



# A Dive Into ArcGIS Utility Network

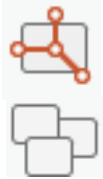
Jihane Elyahyioui

# Overview of ArcGIS Utility Network



## ArcGIS Pro

### Data model (UN schema)



Topology



Feature classes

### Interactive tools

Advanced editing

Tracing

Diagrams

Subnetwork management

Toolboxes



## ArcGIS Enterprise



### UN web service

Feature service

UN service

Diagram service

Branch versioning service

### Online interactive tools

Map Viewer

Experience Builder

Field Maps

Instant Apps

Web editor

ArcGIS SDK for Javascript





# Data model

▲ SewerExpanded\_UtilityNetwork.gdb

▲ UtilityNetwork

Network *Utility Network*

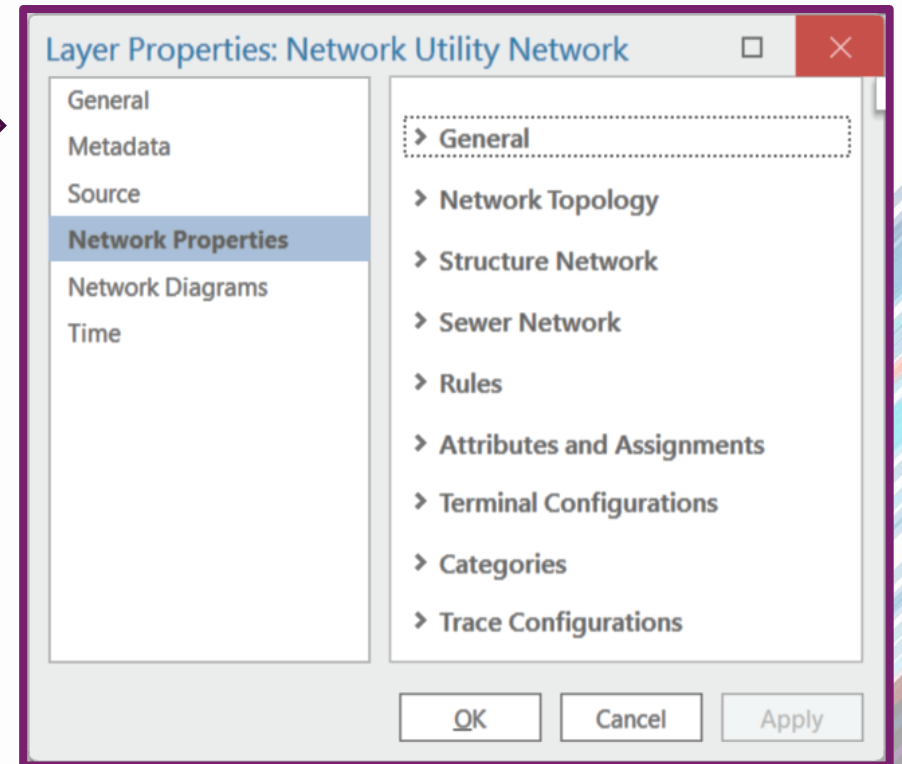
ServiceTerritory

## Structure network

- StructureJunction
- StructureLine
- StructureBoundary
- StructureEdgeObject
- StructureJunctionObject

## Domain network

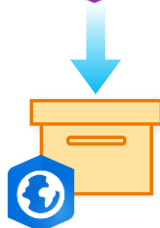
- SewerAssembly
- SewerDevice
- SewerJunction
- SewerLine
- SewerEdgeObject
- SewerJunctionObject
- SewerSubnetLine



