# Michigan Statewide NG911 GIS Repository User Documentation

Department of Technology Management & Budget

Center for Shared Solutions

February 21, 2024

## Revision History

| Version | Date | Author/Editor | Description | Change Summary |
|---|---|---|---|---|
| 1.0 | 7/13/2022 | Mark Holmes | Document creation | Essential Geometry Checks |
| 2.0 | 7/25/2022 | Timothy Lauxmann, Contributing authors Andrew Johnson & Mark Holmes | Document augmentation | Added Attribute Validation, Change Detection, Appendices |
| 3.0 | 2/21/2024 | Timothy Lauxmann | Revision | Updated for safety gates |
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## Contents

# Introduction

As a contributor to the NG911 GIS Repository, you will need to have a MiLogin account and request access to the Michigan Geographic Framework Data Gateway. Instructions for this process are provided in Appendix 1. Once you are granted access, an NG911 administrator will create your profile.

After your profile is set up, you will log into Michigan Geographic Framework Data Gateway via MiLogin to contribute your data to the NG911 GIS Repository. This guide is designed to take you through the steps required to prepare your centerline and address point data contributions into the repository.

# How to Use this Guide

The guide is divided into three (3) sections that include:

1. Essential Geometry Validations

2. Attribute Validation

3. Change Detection

Each section presents detailed steps that will walk you through the process of preparing your data for contribution. Complete each section in the order presented in this guide. All sections must be completed for your data to upload successfully.

If you have questions or run into problems, consult the frequently asked questions in Appendix 2 or contact the NG911 GIS Helpdesk at DTMB-NG911GIS@michigan.gov.

# Essential Geometry Validations

## Starting a Submission – Essential Geometry Validations

To begin a submission, go to **My Assignments** (see Figure 1 below) and select **Essential Geometry Checks**. Shapefiles and geodatabases (FGDB) are both acceptable; however, **note that there are separate tiles for FGDB and shapefile.** Regardless of which you choose though, the submission must be zipped (.zip file) to upload. For this example, we submit a shapefile. Also not that for geometry validations the **feature class does not matter**. Both address points and road centerlines can be submitted using the same tile.
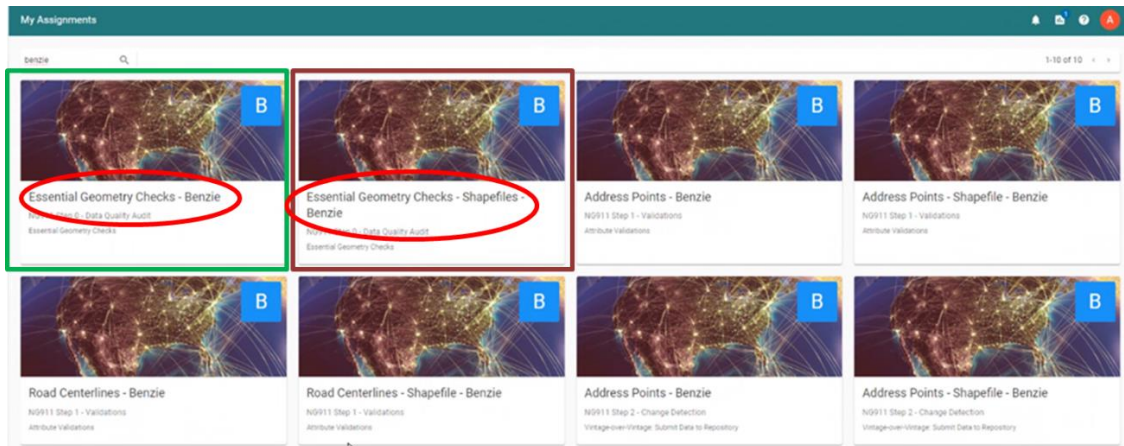


*Figure 1 - Choosing Essential Geometry Checks*

Once the submission type is selected, the **Submissions** page opens for that specific assignment (Figure 2). The start page may either be empty or populated, depending on whether you previously submitted data. If there were previous submissions, the table shows the creation date, the number of uploaded and output files, and the state of the submission (i.e. completed, paused, or stopped). The outcome of the submission is shown as either a green check denoting successful completion, a red exclamation point for completion with errors, or an orange X for a cancelled submission. You can also view and download the submission results.
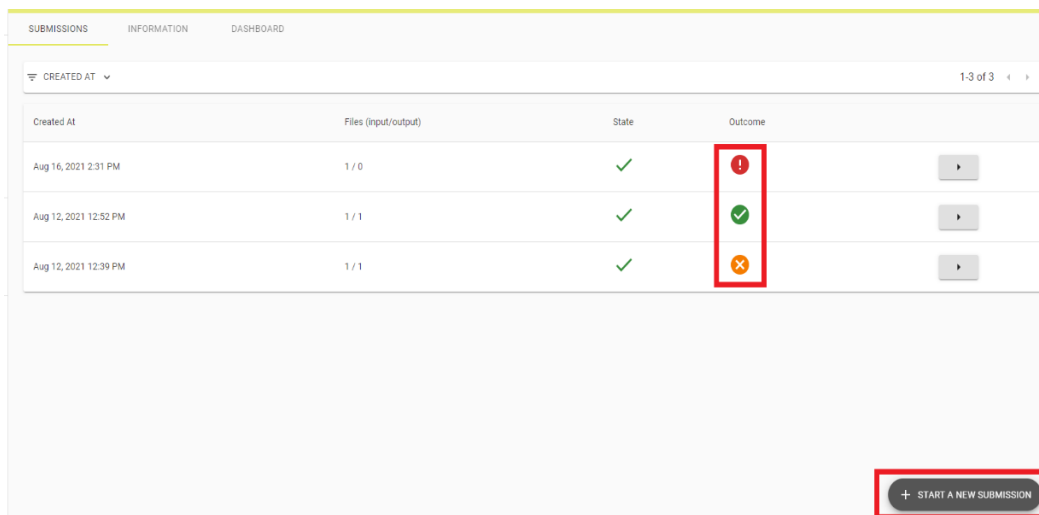


*Figure 2 - Starting a new submission*

To start a new submission, select the *+ Start a New Submission* button in the bottom right-hand corner of the Submissions page as shown in Figure 2.

Starting a new submission will take you to the **My Assignments** screen (Figure 3), where you either drag and drop your file into the upload box or click the box to browse to your submission. This screen also allows you to see the steps involved in the geometry checks process:
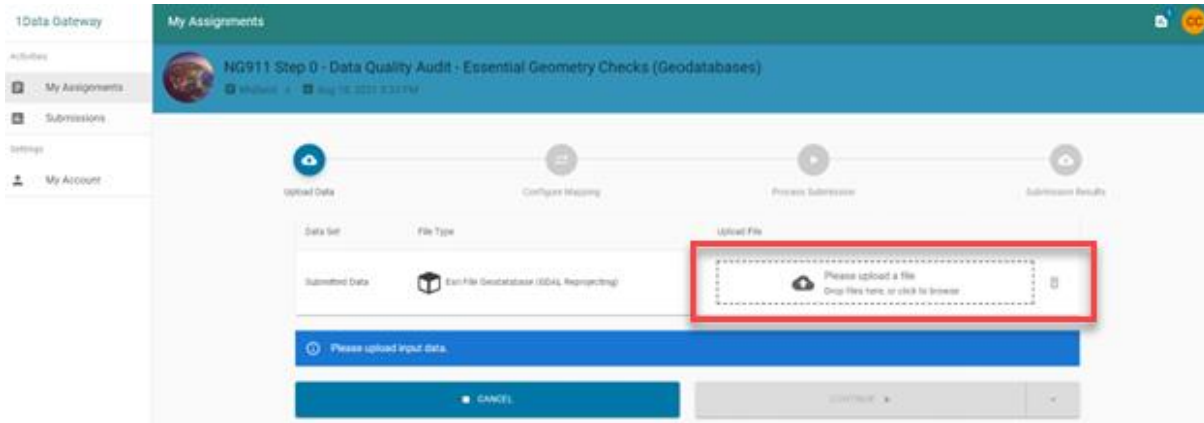


*Figure 3 - Uploading data in My Assignments*

After the upload completes, click *Continue* to move to **Schema Mapping** (Figure 4). The **Source Class** drop-down menu lists the dataset you submitted. The **Target Class** drop-down on the right allows you to select which class you will be mapping to. For this example, we will select **Feature**.
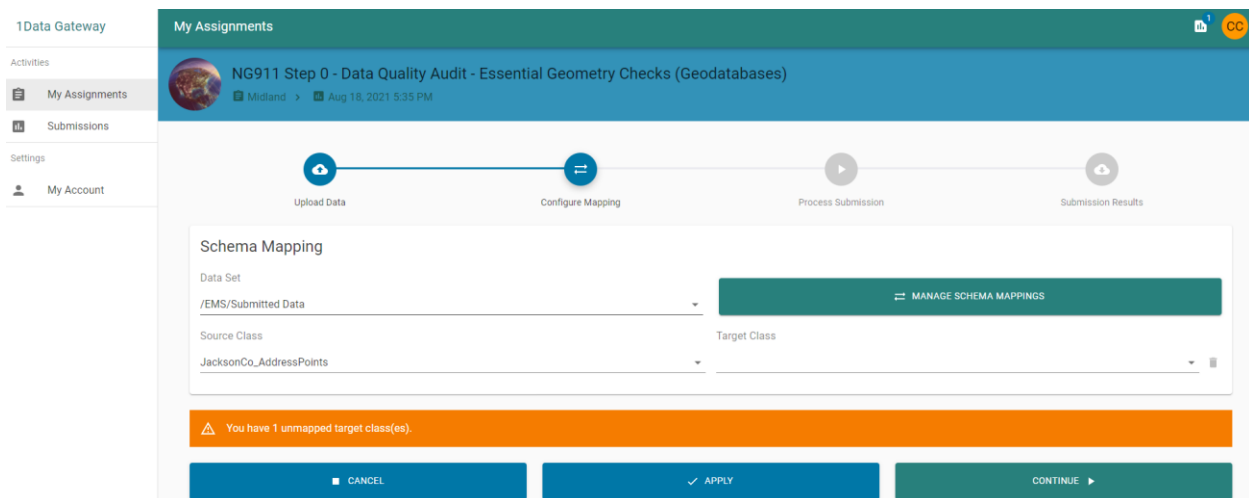


*Figure 4 - Schema mapping stage*

For the geometry checks, the only **Target Attributes** you must map are the **Unique ID** and the **geometry** (which is generally selected automatically since it is a one-to-one comparison). The Unique ID field can either be that field or any unique id field for a feature. In this case, the **Agency_ID** from the right-hand drop-down menu is matched to the **JOINID** attribute from the data submission (Figure 5). If you mismatch a feature in the drop down, just hit the trash can button on the right-hand of the target class attribute in question and make a different selection.

