



Importing Design and As-Builts from a File in RULIS

A RULIS Job Aid

Roles Impacted

Utility Consultant

Last Revised

February 2025



Introduction

This job aid will review the different file types available for importing files into your utility design. The fields and definitions for each of the file type options.



NOTE: RULIS uses the term “As-Built” to reference the vector design and does not recognize design files such as .DWG or .DGN.

Topics

- [Importing Vectors](#)
- [Importing Geometries without Attributes](#)
 - [Comma Separated Values \(.csv\)](#)
 - [ESRI Shapefile \(.zip\)](#)
 - [KMZ File \(.kmz\)](#)
- [Importing Geometries with Attributes](#)
 - [Comma Separated Values \(.csv\)](#)
 - [ESRI Shapefile \(.zip\)](#)



Importing Vectors

RULIS for Utility Permits provides features for importing vectors from external file sources.

The import functionality is divided into **two** major groups: importing utility vectors without attributes and importing utility vectors with attributes. Importing vectors without attributes will only import the geospatial coordinates of items on the map, and then attributes must be entered manually within RULIS.

- **Vector** – A two-dimensional line or point on a map.
- **Attributes** – The alphanumeric data that describes the utility (e.g., material, height, width, etc.).

Importing Vectors without Attributes

To import vectors without attributes, RULIS supports **three** major file format submissions:

- Comma Separated Values (.csv)
- Keyhole Markup Language Zipped (.kmz)
- ESRI Shapefile (.zip)



NOTE: if even a portion of the utility design touches or exceeds the 300' buffer outside of a TxDOT roadway, the design will not be uploaded. To prevent this issue the design can be modified or drawn to not exceed our current system validation. *If this situation occurs for an upload or drawing, please ensure the attributes submitted annotate the real spatial location.*



Comma Separated Values (.csv)

CSVs are tabular data files that can be generated with many well-known software programs.

This software can include ArcGIS Pro, AutoCAD, Google Sheets, Microsoft Excel, MicroStation, Notepad, and Tableau.

The **.csv** file must be arranged with the following header columns:

- Point ID
- Latitude
- Longitude
- Elevation

The “Point ID” column is used to chain points into a line. If multiple points have the same “Point ID” value, RULIS concatenates them into a line. Otherwise, records with a unique “Point ID” value are imported as single points.

 When uploading a **.csv** file for design the “Elevation” column is optional.

 **NOTE:** Although these column headers and associated data could be considered attributes, this submission option only creates vectors, meaning the user will need to manually enter the required attributes.



ESRI Shapefile (.zip)

Environmental Systems Research Institute (ESRI) Shapefiles are geospatial vector files. Shapefiles can be generated by many software programs such as ESRI's ArcCatalog, ArcMap, and ArcPro. Outside of ESRI's suite of programs, other software that can export shapefiles includes AutoCAD, MicroStation, and QGIS.



NOTE: The file must be a **.zip** containing the files that make up the shapefile, the features need to be separated by feature types of points or lines before zipping.

The file components necessary for each zip file must contain the following files to produce a valid output:

- filename.shp – geometry
- filename.dbf – data table
- filename.shx - index
- filename.prj – projection
 - shapefiles must be EPSG:4326 (also known as WGS84)
- Additional file components generated with a shapefile, should not be submitted: these include .cpg, .qmg, .sbn, and .sbx.



KMZ File (.kmz)

The file must be a **.kmz** file format. KMZ is one of the formats that can be exported from google earth.



NOTE: KMZ is a format that contains a **.kml** (Keyhole Markup Language) within **.zip** (compression file type).

- KMZ files can have lines and points.
- The coordinates must be in EPSG:4326 (WGS84 projection).