# Data model configuration: where to start?



**ArcGIS Solutions\***



**ArcGIS Utility  
Network Foundation**  
project package



Electric Utility Network  
Foundation



Gas and Pipeline Referencing  
Utility Network Foundation



District Energy Utility Network  
Foundation



Water Distribution Utility  
Network Foundation



Sewer Utility Network Foundation



Stormwater Utility Network  
Foundation

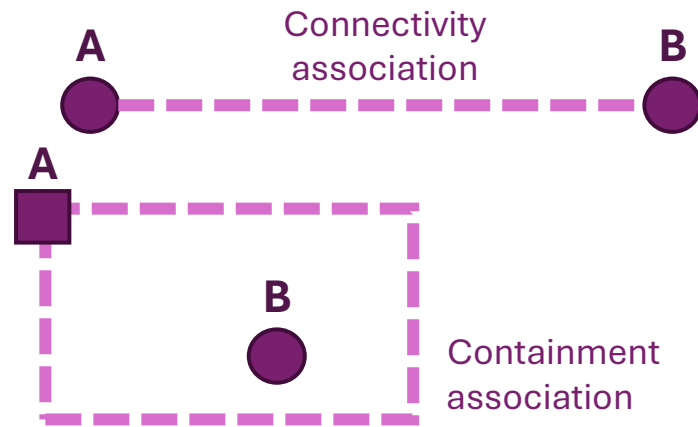


Communications Utility Network  
Foundation

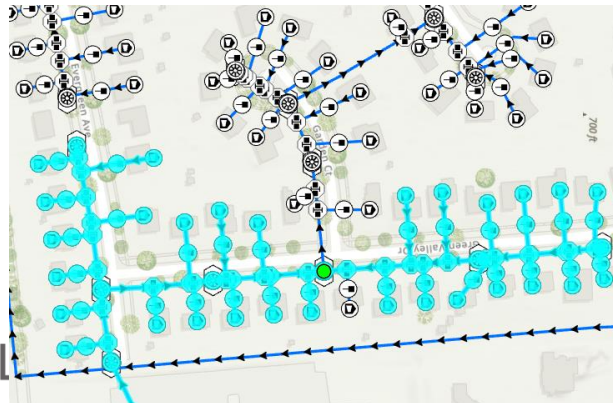


# UN functionalities

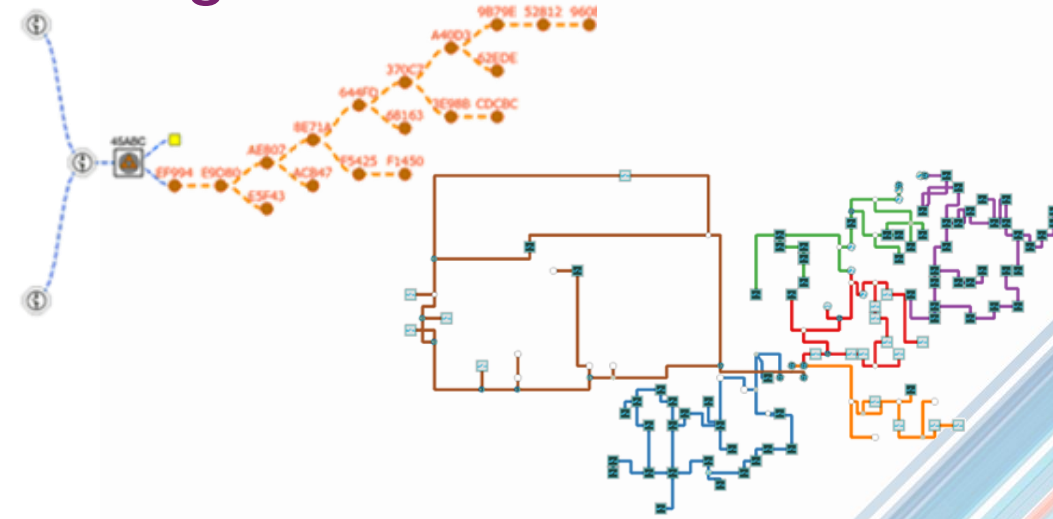
## 1. Associations



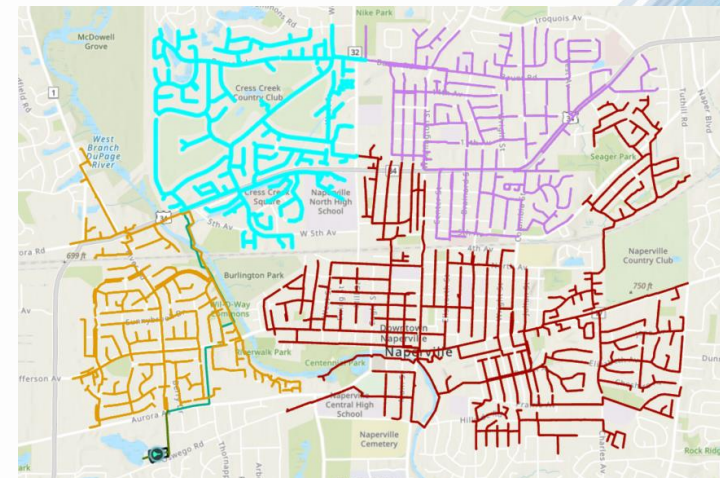
## 2. Tracing



## 3. Diagrams



## 4. Subnetwork management



# Network customization

## UN specific

### Data model configuration



- Asset groups/types
- Connectivity rules
- Network categories
- Network attributes
- Subnetwork definition
- ...