*Figure 5 - Schema mapping*

Once the Target Classes are set you can click the **Manage Schema Mappings** button at the top of the page. In the Manage Schema Mappings dialog, you can save the attribute mappings for the classes under any name (Figure 6).  ***Note: To use these mappings, you must select Apply next to the Saved Mapping options.***
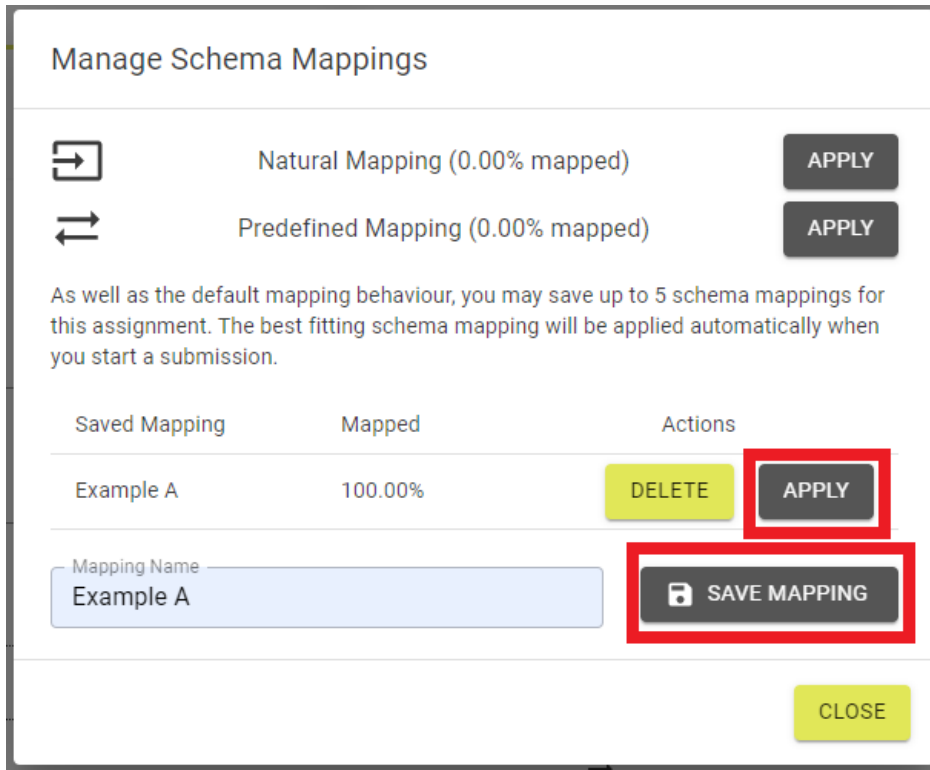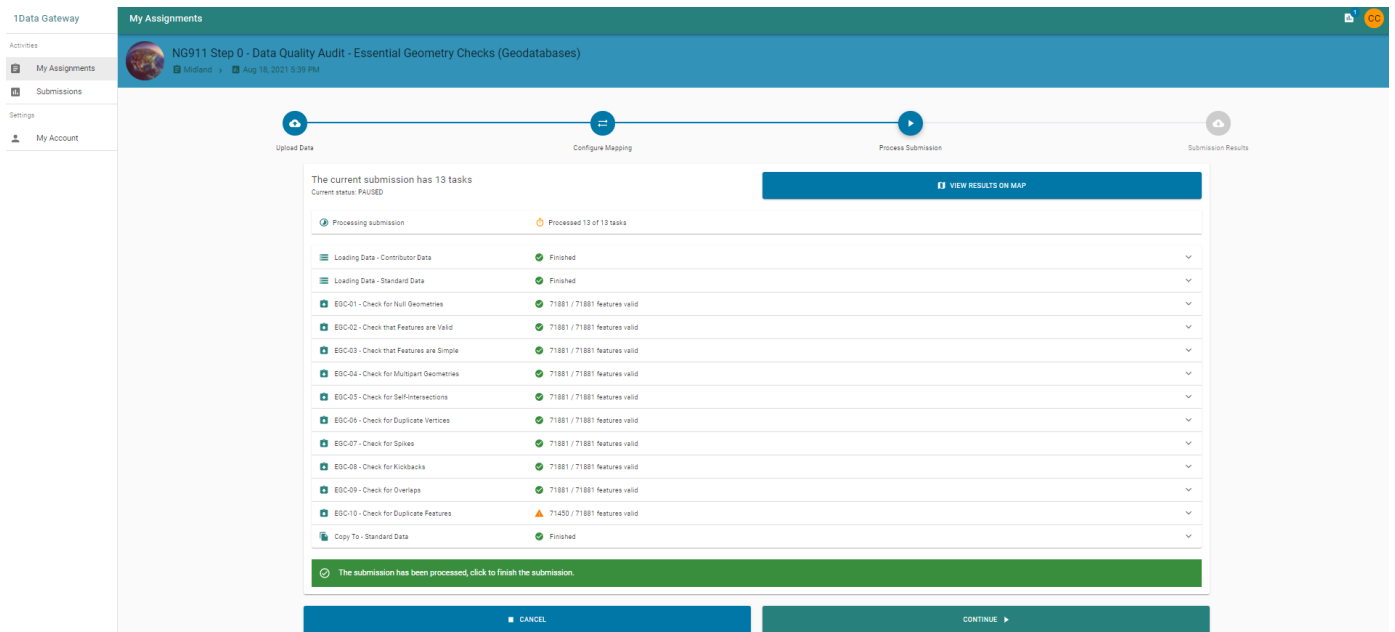
*Figure 6 - Managing the schema mapping*



*Figure 7 - Data Quality Audit*

Once you complete the Schema Mapping selections, click **Continue** to proceed to the next step, **Process Submission (**Figure 8). In this step, you can view any items that were flagged during the geometry check.

There is the option to View Results on Map.  Select View Map to review the flagged items. Click on a point to see the pertinent details.

***Note: If you want to look at the results on the map before downloading the output, then you must do it at this stage.***

Navigate in the **Map Viewer** by using your mouse to drag across the map. Figure 8 highlights the Map Viewer tools. In selection A at the top of the viewer, there are buttons to **zoom in/out** and **view the recently selected item**. The bottom of that section provides an overview map of the features. In selection B, the user can either use the top drop down or the **Prev Task** and **Next Task** buttons to view map data at different points in the submission process logic. Selection C is an interactive viewer that allows you to select **Layers** by toggling them on and off. The **Feature** allows you to select features and display their details. In the figure below, a flagged item is selected and highlighted in yellow. The details and the attributes of that item are displayed in section D. The **Report** option in section C displays any errors present.
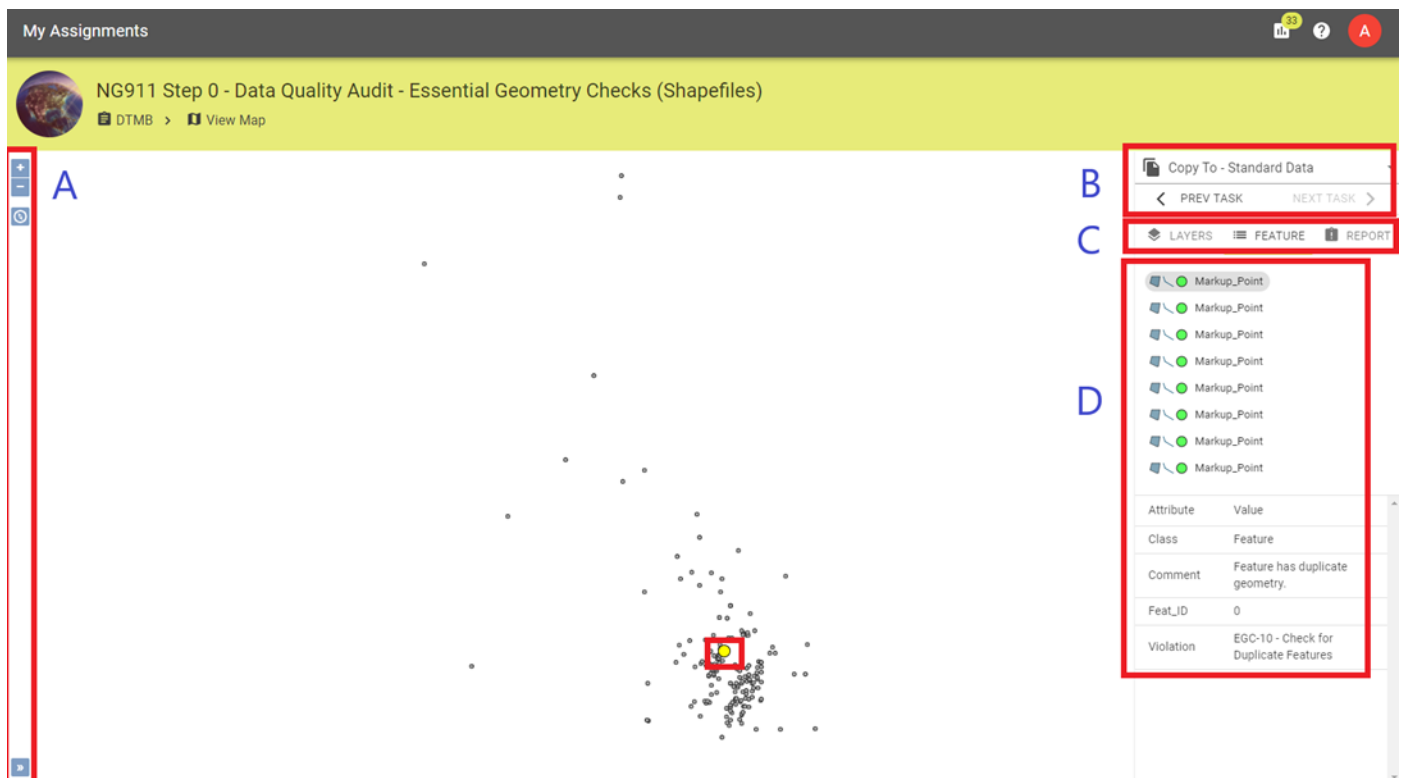