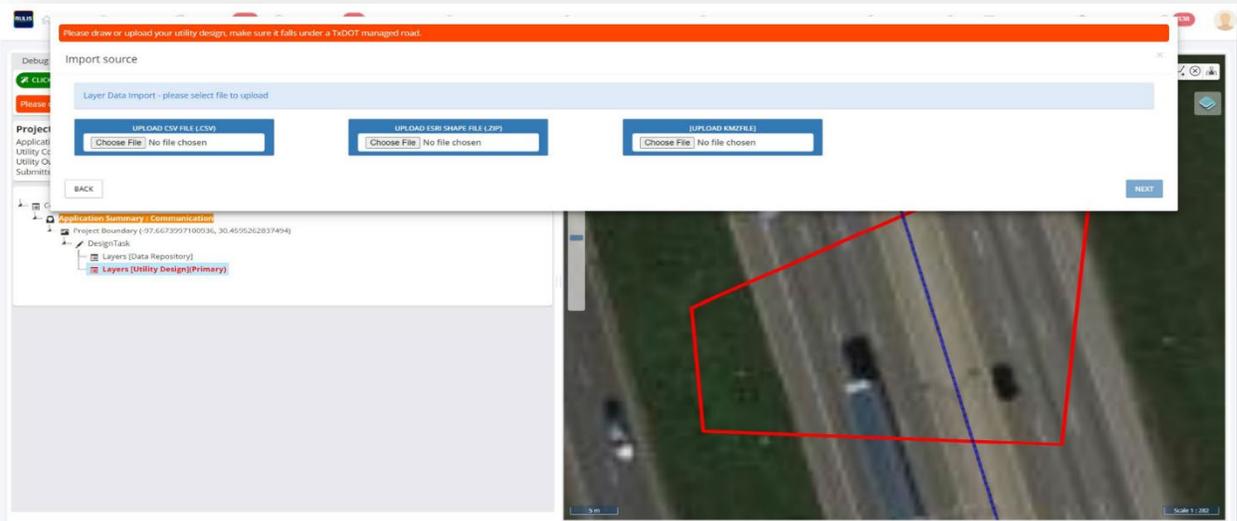
Uploading Vector Files without Attributes

To upload a project that contains both lines and points (e.g., electric cable and poles), users should create **two** files:

1. Upload the file for the electric line, set up the attributes, and save.
2. Upload the file for the pole points, set up the attributes, and save.

To upload a file

1. Go to the Detail View.
2. Right click the **Utility Design** or **Utility As-Built** node (depending on where you are in the workflow).
3. Select **Layer upload**.
4. The Upload file window appears.
5. Select your file.
6. Manually input the attributes associated with the vector file found in the [Configured Components PDF](#).



- The file projection must be in **EPSG:4326**.
- RULIS Utility Permit accepts ESRI shape files with geometries that can handle the Z (elevation) attribute.



Importing Geometries with Attributes

For importing geometries with attributes RULIS for Utility Permits supports **two** major file formats:

- Comma Separated Values (.csv)
- ESRI Shapefile (.zip).

Comma Separated Values (.csv)

There are **two** options which may be used in this case: only points, only lines.

- The “POINT ID” column is used by the system to chain the points into a line.
- If the CSV file contains multiple points with same “POINT ID,” the system will concatenate them into a line.
- On the other hand, records that have a unique value for “Point ID” will be uploaded to the system as a single point.

The **RULIS CSV Template with Attributes** contains the following fields:

Field Name	Description
Point ID	Unique identifier of the linear utility
Latitude	Latitude in decimal of the point structure or device or node on a linear utility
Longitude	Longitude in decimal of the point structure or device or node on a linear utility
Elevation	Elevation in meters of the point structure or device or node on a linear utility
FeatCodeLn	Feature code that identifies the linear utility (view the list of feature codes here import_codes.xlsx e.g., UE003)
CompLn	The name of the “ component ” that is being created (e.g., Cable/Wire)
ConvCatLn	Conveyance category for the linear utility (e.g., Distribution)
ConvMetLn	Conveyance method for the linear utility (e.g., High Voltage)
CSCLn	Cross section configuration for the linear utility (e.g., Circular)