Named trace configurations



Diagram templates

## Standard GIS

### Data design



Add Field(s)



Domains



Attribute Rules



Contingent Values

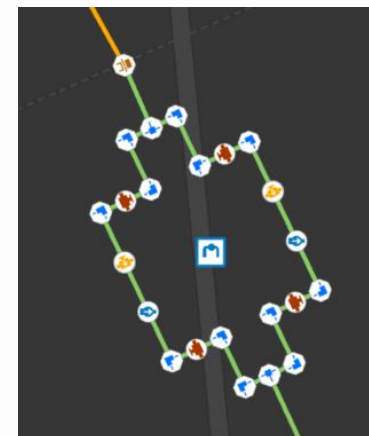
### Layer definition

#### Map design :

- Symbology
- Visibility scale range
- Pop-ups
- Subtype layers
- Definition queries
- Layer visibility/editability
- Field visibility/editability

### Advanced editing

Feature templates  
Group templates  
Preset templates



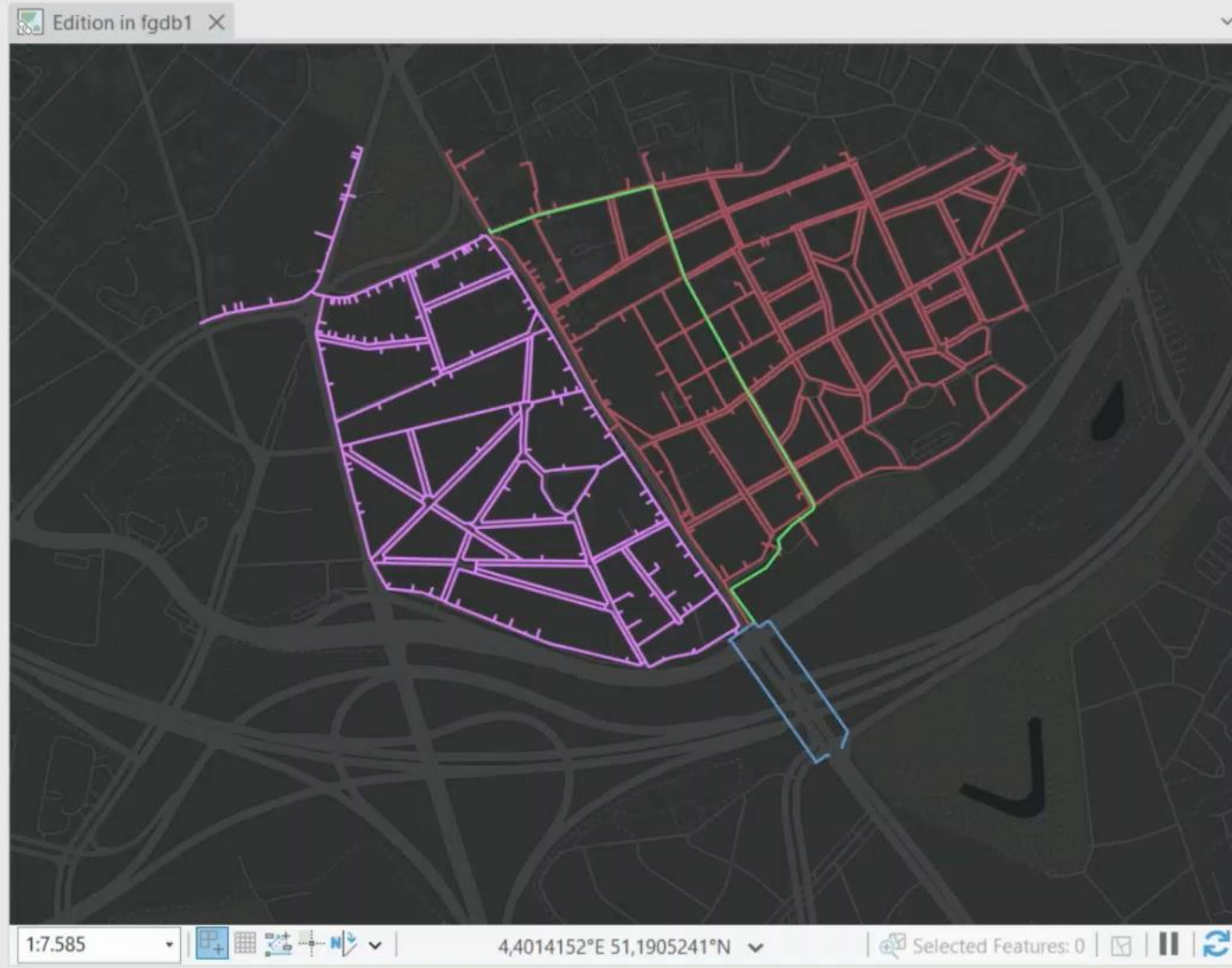
Drawing tools  
Honoring network  
connectivity rules  
Include associations