*Figure 8 - Data Quality Audit report*

The final stage of the submission process allows you to review the results from the previous stage and download the output markup file. Additionally, you can also download various reports and logs that give the details of the submission.
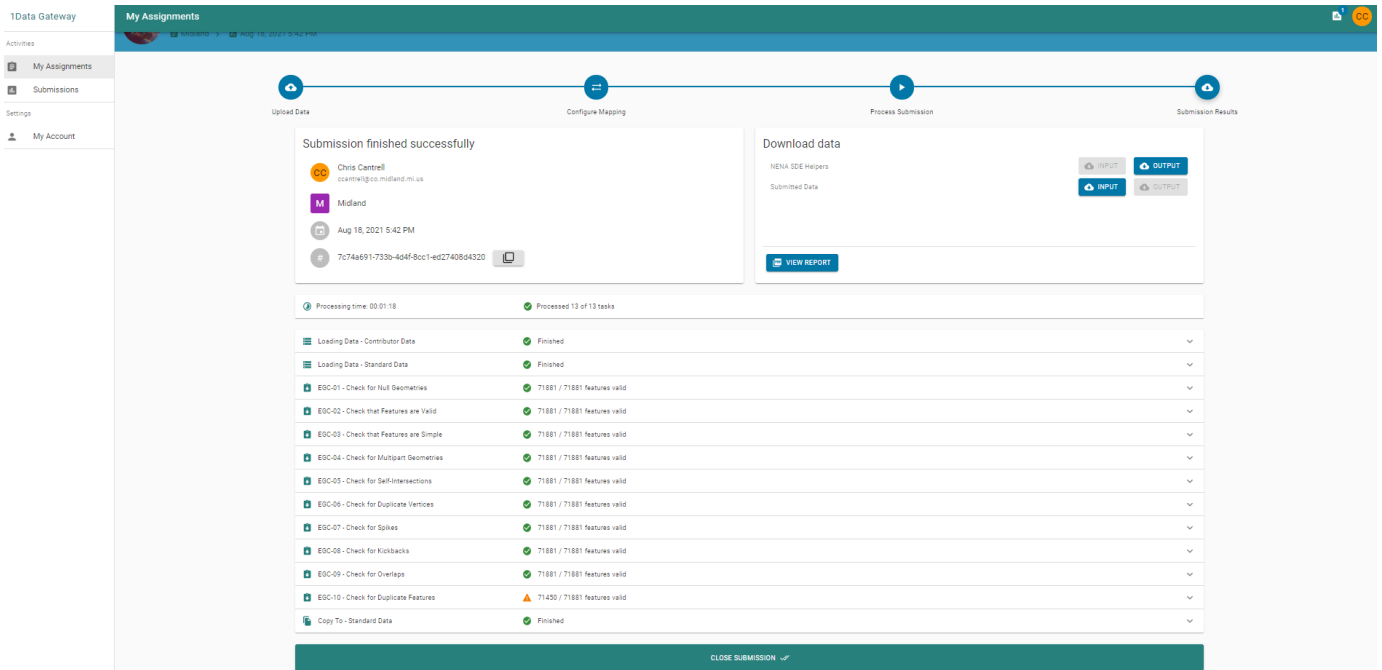
*Figure 9 - Essential geometry checks reports*

Markup data is populated with non-conformance information and available by selecting Output in the Download Data section. These outputted feature classes will show you what geometry checks were flagged, where they are, and provides you the opportunity to view the report or edit the changes before rerunning the data or moving forward. Markup types are dependent on the feature submitted and the geometry rule that they fail under. A markup will be an area, line, point, or table, generally. The Markup Summary provides a table summary of the number of markups by type and feature. So, if there is an address point that is invalid, a corresponding markup point will be created in that location with fields providing relevant information as to why it failed, which include class, comments, violations invoked, and geometry details. Markup classes are essential for determining the problem with the submitted data and either address it before continuing or note it for future updates. Rerun Essential Geometry Checks as often as necessary to address error before moving to the submission step.

Additionally, valid values are a series of class tables prepopulated to check that submitted attributes are valid. The tables contain lists of all valid US states, counties, and world countries so the NENA fields for State/County/Country can be check for validity. Any non-conformances will also be shown in the results, these are the result of submission features failing rules setup to test the data to required standards for NENA.

Any errors can be reviewed in the downloadable log files and can be reported back to DTMB personnel to review and address at DTMB-NG911GIS@michigan.gov. When providing error reports, questions, and/or concerns include all necessary submission logs and the session ID number for reference.

# Attribute Validation

## Meeting NENA Requirements

There is a NENA 911 Attribute Validations Project for each feature. These will help satisfy the NENA requirements by looking at the Conditional, Mandatory, and Optional attributes found in the available documentation. The standard submission will be reprojected into the proper format, so that the output coordinate system is standardized for comparison with each other post analysis. In the example below, we are running Attribute Validation on and address point dataset.

Note that unlike with the geometry checks, attribute validation is feature class sensitive. Figure 10 shows **separate tiles for address points and road centerlines**, as well as different tiles for the file type, FGDB or shapefile. Figure 11 shows the file submission page in My Assignments. After the submission, a report is generated listing all the attributes that violate the NENA standard attribute rules.
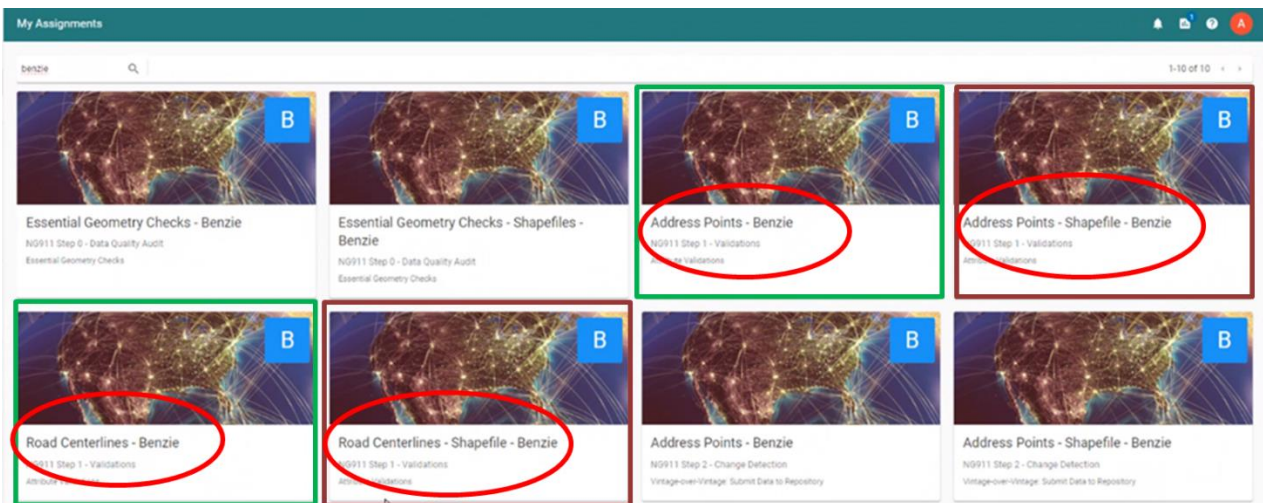


*Figure 10 - Separate tiles for address points and road centerlines and for FGDB and shapefile.*
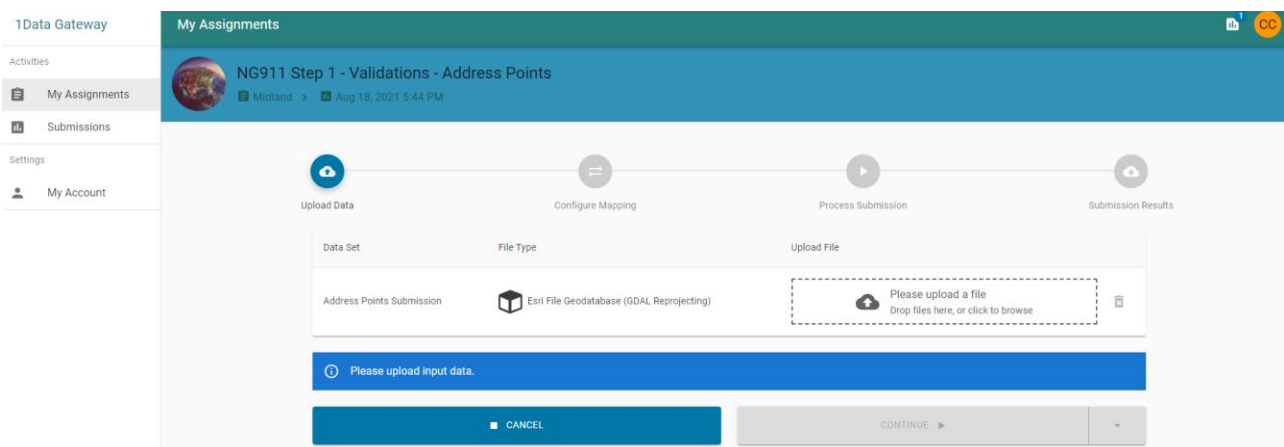


*Figure 11 - Attribute Validation file submission.*

After submitting the dataset, you move to **Schema Mapping**. The attribute mapping for each assignment requires that users understand what attributes are present within their submission and a basic understanding of what layers are conditional, optional, and most importantly, mandatory according to NENA CLDXF (Civic Location Data Exchange Format) standard. Figure 12 shows the mandatory fields for address points and road centerlines. Note that both CLDXF and legacy format fields are listed. Both formats are required in your submission. That said, if you have not moved to CLDXF, you can just submit legacy fields for the time being. Legacy fields must always be present even after you move to CLDXF. Conditional fields are also listed in Figure 12. These are fields that are not required but if present in your data must conform to a specific format. For complete descriptions of the mandatory and conditional fields listed here see, Safety Gate Specific Questions in Appendix 2: Frequently Asked Questions. (Safety Gates are discussed further in the following section on Change Detection.)

