESN: 00117 | Corresponding RCL Community: JOSEPHINE | Ensure a road segment includes the correct address ranges and required attributes for this address point.	33.062041	-96.287943	Hunt
SSAP	{D9E49104-1DA9-4D5A-9DD8-94D30FB50D51}@NCT911.DST.TX.US	SSAP to RCL Synchronization	Address only corresponds to a road segment with a different community and ESN	Address: 8580 FM 6 | Community: HUNT COUNTY | ESN: 00400 | Corresponding RCL Community: JOSEPHINE | Corresponding RCL ESN: 00117 | Ensure a road segment includes the correct address ranges and required attributes for this address point.	33.062141	-96.288801	Hunt

Feature_Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
SSAP	{7B62828D-FAFB-4BC5-8179-73A607FFCA47}@NCT911.DST.TX.US	SSAP to RCL Synchronization	Address number is lower than all corresponding road ranges	Address: 165 W MOORE AVE | Community: TERRELL | ESN: 00081 | Ensure a road segment includes the correct address ranges and required attributes for this address point.	32.737003	-96.287162	Kaufman
SSAP	{B7ED74F7-6953-4569-9524-C06BC40CA99E}@NCT911.DST.TX.US	SSAP to RCL Synchronization	Address number is higher than all corresponding road ranges	Address: 1836 E BETHANY DR, Unit 100 | Community: ALLEN | ESN: 00350 | Ensure a road segment includes the correct address ranges and required attributes for this address point.	33.085092	-96.620642	Collin
SSAP	{3527AD64-3875-4888-87E7-5A6D51404CE9}@NCT911.DST.TX.US	SSAP to RCL Synchronization	Address number parity does not match the corresponding road segments	Address: 7023 COVEY CT | Community: SACHSE | ESN: 00100 | Ensure a road segment includes the correct address ranges and required attributes for this address point.	32.985538	-96.586608	Collin
SSAP	{6F31DFFE-1565-47F5-AC4A-E7919C1917C0}@NCT911.DST.TX.US	SSAP to RCL Synchronization	Address only corresponds to a road segment with a different ESN	Address: 4580 FM 6 | Community: HUNT COUNTY | ESN: 00400 | Corresponding RCL ESN: 00117 | Ensure a road segment includes the correct address ranges and required attributes for this address point.	33.062747	-96.287432	Hunt
SSAP	{272B57EB-B7CE-4347-9AFE-42F85E91053A}@NCT911.DST.TX.US	SSAP to RCL Synchronization	Address only corresponds to a road segment with a different community	Address: 5615 FM 6 | Community: JOSEPHINEZ | ESN: 00117 | Corresponding RCL Community: JOSEPHINE | Ensure a road segment includes the correct address ranges and required attributes for this address point.	33.062041	-96.287943	Hunt
SSAP	{D9E49104-1DA9-4D5A-9DD8-94D30FB50D51}@NCT911.DST.TX.US	SSAP to RCL Synchronization	Address only corresponds to a road segment with a different community and ESN	Address: 8580 FM 6 | Community: HUNT COUNTY | ESN: 00400 | Corresponding RCL Community: JOSEPHINE | Corresponding RCL ESN: 00117 | Ensure a road segment includes the correct address ranges and required attributes for this address point.	33.062141	-96.288801	Hunt