Map application interface showing the top toolbar and ribbon. The title bar includes "poc-waterlink" and standard window controls. The ribbon is divided into several tabs: Project, Map (active), Insert, Analysis, View, Edit, Imagery, Share, AquaTwin, Help, Linear Referencing, and Utility Network. The Map tab contains sub-groups: Clipboard (Paste, Cut, Copy, Copy Path), Navigate (Explore, Bookmarks, Go To XY), Layer, Selection (Select, Select By Attributes, Select By Location), Inquiry (Measure, Locate, Infographics, Coordinate Conversion), Labeling (Pause, Lock, Convert), and Offline (Download Map).

Contents pane showing the project structure. It includes a search bar and a list of layers and tables. The "Drawing Order" section is expanded, showing the following items:

- Edition in fgdb1
  - ☐ Dark Gray Reference
  - ☐ Schematic network
  - ☒ Water network
  - ☐ Structure network
  - ☐ Water Utility Network
  - ☒ Dark Gray Base
- Standalone Tables
  - Hydrant Maintenance Inspection
  - Valve Inspection
  - Water Junction Object
  - Water Edge Object
  - Structure Junction Object
  - Structure Edge Object
  - SchematicEdgeObject
  - SchematicJunctionObject



Catalog pane showing the project structure. It includes a search bar and a list of project items. The "Project" tab is active, showing the following items:

- Maps
- Toolboxes
- Notebooks
- Databases
- Styles
- Servers
- Tasks
- Folders
- Locators

Bottom status bar: Catalog | Geopro... | Symbo... | Trace | Find Su...

Project Map Insert Analysis View Edit Imagery Share AquaTwin Help Group Layer Linear Referencing Utility Network

Validate Error Inspector Terminal Paths Terminal Connections Modify View Trace Utility Network Tool Gallery Apply To Diagrams Apply To Maps Find New Overwrite Append Find View Modify Controller Network management

Network Topology Associations Tools Selection Diagram Subnetwork

Contents

Search

Drawing Order

- ▾ Edition in fgdb
  - ☐ Dark Gray Reference
  - ☐ Schematic network
  - ☒ Water network
    - ☒ Water Device
    - ☒ Water Assembly
    - ☒ Water Junction
    - ☒ Water Line
    - ☒ Water Subnet Line
  - ☐ Structure network
  - ☐ Water Utility Network
  - ☒ Dark Gray Base
- ▾ Standalone Tables
  - Hydrant Maintenance Inspe...
  - Valve Inspection
  - Water Junction Object
  - Water Edge Object
  - Structure Junction Object



Catalog

Project Portal Computer Favorites

Search Project

- Maps
- Toolboxes
- Notebooks
- Databases
- Styles
- Servers
- Tasks
- Folders
- Locators

Catalog Geopro... Symbo... Trace Find Su...



Utility - ArcGIS Enterprise UN

Project Map Insert Analysis View **Edit** Imagery Share AquaTwin Help Feature Layer Labeling Data Linear Referencing Utility Network