**Road Centerlines**
- Legacy Street Name
- Legacy Street Post Directional
- Legacy Street Pre Directional
- Legacy Street Type (Format & Values)
- CLDXF Street Name
- CLDXF Street Name Post Directional
- CLDXF Street Name Pre Directional
- CLDXF Street Name Type
- Date Updated
- Discrepancy Agency ID
- From Address Left & Right
- To Address Left & Right
- NENA GUID
- Within Michigan

**Site Address Points**
- Address Number
- Legacy Street Name
- Legacy Street Post Directional
- Legacy Street Pre Directional
- Legacy Street Type (Format & Values)
- CLDXF Street Name
- CLDXF Street Name Post Directional
- CLDXF Street Name Pre Directional
- CLDXF Street Name Type
- Valid County Name
- Date Updated
- Discrepancy Agency ID
- NENA GUID
- Valid State Abbreviation
- Within Michigan

**Conditional**
- Effective Date
- Expiration Date
- Postal Code
- Postal Code + 4

*Figure 12 - Mandatory and optional fields for road centerlines and address points.*

For schema mapping, you must properly match your schema, the source data, to the proper target class. To do this, in Schema Mapping on My Assignments, select your file, and click the dropdown circled in red in Figure 13.
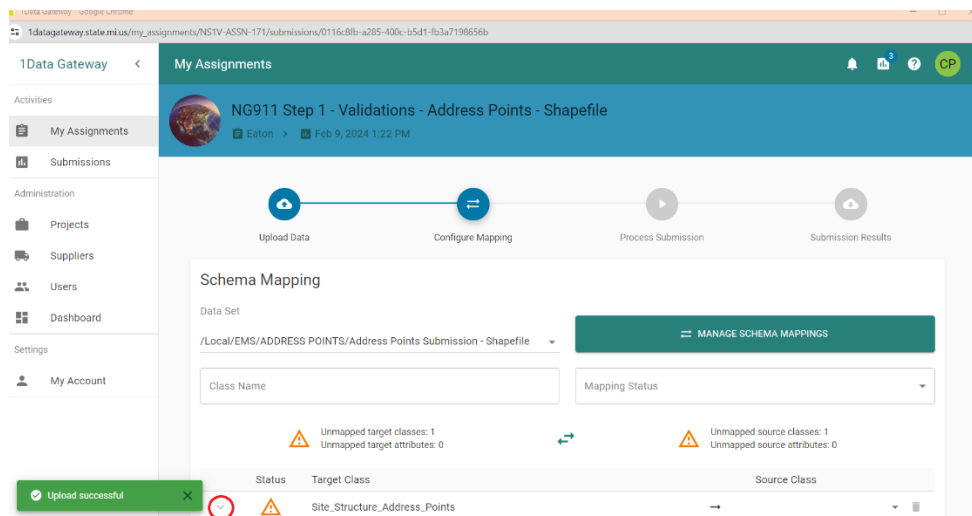


*Figure 13 - Schema Mapping dropdown.*

In the table that appears when you click the drop down, map the Source Attributes (your attributes) to the Target Attributes (Figure 14).
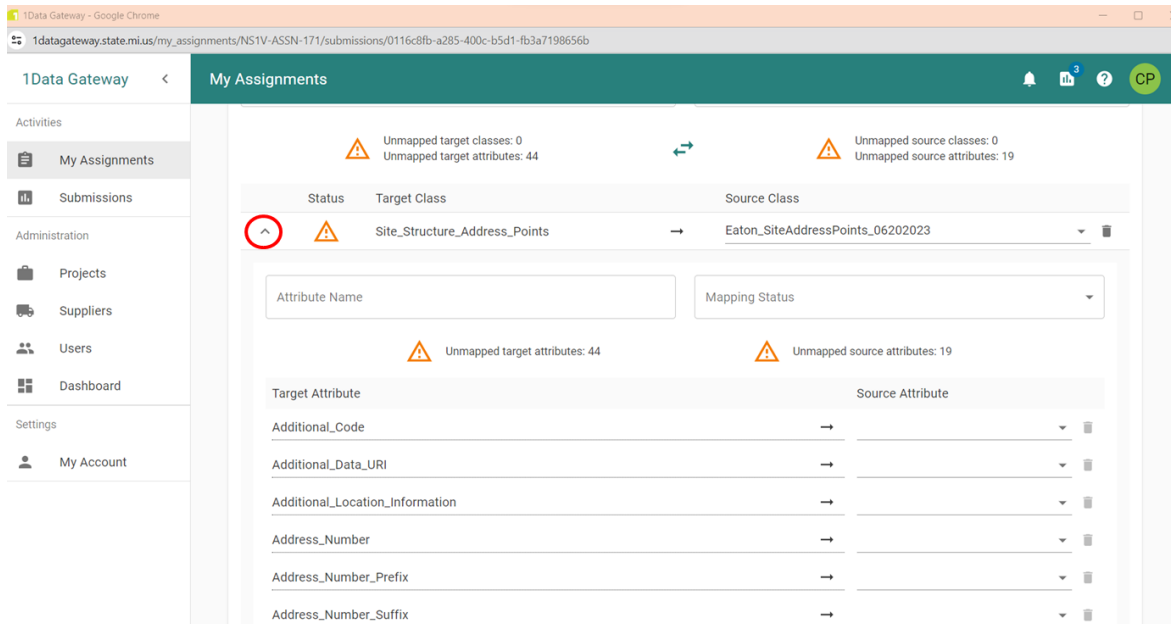


*Figure 14 – Mapping source attributes to target attributes.*

Mapping your attributes is very important, so proceed carefully. A few things to keep in mind are:

- **Mandatory fields** – Nulls are flagged as not valid. You need to have a value in the field.
- **Conditional and optional fields** – Nulls are not flagged as invalid, but empty fields are not acceptable.
- **DateUpdate field** – Check your date field prior to loading you data into Data Gateway and clean up the following sorts of errors:
  - Make sure each field has a date with at least mm/dd/yyyy (e.g. 12/12/2022) format.
  - If only time, the system will error out.
- **Unique IDs** – Make sure your unique id is truly unique and to not use the Object ID field for your unique id or any field like it that get recalculated as new records are added. Each record must stay unique between submissions and the Unique ID field should never be updated.
- Discrepancy Agency ID – Always include your Discrepancy Agency ID and that it matches the Discrepancy Agency ID you submitted when your profile was set up.

In 1DataGateway when you run Attribute Validation, a task that falls below a desired threshold of conformance (default is 100% conformance for mandatory fields and conditional fields included in your data) is highlighted in the submission results (Figure 15). You can expand the step with errors and begin an investigation of the flagged variables. Begin by looking at the Map Viewer to see what types of flagged attributes are being caught and noting problem features to determine if the flags are valid. Next, download the output markups and review the data.
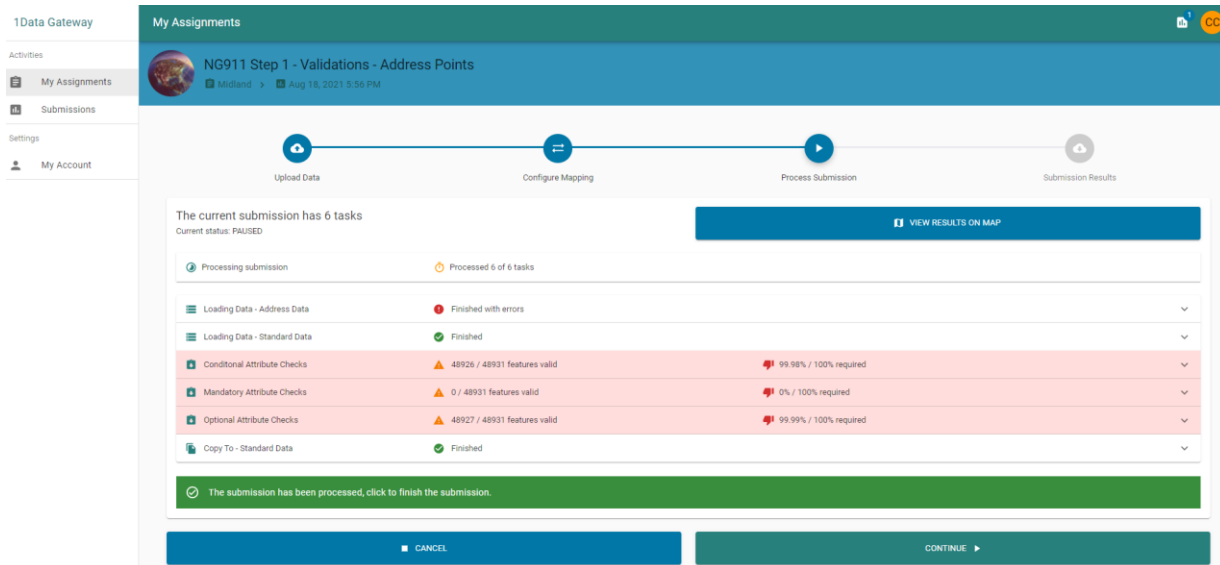
*Figure 15 - Address Point Validation process*

After the Attribute Validation completes, the Download Data section of the Submission Results allows you to download the NENA SDE Helpers Output (see Figure 16). Helpers are the markups from the analysis that show which results are valid and which need addressing. Rerun Attribute Validation as often as necessary to address error before moving to the submission step.

