User Guide for CROSS Core 3.5

Publication date: 26-07-2022

© 2022, CROSS Network Intelligence s.r.o. All rights reserved. Reproduction and distribution of this document in any form without prior written permission is forbidden.

Table of content

TABLE OF CONTENT II

CHAPTER 1. CROSS NETWORK INTELLIGENCE – BASIC DESCRIPTION 1

1. CROSS process map TMF - eTOM 2

2. CROSS – Module types 4

CHAPTER 2. CROSS NETWORK INTELLIGENCE - USER GUIDE 5

1. Basic description of the CROSS application 5
- 1.1. Requirements of the CROSS application environment 6
- 1.2. Authorization - Log In 6
- 1.3. Glossary 7
- 1.4. Opening window - Dashboard 8
- 1.5. Application working space 9
- 1.6. Modules and submodules 10
- 1.7. Working with panels 12
- 1.8. Panels with table data structure 13
- 1.9. Panels with tree data structure 15
- 1.10. Panels with editors 18
  - 1.10.1. Methods for entering values to the editor 19
- 1.11. Panels with schemes 22
- 1.12. Panels with map 23
  - 1.12.1. Setting the visibility of objects on the map 25
  - 1.12.2. Selecting locality from the map - Object Inspector 31
  - 1.12.3. Searching address in the map 32
  - 1.12.4. Inserting, editing, and deleting the point geometry in the map 32
  - 1.12.5. Saving currently selected area on a map into PDF 34
  - 1.12.6. Saving current view of the map into PNG 34
  - 1.12.7. Custom geometry for selected object 35
- 1.13. Records filtering 36
- 1.14. Relation inspector 37
- 1.15. Change status of multiple nodes 40

2. Basic principles of working with the CROSS application. 41
- 2.1. PROJECT – elementary working unit 41
  - 2.1.1. How to select a project 42
  - 2.1.2. How to create a new project 43
  - 2.1.3. Project status changes 44
  - 2.1.4. Displaying projects on the map. 44
- 2.2. Workbook 44
- 2.3. Searching objects in the application 46
  - 2.3.1. Full-text search 46
  - 2.3.2. Searching by profiled parameters - so-called search queries 46

3. Module group CROSS – RULES 49

3.1. MODULE CONFIGURATION 50
3.1.1. Address models 51
3.1.2. Category 52
3.1.3. Class types 63
3.1.4. Countries 65
3.1.5. Custom attributes 66
3.1.6. Enum items 70
3.1.7. Enumerators 73
3.1.8. Export / Import 76
3.1.9. Global custom attributes 79
3.1.10. Group types 80
3.1.11. Groups and roles 82
3.1.12. Job scheduler 85
3.1.13. Link types 87
3.1.14. Message 89
3.1.15. Naming rules 91
3.1.16. Node types 91
3.1.17. Project types 94
3.1.18. Radio enumerators 95
3.1.19. Service component types 97
3.1.20. Service types 99
3.1.21. Statuses 101
3.1.22. Subnetwork types 103
3.1.23. Synchro probe 105
3.1.24. Units 107
3.2. MODULE IP 108
3.2.1. Description of module environment 109
3.2.2. IP view 109
3.2.3. Usage of user interface IP view 113
3.2.4. IP History search 121
3.3. MODULE MATERIAL – catalogue of materials and material templates 124
3.3.1. Description of module environment 124
3.3.2. Materials view 124
3.3.3. Usage of user interface 128
3.4. MODULE ADDRESS – postal address management 144
3.4.1. Description of module environment 144
3.4.2. Address view 145
3.4.3. Usage of user interface Address 148
3.4.4. Address enumerators view 154
3.4.5. Usage of user interface Address enumerators 156

4. Module group CROSS – RESOURCE INVENTORY 158
4.1. MODULE LOCALITY - records of the nodes in the network 159
4.1.1. Description of module environment 161
4.1.2. Locality 161
4.1.3. Usage of user interface 172
4.1.4. Connectivity view 191
4.1.5. Usage of user interface Connectivity 192
4.2. MODULE CIRCUIT – circuits records in the network 197
4.2.1. Description of the module environment 197
4.2.2. Circuit view 198
4.2.3. Usage of user interface 204

4.2.4. Tracing interfaces 215
4.2.5 Routing policies 220
4.3. MODULE SUBNETWORK - network records 222
4.3.1. Description of the module environment 222
4.3.2. Subnetwork 222
4.3.3. Usage of user interface Subnetwork 224
4.4. MODULE GROUP – records of logical groups of objects 231
4.4.1. Description of the module environment 231
4.4.2. Group view 232
4.4.3. Usage of user interface Group view 235
4.5. SYNCHRO MODULE – automatic data update 239
4.5.1. Description of module environment 239
4.5.2. Synchro 239
4.5.3. Usage of user interface Synchro 243
4.6. RADIO MODULE – PTP / PtMP 249
4.6.1. Description of module environment 250
4.6.2. PTP Radio 251
4.6.3. Usage of user interface PTP Radio 258
4.6.4. PtMP Radio 267
4.6.5. Usage of user interface PtMP Radio 273
4.6.6. PtMP Radio - Global view 284

5. Module group CROSS – ASSURANCE 286
5.1. SERVICE MODULE 287
5.1.1. Description of module environment 287
5.1.2. Service view 288
5.1.3. Usage of user interface 288
5.2. SIA MODULE 293
5.2.1. Description of module environment 293
5.2.2. SIA 293
5.2.3. Usage of user interface 297

6. Module group CROSS – SHARE 300
6.1. SEARCH MODULE - searching and data presentation 301
6.1.1. Description of module environment 301
6.1.2. Search view 302
6.1.3. Usage of user interface 311
6.2. MODULE INSIGHT – data navigator 318
6.2.1. Description of the module environment 318
6.2.2. Link report 318
6.2.3. Node report 320
6.2.4. Report Utilization view 321

7. CROSS - Data model 323
7.1. Service 323
7.2. Transport 323
7.3. Components 324
7.4. Depository 324
7.5. Background 325

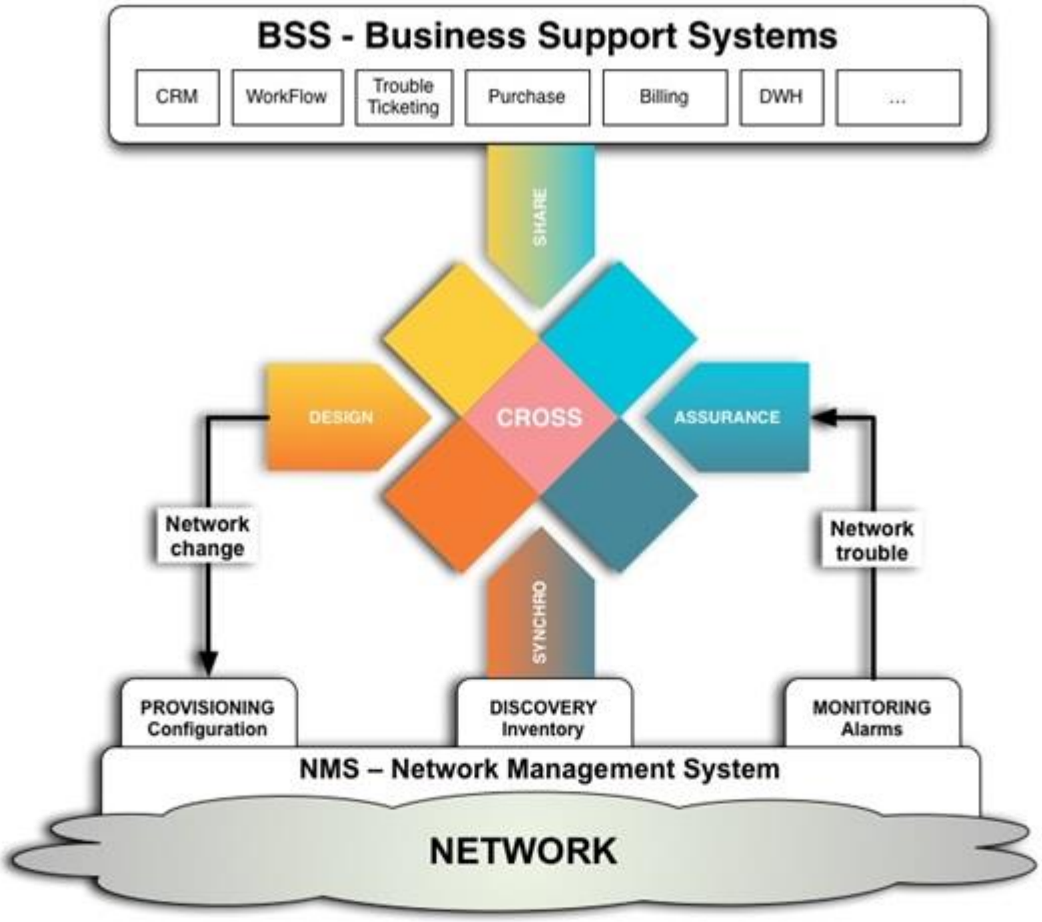
8. Appendixes 325
8.1. PON demo scenario 325

  - 8.1.1. Demo scenario 326
- 8.2. Fiber termination report 327
  - 8.2.1. Cassette report 327
  - 8.2.2. Patch panel report 328
- 8.3. Frequency Analysis 329
  - 8.3.1. Analysis types 329
  - 8.3.2 Entity group types 330
  - 8.3.3 Links 331
  - 8.3.4 Nodes 332
  - 8.3.5 Projects 332
  - 8.3.6 Subnetworks 333
  - 8.3.7 Result Units 333
- 8.4. New features introduced in Bug Fix Releases 334
  - 8.4.1 Search by Custom attribute is now showing which unit is used during search 334

Chapter 1. CROSS Network Intelligence – basic description

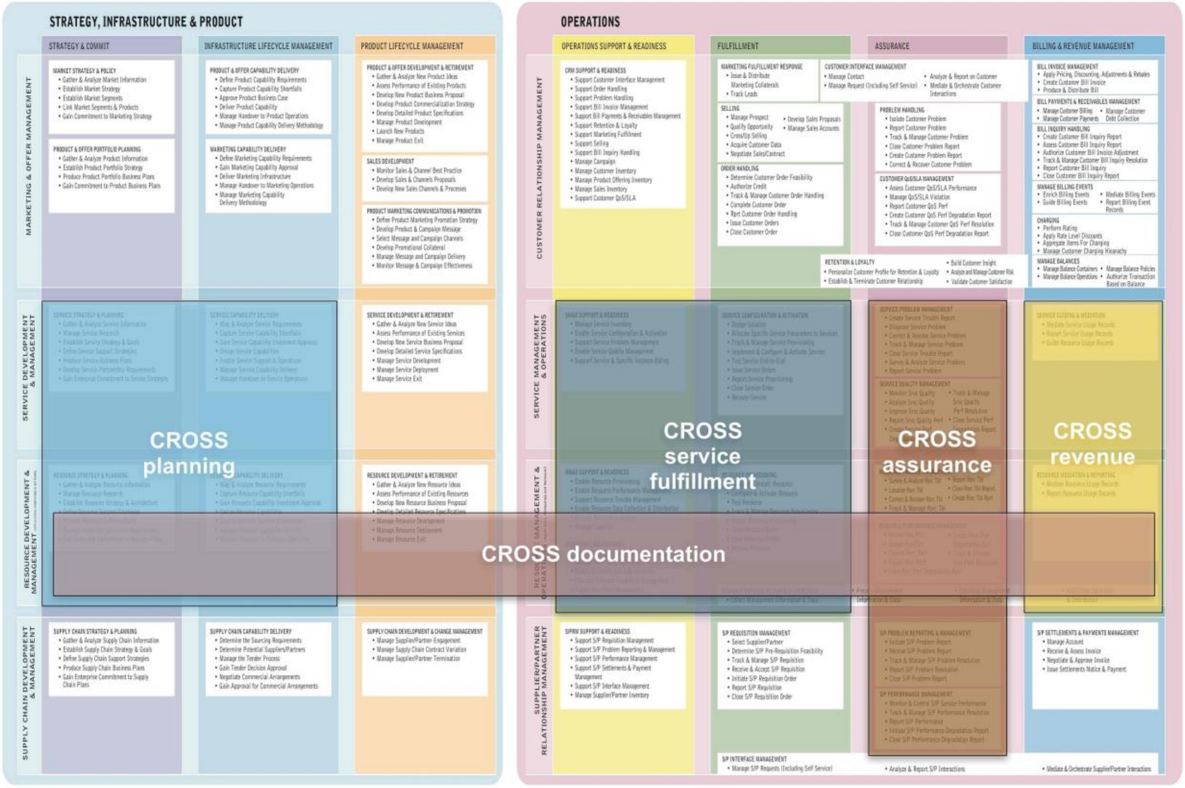
CROSS Network Intelligence is a product line focused on the field for Resource Inventory OSS telecommunication providers. Resource Inventory has an irreplaceable role in the world of telecommunications networks and has its clearly defined place in OSS (Operations Support System) map architecture of each operator. Resource Inventory is a record of network resources and map processes, OSS is the backbone of every modern solutions for companies operating in telecommunications services. Network Inventory modern concept represents a comprehensive management of network resources - Network Resources Management.

Resource Inventory is main components of IT area in OSS architecture. Following schema displays basic architecture of CROSS solution and its integration to telecommunication network.

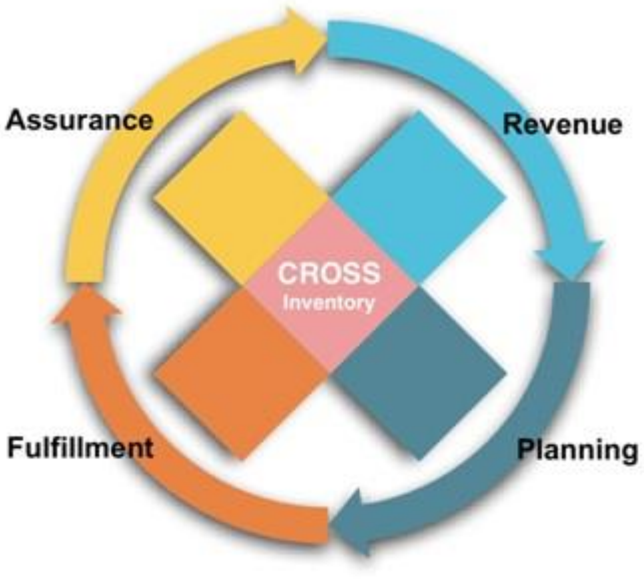

BSS - Business Support Systems
CRM
WorkFlow
Trouble Ticketing
Purchase
Billing
DWH
...
SHARE
DESIGN
CROSS
ASSURANCE
Network change
Network trouble
SYNCHRO
PROVISIONING Configuration
DISCOVERY Inventory
MONITORING Alarms
NMS – Network Management System
NETWORK

1. CROSS process map TMF - eTOM

CROSS Network Intelligence solutions are described in eTOM process model (eTOM – enhanced Telecommunication Operations Map by TeleManagement Forum).


STRATEGY, INFRASTRUCTURE & PRODUCT
STRATEGY & COMMIT
INFRASTRUCTURE LIFECYCLE MANAGEMENT
PRODUCT LIFECYCLE MANAGEMENT
OPERATIONS
OPERATIONS SUPPORT & READINESS
FULFILLMENT
ASSURANCE
BILLING & REVENUE MANAGEMENT
MARKETING & OFFER MANAGEMENT
SERVICE DEVELOPMENT & MANAGEMENT
RESOURCE DEVELOPMENT & MANAGEMENT
SUPPLY CHAIN DEVELOPMENT & MANAGEMENT
CUSTOMER RELATIONSHIP MANAGEMENT
SERVICE MANAGEMENT & OPERATIONS
SUPPLIER/PARTNER RELATIONSHIP MANAGEMENT
CROSS planning
CROSS service fulfillment
CROSS assurance
CROSS revenue
CROSS documentation

CROSS Network Intelligence is modern solution for network and documents management in all OSS areas. Key areas for OSS processes are:


Assurance
Revenue
CROSS
Inventory
Fulfillment
Planning

RESOURCE INVENTORY

- POP management
- Network Inventory
- Asset management
- Material Audit
- Material Stock Management

PLANNING - Network Creation - Infrastructure Development

- network and products development strategy
- network and products development planning

FULFILLMENT - Service Fulfillment (provisioning)

- Product Portfolio
- Service Design
- Service Activation

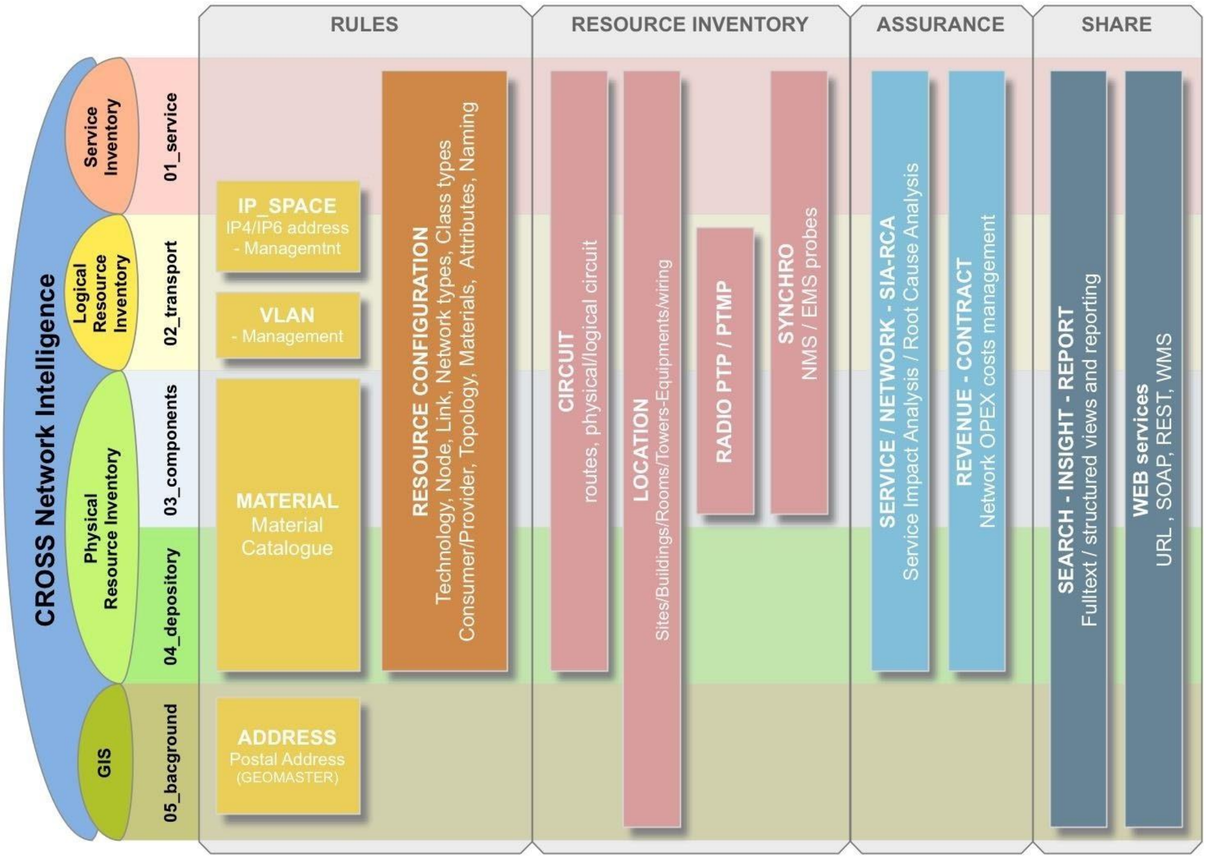
ASSURANCE

- Network Assurance
- Network Resource Capacity Management
- Network Resource Optimization
- Network Resource Fault Reparation
- Network Resource Strategy and Planning
- Service Assurance
- Trouble Ticket system integration
- Umbrella Management system integration
- Revenue Assurance
- COST management

2. CROSS – Module types

CROSS Network Intelligence and the basic modules are displayed in following general schema. Modules are divided to main categories:

- RULES – configuration and catalogues
- RESOURCE INVENTORY – network sources evidence
- ASSURANCE – network, services status and profitability
- SHARE – searching, data presentation, integration interface


RULES
RESOURCE INVENTORY
ASSURANCE
SHARE
CROSS Network Intelligence
Service Inventory
Logical Resource Inventory
Physical Resource Inventory
GIS
01_service
02_transport
03_components
04_depository
05_bacground
IP_SPACE
IP4/IP6 address - Managemtnt
VLAN
- Management
MATERIAL
Material Catalogue
ADDRESS
Postal Address (GEOMASTER)
RESOURCE CONFIGURATION
Technology, Node, Link, Network types, Class types
Consumer/Provider, Topology, Materials, Attributes, Naming
CIRCUIT
routes, physical/logical circuit
LOCATION
Sites/Buildings/Rooms/Towers-Equipments/wiring
RADIO PTP / PTMP
SYNCHRO
NMS / EMS probes
SERVICE / NETWORK - SIA-RCA
Service Impact Analysis / Root Cause Analysis
REVENUE - CONTRACT
Network OPEX costs management
SEARCH - INSIGHT - REPORT
Fulltext / structured views and reporting
WEB services
URL , SOAP, REST, WMS

Chapter 2. CROSS Network Intelligence - User Guide

1. Basic description of the CROSS application

Basic principles of working with the CROSS application are described in the following chapters:

1. Requirements of the CROSS application environment
2. Authorization - Log In
3. Opening window - Dashboard
4. Application working space
5. Modules and submodules
6. Working with panels
7. Panels with table data structure
8. Panels with tree data structure
9. Panels with editors
10. Panels with schemes
11. Panels with map
12. Records filtering
13. List of changes
14. License

1.1. Requirements of the CROSS application environment

This chapter is focused on a basic description of application functions and application environment. Detailed description of functions and work instructions for the application can be found in separate chapters focused on the modules.

The CROSS is an online application running in a desktop web browser and it is independent on local hardware and software. The only requirement for the application to run is an updated version of a desktop web browser. Following desktop browsers are supported for the CROSS application:

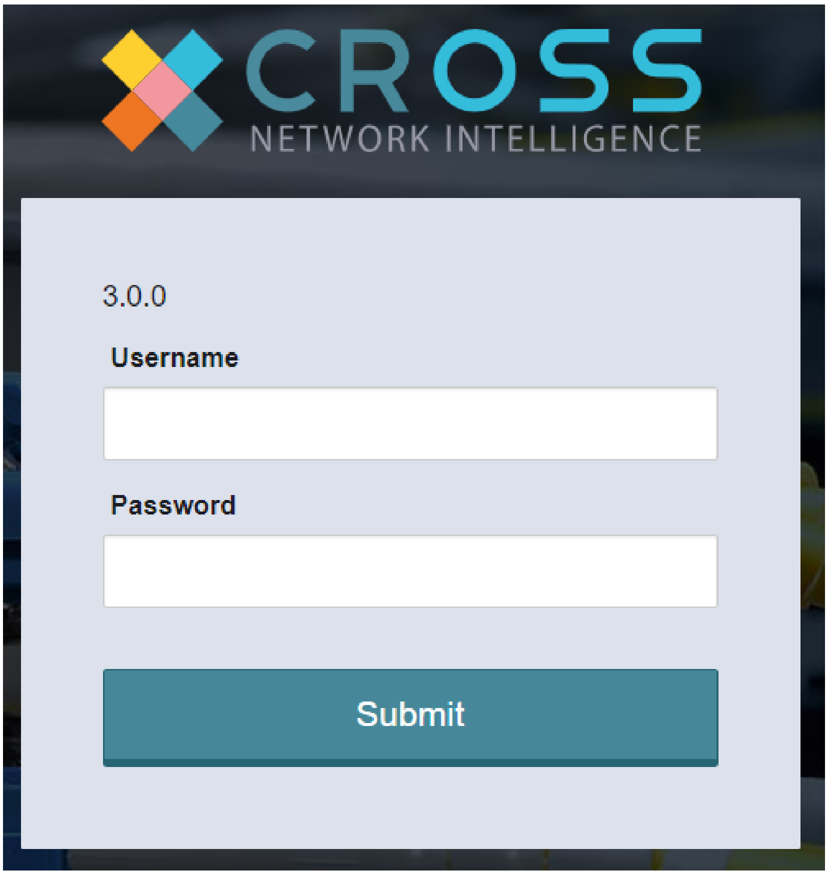
- Mozilla Firefox 64+
- Google Chrome 72+
- Microsoft Edge 44+

The application does not need any plugins or third-party products, however a web browser needs be set to the standard settings (JavaScript enabled, Cookies enabled etc.). Using of zoom functionality of the browser can affect behavior of the application. The HTTPS protocol is used for communication between the client and the system because of security reasons. You need to add a server manually if you do not have a server which runs the CROSS application as added to secure servers (adding will be requested while working in the system).

Online solution has many advantages e.g. universality, simplicity and up-to-date database. All changes are performed in a real-time and adjusted data are immediately at disposal for other users when displayed.

1.2. Authorization - Log In

In order to login into the application you need to enter your username and password to the login window:



1.3. Glossary

LINK – is a communication channel that connects two or more devices. This link may be an actual physical link, or it may be a logical link. Information transmission paths. See Wikipedia for more.

NODE – is either a redistribution point or a communication endpoint (access node, distribution cabinet, physical-logical port, adapter).

FIBRIL – is a virtual path which serves as a virtual carrier of links when modelling a complex link in the Circuit module.

CROSSID – is a unique identification number generated by CROSS for objects created in the CROSS

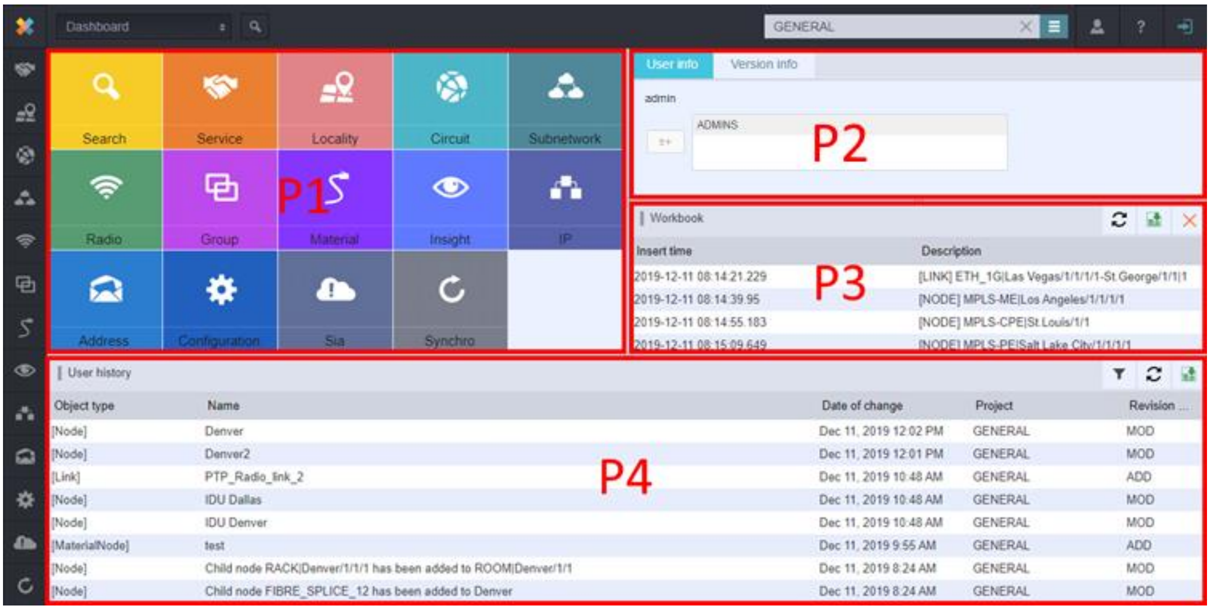
CROSS URL – is a unique weblink for each single supported resource type which can be integrated with an external system that supports the CROSSID.

- Currently CROSSURL supports resource types:
    - Node
    - Link
    - Service
    - IP address
- URL format: ***http://<serveraddress>:<port>/web/url.htm?crossId=<CrossId>***
  where <serveraddress>:<port> represents a www/ip address, and a port to the server hosting CROSS, <CrossId> represents the CrossId of the supported resource types.
    - Example: http://192.168.1.1:8080/web/url.htm?crossId=AAAAAAAAAAAa

ExternalID – Cross objects with a CrossId can be externally opened by a ExternalID – is an identification inherited during import from external source

1.4. Opening window - Dashboard

Dashboard is displayed right after you log in to the application. If you wish to display the dashboard later while working in the application, click on the logo in the upper left corner.



Insert time	Description
2019-12-11 08:14:21.229	[LINK] ETH_1G|Las Vegas/1/1/1/1-St.George/1/1|1
2019-12-11 08:14:39.95	[NODE] MPLS-ME|Los Angeles/1/1/1/1
2019-12-11 08:14:55.183	[NODE] MPLS-CPE|St.Louis/1/1
2019-12-11 08:15:09.649	[NODE] MPLS-PE|Salt Lake City/1/1/1/1

Object type	Name	Date of change	Project	Revision ...
[Node]	Denver	Dec 11, 2019 12:02 PM	GENERAL	MOD
[Node]	Denver2	Dec 11, 2019 12:01 PM	GENERAL	MOD
[Link]	PTP_Radio_link_2	Dec 11, 2019 10:48 AM	GENERAL	ADD
[Node]	IDU Dallas	Dec 11, 2019 10:48 AM	GENERAL	MOD
[Node]	IDU Denver	Dec 11, 2019 10:48 AM	GENERAL	MOD
[MaterialNode]	test	Dec 11, 2019 9:55 AM	GENERAL	ADD
[Node]	Child node RACK|Denver/1/1/1 has been added to ROOM|Denver/1/1	Dec 11, 2019 8:24 AM	GENERAL	MOD
[Node]	Child node FIBRE_SPLICE_12 has been added to Denver	Dec 11, 2019 8:24 AM	GENERAL	MOD

The opening window consists of those panels:

- P1 - Panel with module icons
- P2 - information about the application, user, user groups and version information.

User groups can be modified by external system like LDAP. It’s not possible by CROSS GUI.

- P3 - Workbook

Instructions for work in Workbook is described in detail in the Workbook chapter. There are several icons on top of this panel. An icon for refreshing data, then green icon for export to the Excel sheet, and a red button which serves for Clear. You can erase all Workbook content at once by clicking it. You can switch into a home module of the object via the context menu of each Workbook item (link into the Circuit module, node into the Locality module etc.) and you can also delete individual items from there.

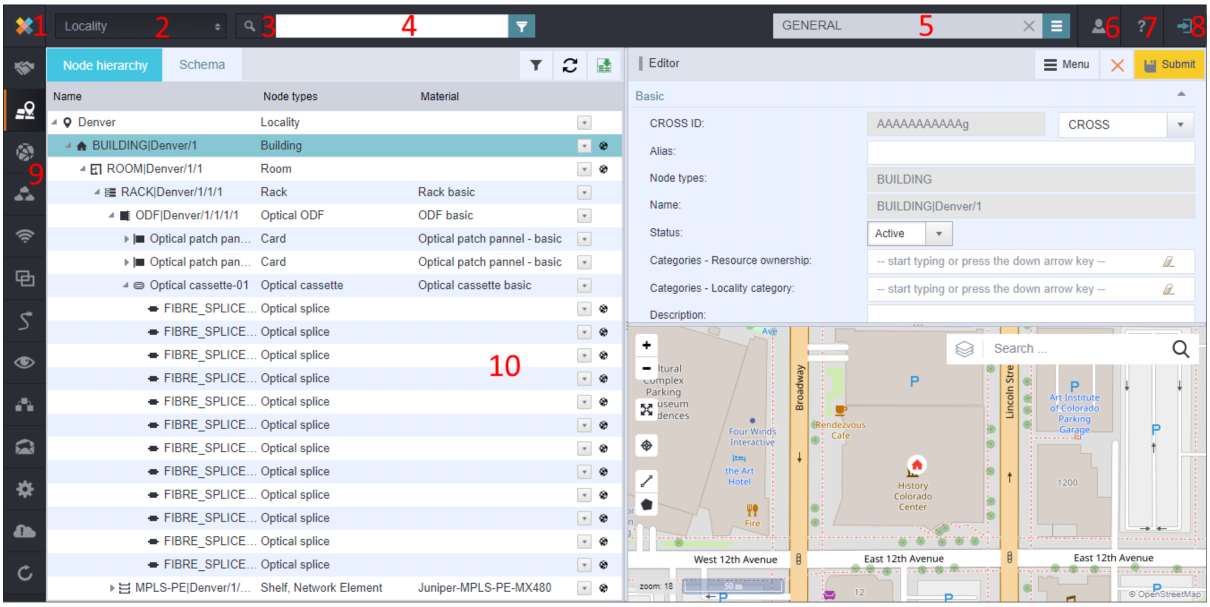
- P4 - Panel History of actions of logged user

History of actions is a table list of the last actions of a user logged in the application. This list can be filtered , then only actions on selected object or only actions of selected type can be displayed, e.g. an adjustment, editing etc. A list of results in the user history can be also refreshed and exported into Excel sheet.

1.5. Application working space

Working space of the CROSS application is made in a way to be unified for all modules in order to provide maximum comfort when working with the application and switching between the modules.

Here is the list of individual parts:



Name	Node types	Material
Denver	Locality	
BUILDING|Denver/1	Building	
ROOM|Denver/1/1	Room	
RACK|Denver/1/1/1	Rack	Rack basic
ODF|Denver/1/1/1/1	Optical ODF	ODF basic
Optical patch pan...	Card	Optical patch pannel - basic
Optical patch pan...	Card	Optical patch pannel - basic
Optical cassette-01	Optical cassette	Optical cassette basic
FIBRE_SPLICE...	Optical splice	
FIBRE_SPLICE...	Optical splice	
FIBRE_SPLICE...	Optical splice	
FIBRE_SPLICE...	Optical splice	
FIBRE_SPLICE...	Optical splice	
FIBRE_SPLICE...	Optical splice	
FIBRE_SPLICE...	Optical splice	
FIBRE_SPLICE...	Optical splice	
FIBRE_SPLICE...	Optical splice	
FIBRE_SPLICE...	Optical splice	
FIBRE_SPLICE...	Optical splice	
FIBRE_SPLICE...	Optical splice	
MPLS-PE|Denver/1/...	Shelf, Network Element	Juniper-MPLS-PE-MX480

CROSS ID: AAAAAAAAAAAg CROSS

Alias:

Node types: BUILDING

Name: BUILDING|Denver/1

Status: Active

Categories - Resource ownership: -- start typing or press the down arrow key --

Categories - Locality category: -- start typing or press the down arrow key --

Description:

1 - CROSS application icon - by clicking on this icon the opening window - Dashboard will be displayed

2 - Name of an active module, which is displayed in the main window **10**. If there are other submodules in the module, their submenu is displayed when clicked on the module name.

3 - Advanced searching - Search module. The icon of the Search module is placed beside the full-text search **4.** even though it is a separate module. Principles of the object searching are described in the Searching for objects in the application chapter.

4 - Full-text search with autocomplete - it is enough just to enter a part of the searched name or of a searched value according to the object type. It is available for most of the modules and submodules where the full-text search is limited to the content of an active module being displayed.

5 - Selection and modification of Project. Application projects are considered the main working units of the application and are discussed in a separate Projects chapter.

6 - Application settings contain possibility to manage User settings, save current project as default, Save window layout (used as default after next login), Reset window layout to default (set by administrators). If a view contains a map, then this menu also allows administrators to Save current layer group layout as default for all users.

7 - Help - User Guide

8 - Application shut-down - user logout.

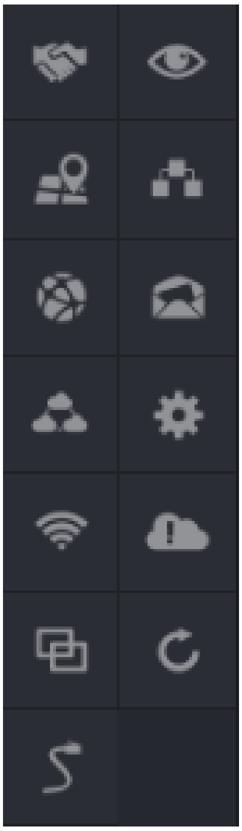
9 - Panel with icons of the modules - for switching between the modules. Switching between the modules and submodules is described in a separate chapter.

10 - Main window - the window for displaying selected module. It is divided into the panels with various data structure (tables, editors, schemes, tree structures), or the map windows.

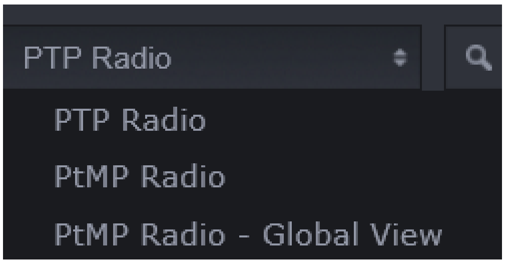
Description of individual panel types - table, tree structure, schema, editor, map - are discussed in following chapters: Panels with a table data structure , Panels with a tree data structure , Panels with editors , Panels with schemes and Panels with a map.

1.6. Modules and submodules

A switch to required module can be performed by clicking on the appropriate module icon on the left side of the application window. Icon of the active (displayed) module is highlighted by white color and marked by a colored stripe on the left side of the icon.



If module selected contains any submodules (views), it is possible to switch between them by clicking on the selection field beside the CROSS logo in the upper left corner of the application window:

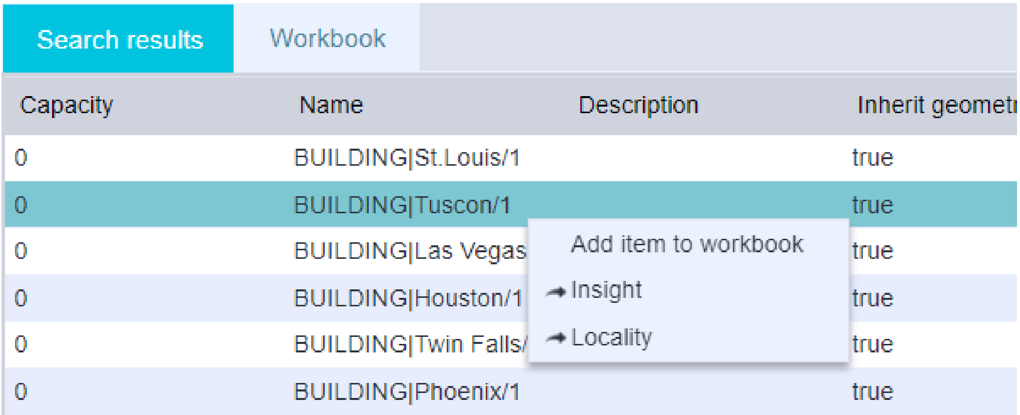


You can see the submodules (views) menu in the Radio module on the picture above.

Other ways to switch between the modules:

- from the context menu of selected object in a table or in a tree structure

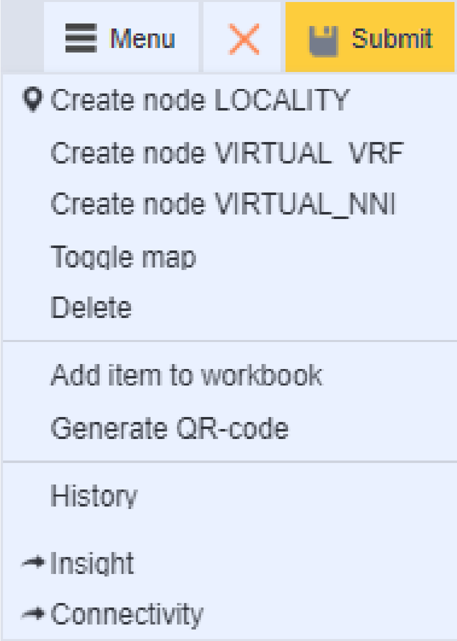
E.g. in the building found in the Search module you can switch to its records in the Locality module or to the Insight module.



Capacity	Name	Description	Inherit geometr
0	BUILDING|St.Louis/1		true
0	BUILDING|Tuscon/1		true
0	BUILDING|Las Vegas		true
0	BUILDING|Houston/1		true
0	BUILDING|Twin Falls/		true
0	BUILDING|Phoenix/1		true

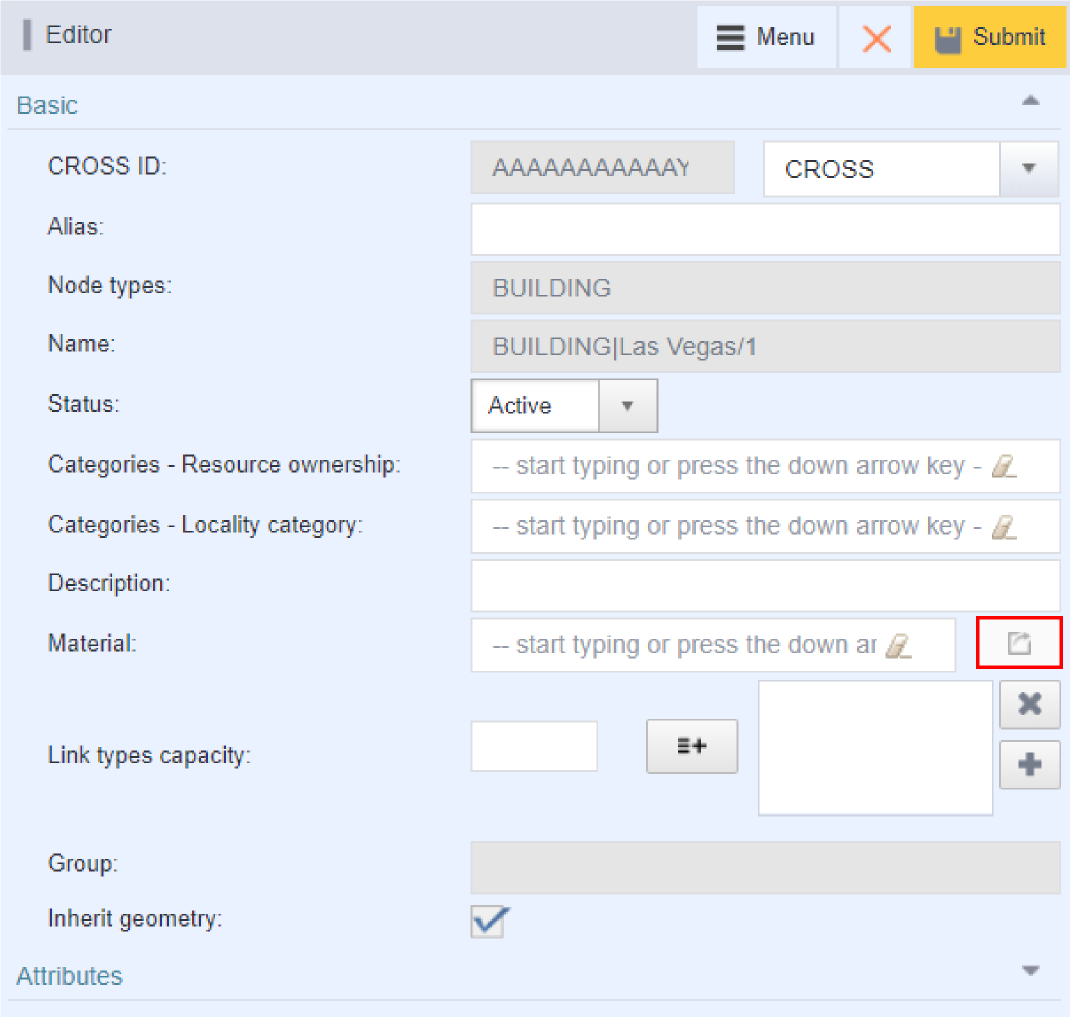
- by the context menu option in the editor

E.g. in a room in the Locality module you can switch to the Insight module or to the Connectivity submodule.


Menu
Submit
Create node LOCALITY
Create node VIRTUAL_VRF
Create node VIRTUAL_NNI
Toggle map
Delete
Add item to workbook
Generate QR-code
History
Insight
Connectivity

- by an icon located by the field in the editor

E.g. in the editor of NE node there is a link to the Material module with information on applied material


Editor
Menu
Submit
Basic
Attributes

CROSS ID: AAAAAAAAAAAY CROSS

Alias:

Node types: BUILDING

Name: BUILDING|Las Vegas/1

Status: Active

Categories - Resource ownership: -- start typing or press the down arrow key -

Categories - Locality category: -- start typing or press the down arrow key -

Description:

Material: -- start typing or press the down ar

Link types capacity:

Group:

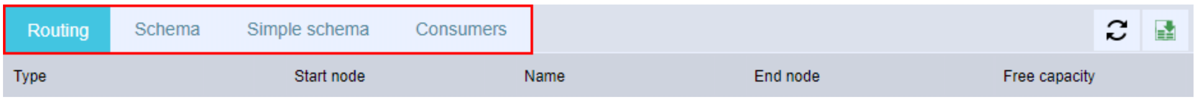
Inherit geometry: ☑

1.7. Working with panels

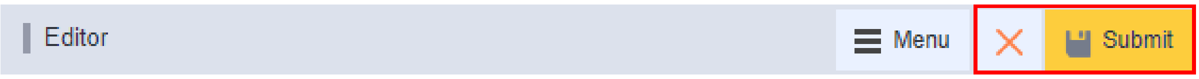
Application window of each module consists of several panels. These panels are additionally divided into table, tree, editor, scheme, and map panels depending on the type of content. Individual types are described in separate chapters. This chapter describes basic panel possibilities.