Paste Cut Copy Copy Path Clipboard

Save Discard

No Topology Error Inspector Manage Templates Manage Edits

Status Settings

Snapping

Create Modify Delete

Select

Move Annotation

Mode

No surfaces

Ground To Grid Manage Quality

Corrections Data Review

Contents

Search

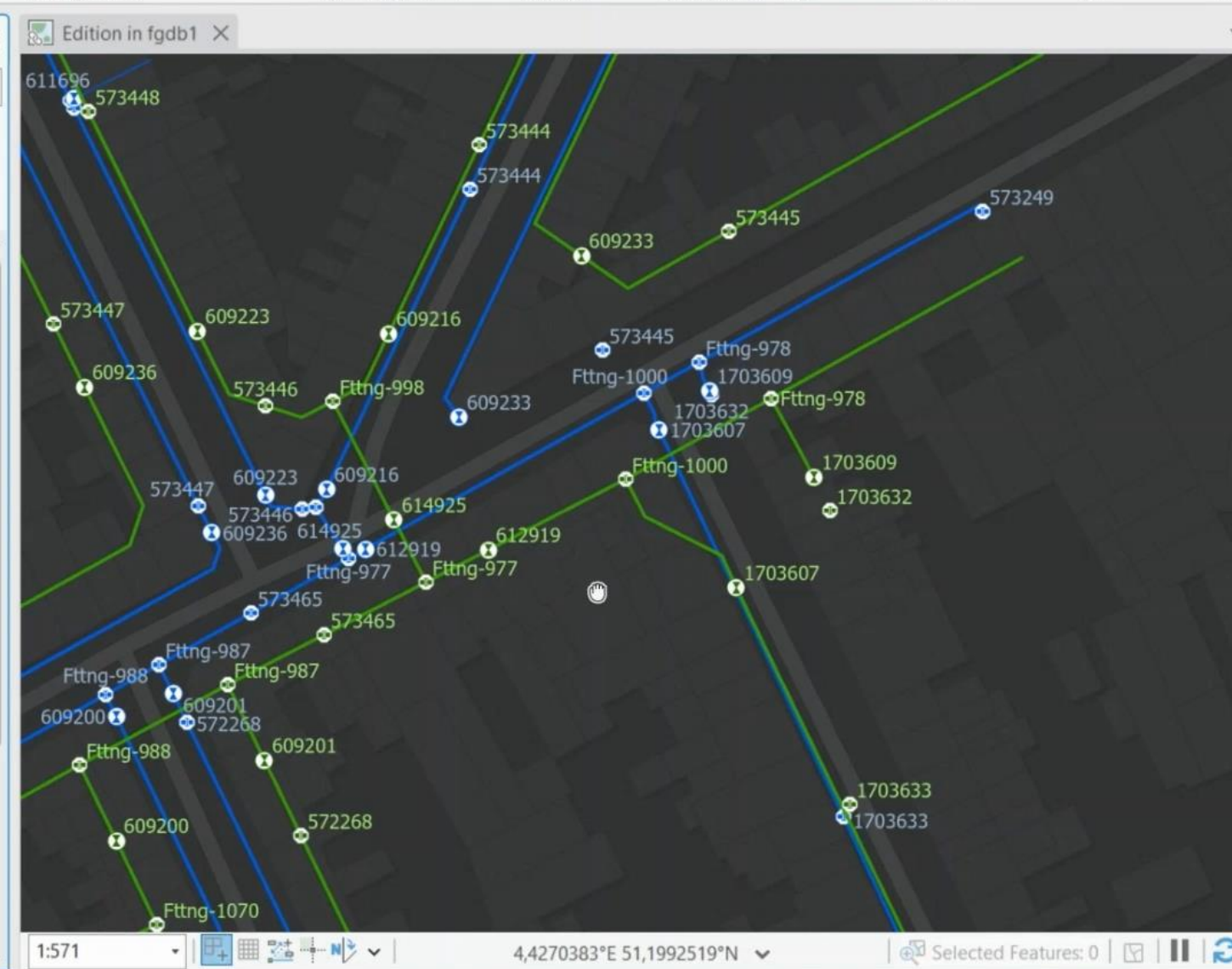
Drawing Order

Edition in fgdb1

- ☐ Dark Gray Reference
- ☒ Schematic network
  - ☒ Schematic Device
  - ☒ Schematic Assembly
  - ☒ Schematic Junction
  - ☒ Schematic Line
  - ☐ Schematic Subnet Line
- ☒ Water network
  - ☒ Water Device
  - ☒ Water Assembly
  - ☒ Water Junction
  - ☒ Water Line
  - ☐ Water Subnet Line
- ☐ Structure network
- ☐ Water Utility Network
- ☒ Dark Gray Base

☒ Standalone Tables

Hydrant Maintenance Inspe



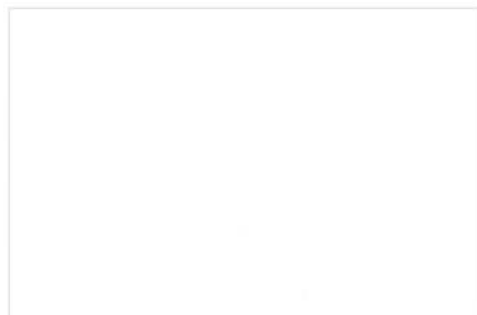
The screenshot shows the 'Catalog' panel in QGIS. At the top, there are tabs for 'Project', 'Portal', 'Computer', and 'Favorites'. The 'Project' tab is selected. Below the tabs is a search bar with a magnifying glass icon and a dropdown arrow. The search bar contains the text 'Search Project'. Below the search bar is a list of project categories, each with a folder icon and a name: 'Maps', 'Toolboxes', 'Notebooks', 'Databases', 'Styles', 'Servers', 'Tasks', 'Folders', and 'Locators'. The 'Locators' category is highlighted with a blue background. At the bottom of the panel, there is a status bar with the text 'Catal...' and 'Creat... Pop-up Modi... Attri...'.

