



SEPM Products

# Release 2024-02

New Features

| Document Information | Description  |
|----------------------|--|
| Abstract             | This document describes new features in the SEPM product release 2024-02           |
| Version              | 2024-02  |
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# 1 Overview

## 1.1 Changes Overview

This release **2024-02** covers the following improvements:

- **SEPM X-Translator**
  - Official support for GE Vernova Smallworld Geo Network Management GeoSpatial Server (GSS) technology.
  - Various improvements in the user interface and formats.
- **SEPM INTERLIS Interfaces**
  - New interface for mapping NRM Pipeline data to Swiss federal data models (PipelinesystemUnderSupervisionByFederalGovernment\_V1.ili and PipelinesystemUnderSupervisionByFederalGovernmentExtended\_V1.ili), including combined export functionality.
  - Improved export configuration for Protected Areas for Pipe Storage layouts
- **SEPM NEPLAN Interface**
  - Support for Prosumer categories
  - Configuration of the NEPLAN Type field for generated ExternalGrid elements
- **SEPM ISYBAU Interface**
  - New Network Update functionality for NRM Wastewater, supporting the import of ISYBAU inspection data (types BCA, DCA, and DCG) and matching or creating house service connections in the GIS system

## 1.2 Installation/Upgrade

### 1.2.1 Upgrade to 2024-02

The upgrade to the present version **2024-02** is achieved through exchange of the layered products supplied by SEPM and taking over of the existing licenses, as described in the Admin Manual.

### 1.2.2 Smallworld-Versions

This release supports all Smallworld version from Smallworld 4.0 up to Smallworld 5.3.4.

### 1.2.3 AutoCAD DXF/DWG Format

This version comprises a new version of the helper program **DwgAcp.exe**. If you use the "AutoCAD DWG/DXF" format you'll need to uninstall the existing *DwgAcpSetup.msi* and install the new setup. The installation directory in this release is:

```
C:\Program Files\SEPM\DwgAcp140
```

### 1.2.4 Support for GSS

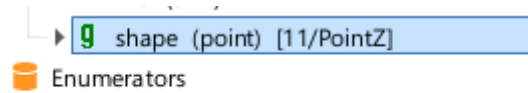
Starting with this release, SEPM officially supports GE Vernova Smallworld Geo Network Management GeoSpatial Server (GSS) technology. This support ensures seamless integration and compatibility for advanced GIS data processing and export services, such as "Download to DXF."

## 2 SEPM X-Translator

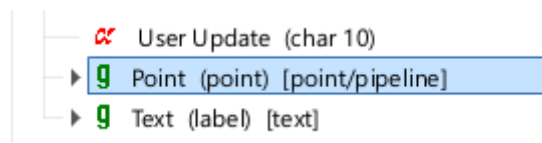
### 2.1 User Interface

#### 2.1.1 Original Geometry Type

The model now shows the original geometry type for some formats. For Shape files it shows the internal ID and corresponding type (e.g. "11/PointZ"). Smallworld geometries show their type and manifold name, if applicable.



*Shape Geometry Type (11/PointZ)*



*Smallworld Geometry Type and Manifold (point/pipeline)*

#### 2.1.2 Model Properties Menu

In the Model Properties Menu, the property "MIF/Shape Name" has been renamed to "Target Name".

## 2.2 Engine

### 2.2.1 Hook for custom logging requirements

The following hook method is now provided to account for custom logging requirements:

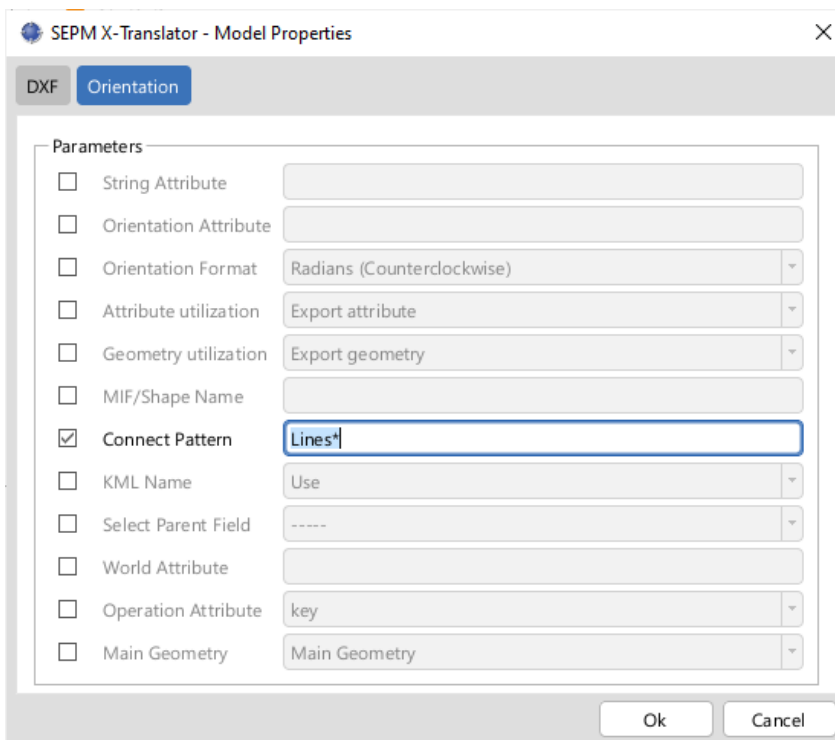
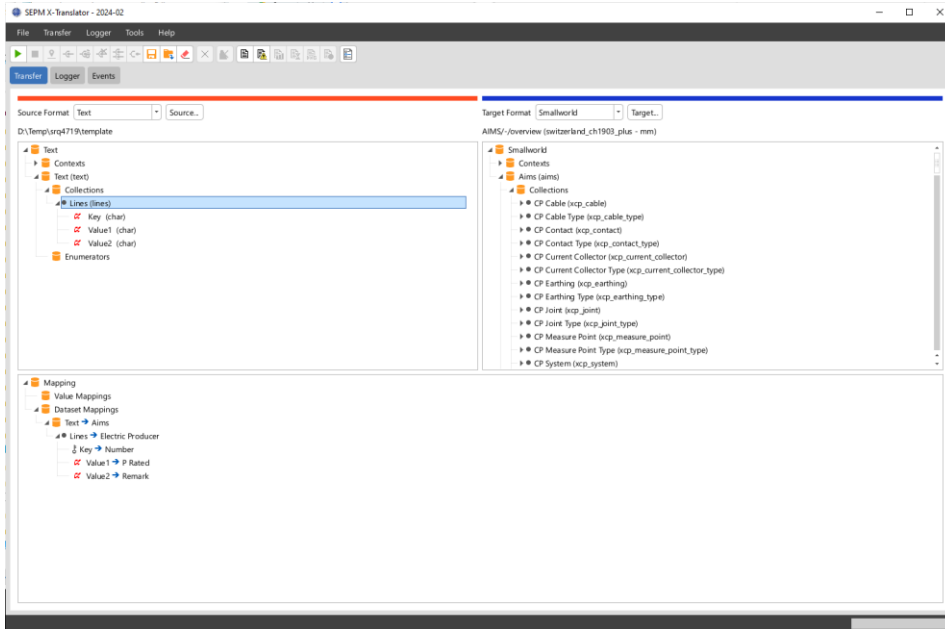
```
_pragma(classify_level=advanced,topic={x_translator},usage=redefinable)
_method x_translator.custom_log_condition( p_origin, p_condition, p_event_feature )
    ## Parameters      : P_ORIGIN : One of :source, :target or :transfer
    ##                  P_CONDITION : The x_information condition
    ##                  P_EVENT_FEATURE : See create_event_feature()
    ## Returns         :
    ## Function        :

    # Hook for customized handling of errors, warnings and infos

    #write( "LOG: ", p_condition[:type], " - ", p_condition.report_contents_string )
_endmethod
$
```