Panel could contain:

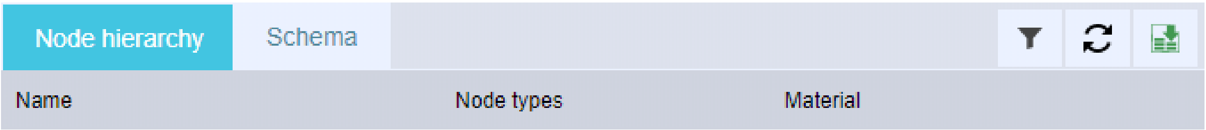
Bookmarks


Routing
Schema
Simple schema
Consumers
Type
Start node
Name
End node
Free capacity

Each bookmark may display data differently - tables, trees, editors, maps, schemes.

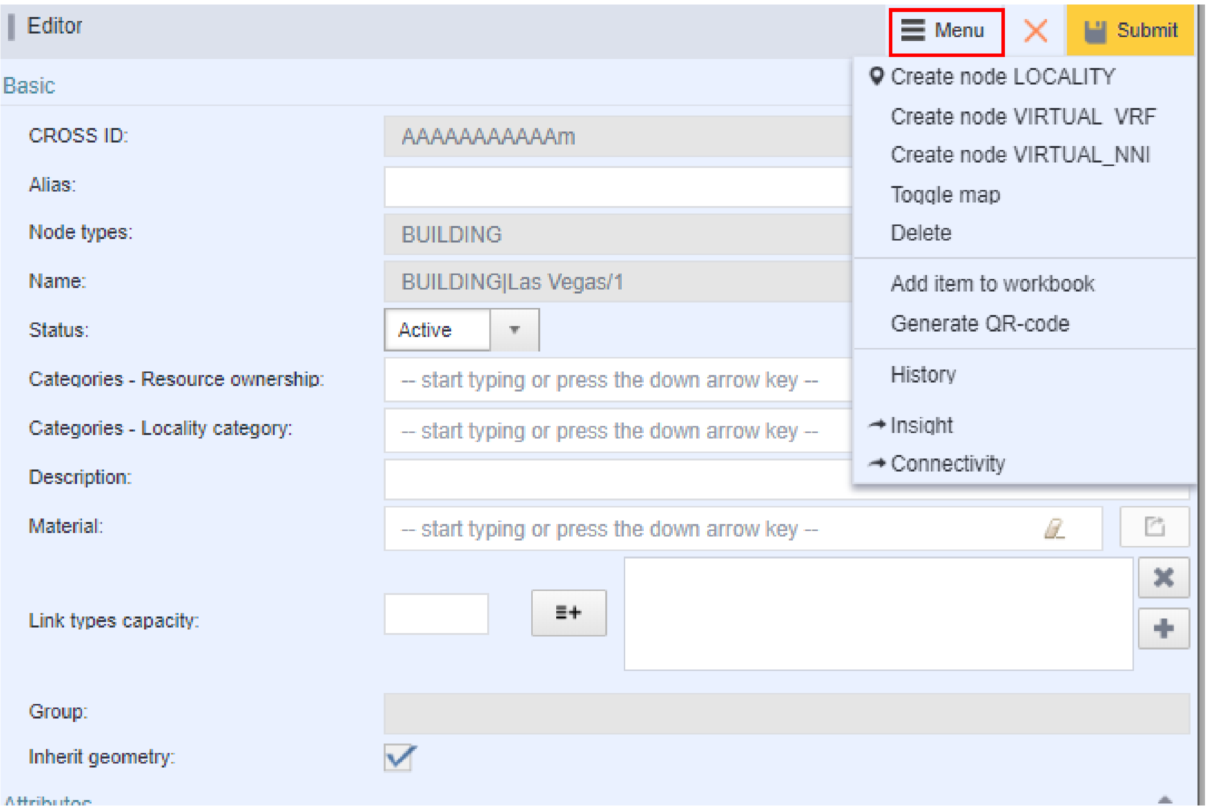

Editor
Menu
Submit

Buttons for cancelling and submitting changes are in the editor panels.


Node hierarchy
Schema
Name
Node types
Material

Buttons for filtering, refresh data and exporting to Excel sheets are in the table and tree panels.

Drop-down menu with options


Editor
Menu
Submit
Create node LOCALITY
Create node VIRTUAL_VRF
Create node VIRTUAL_NNI
Toggle map
Delete
Add item to workbook
Generate QR-code
History
Insight
Connectivity

Basic

CROSS ID: AAAAAAAAAAm

Alias:

Node types: BUILDING

Name: BUILDING|Las Vegas/1

Status: Active

Categories - Resource ownership: -- start typing or press the down arrow key --

Categories - Locality category: -- start typing or press the down arrow key --

Description:

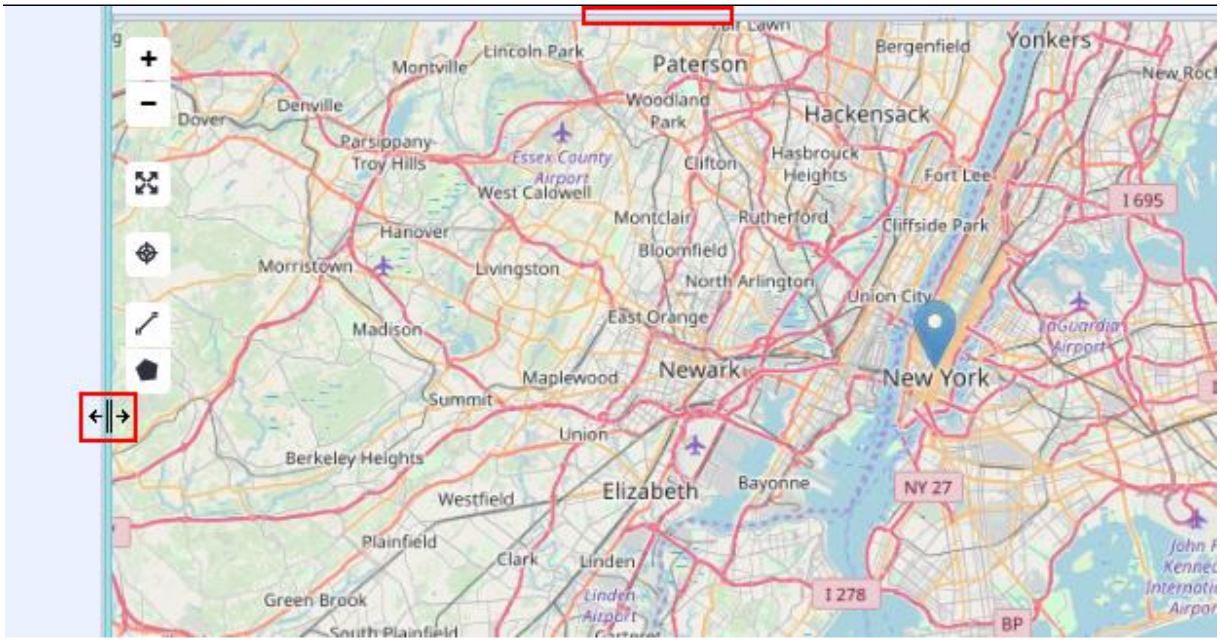
Material: -- start typing or press the down arrow key --

Link types capacity:

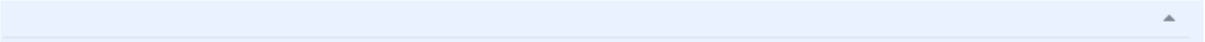
Group:

Inherit geometry: ☑

Individual panels could be resized by dragging their edges


Montville
Lincoln Park
Paterson
Bergenfield
Yonkers
New Roc
Denville
Dover
Woodland Park
Hackensack
Parsippany-Troy Hills
Essex County Airport
West Caldwell
Clifton
Hasbrouck Heights
Fort Lee
I 695
Montclair
Rutherford
Cliffside Park
Hanover
Bloomfield
Morristown
Livingston
North Arlington
Union City
Madison
East Orange
LaGuardia Airport
Maplewood
Newark
New York
Summit
Union
Berkeley Heights
Westfield
Elizabeth
Bayonne
NY 27
Plainfield
Clark
Linden
Linden Airport
John F Kennedy International Airport
Green Brook
South Plainfield
I 278
BP

You can hide and show some of the panels (especially editors and their parts) by clicking on this icon ▲ in the panel header.



1.8. Panels with table data structure

Tables - lists - could be found anywhere where it is necessary to display a group of records of the same structure. E.g. search results by given parameters, a list of materials and material templates etc.

It is possible to perform following actions on tables:

- to sort the table contents in ascending or descending order by clicking on a column header

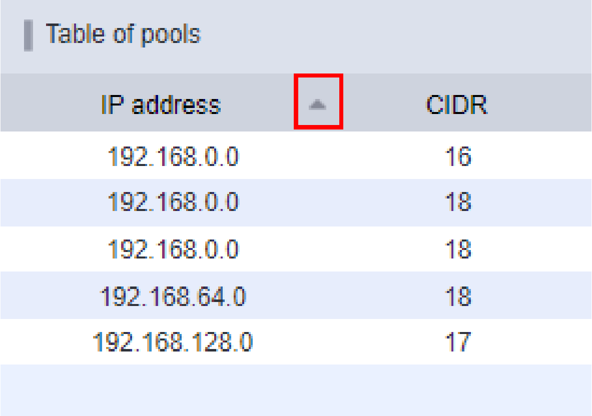


Table of pools

IP address ▲	CIDR
192.168.0.0	16
192.168.0.0	18
192.168.0.0	18
192.168.64.0	18
192.168.128.0	17

- to change the column width

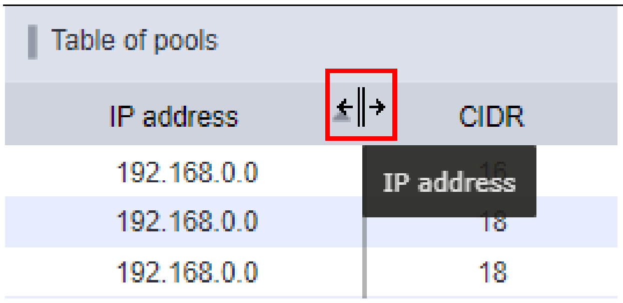


Table of pools
IP address

IP address	CIDR
192.168.0.0	16
192.168.0.0	18
192.168.0.0	18

- to move columns to the left or to the right (drag the column to a new place by a mouse)

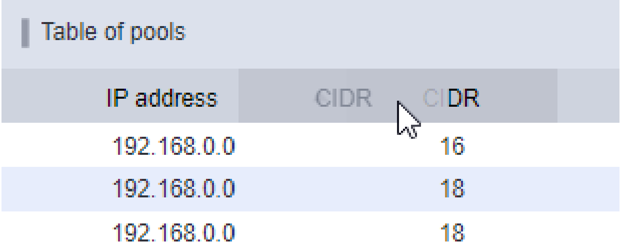
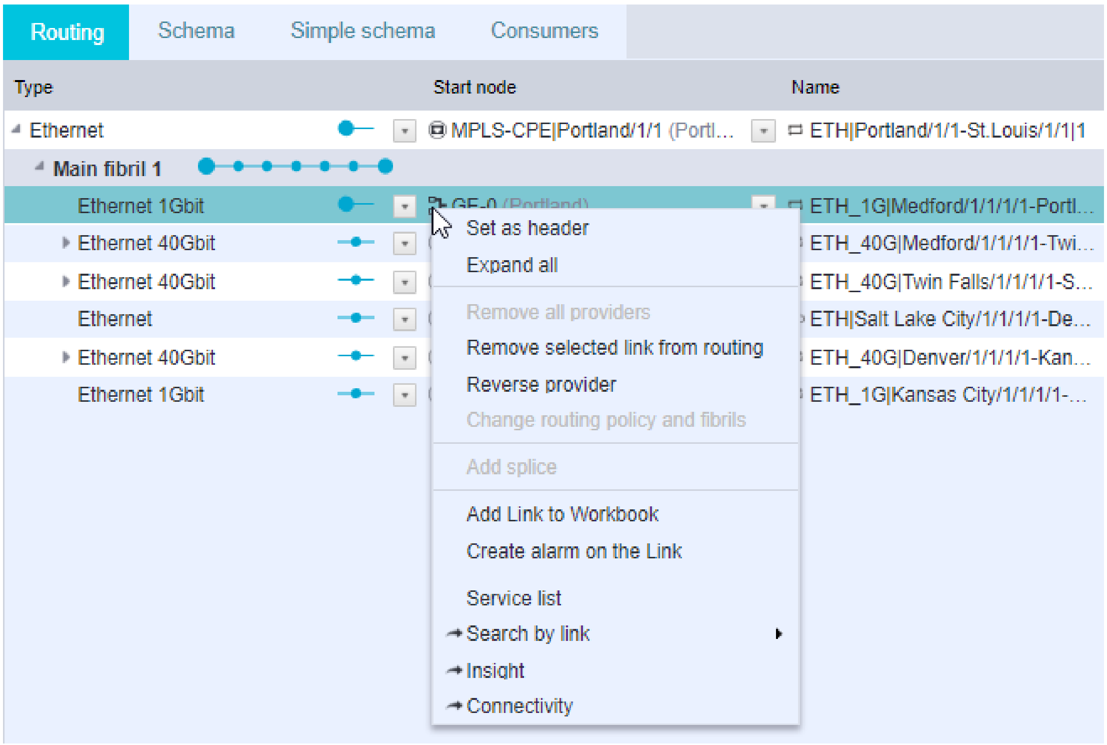


Table of pools
CIDR

IP address	CIDR
192.168.0.0	16
192.168.0.0	18
192.168.0.0	18

Selected report is highlighted in a table and colored. Selected report is loaded into the editor and displayed on the map, if its geometry is set. Other actions for each record are available from a context menu which can be displayed by right-click on the record.


Routing
Schema
Simple schema
Consumers
Set as header
Expand all
Remove all providers
Remove selected link from routing
Reverse provider
Change routing policy and fibrils
Add splice
Add Link to Workbook
Create alarm on the Link
Service list
Search by link
Insight
Connectivity

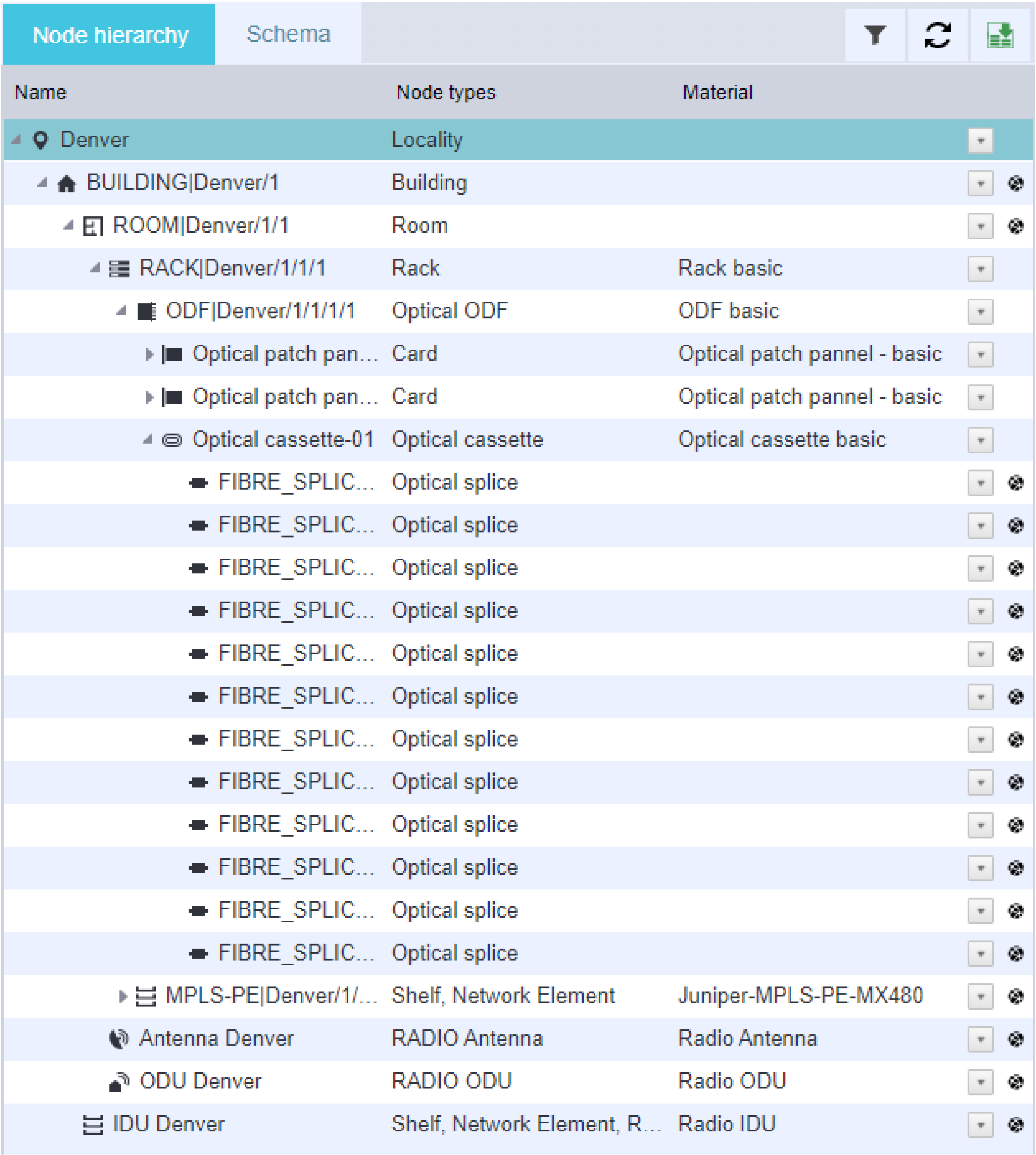
Type	Start node	Name
Ethernet	MPLS-CPE|Portland/1/1 (Portl…	ETH|Portland/1/1-St.Louis/1/1|1
Main fibril 1		
Ethernet 1Gbit	GE-0 (Portland)	ETH_1G|Medford/1/1/1/1-Portl…
Ethernet 40Gbit		ETH_40G|Medford/1/1/1/1-Twi…
Ethernet 40Gbit		ETH_40G|Twin Falls/1/1/1/1-S…
Ethernet		ETH|Salt Lake City/1/1/1/1-De…
Ethernet 40Gbit		ETH_40G|Denver/1/1/1/1-Kan…
Ethernet 1Gbit		ETH_1G|Kansas City/1/1/1/1-…

1.9. Panels with tree data structure

Tree data structure is used when it is necessary to display a hierarchical structure of superior and inferior objects or their groups.

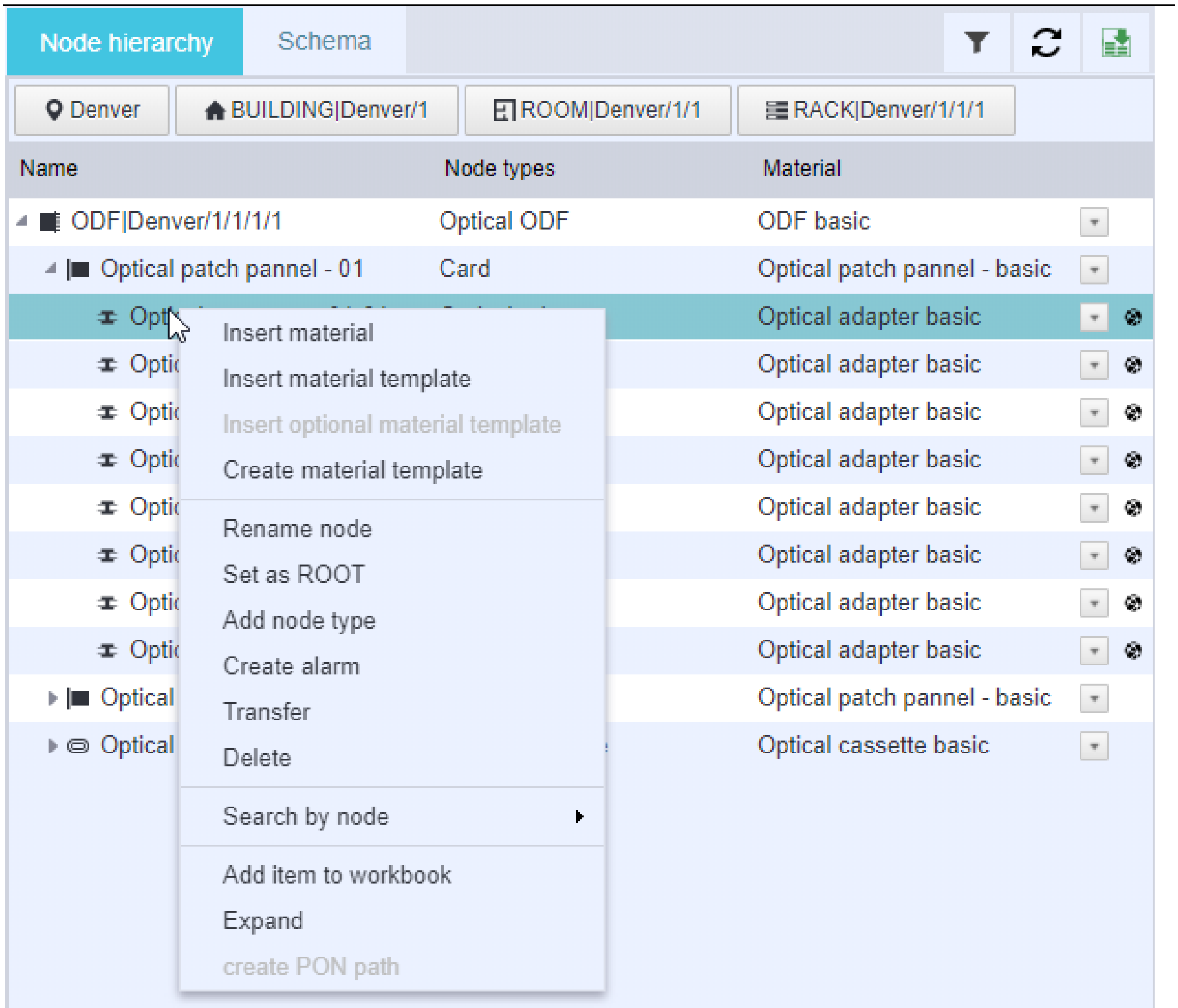
Following actions can be performed on a tree or on its objects:

- to expand or collapse groups of records by clicking on the arrow beside their names



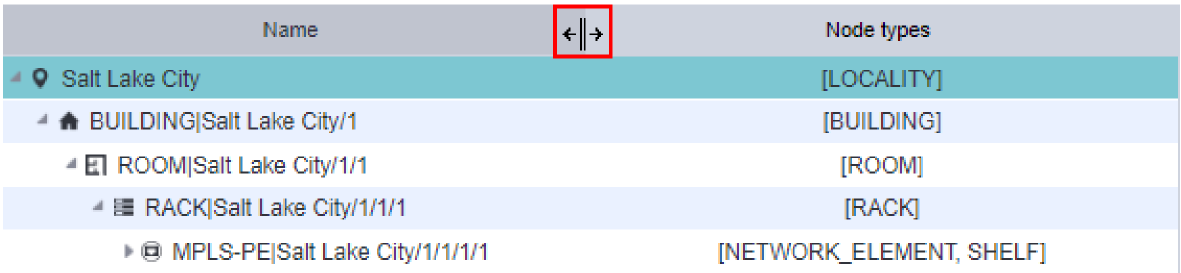
Name	Node types	Material
Denver	Locality	
BUILDING|Denver/1	Building	
ROOM|Denver/1/1	Room	
RACK|Denver/1/1/1	Rack	Rack basic
ODF|Denver/1/1/1/1	Optical ODF	ODF basic
Optical patch pan…	Card	Optical patch pannel - basic
Optical patch pan…	Card	Optical patch pannel - basic
Optical cassette-01	Optical cassette	Optical cassette basic
FIBRE_SPLIC…	Optical splice	
FIBRE_SPLIC…	Optical splice	
FIBRE_SPLIC…	Optical splice	
FIBRE_SPLIC…	Optical splice	
FIBRE_SPLIC…	Optical splice	
FIBRE_SPLIC…	Optical splice	
FIBRE_SPLIC…	Optical splice	
FIBRE_SPLIC…	Optical splice	
FIBRE_SPLIC…	Optical splice	
FIBRE_SPLIC…	Optical splice	
FIBRE_SPLIC…	Optical splice	
FIBRE_SPLIC…	Optical splice	
MPLS-PE|Denver/1/…	Shelf, Network Element	Juniper-MPLS-PE-MX480
Antenna Denver	RADIO Antenna	Radio Antenna
ODU Denver	RADIO ODU	Radio ODU
IDU Denver	Shelf, Network Element, R…	Radio IDU

- to perform additional actions on a tree object by right-click from its context menu


Node hierarchy
Schema
Denver
BUILDING|Denver/1
ROOM|Denver/1/1
RACK|Denver/1/1/1
Name
Node types
Material
ODF|Denver/1/1/1/1
Optical ODF
ODF basic
Optical patch pannel - 01
Card
Optical patch pannel - basic
Optical adapter basic
Optical cassette basic
Insert material
Insert material template
Insert optional material template
Create material template
Rename node
Set as ROOT
Add node type
Create alarm
Transfer
Delete
Search by node
Add item to workbook
Expand
create PON path

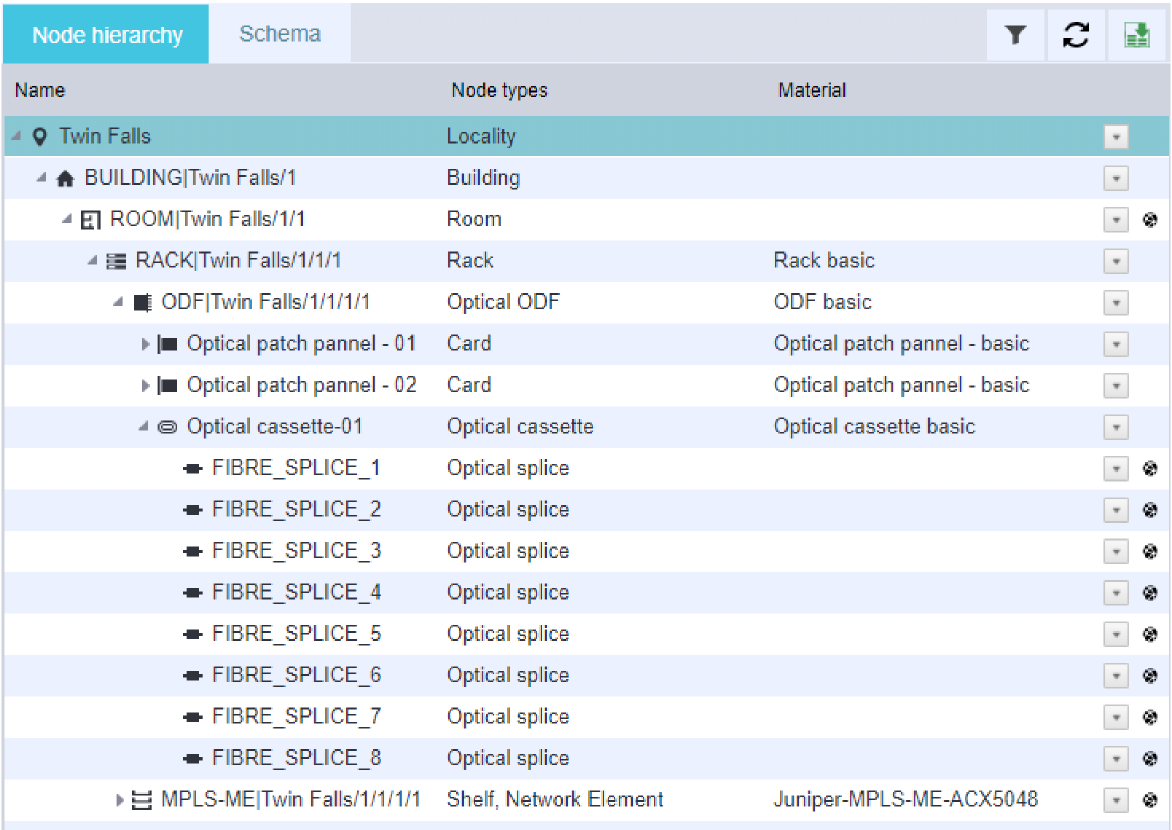
Selected object is highlighted and colored and loaded into the editor and displayed in the map window, if this kind of display is available for selected object.

- to change the tree width in order to make all objects visible in case its name is too long


Name
Node types
Salt Lake City
[LOCALITY]
BUILDING|Salt Lake City/1
[BUILDING]
ROOM|Salt Lake City/1/1
[ROOM]
RACK|Salt Lake City/1/1/1
[RACK]
MPLS-PE|Salt Lake City/1/1/1/1
[NETWORK_ELEMENT, SHELF]

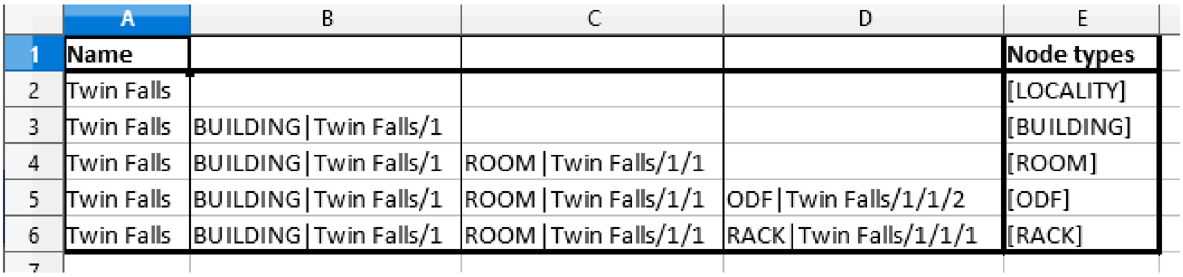
- Export to .xls format

Tree structure can be exported to .xls format.



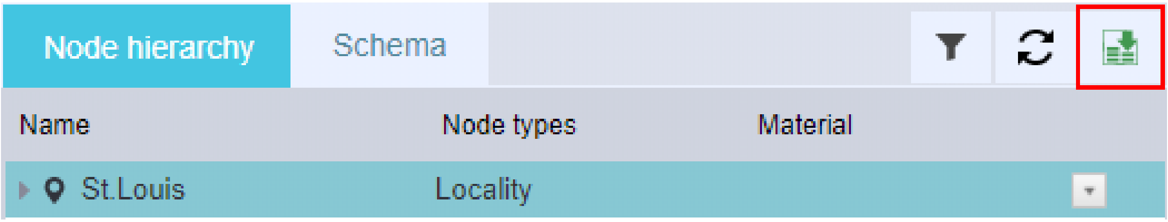
Name	Node types	Material
Twin Falls	Locality	
BUILDING|Twin Falls/1	Building	
ROOM|Twin Falls/1/1	Room	
RACK|Twin Falls/1/1/1	Rack	Rack basic
ODF|Twin Falls/1/1/1/1	Optical ODF	ODF basic
Optical patch pannel - 01	Card	Optical patch pannel - basic
Optical patch pannel - 02	Card	Optical patch pannel - basic
Optical cassette-01	Optical cassette	Optical cassette basic
FIBRE_SPLICE_1	Optical splice	
FIBRE_SPLICE_2	Optical splice	
FIBRE_SPLICE_3	Optical splice	
FIBRE_SPLICE_4	Optical splice	
FIBRE_SPLICE_5	Optical splice	
FIBRE_SPLICE_6	Optical splice	
FIBRE_SPLICE_7	Optical splice	
FIBRE_SPLICE_8	Optical splice	
MPLS-ME|Twin Falls/1/1/1/1	Shelf, Network Element	Juniper-MPLS-ME-ACX5048

Only unpacked part of the tree can be exported. Hidden parts of the tree won´t be displayed in .xls format.

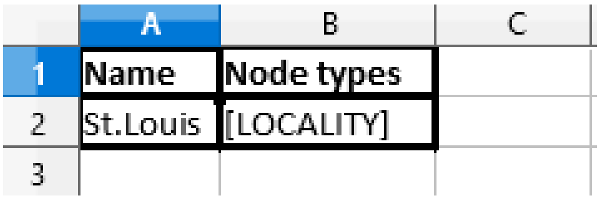


	A	B	C	D	E
1	Name				Node types
2	Twin Falls				[LOCALITY]
3	Twin Falls	BUILDING|Twin Falls/1			[BUILDING]
4	Twin Falls	BUILDING|Twin Falls/1	ROOM|Twin Falls/1/1		[ROOM]
5	Twin Falls	BUILDING|Twin Falls/1	ROOM|Twin Falls/1/1	ODF|Twin Falls/1/1/2	[ODF]
6	Twin Falls	BUILDING|Twin Falls/1	ROOM|Twin Falls/1/1	RACK|Twin Falls/1/1/1	[RACK]

If the tree is packed, only the first row will be exported.



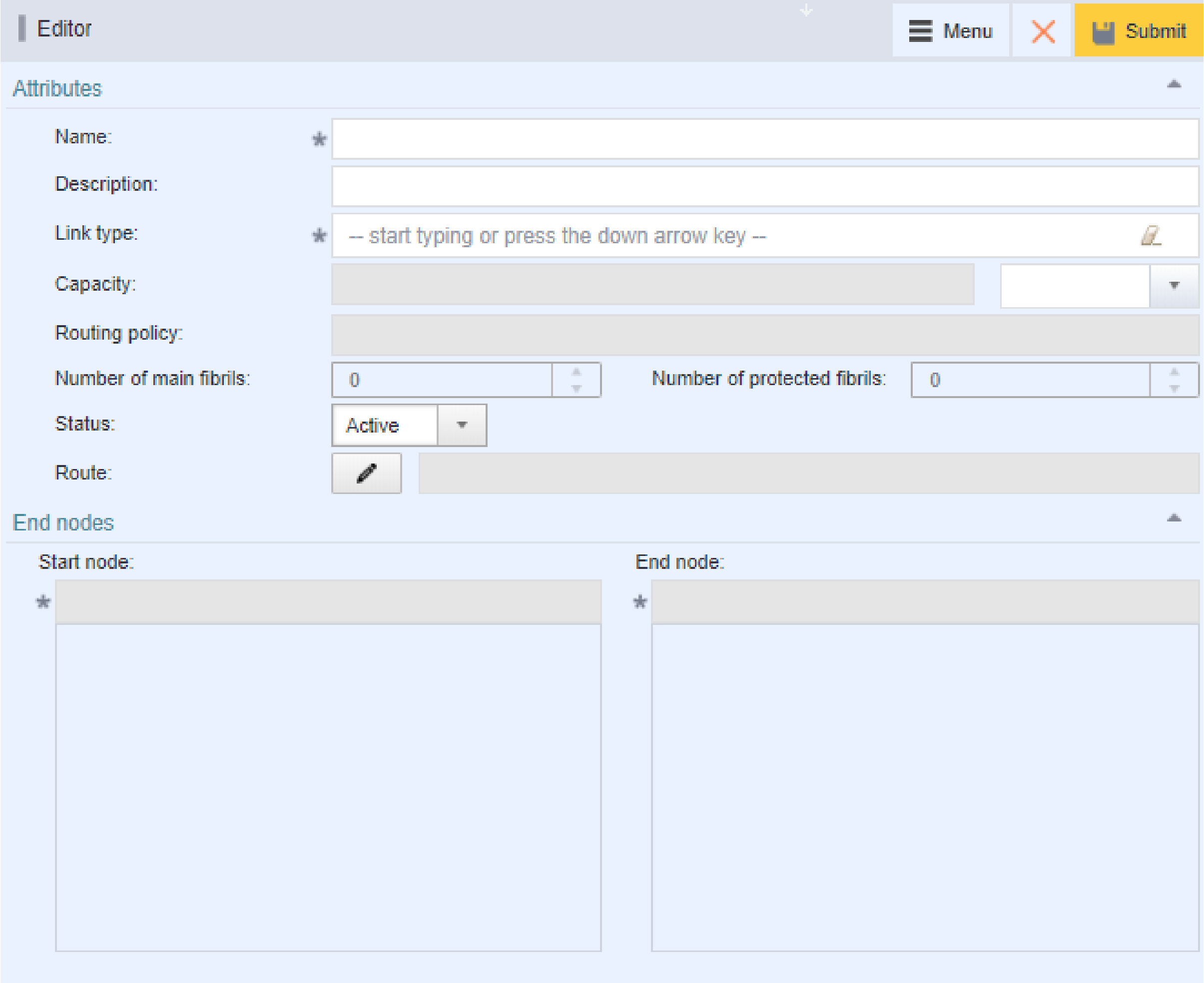
Name	Node types	Material
St.Louis	Locality	



	A	B	C
1	Name	Node types	
2	St.Louis	[LOCALITY]	
3			

1.10. Panels with editors

Editors enable data inserting and editing. They contain lists of attributes and fields for inserting their values.



Name: *

Description:

Link type: * -- start typing or press the down arrow key --

Capacity:

Routing policy:

Number of main fibrils: 0

Number of protected fibrils: 0

Status: Active

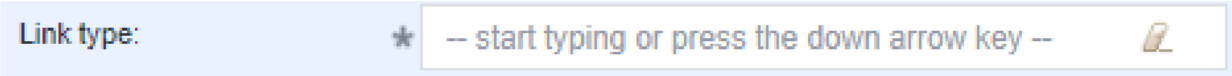
Route:

Start node: *

End node: *

Items with star symbol * are mandatory and must be filled.

Some field has an autocomplete



Link type: * -- start typing or press the down arrow key --

Attributes with a grey colored field cannot be set or overwritten - they are read-only.

Other icons or buttons for various actions can be displayed in the editor:

1. Button for multiple selection ≡+
2. Button for inserting a new value ✎
3. Link to a different module ↗

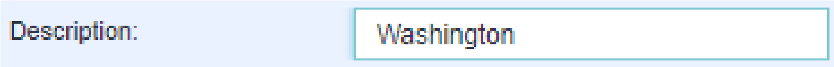
Ways of inserting data into the editor are described in the following chapter Methods for entering values to the editor.

1.10.1. Methods for entering values to the editor

Entering and editing values in the editor is one of the most common user actions. These procedures could be done in several ways according to the nature of data being inserted.

Methods for entering values to the editor:

- Direct entering into a field (text or number)

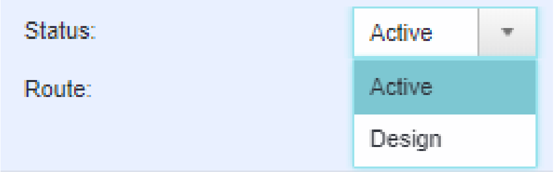


Description: Washington

Note: Group separator in a number is ignored when editing in the editor during Submitting. Decimal separator is saved when class supports it (like Double). Examples:

  1. 1,100 saves as 1100
  2. 1,100.1 saves as 1100.1
  3. 1,,100 saves as 1100
  4. 1,10 saves as 110

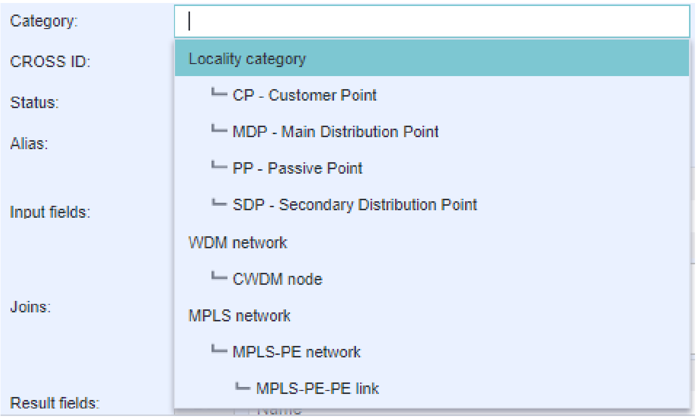
- Selecting value from the list of enumerators. Values of enumerators can be inserted in many ways, mostly via the Configuration module, but e.g. Address or Radio module contain their own submodules for administration of enumerators.



Status: Active

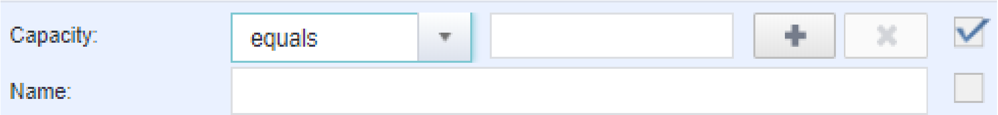
Route:
Active
Design

- Selecting a value from a large group of records (e.g. Technology) via full-text autocomplete (list of values is displayed after pressing the down arrow key). The source of the values can be imported mass data (e.g. CZ addresses) or data kept as records in other modules (lists of materials, technologies etc.).