Feature_Class	Unique_Feature_ID	QC_Check_Name	Description	Extended_Information	Latitude	Longitude	Reference
SSAP	{7597AD64-4544-0544-G626-0DC97C2GC2PJ}@NCT911.DST.TX.US	SSAP to RCL Synchronization	Address point's adnumpre value does not match the road segment	Address: 21-02 E BROADWAY ST | Community: ALLEN | ESN: 00350 | Road AdNumPre: 19-0, 25-0 | Road Street Full Name: E BROADWAY ST | Ensure a road segment includes the correct address ranges and required attributes for this address point.	33.086368	-96.713123	Collin
SSAP	{3FAC7F10-19BD-4270-8618-2E07099A27EC}@NCT911.DST.TX.US	SSAP to RCL Synchronization	Address number falls in a gap within the corresponding road ranges	Address: 827 VASHON DR | Community: ALLEN | ESN: 00350 | Ensure a road segment includes the correct address ranges and required attributes for this address point.	33.085972	-96.712352	Collin
SSAP	{B17505C6-897B-48A7-BFAB-11728B1C965C}@NCT911.DST.TX.US	SSAP to RCL Synchronization	Unable to determine road segment's left and right side	Address: 820 COTTONWOOD DR | Community: ALLEN | ESN: 00350 | Corresponding RCL Unique ID: 92677{365B6A2B-FF1E-4F25-9DC3-8DA20E733867}@NCT911.DST.TX.US | Verify the road is single part and digitized correctly, and the address point is not snapped to any road segments, then try again.	33.082628	-96.657169	Collin
SSAP	{089E7106-97FC-4446-B626-7634A5D8A9C7}@NCT911.DST.TX.US	SSAP to RCL Synchronization	Address falls on the wrong side of the road based on the road ranges	Address: 1020 HIDDEN CREEK CT | Community: ALLEN | ESN: 00350 | Corresponding RCL Unique ID: 91022{978CAE26-A42E-4FE6-83C0-BB4F339EC433}@NCT911.DST.TX.US | Ensure the address is located on the correct side of the road based on its corresponding road segment.	33.085972	-96.712352	Collin
SSAP	{D5F44B93-B932-47C8-A336-0CC67C2DC2EE}@NCT911.DST.TX.US	SSAP to RCL Synchronization	Address number falls on the wrong block based on the road ranges	Address: 509 WINDWARD DR | Community: MURPHY | ESN: 00363 | Corresponding RCL Unique ID: 58002{B68301D0-C9CE-416C-9DD3-68C690AD8B29}@NCT911.DST.TX.US | Ensure the address is located within the correct block based on its corresponding road segment.	33.08085	-96.649002	Collin

Examples - Issues Reported

There are many examples when completing SSAP to RCL Synchronization QC checks. Below are some examples.

Address number is missing or invalid

This fallout occurs when an address point is missing an address number, or the address number is malformed. In the example below, an error occurs with the following records:

SSAP			
add_num	**str_name**	**community**	**esn**
NULL	Main Street	Springfield	456

Address number fully matches multiple road segments

This fallout occurs when an address point matches a road segment, fits within its ranges, and matches community/ESN, but can be placed on multiple road segments. This is typically caused by overlapping road ranges. In the example below, the error is identified because the address point can be placed into both road segments.

SSAP			
add_num	**str_name**	**community**	**esn**
123	Main Street	Springfield	456

RoadCenterline					
str_name	**fromAddL**	**toAddL**	**parity**	**community**	**esnL**
Main Street	101	199	O	Springfield	456
Main Street	101	199	O	Springfield	456

Address can be placed on both the left and right side of the corresponding road segment

This fallout occurs when an address point matches a road segment, but can be placed on either side. In the example below, the error is identified because 123 can be placed into both the left and right ranges.

SSAP			
add_num	**str_name**	**community**	**esn**
123	Main Street	Springfield	456

RoadCenterline						
str_name	**fromAddL**	**toAddL**	**parityL**	**fromAddR**	**toAddR**	**parityR**
Main Street	100	199	B	100	199	B

No matching full street name found between the SSAP record and the road segment

This fallout is produced when an address point's street name is not present in the RCL. In this example, the error is identified because Main Street is not present in the RCL layer.

SSAP			
add_num	str_name	community	esn
123	Main Street	Springfield	456

RoadCenterline
str_name
Main Avenue

Address only corresponds to road segment with zero or missing ranges

This fallout is produced when and address point matches one or more road segments that have no addressable ranges (0-0 on both sides). In this example, the error is identified because Main Street has no addressable ranges.

SSAP			
add_num	str_name	community	esn
123	Main Street	Springfield	456

RoadCenterline				
str_name	fromAddL	toAddL	fromAddR	toAddR
Main Street	0	0	0	0

Address number is lower than all corresponding road ranges

This fallout is produced when an address point matches one or more road segments but falls below all ranges. In this example, the error is identified because 123 falls below all ranges.

SSAP			
add_num	str_name	community	esn
123	Main Street	Springfield	456

RoadCenterline				
str_name	fromAddL	toAddL	fromAddR	toAddR
Main Street	201	299	200	298

Address number is higher than all corresponding road ranges

This fallout is produced when an address point matches one or more road segments, but falls above all ranges. In this example, the error is identified because 123 falls above all ranges.