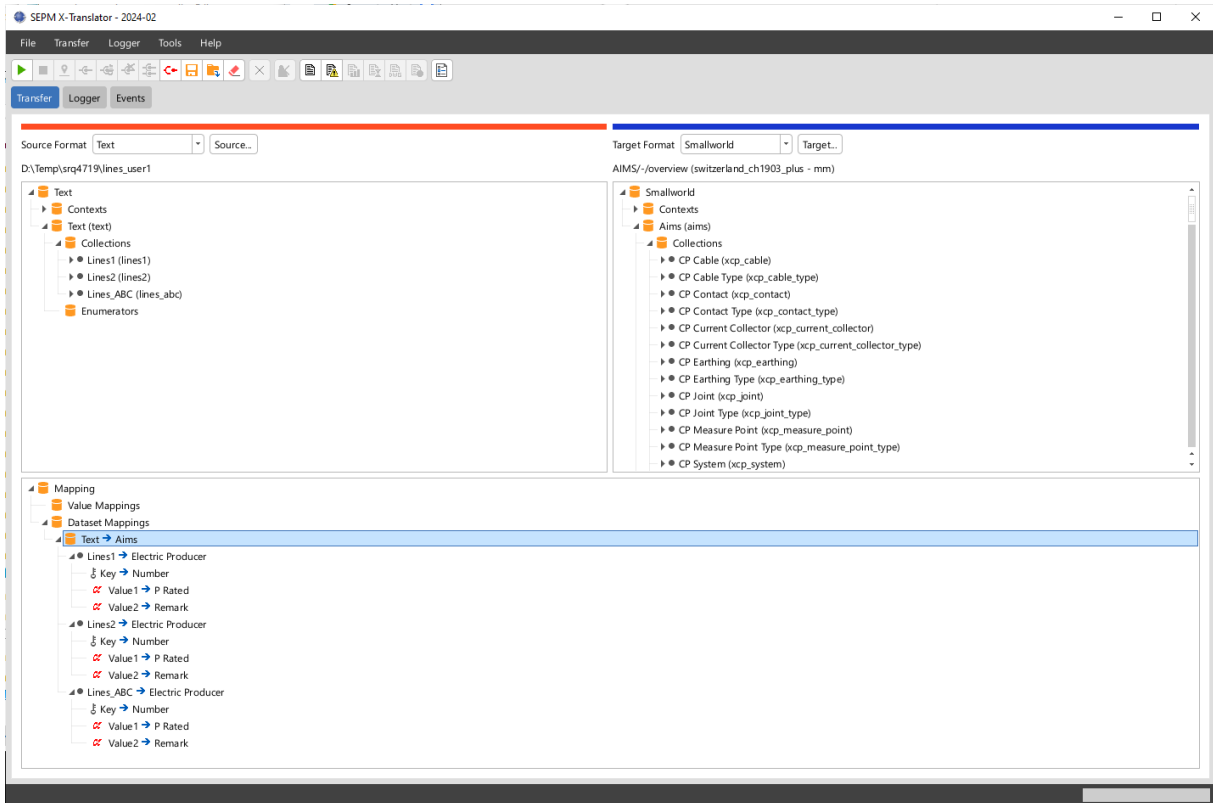
## 2.3 Applying a Mapping to Multiple Source Files

Sometimes the same mapping should be configured once and then applied to one or more similarly structured files. The «Connect Pattern» property on the collection can be used in this case, as shown in the following example:



Step 1: Configure the mapping based on a template file (here 'Lines.csv').

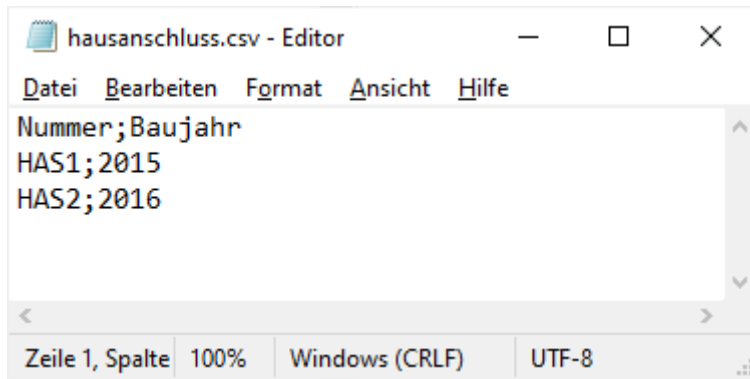
Step 2: Define the 'Connect Pattern' model property to match the files for which the configured mapping should be used.



Step 3: When selecting another directory, the mapping is applied to all files matching the pattern.

### 2.3.1 Mapping a string to a date or time field

A string attribute value with a single integer number, when mapped to a date or time field, will now be loaded as the corresponding year at the first of January.