Category:
CROSS ID:
Status:
Alias:
Input fields:
Joins:
Result fields:
Locality category
└ CP - Customer Point
└ MDP - Main Distribution Point
└ PP - Passive Point
└ SDP - Secondary Distribution Point
WDM network
└ CWDM node
MPLS network
└ MPLS-PE network
└ MPLS-PE-PE link

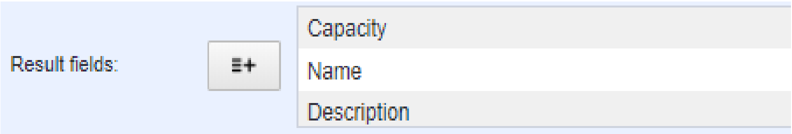
- By checking the check box



Capacity: equals ☑

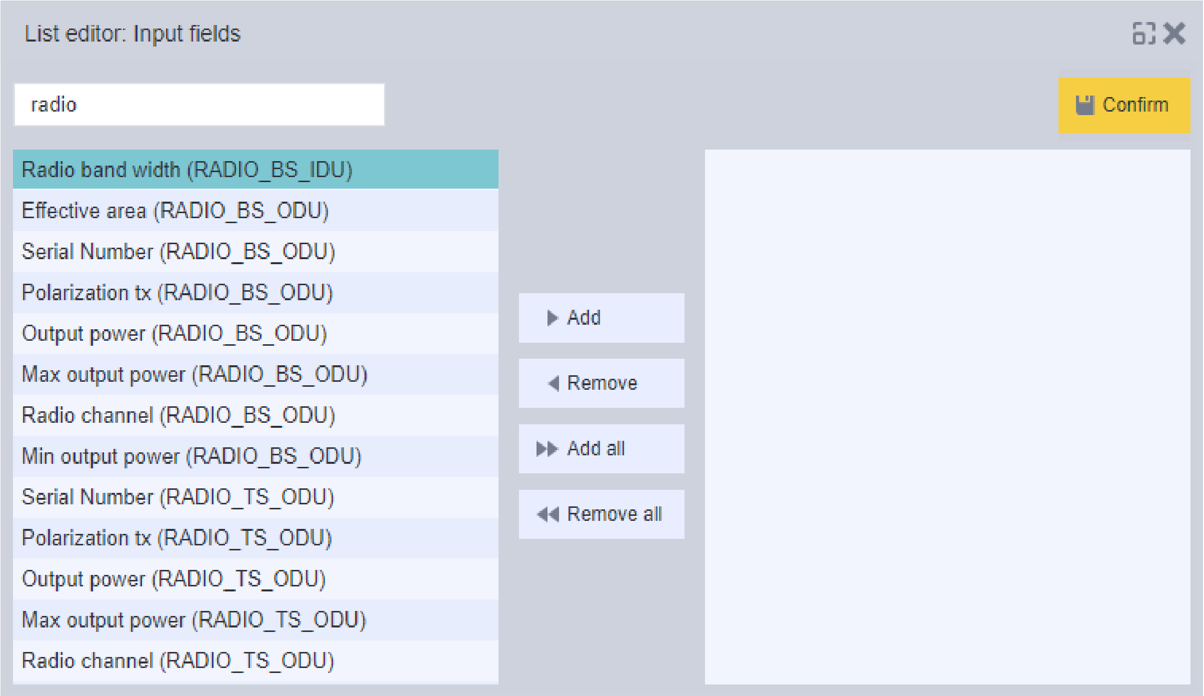
Name: ☐

- Selecting more values from the list - so called multi-select



Result fields: Capacity, Name, Description

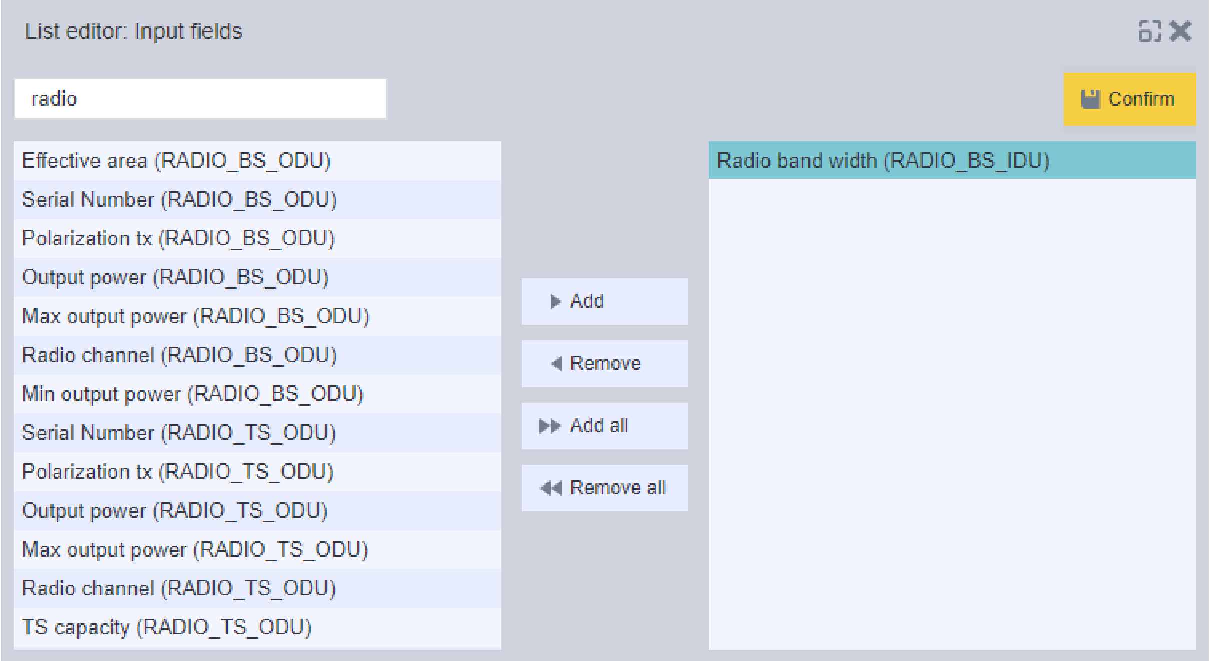
The dialog window for a value selection is displayed after clicking on this button ≡+.



radio

- Radio band width (RADIO_BS_IDU)
- Effective area (RADIO_BS_ODU)
- Serial Number (RADIO_BS_ODU)
- Polarization tx (RADIO_BS_ODU)
- Output power (RADIO_BS_ODU)
- Max output power (RADIO_BS_ODU)
- Radio channel (RADIO_BS_ODU)
- Min output power (RADIO_BS_ODU)
- Serial Number (RADIO_TS_ODU)
- Polarization tx (RADIO_TS_ODU)
- Output power (RADIO_TS_ODU)
- Max output power (RADIO_TS_ODU)
- Radio channel (RADIO_TS_ODU)

There is a list of values that are available for selected editor field on the left side of the window. If there are many records in the window, you can use search filter from the upper left corner. You can see its use for filtering all radio type nodes on the picture below. Adding a value to the editor field could be done by selecting a value on the left side and clicking on Add button. Added values are then displayed on the right side of the window.



radio

- Effective area (RADIO_BS_ODU)
- Serial Number (RADIO_BS_ODU)
- Polarization tx (RADIO_BS_ODU)
- Output power (RADIO_BS_ODU)
- Max output power (RADIO_BS_ODU)
- Radio channel (RADIO_BS_ODU)
- Min output power (RADIO_BS_ODU)
- Serial Number (RADIO_TS_ODU)
- Polarization tx (RADIO_TS_ODU)
- Output power (RADIO_TS_ODU)
- Max output power (RADIO_TS_ODU)
- Radio channel (RADIO_TS_ODU)
- TS capacity (RADIO_TS_ODU)

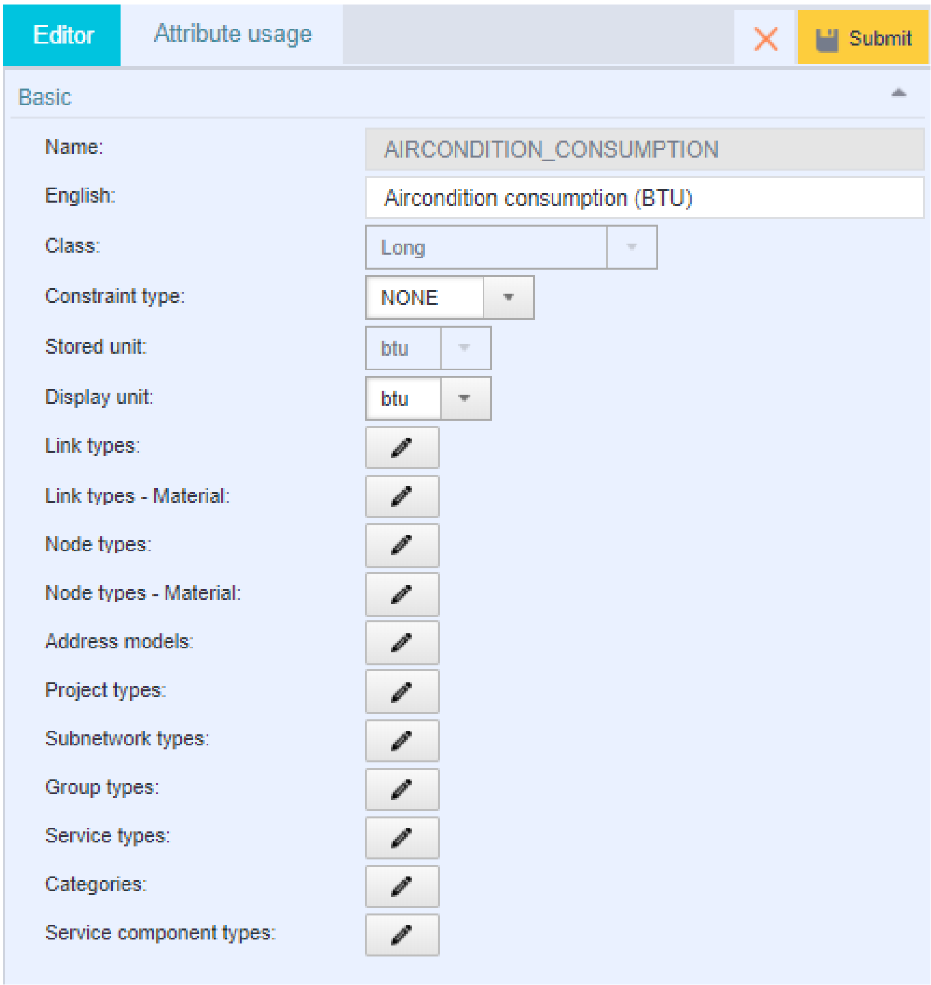
- Radio band width (RADIO_BS_IDU)

Then click on the button Confirm and selected values will be displayed in the editor.

- Button for inserting a new value ✎.

Where it may be necessary for a new value to be entered as you need to add more attributes, there is a button with a pencil icon.

This option can be found e.g. in Custom attributed editor - Configuration module.

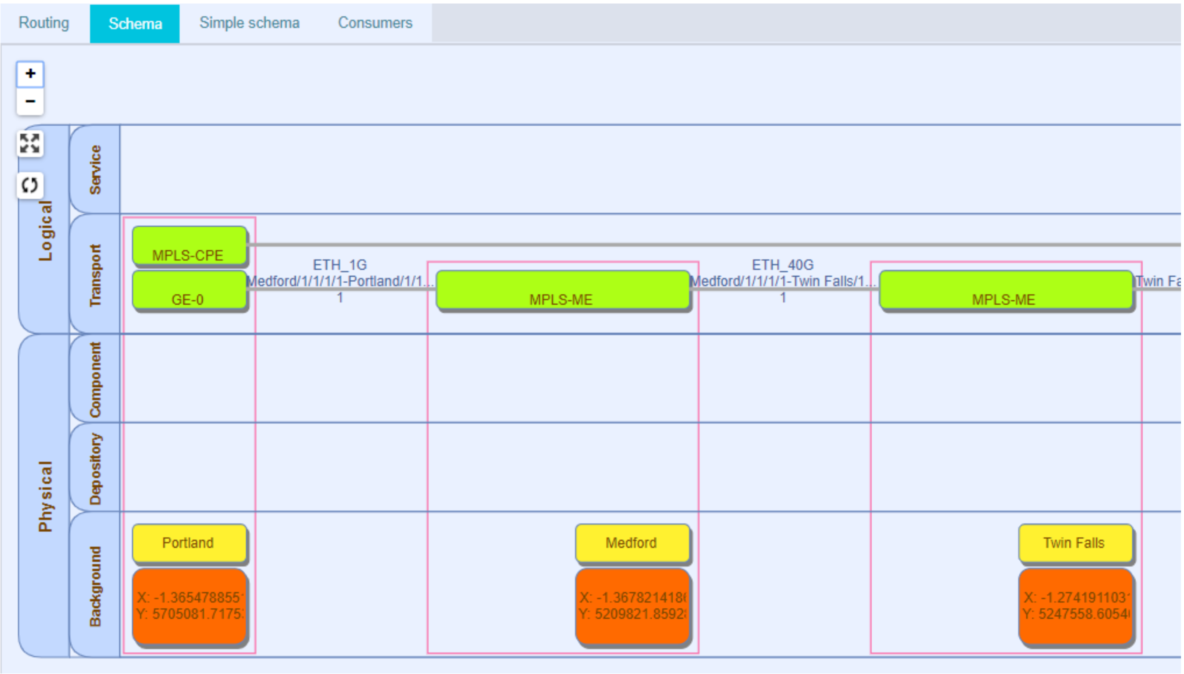


Name: AIRCONDITION_CONSUMPTION
English: Aircondition consumption (BTU)
Class: Long
Constraint type: NONE
Stored unit: btu
Display unit: btu
Link types: ✎
Link types - Material: ✎
Node types: ✎
Node types - Material: ✎
Address models: ✎
Project types: ✎
Subnetwork types: ✎
Group types: ✎
Service types: ✎
Categories: ✎
Service component types: ✎

Values inserted and kept as records in this way are not visible in the editor, it is necessary to activate this dialog window in order to display them.

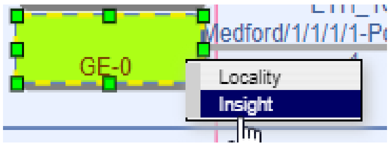
1.11. Panels with schemes

The purpose of schemes is a graphic display of links and nodes, their connections and their statuses (e.g. alarms). Hierarchy and physical and logical link parts can be followed on schemes in the Circuits module.

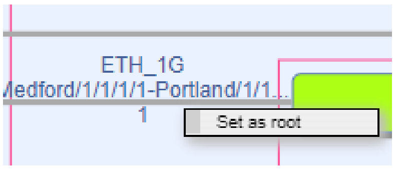

Routing
Schema
Simple schema
Consumers
+
−
Logical
Physical
Service
Transport
Component
Depository
Background
MPLS-CPE
GE-0
ETH_1G
Medford/1/1/1/1-Portland/1/1...
1
MPLS-ME
ETH_40G
Medford/1/1/1/1-Twin Falls/1...
1
MPLS-ME
Twin Fa
Portland
X: -1.365478855
Y: 5705081.7175
Medford
X: -1.3678214186
Y: 5209821.8592
Twin Falls
X: -1.274191103
Y: 5247558.6054

Other options could be performed from a context menu of selected object:

- to link to another module


GE-0
Medford/1/1/1/1-Po
Locality
Insight

- to set the selected link as the ROOT in the Routing panel


ETH_1G
Medford/1/1/1/1-Portland/1/1...
1
Set as root

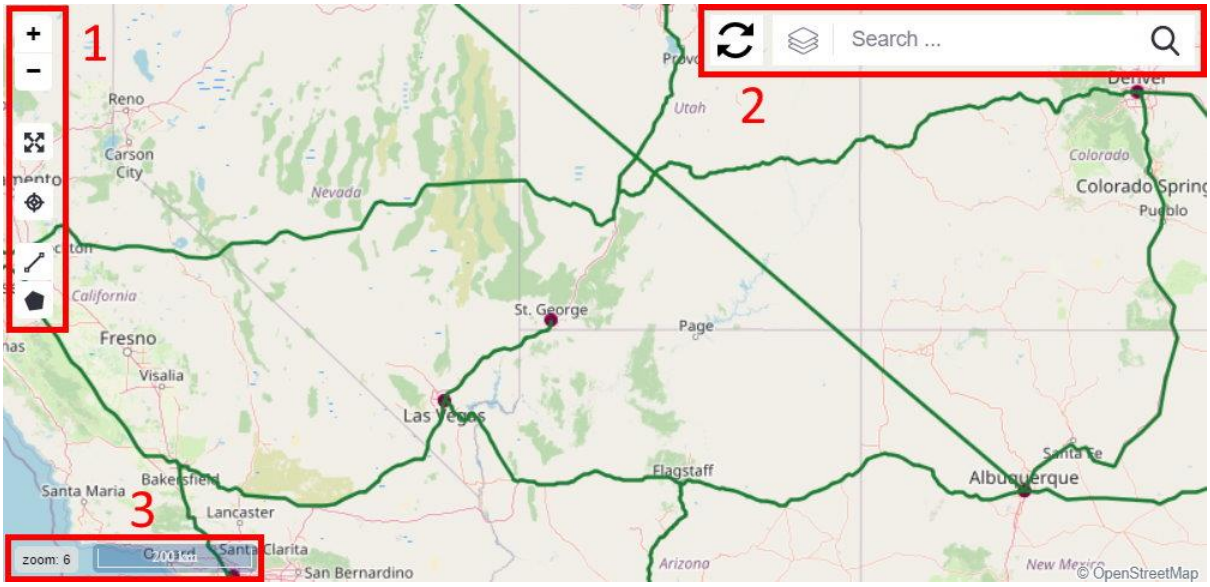
Selected schema object (node or link) of any schema type is displayed in the map window at the same time.

You can perform following actions on a schema:

- to maximize the schema window
- to minimize the schema window back to a default size
- to zoom in +
- to zoom out −

1.12. Panels with map

The map window is a part of some of the modules that work with topological data and geometry, e.g. the Address, Locality, Circuit, Radio modules etc.


1
2
3
Search ...
zoom: 6
200 km
Reno
Carson City
Nevada
California
Fresno
Visalia
Bakersfield
Santa Maria
Lancaster
Santa Clarita
San Bernardino
Las Vegas
St. George
Page
Utah
Provo
Flagstaff
Arizona
Albuquerque
Santa Fe
New Mexico
Colorado
Colorado Springs
Pueblo
Denver
© OpenStreetMap

The map window has the same functions and attributes in every module.

1 - Map panel tools

+ Zoom in the map (also moving up using mouse wheel or a double click)

− Zoom out the map (also moving down using mouse wheel)

⛶ Maximize the map on the entire screen

⤡ Minimize the map to a default size

⌖ Specific map settings for object selection - see more in the text below

⟋ Measurement of a polyline length in the map

⬟ Measurement of a polygon area in the map

📍 Defining a geometry point in the map (e.g. when creating localities). This icon is active only when defining a geometry (activated from editor).

Map can be rotated by pressing SHIFT+ALT, click and hold of left mouse button and moving with a mouse.

Map can be zoomed to a marked location by pressing SHIFT and left mouse button. Move a mouse to create a rectangle and release. Map will be zoomed in to the selected area.

Tools for a map configuration with respect to selected object are hidden under following icons: ⌖ ⌖ ⌖ .

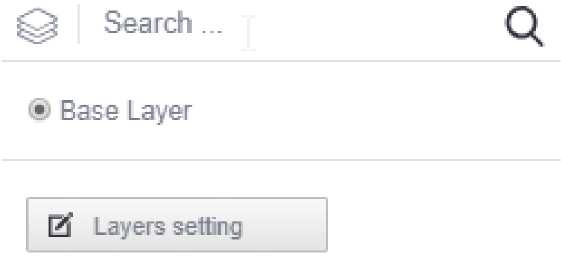
Icon for a map shift and zoom in to a selected object from the tree structure is set as default ⌖ - the object is in the center of the map and is zoomed in.

If you click on the icon mentioned above, the icon will turn into this icon ⌖. This icon stands for a tool which shifts the map in a way that the selected object is in the center, but the map is not zoomed in.

If you click on the icon one more time, the icon turns into this icon ⌖. This icon stands for a tool with a lock function - the map is not shifted nor zoomed in on selected object. Object is only highlighted if it is situated on the map.

Visibility of the map layers

By clicking the icon the list of the map layers will be opened.



Setting the visibility of layers and objects on the map is described in more detail in individual chapter called [Setting the visibility of layers and objects on the map]

2 - Refresh button and Address searching in the map window

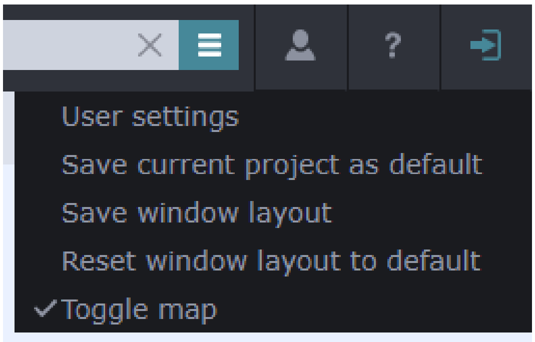
Refresh Button will redraw all objects on the map, including custom layers. Map itself will not be redrawn, only layers.

A field for address searching is placed in the map window. Enter an address to this field, confirm by click on **Search** button and found object (locality) will be centered on the map.

3 - Distance info

Current map scale (distance info) can be found in the lower left corner.

Map panel can be hidden using User settings menu

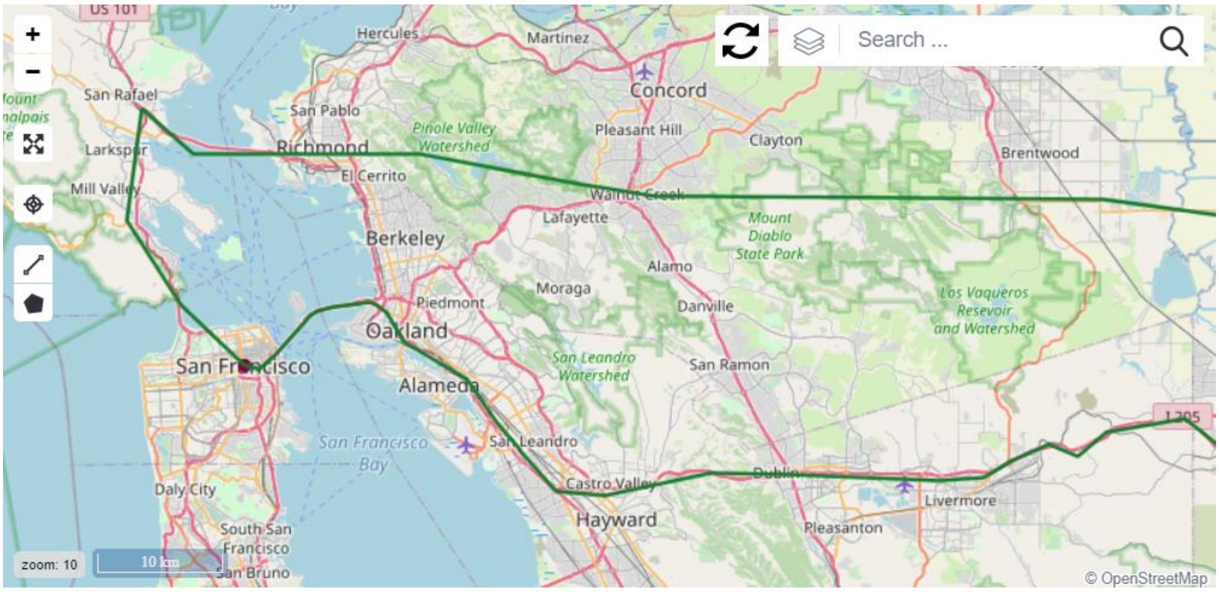

User settings
Save current project as default
Save window layout
Reset window layout to default
✓Toggle map

This setting can be saved by “Save window layout”. When CROSS is opened next time, the saved layout is used for a user who saved it.

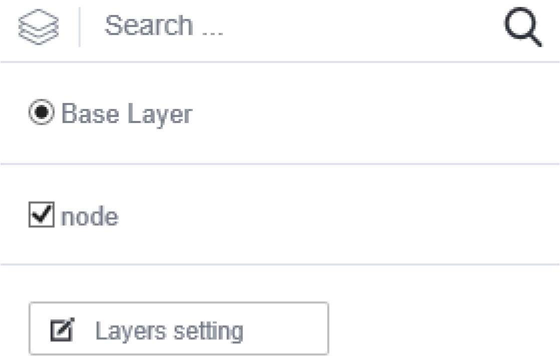
Note: Map window can not be toggled off where is present on tab with other tabs.

1.12.1. Setting the visibility of objects on the map

It is possible to display an object selected from the tree structure at the moment in the map window. If you enable visibility of appropriate layers, it is also possible to display various link and node types. Raster map is set as default setting. For creating of a layer a previously saved search is required.


Search ...
San Rafael
Richmond
Concord
Berkeley
Oakland
San Francisco
Alameda
San Leandro
Hayward
Dublin
Pleasanton
Livermore
Walnut Creek
Danville
San Ramon
zoom: 10
10 km
© OpenStreetMap

The map window contains possibility of displaying topographical details in various layers that are independent on each other. It is also possible to switch between the layers. The list of map layers could be opened by clicking on the icon .


Search ...
Layers setting

● Base Layer

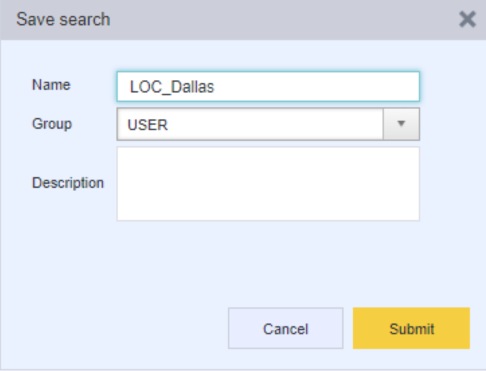
☑ node

Map source materials are obtained via WMS services. Plot geometries are obtained via WFS service. Data relevance depends on the service being used.

The table of map configurations opened when you click on a symbol of pencil in a frame. It is possible to select which objects should be displayed in the map window through this option. You need to save the settings by clicking on the Confirm button after you select the objects.

Select object type (Node, Node type, Locality) in Search module and press search.

Search result can only be saved in Search module using Menu button.


Save search
Name
Group
Description
Cancel
Submit

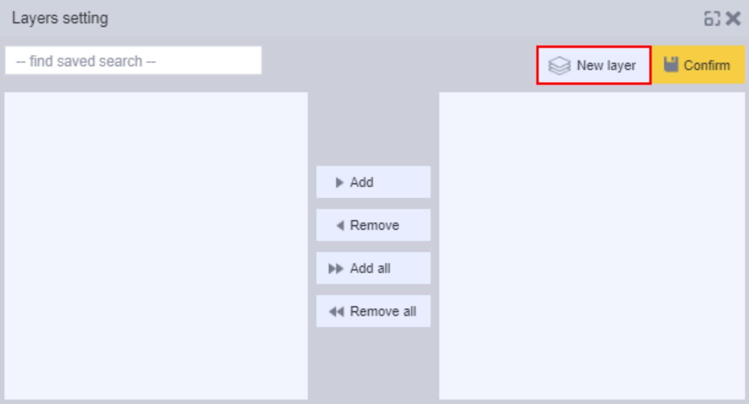
Name: LOC_Dallas

Group: USER

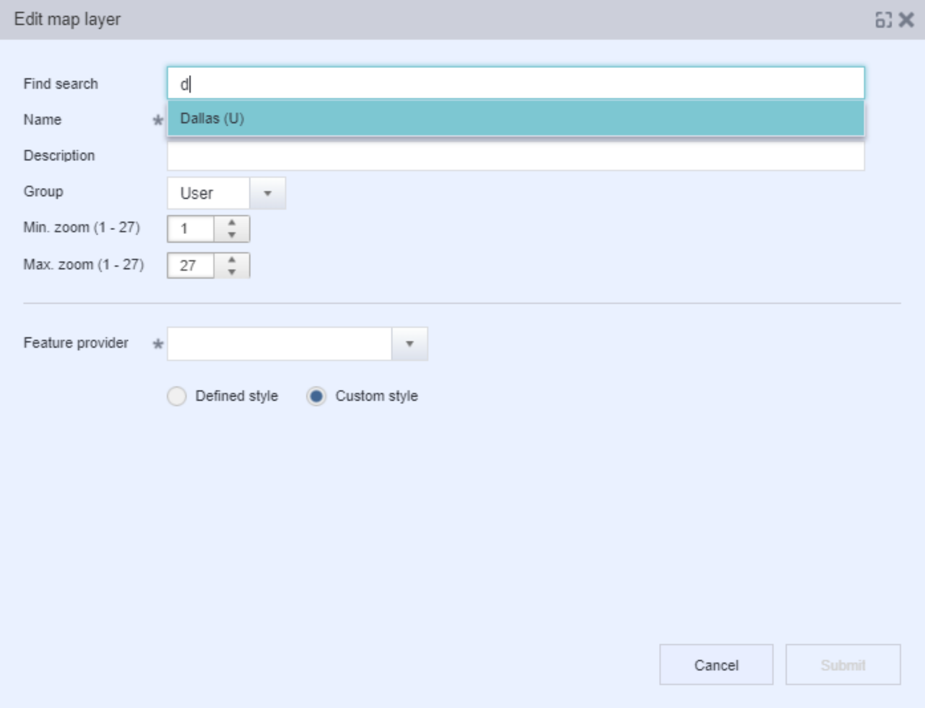
Switch to Locality module by right click on searched record in Searched results.

Select Layers setting in map window.

Press New layer button.


Layers setting
-- find saved search --
New layer
Confirm
Add
Remove
Add all
Remove all

Select one of the items. Press New layer button. Edit map layer window will be opened. Select one of the prepared map layers.


Edit map layer
Find search
Name *
Description
Group
Min. zoom (1 - 27)
Max. zoom (1 - 27)
Feature provider *
Cancel
Submit

Find search: d

Dallas (U)

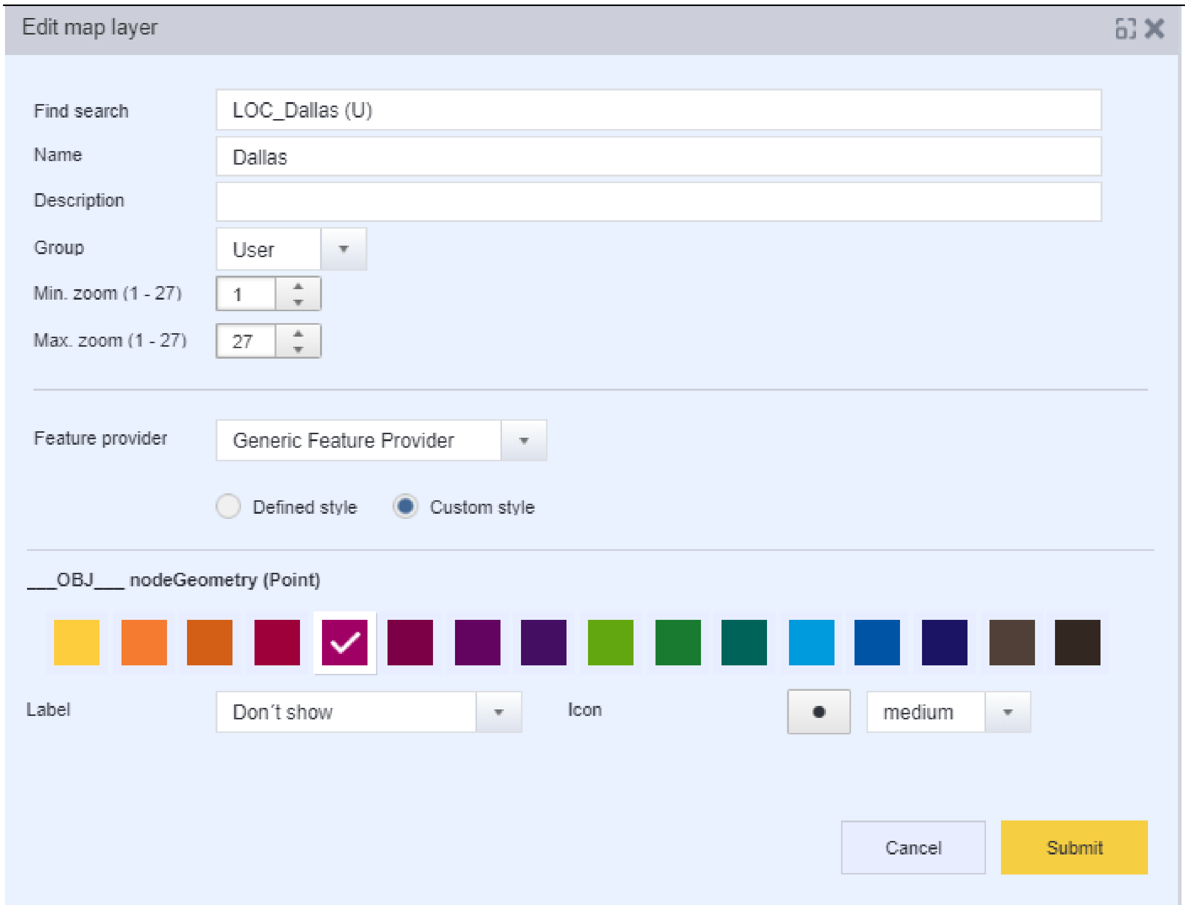
Group: User

Min. zoom (1 - 27): 1

Max. zoom (1 - 27): 27

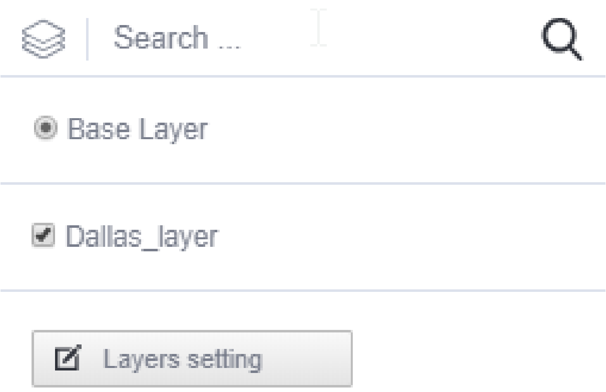
○ Defined style ● Custom style

More options are available after selection on the item.



Find search: LOC_Dallas (U)
Name: Dallas
Description:
Group: User
Min. zoom (1 - 27): 1
Max. zoom (1 - 27): 27
Feature provider: Generic Feature Provider
○ Defined style ● Custom style
___OBJ___ nodeGeometry (Point)
Label: Don't show
Icon: ● medium

Open layers list after saving. Select one of the layers.



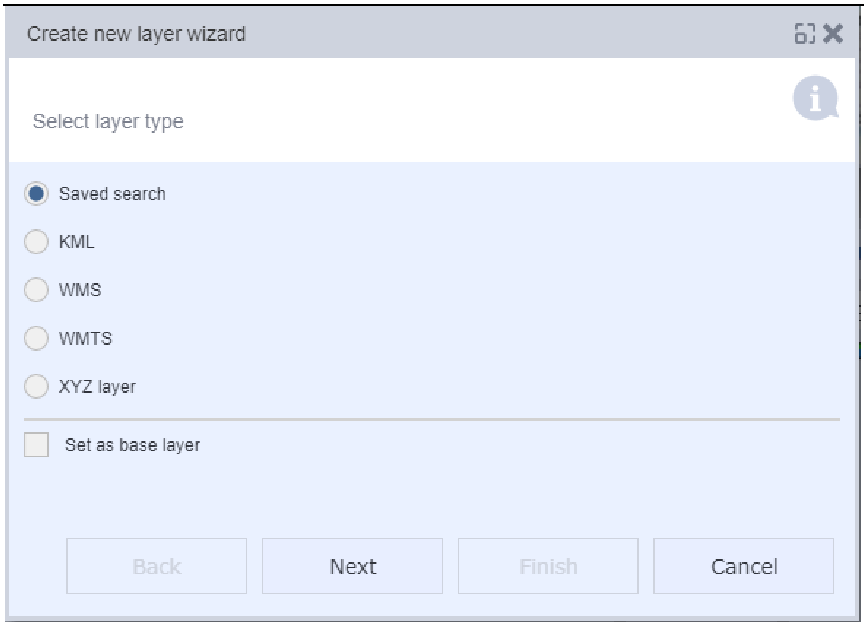
● Base Layer
☑ Dallas_layer

Connected points will be displayed in map window.

Following supported map sources are supported by CROSS application GUI:

1. KML (Keyhole Markup Language) file
2. WMS (Web Map Service)
3. WMTS (Web Map Tile Service)
4. XYZ (OpenStreetMap, also known as Slippy Map Tilenames)
5. CROSS Saved search

Any layer can be set as a Base layer now. Only a single layer can be selected as a visible base layer at a time. All types of layers can be sorted into folders (excluding base layers)



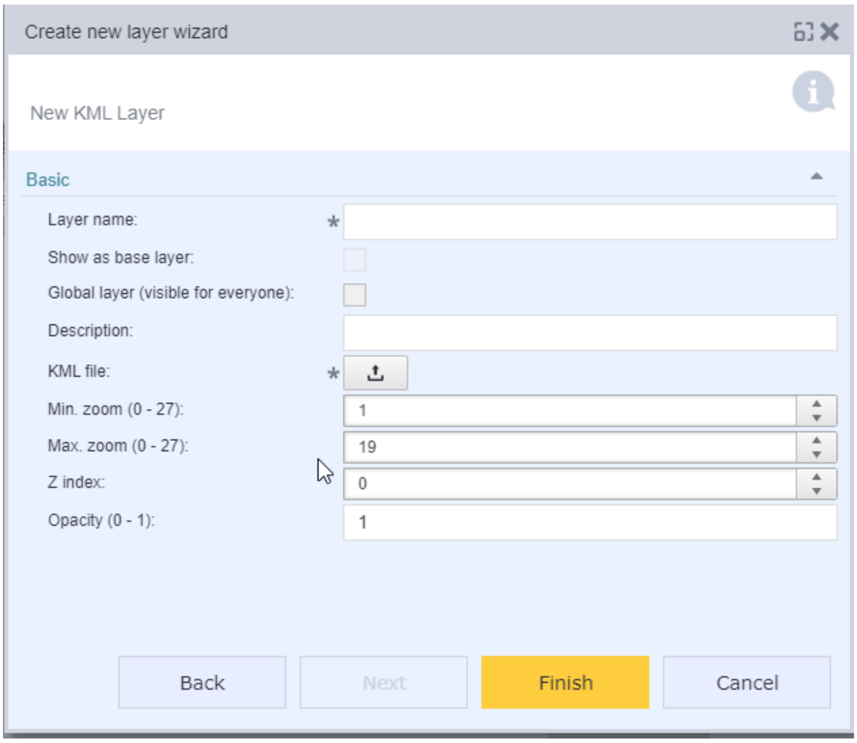
Create new layer wizard

Select layer type

● Saved search
○ KML
○ WMS
○ WMTS
○ XYZ layer

☐ Set as base layer

Back
Next
Finish
Cancel



Create new layer wizard

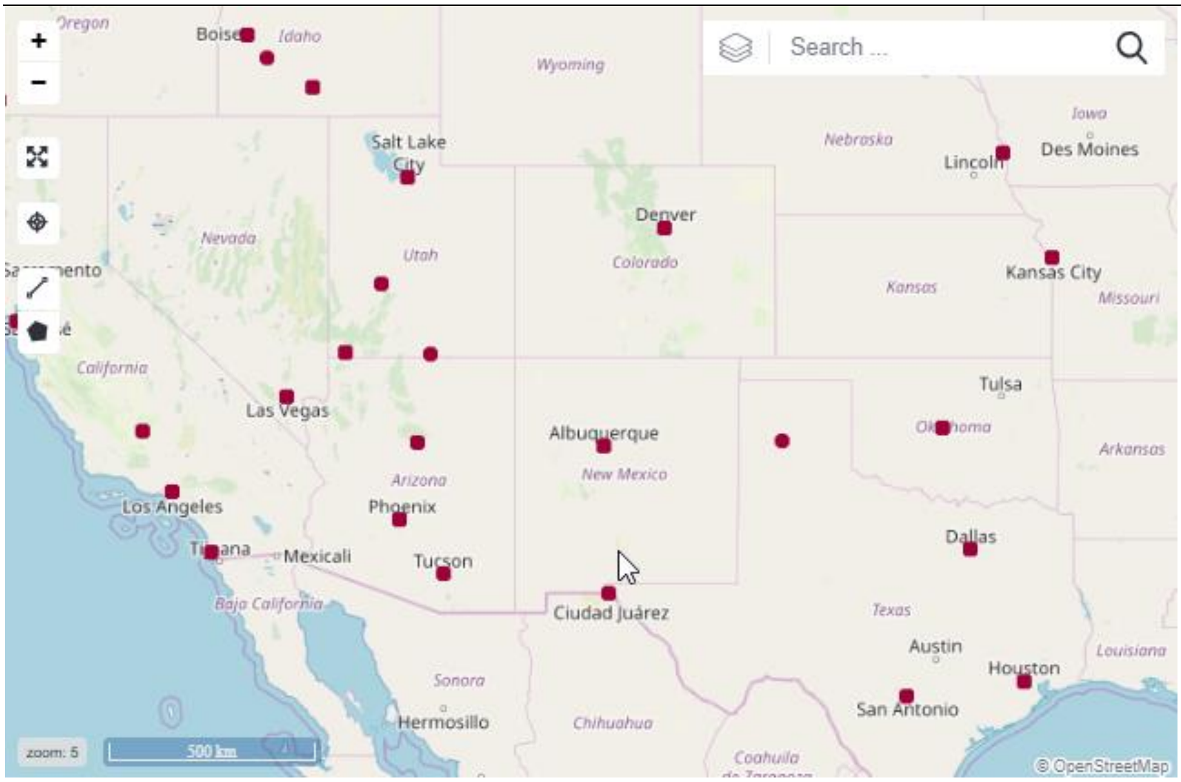
New KML Layer

Basic

Layer name: *
Show as base layer: ☐
Global layer (visible for everyone): ☐
Description:
KML file: *
Min. zoom (0 - 27): 1
Max. zoom (0 - 27): 19
Z index: 0
Opacity (0 - 1): 1

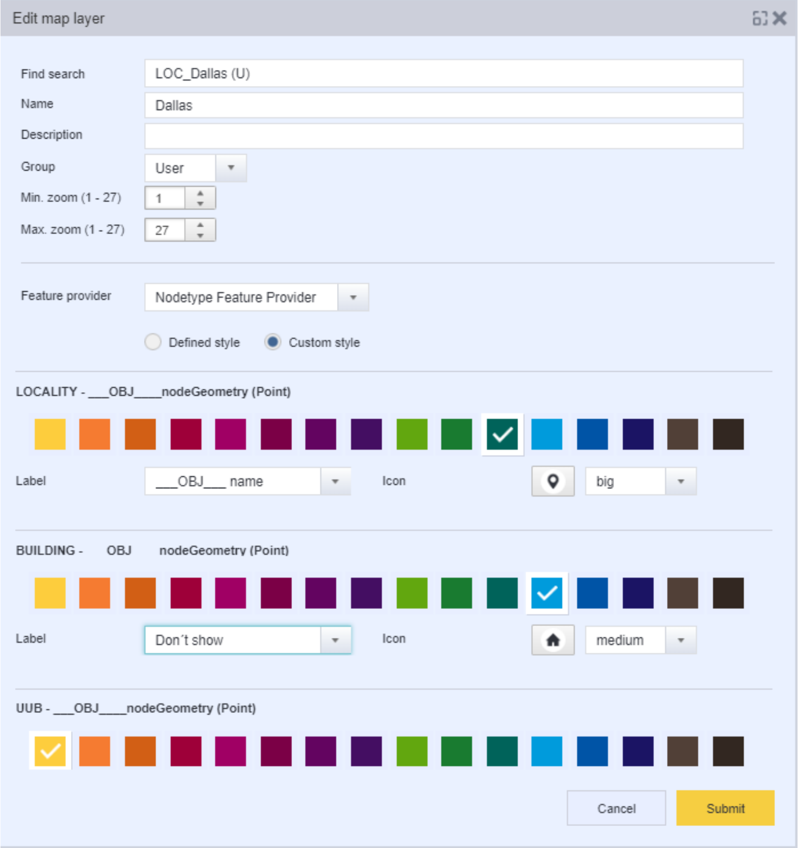
Back
Next
Finish
Cancel

Supported coordinate systems are now configurable in the properties files.


Search ...
zoom: 5
500 km
© OpenStreetMap
Oregon
Boise
Idaho
Wyoming
Nebraska
Iowa
Lincoln
Des Moines
Salt Lake City
Nevada
Utah
Denver
Colorado
Kansas
Kansas City
Missouri
California
Las Vegas
Tulsa
Oklahoma
Arkansas
Albuquerque
New Mexico
Arizona
Phoenix
Los Angeles
Tijuana
Mexicali
Tucson
Dallas
Baja California
Ciudad Juárez
Texas
Austin
Houston
Louisiana
Sonora
Hermosillo
Chihuahua
San Antonio
Coahuila

Edit map layer window contains two items:

- Generic Feature Provider
- Nodetype Feature Provider – allows to choose color, label, Icon and size of the icon for each node.



Edit map layer

Find search: LOC_Dallas (U)
Name: Dallas
Description:
Group: User
Min. zoom (1 - 27): 1
Max. zoom (1 - 27): 27

Feature provider: Nodetype Feature Provider

○ Defined style ● Custom style

LOCALITY - ___OBJ____nodeGeometry (Point)

Label: ___OBJ___ name
Icon: big

BUILDING - OBJ nodeGeometry (Point)

Label: Don´t show
Icon: medium

UUB - ___OBJ____nodeGeometry (Point)

Cancel
Submit

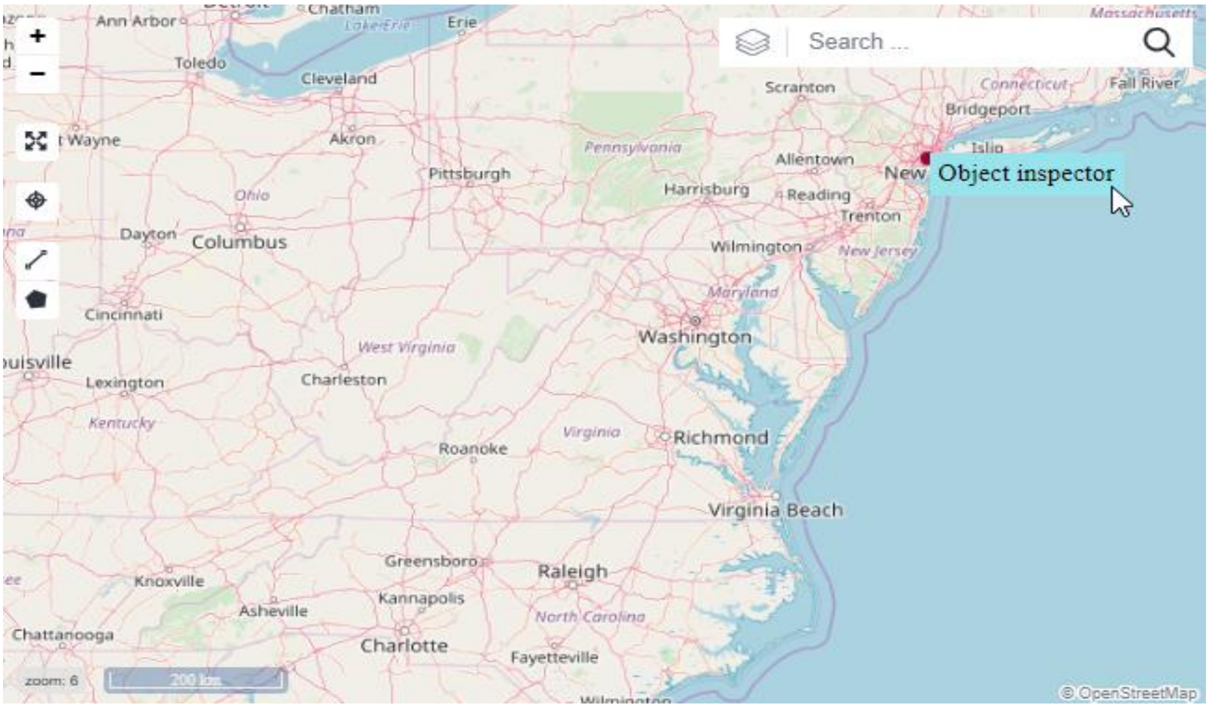
1.12.2. Selecting locality from the map - Object Inspector

Selecting locality from the map

It is possible to find and open any node in the editor directly by selection from the map.

