Centerline Data Validation Help and Info
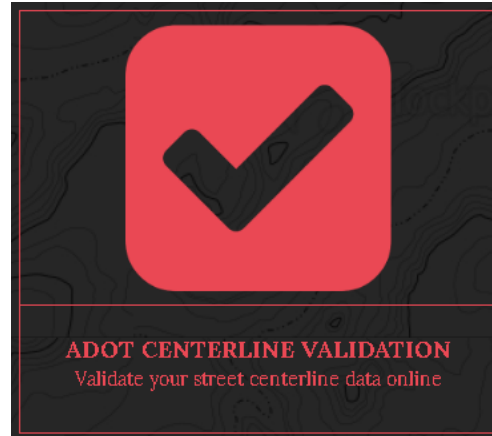

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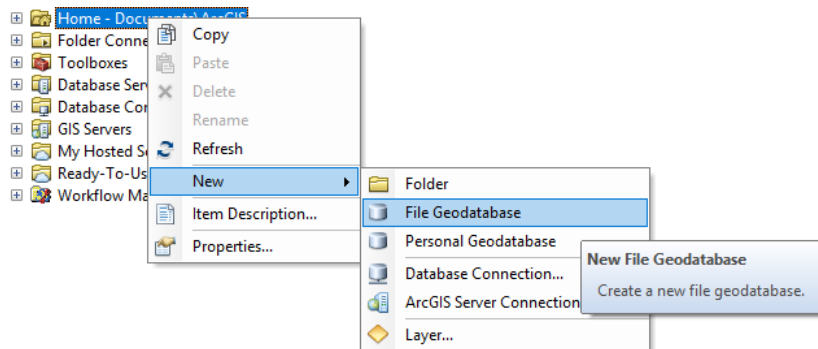
Data Prep for AZGEO Centerline Data Validation:

Database Creation

1. Create a FGDB (File Geodatabase, .gdb). The FGDB name can be anything the user wishes. (To create an FGDB in ArcMap right click a folder in catalog and select New, then File Geodatabase as shown in the example below.)

Example:

2. Put a copy of the centerline feature class to be validated in this FGDB.

Required Centerline Feature Class Name

1. Centerline Feature Class Name: Name the centerline feature class the name of the county/city '_Data'. For example a Yavapai County centerline feature class would need to be named 'Yavapai_Data' (This is case sensitive). Refer to the 'Feature Class Name' column on page 3 which lists the expected centerline feature class name for each county/city. If this is not done the Centerline Data Validation process will fail.

Example:
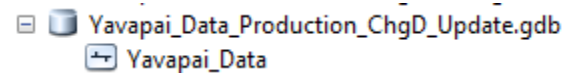
Required Centerline Feature Class Fields

2. The centerline feature class must have a field named 'OBJECTID' populated with unique number values or the Centerline Data Validation process will fail.
3. Ensure the data contains the appropriate field(s) specified in the 'Derived Road Name Field(s)' and 'LRS_FIX' columns in the table on page 3. If these specified field(s) no longer exist or are different in the data the Centerline Data Validation process will fail.
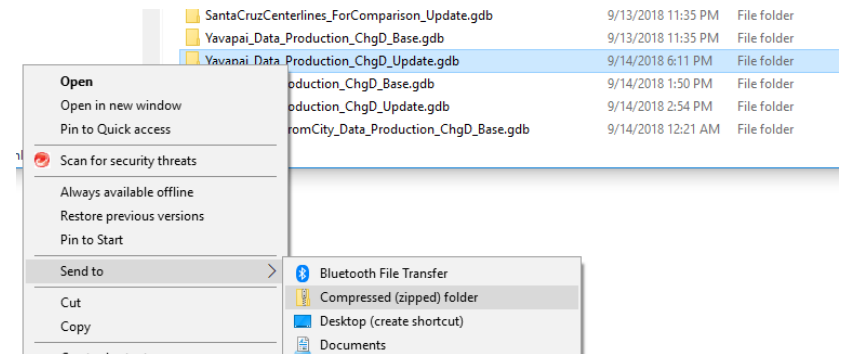
Suggested Projected Coordinate System