SSAP			
add_num	str_name	community	esn
123	Main Street	Springfield	456

RoadCenterline				
str_name	fromAddL	toAddL	fromAddR	toAddR
Main Street	1	99	2	98

Address only corresponds to a road segment with a different ESN

This fallout is produced when an address point matches a road segment and fits within its ranges, but does not match its ESN. In this example, the error is identified because 456 does not match 789.

SSAP			
add_num	str_name	Community	esn
123	Main Street	Springfield	456

RoadCenterline					
str_name	fromAddL	toAddL	parityL	communityL	esnL
Main Street	101	199	O	Springfield	789

Address only corresponds to a road segment with a different community

This fallout is produced when an address point matches a road segment and fits within its ranges, but does not match its community. In this example, the error is identified because Springfield does not match Franklin.

SSAP			
add_num	str_name	community	Esn
123	Main Street	Springfield	456

RoadCenterline					
str_name	fromAddL	toAddL	parityL	communityL	esnL
Main Street	101	199	O	Franklin	456

Address only corresponds to a road segment with a different community and ESN

This fallout is produced when an address point matches a road segment and fits within its ranges, but does not match its ESN or community. In this example, the error is identified because Springfield does not match Frankliin and 456 does not match 789.

SSAP			
add_num	str_name	community	Esn
123	Main Street	Springfield	456

RoadCenterline					
str_name	fromAddL	toAddL	parityL	communityL	esnL
Main Street	101	199	O	Franklin	789

Address number falls in a gap within the corresponding road ranges

This fallout is produced when an address point matches one or more road segments, but falls between any of the addressable ranges. In this example, the error is identified because 123 does not fall within any of the addressable ranges.

SSAP			
add_num	str_name	community	esn
123	Main Street	Springfield	456

RoadCenterline				
str_name	fromAddL	toAddL	fromAddR	toAddR
Main Street	1	99	2	98
Main Street	201	299	200	298

For information on using exception codes see **"Exception Code Basics" below** or to view a list of subchecks completed when running the SSAP to RCL Synchronization QC check and any exception codes for each subcheck, see **"SSAP to RCL Synchronization Subchecks" on page 249**.

Exception Code Basics

Exception codes enable the user to exclude a feature or tabular record from a particular action in GIS Data Hub. (Throughout the Exception Code section, features and records will be referred to as features and layers and tables as layers). Subsequently, exception codes can be used to bypass the inspection of any feature in the user's source data from the scrutiny of quality control (QC) checks that honor them. This is useful when data uploaded to GIS Data Hub is part of a user's dataset, but does not require inspection from QC checks.

For example, a Roadcenterline layer contains driveways, but the user does not require driveways to be properly snapped to other road segments. An exception code could be applied to all driveways to prevent the Segment Snapped to Adjacent Segment - Same Layer QC check from unnecessarily creating fallouts on these road segments.

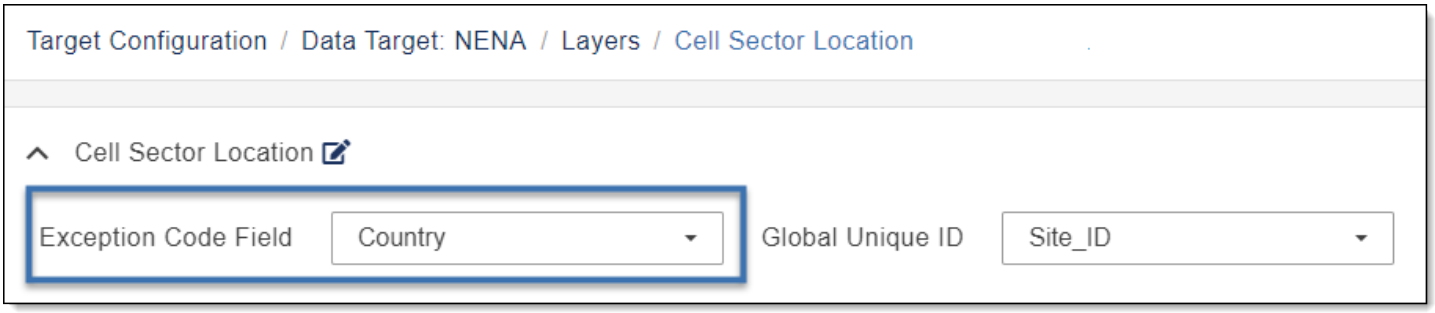
Note: Exception code usage does not prevent all fallouts. Critical QC checks report all fallouts even when they have an exception code configured. The only exception is the use of the 999 exception code which prevents the data from being used in any QC checks or outputs GIS Data Hub creates.