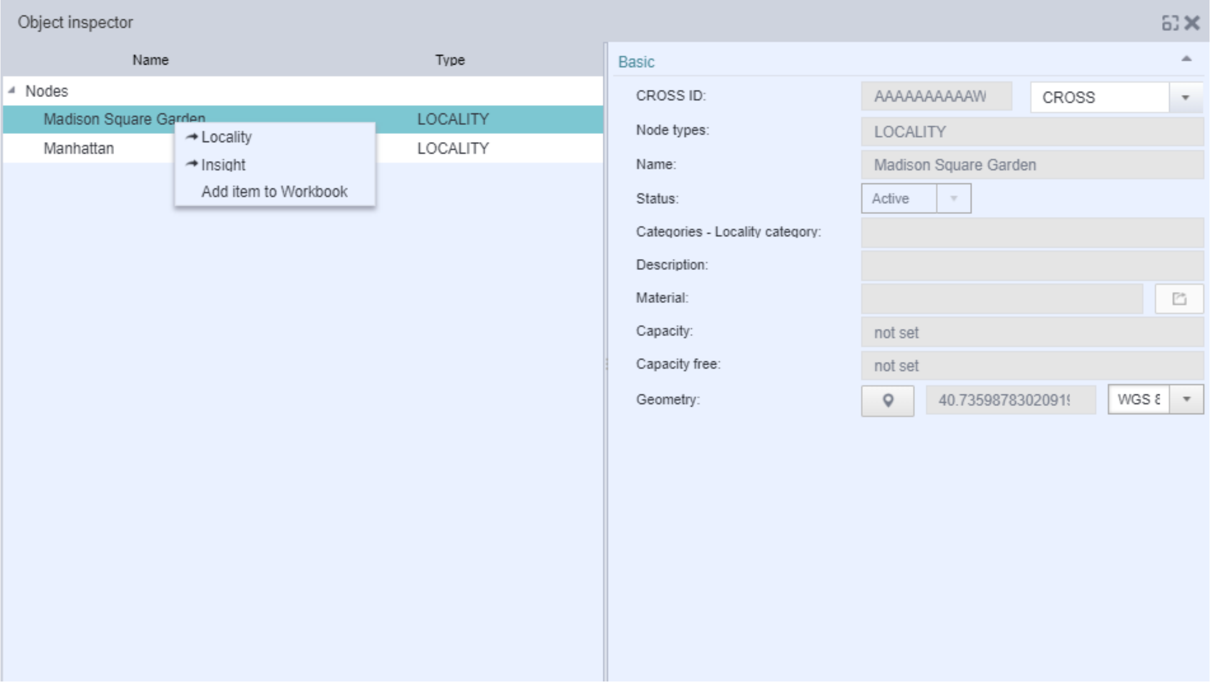
In order to do that, you need to set the visibility of desired node or link types in the map configuration.

Hold Ctrl key and click on desired locality in the map, e.g. on New York.


Search ...
Object inspector
zoom: 6
200 km
© OpenStreetMap

A window with a list of all objects in this locality will be opened.

Context menu is displayed when a node is right-clicked. Selected node from this example can be opened in the Locality or Insight module, or it can be added to the Workbook.

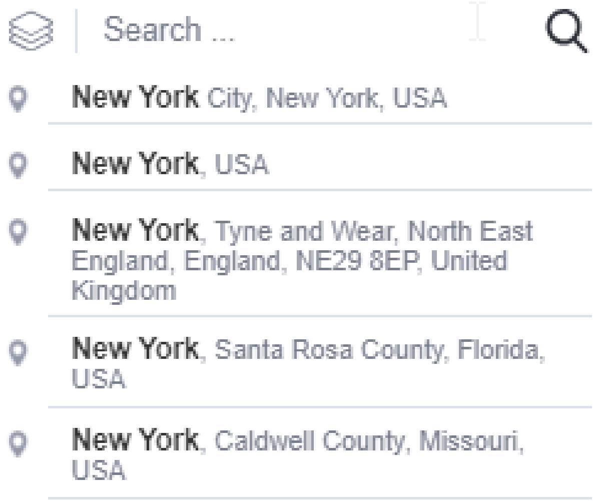

Object inspector
Locality
Insight
Add item to Workbook
Basic

Name	Type
Nodes	
Madison Square Garden	LOCALITY
Manhattan	LOCALITY

CROSS ID: AAAAAAAAAAW CROSS
Node types: LOCALITY
Name: Madison Square Garden
Status: Active
Categories - Locality category:
Description:
Material:
Capacity: not set
Capacity free: not set
Geometry: 40.7359878302091 WGS 8

1.12.3. Searching address in the map

The map window contains the search field, where you can enter an address or a part of address. The map centers itself to selected address automatically. If there are more localities corresponding to entered address part, their list is displayed above the search field.



Search ...

New York City, New York, USA

New York, USA

New York, Tyne and Wear, North East England, England, NE29 8EP, United Kingdom

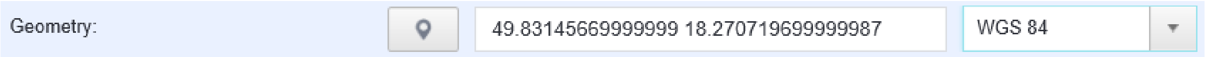
New York, Santa Rosa County, Florida, USA

New York, Caldwell County, Missouri, USA

To center the address on the map, select one of the addresses in the address list by a click.

1.12.4. Inserting, editing, and deleting the point geometry in the map

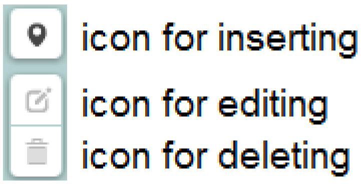
Manual point geometry inserting can be performed e.g. when creating a new address or locality of the UUB type, or at radio locality, where these objects are not fixed to a specific address. These types contain a Geometry field with coordinates of address point or other point in the editor.



Geometry: 📍 49.83145669999999 18.270719699999987 WGS 84

If coordinates of the point are known, they can be entered to the field manually in the form that you can see on the picture above.

If you wish to obtain coordinates from the map, it is necessary to click the button 📍 to activate the icon set for inserting and editing geometry in the map:



icon for inserting

icon for editing

icon for deleting

Inserting point to the map:

Click on the button 📍 in the editor for activating a map record mode (map toolset expands as the record icon group is added).

Locate desired address or area on the map and use the search field in the map.

Click on the icon for entering a record 📍 (record mode can be easily recognized as the mouse cursor is changed).

Click on desired place in the map. The place is then marked by a blue marker and the map coordinates of selected locality are entered into the editor. Do not forget to save the editor by clicking on the Submit button.

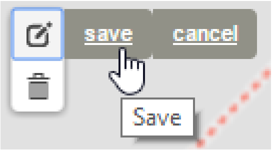
Point geometry editing:

Display the object which geometry you wish to change in the editor.

Click the icon 📍 in the editor in order to activate a map record mode (map toolset expands as the record icon group is added and the map point is marked by a blue marker).

Click on the icon for geometry editing ✎ and drag the point to a new position.

Confirm the geometry change by clicking the icon ✎ and then click on the Save.



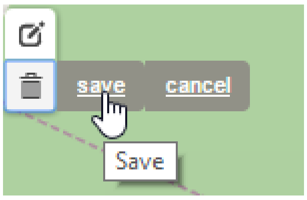
Point geometry deleting:

Display object which geometry you want to delete in the editor.

Click the icon 📍 in the editor to activate a map record mode (map toolset expands as the record icon group is added and the map point is marked by a blue marker).

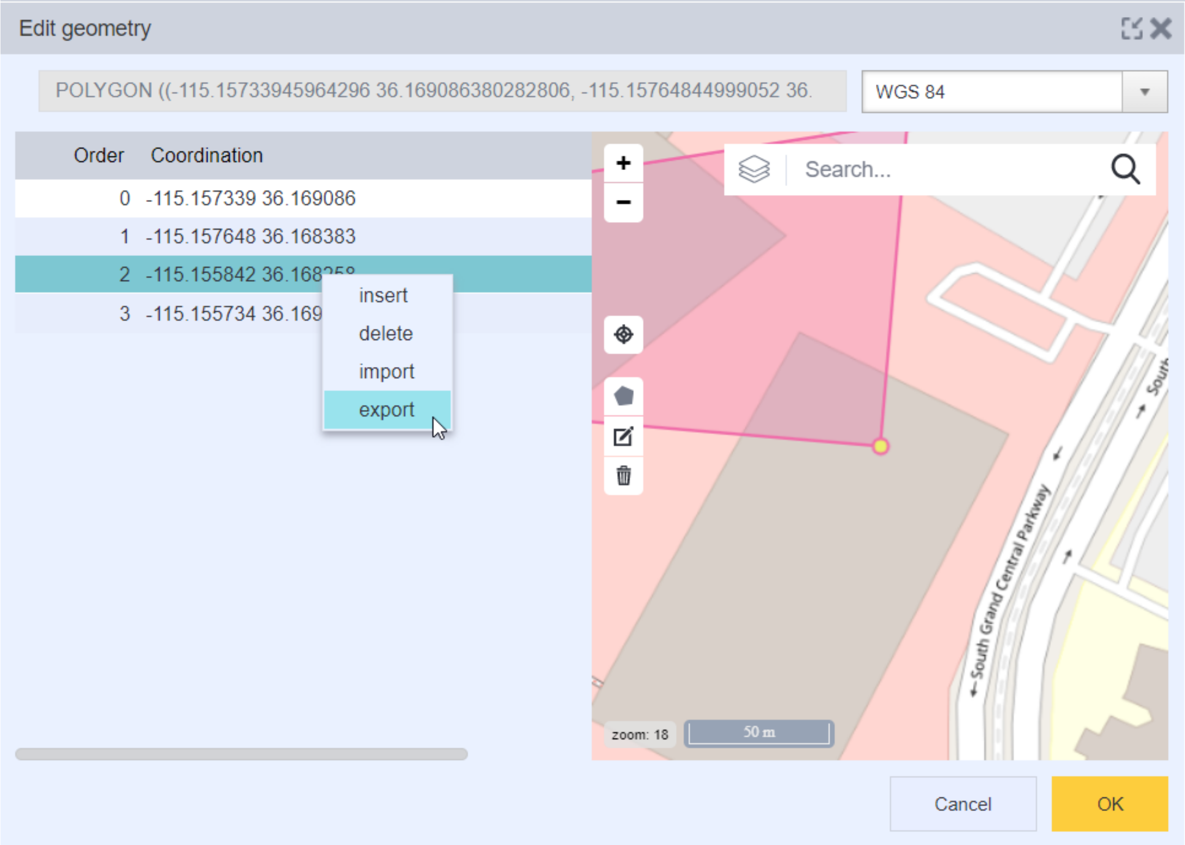
Click the icon for geometry deleting 🗑 and click on the point you wish to be deleted.

Confirm the removal of geometry by clicking the icon 🗑 and then Save.



Export geometry of one object

When editing geometry (for a link, or a custom attribute type Polygon) an export was previously possible. Users can now also import geometry of the whole polygon using a text file. It has the same format as an exported file.



Edit geometry

POLYGON ((-115.15733945964296 36.169086380282806, -115.15764844999052 36.

WGS 84

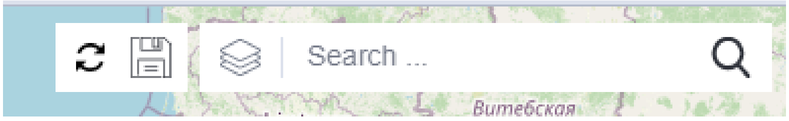
Order	Coordination
0	-115.157339 36.169086
1	-115.157648 36.168383
2	-115.155842 36.168?58
3	-115.155734 36.169

When clicking on a specific line only the line will be included in the export. If an export of the whole polygon is required, then click outside of the list of coordinates (like on the header of the table where Order and Coordination labels are present).

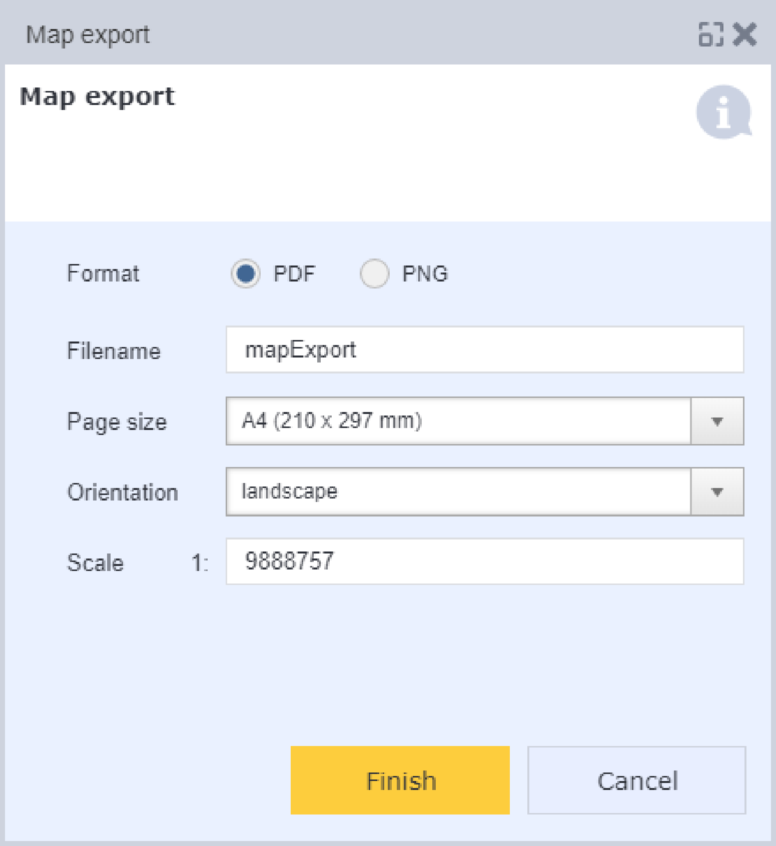
OSM format has limits: (-20026376.39, -> 20048966.10 }, { -20026376.39 -> 20048966.10}

1.12.5. Saving currently selected area on a map into PDF

User can save currently selected area of the map into the PDF format using a diskette icon next to the search bar in the map. Export of the map is always defined by the **width** of the selected map in the CROSS application.



Popup window with several options will appear with PDF export selected as a default.



Format ● PDF ○ PNG

Filename mapExport

Page size A4 (210 x 297 mm)

Orientation landscape

Scale 1: 9888757

User can change several values:

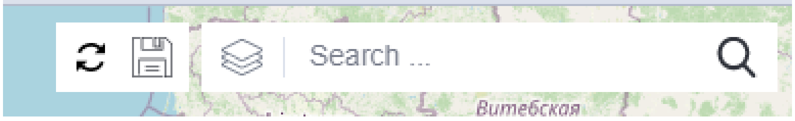
- *Filename* – name of the file (only English letters are supported), extension will be automatically added
- *Page size* – this defines detail of the exported map and affects the Scale
- *Orientation* – user can select portrait or landscape orientation, which affects the *Scale*
- *Scale* – shows the real scale of the map exported into the PDF

The Finish button will start the procedure of downloading map tiles from the Map server to the client. This operation can be Cancelled by the Cancel button.

Then all downloaded tiles will be processed into PDF and saved to the save location defined by the used internet browser. This process cannot be cancelled.

1.12.6. Saving current view of the map into PNG

User can save currently selected map into the PNG format using a diskette icon next to the search bar.


Search ...
Витебская

Popup window with several options will appear with PDF export selected as a default. User must click on the bullet in front of the PNG label.

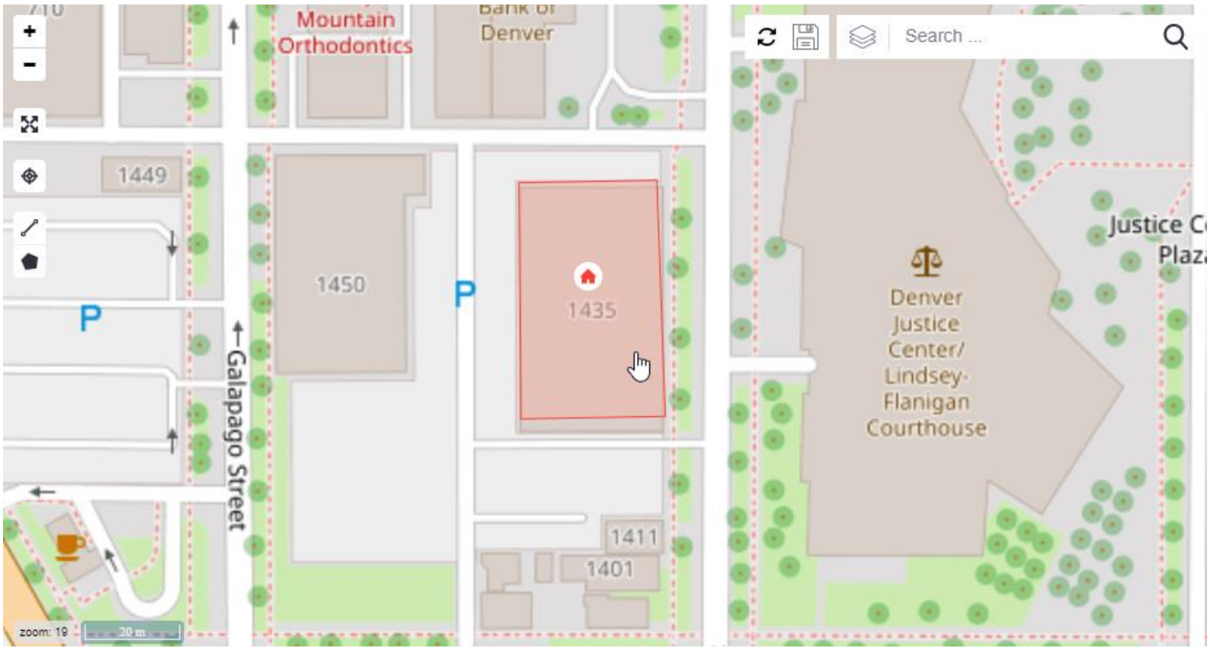
User can change several values:

- *Filename* – name of the file (only English letters are supported), extension will be automatically added

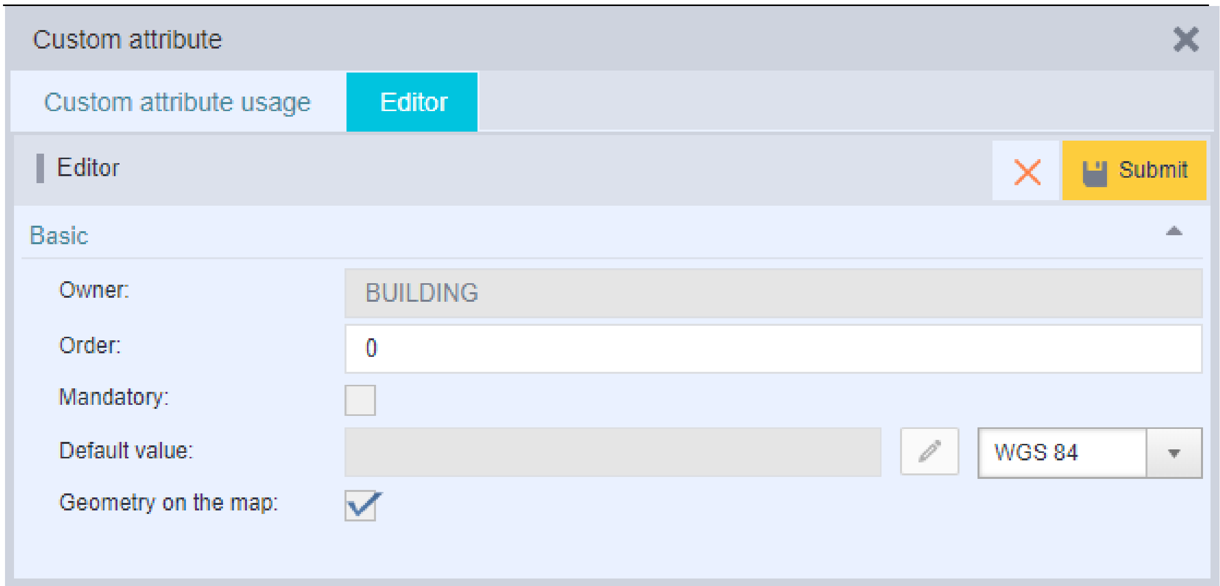
The Finish button will start the procedure of saving map to the location defined by the used internet browser.

1.12.7. Custom geometry for selected object

Node types Node/Link/Address now supports showing of custom geometry using a Custom attribute of the type Polygon, Multipolygon, LineString.


Search ...
Mountain Orthodontics
Bank of Denver
1449
1450
1435
1411
1401
P
Galapago Street
Denver Justice Center/ Lindsey-Flanigan Courthouse
Justice C Plaz
zoom: 19
20 m

CADefinition usage, in configuration -> custom attributes, has new field "show in map" for custom attributes of geometry type. There is another limitation and it is that it only works for link types, node types and addresses.



Custom attribute

Owner: BUILDING

Order: 0

Mandatory: ☐

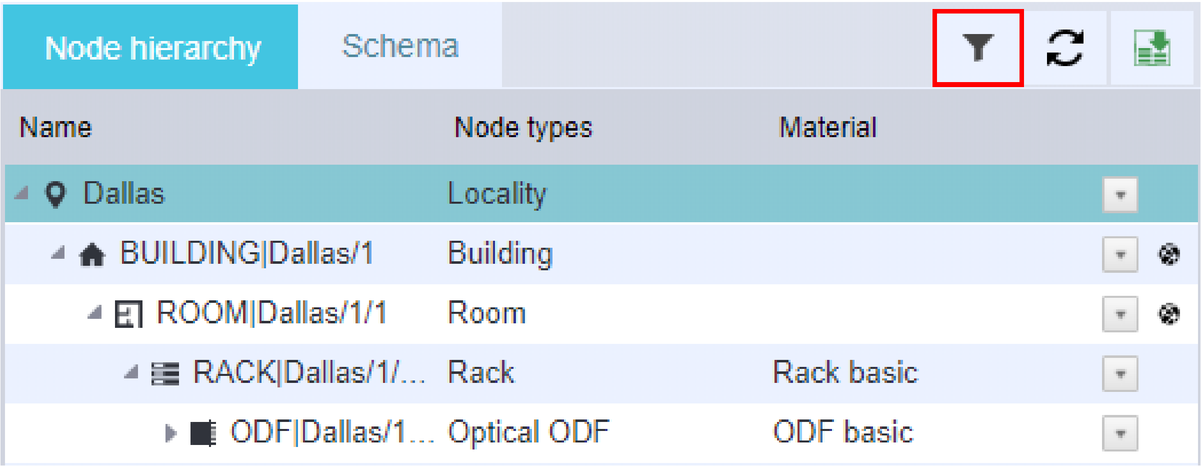
Default value: WGS 84

Geometry on the map: ☑

If the field is true, geometry custom attribute shows along with the object in the Locality, Circuit and Address modules.

1.13. Records filtering

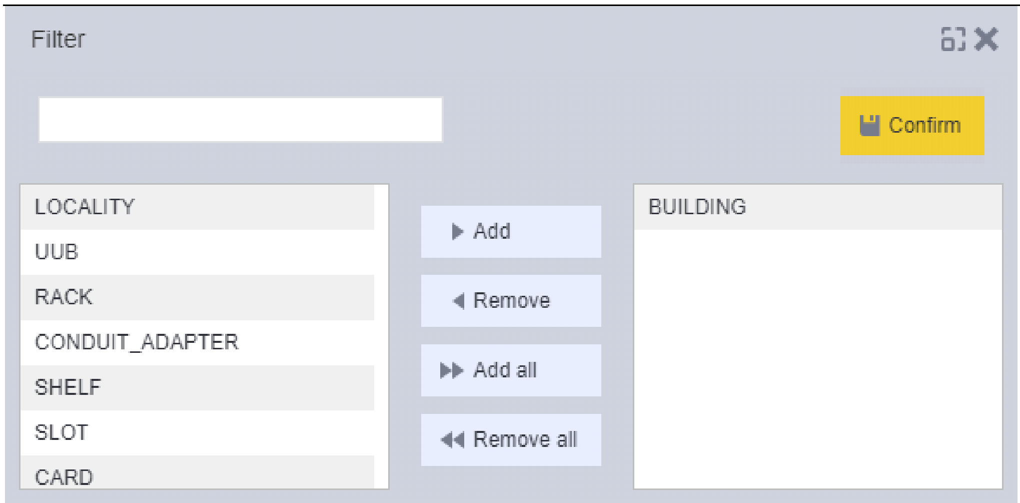
In case of some modules, record filtering is available. These modules are Locality, Address enumerators in Address module, Synchro and Dashboard.



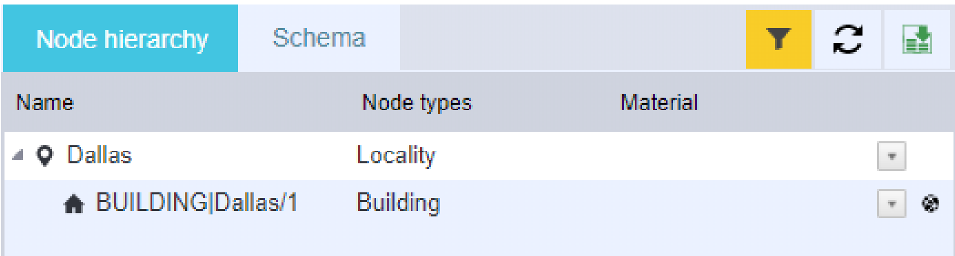
Name	Node types	Material
Dallas	Locality	
BUILDING|Dallas/1	Building	
ROOM|Dallas/1/1	Room	
RACK|Dallas/1/...	Rack	Rack basic
ODF|Dallas/1...	Optical ODF	ODF basic

Window with items will be displayed after pressing on filter icon.

Select e.g. BUILDING and press Confirm.


Filter
Confirm
LOCALITY
UUB
RACK
CONDUIT_ADAPTER
SHELF
SLOT
CARD
Add
Remove
Add all
Remove all
BUILDING

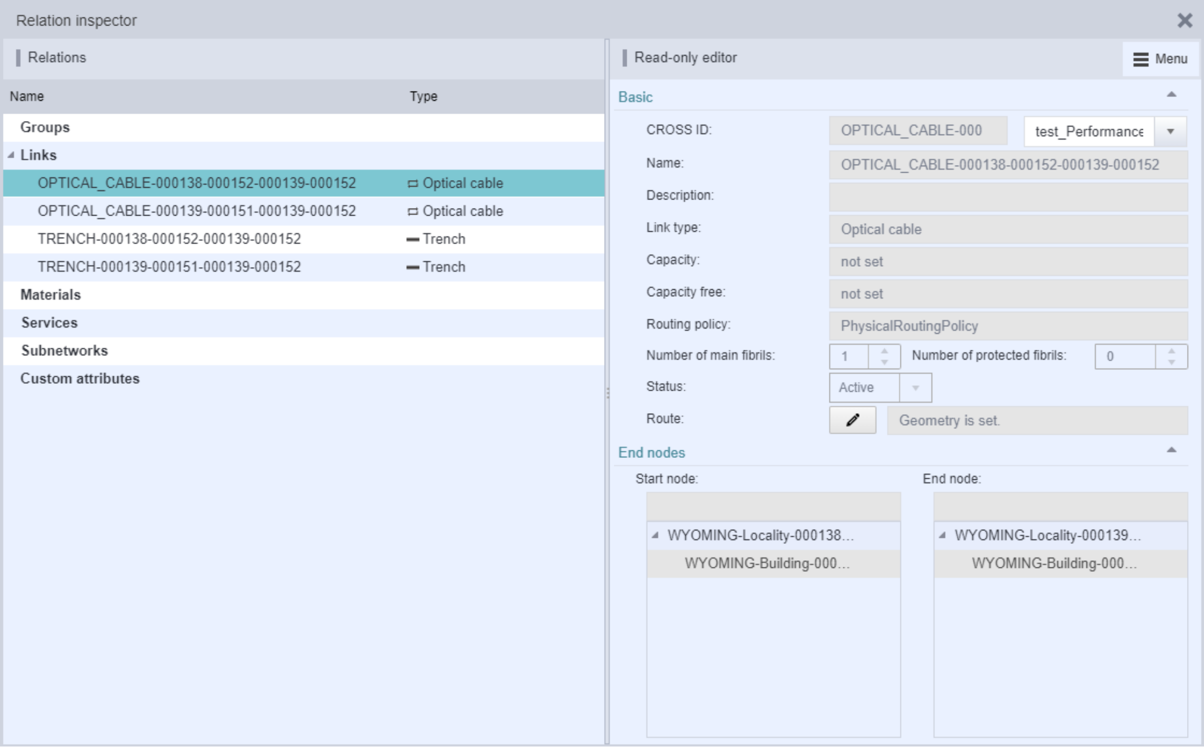
In Locality tree, filtered item will be displayed immediately for selected locality. Filter icon then turns yellow. This means that filter is on. Press filter icon again to switch it off.


Node hierarchy
Schema

Name	Node types	Material
Dallas	Locality	
BUILDING|Dallas/1	Building	

1.14. Relation inspector

Relations for objects can be shown in a special view called Relation inspector using Editor Menu on following objects: Link, Node, Subnetwork, EntityGroup, IpPool, Material, MaterialTemplate, Project, and ResourceFacingService


Relation inspector
Relations
Read-only editor
Menu
Basic
End nodes

Name	Type
Groups	
Links	
OPTICAL_CABLE-000138-000152-000139-000152	Optical cable
OPTICAL_CABLE-000139-000151-000139-000152	Optical cable
TRENCH-000138-000152-000139-000152	Trench
TRENCH-000139-000151-000139-000152	Trench
Materials	
Services	
Subnetworks	
Custom attributes	

CROSS ID: OPTICAL_CABLE-000 test_Performance

Name: OPTICAL_CABLE-000138-000152-000139-000152

Description:

Link type: Optical cable

Capacity: not set

Capacity free: not set

Routing policy: PhysicalRoutingPolicy

Number of main fibrils: 1 Number of protected fibrils: 0

Status: Active

Route: Geometry is set.

Start node: WYOMING-Locality-000138... WYOMING-Building-000...

End node: WYOMING-Locality-000139... WYOMING-Building-000...

Relations are shown on objects listed below directly, or over a Custom attribute.

(example: Link-LinkEnd-Node, or Node-RFSNodeResource-ResourceFacingServiceComponent-ResourceFacingService).

Link
- EntityGroups
- Material
  - MaterialTemplates
- Nodes
- Services
- Subnetworks

Node
- EntityGroups
- Links
- Material
  - MaterialTemplates
- Services
- Subnetworks

Material
- EntityGroups
- MaterialTemplates
- MaterialTemplates - optional
- Nodes/Links
  - Services
  - Subnetworks

MaterialTemplate
- Materials
  - EntityGroups
  - MaterialTemplates - optional
  - Nodes/Links
    - Services
    - Subnetworks

Subnetwork
- EntityGroups
- Links
  - Services
  - Subnetworks
- Nodes
  - Services
  - Subnetworks

Service
- IpPools
- Links
  - Materials
  - Subnetwokrs
- Nodes
  - Materials
  - Subnetwokrs
- Services (direct & indirect)
  - IpPools
  - Links
    - Materials
    - Subnetwokrs
  - Nodes
    - Materials
    - Subnetwokrs

IpPool
- Services

EntityGroups
- Addresses
  - Streets
  - Towns
  - Countries
- Links
  - Services
- Materials
  - MaterialTemplates
- Nodes
  - Services
- Subnetworks

Address
- Street
- Town
- Country

Street / Town / Country
- Addresses

Project
- Addresses
- Groups
- IpPools
- Links
- Materials
- Nodes
- Services
- Subnetworks

Custom attributes usage:

Address
- CAAddressValue
- CAAddressSetValue

Country
- CACountryValue

IpPool
- CAIpPoolValue

Link
- CALinkSetValue

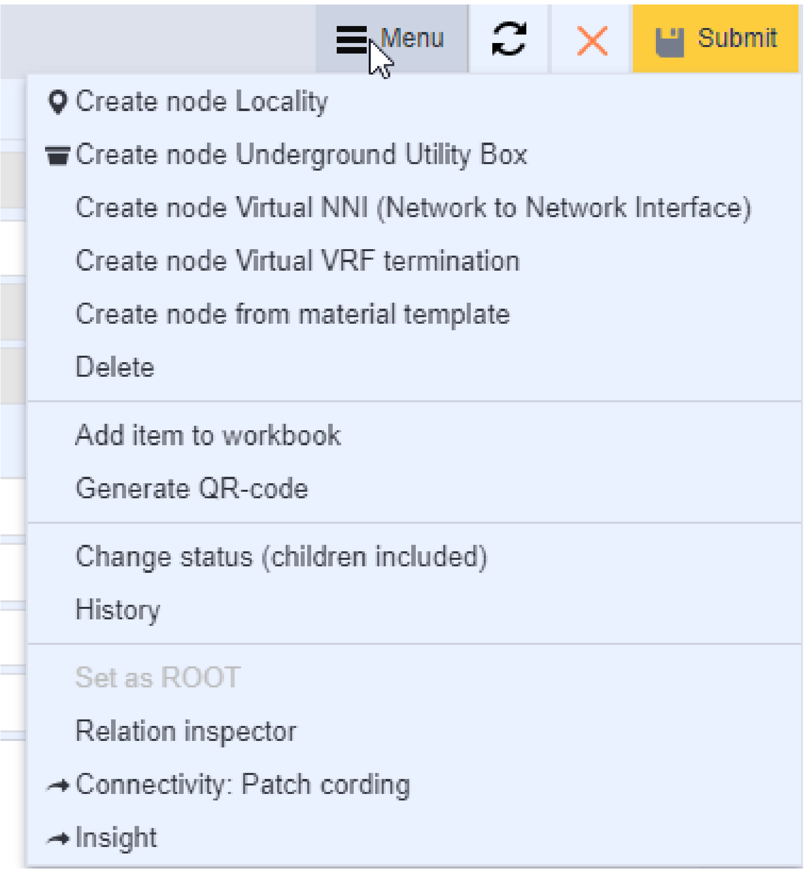
Material
- CAMaterialValue
- CAMaterialSetValue

Node
- CANodeValue
- CANodeSetValue

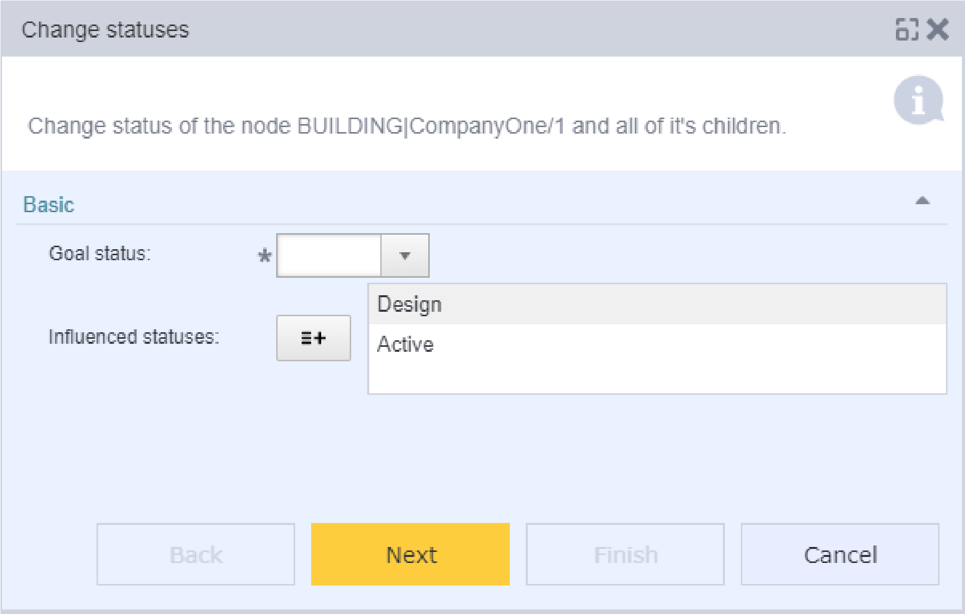
Town
- CATownValue

1.15. Change status of multiple nodes

User can change the status of multiple nodes using “Change status (children included)” in the Editor menu


Menu
Submit
Create node Locality
Create node Underground Utility Box
Create node Virtual NNI (Network to Network Interface)
Create node Virtual VRF termination
Create node from material template
Delete
Add item to workbook
Generate QR-code
Change status (children included)
History
Set as ROOT
Relation inspector
Connectivity: Patch cording
Insight

A new popup window will appear


Change statuses
Basic
Back
Next
Finish
Cancel

Change status of the node BUILDING|CompanyOne/1 and all of it's children.

Goal status: *

Influenced statuses: Design, Active

Goal status sets the status after pressing Next button.

Influenced status is a list of status which will be changed to the Goal status.

Second window shows list of all affected Nodes by this change.

2. Basic principles of working with the CROSS application.

Basic principles of the application controlling and application working techniques are described in this chapter.

1. PROJECT - elementary working unit
2. WORKBOOK and its usage
3. SEARCHING through the CROSS application

Methods of data writing in the application are described in the chapter Panels with Editors

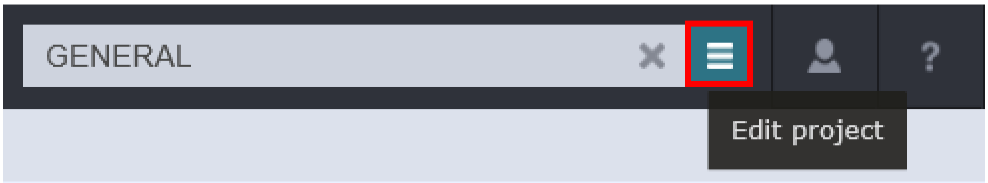
Work with the map is described in the chapter Panels with Map

2.1. PROJECT – elementary working unit

Basic mode of the final user work allows users to use all functionalities available in the working environment in the read-only mode. If the final user wants to make any changes in the database, the user must identify the "cause" of these upcoming changes. The change cause is identified by the PROJECT, the final user's working unit.

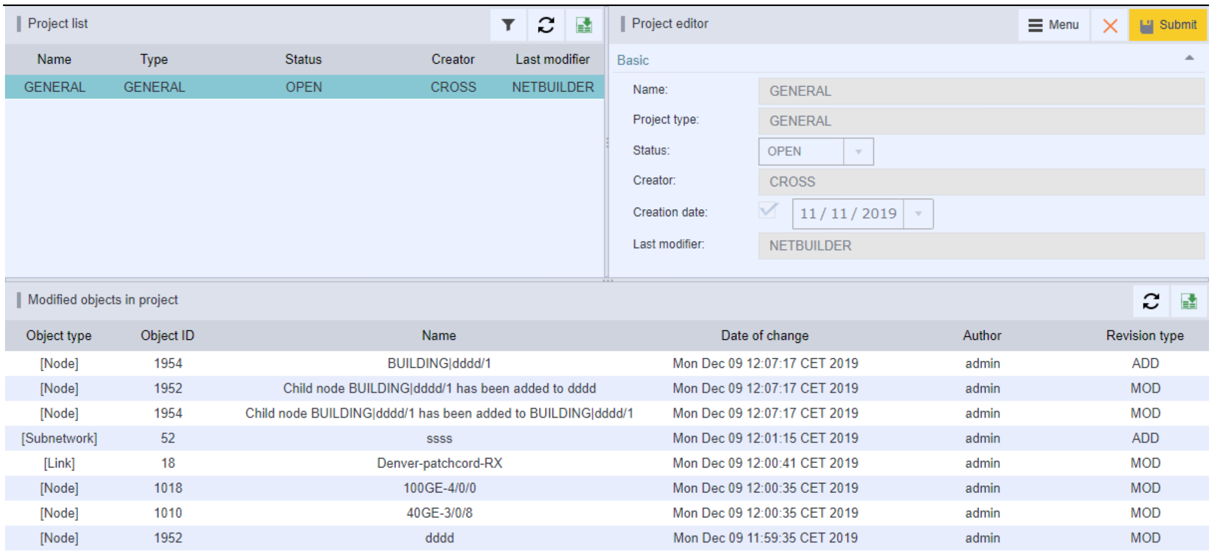
The PROJECT module serves for project management - it allows you to see modified records at each project. It is necessary to have a project opened to be able to make changes in the system. Project is created on the base of requests from the business system and it corresponds to the business case. Each project keeps the list of modified records, and a history of every object can be found - it also includes data that record in which projects it was modified.

The module PROJECT can be opened by clicking the button Edit project in the top of the application window.



The module window consists of three panels:

- Project list - the table of existing projects with their attributes
- Project editor - project editor for creating a new project and for browsing the currently selected one. It contains the drop-down menu with actions for project management.
- Modified objects in project- this panel displays the list of 50 latest objects modified in the project selected in the Project list window. Complete list can be exported as an Excel file.


Project list
Project editor
Menu
Submit
Basic
Modified objects in project

Name	Type	Status	Creator	Last modifier
GENERAL	GENERAL	OPEN	CROSS	NETBUILDER

Name: GENERAL
Project type: GENERAL
Status: OPEN
Creator: CROSS
Creation date: ☑ 11 / 11 / 2019
Last modifier: NETBUILDER

Object type	Object ID	Name	Date of change	Author	Revision type
[Node]	1954	BUILDING|dddd/1	Mon Dec 09 12:07:17 CET 2019	admin	ADD
[Node]	1952	Child node BUILDING|dddd/1 has been added to dddd	Mon Dec 09 12:07:17 CET 2019	admin	MOD
[Node]	1954	Child node BUILDING|dddd/1 has been added to BUILDING|dddd/1	Mon Dec 09 12:07:17 CET 2019	admin	MOD
[Subnetwork]	52	ssss	Mon Dec 09 12:01:15 CET 2019	admin	ADD
[Link]	18	Denver-patchcord-RX	Mon Dec 09 12:00:41 CET 2019	admin	MOD
[Node]	1018	100GE-4/0/0	Mon Dec 09 12:00:35 CET 2019	admin	MOD
[Node]	1010	40GE-3/0/8	Mon Dec 09 12:00:35 CET 2019	admin	MOD
[Node]	1952	dddd	Mon Dec 09 11:59:35 CET 2019	admin	MOD

Next chapters:

How to select a project

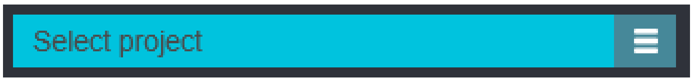
How to create a new project

Project status

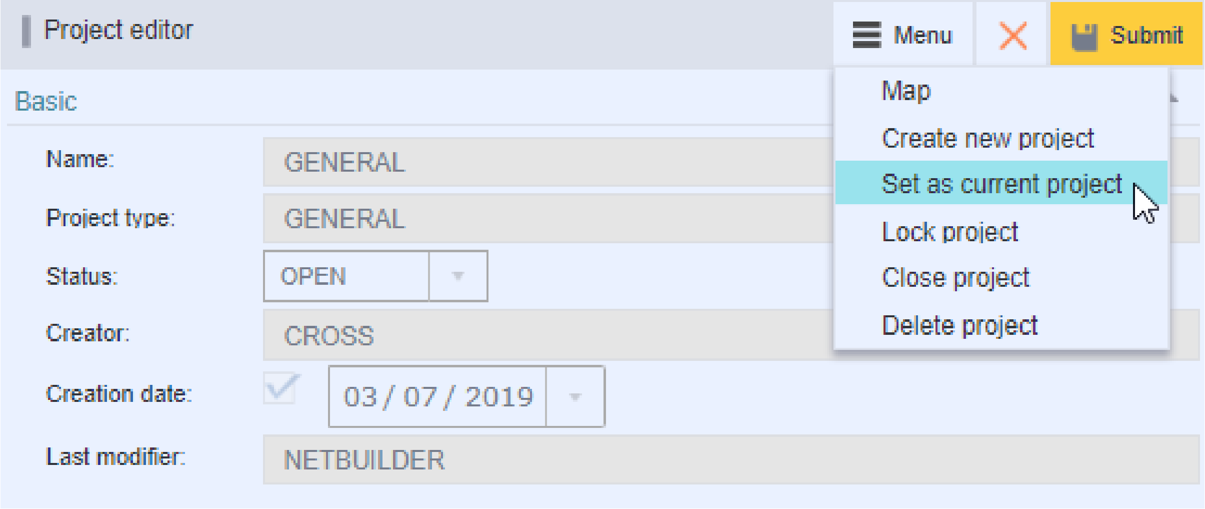
Displaying projects on the map

2.1.1. How to select a project

At the top of the application window, click to the box where the project name is entered, and type a part of the projects name. Autocomplete will offer you a list of relevant projects. Click the project to select it.