4. It would be best to ensure the data is in the specified projected coordinate system as shown in the 'Projected Coordinate System' column in the table on page 3. If the data is not in the specified coordinate system the Centerline Data Validation process could possibly fail. To view the projected coordinate system in ArcMap, bring the feature class into ArcMap, right-click the feature class in the table of contents, click properties then go to the source tab.
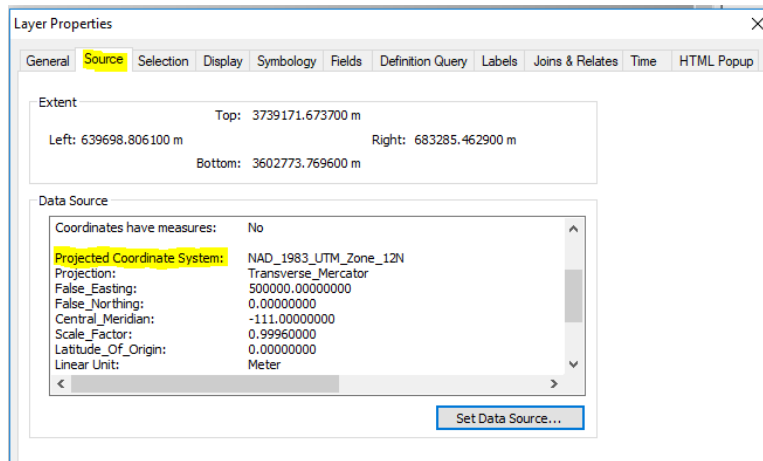
Finalize Database

5. Zip the FGDB, this zipped version of the FGDB will be used as the input for the Centerline Data Validation process.

Centerline Feature Class Requirements Reference Table (Centerline Validation)

| Location	Feature Class Name (Case Sensitive)	Derived Road Name Field(s) (Case Sensitive)	LRS_FIX Field (Case Sensitive)	Projected Coordinate System
Apache County	Apache_Data	FULL_NAME	Lrs_Fix	NAD_1983_StatePlane_Arizona_East_FIPS_0201_Feet
City of Prescott	Prescott_Data	FULLST_NAME	LRS_FIX	NAD_1983_StatePlane_Arizona_Central_FIPS_0202_Feet_Intl
Cochise County	Cochise_Data	STREET	LRS_FIX	NAD_1983_StatePlane_Arizona_East_FIPS_0201_Feet
Coconino County	Coconino_Data	FULLNAME	LRS_FIX	NAD_1983_StatePlane_Arizona_Central_FIPS_0202_Feet_Intl
Gila County	Gila_Data	RDNAME	LRS_FIX	NAD_1983_StatePlane_Arizona_Central_FIPS_0202_Feet_Intl
Graham County	Graham_Data	STREET	LRS_FIX	NAD_1983_StatePlane_Arizona_East_FIPS_0201_Feet
Greenlee County	Greenlee_Data	FULLNAME	Lrs_Fix	NAD_1983_UTM_Zone_12N
La Paz County	LaPaz_Data	FULL_NAME	LRS_FIX	NAD_1983_StatePlane_Arizona_West_FIPS_0203_Feet_Intl
Maricopa County (MCDOT)	Maricopa_Data	ROUTENAME	LRS_FIX	NAD_1983_HARN_StatePlane_Arizona_Central_FIPS_0202_Feet_Intl
Mohave County	Mohave_Data	FNM	LRS_FIX	NAD_1983_NSRS2007_StatePlane_Arizona_West_FIPS_0203_Ft_Intl
Navajo County	Navajo_Data	FULL_NAME	Lrs_Fix	NAD_1983_StatePlane_Arizona_Central_FIPS_0202_Feet_Intl
Pima County	Pima_Data	STREET	LRS_FIX	NAD_1983_StatePlane_Arizona_Central_FIPS_0202_Feet_Intl
Pinal County	Pinal_Data	STS, STN	LRS_FIX	NAD_1983_StatePlane_Arizona_Central_FIPS_0202_IntlFeet
Santa Cruz County	SantaCruz_Data	STREET	LRS_FIX	NAD_1983_StatePlane_Arizona_Central_FIPS_0202_Feet
Yavapai County	Yavapai_Data	FULLST_NAME, MSAG_LEFT	LRS_FIX	NAD_1983_StatePlane_Arizona_Central_FIPS_0202_Feet_Intl
Yuma County (From City of Yuma)	Yuma_Data	FullStreetName	LRS_Fix	NAD_1983_StatePlane_Arizona_West_FIPS_0203_Feet
Yuma County (From Yuma County)	Yuma_Data	FULL_NAME	LRS_FIX	NAD_1983_StatePlane_Arizona_West_FIPS_0203_Feet