Individual contributors must submit standardized data that complies with NENA CLDXF standards and Attribute Validation will help with that process. In this example, the address data did not have a field for County, a NENA mandatory field, so the validation failed and flagged all features for review. Many such issues can potentially be handled by auto populating your data with County, Country, and State attribute fields prior to making a submission to 1DataGateway and running the Attribute Validation.
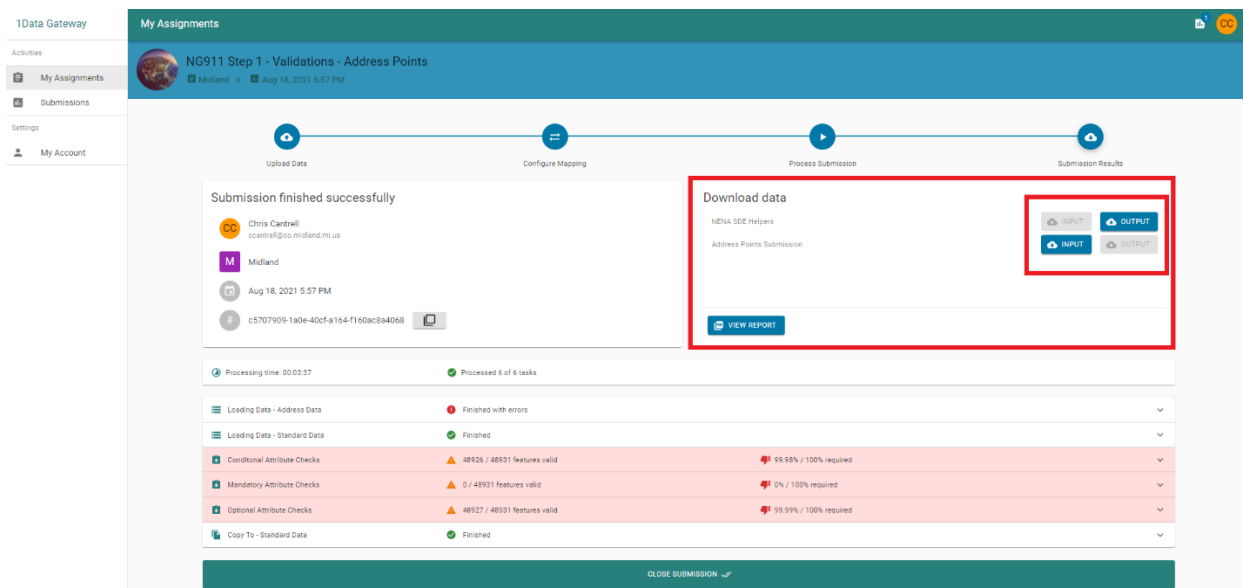


*Figure 16 - Address Point Validation results*

# Change Detection

## Determining Changes Since the Last Submission

Change Detection is the step in which your road centerline and site address point data is submitted into the NG911 GIS Repository. Essential Geometry Checks and Attribute Validation are in place to help you prepare your data for submission. These pre-load checks should be run as many times as necessary to ensure data quality before submission. If the problems identified during those checks are not addressed prior to reaching Change Detection and submitting your data, the Safety Gates in the submission step with stop the upload process and prevent you from submitting your data.

Safety Gates were installed in the Change Detection step in One Data Gateway in December 2023 to meet the need for clean and accurate road and address data for geo-routing, the process by which emergency calls are assigned to responders. Previously, we relied on Essential Geometry and Attribute Validation checks to ensure data quality. However, a number of data problems slipped through into the repository that ended up being time consuming and costly to fix. To address this problem, we decided to implement the best practices employed by other states to ensure the quality of their emergency services data and developed safety gate business rules to enforce NENA standards. Safety Gates are a simple but effective way to make sure data issues noted during the validation process are fixed before the data can be submitted.

Figure 17 shows the mandatory fields for address points and road centerlines where safety gates are in place. Safety Gates look to see the fields listed are filled in and that the entries meet established requirements to be valid. For instance, the Address Number field must have a number in it. No text is allowed. Conditional fields are fields that are not required but still have Safety Gates. In this case, the Safety Gate looks to see if the field contains an entry. If it does not, the gate remains open. If, on the other hand, it does contain an entry, the Safety Gate rules come into play and if the entry does not comply with establish standards, you will not be able to submit your data. For complete descriptions of the mandatory and conditional field safety gates see, Safety Gate Specific Questions in Appendix 2: Frequently Asked Questions.

**Road Centerlines**
- Legacy Street Name
- Legacy Street Post Directional
- Legacy Street Pre Directional
- Legacy Street Type (Format & Values)
- CLDXF Street Name
- CLDXF Street Name Post Directional
- CLDXF Street Name Pre Directional
- CLDXF Street Name Type
- Date Updated
- Discrepancy Agency ID
- From Address Left & Right
- To Address Left & Right
- NENA GUID
- Within Michigan

**Site Address Points**
- Address Number
- Legacy Street Name
- Legacy Street Post Directional
- Legacy Street Pre Directional
- Legacy Street Type (Format & Values)
- CLDXF Street Name
- CLDXF Street Name Post Directional
- CLDXF Street Name Pre Directional
- CLDXF Street Name Type
- Valid County Name
- Date Updated
- Discrepancy Agency ID
- NENA GUID
- Valid State Abbreviation
- Within Michigan

**Conditional**
- Effective Date
- Expiration Date
- Postal Code
- Postal Code + 4

*Figure 17 – Safety Gates for mandatory and optional fields for road centerlines and address points.*

As stated in Attribute Validation, note that both CLDXF and legacy format fields are listed in Figure 17. Both formats are required in your submission. If you have not moved to CLDXF, you can just submit legacy fields for the time being. However, legacy fields must always be present even after you move to CLDXF.

The first time a specific feature dataset is submitted to Change Detection through 1DataGateway for a given area, it is referred to as an initial load. Subsequent submissions of that same dataset to that area are called updates. Rather than replace the entire dataset with each upload, change detection is used to ensure only the data changes are applied.

During Change Detection, 1 Data Gateway compares previously submitted data (e.g. the initial load) to the current submission to determine how features have changed. This process looks for changes ranging from attribute updates to new or edited geospatial features and classifies the new submission data as matches, adds, deletes, or scalar (attribute) updates.

The process will determine which features submitted have an exact match in the base data as determined by spatial and scalar comparisons. The submission first runs through preprocessing, which differentiates duplicate objects from the update and the base, and then identifies perfect spatial matches. During processing, adds and deletes are identified, and in post processing, scalar updates are flagged. The process is tied to the Unique ID and Discrepancy Agency ID fields, which is why it is important that the entries in these fields do not change between submissions.

If there is spatial change detected in the submission, then the logic will apply it as an Add or Delete Proposal. Adds are new features and Deletes are features that existed in the base but have no current presence in the recent submission. It uses a similar process to make attribute changes.
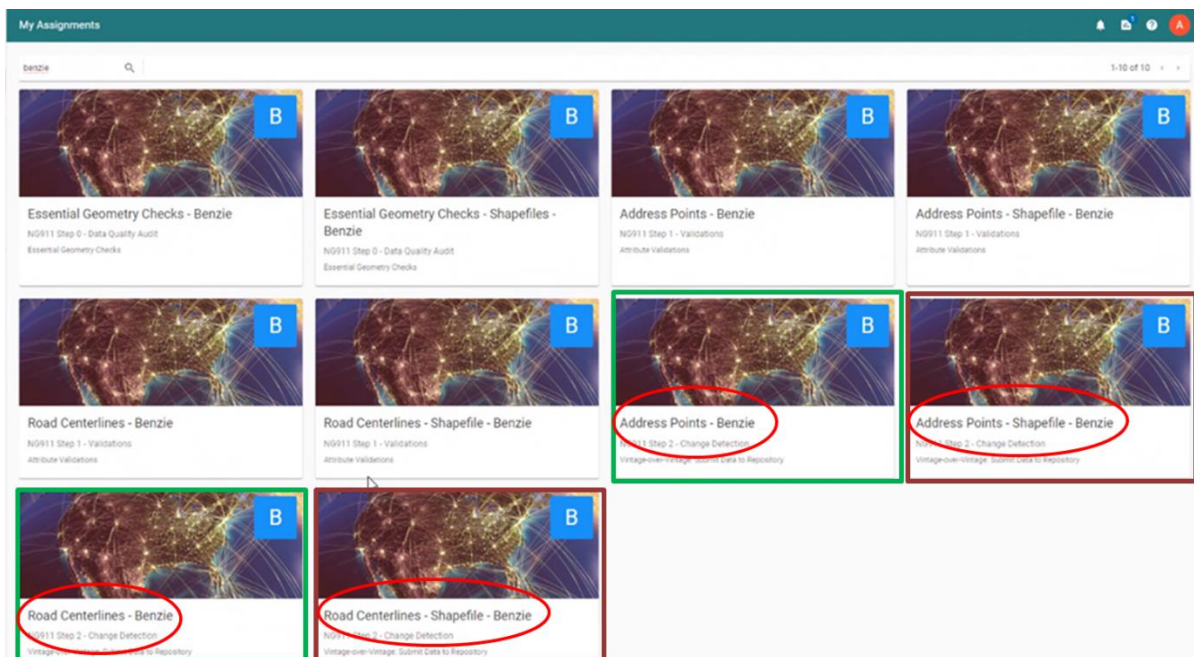


*Figure 18 - Change detection: separate tiles for address points and road centerlines and for FGDB and shapefile.*

Begin the Change Detection process began as before on **My Assignments**, as shown in Figure 18. As with Attribute Validation, submissions are feature class and file type sensitive, and you will find separate tiles for road centerlines and site address points and those differentiated by FGDB and shapefile.