Select project

You can also click the icon ☰ and the Project module window will be opened. Select project in the Project list and select the action Set as active Project from the Editor panel drop-down menu.

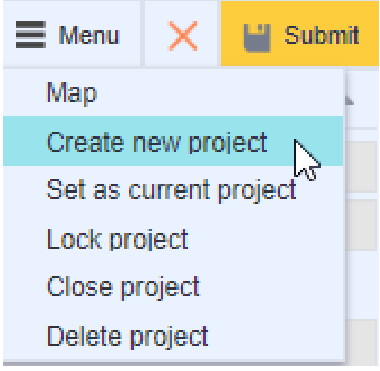

Project editor
Menu
Submit
Basic
Map
Create new project
Set as current project
Lock project
Close project
Delete project

Name: GENERAL
Project type: GENERAL
Status: OPEN
Creator: CROSS
Creation date: ☑ 03 / 07 / 2019
Last modifier: NETBUILDER

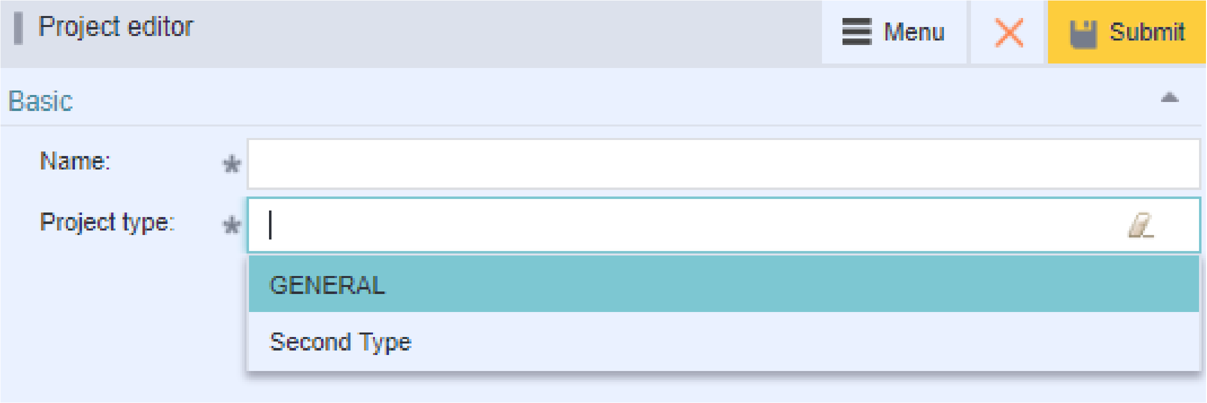
2.1.2. How to create a new project

Note that some project must be selected for creating a new project. User can’t create a new project without selecting already existing one as current project.

Click the button Edit project ☰ (icon next to the project name). At the right part of the editor click the menu icon ☰ ▾ and select Create new project.


Menu
Submit
Map
Create new project
Set as current project
Lock project
Close project
Delete project

Fill the Name, select Project type and save it by clicking Submit.

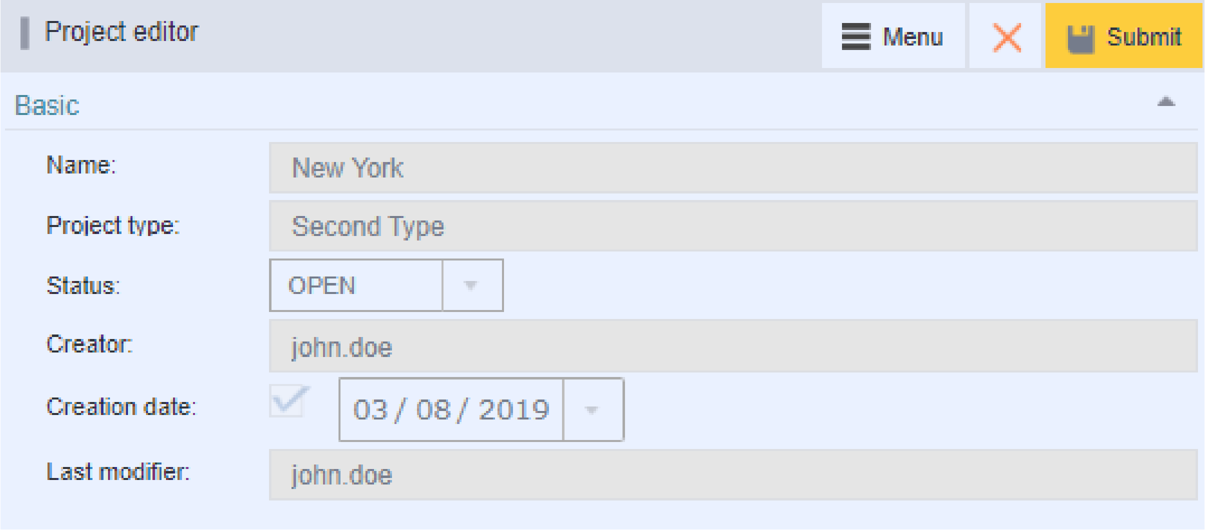

Project editor
Menu
Submit
Basic
Name:
Project type:
GENERAL
Second Type

Items in the list Project type can be edited in the module Configuration - Project types**.**

Additional items are displayed in the editor after save.

Once a project is created, editing is not possible. It is not possible to change the Project type or Name.

The project can be deleted only if no changes have been made to it because it contains history data.


Project editor
Menu
Submit
Basic

Name:	New York
Project type:	Second Type
Status:	OPEN
Creator:	john.doe
Creation date:	☑ 03 / 08 / 2019
Last modifier:	john.doe

2.1.3. Project status changes

These actions, that respond to the project statuses, are available in the drop-down menu in the Project editor.

The status of current project **cannot** be changed. User have to change current project to another one before that.

Lock project – changes status to BLOCKED which means that this project cannot be used as a current project

Unlock project – changes status to OPEN which allows all functionality of Project

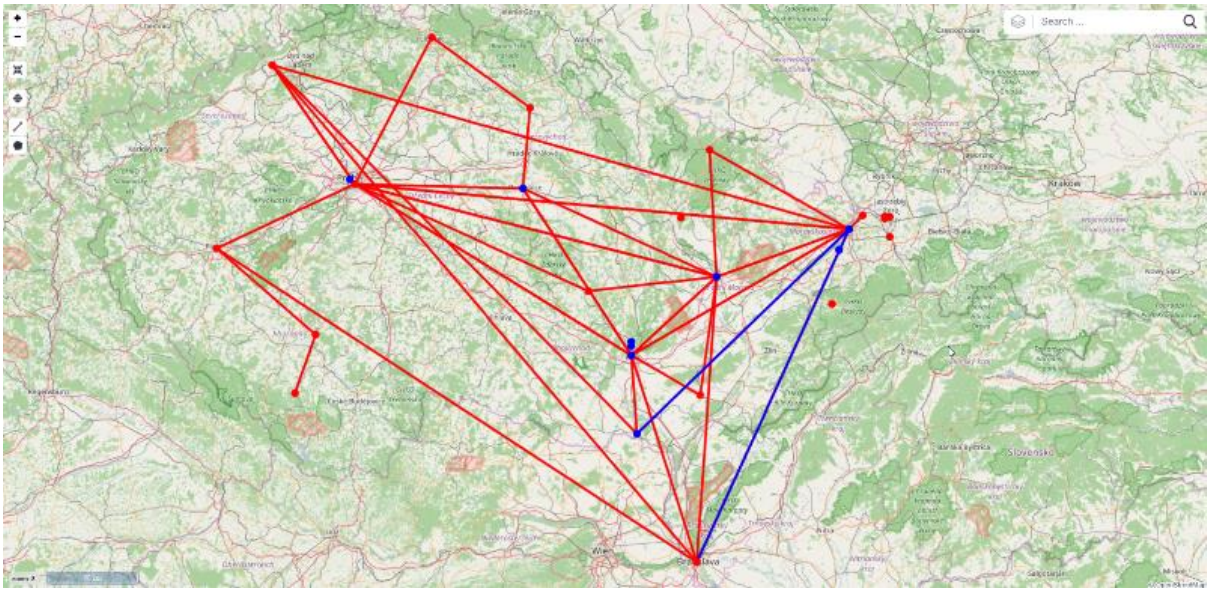
Close project – changes status to CLOSED which means that project **cannot** be longer used

Reopen project – changes status CLOSED to OPEN which allows all functionality of Project

Delete project – removes project from the Project list. Project cannot be canceled, if it has any history.

2.1.4. Displaying projects on the map.

Each project - links and nodes - can be displayed in the map window. Load selected project to the editor and select the action Map from the menu**.**



By clicking the icon at the top left you can return to the normal project view.

2.2. Workbook

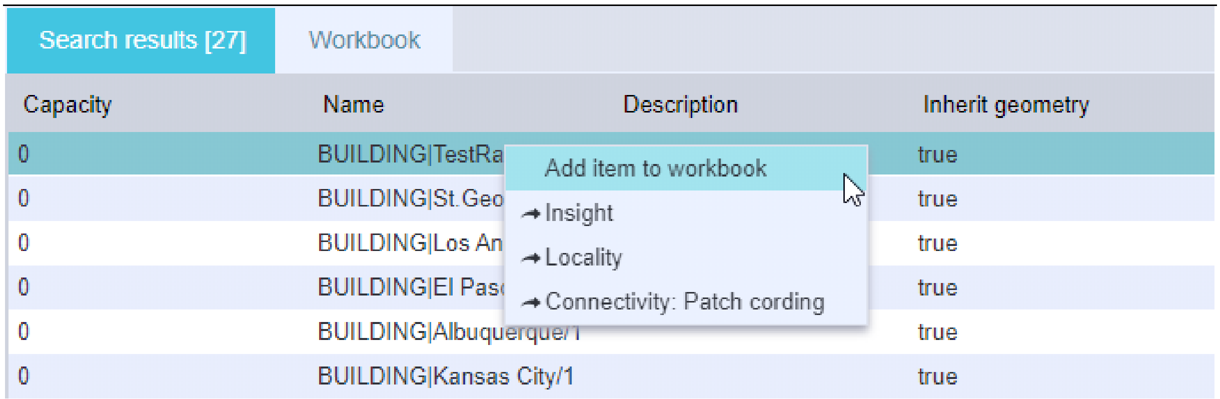
Workbook - repository for temporary preservation of objects that can be later used in other modules.

The working tool for the final user is a notepad - Workbook, which serves as a repository for preserving objects that are somehow obtained, for example from the search, and with which the user wants to work in other modules.

For example - in the Search module, select the links, that you need to work with, insert them into the workbook, and then you can work with them for example in the Circuit module - you can drag them into relevant group.

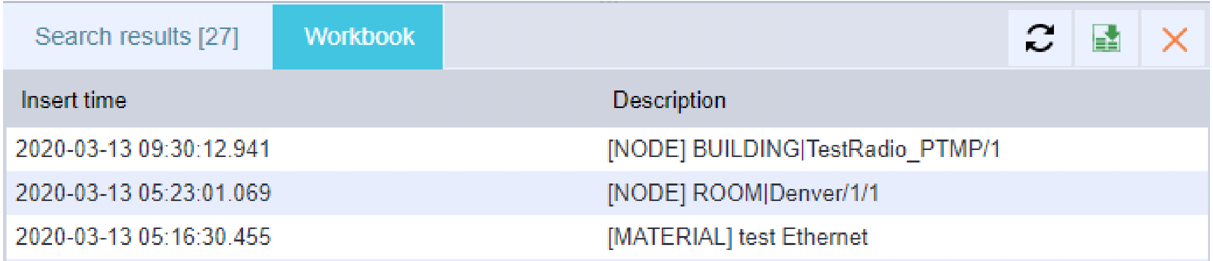
Objects can be inserted into the workbook or removed from it. There is the Clear button that serves to remove all records from the Workbook.

Object can be added to the Workbook from the context menu action "Add item to workbook", for example from the Search results in the module Search.



Capacity	Name	Description	Inherit geometry
0	BUILDING|TestRa		true
0	BUILDING|St.Geo		true
0	BUILDING|Los An		true
0	BUILDING|El Pas		true
0	BUILDING|Albuquerque/1		true
0	BUILDING|Kansas City/1		true

Object can be removed from the workbook or opened in relevant module by an action from the context menu.



Insert time	Description
2020-03-13 09:30:12.941	[NODE] BUILDING|TestRadio_PTMP/1
2020-03-13 05:23:01.069	[NODE] ROOM|Denver/1/1
2020-03-13 05:16:30.455	[MATERIAL] test Ethernet

Other methods of adding object into the Workbook:

- In the module Locality - from the tree object context menu
- In the module Circuits - from the Routing object context menu
- In the module Insight - from the menu in the panel Current link or Current node

Using the Workbook in modules:

- In the module Circuits - separated bookmark Workbook contains links that can be set as the main link
- In the module Groups - separated bookmark Workbook contains links, nodes, addresses or subnetworks, that can be added into the group by dragging
- In the module Subnetwork- separated bookmark Workbook contains links and nodes that can be inserted into the subnetwork by dragging
- In the module Search - separated bookmark Workbook, where you can switch from objects to their home modules or display them in the module Insight. It can also serve as the list of values searched by specified parameters, which can be exported into Excel.

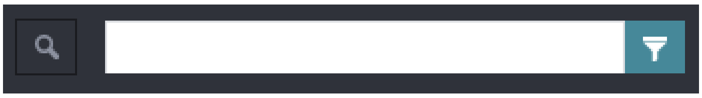
2.3. Searching objects in the application

Searching methods are further described in the following chapters:

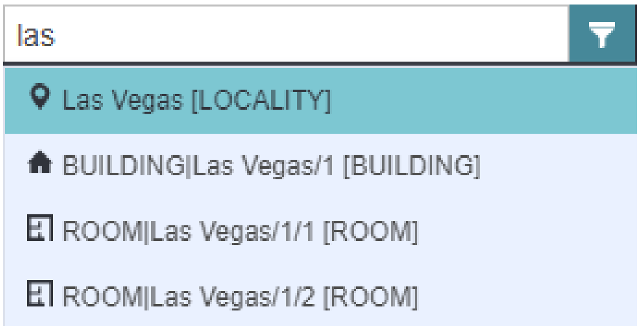
- Full-text search
- Searching by profiled parameters
- Module Search

2.3.1. Full-text search

Full-text search in the application is very similar to the ones that you know from web browsers. Type part of a text or other search value into the search box and autocomplete will display a list of found relevant values. This search works similarly in the CROSS application.



Full-text search can be found at almost every module in the top bar and you can search by it only in the group of objects that belongs to this module or submodule. For example, you can search only nodes in the module Locality, only links in the module Circuit, only IP addresses in the module IP addresses etc.


las
Las Vegas [LOCALITY]
BUILDING|Las Vegas/1 [BUILDING]
ROOM|Las Vegas/1/1 [ROOM]
ROOM|Las Vegas/1/2 [ROOM]

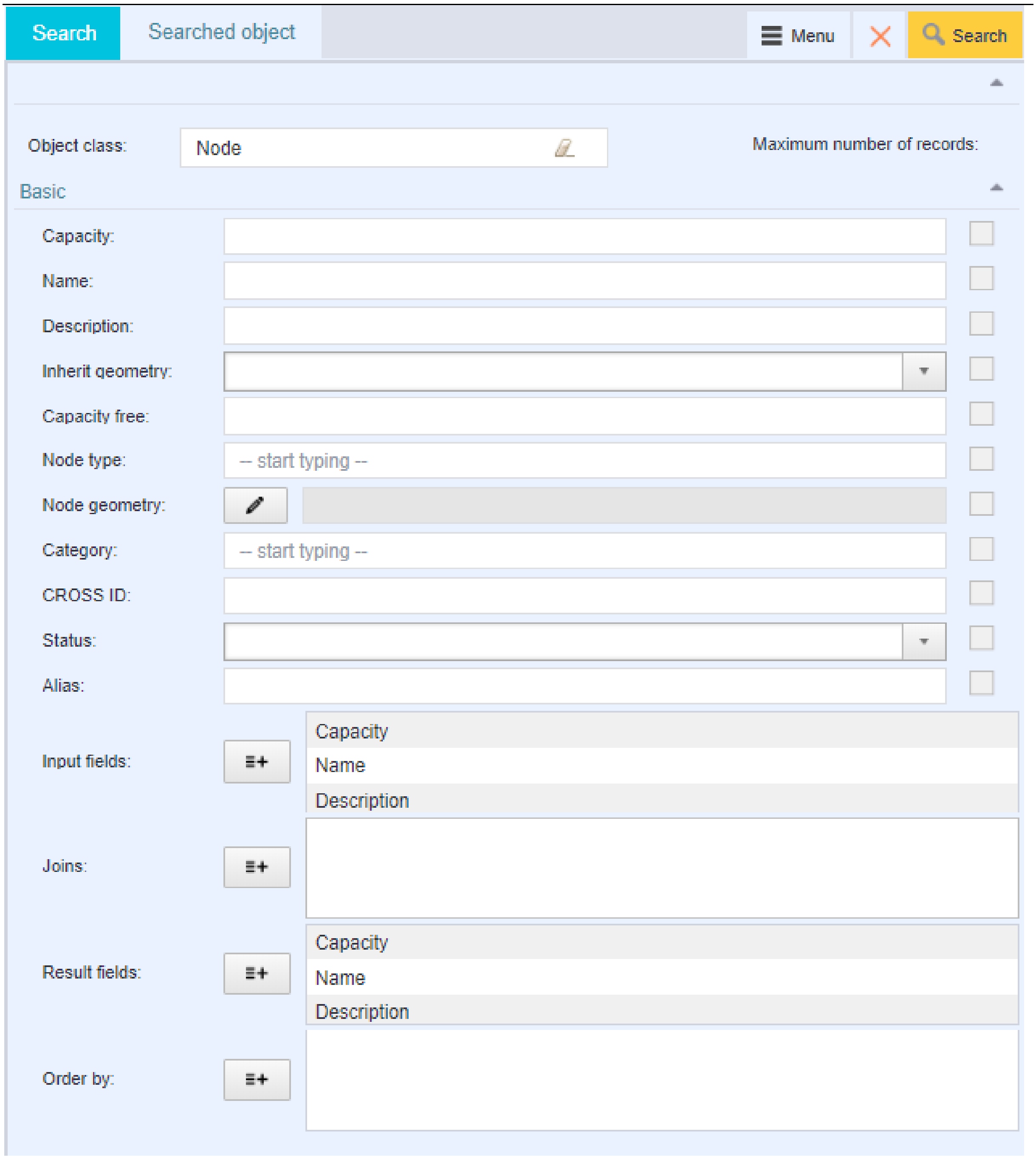
When you click on found object from the list, this object is loaded into the editor or highlighted in the tree or in the table, depending on the object display type in the module.

2.3.2. Searching by profiled parameters - so-called search queries

Search queries allows you to search objects in the application on the base of specification of its attributes. For example, at materials you can search by the type of node or link, or by technology for which it is used. Searching by entered parameters is available in the modules

- Circuits - bookmark Search candidates
- Material - node and link material search and material template search
- Searching - separated module for searching through all instances and objects in the CROSS application.

Search queries creating is performed in the editor which contains parameters - fields that depends on the type of the searched object. The picture shows editor for entering parameters of a node material.


Search
Searched object
Menu
Search
Maximum number of records:
Basic
Capacity:
Name:
Description:
Inherit geometry:
Capacity free:
Node type:
-- start typing --
Node geometry:
Category:
-- start typing --
CROSS ID:
Status:
Alias:
Joins:
Order by:

Object class: Node

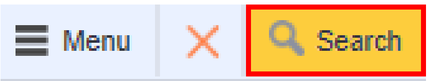
Input fields: Capacity, Name, Description

Result fields: Capacity, Name, Description

Some values can be selected from the drop-down lists - Node type, Status. The full-text autocomplete is available at the Technology - relevant values are displayed in the list after you enter part of the technology name.

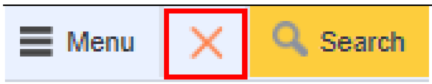
Field Result fields serves for the column selection - attributes that you want to see in the result table. The work with the combo box (and other methods of writing into the editor) is described here.

When you have entered all parameters into the editor, start searching by clicking the Search button.


Menu
Search

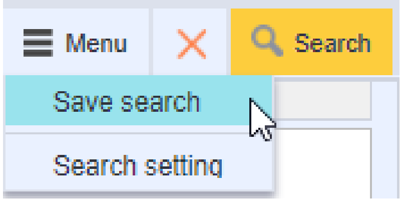
Application will automatically switch to the bookmark Search results.

If you want to perform another searching and the editor is filled from the previous searching, you can clear it whole by clicking on the Clear button.

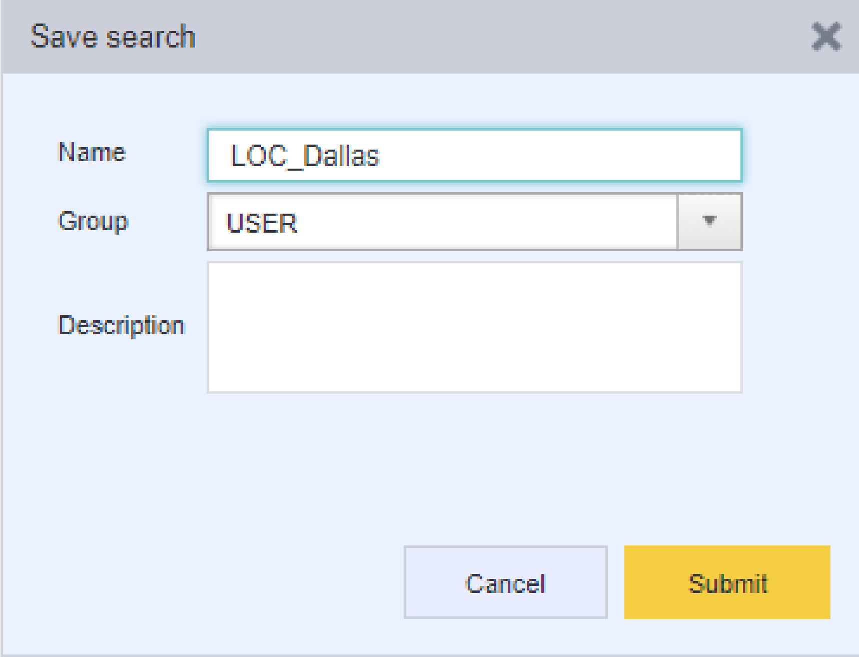

Menu
Search

When you are entering a complex query in the editor, you can save it for the next use. Just click on the button Save search and editor will be saved.

The dialog window for entering name of the search query will be displayed.


Menu
Search
Save search
Search setting

When you want to load once saved search query into the editor, click the button Load search.

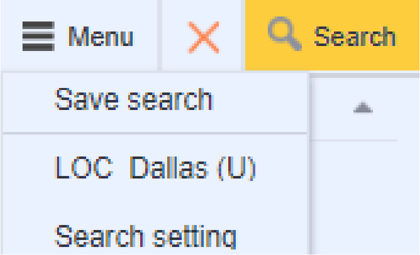

Save search
Cancel
Submit

Name LOC_Dallas

Group USER

Description

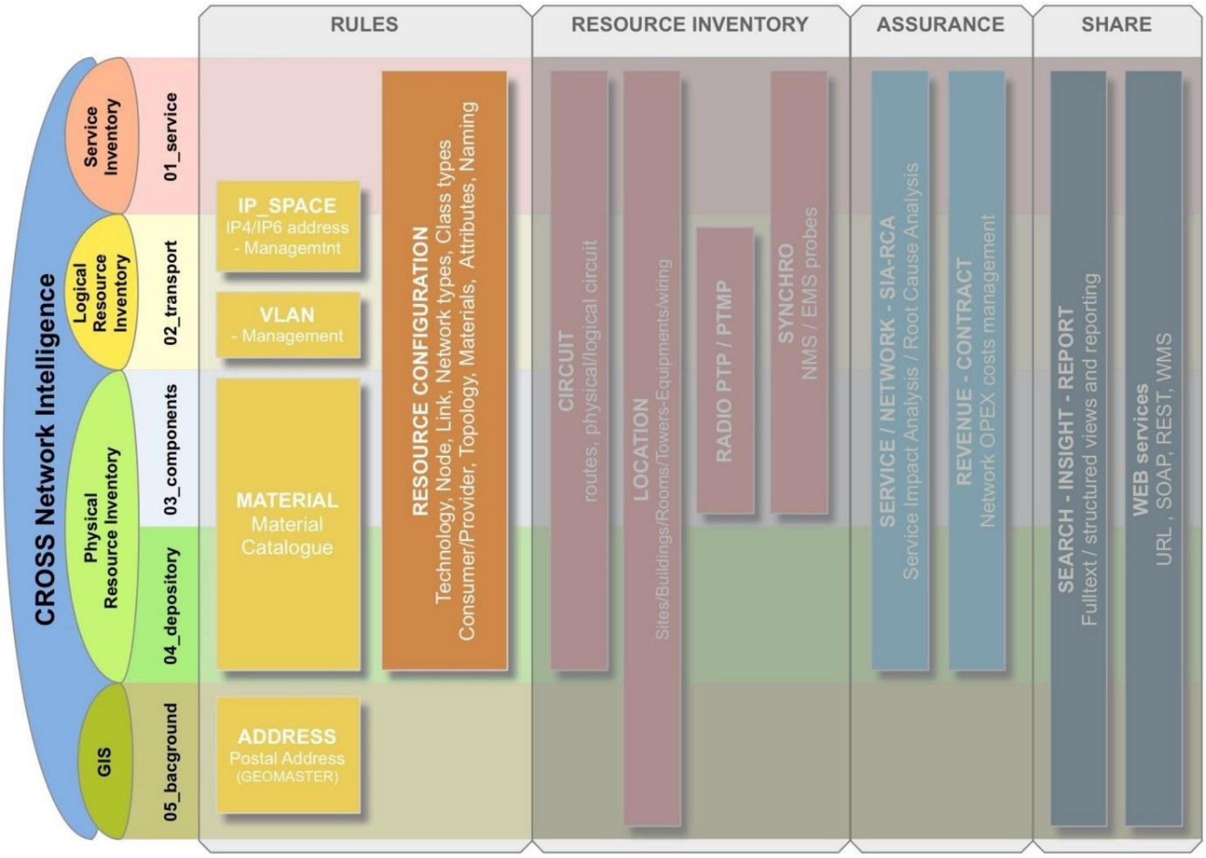
Saved searches are displayed in the Menu.


Menu
Search
Save search
LOC_Dallas (U)
Search setting

A dialog window with a list of saved queries will be displayed.

3. Module group CROSS – RULES

Group of modules CROSS_RULES serves for configuration and management of whole system, including its data and functional model. Group contains modules, which are responsible for management of values for special attributes of data model (e.g. IP addresses, material catalogue or post addresses). In following schema, you can find complete view of all modules which are part CROSS_RULES.


RULES
RESOURCE INVENTORY
ASSURANCE
SHARE
CROSS Network Intelligence
Service Inventory
Logical Resource Inventory
Physical Resource Inventory
GIS
01_service
02_transport
03_components
04_depository
05_bacground
IP_SPACE
IP4/IP6 address - Managemtnt
VLAN
- Management
MATERIAL
Material Catalogue
ADDRESS
Postal Address (GEOMASTER)
RESOURCE CONFIGURATION
Technology, Node, Link, Network types, Class types
Consumer/Provider, Topology, Materials, Attributes, Naming
CIRCUIT
routes, physical/logical circuit
LOCATION
Sites/Buildings/Rooms/Towers-Equipments/wiring
RADIO PTP / PTMP
SYNCHRO
NMS / EMS probes
SERVICE / NETWORK - SIA-RCA
Service Impact Analysis / Root Cause Analysis
REVENUE - CONTRACT
Network OPEX costs management
SEARCH - INSIGHT - REPORT
Fulltext / structured views and reporting
WEB services
URL , SOAP, REST, WMS

Group of modules RULES provides tools for configuration of CROSS system and also for management of alphanumeric enumerators.

CROSS-RULES is made from following modules:

CONFIGURATION - system configuration (Technology, optional attributes projects)

IP - management of IP addresses (IPv4, IPv6)

MATERIAL - material catalog, sample equipment

ADDRESS - management of postal addresses

3.1. MODULE CONFIGURATION

Module Configuration is designed for configuring all modules forming a CROSS solution. Definitions of behavior of individual Technologies, that are implemented in recorded network, are the configuration basis. Individual technologies are administered in the tree form, that can be later used for authorization, searching, filtration and visibility of individual objects of network records.

Module Configuration is divided into these views:

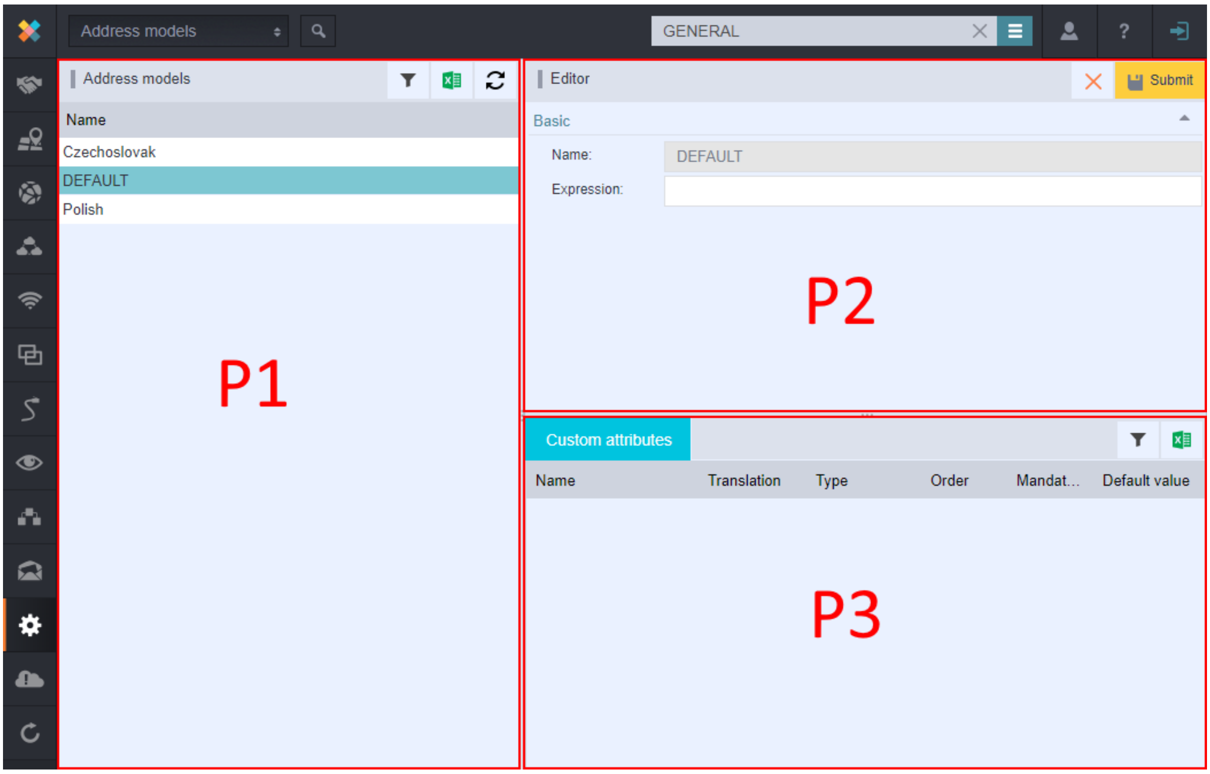
1. Address models
2. Category
3. Class types
4. Countries
5. Custom attributes
6. Enum Items
7. Enumerators
8. Export / Import
9. Global custom attributes
10. Group types
11. Groups and roles
12. Job scheduler
13. Link types
14. Message
15. Naming rules
16. Node types
17. Project types
18. Radio Enumerators
19. Routing consistency
20. Service component types
21. Service types
22. Statuses
23. Subnetwork types
24. Synchro probe
25. Units

3.1.1. Address models

Configuration of address models serves for creating address models for each country that will correspond to the method of recording addresses in required state or country. Simply put - for any state or country you can create a different editor. In the application, address model for Czech Republic and Slovakia is set as default. This address model is named Czechoslovak in the application, because both countries have identical address model.

The window consists of three panels:

- P1 - Address models
- P2 - Editor
- P3 - Custom Attributes



3.1.1.1. P1 - Address models

Creating a new address model

Right-click in the panel Address models and select the action New address model. Fill its name in the editor. Leave the field Expression empty.

Switch to the configuration settings Countries. Assign the new address model to the chosen country (or countries).

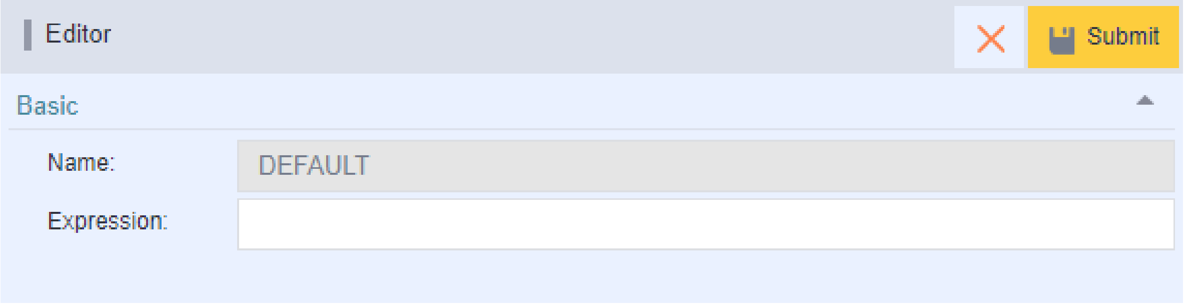
Now you need to create a group of attributes that will be displayed in the address editor. Switch to Custom attributes settings. Create new attributes for selected address model, for example street, town, region, subregion. Method of creating new attributes can be found in the chapter 6 - Custom attributes. Select Constraint type: ENUM to address attributes, which will be presumably reused (towns, streets etc.).

It is necessary to edit the message of created attributes, it means text, which will be displayed as a field name in the address editor. Switch to the submodule Message in the module Configuration. Create names of these new fields according to the procedure in the chapter Message.

Finally, edit search expression for full-text search in the module ADDRESS, so that the searched address will be displayed in the form street, house number, town, region, country. Switch back to the configuration of address models and write the attributes in the order in which they should be displayed to the field Expression, for example: ${STREET}, ${TOWN}, ${COUNTRY}. (Expressions STREET, TOWN are the names of attributes that you assigned to the new address model).

More information about usage and setting of address models can be found in the chapter ADDRESSES - Address models and their configurations.

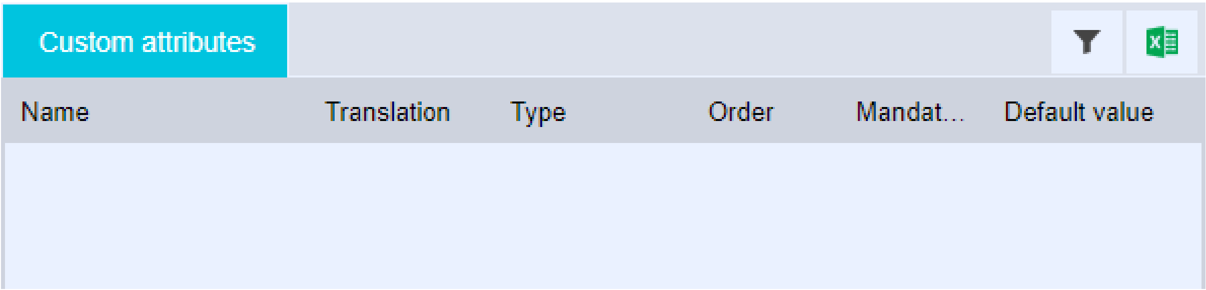
3.1.1.2. P2 - Editor



Name: DEFAULT

Expression:

3.1.1.3. P3 - Custom Attributes



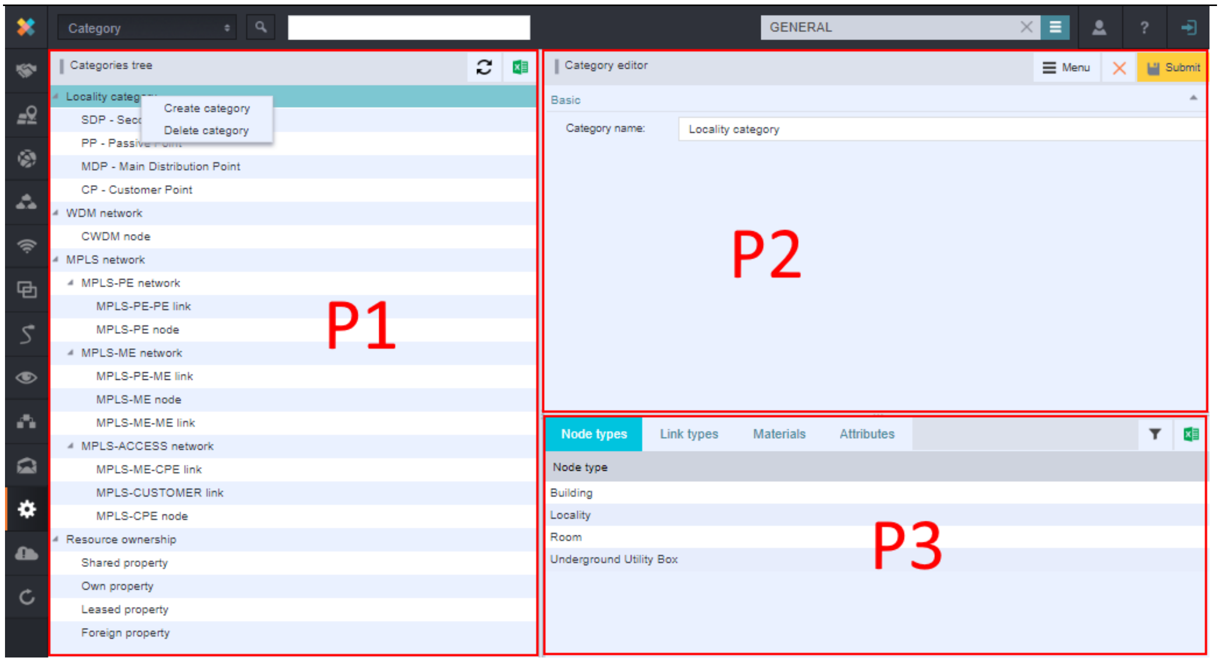
Name	Translation	Type	Order	Mandat…	Default value

3.1.2. Category

In Category view we can create, delete or clone categories, add new roots into the tree, create or delete node and link types.

Category view contains these panels:

- P1 - Categories tree
- P2 - Category editor
- P3 - Panel with bookmarks: Node types, Link types, Material, Attributes

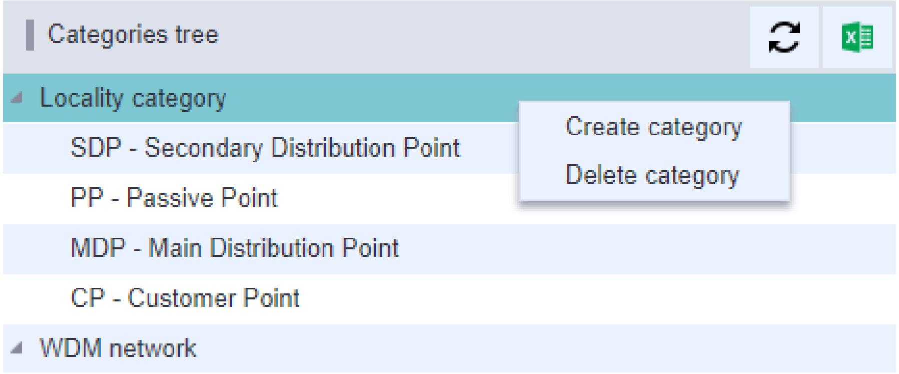

Category
GENERAL
Categories tree
Locality category
Create category
Delete category
SDP - Seco
PP - Passive Point
MDP - Main Distribution Point
CP - Customer Point
WDM network
CWDM node
MPLS network
MPLS-PE network
MPLS-PE-PE link
MPLS-PE node
MPLS-ME network
MPLS-PE-ME link
MPLS-ME node
MPLS-ME-ME link
MPLS-ACCESS network
MPLS-ME-CPE link
MPLS-CUSTOMER link
MPLS-CPE node
Resource ownership
Shared property
Own property
Leased property
Foreign property
P1
Category editor
Menu
Submit
Basic
Category name:
Locality category
P2
Node types
Link types
Materials
Attributes
Node type
Building
Locality
Room
Underground Utility Box
P3

3.1.2.1. P1 - Categories tree

Technology tree displays the following technologies in a hierarchical structure:

- Technology tree root (main technology group, can contain subgroups)
- Technology subtree (subgroup of technologies)
- Technology

New items can be inserted to the tree from the context menu of selected object - it depends to which root group or subgroup should a new technology or group be inserted.

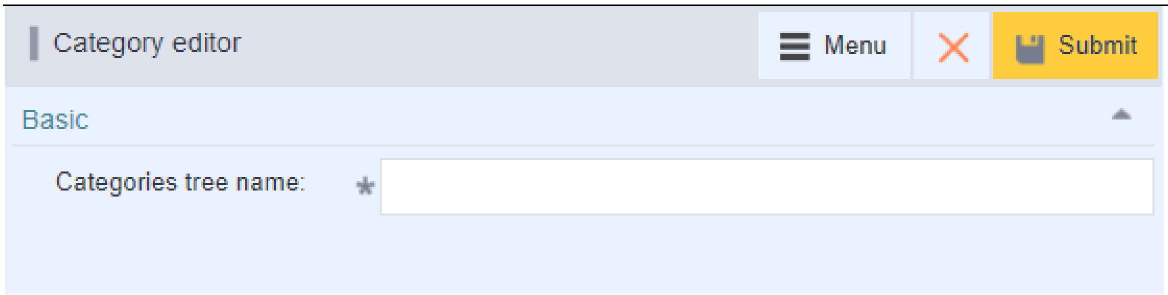

Categories tree
Locality category
Create category
Delete category
SDP - Secondary Distribution Point
PP - Passive Point
MDP - Main Distribution Point
CP - Customer Point
WDM network

Context menu consists of these options:

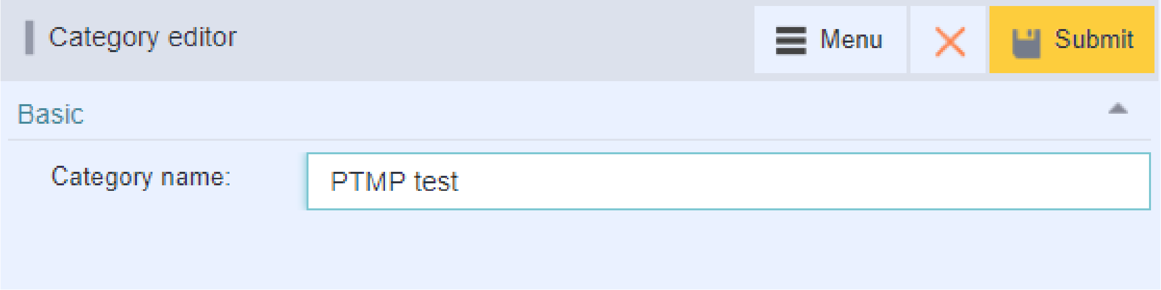
- Create category
- Delete category

Create category

From the context menu select option - Create category. Fill the name of a new category in the Editor.

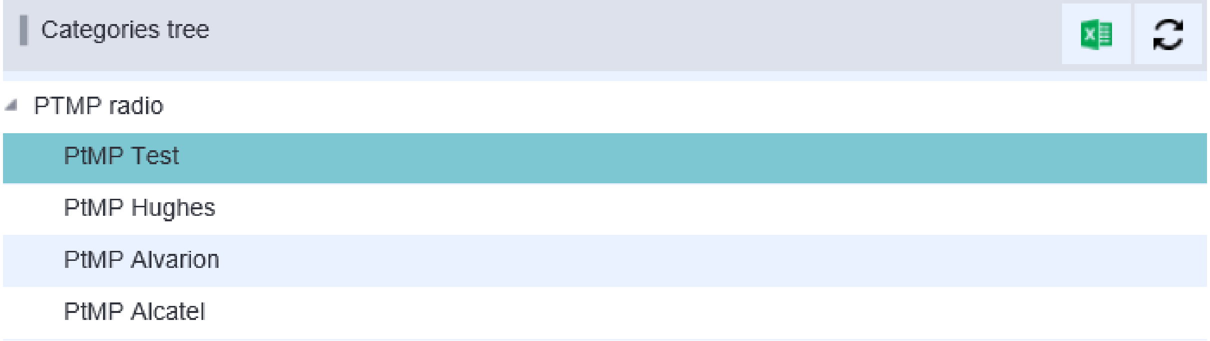

Category editor
Menu
Submit
Basic
Categories tree name:
*

In Category editor fill in the Category name.