*Mapping the construction year (Baujahr) into a date field will use 1st January*

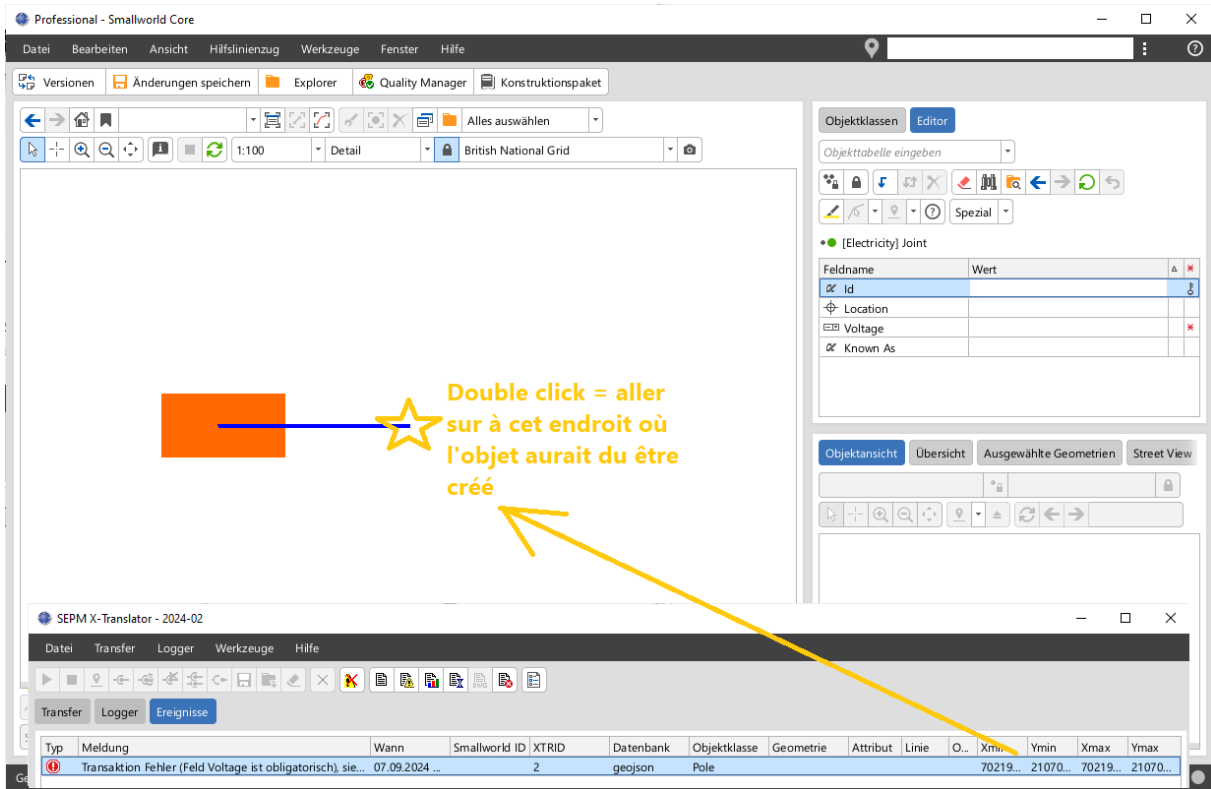


## 2.4 Smallworld Target Format

### 2.4.1 Log xmin/ymin/xmax/ymax and Goto

The log now contains values for the fields xmin, ymin, xmax and ymax when loading features into Smallworld and the feature has a geometry in the target world.

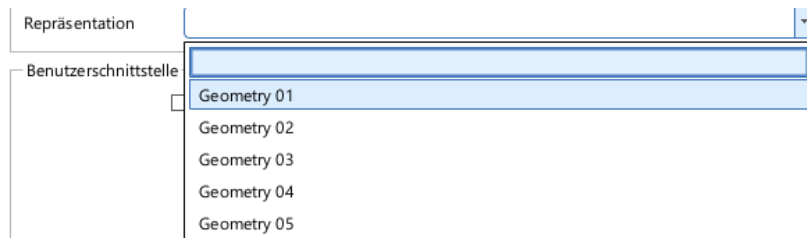
A double click on the error in the X-Translator events tab will perform a goto to the objects bounds.



*Performing a goto to the objects bounds*

### 2.4.2 Smallworld Target Representation Option

The Smallworld Target Representation Option, which was temporarily removed from version 2024-01, is now available again.



*Smallworld Target Representation*

### 2.4.3 String markers for \_unset

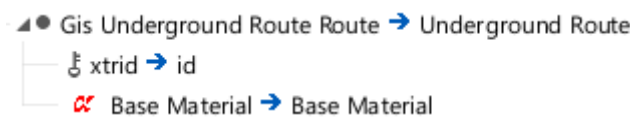
In previous versions, the special strings “unset” and “#unset#” could be used to specifically resolve to a \_unset value. This list has been extended to cover also “null” and “#null#”. The relevant check is now also case independent, so for example “#UNSET#” or “Null” also map to the value \_unset.

As an example, in a GeoJSON file with an attribute using one of these special values and a Connect-ID mapping, the corresponding target attribute value can be cleared:

```

"properties": {
  "xtrid": "4987",
  "Base Material": "#NULL#"
}
    
```

*GeoJSON with String attribute “#NULL#”*



*Connect-ID Mapping for “Base Material”*

| Field name          | Value    |
|---------------------|----------|
| Core Material       |          |
| Core Material Depth | 300 mm   |
| Base Material       | Concrete |
| Base Material Depth | 50 mm    |

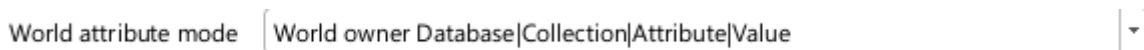
*Attribute before Transfer*

| Field name          | Value  |
|---------------------|--------|
| Core Material       |        |
| Core Material Depth | 300 mm |
| Base Material       |        |
| Base Material Depth | 50 mm  |

*Attribute cleared*

### 2.4.4 New World attribute mode

The Smallworld Target ‘World Attribute Mode’ option has been extended to include a value “World owner Database|Collection|Attribute|Value”. This allows to select the target world from a world owner object through the world API.



*New “World owner Database|Collection|Attribute|Value” World attribute mode*

### 2.4.5 Default values for 1-n joins

In relaxed mode, foreign keys of objects joined in a one to many relationship have been filled with the number 0. This has now been changed to select the ID of a valid parent object.