As a reminder, remember that data must conform to NENA standards and have all the issues noted in Essential Geometry Check and Attribute Validation addressed in order to pass the Change Detection Safety Gates. Select the appropriate tile from My Assignments and upload (Figure 19).
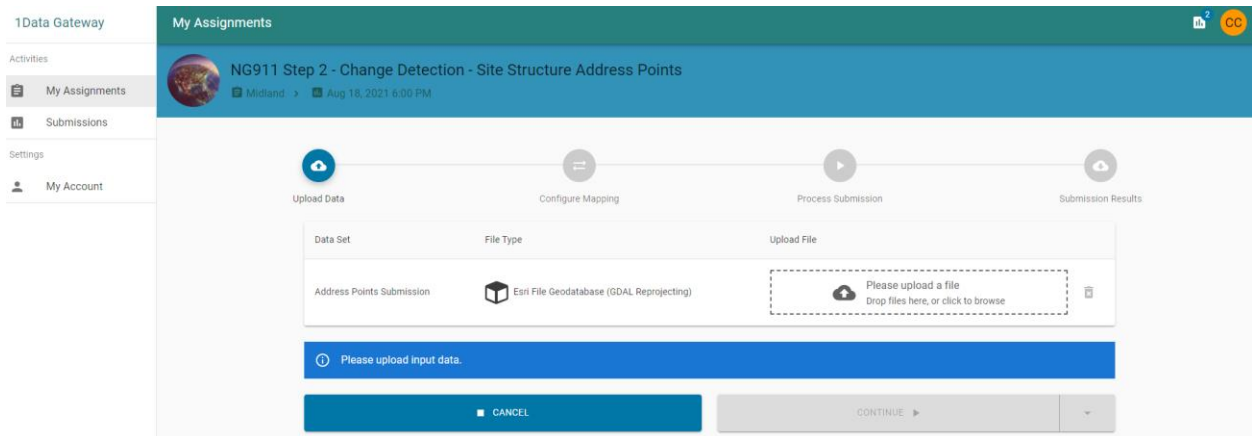


*Figure 19 - Change Detection upload.*

Once your file has uploaded, you will need to map the **Source Class** (your schema) to the **Target Class** as you did with Attribute Validation. The same care in mapping emphasized in the discussion of Attribute Validation should be applied to mapping in Change Detection.
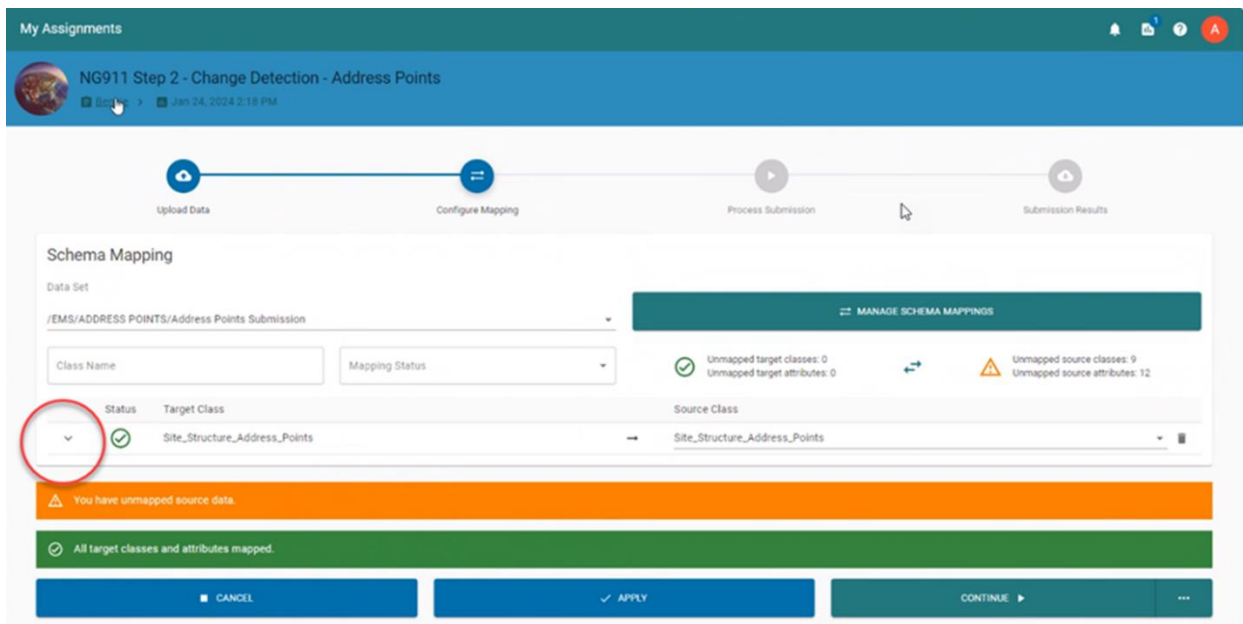


*Figure 20 - Schema Mapping dropdown.*

In **Schema Mapping**, click the carrot for the dropdown (Figure 20 above). Once you click the carrot, you will see the Schema Mapping table. In the table, Target Attribute is on the left and Source Attribute is on the right by default.
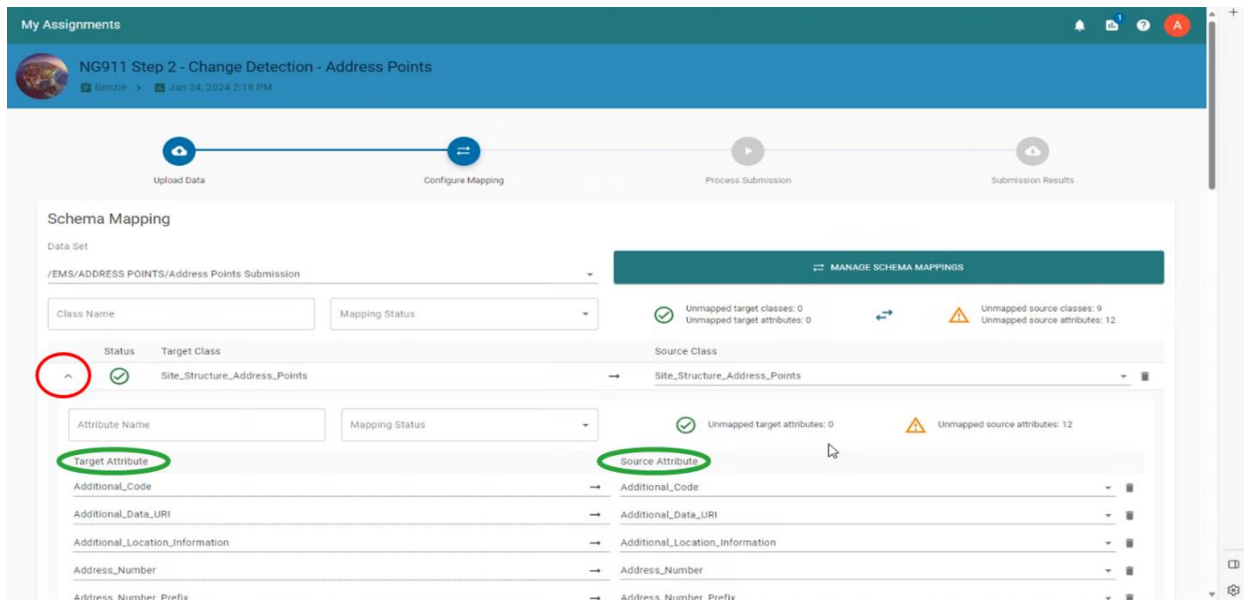


*Figure 21 - Schema Mapping Dropdown.*

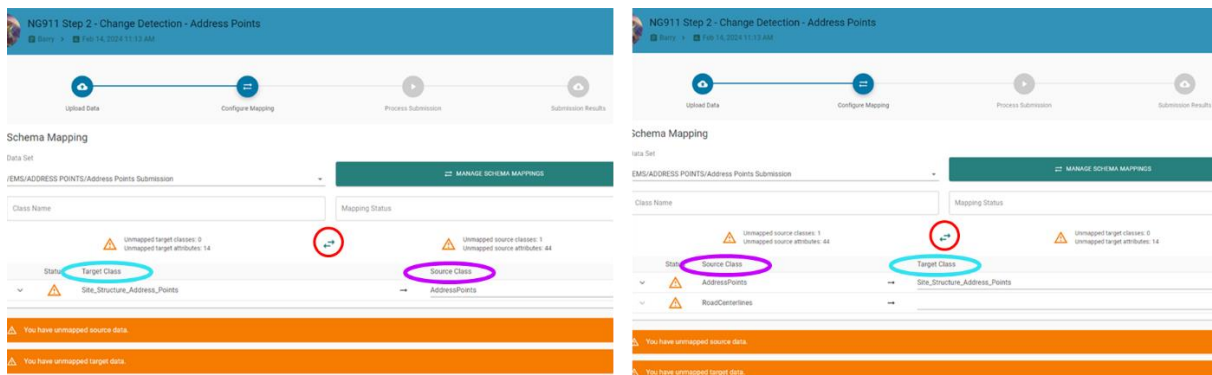You have the option to switch the attribute columns around if you wish, as shown in Figure 21.



*Figure 22 - Switching Target and Source Class.*

Once you have mapped your data, Change Detection will apply the Safety Gates, applying the business rules that will verify the quality of the data. There are the same sorts of checks that were applied during the pre-processing steps Essential Geometry Checks and Attribute Validation. The safety gates are in place to ensure that data issues found during those checks were addressed before allowing the data into the Repository.

Your data must validate at 100% for all of the Safety Gates (see Figure 17 for the complete list). If your data passes all of the Safety Gates you will see a summary of the process that looks like the example in Figure 23. Note that the Safety Gate Checks result shows that all features were validated at 100%.

Also note that there is a red circle around the **RESUME** button in the figure. The button is circled because at this point, while your data has been verified, it has not been submitted your data into the Repository. **Once you pass Safety Gates, you must hit RESUME in order to continue the Change Detection process and submit your data into the Repository.**
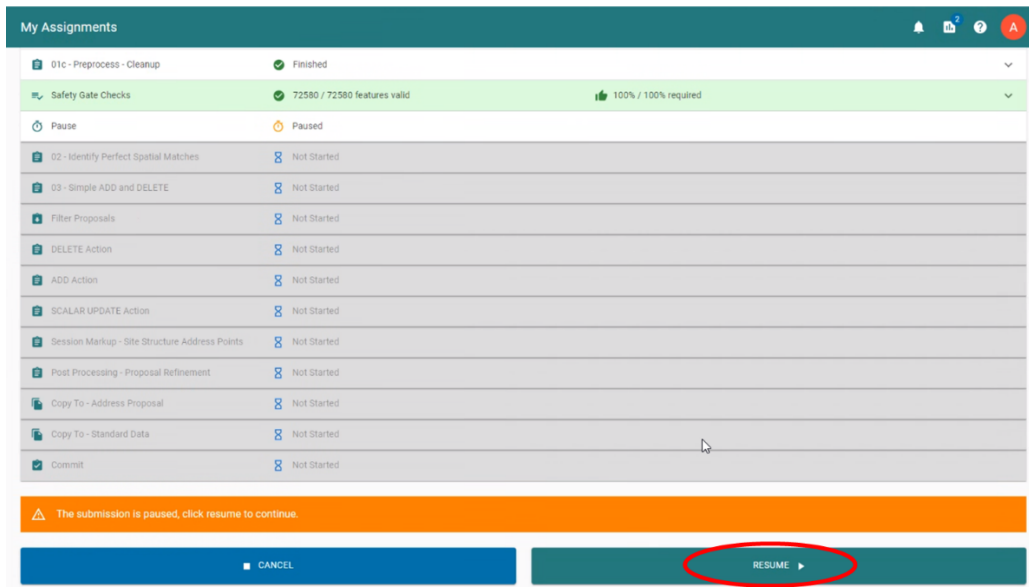


*Figure 23 - Safety Gate Checks show 100% validation of the data.*

If, on the other hand, your data does not pass all of the Safety Gates at 100% validation, you will see a results table similar to that in Figure 24.