Category editor
Menu
Submit
Basic

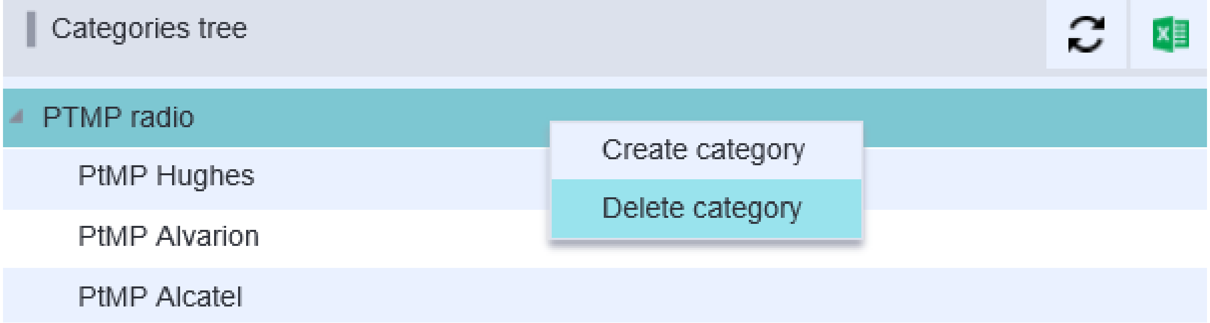
Category name: PTMP test

After filling in the name and pressing Submit button, new category will be displayed in the Categories tree.

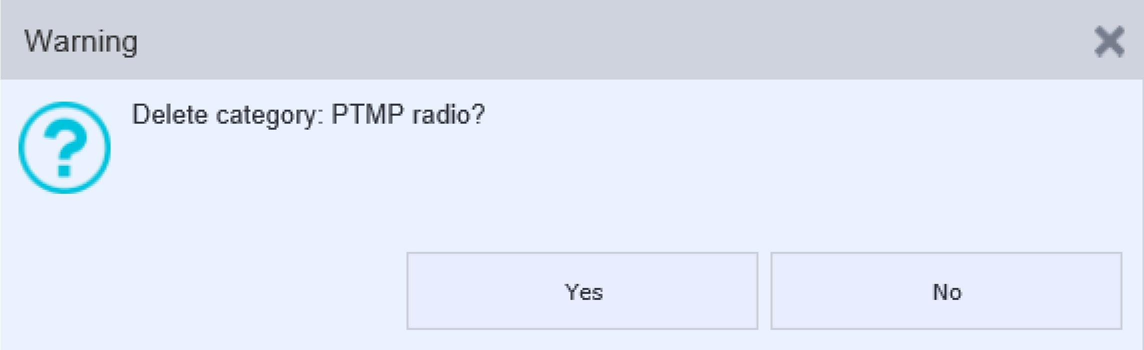

Categories tree
PTMP radio
PtMP Test
PtMP Hughes
PtMP Alvarion
PtMP Alcatel

Delete category

Categories can be removed from the context menu.


Categories tree
PTMP radio
PtMP Hughes
PtMP Alvarion
PtMP Alcatel
Create category
Delete category

Warning message will be displayed before removing selected category.

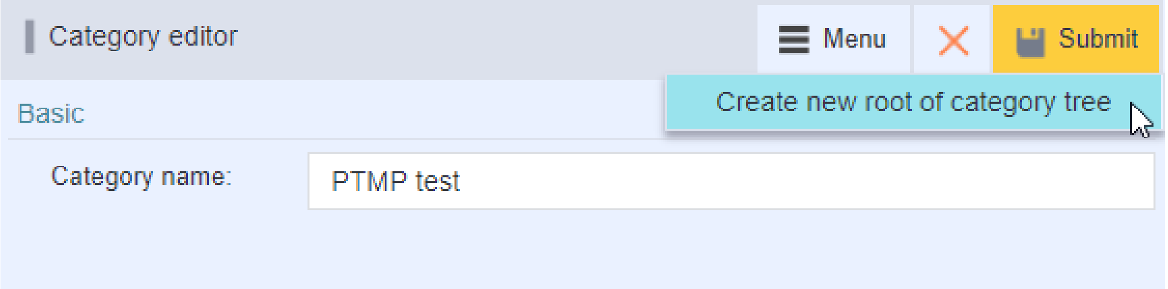

Warning
Yes
No

Delete category: PTMP radio?

If you need to branch out the new technology tree to other subgroups, insert more technological subtrees into the root successively. Then insert the individual technologies into them.

3.1.2.2. P2 - Category editor

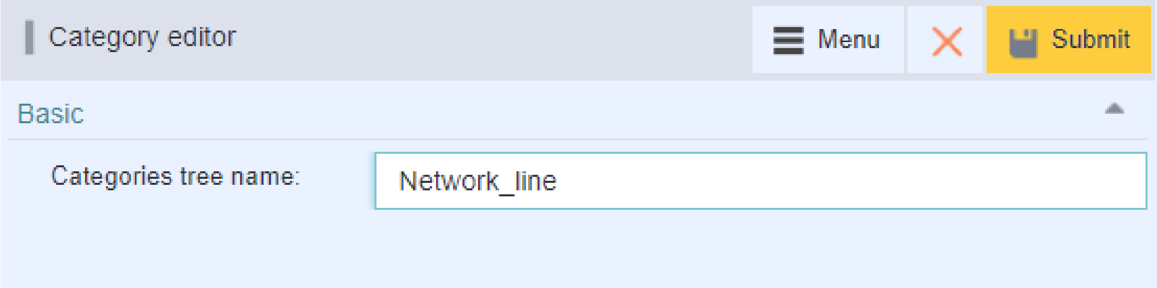
Editor for selected tree instance is displayed in this panel. Within the Editor, it is possible to create, delete or clone categories, create new root within the tree structure, create or delete node or link types.


Category editor
Menu
Submit
Create new root of category tree
Basic

Category name: PTMP test

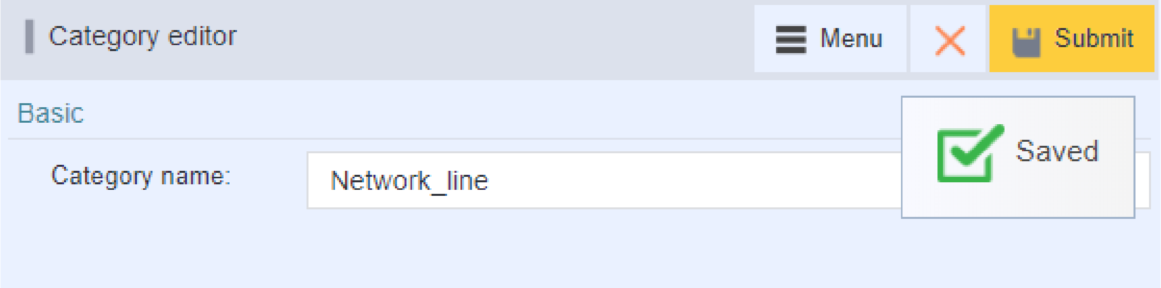
Create new root of category tree

Select Create new root of category tree from the Editor menu.


Category editor
Menu
Submit
Basic

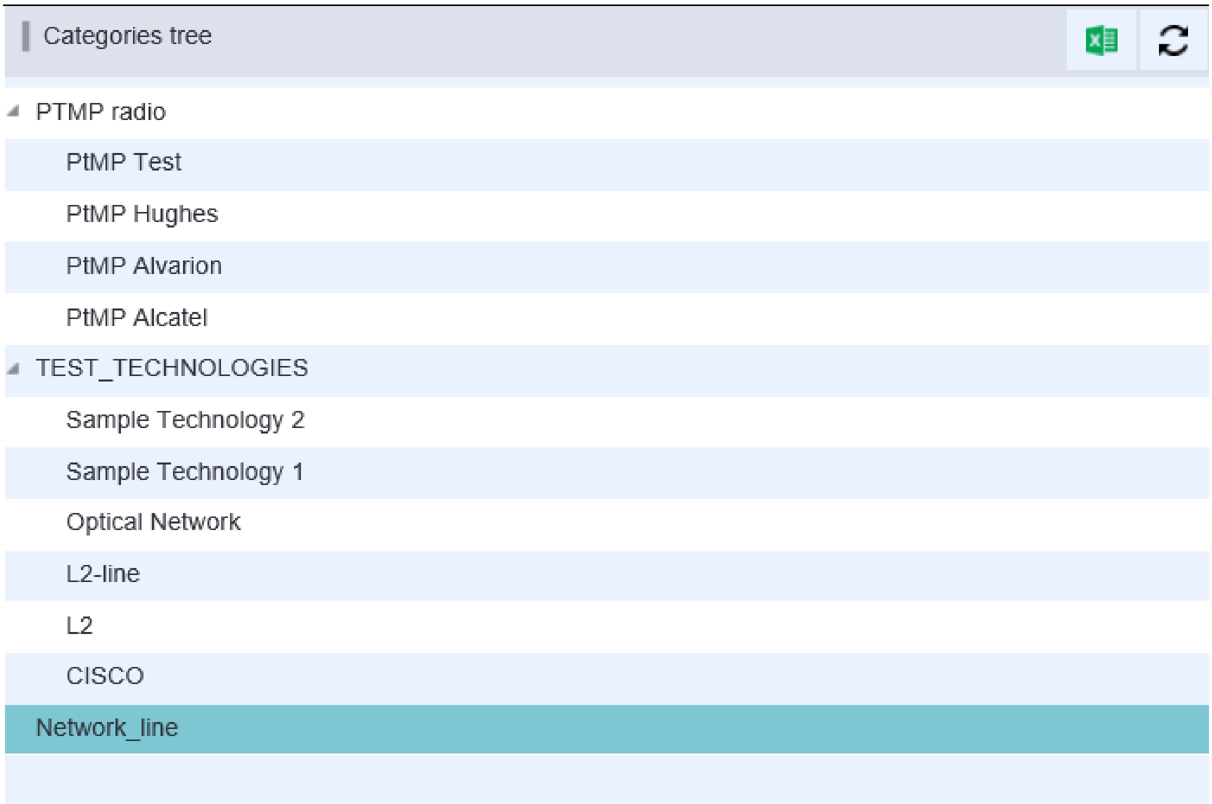
Categories tree name: Network_line

Fill the name and select Submit.


Category editor
Menu
Submit
Basic
Saved

Category name: Network_line

New root will be displayed in Categories tree.

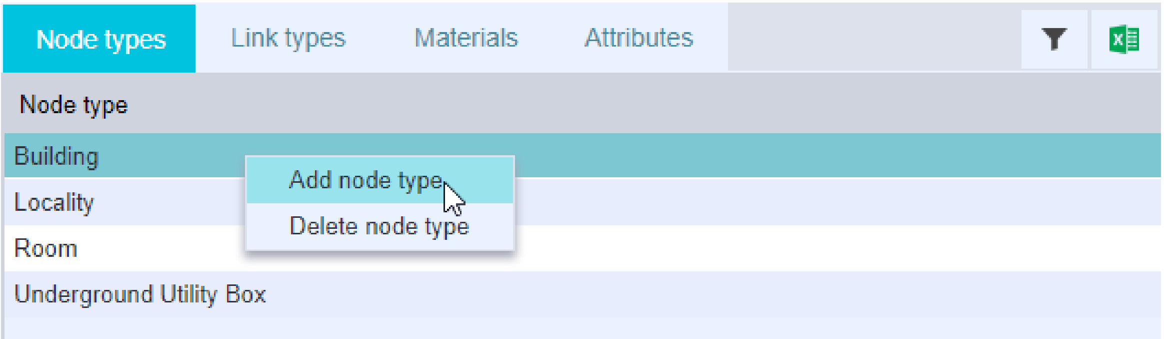


- PTMP radio
  - PtMP Test
  - PtMP Hughes
  - PtMP Alvarion
  - PtMP Alcatel
- TEST_TECHNOLOGIES
  - Sample Technology 2
  - Sample Technology 1
  - Optical Network
  - L2-line
  - L2
  - CISCO
- Network_line

3.1.2.3. P3 - Panel with bookmarks: Node types, Link types, Material, Attributes

Data in this panel are related to specific technologies, therefore a technology from the technology tree must be selected to make this data visible.

- Bookmark Node types - the list of node types is displayed here, to which the given technology is assigned, for example technology CISCO can contain node types NETWORK_ELEMENT and SHELF. Another type can be added here by right-clicking and selecting - Add node type. After selecting Add node type, the editor for adding a node type is displayed in the panel P4. Select a node type from the list, select also a naming rule (if assigned). You can also add custom attributes here.
- Bookmark Link types - the same rules as for the node types apply here.
- Bookmark Material - the list of materials and templates, which are assigned for selected technology.
- Bookmark Attributes - the list of created custom attributes is displayed here

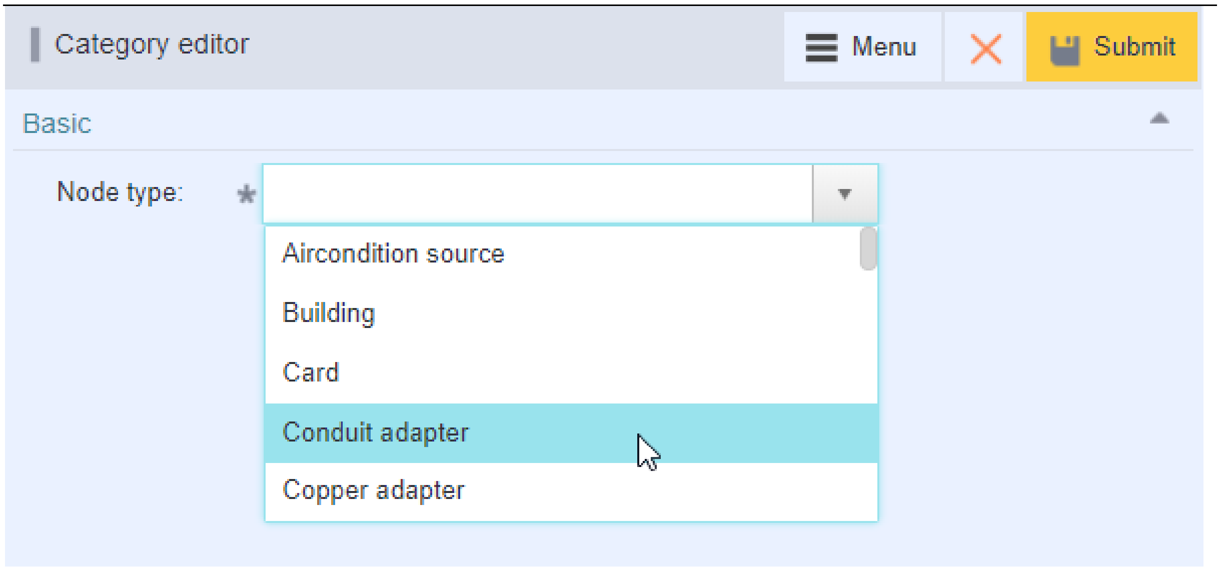


Node type
Building
Locality
Room
Underground Utility Box

Add node type

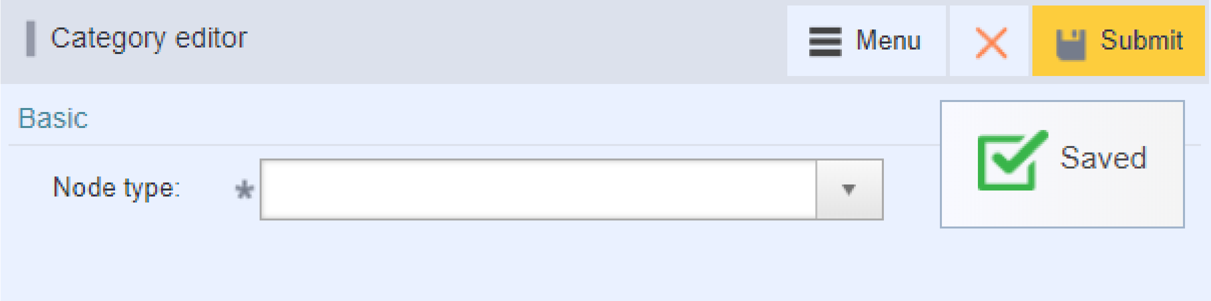
For creating new item for node type, select Create node type from the context menu.

Options for node types are displayed in category editor.

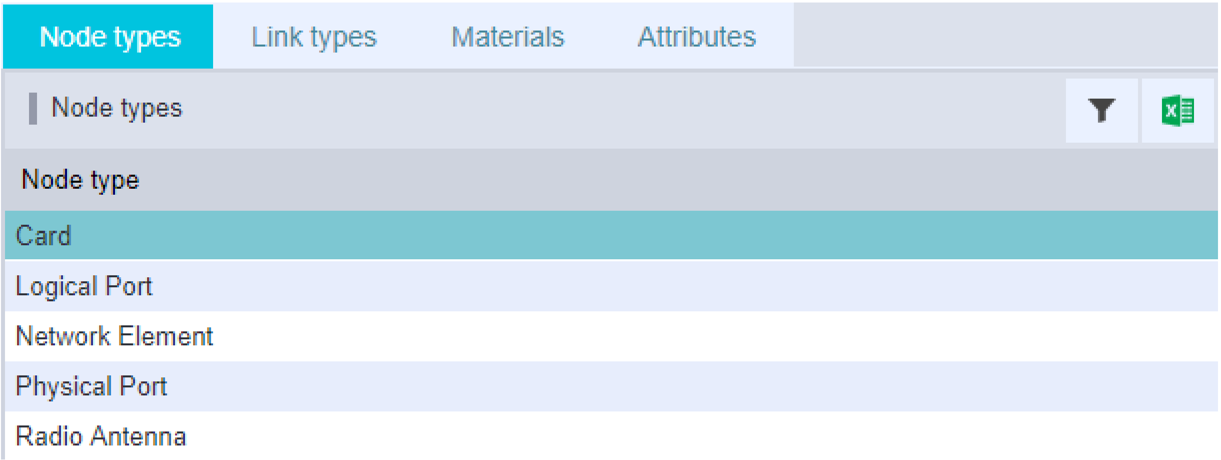

Category editor
Menu
Submit
Basic
Node type:
Aircondition source
Building
Card
Conduit adapter
Copper adapter

Select node type and click on the Submit button.

Multiple node types can be created simultaneously, so it is not necessary to re-select them from the context menu Create node type.


Category editor
Menu
Submit
Basic
Node type:
Saved

Node type will be displayed in Node types bookmark.

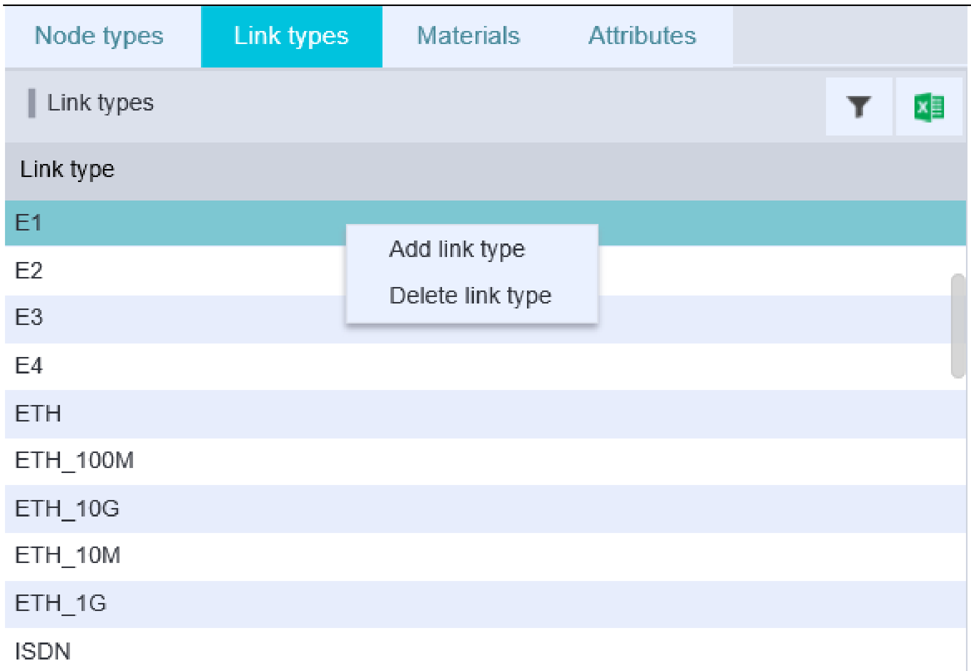

Node types
Link types
Materials
Attributes
Node types
Node type
Card
Logical Port
Network Element
Physical Port
Radio Antenna

Node types will be displayed in all branches of the created tree.

Delete node type

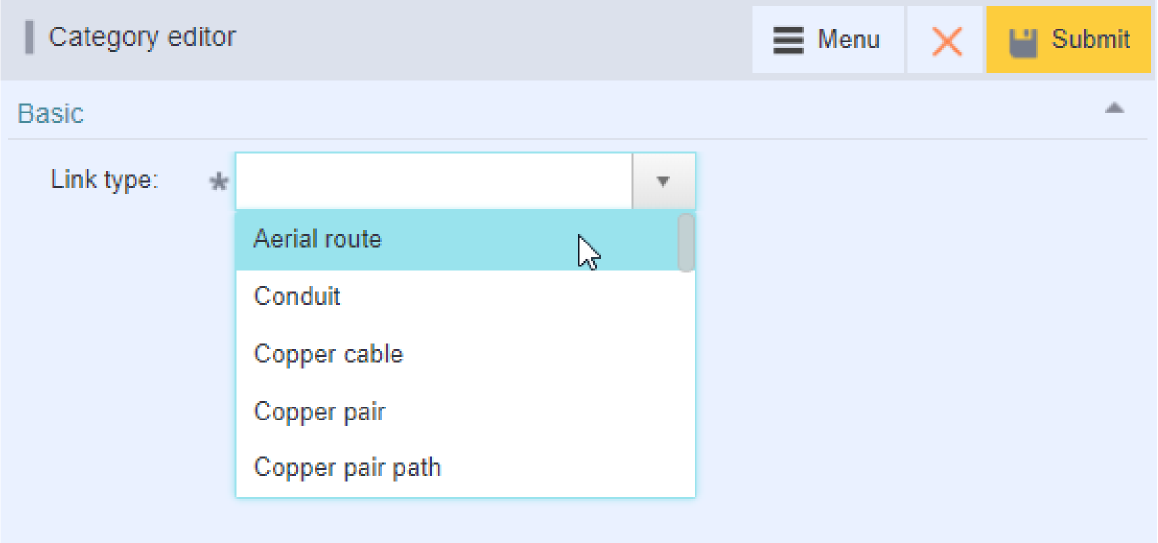
For removing node type, select Delete node type from the context menu.

Bookmark – Link types


Node types
Link types
Materials
Attributes
Link types
Link type
E1
Add link type
Delete link type
E2
E3
E4
ETH
ETH_100M
ETH_10G
ETH_10M
ETH_1G
ISDN

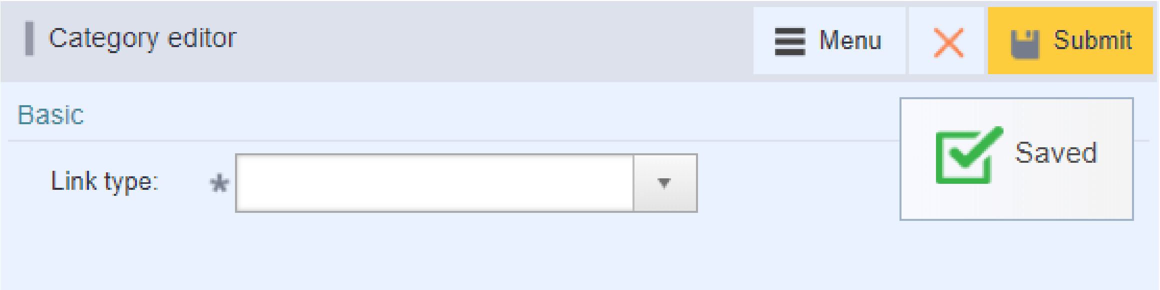
Add link type

Select Add link type from the context menu in Link type bookmark.

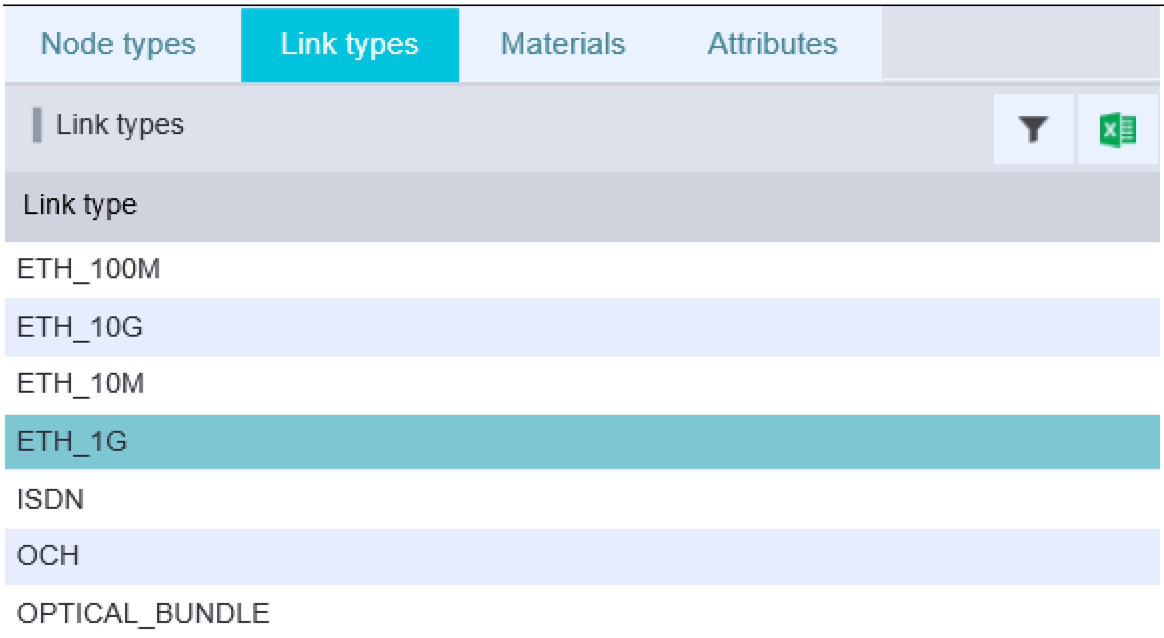

Category editor
Menu
Submit
Basic
Link type: *
Aerial route
Conduit
Copper cable
Copper pair
Copper pair path

Select the required link in Editor and click on the Submit button.

Multiple link type created simultaneously, so it is not necessary to re-select them from the context menu Create link type.


Category editor
Menu
Submit
Basic
Link type: *
Saved

Link type will be displayed in Link types bookmark.



Node types
Link types
Materials
Attributes

Link types

Link type
ETH_100M
ETH_10G
ETH_10M
ETH_1G
ISDN
OCH
OPTICAL_BUNDLE

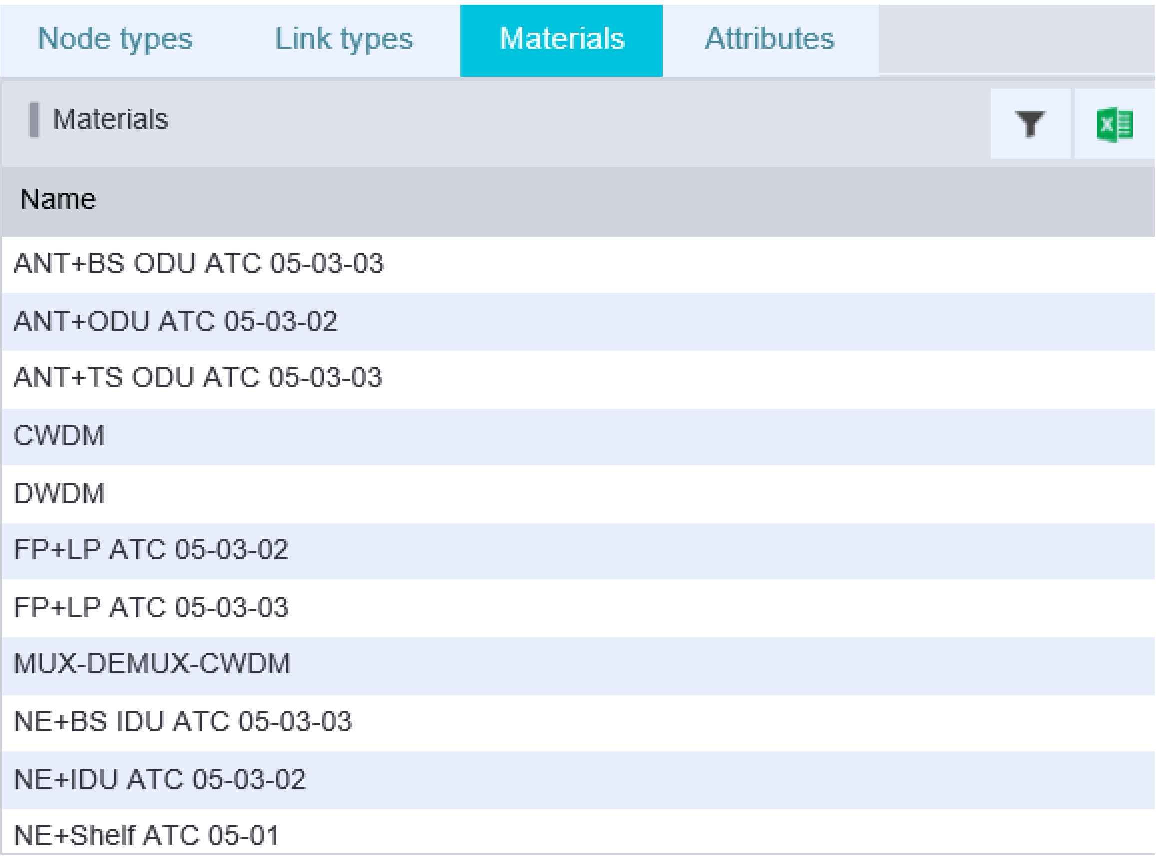
Link types will be displayed in all branches of the created tree.

Delete link type

Select Delete link type from the context menu to remove link type.

Material bookmark

Contains the list of material and templates to which the selected category is assigned.

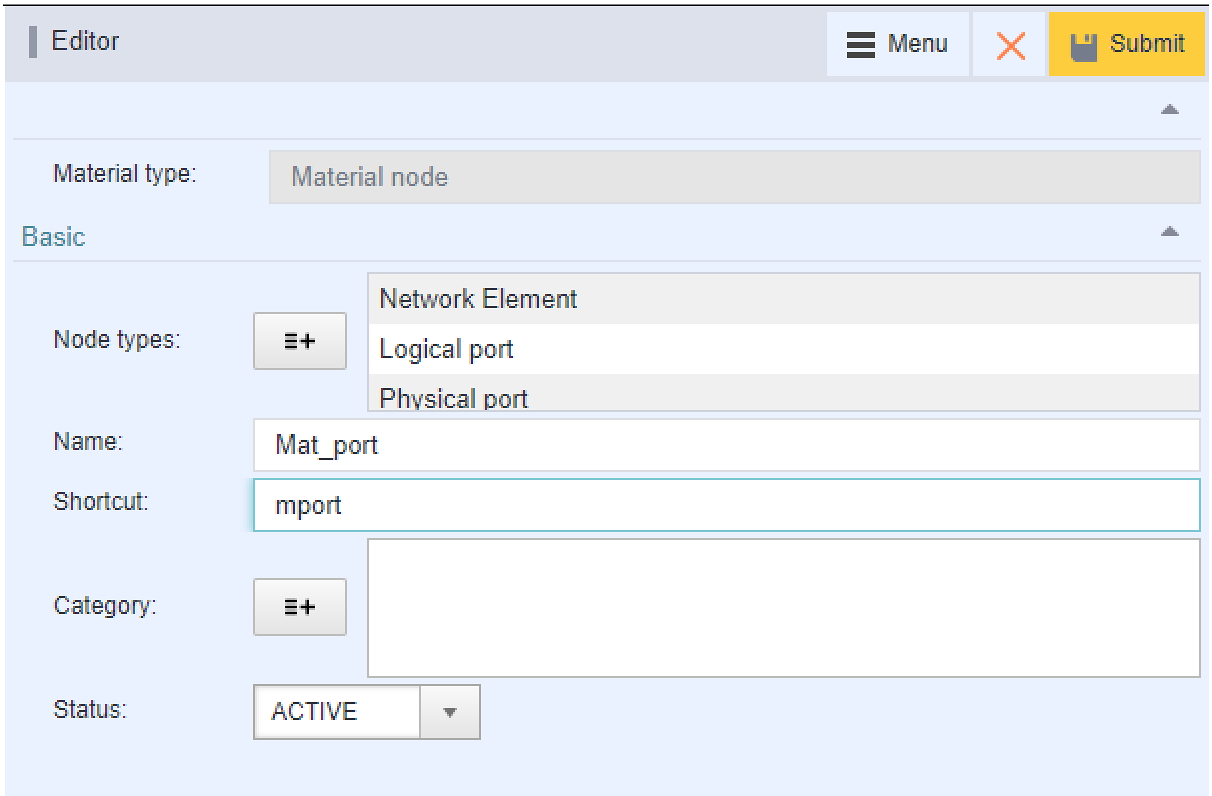


Node types
Link types
Materials
Attributes

Materials

Name
ANT+BS ODU ATC 05-03-03
ANT+ODU ATC 05-03-02
ANT+TS ODU ATC 05-03-03
CWDM
DWDM
FP+LP ATC 05-03-02
FP+LP ATC 05-03-03
MUX-DEMUX-CWDM
NE+BS IDU ATC 05-03-03
NE+IDU ATC 05-03-02
NE+Shelf ATC 05-01

Inserting material can be done in Material module:



Material type: Material node

Basic

Node types: Network Element, Logical port, Physical port

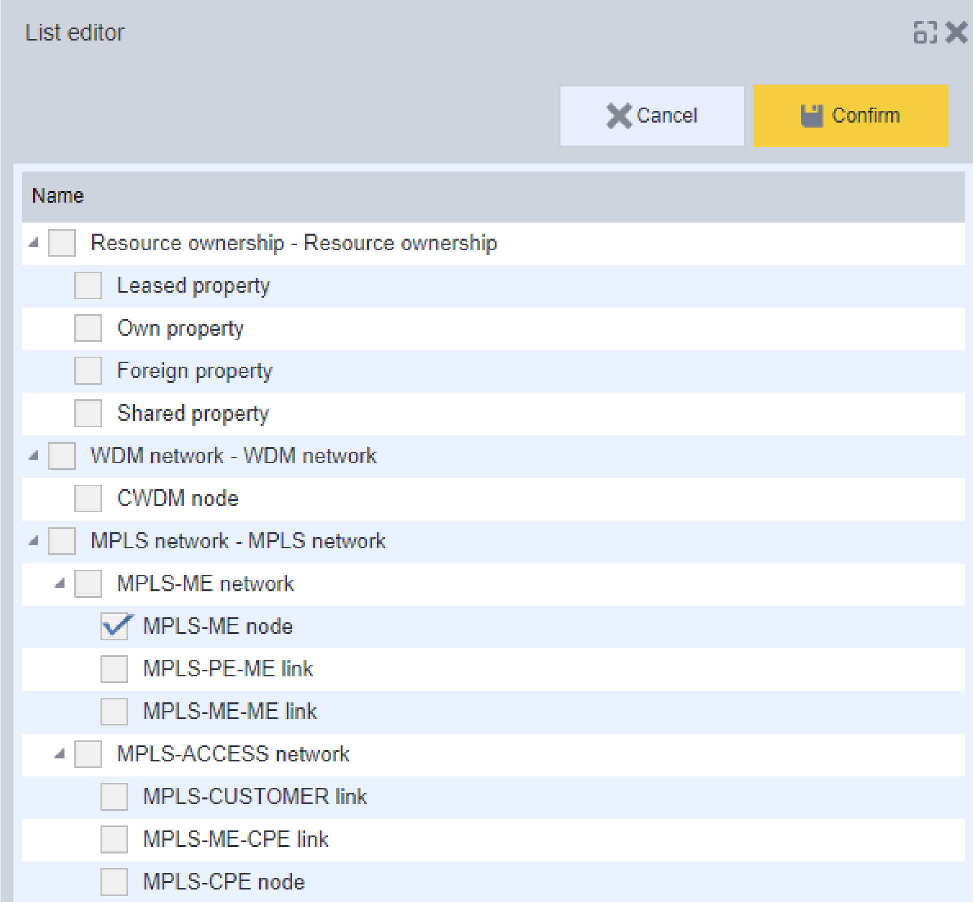
Name: Mat_port

Shortcut: mport

Category:

Status: ACTIVE

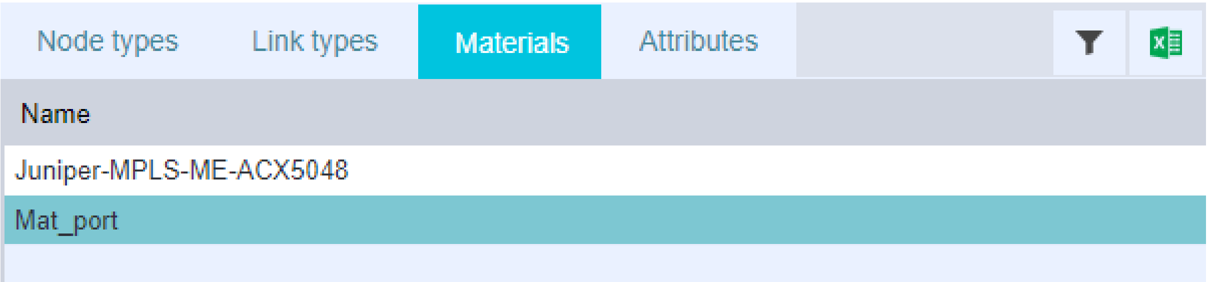
After saving, select Category, in which you want to create material:



Name
☐ Resource ownership - Resource ownership
☐ Leased property
☐ Own property
☐ Foreign property
☐ Shared property
☐ WDM network - WDM network
☐ CWDM node
☐ MPLS network - MPLS network
☐ MPLS-ME network
☑ MPLS-ME node
☐ MPLS-PE-ME link
☐ MPLS-ME-ME link
☐ MPLS-ACCESS network
☐ MPLS-CUSTOMER link
☐ MPLS-ME-CPE link
☐ MPLS-CPE node

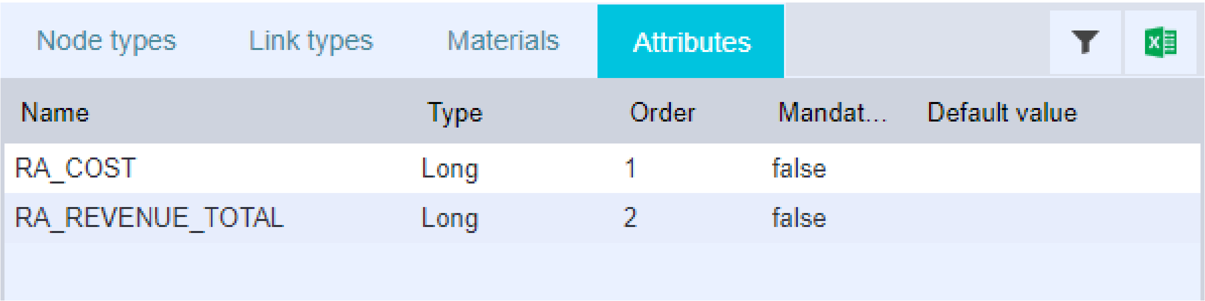
After saving switch to Configuration module - Category module.

Added material will be displayed in selected category in Material bookmark:



Name
Juniper-MPLS-ME-ACX5048
Mat_port

Attributes bookmark



Name	Type	Order	Mandat...	Default value
RA_COST	Long	1	false	
RA_REVENUE_TOTAL	Long	2	false	

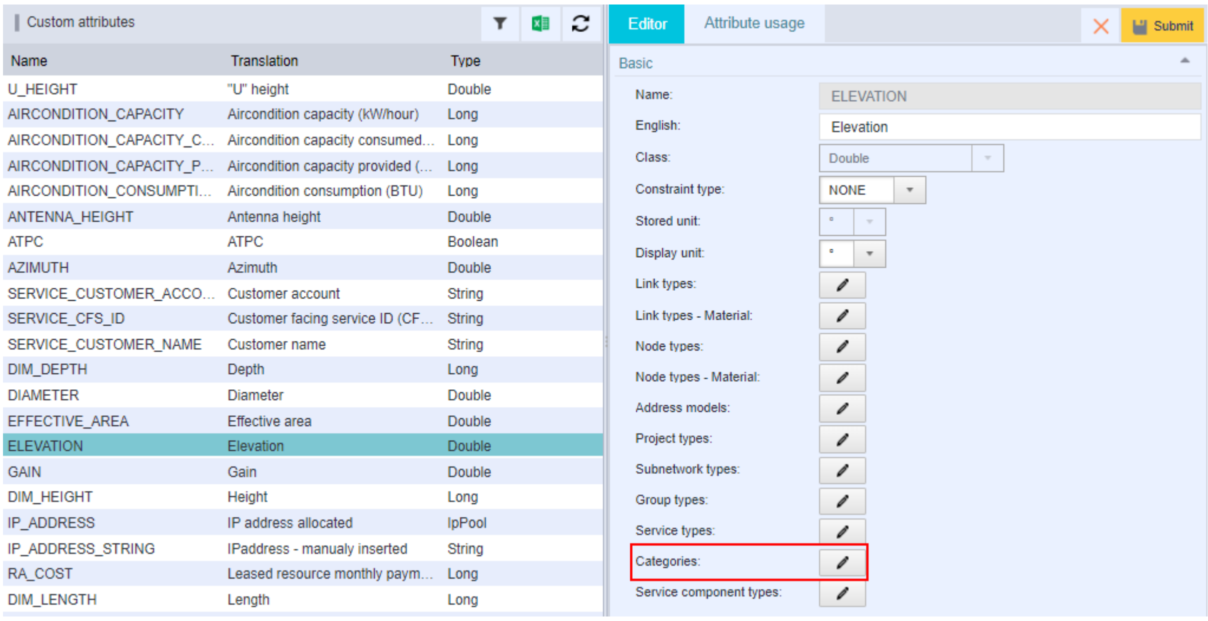
Assigning an attribute to given category

Select item from the category tree, to which we want to assign an attribute.

In Configuration module select Custom attribute view.

From the attribute menu select appropriate attribute, e.g. ELEVATION.

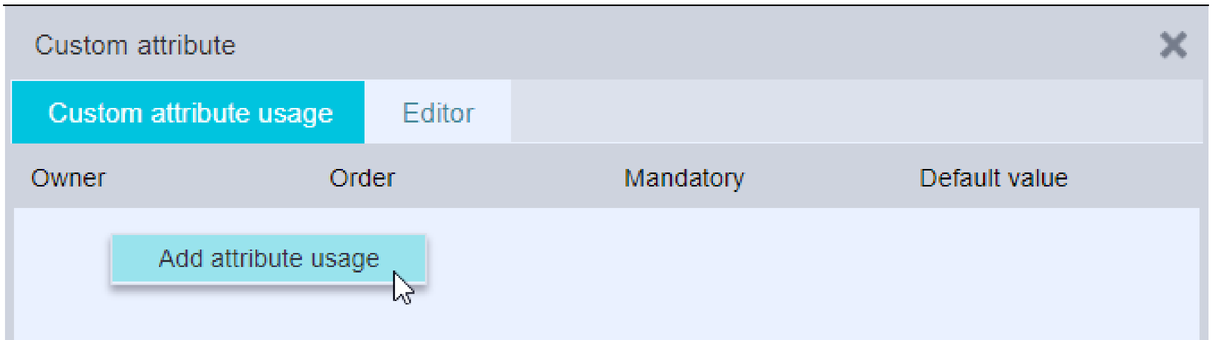
In the editor, click on the pencil icon next to item Categories.