Code in earlier versions:

```
Magik> print(v.collections[:m_st_ns_freileitungsabschnitt].x_default_values())

property_list:
:zustand      "En exploitation"
:m_st_leitungstyp_id  0
```

Code in version 2024-02:

```
Magik> print(v.collections[:m_st_ns_freileitungsabschnitt].x_default_values())

property_list:
:zustand      "En exploitation"
:m_st_leitungstyp_id  685
```

Additionally, the owner\_predicate() API is called as defined in m\_elec\_line\_mixin.magik. This means that in the NRM Electric Application, a valid cable type is selected for a given cable collection.

The following shows a use case for this change:

Sauvegarde auto.

Sauvegarde auto. tous les

**Mode valeurs par défaut**

Désactiver les validateurs

*Default mode has been set to relaxed mode.*



*A GeoJSON line is loaded into the aerial low voltage cable.*

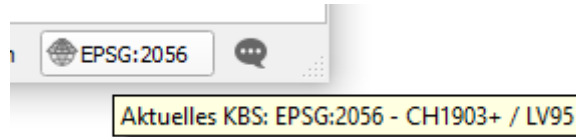
|                                     |                                |         |  |  |
|-------------------------------------|--------------------------------|---------|--|--|
| <input checked="" type="checkbox"/> | Date de mise hors exploitation |         |  |  |
| <input checked="" type="checkbox"/> | Numéro                         |         |  |  |
| <input checked="" type="checkbox"/> | Date de mise en exploitation   |         |  |  |
| <input checked="" type="checkbox"/> | Désignation normalisée         | Inconnu |  |  |
| <input checked="" type="checkbox"/> | Type de ligne aérienne         | Inconnu |  |  |
| <input checked="" type="checkbox"/> | Nombre de phases               |         |  |  |
| <input checked="" type="checkbox"/> | Unité d'exploitation           |         |  |  |

*A valid low voltage cable type 'Inconnu' is now selected.*

## 2.5 Shape Target Format

### 2.5.1 New LV95 PRJ File

The contents of the PRJ file generated for the Swiss LV95 coordinate system has changed to the current version of spatialreference.org/ref/epsg/2056. The differences cover the name of the system, e.g. "CH1903+\_LV95" versus "CH1903+ / LV95", or datum, "D\_CH1903+" versus "D\_CH1903". This allows some client applications to automatically map to the LV95 system (EPSG 2056):

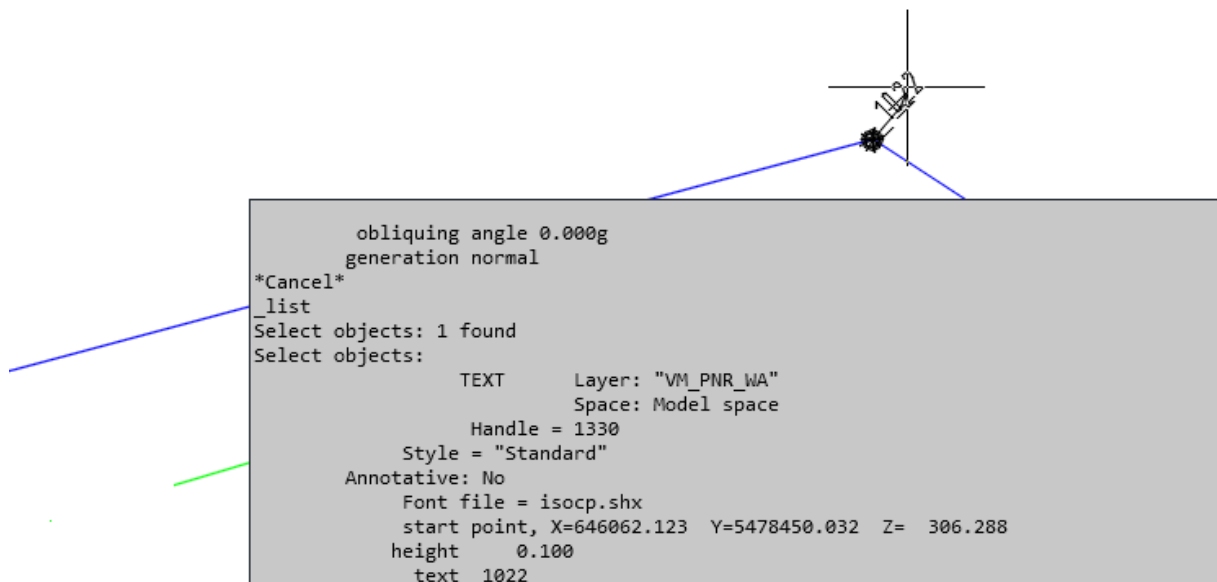


*QGIS automatically maps to EPSG 2056*

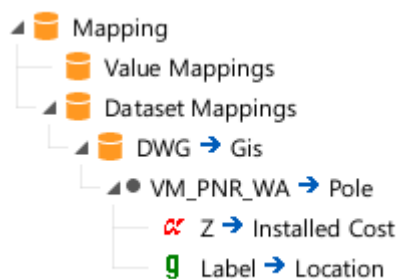
## 2.6 AutoCAD DWG/DXF Source Format

### 2.6.1 TEXT entity z-coordinate

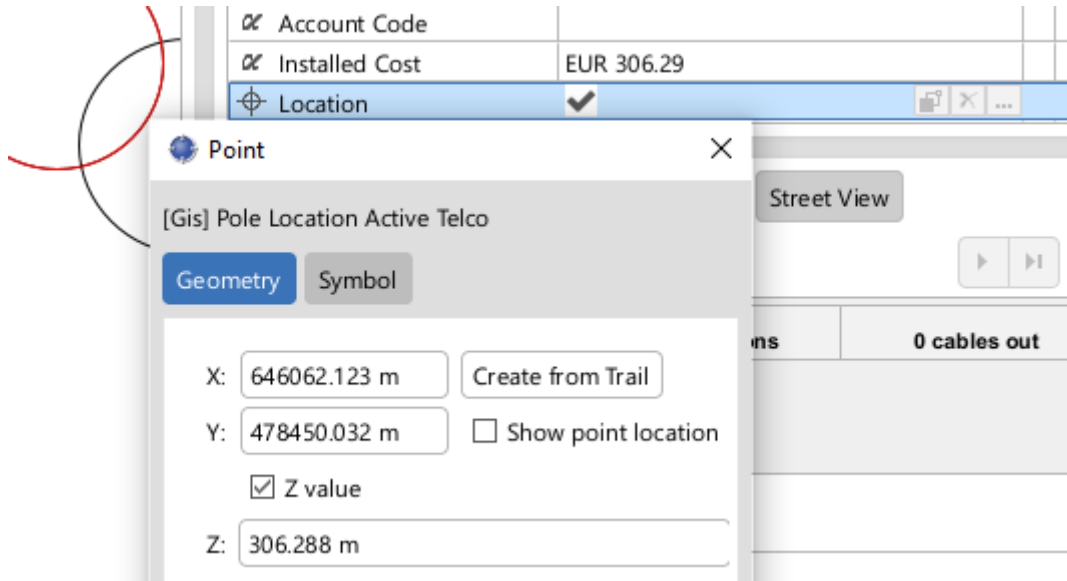
The z-coordinate of a TEXT entity is now read, when the option "Read z-coordinates" is activated.