CSCSubLn	Cross section configuration subcategory for the linear utility
CSCHLn	Cross section configuration height for the linear utility
CSCHULn	Cross section configuration height units for the linear utility
CSCLLn	Cross section configuration length for the linear utility
CSCLULn	Cross section configuration length units for the linear utility
CSCWLn	Cross section configuration width for the linear utility
CSCWULn	Cross section configuration width units for the linear utility
DatSenLeLn	Data sensitivity level for the linear utility (e.g., Unrestricted)
FeatTypeLn	Feature type for the linear utility (e.g., Segment)
IsEncLn	Is encased (e.g., Yes)
IsEncFiLn	Is encased filled (e.g., Yes)
IsEncFiMLn	Is Encased In Filled Fill Material for the linear utility (e.g., Grout)
MatLn	Material of the linear utility
MatSubLn	Material subtype of the linear utility
NCondLn	Number of conduits for the linear utility
OwnerLn	Utility owner
UndStatLn	Underground status of the linear utility
UtilTypeLn	Utility type of the linear utility (e.g., Alternating current)
UtilTypeSLn	Utility subtype of the linear utility (e.g., Street lighting)
WallThLn	Wall thickness for the linear utility
WallThULn	Wall thickness units for the linear utility
OperatLn	Operational status for the linear utility (e.g., In service)
FeatCodePt	Feature code that identifies the point structure or device (view the list of feature codes here import_codes.xlsx e.g., UE003)
CompPt	The name of the “ component ” that is being created for the point structure or device (e.g., Light pole)
DatSenLePt	Data sensitivity level for the point structure or device (e.g., Unrestricted)
FeatTypePt	Feature type for the point structure or device (e.g., Containing structure)
MatPt	Material of the point structure or device (e.g., Composite)
MatSubPt	Material subtype of the point structure or device (e.g., Asbestos)
OwnerPt	Utility owner



UndStatPt	Underground status of the point structure or device (e.g., Aboveground)
UtilTypPt	Utility type of the point structure or device (e.g., Electric)
UtilTypSPt	Utility subtype of the point structure or device (e.g., Direct current)
OperatPt	Operational status for the point structure or device (e.g., In service)
CSCPt	Cross section configuration for the point structure or device (e.g., Circular)
CSCSubPt	Cross section configuration subcategory for the point structure or device (e.g., Inside)
CSCHPt	Cross section configuration height for the point structure or device
CSCHUPt	Cross section configuration height units for the point structure or device
CSCLPt	Cross section configuration length for the point structure or device
CSCLUPt	Cross section configuration length units for the point structure or device
CSCWPt	Cross section configuration width for the point structure or device
CSCWUPt	Cross section configuration width units for the point structure or device

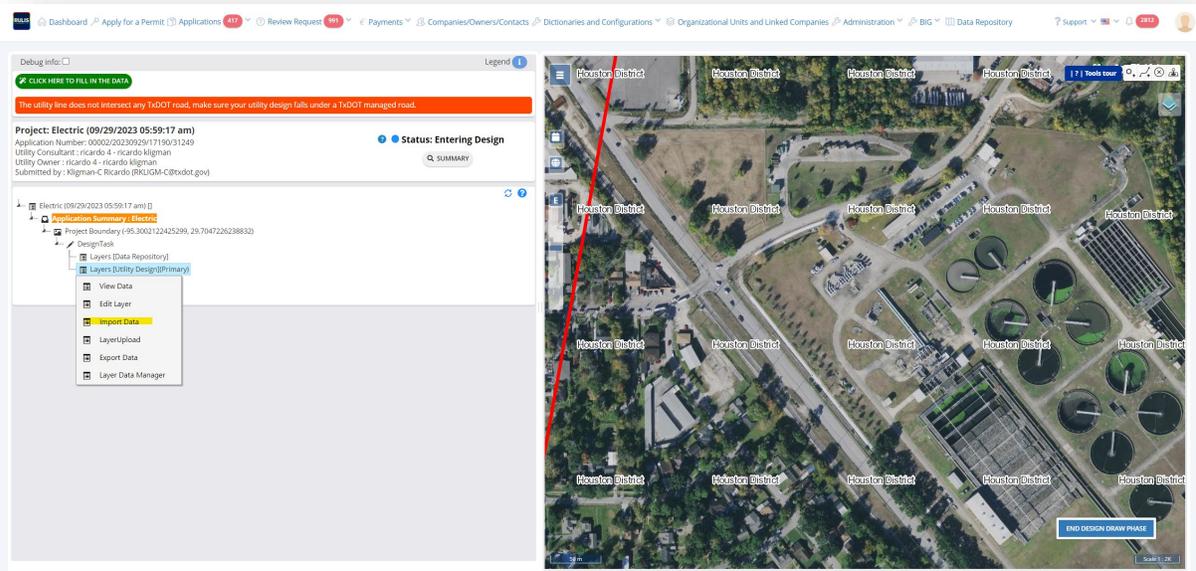
For a list of values for each attribute, please reference the [RULIS Configured Components Job Aid](#).