# Interaction with the network





✎ Edit thumbnail



☆ Add to Favorites

## POC Waterlink

🔧 Feature Layer (utility network) by PortalAdmin

Item created: Sep 4, 2024    Item updated: Sep 4, 2024

View count: 88

✎ Edit

Open in Map Viewer



Open in Scene Viewer

Open in ArcGIS Desktop



Share

Metadata

## Description

This service has been designed to support the advance capabilities of the ArcGIS Utility Network.

✎ Edit

## Item Information

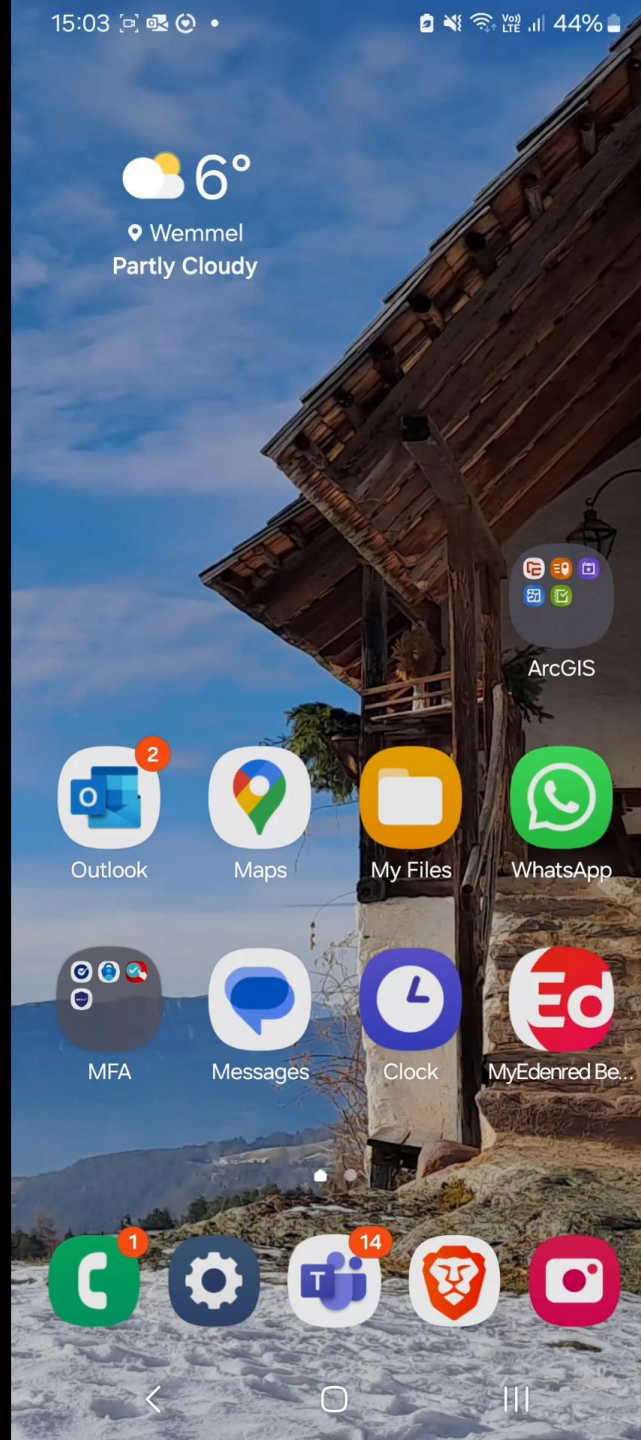
🔗 Learn more



Low