*Figure 24 - Safety Gates failed.*

At this point, you will be required to acknowledge the issues with the data. This is as far as you can go. Until your data passes the Safety Gate Checks, you will not be able to continue Change Detection. You will need to review your data and correct the problems noted. We recommend you go back and rerun the preprocessing steps (Essential Geometry Checks and Attribute Validations) again before trying to run Change Detection again.

## Appendix 1: MiLogin Process



**MiLogin Screen**

Access via webpage here

Forgot ID or Password

Click here to Create a New Account



**Enter Name & Contact Info**

# Requesting Access to Data Gateway



# Requesting Access to Data Gateway

# Requesting Access to Data Gateway

From renewing vehicle plates to getting food assistance, find and access the services you need.

**Search for Services**

[                                                                              ] Search

**Filter by Departments**

- [ ] All Departments
- [ ] Attorney General (AG)
- [ ] Center for Educational Performance and Information (CEPI)
- [ ] Department of Labor and Economic Opportunity (LEO)
- [ ] Department of Military and Veteran's Affairs (DMVA)
- [x] Department of Technology, Management and Budget (DTMB)
- [ ] Licensing and Regulatory Affairs (LARA)
- [ ] Michigan Civil Service Commission (MCSC)

**DTMB** Department of Technology, Management and Budget (DTMB) ⊖

**App Orchid Contract AI**

Central Procurement Services - Automated RedLine -

**Automated Application Onboarding Administrator**

The Automated Onboarding Application enables automated onboarding of SAML, OAuth, or OIDC agencies applications through self-service features into the MILogin Worker and Third Party portals.

**CSS Business Objects**

The BI launch pad is part of the SAP Business Intelligence tool release and is the new name of former BO Infoview portal. It makes use of your web browser and opens the way to use different departments objects created with the SAP Business Intelligence Enterprise components such as Web Intelligence and Crystal reports documents. Using this platform the users/developers will be able to create\edit\run reports as

**Michigan Geographic Framework Data Gateway**
The Geographic Framework for the State of Michigan is a geo-based application that can be used for tracking multiple GIS Layers of data.

In Step 2 – look through the DTMB list and select: "Michigan Geographic Framework Data Gateway"

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# Requesting Access to 1DataGateway

**DTMB**

## Michigan Geographic Framework Data Gateway

The Geographic Framework for the State of Michigan is a geo-based application that can be used for tracking multiple GIS Layers of data.

**Please accept the Terms and Conditions to continue:**

**Terms & Conditions**

State of Michigan Notice - PLEASE READ CAREFULLY., Unauthorized use of the system is prohibited and violators may be subject to criminal and civil penalties including disciplinary action up to and including dismissal. Clicking the OK button certifies that you have read and agree to comply with this standard, that you are an authorized user, and that you will use this system purposes only., This system is the property of the State of Michigan and is restricted to authorized users., This system is restricted to official state use as defined in 1340.00.130.02 Acceptable Use of Information Technology Standard as Revised. This computer system may be monitored and information examined, recorded, copied, and used for authorized purposes. There is no presumption of privacy when using this computer system. The following link will take you to the entire standard: http://www.michigan.gov/pcpolicy

- [ ] I agree to the Terms & Conditions

Launch service

Checkmark the 'I agree to the Terms & Conditions' box and Launch Service

# View Your Assignments and Begin Submissions
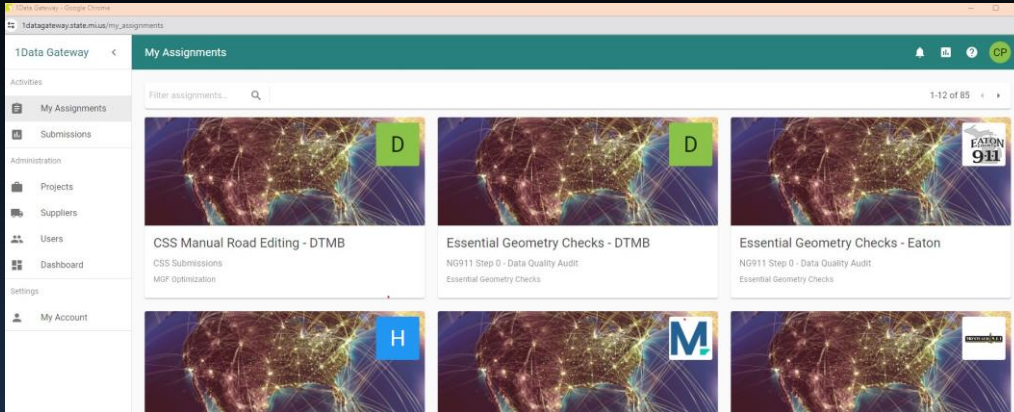
# Appendix 2: Frequently Asked Questions

## General Repository Questions

**Who do I contact with any questions about the NG911 GIS Repository or if I have technical issues with the application?**

If you have any questions or technical issues, you can email DTMB-NG911GIS@michigan.gov

**How will the data provided be used as part of the NG911 GIS Repository?**

GIS data uploaded by data contributors through the NG911 GIS Repository import process will be used in multiple ways. First, it will be accessible to any approved NG911 Service Providers that require it for geo-routing of NG911 calls within Emergent Services IP Networks (ESInets) in Michigan. Secondly, PSAPs will be able to download data from the system to use within their 911 systems such as Computer Aided Dispatch (CAD) systems. PSAPs can only download those geographic areas that have been approved for download by the data-owning agency.

**If I am participating in the NG911 GIS repository and the MiSAIL Imagery for GIS Exchange program can the data uploaded to the NG911 GIS Repository also be supplied by DTMB to the MiSAIL program?**

Yes, if you participate in providing data for both programs, then data supplied to the NG911 GIS Repository will be also made available to the Imagery for GIS Data Exchange program via MiSAIL. This way an organization participating in both programs must only upload their data once when supplying data updates to DTMB. If you have any questions, you can email DTMB-NG911GIS@michigan.gov.

**How do I connect to MiLogin?**

Please reference the training materials to create an account, or if you have an existing Third-Party Worker account, the training materials will also describe how to request access to the Michigan Geographic Framework Data Gateway application for those with the role of Data Importer. If you have any questions, you can email DTMB-NG911GIS@michigan.gov.

**If I have a MiLogin account, do I need to create another one?**

The MiLogin account needs to be a Third-Party Worker account. The website is https://milogintp.michigan.gov/. If you have previously created an account as a Third-Party Worker, you should be able to login using your existing User ID and Password. Then you will request access to the Michigan Geographic Framework Data Gateway if you are going to be in the role of a Data Importer. Instructions to create an account and/or request access to an application are outlined in the training materials.

**How do I know when I have full access to the system?**

Once you request access to the Michigan Geographic Framework Data Gateway, DTMB reviews it to determine if you are an authorized Data Importer, and once approved you will receive a confirmation email. You will also receive another email shortly thereafter outlining next steps and onboarding for the application.

**What data is uploaded to the repository?**

The required data for the NG911 GIS Repository are the following:

- Site Structure Address Points
- Road Centerlines
- Fire Response Zones
- EMS Response Zones
- Police Response Zones

Currently the focus is getting site structure address points and road centerlines uploaded into the repository. There will be future training sessions on the response zone datasets.

**How often should I upload my data?**

We recommend an organization upload their data at least quarterly, for data layers that have been updated since the last upload.

**What if my data does not have all the fields for the new schema?**

We recommend data contributors importing data to the NG911 GIS Repository adopt the latest National Emergency Number Association (NENA) standards and schema. These have been outlined in the training materials and there is a template on the program web page, DTMB - Michigan Statewide NG911 GIS Repository. If a data contributor cannot adopt the new schema at this time, we recommend adopting minimum required fields (also outlined in the training materials). These would be, for site structure points: Discrepancy Agency ID, Unique ID, Address Number, Street Pre-Directional, Street Name, Street Type, Street Post Directional, Municipality, County, Country, State, Date Updated. For road centerlines: Discrepancy Agency ID, Unique ID, Street Pre-Directional, Street Name, Street Type, Street Post Directional, Municipality, County, Country, State, Date Updated, Left From and To Address Ranges and Right From and To Address Ranges. We recommend adding Civic Location Data Exchange Format Street Name fields to address points and road centerlines and populating these accordingly. This is outlined in the National Emergency Number Association NG911 GIS Data Model https://www.nena.org/page/NG911GISDataModel and the training materials.

**Where do I find the latest NENA GIS data model standards?**

You can find the National Emergency Number Association (NENA) NG911 GIS Data Model standards at NG911 GIS Data Model - National Emergency Number Association (nena.org) and the Civic Location Data Exchange Format standards at NG911 Civic Location Data Exchange Format - National Emergency Number Association (nena.org).

**What is a Discrepancy Agency ID?**

The Discrepancy Agency ID is the DNS domain of the organization maintaining the GIS data and importing the data into the NG911 GIS Repository. Typically, that would be the DNS domain associated with the email address of that organization. For example, contributor1@countyA.gov would have a Discrepancy Agency ID of countyA.gov. If a vendor has been contracted to perform data maintenance, the Discrepancy Agency ID should be the DNS domain of the organization contracting that vendor to perform the work. For example, if the county GIS department has contracted with the vendor, then the DNS domain of the GIS department would be used as the Discrepancy Agency ID.