Running AZGEO Centerline Data Validation:

1. Once you are inside the 'Arizona GeoData Supply Chain App' and choose to 'Validate your Data', you should be taken to the screen below. Click on either the 'ADOT Centerline Validation' or 'Run Both Tools' icon
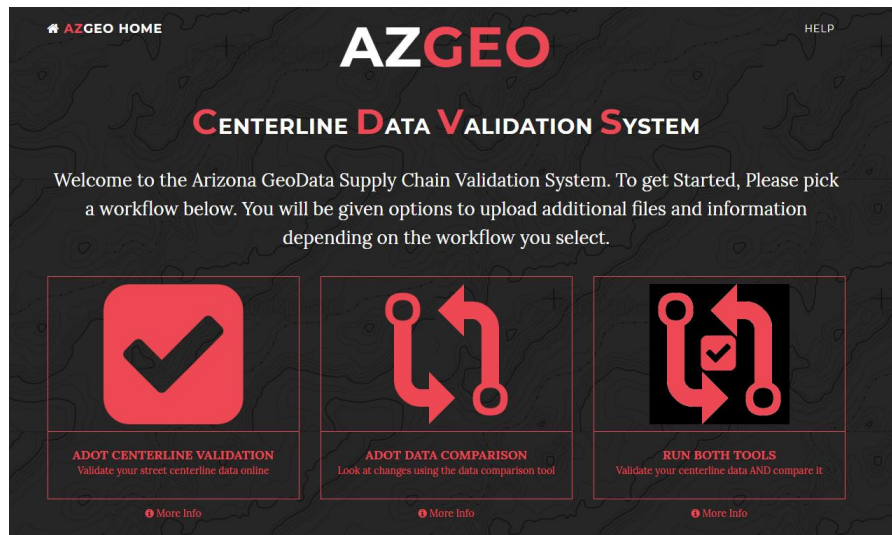
2. Select one of the three icons below depending on which data you would like to process.

    - *The Yavapai County icon*: Run Yavapai County or City of Prescott centerlines.
    - *The Pinal County icon*: Run Pinal County centerlines.
    - *The Most of Arizona icon*: Run any other Arizona county than those mentioned above.
    -
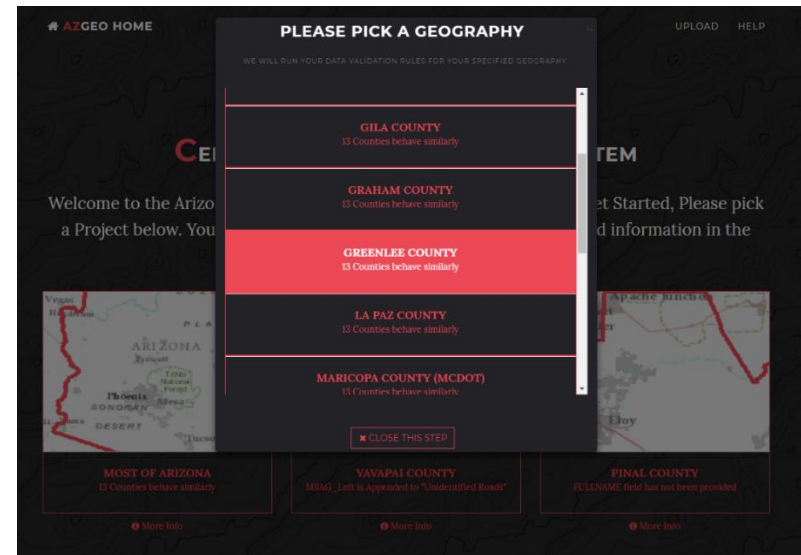
3. Click the 'Start Data Uploader' button.
4. Click the 'Choose File' button and select the zipped FGDB containing the centerline data in windows explored (click open).
5. Click the 'Upload the file' button.