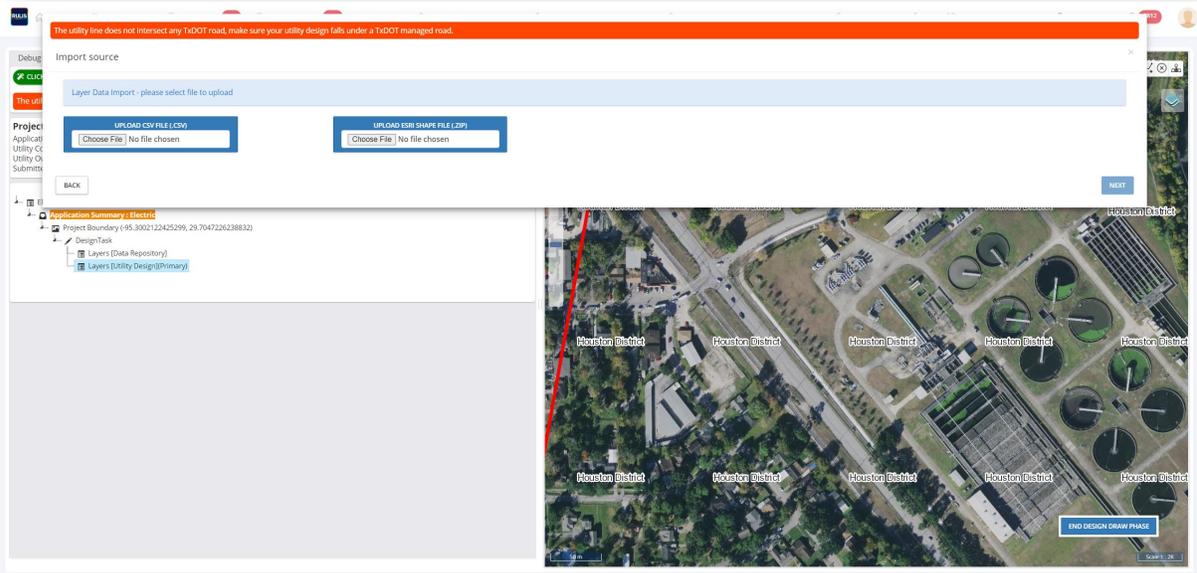
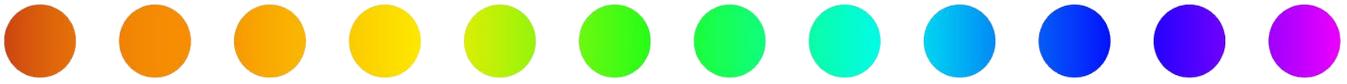


Uploading CSV Files with Attributes

To upload a **.csv** file:

1. Go to the Detail View.
2. Right click the **Utility Design** or **Utility As-Built** node (depending on where you are in the workflow).
7. Select **Import Data**.
8. The Upload file window appears.
9. Select your file from the **Upload CSV file** box.







ESRI Shapefile (.zip)

ESRI Shapefiles are geospatial vector files. Shapefiles can be generated by many software programs such as ESRI’s ArcCatalog, ArcMap, and ArcPro. Outside of ESRI’s suite of programs, other software that can export shapefiles includes AutoCAD, MicroStation, and QGIS.