Note: Both text and integer field types are supported for exception codes. However, integer field types only support the use of one exception code at a time since a comma cannot be added to separate exception codes in integer fields.

Turning On Exception Codes

In GIS Data Hub, exception codes are activated by layer. This provides the user explicit control on which layers can use exception codes and which cannot. This also means that at this time, exception codes for a layer are either all on or all off. A user cannot enable for example, the Global Exclusion (999) exception, but deactivate an exception code for the Segment Snapped to Adjacent Segment - Same layer QC check.

Exception codes must be enabled in the Data Target Configuration page for that layer. To do this, locate the **Exception Code Field** drop-down and select the field that contains the user's exception codes in the target data.



The following provides basic information for configuring an exception code. For additional instruction on locating and configuring the **Exception Code Field**, see **"Edit Exception Code Field" on page 48**.

- Only one field may be used per layer at any given time.
- There are no restrictions on the name of the exception code field so long as it meets GDH's basic requirements.

Additionally, the user may choose to opt out of using exception codes by selecting the option **None** in the **Exception Code Field** drop-down shown above. If **None** is selected, then it does not matter if a user has field mapped an exception code field in their source data. Exception codes for that layer will not work.

gcexception and gc_exception fields. By default, when a new layer is added to a Data Target Configuration, the Exception Code Field drop-down automatically selects the field "gcexception" or "gc_exception," if either exist, regardless of case sensitivity. If both exist, "gcexception" is selected. The administrative user can choose to turn off exception code usage for that layer by updating the **Exception Code Field** drop-down to **None**. See **"Edit Exception Code Field" on page 48**.

> **Important:** Administrator be aware that if the **Exception Code Field** drop-down reads **None**, or contains a field which does not contain the user's exception codes, GIS Data Hub will not apply exception codes on that layer.

Once exception codes have been activated for that layer in the data target, all exception codes field mapped to the Exception Code Field designated in the Data Target Configuration will be read by GIS Data Hub, and all valid exception codes within that field will be applied during that job run.

> **Important:** Administrator be aware that the source data's exception code field MUST be field mapped for any exception codes to work, even if exception codes are activated on that layer within the Data Target Configuration page. If the exception code field in the user's source data is NOT properly field mapped, exception codes will not work for that agency. Additionally, only direct field mapping may be used when field mapping. Conditional, Spatial Lookup, and Tabular Lookup options for exception codes are not permitted and will not function. This means that an agency can only utilize exception codes if their layers directly contain an exception code field.

Exception Code Formatting

Valid exception codes utilize a 3-digit or 3-letter code within a field in your layer. These codes are pre-designated by GeoComm, Inc., and the current list can be found in the List of Exception Codes. See **"List of**

Exception Codes" on page 240.

To apply an exception code to a feature, simply enter the value of the exception code in that feature's exception code field. If multiple exception codes are required within one feature, they are to be separated by commas. Spaces between exception codes may be used, so long as the 3-digit code or letter is intact. Additionally, exception code fields may contain blank or null values.

> **Note:** Invalid exception codes will be ignored.

The following provides examples of correct and incorrect exception code formatting.

Will Work	Will Not Work	Notes
999		A single 3-digit exception code is correctly used.
999, ABC , 200		A combination of 3-digit and 3-letter codes are used. Commas are correctly used to separate the multiple exception codes. Any spacing inconsistencies are ignored.
999,ABC, 123		A combination of 3-digit and 3-letter codes are used. Commas are correctly used to separate multiple exception codes. Any spacing inconsistencies are ignored.
	91999	91999 will not work as the exception code has more than 3-digits.
	9#3	9#3 will not work as the exception code includes a special character and therefore the combination of digits is invalid.

Table 1. Exception code formatting requirements.

When an exception code field is configured in the Data Target Configuration page, the Exception Code Formatting QC check is automatically turned on for that layer. As a result, the user receives warning level fallouts for any features that contain invalid formatting in their exception code field.

Administrative Recommendations

Exception code is wanted. When exception code usage is wanted, it is recommended that the administrator visually confirm the exception code field is correctly configured in both the Data Target Configuration page and the Layer and Field Mapping page.

Exception code is not wanted. If exception codes are not wanted at the primary account level, then the recommendation is that they be turned off in the Data Target Configuration page by using the **None** option.