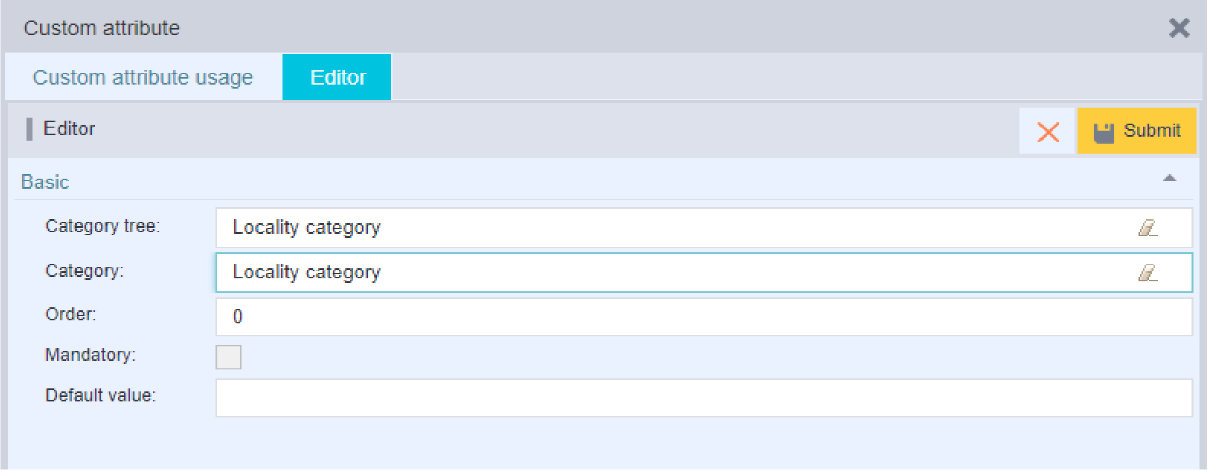
Name	Translation	Type
U_HEIGHT	"U" height	Double
AIRCONDITION_CAPACITY	Aircondition capacity (kW/hour)	Long
AIRCONDITION_CAPACITY_C...	Aircondition capacity consumed...	Long
AIRCONDITION_CAPACITY_P...	Aircondition capacity provided (...	Long
AIRCONDITION_CONSUMPTI...	Aircondition consumption (BTU)	Long
ANTENNA_HEIGHT	Antenna height	Double
ATPC	ATPC	Boolean
AZIMUTH	Azimuth	Double
SERVICE_CUSTOMER_ACCO...	Customer account	String
SERVICE_CFS_ID	Customer facing service ID (CF...	String
SERVICE_CUSTOMER_NAME	Customer name	String
DIM_DEPTH	Depth	Long
DIAMETER	Diameter	Double
EFFECTIVE_AREA	Effective area	Double
ELEVATION	Elevation	Double
GAIN	Gain	Double
DIM_HEIGHT	Height	Long
IP_ADDRESS	IP address allocated	IpPool
IP_ADDRESS_STRING	IPaddress - manualy inserted	String
RA_COST	Leased resource monthly paym...	Long
DIM_LENGTH	Length	Long

Name: ELEVATION
English: Elevation
Class: Double
Constraint type: NONE
Stored unit: °
Display unit: °
Link types:
Link types - Material:
Node types:
Node types - Material:
Address models:
Project types:
Subnetwork types:
Group types:
Service types:
Categories:
Service component types:

A Custom attribute window will open. Right-click and select Add attribute usage.


Custom attribute
Custom attribute usage
Editor
Owner
Order
Mandatory
Default value
Add attribute usage

An Editor will open. Fill in the fields Category tree and Category. Click Submit.


Custom attribute
Custom attribute usage
Editor
Editor
Submit
Basic

Category tree: Locality category

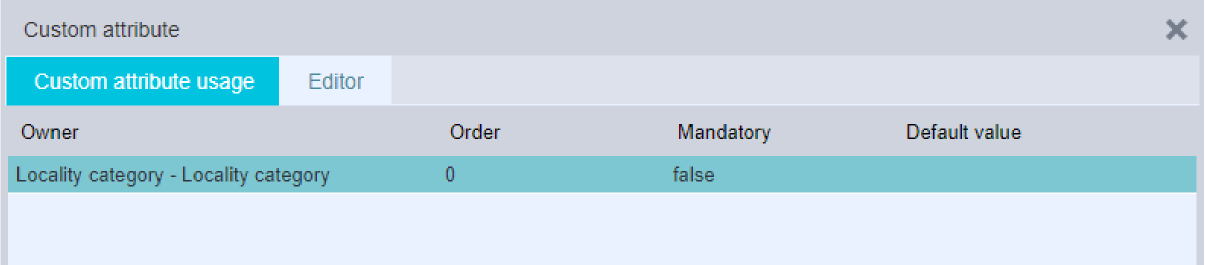
Category: Locality category

Order: 0

Mandatory: ☐

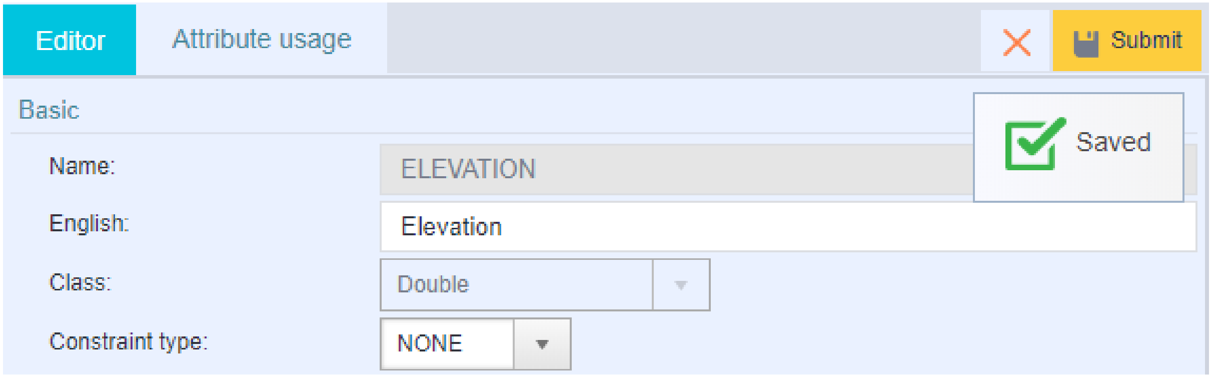
Default value:

In the bookmark Custom attribute usage, information about attribute owner will be displayed.


Custom attribute
Custom attribute usage
Editor

Owner	Order	Mandatory	Default value
Locality category - Locality category	0	false	

Close the window Custom attribute and save the Editor.


Editor
Attribute usage
Submit
Basic
Saved

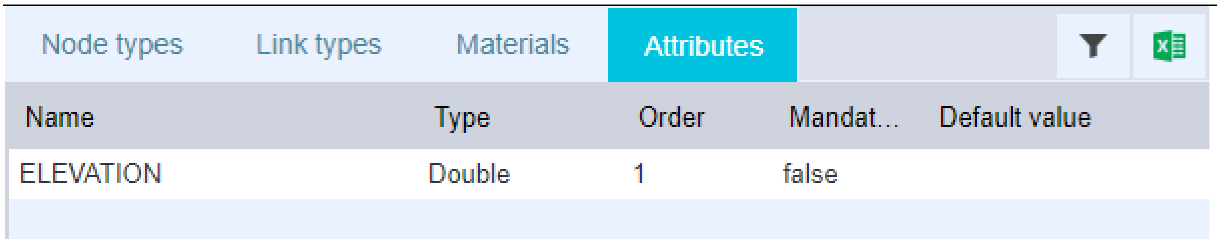
Name: ELEVATION

English: Elevation

Class: Double

Constraint type: NONE

In the Category view, the attribute ELEVATION will be displayed in Attributes bookmark.


Node types
Link types
Materials
Attributes

Name	Type	Order	Mandat...	Default value
ELEVATION	Double	1	false	

Custom attributes can be defined and assigned in the submodule Configuration - Custom attributes.

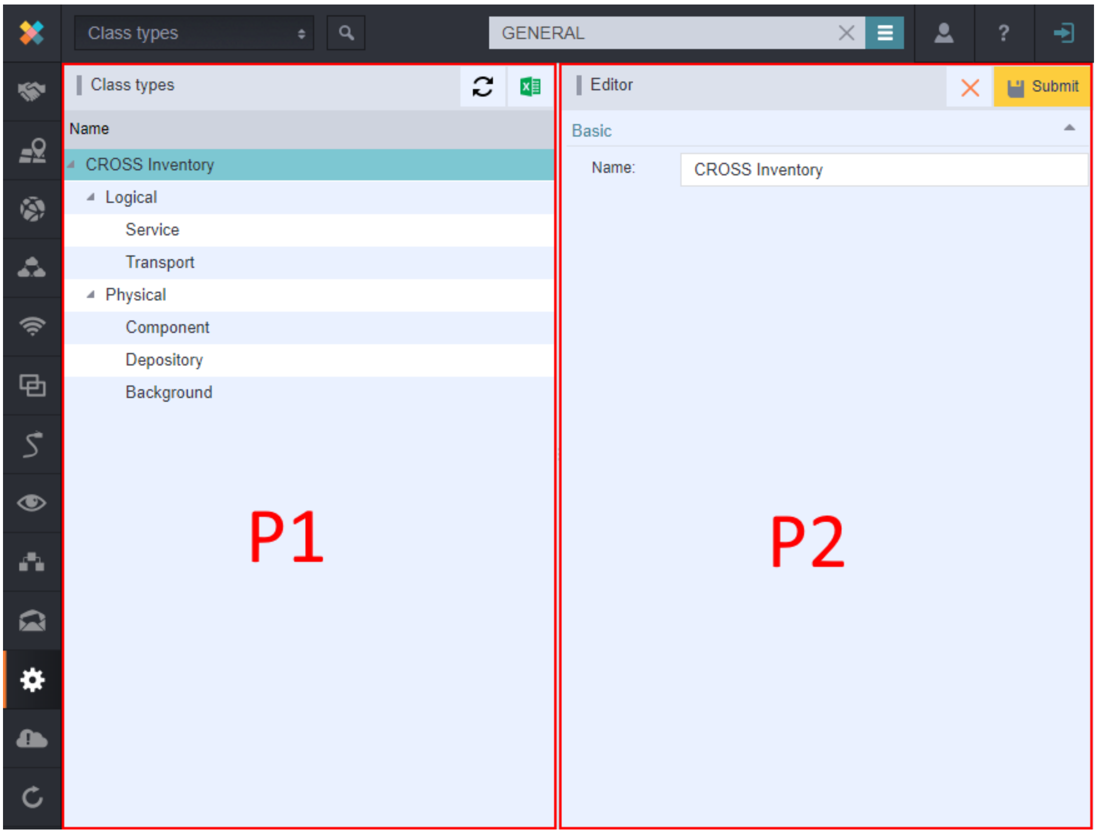
The attribute values are displayed only in the selected branch in the tree. They are not inherited.

3.1.3. Class types

Hierarchical class - all links and all nodes belong to it. Default hierarchy is based on a 5-layer network model, see the picture below (panel P1).

The window Class types contains two panels:

- P1 - Class types
- P2 - Editor

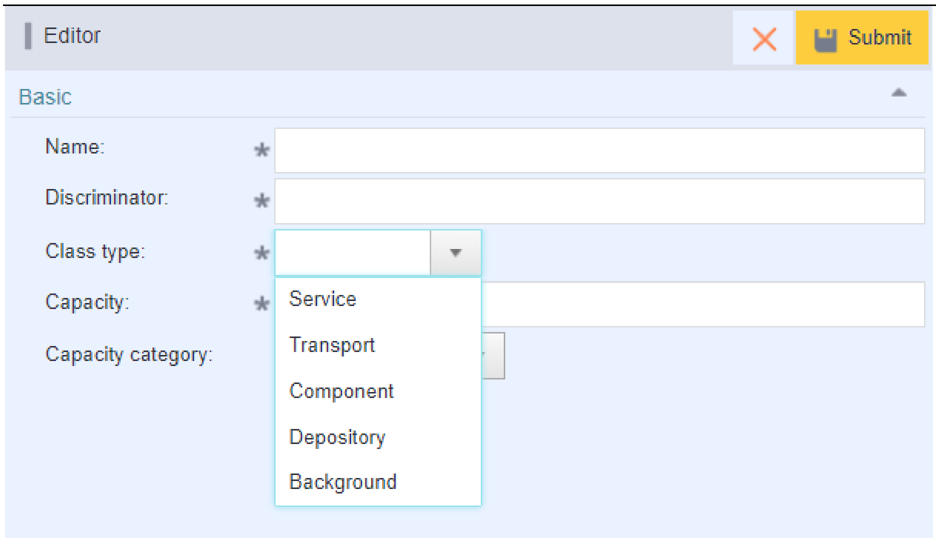

Class types
GENERAL
Class types
Name
Editor
Submit
Basic
P1
P2

- CROSS Inventory
  - Logical
    - Service
    - Transport
  - Physical
    - Component
    - Depository
    - Background

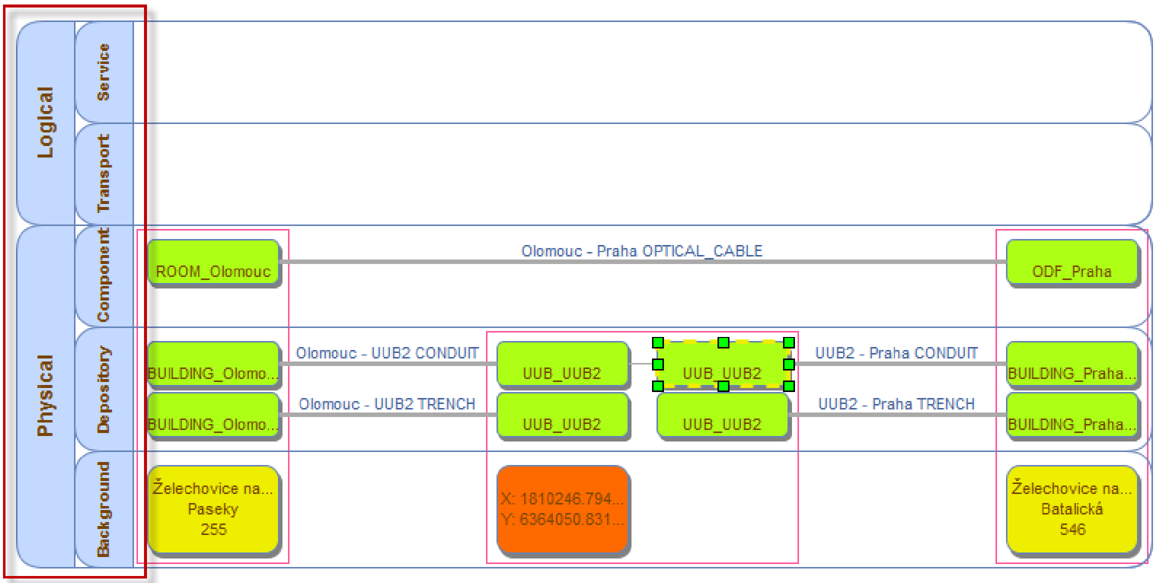
Name: CROSS Inventory

3.1.3.1. P1 - Class types

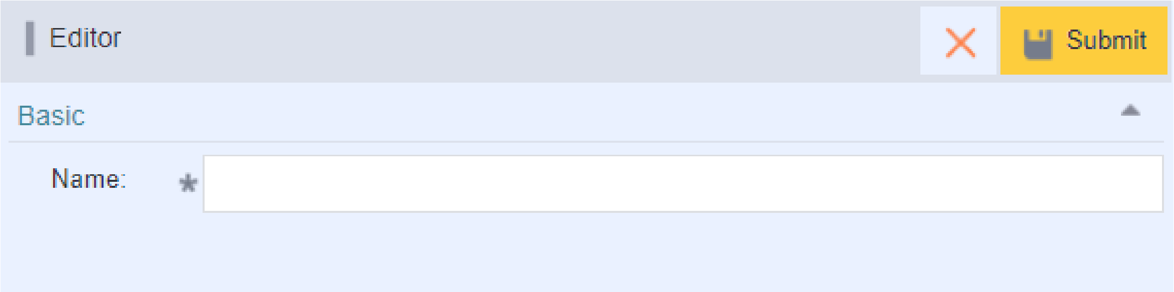
Class type selection in configuration of the Link types: it is possible to select only end lists from the previous picture.


Editor
Submit
Basic
Name: *
Discriminator: *
Class type: *
Capacity: *
Capacity category:
Service
Transport
Component
Depository
Background

Node and Link is then put into appropriate level in the schema by selected class type.


Logical
Physical
Service
Transport
Component
Depository
Background
ROOM_Olomouc
Olomouc - Praha OPTICAL_CABLE
ODF_Praha
BUILDING_Olomo...
Olomouc - UUB2 CONDUIT
UUB_UUB2
UUB_UUB2
UUB2 - Praha CONDUIT
BUILDING_Praha...
BUILDING_Olomo...
Olomouc - UUB2 TRENCH
UUB_UUB2
UUB_UUB2
UUB2 - Praha TRENCH
BUILDING_Praha...
Želechovice na...
Paseky
255
X: 1810246.794...
Y: 6364050.831...
Želechovice na...
Batalická
546

3.1.3.2. P2 - Editor

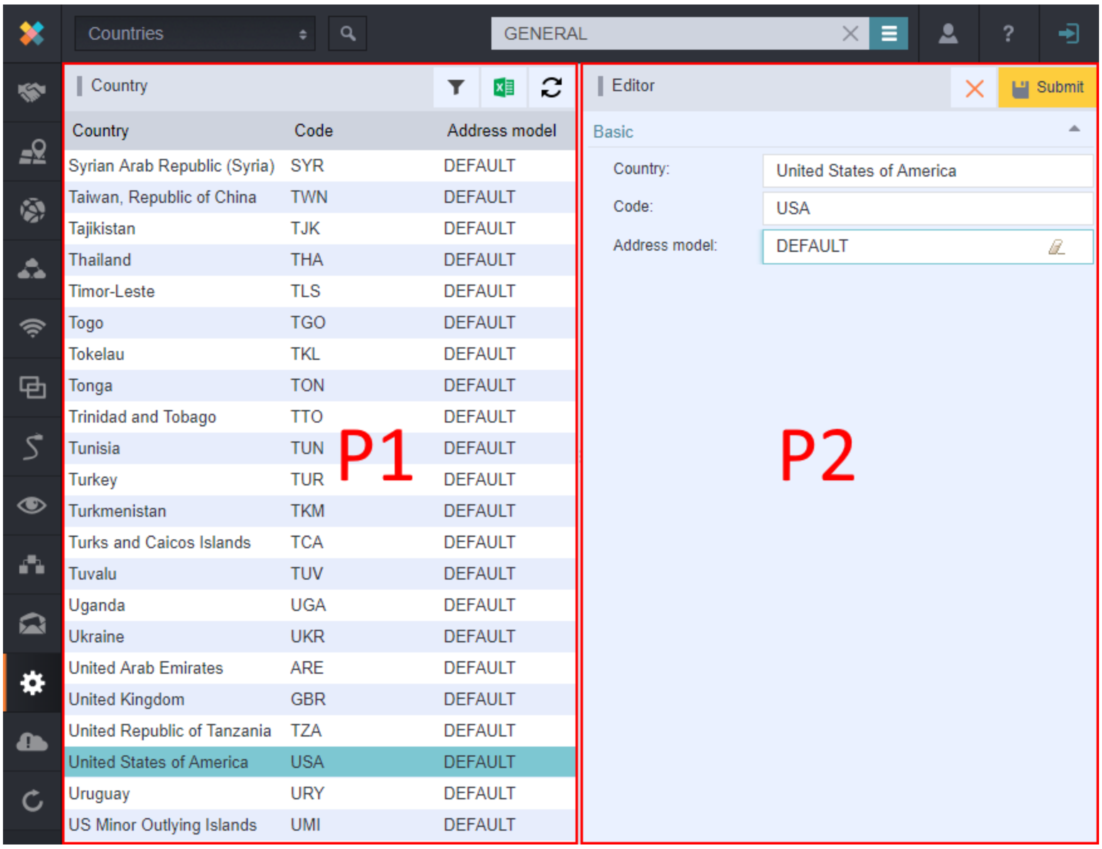

Editor
Submit
Basic
Name: *

3.1.4. Countries

Configuration of countries enables you to set unique address model to each country - that means individual address evidence. Configuration window of countries is divided into two panels, the first one displays the list of all countries and the second one contains the editor.

Countries panel contains two panels:

- P1 - Country
- P2 - Editor



Country	Code	Address model
Syrian Arab Republic (Syria)	SYR	DEFAULT
Taiwan, Republic of China	TWN	DEFAULT
Tajikistan	TJK	DEFAULT
Thailand	THA	DEFAULT
Timor-Leste	TLS	DEFAULT
Togo	TGO	DEFAULT
Tokelau	TKL	DEFAULT
Tonga	TON	DEFAULT
Trinidad and Tobago	TTO	DEFAULT
Tunisia	TUN	DEFAULT
Turkey	TUR	DEFAULT
Turkmenistan	TKM	DEFAULT
Turks and Caicos Islands	TCA	DEFAULT
Tuvalu	TUV	DEFAULT
Uganda	UGA	DEFAULT
Ukraine	UKR	DEFAULT
United Arab Emirates	ARE	DEFAULT
United Kingdom	GBR	DEFAULT
United Republic of Tanzania	TZA	DEFAULT
United States of America	USA	DEFAULT
Uruguay	URY	DEFAULT
US Minor Outlying Islands	UMI	DEFAULT

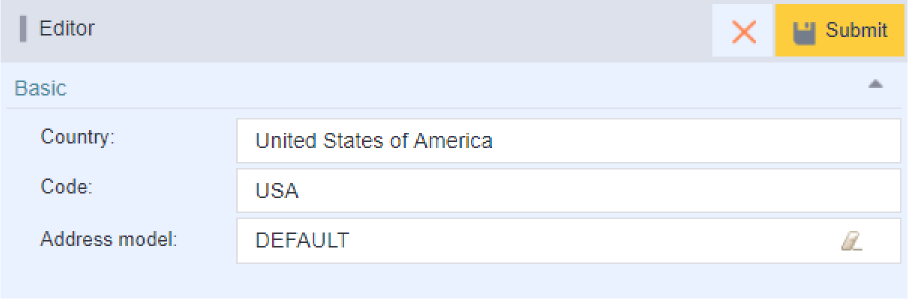
Country: United States of America
Code: USA
Address model: DEFAULT

3.1.4.1. P1 - Country

Address model for Czech Republic and Slovakia is already created in the application. It is called Czechoslovak as the address models are identical.

3.1.4.2. P2 - Editor

Assigning an address model to selected country is very simple, it can be done by selecting the needed model in the field Address model and saving the editor. When you start to fill an address in the module ADDRESS, an editor with defined address model for the selected country will be appearing.



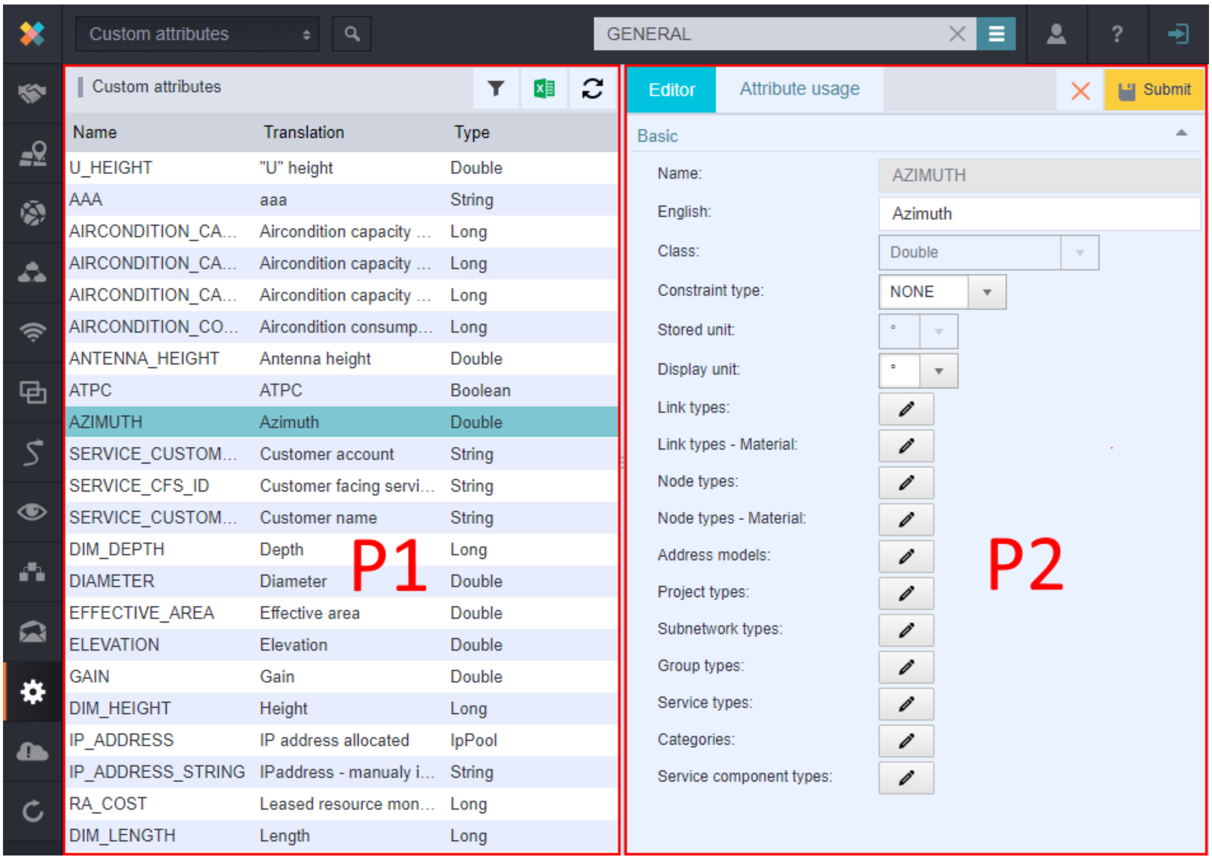
Country: United States of America
Code: USA
Address model: DEFAULT

3.1.5. Custom attributes

Custom attributes are defined for various object types, for example for the link or node types. These attributes are then displayed in the editors of these objects and it is possible to search objects by their attributes.

Configuration window of custom attributes contains two panels:

- P1 - Custom attributes
- P2 - Editor



Custom attributes

Name	Translation	Type
U_HEIGHT	"U" height	Double
AAA	aaa	String
AIRCONDITION_CA...	Aircondition capacity ...	Long
AIRCONDITION_CA...	Aircondition capacity ...	Long
AIRCONDITION_CA...	Aircondition capacity ...	Long
AIRCONDITION_CO...	Aircondition consump...	Long
ANTENNA_HEIGHT	Antenna height	Double
ATPC	ATPC	Boolean
AZIMUTH	Azimuth	Double
SERVICE_CUSTOM...	Customer account	String
SERVICE_CFS_ID	Customer facing servi...	String
SERVICE_CUSTOM...	Customer name	String
DIM_DEPTH	Depth	Long
DIAMETER	Diameter	Double
EFFECTIVE_AREA	Effective area	Double
ELEVATION	Elevation	Double
GAIN	Gain	Double
DIM_HEIGHT	Height	Long
IP_ADDRESS	IP address allocated	IpPool
IP_ADDRESS_STRING	IPaddress - manualy i...	String
RA_COST	Leased resource mon...	Long
DIM_LENGTH	Length	Long

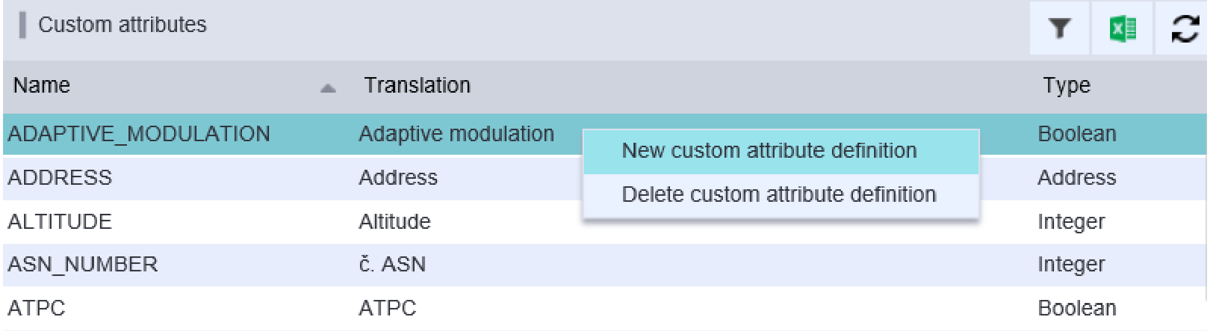
Name: AZIMUTH
English: Azimuth
Class: Double
Constraint type: NONE
Stored unit: °
Display unit: °
Link types:
Link types - Material:
Node types:
Node types - Material:
Address models:
Project types:
Subnetwork types:
Group types:
Service types:
Categories:
Service component types:

3.1.5.1. P1 - Custom attributes

Panel P1 - Optional attributes contains a list of optional attributes.

The context menu contains two folders:

- New custom attribute definition
- Delete custom attribute definition


Custom attributes
New custom attribute definition
Delete custom attribute definition

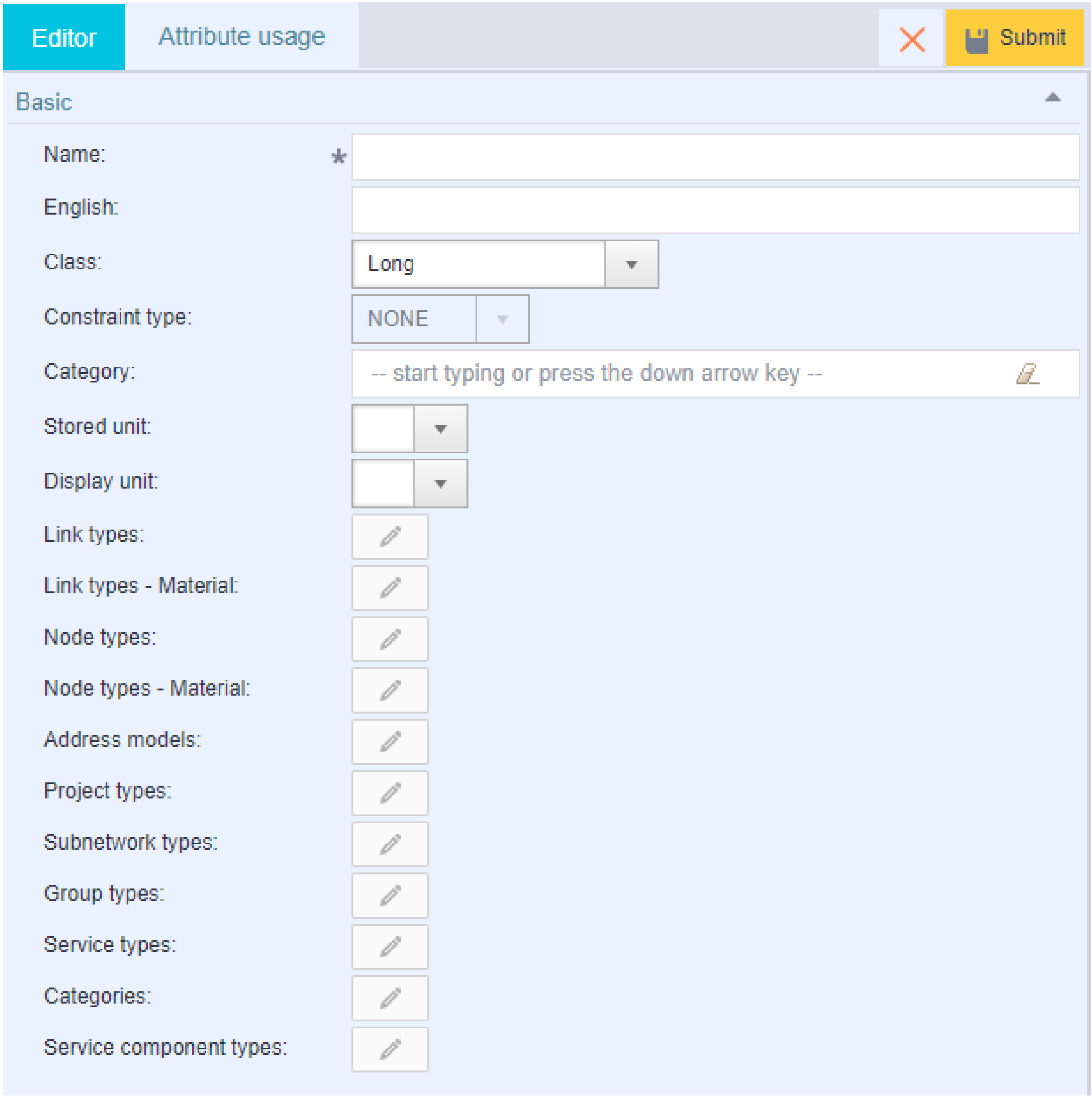
Name	Translation	Type
ADAPTIVE_MODULATION	Adaptive modulation	Boolean
ADDRESS	Address	Address
ALTITUDE	Altitude	Integer
ASN_NUMBER	č. ASN	Integer
ATPC	ATPC	Boolean

3.1.5.2. P2 - Editor

Defining and configuring custom attribute

In the panel with the list of attributes, right-click anywhere and select New custom attribute definition.

An empty Editor appears.



Name: *
English:
Class: Long
Constraint type: NONE
Category: -- start typing or press the down arrow key --
Stored unit:
Display unit:
Link types:
Link types - Material:
Node types:
Node types - Material:
Address models:
Project types:
Subnetwork types:
Group types:
Service types:
Categories:
Service component types:

In the editor, fill attributes:

Name - fill the name in uppercase, if you use more words, use underscores instead of spaces (for example PHONE_COUNTRY_DISTINCT_CHAR)

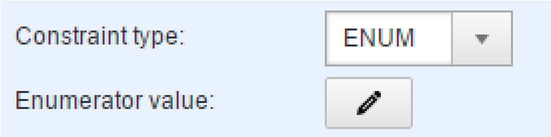
Class - defines attribute type**.** Types are either basic - Boolean, Date, Double, Integer, Long, Short, String, or object classes, for example RADIO_Band. To be able to work with an attribute, which has an object class, its functionality must first be implemented in the application.

Note: Only class Double supports decimals; all other number classes support only integer part of a number without a unit in the smallest support unit – so if user tries to save a number with a fractional part after the decimal separator then everything after the separator is ignored (e.g. 12.8 mm is saved as 12 mm for Long class).

Constraint type can have these values: NONE, ENUM, RANGE.

- NONE means no constraint for the attribute,
- ENUM means selection from the list of values,
- RANGE means constraint for a value range from - to.

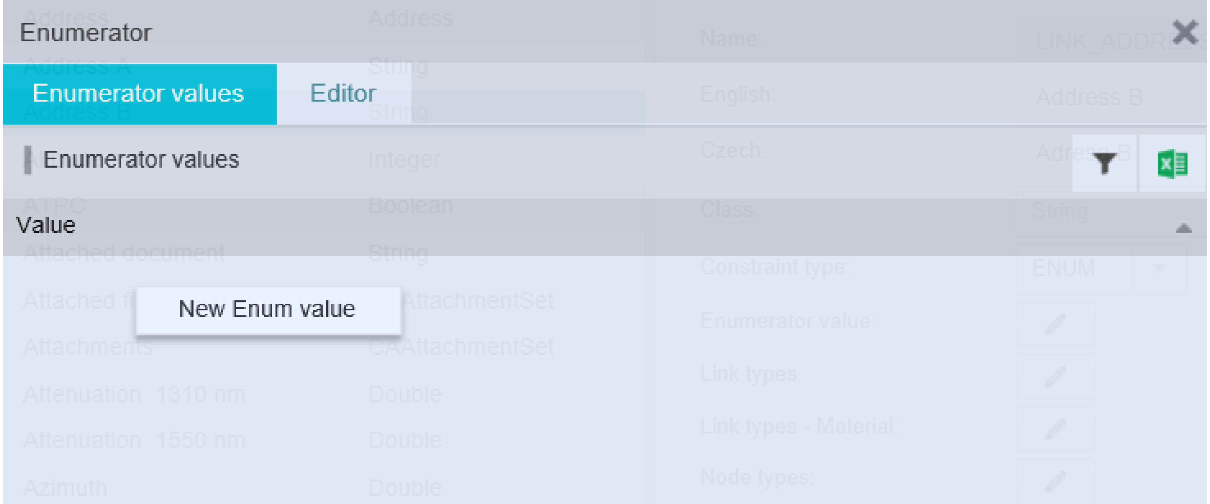
When selecting the constraint for enumerator, the field Enumerator value is displayed:



Constraint type: ENUM

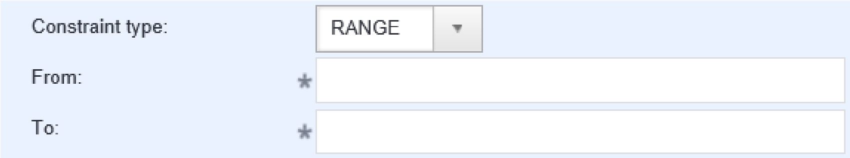
Enumerator value:

Click the icon for editing and a window for inserting an enumerator value will be displayed. Right-click and select action New Enum value from the context menu.


Enumerator
Enumerator values
Editor
Enumerator values
Value
New Enum value

That will open the Editor bookmark. Write a value of the new enumerator to the field Value. You can create any amount of values that will be displayed in the editor as a drop-down list.

When selecting restriction RANGE, two more fields for inserting minimum and maximum values are displayed in the editor:



Constraint type: RANGE

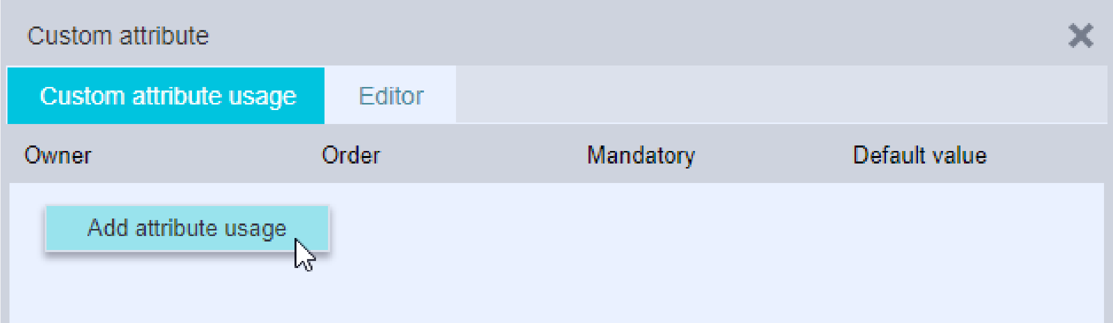
From: *

To: *

Further, you must define, which object types this custom attribute will be used on.

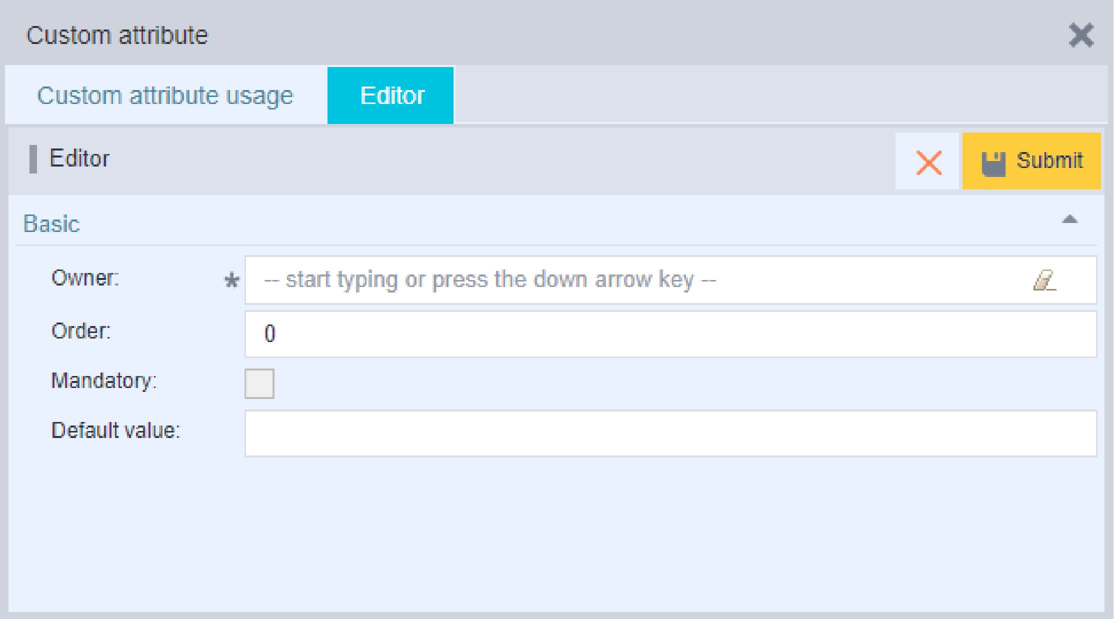
- Link types
- Link types - Material
- Node types
- Node types - Material
- Address models
- Project types
- IP consumers
- Subnetwork types
- Group types
- Service types
- Service component types

Objects use and the manner of its display can be set by clicking the pencil icon. This opens a window for attribute definition:


Custom attribute
Custom attribute usage
Editor
Owner
Order
Mandatory
Default value
Add attribute usage

Right-click in the table and select the action Add attribute usage.

This will transfer you to the editor, where you can write data:



Owner: * -- start typing or press the down arrow key --

Order: 0

Mandatory: ☐

Default value:

Set the values and save the Editor.

After setting the attribute usage you must save the editor panel in the upper right corner.

Attribute usage

On the Attribute Usage tab, a list of objects that have assigned a given optional attribute is displayed.

Exception: noneditable attributes

There are three Custom Attributes which can not be edited in the default CROSS GUI:

- Node Set
- Radio Sub-band Set
- Link Set

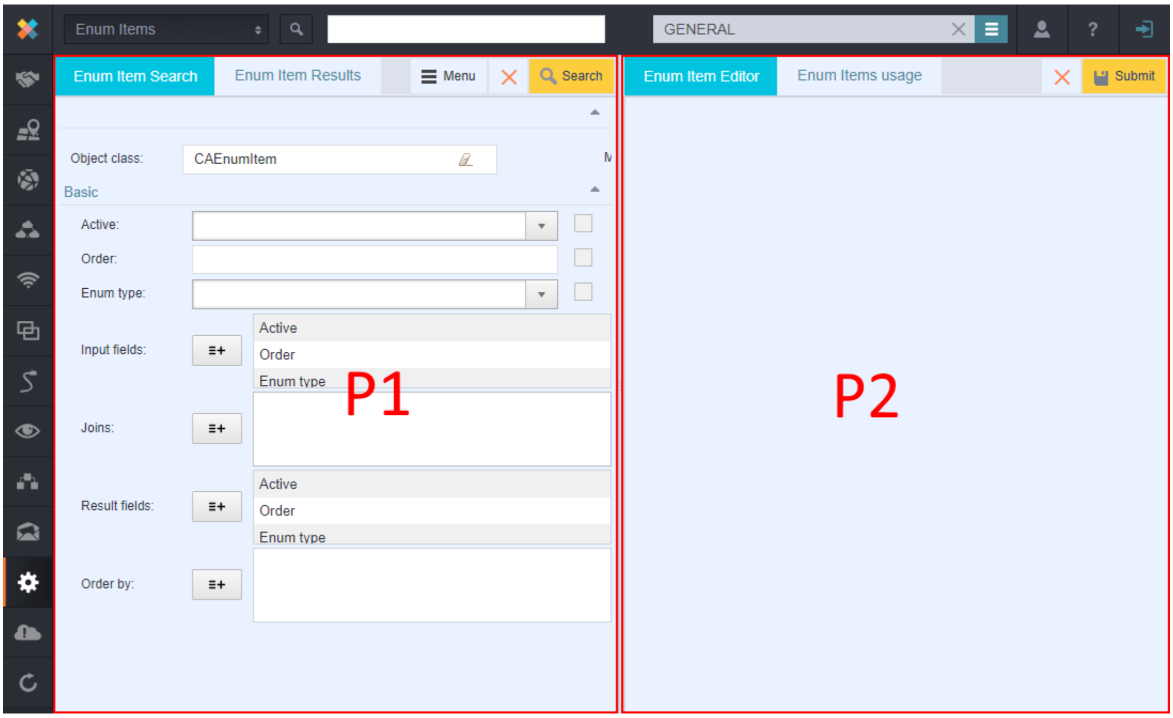
These custom attributes are primarily targeted for use on projects where they can be activated by extension.

3.1.6. Enum items

Serves for management of values in catalog.