*TEXT entity with a z-coordinate (306.288)*



*Mapping of the corresponding Label geometry und Z Attribute to a PNI Pole*

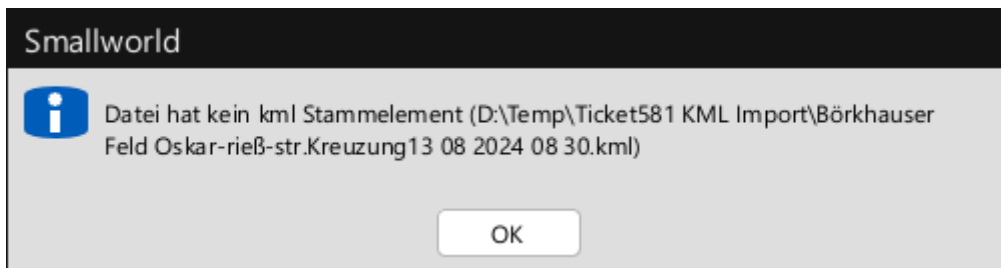


*Pole with z coordinate set and attribute value filled*

## 2.7 KML Source Format

### 2.7.1 No Root Element kml (Ticket#581)

The root element of the KML file must be 'kml'. If this is not the case, the following error message is now displayed:



*File with no kml root element*

## 2.8 KML Target Format

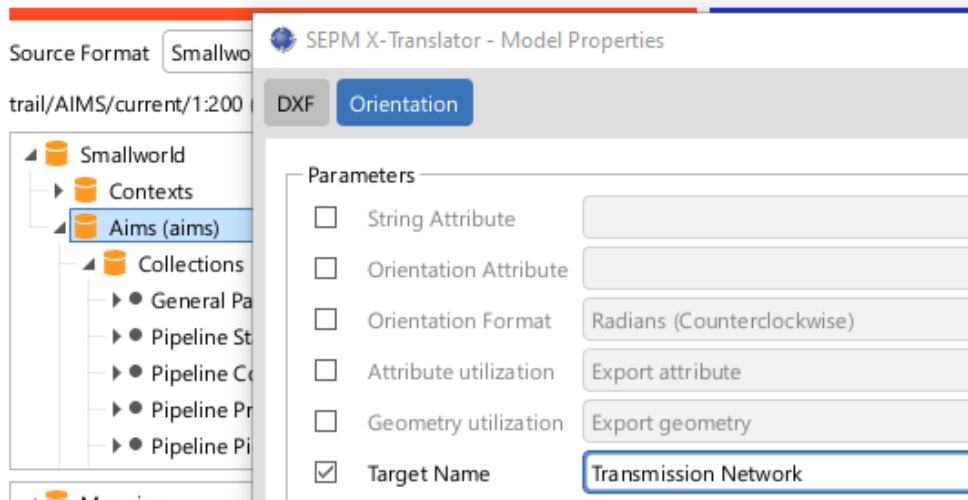
### 2.8.1 New Options

The following new options have been added to fine tune the output of the generated KML file:

| Option   | Description   |
|--|---|
| <b>Write KML Icon Style</b>                        | Switch on or off the generation of KML Icon Style information.  |
| <b>Write attributes as ExtendedData/SchemaData</b> | Enable or disable the export of attributes through SchemaData/SimpleData.   |
| <b>KML Description Mode</b>                        | <p><b>None</b> : No description is exported</p> <p><b>HTML Table</b>: Attributes are exported as an HTML table embedded as CDATA in the description tag</p> <p><b>HTML String</b>: Attributes are exported as an HTML string embedded as CDATA in the description tag</p> <p><b>Custom</b> : Output from the :x_kml_description API</p> |

## 2.8.2 KML Document Name

You can now set the Name of the KML Document using the **Model Properties Menu**, by setting the **Target Name** property on the first dataset of the source model.



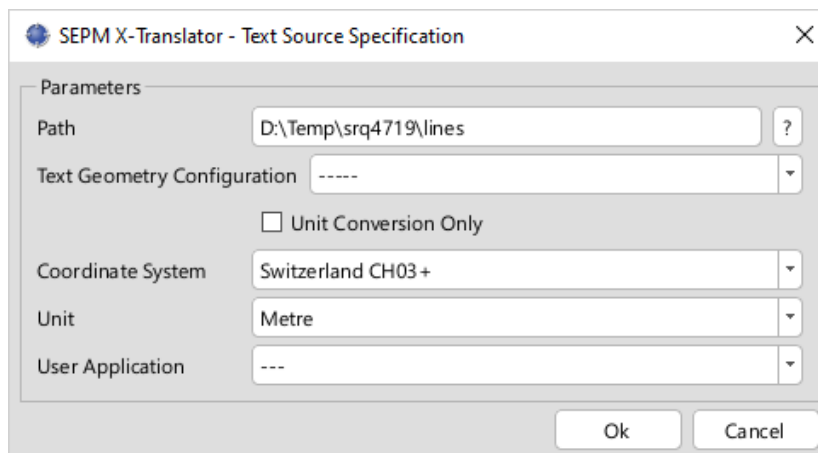
*Setting the KML Document Name using the Model Properties Menu*