NOTE: The ESRI Shapefile must be a **.zip**, containing the files that make up the ESRI shapefile, the features need to be separated by feature types of points or lines before zipping. The file components necessary for each zip file must contain the following files to produce a valid output:

- filename.shp – geometry
- filename.dbf – data table
- filename.shx – index
- filename.prj – projection
 - shapefiles must be EPSG:4326 (also known as WGS84)
- additional file components generated with a shapefile, should not be submitted: these include

The **RULIS Line Shapefile Template with Attributes** contains the following fields:

Field Name	Description
FeatCodeLn	Feature code that identifies the linear utility (view the list of feature codes here import_codes.xlsx e.g., UE003)
CompLn	The name of the “ component ” that is being created (e.g., Cable/Wire)
ConvCatLn	Conveyance category for the linear utility (e.g., Distribution)



ConvMetLn	Conveyance method for the linear utility (e.g., High Voltage)
CSCLn	Cross section configuration for the linear utility (e.g., Circular)
CSCSubLn	Cross section configuration subcategory for the linear utility (e.g.,)
CSCHLn	Cross section configuration height for the linear utility
CSCHULn	Cross section configuration height units for the linear utility
CSCLLn	Cross section configuration length for the linear utility
CSCULn	Cross section configuration length units for the linear utility
CSCWLn	Cross section configuration width for the linear utility
CSCWULn	Cross section configuration width units for the linear utility
DatSenLeLn	Data sensitivity level for the linear utility (e.g., Unrestricted)
FeatTypeLn	Feature type for the linear utility (e.g., Segment)
IsEncLn	Is encased (e.g., Yes)
IsEncFiLn	Is encased filled (e.g., Yes)
IsEncFiMLn	Is Encased Is Filled Fill Material for the linear utility (e.g., Grout)
MatLn	Material of the linear utility
MatSubLn	Material subtype of the linear utility
NCondLn	Number of conduits for the linear utility
OwnerLn	Utility owner
UndStatLn	Underground status of the linear utility
UtilTypLn	Utility type of the linear utility (e.g., Alternating current)
UtilTypSLn	Utility subtype of the linear utility (e.g., Street lighting)
WallThLn	Wall thickness for the linear utility
WallThULn	Wall thickness units for the linear utility
OperatLn	Operational status for the linear utility (e.g., In service)

For a list of values for each attribute, please reference the [RULIS Configured Components Job Aid](#).



The **RULIS Point Shapefile Template with Attributes** contains the following fields:

Field Name	Description
FeatCodePt	Feature code that identifies the point structure or device (view the list of feature codes here import_codes.xlsx e.g., UE003)
CompPt	The name of the “ component ” that is being created for the point structure or device (e.g., Light pole)
DatSenLePt	Data sensitivity level for the point structure or device (e.g., Unrestricted)
FeatTypePt	Feature type for the point structure or device (e.g., Containing structure)
MatPt	Material of the point structure or device (e.g., Composite)
MatSubPt	Material subtype of the point structure or device (e.g., Asbestos)
OwnerPt	Utility owner
UndStatPt	Underground status of the point structure or device (e.g., Aboveground)
UtilTypPt	Utility type of the point structure or device (e.g., Electric)
UtilTypSPt	Utility subtype of the point structure or device (e.g., Direct current)
OperatPt	Operational status for the point structure or device (e.g., In service)
CSCPt	Cross section configuration for the point structure or device (e.g., Circular)
CSCSubPt	Cross section configuration subcategory for the point structure or device (e.g., Inside)
CSCHPt	Cross section configuration height for the point structure or device
CSCHUPt	Cross section configuration height units for the point structure or device
CSCLPt	Cross section configuration length for the point structure or device
CSCLUPt	Cross section configuration length units for the point structure or device
CSCWPt	Cross section configuration width for the point structure or device
CSCWUPt	Cross section configuration width units for the point structure or device

For a list of values for each attribute, please reference the [RULIS Configured Components Job Aid](#).



Uploading ESRI Shapefile with Attributes

To upload a **Shapefile**:

1. Go to the Detail View.
2. Right click the **Utility Design** or **Utility As-Built** node (depending on where you are in the workflow).
3. Select **Import Data**.
4. The Upload file window appears.

Select your file from the **Upload Shapefile** box.