Additionally, exception codes can be turned on in the data target, but not utilized by an agency. To do this, ensure that the exception code field in the Layer and Field Mapping page is not mapped for all layers in the specific agency that wishes to opt out of exception codes.

Exception Codes and Critical QC Checks

QC checks set to a Critical severity level will NOT honor exception codes. If a QC check is critical, a fallout will be created. A QC check deemed critical means the data must be remediated until the fallout no longer exists. The only way to prevent a fallout for a critical QC check is to use the Global Exclusion (999) code (see **"999 Exception Code" on page 252**) to remove that feature from the source data upon ingest. Otherwise, exception codes tied to specific QC checks will not work if the QC check is set to Critical.

Important: If the user does not want to use the Global Exclusion (999) code to prevent a Critical level fallout, the user must ensure the data satisfies the quality and accuracy level that particular QC check requires to prevent a fallout.

Subchecks and Exception Codes

Individual QC checks may be made of multiple smaller checks that are completed and require an exception code to create a fallout for specific information—we refer to these checks as subchecks. When an exception code is used for a subcheck, the feature it is used on is excluded from creating a fallout for that specific subcheck.

In order for exception codes on subchecks to work, the same prerequisites as exception codes for regular QC checks must be met and are detailed below. See **"List of Exception Codes" on the next page**, for specific subcheck QC check information.

- The data target exception code field is populated by the administrator.
- The layer and field that contains the exception codes in your source data has been properly mapped.
- The correct exception code is applied within the source feature's exception code field.

  If multiple exception codes are used, whether subcheck related or not, separate these codes within the exception code field with a comma.
- As with regular exception codes, only Warning level QC checks are compatible with subcheck exception codes. QC checks classified as Critical severity are not honored with subcheck exception codes.

List of Exception Codes

The following is a list of active exception codes, including subcheck exception codes, for the associated Quality Control (QC) check. Click the quality control check name in the list to view a description of the check. For information on turning on exception codes and subcheck exception codes, see **"Exception Code Basics" on page 235**.

Global Exclusion (999 Exception)

The 999 exception code is unique as it removes the feature from your uploaded data upon ingest. See **"999 Exception Code" on page 252** for additional details.

Attribute QC Checks

Quality Control Check	Exception Code
"Acceptable Values" on page 153	101
"Address Range Overlaps" on page 154	103
"Duplicate Values" on page 156	112 *The 402 exception code is no longer supported. Duplicate attribution on address points used for Next Generation purposes is not recommended. If an exception code is absolutely required, use exception code 112 for this QC check.*
"Exception Code Formatting" on page 158	006
"Field Comparison" on page 160	302
"Line to Polygon Attribute Compare" on page 163	113
"Null Value in Field" on page 167	100
"Point to Polygon Attribute Compare" on	308

Quality Control Check	Exception Code
page 169	
"Unacceptable Values" on page 172	307

Table 1. *Attribute quality control checks and exception codes*

Geometry QC Checks

Quality Control Check	Exception Code
"Complex Geometry" on page 175	004
"Empty Geometry" on page 177	005
"Features Not Split at Polygon " on page 178	201
"Features Outside of Polygon" on page 181	603
"Multipart Geometry" on page 183	003
"Polygon - Multi-Layer Gap" on page 185	602
"Polygon - Multi-Layer Overhang" on page 188	604
"Polygon - Single Layer Gap" on page 191	600
"Polygon - Single Layer Overlap" on page 193	601
"Segment Snapped to Adjacent Segment - Same Layer" on page 195	200

Table 2. *Geometry quality control checks and exception codes*

Ingest Validation

Quality Control Check	Exception Code
"Roads Need Zero Ranges" on page 197	701 and 702

Table 3. *Ingest Validation quality control checks and exception codes*

Synchronization QC Checks

The information below provides additional details for using exception codes with Synchronization QC checks.

- Exception codes used in Synchronization QC checks should always be applied to the main layer or table being inspected.

  For example, to exclude a feature from SSAP to Road Centerline (RCL) Synchronization check, apply the exception code to the address point, not the road centerline. For Automatic Location Identification (ALI) to RCL Synchronization checks, apply the exception code to the ALI record, not the road centerline. Placing an exception code on the referencing layer will not have any negative consequences, but will not create the preferred behavior.