## 2.9 Text Source Format

### 2.9.1 Text Geometry Configuration

Currently in the text file we need to have markers in the header line to define geometries, e.g. #x#Point;#y#Point maps to a point geometry. With the new Text Geometry Configuration parameter, predefined geometry configurations can be defined, which map the configured column names into coordinates.

```
x_translator_settings.register_text_geometry_config(
    property_list.new_with(
        :name, :map_geo_admin_profile,
        :external_name, "Profile (map.geo.admin.ch)",
        :point_geometry_name, :point,
        :point_geometry_ename, "Point",
        :x_attribute_ename, "Easting",
        :y_attribute_ename, "Northing",
        :z_attribute_ename, "Altitude" ) )
```



*The Text Geometry Configuration can be selected in the Text Source*

## 3 SEPM INTERLIS Interfaces

### 3.1 New Interface NRM Pipeline – BFE/MGDM

#### 3.1.1 Introduction

This release introduces a new interface for mapping data from the Smallworld NRM Pipeline data model to the Swiss federal data models:

- **PipelinesystemUnderSupervisionByFederalGovernment\_V1.ili**
- **PipelinesystemUnderSupervisionByFederalGovernmentExtended\_V1.ili**

#### 3.1.2 Key Features

- **Separate Configurations:** Two main configurations are available for the standard and extended versions of the federal pipeline system models.
- **Combined Export:** A configuration option allows exporting both models in a single operation, streamlining data delivery workflows.

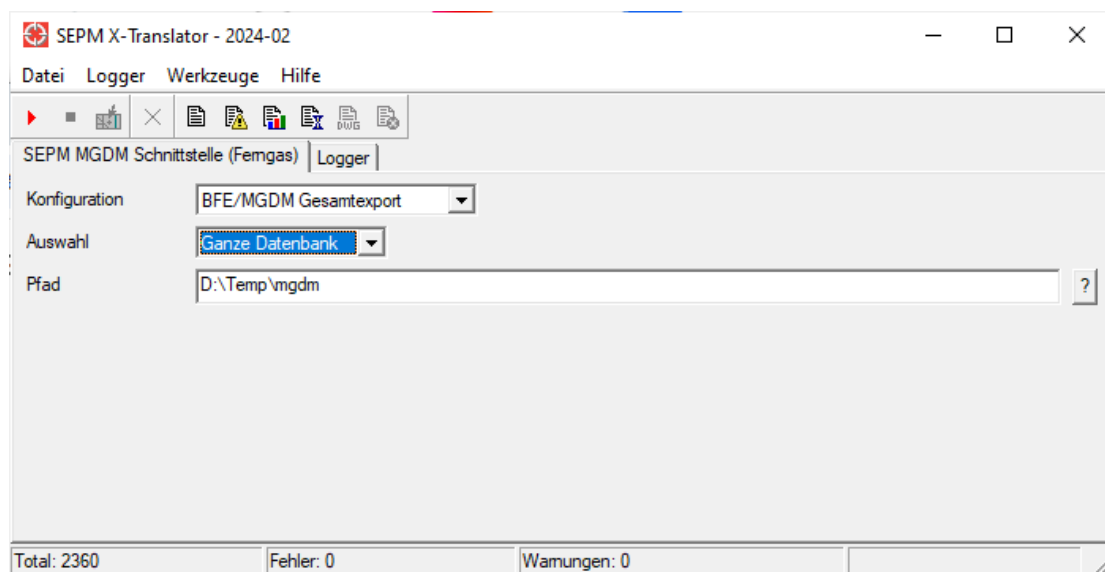
#### 3.1.3 Mapping Overview

Below is a summary of the main object mappings:

| Pipeline Object                         | Federal Data Model        |
|---|---------------------------|
| FG Station (fg_flb_station)             | AttendantPlant            |
| FG Speicher (gm_fg_druckbehaelter)      | Container                 |
| FG Leitungsabschnitt (fg_flb_la)        | Pipeline                  |
| FG Schutzbereich (fg_flb_schutzbereich) | ProtectedArea             |
| FG Markierungssignal (fg_flb_pfahl)     | RouteMarking              |
| FG Rohrsicherung (fg_flb_schutzrohr)    | PipelineProtectionMeasure |

#### 3.1.4 Simple GUI

The SEPM Simple GUI has been configured to launch the export interfaces.



*Simple GUI for the NRM Pipeline – BFE/MGDM Interface*

## 3.2 SEPM SIA405 Interface

### 3.2.1 Improved Export for LKMap Ferngas – Protection Area for Pipe Storage

This release enhances the **SEPM SIA405 LKHZ interface** for exporting gas pipelines to LKMap.

Manual Capture of Protection Areas: Previously, a 10-meter buffer was automatically created around pipelines to generate the LKFlaeche geometry, classified as Gas.Sicherheitskorridor. However, in cases where pipes are arranged parallel as storage, the buffer method led to overlapping protection areas. The new functionality allows protection areas to be manually defined and captured.

```
<collection_mapping collection1="fg_flb_la" collection2="lkflaeche">
  <attribute_group name="attribute"/>
  <geometry_mapping geometry1="schutzflaeche_speicher" geometry2="flaeche
    skip_if_unset="true"/>
  <fixed_mapping fixed="Gas.Sicherheitskorridor" attribute2="objektart"/>
</collection_mapping>
```