**Is there a format for the NENA Global Unique ID fields in the data sets?**

The main rule of thumb for the NENA Global Unique IDs is to make sure the ID will be unique in a statewide data set. The NENA Global Unique IDs are 254-character fields, and the NENA Global Unique IDs can be a combination of characters and numbers. If you currently have a numeric unique ID, NENA has outlined a format of combining both the unique numeric ID with the Discrepancy Agency ID to create the NENA Global ID. An example of this would be with a numeric ID of 123456 and a Discrepancy Agency ID of countyA.gov, you can create the unique ID of 123456@countyA.gov. Another suggestion, if desired, is adding the feature type within that ID as well. For example, if this ID is for a road centerline you can format the ID as RCL123456@countyA.gov, or for site structure address points it could be SSAP123456@countyA.gov.

## Safety Gate Specific Questions

**What changes have been made with the new version of the Michigan Geographic Framework Data Gateway released in January 2024, for the NG911 data importers?**

The primary functional changes were adding more validations to ensure that appropriate values are being entered for specific fields to help maintain the data integrity of the NG911 addressing database. These 'safety gates' are also being added to the change detection step when data is being uploaded to the database.  If the data does not pass certain required validations, the data will not be able to be uploaded into the system.

 All of these functional changes were made to the systems after assessing the first round of data uploads statewide.  These checks will provide additional benefit to the data contributors to identify values within the data that might be typos or non-standard values.  Without these additional checks, it is difficult to identify these anomalies in the data. All of these same checks are part of the attribute validation step in the MGF Data Gateway and can be run there first to see if certain records get flag and a feature class with the flagged features can be downloaded to investigate.

All safety gate attributes will trim away trailing spaces and if the value is blank, the NG911 Repository will automatically change it blanks to null during upload.

The 'safety gates' that must be valid for the data to upload within the system are:

**Road Centerlines**

| RCL - Attribute - Validation - LSt_Name | Checks to make sure there is a street name value in the Legacy Street Name field.  Records with null or blank values will prevent the upload from completing.  All values should be all uppercase. |
|---|---|
| RCL - Attribute - Validation - LSt_PosDir | Checks to make sure the values that are entered are N, S, E, W, NW, NE, SE, SW in the Legacy Street Post Directional.  These allowed values need to all be uppercase.   If there is no Post Directional the value should be null. |

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|---|---|
| RCL - Attribute - Validation - LSt_PreDir | Checks to make sure the values that are entered are N, S, E, W, NW, NE, SE, SW in the Legacy Street Pre Directional. These allowed values need to all be uppercase. If there is no Pre Directional the value should be null. |
| RCL - Attribute - Validation - LSt_Type | Checks to make sure the values that are entered in the Legacy Street Type are valid United State Postal Service abbreviations (e.g. AVE, ST, RD, LN,). These allowed values need to all be uppercase. If there is no Street Type the value should be null. Accepted values are listed in USPS Publication 28 Appendix C1 – Postal Service Suffix Abbreviation which can be found as a link on our NG911 Project web page |
| RCL - Attribute - Validation - St_PosDir | Checks to make sure the values that are entered are North, South, East, West, Southeast, Northeast, Southeast, Northwest in the CLDXF Street Name Post Directional. The spelling should match the eight domain values listed with first letter being uppercase and rest of letters being lowercase. If there is no Post Directional the value should be null. |
| RCL - Attribute - Validation - St_PosTyp | Checks to make sure the values that are entered in the Legacy Street Type are valid United State Postal Service abbreviations (e.g. Avenue, Street, Road, Lane, etc.). If there is no Street Type the value should be null. Accepted values are listed in USPS Publication 28 Appendix C1 – Primary Street Suffix Name, which can be found as a link on our NG911 Project web page. Format should be uppercase for first letter of name and lowercase for the rest of the letters in the name. |
| RCL - Attribute - Validation - St_PreDir | Checks to make sure the values that are entered are North, South, East, West, Southeast, Northeast, Southeast, Northwest in the CLDXF Street Name Pre Directional. The spelling should match the eight domain values listed with first letter being uppercase and rest of letters being lowercase. If there is no Pre Directional the value should be null. |
| RCL - Attribute - Validation - DateUpdate | Checks to make sure there is a valid date value in the DateUpdated field. Date format can be Date and Time or just Date. Date format should be MM/DD/YYYY |
| RCL - Attribute - Validation - DiscrpAgID | Checks to make sure the Discrepancy Agency ID matches the discrepancy agency ID provides by |

| | the data contributor during system set up. This cannot be null. |
|---|---|
| RCL - Attribute - Validation - FromAddr_L | Checks to make sure range has a numeric value of zero or higher. No nulls or blanks are permitted. |
| RCL - Attribute - Validation - FromAddr_R | Checks to make sure range has a numeric value of zero or higher. No nulls or blanks are permitted. |
| RCL - Attribute - Validation − NENA GUID | Checks to make sure the Road centerline global unique ID is unique and that there are no duplicates. No nulls or blanks are permitted. |
| RCL - Attribute - Validation - ToAddr_L | Checks to make sure range has a numeric value of zero or higher. No nulls or blanks are permitted. |
| RCL - Attribute - Validation - ToAddr_R | Checks to make sure range has a numeric value of zero or higher. No nulls or blanks are permitted. |
| RCL - Attribute - Validation - Effective | This is an optional field to include at this point. If you are assigning dates to the records for this field and mapping the fields during the attribute validations and change detection/upload steps, they will check for the correct Date format. |
| RCL - Attribute - Validation - Expire | This is an optional field to include at this point. If you are assigning dates to the records for this field and mapping the fields during the attribute validations and change detection/upload steps, they will check for the correct Date format. |
| Road Centerlines - Within Michigan | This is a spatial check that makes sure the features being uploaded are within the geographic extent of the state of Michigan. |

**Structure Points**

| | |
|---|---|
| SSAP_Attribute_Validation_Add_Number | Checks for a valid integer address number. This can be a value between 1 and 99,999,999. No nulls or blanks are permitted. |
| SSAP_Attribute_Validation_LSt_Name | Checks to make sure there is a street name value in the Legacy Street Name field. All values should be all uppercase. |
| SSAP_Attribute_Validation_LSt_PosDir | Checks to make sure the values that are entered are N, S, E, W, NW, NE, SE, SW in the Legacy Street Post Directional. These allowed values need to all be uppercase. If there is no Post Directional the value should be null. |
| SSAP_Attribute_Validation_LSt_PreDir | Checks to make sure the values that are entered are N, S, E, W, NW, NE, SE, SW in the Legacy |

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|---|---|
| | Street Pre Directional. These allowed values need to all be uppercase. If there is no Pre Directional the value should be null. |
| SSAP_Attribute_Validation_LSt_Type | Checks to make sure the values that are entered in the Legacy Street Type are valid United State Postal Service abbreviations (e.g. AVE, ST, RD, LN,). These allowed values need to all be uppercase. If there is no Street Type the value should be null. Accepted values are listed in USPS Publication 28 Appendix C1 – Postal Service Suffix Abbreviation which can be found as a link on our NG911 Project web page |
| SSAP_Attribute_Validation_St_PosDir | Checks to make sure the values that are entered are North, South, East, West, Southeast, Northeast, Southeast, Northwest in the CLDXF Street Name Post Directional. The spelling should match the eight domain values listed with first letter being uppercase and rest of letters being lowercase. If there is no Post Directional the value should be null. |
| SSAP_Attribute_Validation_St_PosTyp | Checks to make sure the values that are entered in the Legacy Street Type are valid United State Postal Service abbreviations (e.g. Avenue, Street, Road, Lane, etc.). If there is no Street Type the value should be null. Accepted values are listed in USPS Publication 28 Appendix C1 – Primary Street Suffix Name, which can be found as a link on our NG911 Project web page. Format should be uppercase for first letter of name and lowercase for the rest of the letters in the name. |
| SSAP_Attribute_Validation_St_PreDir | Checks to make sure the values that are entered are North, South, East, West, Southeast, Northeast, Southeast, Northwest in the CLDXF Street Name Pre Directional. The spelling should match the eight domain values listed with first letter being uppercase and rest of letters being lowercase. If there is no Pre Directional the value should be null. |
| SSAP_Attribute_Validation_County | Checks that there is a valid county name that matches a valid county name from the state of Michigan. |
| SSAP_Attribute_Validation_DateUpdate | Checks to make sure there is a valid date value in the DateUpdated field. Date format can be Date and Time or just Date. Date format should be MM/DD/YYYY |
| SSAP_Attribute_Validation_DiscrpAgID | Checks to make sure the Discrepancy Agency ID matches the discrepancy agency ID provides by |

| | |
|---|---|
| | the data contributor during system set up. This cannot be null. |
| SSAP_Attribute_Validation_Site_NGUID | Checks to make sure the Road centerline global unique ID is unique and that there are no duplicates. No nulls or blanks are permitted. |
| SSAP_Attribute_Validation_State | Checks that a valid state abbreviation has been provided. Checks against a valid value table and at preprocessing all nulls will be set to MI. |
| SSAP_Attribute_Validation_Effective | This is an optional field to include at this point. If you are assigning dates to the records for this field and mapping the fields during the attribute validations and change detection/upload steps, they will check for the correct Date format. |
| SSAP_Attribute_Validation_Expire | This is an optional field to include at this point. If you are assigning dates to the records for this field and mapping the fields during the attribute validations and change detection/upload steps, they will check for the correct Date format |
| SSAP_Attribute_Validation_Post_Code | This check validates the value being submitted for the zip code record. It makes sure that the value is five characters and that they are all number values. It also checks to make sure the zip code is a valid zip code for Michigan. |
| SSAP_Attribute_Validation_Post_Code4 | The check validates that the values being submitted are 4 characters in length and that they are all number values. |
| Site Structure Address Points - Within Michigan | This is a spatial check that makes sure the features being uploaded are within the geographic extent of the state of Michigan. |

**My address points can't be uploaded because they have zero, blank or null values for address number?**

Run a query to not include the records with zero, blank, or null address numbers in the dataset that you upload to the repository and then you can continue to research these invalid addresses over time and continue to upload the additional records as accurate address number values are assigned to those site locations.