6. Click the 'Start Data Validation' button
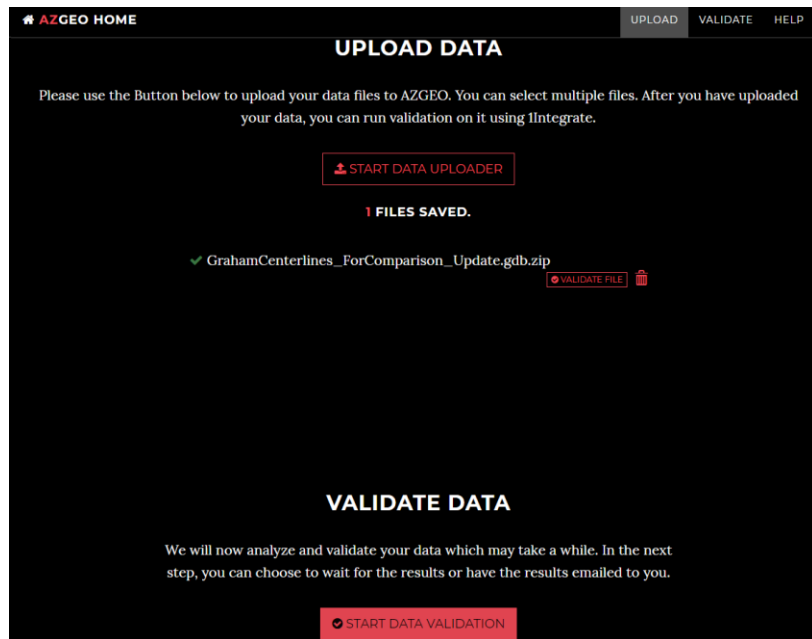
7. Once the 'Data Validation Session Status is Complete' message appears the 'Data Validation Results' box will become available.
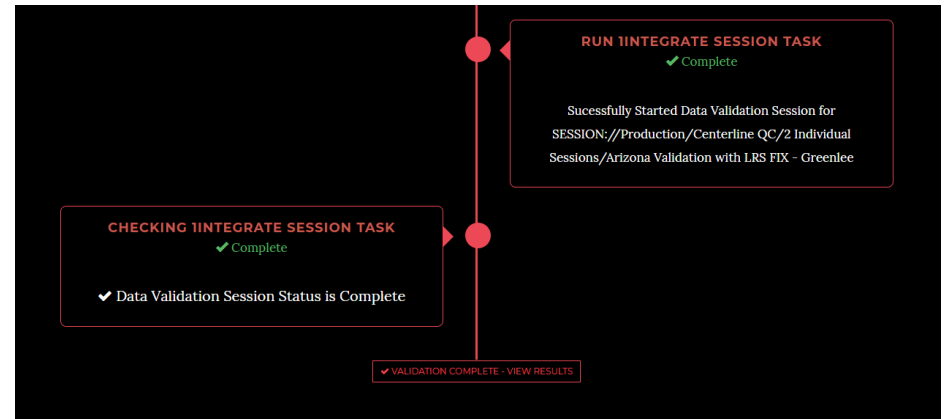
8. Click 'Download Output' and the results will be downloaded. This data will most commonly be in the 'Downloads' folder on your computer.
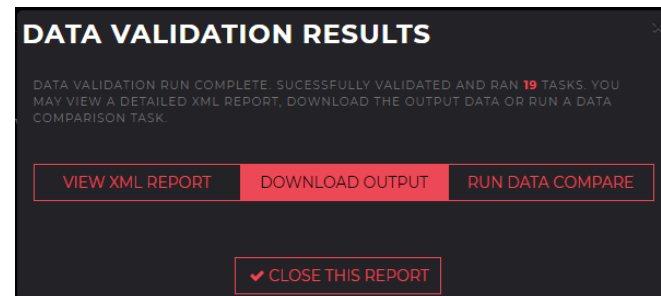
Data Post Processing for AZGEO Centerline Data Validation:

1. Put the downloaded zipped FGDB folder in a desired location.
2. Unzip the folder.
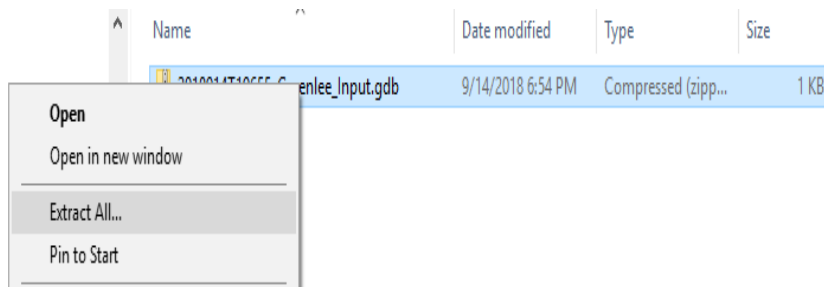
3. Take the .gdb off of the end of the folder name by renaming it. The actual FGDB is inside this folder and if this folder has a .gdb extension ArcMap will not be able to read the FGDB inside.

(Below is what the data should look like in ArcCatalog)

4. In ArcMap open the 'Define Projection' tool in 'Data Management Tools'

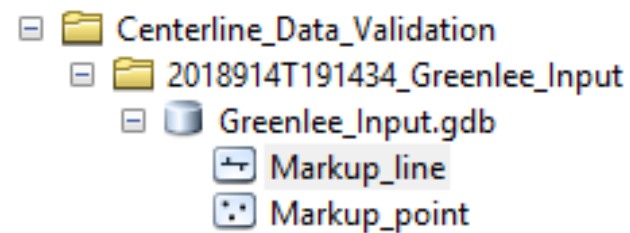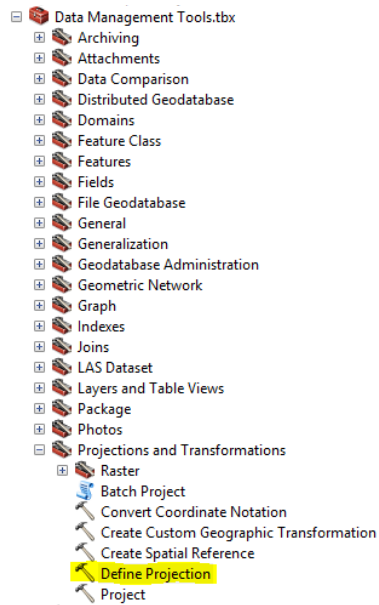5. Run 'Define Projection' on both the 'Markup_line' and 'Markup_point' feature classes. Set the 'Coordinate System' to the same projected coordinate system as the centerline feature class you processed. The output loses its coordinate system definition in the centerline validation process and must be defined again using this tool. If this tool is not run your centerline file and qc output may appear in different locations when viewed in ArcMap.
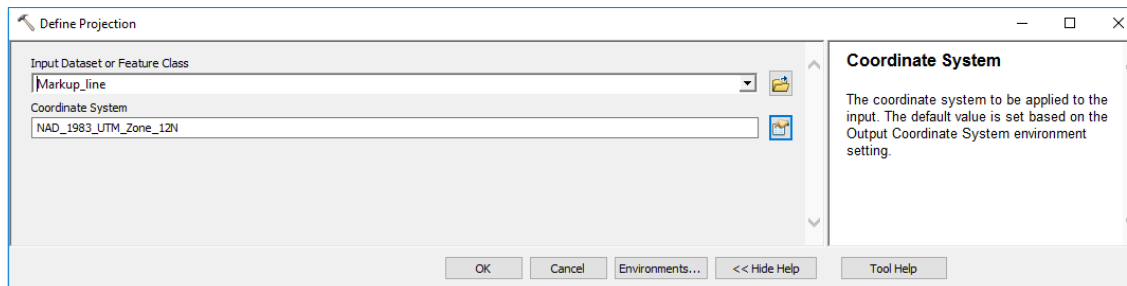
Centerline Data Validation Error Type Definitions:

Bifurcation Identified – A location where 3 or more centerline segments of the same road name intersect. These should be fixed by ensuring that a maximum of two centerline segments at an intersection have the same name. The LRS_FIX field is commonly used to fix these types of issues.

Dangle Identified: < .01 ft (Noncritical) – Dangles are failed intersection locations between two line segments. This process defines a dangle as the beginning or ending of a centerline segment that is within 15 ft of another centerline segment without an exact intersection. The centerline can either be short of the line (commonly called an 'undershoot') or over the line (commonly called an 'overshoot'). These dangles are less than .01 feet and are not critical for route creation, but the data owner is made aware of these errors in case they are interested in fixing them.

Dangle Identified: >= .01 ft – Dangles are failed intersection locations between two line segments. This process defines a dangle as the beginning or ending of a centerline segment that is within 15 ft of another centerline segment without an exact intersection. The centerline can either be short of the line (commonly called an 'undershoot') or over the line (commonly called an 'overshoot'). These dangles are greater than or equal to .01 feet which make it critical for the data owner to fix in order to create an accurate route system.

Duplicate Vertex – Overlapping vertices that may cause issues in route building and should be fixed by the data owner.

Invalid Geometry – A centerline segment with less than 2 vertices. These should be given a valid shape or deleted.

Invalid Road Name – Any instance where there are extra spaces in front of, with in or after the road name, or the road name contains one of the following characters " . , : ; / \

Kickback Identified – When a record zig-zags in a such a way that it cannot possibly be an accurate roadway segment. In order to make an accurate route system these should be fixed by the data owner.

Loop Detected – A centerline segment or series of centerline segments of the same name that intersects itself. These loops should be separated into two or more segments with different road names. The LRS_FIX field can also be used in this endeavor.

No Road Name Value – When a record has a blank or NULL road name value.

Null Geometry – A centerline record without shape. These should either be given shape or deleted.

Overlap Identified: Roads with Different Names (Noncritical) – These are locations where two centerlines overlap each other with different road names. Many counties have business rules which make these overlaps necessary and the route creation process accommodates this practice. These overlaps do not necessarily need to be removed and are therefore labeled as '(Noncritical)'. They are marked and given to the data owners to be evaluated in order to ensure they exist intentionally, as unintentional overlaps of this nature will create an inaccurate route system.

Overlap Identified: Roads with Same Names (Noncritical) – These are locations where two centerlines overlap each other with the same road names. These overlaps do not affect the route creation process and are therefore labeled as '(Noncritical)'. Data owners are made aware of these in case they are interested in fixing them.

Self-Overlap Identified – A centerline segment that overlaps itself. These overlaps should be fixed in order to create an accurate route system.

Short Geometry – A centerline record whose length is less than 12 ft. These records are assumed to be errors because their length is less than the average width of a lane. They should be deleted or adjusted unless in rare cases they are found to be valid.