Quality Control Check	Exception Code
"ALI to RCL Synchronization" on page 201	851
"ALI to SSAP Synchronization" on page 206	801
"MSAG to RCL Synchronization" on page 211	901
"SSAP to MSAG Synchronization" on page 219	306
"SSAP to RCL Synchronization" on page 224	401

Table 4. *Synchronization quality control checks and exception codes*

Synchronization QC Checks - Subchecks and Exception Codes

Exception codes used in Synchronization QC checks should always be applied to the main layer or table being inspected.

For example, to exclude a feature from the Site/Structure Address Point (SSAP) to RCL Synchronization check, apply the exception code to the address point, not the road centerline. For ALI to RCL Synchronization checks, apply the exception code to the ALI record, not the road centerline. Placing an exception code on the referencing layer will not have any negative consequences, but will not create the preferred behavior.

The synchronization QC checks run a series of subchecks and prioritizes higher-impact data issues. This approach flags the most critical problems first and provides clear, actionable feedback to help you to quickly clean up your data.

ALI to RCL Synchronization Subchecks

The ALI to RCL Synchronization QC subchecks are completed in the following order.

Order	Subcheck Description	Exception Code
1.	**Address number is missing or invalid**. This subcheck searches for a valid ALI address number.	852
2.	**Address number fully matches multiple road segments**. This subcheck searches for an ALI address number that fully matches multiple road segments—the address number, street full name, community, and ESN are an exact match.	862
3.	**Address can be placed on both the left and right side of the corresponding road segment**. This subcheck searches for an ALI address number that fully matches both the left and right side of the same roadcenterline—the address number, street full name, community, and ESN are an exact match.	861
4.	**No matching full street name found between the ALI record**	853

Order	Subcheck Description	Exception Code
	and the road segment. This subcheck identifies when no street full name match is found.	
5.	**Address only corresponds to road segment with zero or missing ranges**. This subcheck identifies when a street full name match is found, but only to roads with zero, empty string, or null range values.	854
6.	**Address number is lower than all corresponding road ranges**. This subcheck identifies when a street full name match is found, but only to roads with address range values larger than the ALI's address number.	855
7.	**Address number is higher than all corresponding road ranges**. This subcheck identifies when a street full name match is found, but only to roads with address range values smaller than the ALI's address number.	856
8.	**Address number parity does not match the corresponding road segments**. This subcheck identifies when a street full name match is found, and the ALI address number is within the road's ranges, but only to road records with the incorrect parity values.	863
9.	**Address only corresponds to a road segment with a different ESN, but matching community**. This subcheck identifies when an ALI record's ESN value does not match the corresponding road segment.	860
10.	**Address only corresponds to a road segment with a different community, but matching ESN**. This subcheck identifies when a	859

Order	Subcheck Description	Exception Code
	Street Full Name, Address Number, Parity, and ESN match is found, but only to records with mismatching Community values.	
11.	**Address only corresponds to a road segment with a different community and ESN**. This subcheck identifies when an ALI record's ESN and community values do not match the road corresponding segment.	858
12.	**Address AdNumPre value does not match the road segment**. This subcheck identifies when an ALI's address number prefix value does not match the road segment.	None
13.	**Address number falls in a gap within the corresponding road ranges**. This subcheck identifies when a street full name match is found, but the address number does not match any of the ranges; instead, it lies in a gap between the road's lowest and highest range. Example: For the same street full name, the ALI address number is 2000. The lowest road ranges are 11 - 17 and 12 - 16. The highest road ranges are 3900 - 3998 and 3901 - 3999. There is no road with ranges that cover the ALI address number 2000, so that record falls in a gap.	857

***Table 5**. ALI to RCL quality control subchecks and exception codes.*

ALI to SSAP Synchronization Subchecks

The ALI to SSAP Synchronization QC subchecks are completed in the following order.