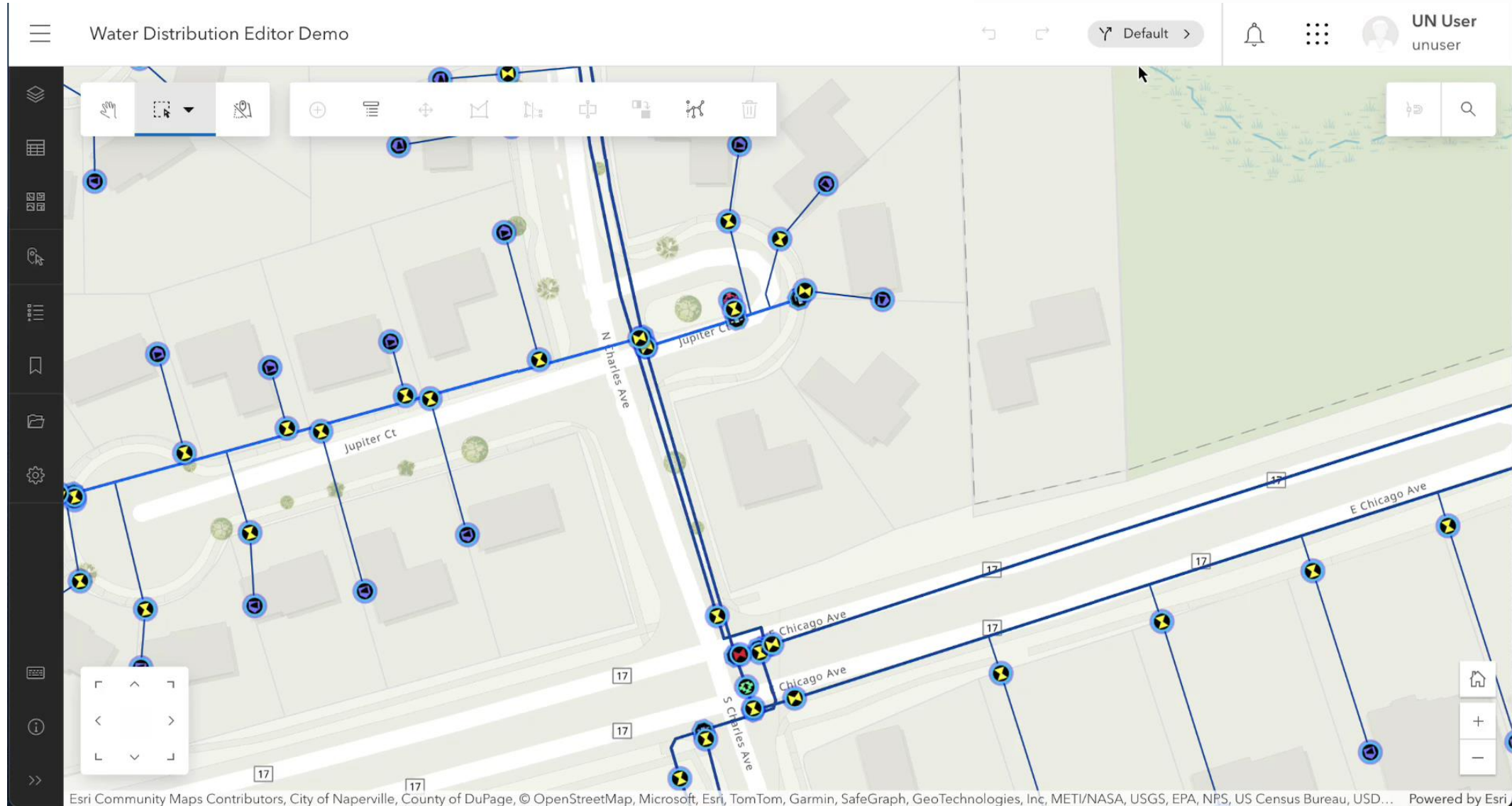
High

# In ArcGIS FieldMaps





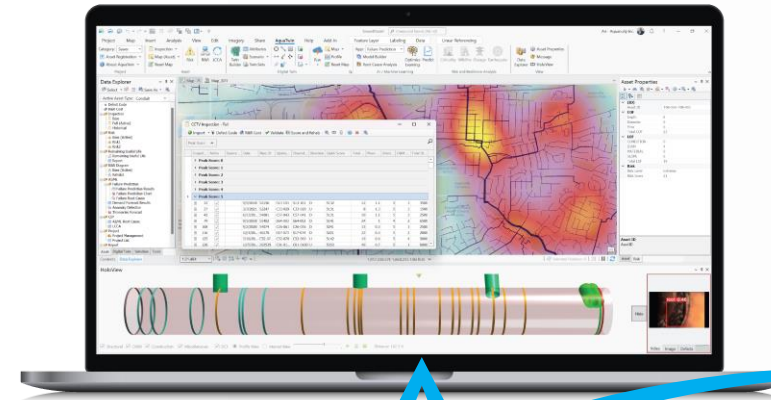
# Web editor app



# Partner solutions



Utility network **advanced visualization & edition**  
in web interfaces



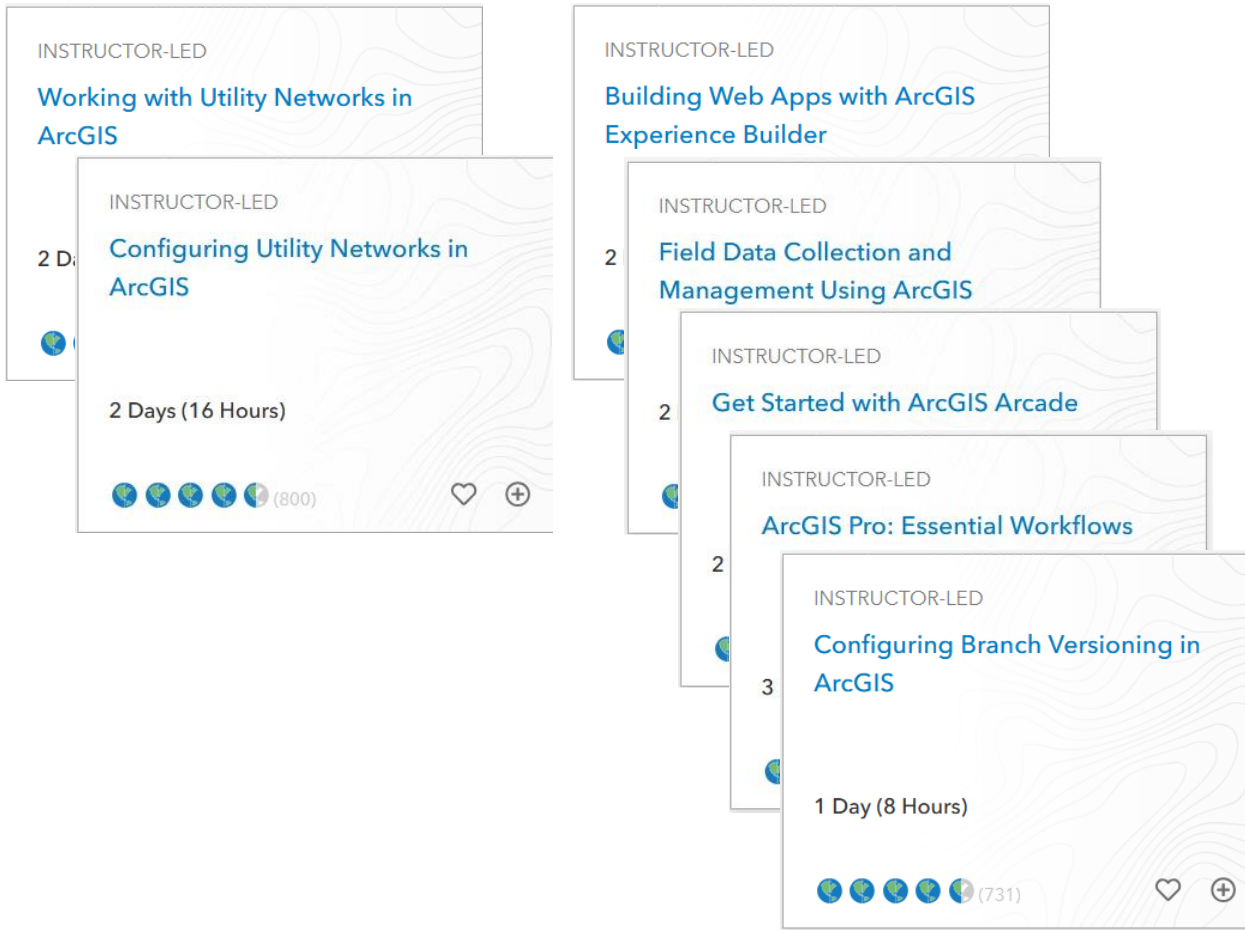
ArcGIS Pro integrated solution for

- **AquaTwin Water** : Water
- **AquaTwin Sewer** : Wastewater, Stormwater
- **AquaTwin Surge** : Flood modelling
- **AquaTwin Asset** : ITV inspection data, Asset management, Risk analysis, Etc.



# Additional resources

## Esri standard trainings



## Online resources

- [ArcGIS Utility Network online help](#)
- [ArcGIS Solutions](#)
- [Learn ArcGIS](#)
- [Esri Community](#)
- [ArcGIS Architecture Center](#)

## Events

- **IMGIS** 9–11 April 2025 | Frankfurt, Germany
- **ArcGIS Academy** 22 May 2025 | Belgium
- **Euro ERGIS** (to be announced)
- **UNC monthly meetings** (online)
- **Water UN monthly meetings** (online)

# Your opinion matters

Please fill in this short survey







# esri™ BeLux

***THE SCIENCE OF WHERE™***