New mapping for *FG Leitungsabschnitt, Schutzfläche Speicher*

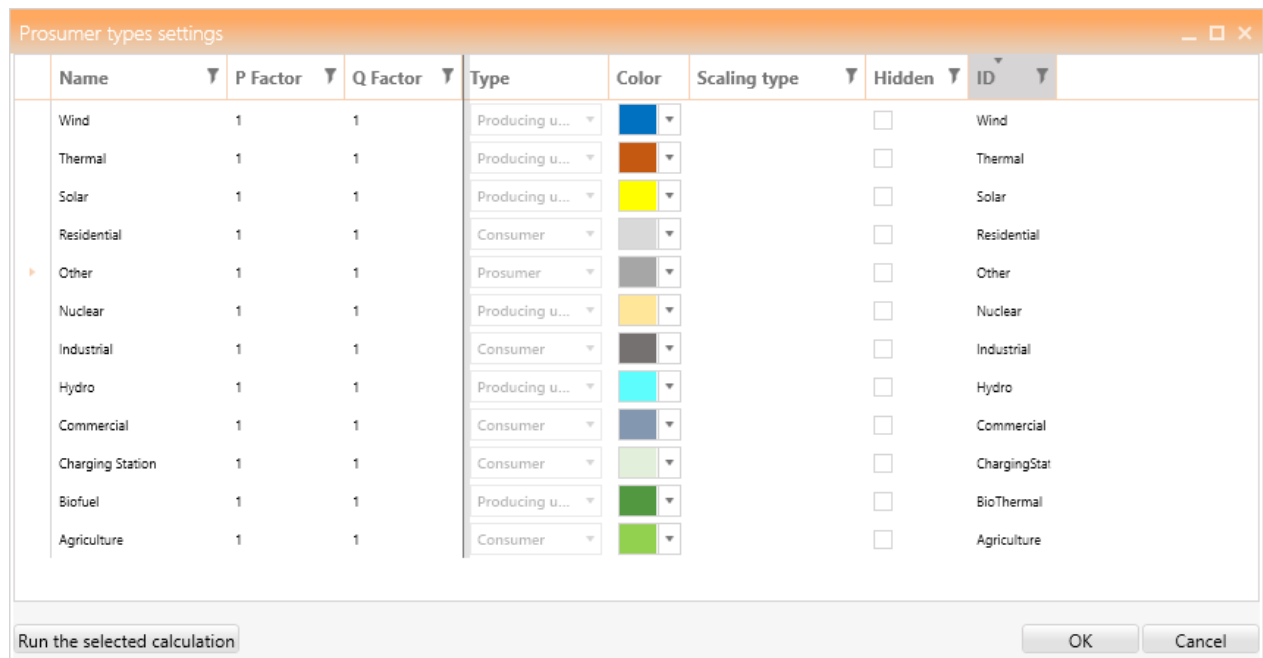


## 4 SEPM NEPLAN Interface

### 4.1 SEPM NEPLAN Interface for NIS Strom

#### 4.1.1 Support for Prosumer Types

A new TechDataVariable *CustomerType* (Prosumer Type) of type String has been added to the Producer and Consumer objects. These Prosumer categories allow the definition of a specific behavior of electrical connections of a category per HAS.



*NEPLAN Standard Prosumer Types*

The configuration can be customized by adapting the following methods by returning the desired prosumer category:

```

_pragma(classify_level=advanced,topic={x_translator},usage=subclassable)
_method nis_el_meter_producer.neplan_dyn_customertype
  ## Parameters      :
  ## Returns        : CustomerType (String)
  ## Function       :
  _return "Nuclear"
_endmethod
$

_pragma(classify_level=advanced,topic={x_translator},usage=subclassable)
_method nis_el_meter_consumer.neplan_dyn_customertype
  ## Parameters      :
  ## Returns        : CustomerType (String)
  ## Function       :
  _return "Industrial"
_endmethod
$

```

**Load**

Name: VER19669

Alias 1:

Type:

| Default  | Operational data                        | Effective data |
|--|---|----------------|
| LF type: IC  | LF type:                                | S .. kVA: 0    |
| Unit: LV   | Unit:                                   | P .. kW: 0     |
| S .. kVA: 0  | S .. kVA:                               | Q .. kvar: 0   |
| P .. kW: 0   | P .. kW:                                |                |
| Q .. kvar: 0                                       | Q .. kvar:                              |                |
| I .. A: 0  | I .. A:                                 |                |
| cosφ: 0.95   | cosφ:                                   |                |
| E .. kWh: 0  | E .. kWh:                               |                |
| P(D) .. kW: 0                                      | P(D) .. kW:                             |                |
| Q(D) .. kvar: 0                                    | Q(D) .. kvar:                           |                |
| Domestic units: 0                                  | Domestic units:                         |                |
| Phase: L1L2L3                                      | Phase:                                  |                |
| <input checked="" type="checkbox"/> Load balancing | <input type="checkbox"/> Load balancing |                |
| Scaling factor P: 1                                | Scaling factor P:                       |                |
| Scaling factor Q: 1                                | Scaling factor Q:                       |                |

Connection:  
 Wye Gnd  
 Delta  
 Wye Isol

Velander factors:  
 kvel1 .. 1/h: 0  
 kvel2 .. √(kWh/h): 0

Equivalent circuit for harmonic analysis:  
 R, L series connected

Prosumer Type: Industrial

Buttons: Copy, Paste, Export, Set as Default, Show internal names, OK, Cancel, Help

**Prosumer Kategorie Industrial**

**AC disperse generator**

Parameters

LF Analysis

Optimal Power Flow

Dynamic Analysis

Power Quality

Harmonic Analysis

Reliability

Appendixes

Investment Analysis

User

Time dependency

Topology/Activation

Location

| Default                                 | Operational data                        | Effective data |
|---|---|----------------|
| LF type: PC                             | LF type:                                |                |
| Unit: LV                                | Unit:                                   |                |
| U oper .. %: 100                        | U oper .. %:                            |                |
| Uw oper .. %: 0                         | Uw oper .. %:                           |                |
| S .. kVA: 0                             | S .. kVA:                               |                |
| P .. kW: 10                             | P .. kW:                                | P .. kW:       |
| Q .. kvar: 0                            | Q .. kvar:                              | Q .. kvar:     |
| I .. A: 0                               | I .. A:                                 |                |
| cosφ: 0.95                              | cosφ:                                   |                |
| <input type="checkbox"/> Capacitive     | <input type="checkbox"/> Capacitive     |                |
| Slack portion .. %: 0                   | Slack portion .. %:                     |                |
| <input type="checkbox"/> Load balancing | <input type="checkbox"/> Load balancing |                |
| Scaling factor P: 1                     | Scaling factor P:                       |                |
| Scaling factor Q: 1                     | Scaling factor Q:                       |                |

Prosumer Type: Nuclear

Buttons: Copy, Paste, Export, Set as Default, Show internal names, OK, Cancel, Help

**Prosumer Kategorie Nuclear**

## 4.1.2 Support for Type for ExternalGrid

The NEPLAN interface now supports the export of a NEPLAN Type for ExternalGrid elements. The following methods can be used to configure the NEPLAN Type:

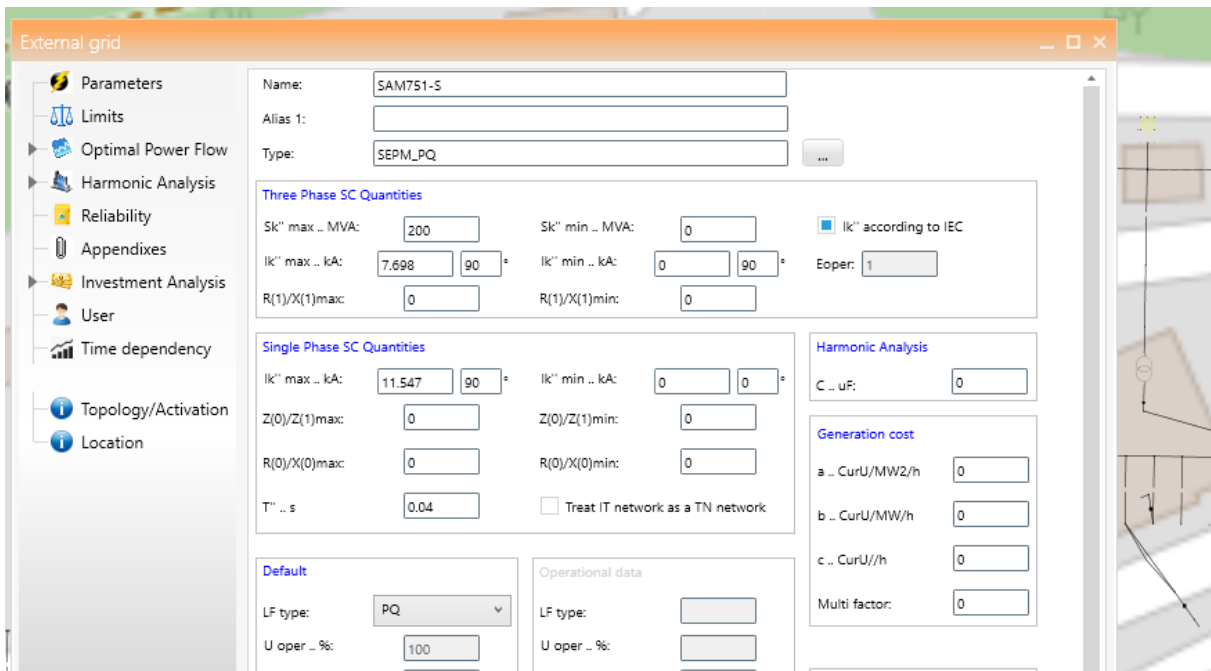
```
# -----
# LibraryType für ExternalGrid
# -----

_pragma(classify_level=advanced,topic={x_translator},usage=subclassable)
_method nis_el_int_busbar.neplan_feeder_type
  ## Parameters      :
  ## Returns         : The NEPLAN Type of the generated feeder
  ##                 (:is_create_busbar_externalgrid)
  ## Function        :

  _return "SEPM_PQ"
_endmethod
$

_pragma(classify_level=advanced,topic={x_translator},usage=subclassable)
_method nis_el_int_feeder.neplan_feeder_type
  ## Parameters      :
  ## Returns         : The NEPLAN Type of the generated feeder
  ##                 (:is_create_busbar_externalgrid)
  ## Function        :

  _return "SEPM_PQ"20
_endmethod
$
```



*Type of generated ExternalGrid generated on a medium voltage busbar*

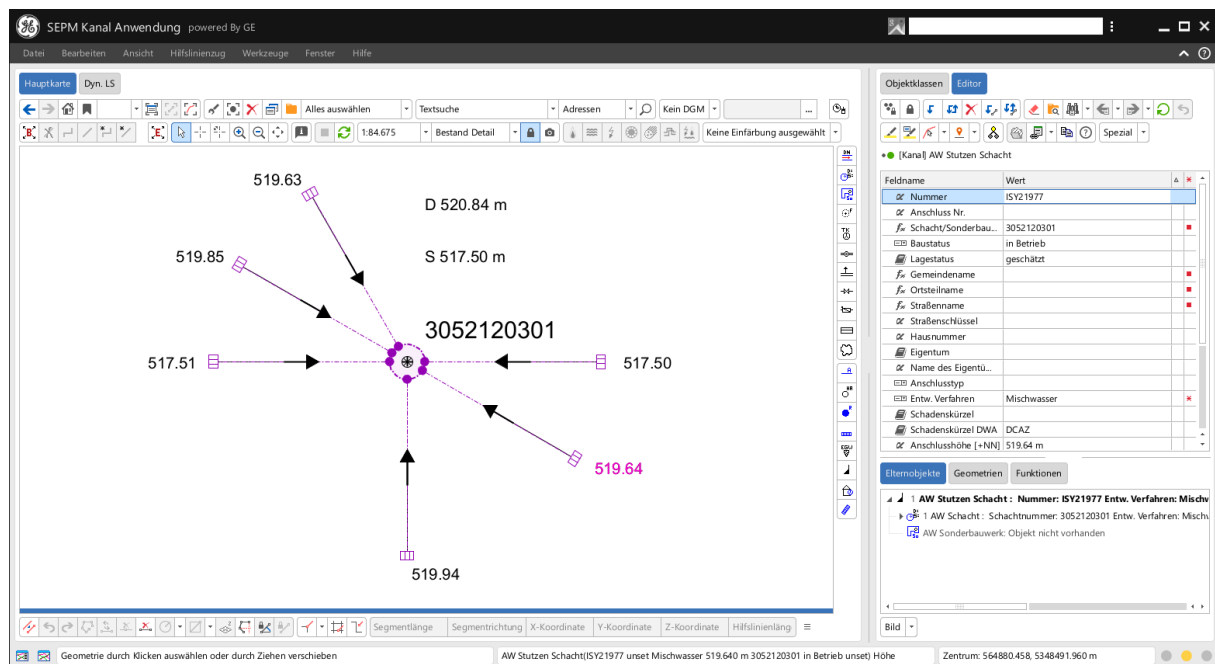
## 5 SEPM ISYBAU Interface

### 5.1 SEPM ISYBAU Import Interface for NRM Wastewater

#### 5.1.1 Network Update

The new **Network Update** functionality enhances the SEPM ISYBAU Import Interface for NRM Wastewater by enabling seamless integration of ISYBAU inspection data into the GIS system.

Import ISYBAU *RZustand* of type *BCA* and ISYBAU *KZustand* of types *DCA* and *DCG* (these identify house service connections in a waste water network) and match them to the existing GIS data. If an existing house service connection is found (matching the *BCA* or *DCA* observations) they are updated with the information from the ISYBAU XML. If not found, a new house service connection is created.



*Generation of connections according to ISYBAU "Position" (at 3, 4, 6 9, 10 and 11 o'clock)*