Order	Subcheck Description	Exception Code
1.	**Address number is missing or invalid**. This subcheck searches for a valid ALI address number.	None
2.	**No matching full street name found between the ALI record and the SSAP layer**. This subcheck identifies when no street full name match is found.	None
3.	**Address number from ALI record does not match any address point**. This subcheck identifies when the ALI address number does not match any address point.	None
4.	**Address only corresponds to an address point with a different ESN, but matching community**. This subcheck identifies when an ALI record's ESN value does not match the corresponding address.	None
5.	**Address only corresponds to an address point with a different community, but matching ESN**. This subcheck identifies when an address point and ESN match is found, but only to records with mis-matching Community values.	None
6.	**Address only corresponds to an address point with a different community and ESN**. This subcheck identifies when an ALI record's ESN and community values do not match the address point.	None
7.	**Address AdNumPre value does not match the address point**. This subcheck identifies when an ALI's address number prefix value does not match the address point.	None
8.	**Address AdNumSuf value does not match the address point**.	None

Order	Subcheck Description	Exception Code
	This subcheck identifies when an ALI's address number suffix value does not match the address point.	
9.	**Address additional location value does not match the address point**. This subcheck identifies when an ALI's additional location value does not match the address point.	None

***Table 6**. ALI to SSAP quality control subchecks and exception codes.*

SSAP to MSAG Synchronization Subchecks

The SSAP to MSAG Synchronization QC subchecks are completed in the following order.

Order	Subcheck Description	Exception Code
1.	**Address number is missing or invalid**. This subcheck searches for a valid address number.	None
2.	**Address number fully matches multiple MSAG records**. This subcheck searches for an address number that fully matches multiple MSAG records.—the address number, street full name, community, and ESN are an exact match.	None
3.	**No matching full street name found between the address point and the MSAG record**. This subcheck identifies when no full street name match is found.	None
4.	**Address only corresponds to MSAG records with zero or missing ranges**. This subcheck identifies when a street full name match is found, but only to MSAG records with zero, empty string, or null	None

Order	Subcheck Description	Exception Code
	range values.	
5.	**Address number is lower than all corresponding MSAG ranges**. This subcheck identifies when a street full name match is found, but only to MSAGs with address range values larger than the SSAP's address number.	None
6.	**Address number is higher than all corresponding MSAG ranges**. This subcheck identifies when a street full name match is found, but only to MSAGs with address range values smaller than the SSAP's address number.	None
7.	**Address number parity does not match the corresponding MSAG records**. This subcheck identifies when a street full name match is found, and the SSAP address number is within the MSAG's ranges, but only to MSAG records with the incorrect parity values.	None
8,	**Address only corresponds to an MSAG record with a different ESN, but matching community**. This subcheck identifies when an SSAP record's ESN value does not match the corresponding MSAG record.	None
9.	**Address only corresponds to an MSAG record with a different community, but matching ESN**. This subcheck identifies when an SSAP record's community value does not match the corresponding MSAG record.	None
10.	**Address only corresponds to an MSAG record with a different community and ESN**. This subcheck identifies when an SSAP record's ESN and community values do not match the	None

Order	Subcheck Description	Exception Code
	corresponding MSAG record.	
11.	**SSAP records AdNumPre value does not match the MSAG record**. This subcheck identifies when an SSAP's address number prefix value does not match the MSAG record.	None
12.	**Address number falls in a gap within the corresponding road ranges**. This subcheck identifies when a street full name match is found but the address number does not match any of the ranges; instead, it lies in a gap between the road's lowest and highest range.	None

***Table 7**. SSAP to MSAG quality control subchecks and exception codes.*

SSAP to RCL Synchronization Subchecks

The SSAP to RCL Synchronization QC subchecks are completed in the following order.

Order	Subcheck Description	Exception Code
1.	**Address number is missing (null) or invalid**. This subcheck searches for a valid address number.	403
2.	**Address number fully matches multiple road segments**. This subcheck searches for an address number that fully matches multiple road segments—the address number, street full name, community, and ESN are an exact match.	413
3.	**Address can be placed on both the left and right side of the corresponding road segment**. This subcheck searches for an SSAP	412

Order	Subcheck Description	Exception Code
	record's number that matches both the left and right side ranges of the corresponding roadcenterline—the address number, street full name, community, and ESN are an exact match.	
4.	**No matching full street name found between the address point and the road segment**. This subcheck identifies when no full street name match is found.	404
5.	**Address only corresponds to road segments with zero or missing ranges**. This subcheck identifies when a street full name match is found, but only to roads with zero, empty string, or null range values.	405
6.	**Address number is lower than all corresponding road ranges**. This subcheck identifies when a street full name match is found, but only to roads with address range values larger than the SSAP's address number.	406
7.	**Address number is higher than all corresponding road ranges**. This subcheck identifies when a street full name match is found, but only to roads with address range values smaller than the SSAP's address number.	407
8.	**Address number parity does not match the corresponding road segments**. This subcheck identifies when a street full name match is found, and the SSAP address number is within the road's ranges, but only to road records with the incorrect parity values.	414
9,	**Address only corresponds to a road segment with a different ESN, but matching community**. This subcheck identifies when an	411

Order	Subcheck Description	Exception Code
	SSAP record's ESN value does not match the corresponding road segment.	
10.	**Address only corresponds to a road segment with a different community, but matching ESN**. This subcheck identifies when an SSAP record's community value does not match the corresponding road segment.	410
11.	**Address only corresponds to a road segment with a different community and ESN**. This subcheck identifies when an SSAP record's ESN and community values do not match the road corresponding segment.	409
12.	**Address point's AdNumPre value does not match the road segment**. This subcheck identifies when an SSAP's address number prefix value does not match the road segment.	None
13.	**Address number falls in a gap within the corresponding road ranges**. This subcheck identifies when a street full name match is found but the address number does not match any of the ranges; instead, it lies in a gap between the road's lowest and highest range.	408
14.	**Unable to determine road segment's left and right side**. This subcheck looks for addresses that cannot clearly be tied to one side of the corresponding road segment.	416
15.	**Address falls on the wrong side of the road based on the road ranges**. This subcheck looks for addresses that fall on the wrong side of the road based on its road ranges.	415

Order	Subcheck Description	Exception Code
16.	**Address number falls on the wrong block based on the road ranges**. This subcheck looks for an address number that falls on the wrong block based on its road ranges.	417

***Table 8**. SSAP to RCL quality control subchecks and exception codes.*

999 Exception Code

The Global Exclusion code, also referred to as the 999 exception code, allows GIS Data Hub to completely ignore any features or records with this code upon ingest.

As a result, that means features and/or records assigned this code are:

1. **Not** quality controlled.
2. **Not** included in any GIS Data Hub exports.
3. **Not** provisioned to any SI or ECRF process.
4. **Are** ignored during the ingest process.

> **Note:** If a Global Exclusion (999) exception code is applied to a feature, then that feature is omitted from all quality control (QC) checks, except for the Exception Code Formatting QC check, and will therefore not yield any QC check fallouts other than Exception Code Formatting fallouts.

999 Exception Codes and Single Source Layer into Multiple Target Layers

GIS Data Hub allows users to map one layer from the source data into multiple layers in the data target.

For example, if an agency's Exchange layer included both exchange and tandem information, the user could layer and field map that singular source Exchange layer into a Tandem layer and an Exchange layer in the data target, creating two layers from the original singular source layer.

When this functionality is used, the Global Exception (999) code is applied in an on/off manner. If any of these layers contain a 999 code and exception codes are configured for a single layer in the data target, then those 999 features are removed from all resulting layers in the data target, even if their exception code field in the Layer and Field Mapping page was not field mapped.

How does this work? If a user wants to apply exception codes to one of these data target layers, but not the other(s), the user can accomplish this by uploading a copy of the selected source layer for each of the data target layers they would like to create from it.

Using the example above, users would complete the following.

1. Submit their Exchange layer in their source data.
2. Submit a copy of the Exchange layer to be layer and field mapped into their Tandem layer.

   The copy can be named whatever the user chooses, so long as it complies with GIS Data Hub naming convention parameters.

With this done, users could then apply the Global Exclusion exception code of 999 to, for example, the Exchange layer, while not using the Global Exclusion exception code at all on the Tandem layer.

Legacy Exception Codes

The following is a list of legacy exception codes that are supported and compatible with the current version of GeoComm GIS Data Hub.

> **Note:** While the legacy exception codes are supported, the current exception codes should be used.

Attributes QC Checks

Quality Control Check	Legacy Exception Code(s)	Current Exception Code(s)
"Acceptable Values" on page 153	301 and 501	101
"Field Comparison" on page 160	102 and 105	302
"Null Value in Field" on page 167	300, 500, 800, or 900	100
"Point to Polygon Attribute Compare" on page 169	801	308

Table 1. *Attribute QC check compatible legacy quality control check exception codes*

Resources

See the following additional resources for more information.

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

Contact Us

GeoComm, Inc.
1100 W. St. Germain Street, Suite 300
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 Support Team

PDFs

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

- GeoComm GIS Data Hub User Guide

Index

B

C

D

E

F

G

M

N

P

Q

R

S

W