The Enumerator values view is divided into two panels

- P1 - Enum Item Search / Enum Item Results
- P2 - Enum Item Editor / Enum Items usage


Enum Items
GENERAL
Enum Item Search
Enum Item Results
Menu
Search
Basic
Active:
Order:
Enum type:
Joins:
Order by:
P1
Enum Item Editor
Enum Items usage
Submit
P2

Object class: CAEnumItem

Input fields: Active, Order, Enum type

Result fields: Active, Order, Enum type

3.1.6.1. P1 - Enum Item Search / Enum Item Results

Panel P1 contains two bookmarks:

- Enum Item Search
- Enum Item Results

P1 panel description

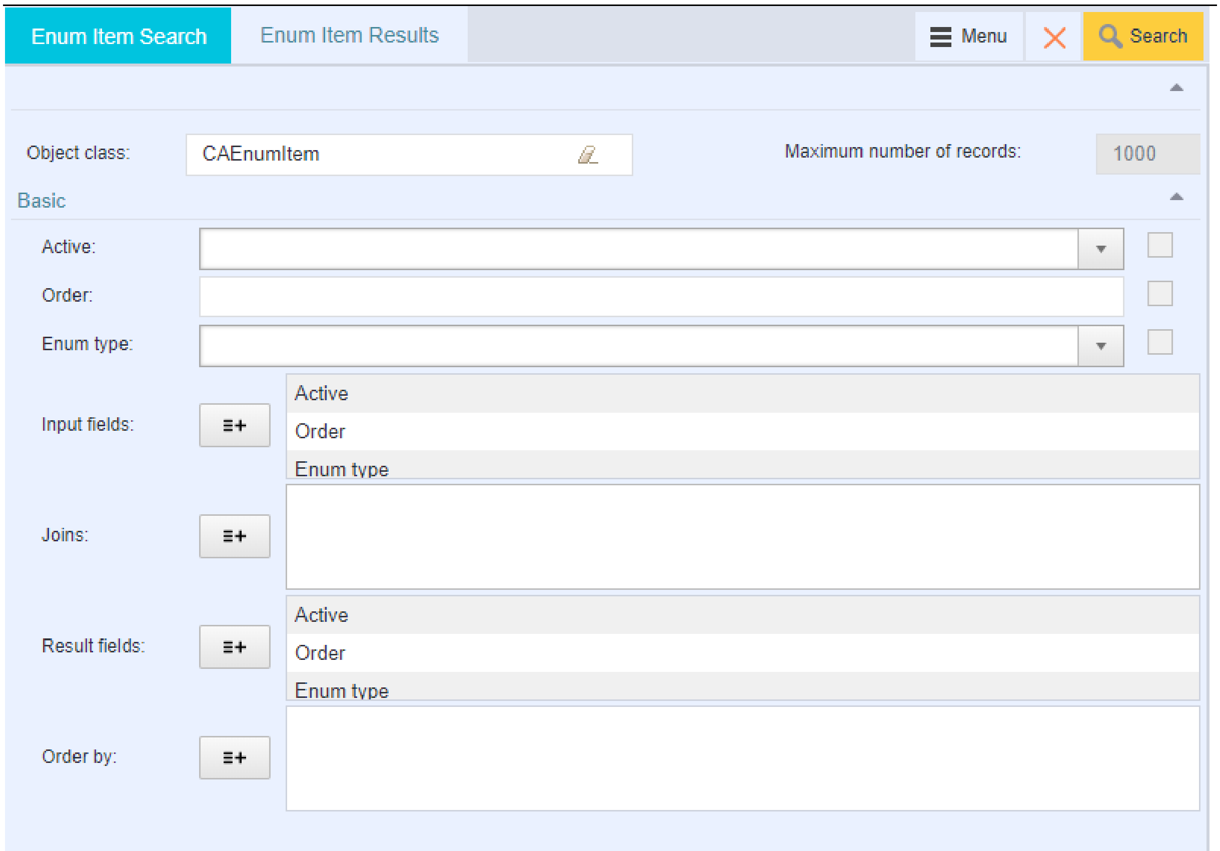
Bookmark Enum Item Search is design for selecting search parameters from the catalog.

Enumerator type contains these items:

- Cluster Sharing Catalog
- Person Catalog
- Reference Number catalog
- Subject Catalog
- MANUFACTURER

Note

You can use full-text search to set a catalog type.



Object class: CAEnumItem

Maximum number of records: 1000

Active:

Order:

Enum type:

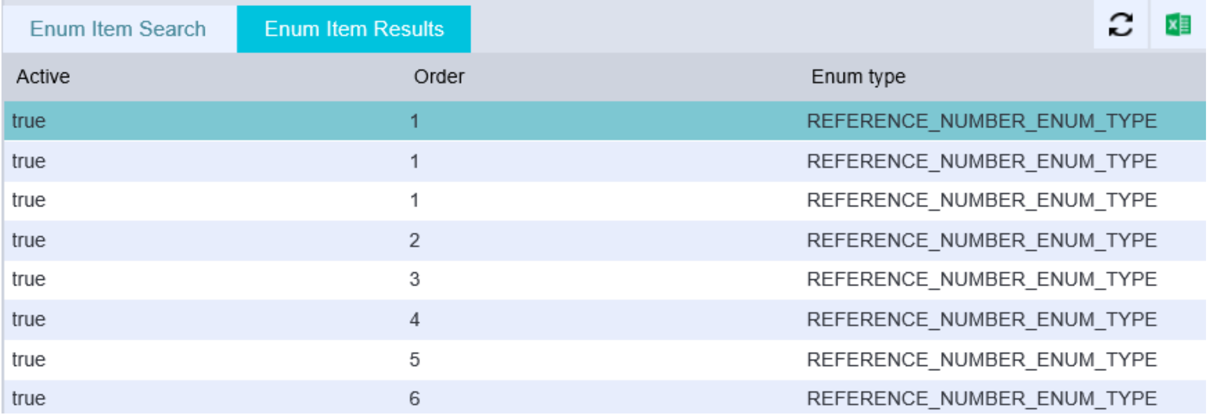
Input fields: Active, Order, Enum type

Joins:

Result fields: Active, Order, Enum type

Order by:

Bookmark Enum Item Result:



Active	Order	Enum type
true	1	REFERENCE_NUMBER_ENUM_TYPE
true	1	REFERENCE_NUMBER_ENUM_TYPE
true	1	REFERENCE_NUMBER_ENUM_TYPE
true	2	REFERENCE_NUMBER_ENUM_TYPE
true	3	REFERENCE_NUMBER_ENUM_TYPE
true	4	REFERENCE_NUMBER_ENUM_TYPE
true	5	REFERENCE_NUMBER_ENUM_TYPE
true	6	REFERENCE_NUMBER_ENUM_TYPE

Searched items will be displayed in Enum Items Result bookmark.

3.1.6.2. P2 - Enum Item Editor / Enum Items usage

Panel P2 contains two bookmarks:

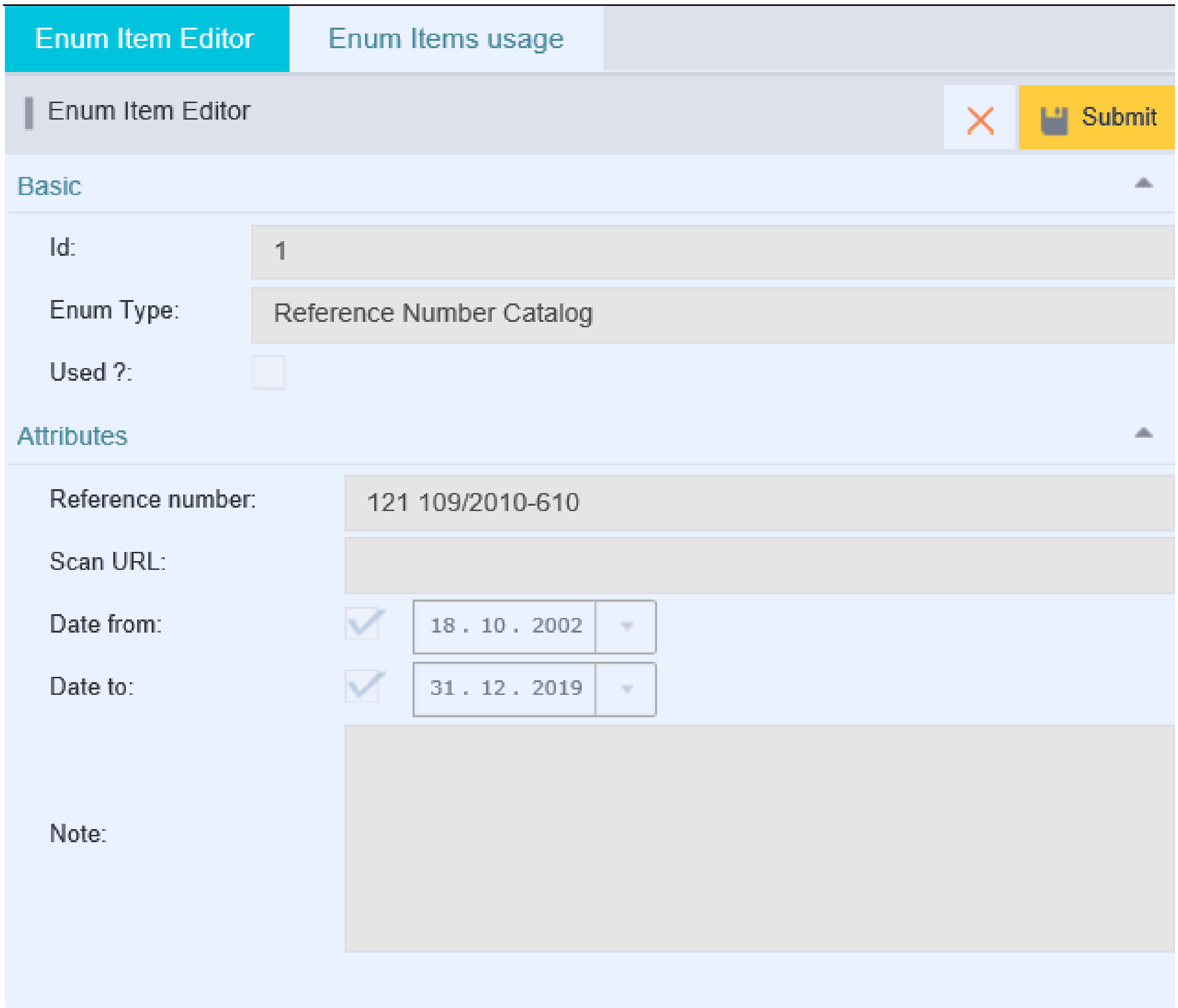
- Enum Item Editor
- Enum Item Usage

P2 panel description

The Enum Item Editor in the P2 panel allows you to edit searched results.

If option *Used ?* is selected in the Enum Item Editor bookmark, result can be edited but not deleted.

Option *Used ?* indicates if selected item is used or not.



Enum Item Editor
Enum Items usage
Enum Item Editor
Submit
Basic
Attributes

Id: 1

Enum Type: Reference Number Catalog

Used ?: ☐

Reference number: 121 109/2010-610

Scan URL:

Date from: ☑ 18 . 10 . 2002

Date to: ☑ 31 . 12 . 2019

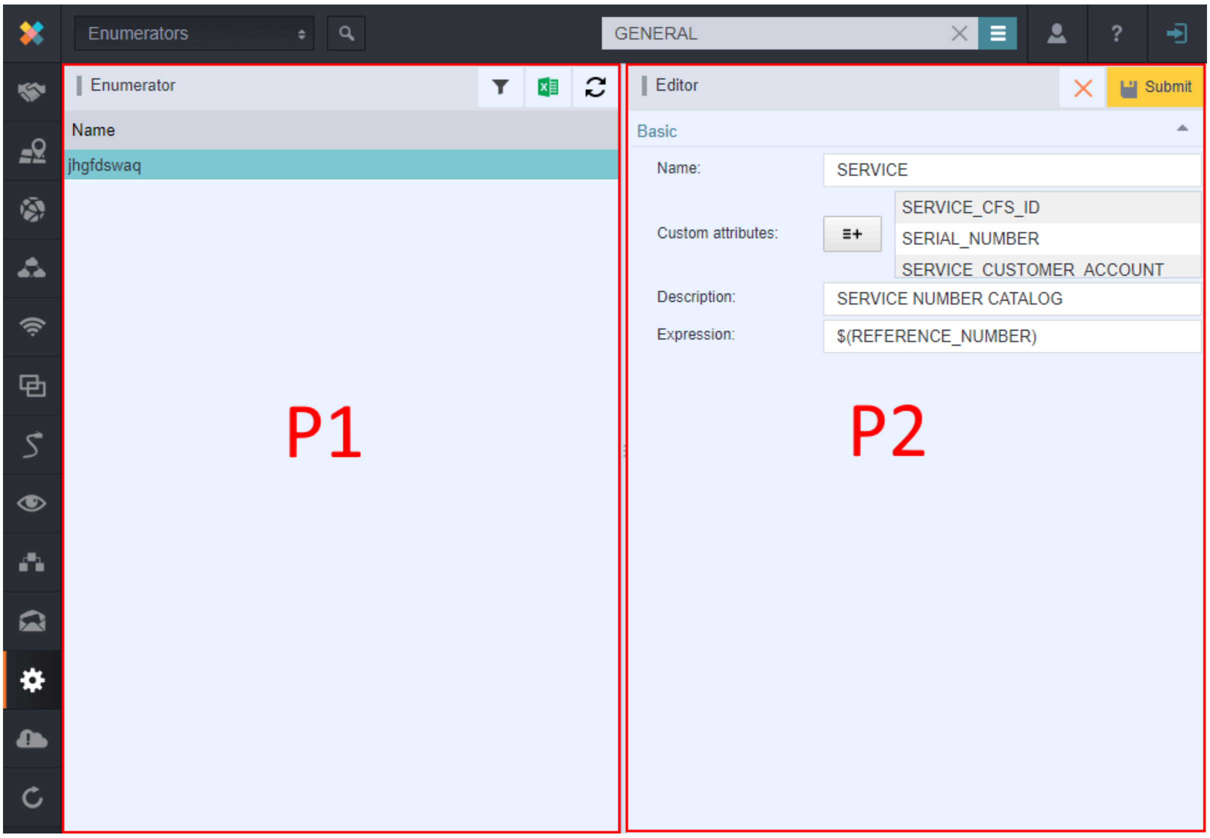
Note:

3.1.7. Enumerators

Enumerator configuration allows you to manage the lists / tables - a user can set their attributes. For example, at enumerator REFERENCE_NUMBER_ENUM_TYPE (the list of reference numbers of ČTÚ), selected attributes are reference number, URL of scanned document, date of acceptance and the date until when the license is valid.

The Enumerators view is divided into two panels

- P1 - Enumerator
- P2 - Editor



Name: SERVICE

Custom attributes: SERVICE_CFS_ID, SERIAL_NUMBER, SERVICE_CUSTOMER_ACCOUNT

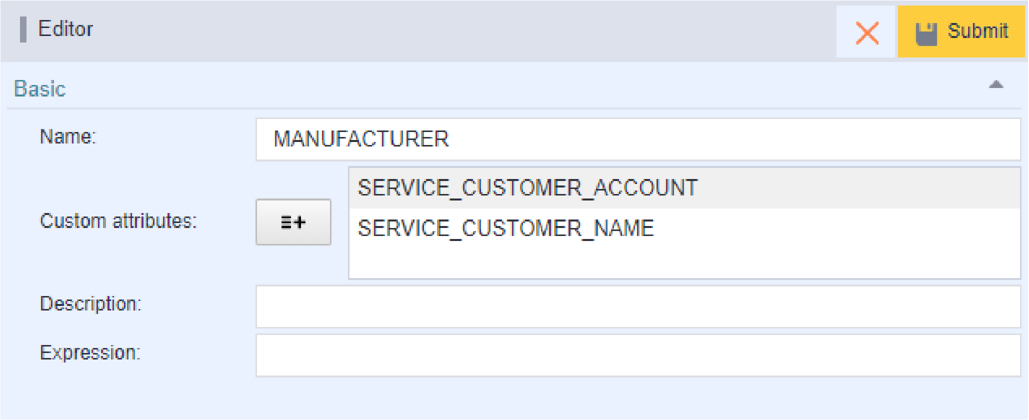
Description: SERVICE NUMBER CATALOG

Expression: $(REFERENCE_NUMBER)

3.1.7.1. P1 - Enumerator

Creating a new enumerator

Right-click in the panel P1 and select New enumerator. An empty editor will be displayed in the panel P2. Fill the name, select custom attributes from the list and set the main attribute (one of the selected attributes). Save the editor. New enumerator is displayed in the panel P1 - in the list of enumerators.



Name: MANUFACTURER

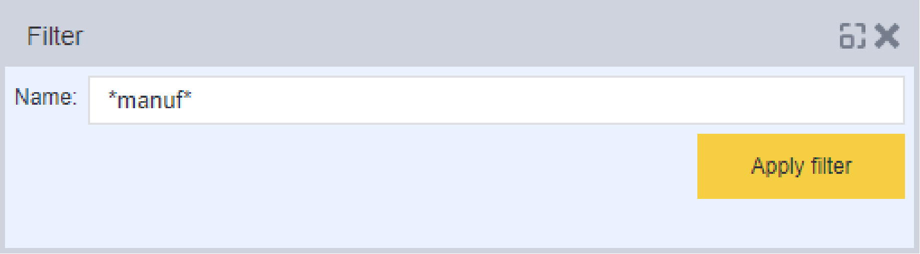
Custom attributes: SERVICE_CUSTOMER_ACCOUNT, SERVICE_CUSTOMER_NAME

Description:

Expression:

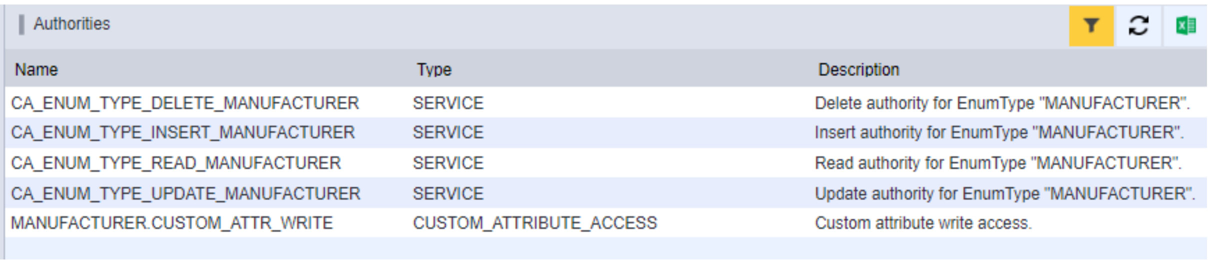
The next step is adding a right for that dial. Switch to Groups and roles.

In the P2 Permissions panel, we search for the created Dial. You can use the filter icon to find it.



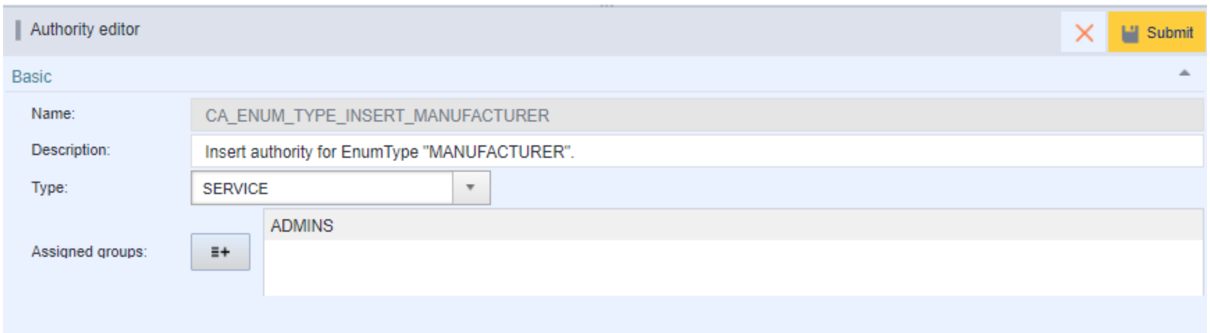
Name: *manuf*

The searched records are displayed.



Name	Type	Description
CA_ENUM_TYPE_DELETE_MANUFACTURER	SERVICE	Delete authority for EnumType "MANUFACTURER".
CA_ENUM_TYPE_INSERT_MANUFACTURER	SERVICE	Insert authority for EnumType "MANUFACTURER".
CA_ENUM_TYPE_READ_MANUFACTURER	SERVICE	Read authority for EnumType "MANUFACTURER".
CA_ENUM_TYPE_UPDATE_MANUFACTURER	SERVICE	Update authority for EnumType "MANUFACTURER".
MANUFACTURER.CUSTOM_ATTR_WRITE	CUSTOM_ATTRIBUTE_ACCESS	Custom attribute write access.

You must assign rights to, for example, ADMIN users for each item of the retrieved record.



Name: CA_ENUM_TYPE_INSERT_MANUFACTURER

Description: Insert authority for EnumType "MANUFACTURER".

Type: SERVICE

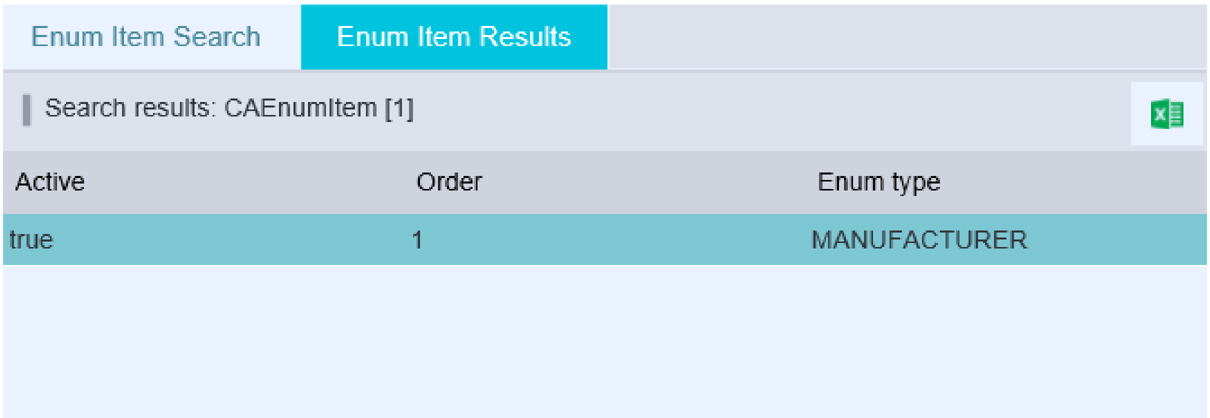
Assigned groups: ADMINS

In the Permission Editor, we assign each item to the ADMIN user. After each assignment we put Save.

For the assigned rights to take effect, we must unregister and re-subscribe from CROSS.

On the Search tab in the code list, select the CAEnumItem object class and the MANUFACTURER dial type.

We will look up. The searched records are displayed in the Found tab values tab.



Search results: CAEnumItem [1]

Active	Order	Enum type
true	1	MANUFACTURER

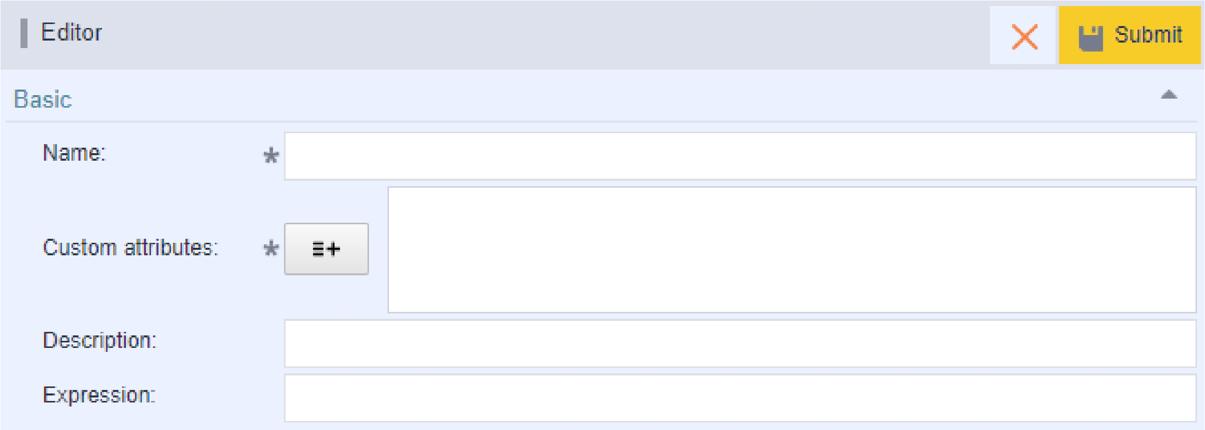
Adding an item to the enumerator

In the bookmark Enumerators in the panel P1, select an enumerator to which you want to insert a new value. Selected enumerator is highlighted in blue and its records are loaded into the editor. Switch to the bookmark Enumerator items, right-click in the panel and select New enumerator item. Fill the fields in the editor and save it. Items in the editor are various according to an enumerator type and the selected custom attributes.

Deleting an enumerator

Click on an entry in the P1 panel that you want to delete. Select Delete enumerator. You will be asked whether you want to delete the record. Select OK. The record is deleted.

3.1.7.2. P2 - Editor



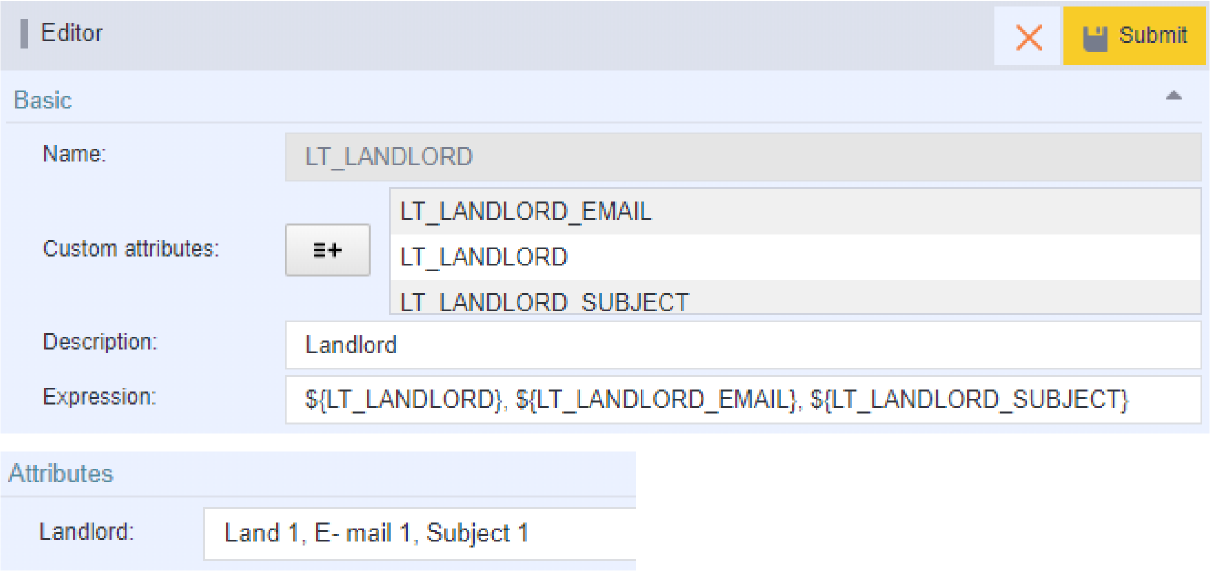
Name – the name of the Enumerator

Custom attributes – select which custom attributes you want to see in this enumerator

Description – some note explaining the purpose of this enumerator

Expression – definition of which custom attribute in which order are displayed in the attribute

- Format is ${CANAME} where CANAME is the name of selected custom attribute, multiple items can be put next each other separated by a space and an optional comma for better looks



Name: LT_LANDLORD

Custom attributes: LT_LANDLORD_EMAIL, LT_LANDLORD, LT_LANDLORD_SUBJECT

Description: Landlord

Expression: ${LT_LANDLORD}, ${LT_LANDLORD_EMAIL}, ${LT_LANDLORD_SUBJECT}

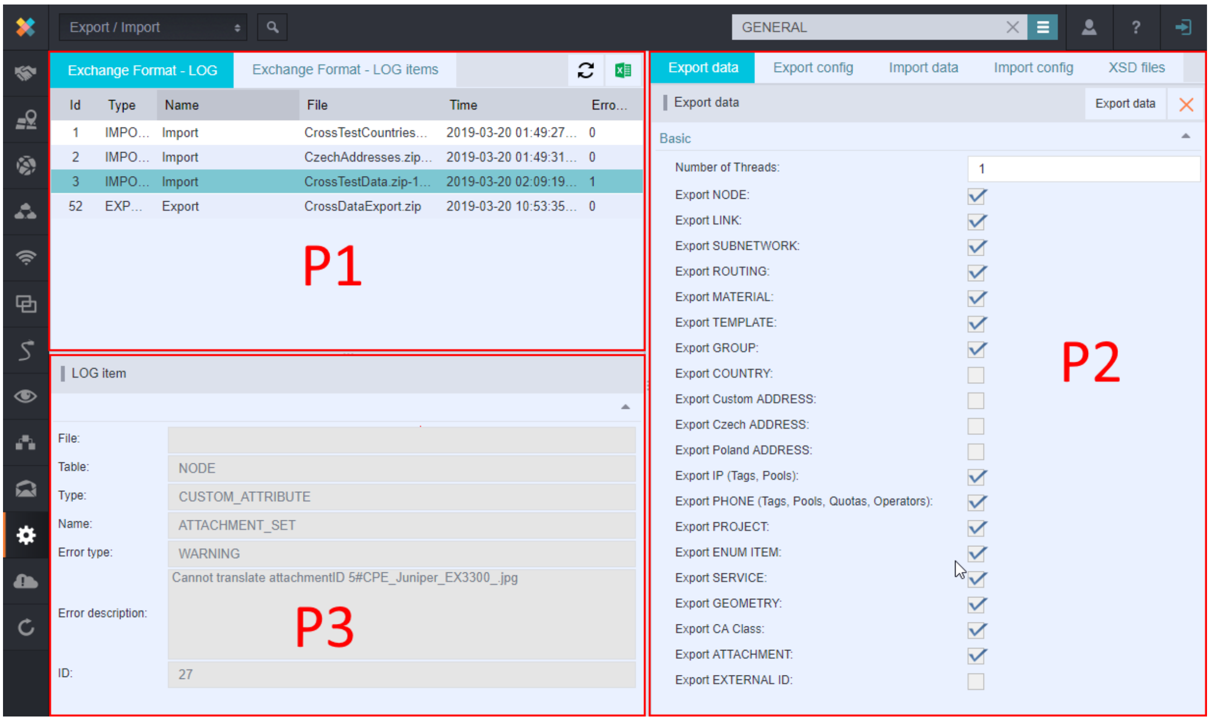
Landlord: Land 1, E- mail 1, Subject 1

3.1.8. Export / Import

This tool serves for exporting and importing data and configurations from and to the application. Data exchange format is in the XML structure.

Window contains two panels.

- P1 - Panel with bookmarks Exchange format - LOG, Exchange format - LOG items
- P2 - Panel with bookmarks Export data, Export configuration, Import configuration, XSD files
- P3 - LOG item


Export / Import
GENERAL
Exchange Format - LOG
Exchange Format - LOG items
P1
P2
P3
Export data
Export config
Import data
Import config
XSD files
Export data
Basic

Id	Type	Name	File	Time	Erro...
1	IMPO...	Import	CrossTestCountries...	2019-03-20 01:49:27...	0
2	IMPO...	Import	CzechAddresses.zip...	2019-03-20 01:49:31...	0
3	IMPO...	Import	CrossTestData.zip-1...	2019-03-20 02:09:19...	1
52	EXP...	Export	CrossDataExport.zip	2019-03-20 10:53:35...	0

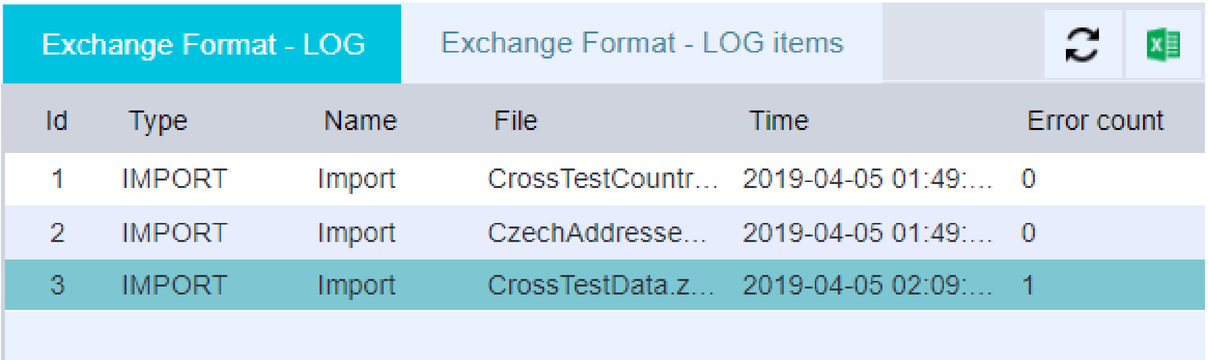
LOG item

File:
Table: NODE
Type: CUSTOM_ATTRIBUTE
Name: ATTACHMENT_SET
Error type: WARNING
Error description: Cannot translate attachmentID 5#CPE_Juniper_EX3300_.jpg
ID: 27

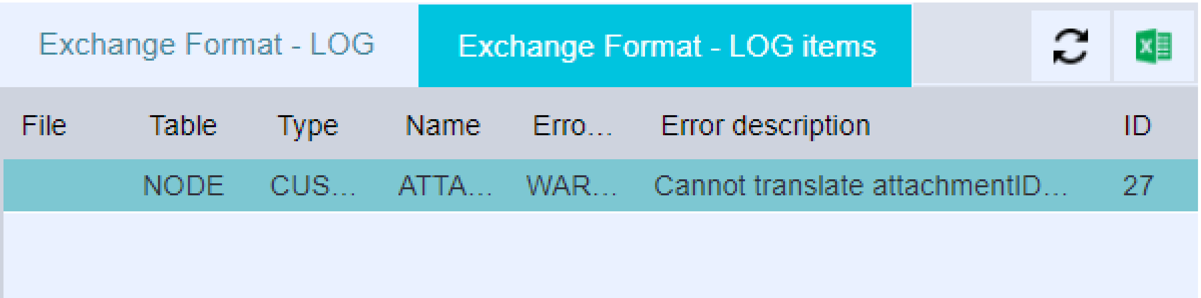
Export data

Number of Threads: 1
Export NODE: ☑
Export LINK: ☑
Export SUBNETWORK: ☑
Export ROUTING: ☑
Export MATERIAL: ☑
Export TEMPLATE: ☑
Export GROUP: ☑
Export COUNTRY: ☐
Export Custom ADDRESS: ☐
Export Czech ADDRESS: ☐
Export Poland ADDRESS: ☐
Export IP (Tags, Pools): ☑
Export PHONE (Tags, Pools, Quotas, Operators): ☑
Export PROJECT: ☑
Export ENUM ITEM: ☑
Export SERVICE: ☑
Export GEOMETRY: ☑
Export CA Class: ☑
Export ATTACHMENT: ☑
Export EXTERNAL ID: ☐

3.1.8.1. P1 - Panel with bookmarks Exchange format - LOG, Exchange format - LOG items


Exchange Format - LOG
Exchange Format - LOG items

Id	Type	Name	File	Time	Error count
1	IMPORT	Import	CrossTestCountr...	2019-04-05 01:49:...	0
2	IMPORT	Import	CzechAddresse...	2019-04-05 01:49:...	0
3	IMPORT	Import	CrossTestData.z...	2019-04-05 02:09:...	1


Exchange Format - LOG
Exchange Format - LOG items

File	Table	Type	Name	Erro...	Error description	ID
	NODE	CUS...	ATTA...	WAR...	Cannot translate attachmentID...	27

3.1.8.2. P2 - Panel with bookmarks Export data, Export configuration, Import configuration, XSD files

Data export

Enables you to export chosen object types.

Configuration export

Enables you to select and export chosen configurations.

Data import

Tool for data import from XML file.

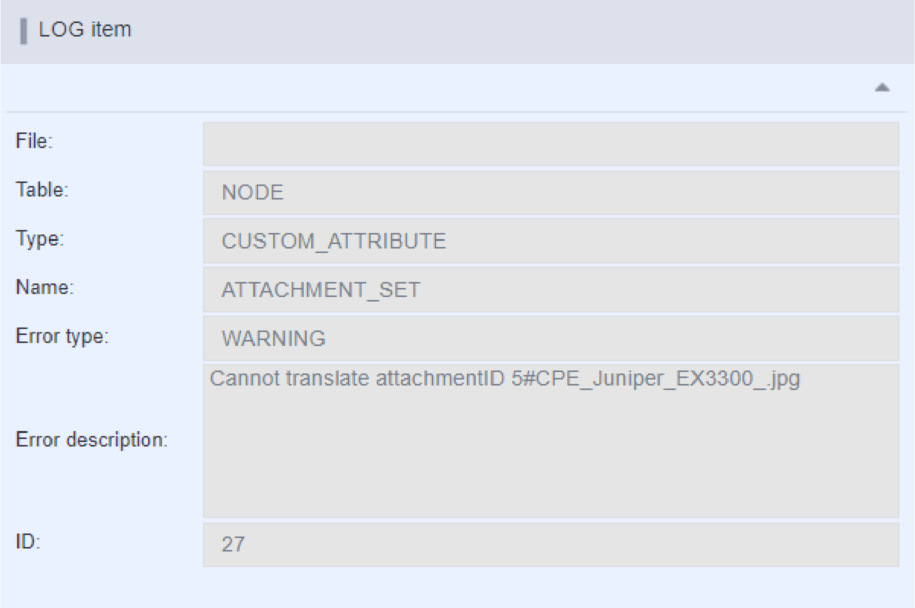
Configuration import

Tool for configuration import from input XML file.

XSD files

Enables you to export XSD files that define structure of export / import XML files.

3.1.8.3. P3 - LOG item



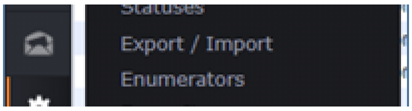
LOG item

File:
Table: NODE
Type: CUSTOM_ATTRIBUTE
Name: ATTACHMENT_SET
Error type: WARNING
Error description: Cannot translate attachmentID 5#CPE_Juniper_EX3300_.jpg
ID: 27

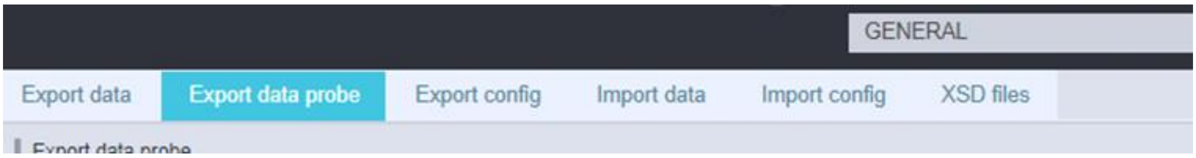
Export to the Universal probe format from the GUI

You are now able to export data to XML for later importing by the universal probe import. In the module configuration

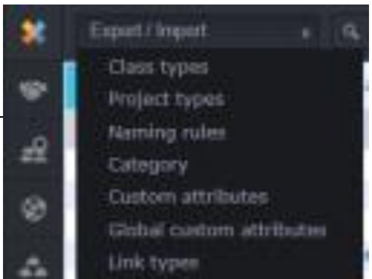
Click on Export/Import

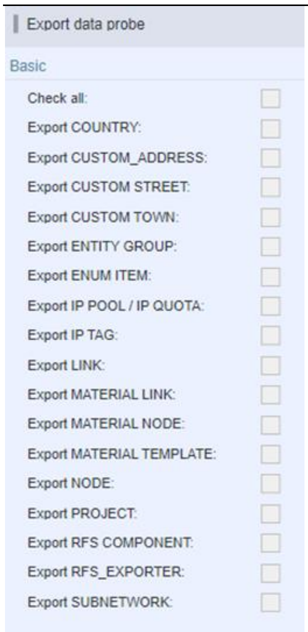

Statuses
Export / Import
Enumerators

Click on the tab Export data probe in the right widget


GENERAL
Export data
Export data probe
Export config
Import data
Import config
XSD files
Export data probe

You can select all possibilities by the first checkbox or choose object types individually.


Export / Import
Class types
Project types
Naming rules
Category
Custom attributes
Global custom attributes
Link types

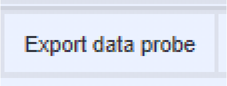


Export data probe

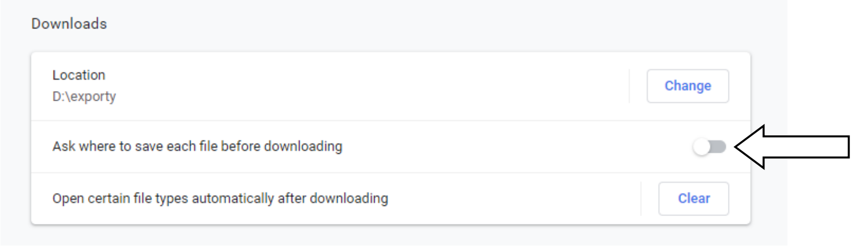
Basic

Check all: ☐
Export COUNTRY: ☐
Export CUSTOM_ADDRESS: ☐
Export CUSTOM STREET: ☐
Export CUSTOM TOWN: ☐
Export ENTITY GROUP: ☐
Export ENUM ITEM: ☐
Export IP POOL / IP QUOTA: ☐
Export IP TAG: ☐
Export LINK: ☐
Export MATERIAL LINK: ☐
Export MATERIAL NODE: ☐
Export MATERIAL TEMPLATE: ☐
Export NODE: ☐
Export PROJECT: ☐
Export RFS COMPONENT: ☐
Export RFS_EXPORTER: ☐
Export SUBNETWORK: ☐

Then click on the button „Export data probe“



Be sure that you have set the downloading from the chrome without asking.
See chrome settings – Downloads



Downloads

Location
D:\exporty

Ask where to save each file before downloading

Open certain file types automatically after downloading

The xml will be downloaded

References on other objects

- country is referenced by code by default. All country references were changed this way: from address, from town and from CA countr
- SubnetworkType from Subnetwork is referenced by name
- CAEnumType from CAEnumItem is referenced by name
- Radio CA are not exported by default

All other objects are referenced by CROSS ID

3.1.9. Global custom attributes

Global custom attributes are custom attributes defined by a user, but they apply to the whole entity - table.

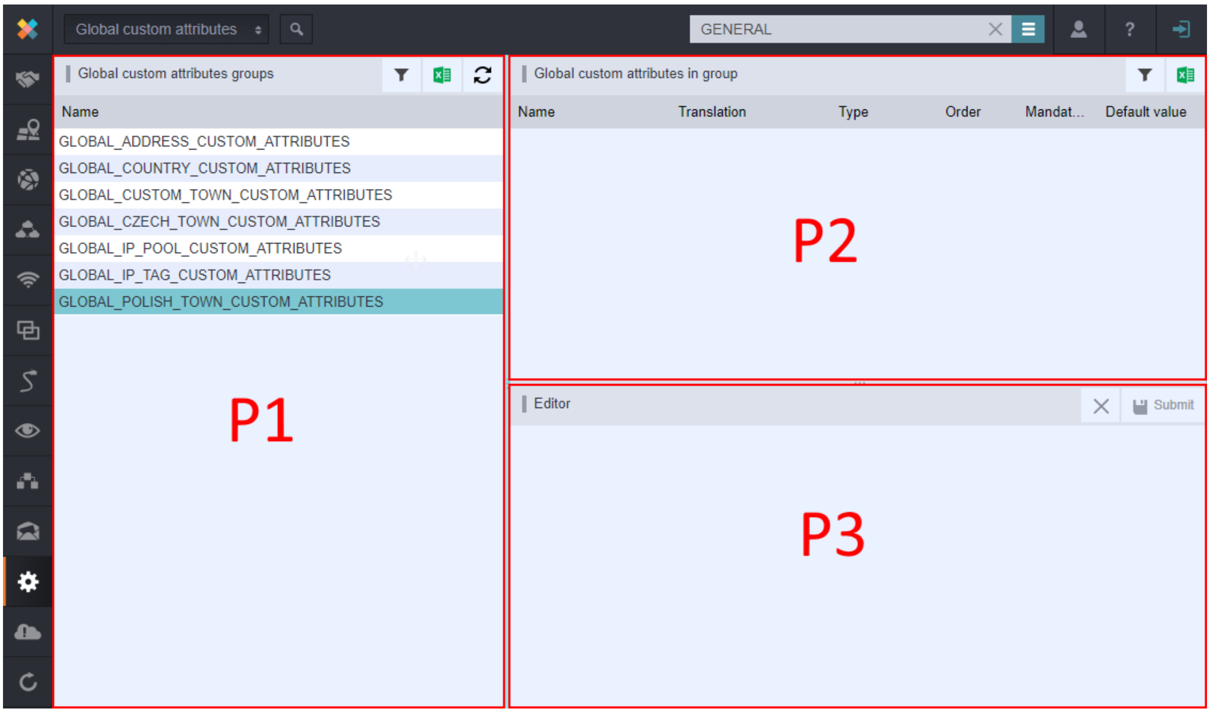
WARNING: Modifying Global custom attributes settings may result in instability of application, when performed on application filled with user data.

This section should be accessible by trained/instructed administrators only.

This type of configuration modification is mostly done during project implementation phase. Any further modifications should be done in separate project.

Configuration window of global attributes consists of three panels:

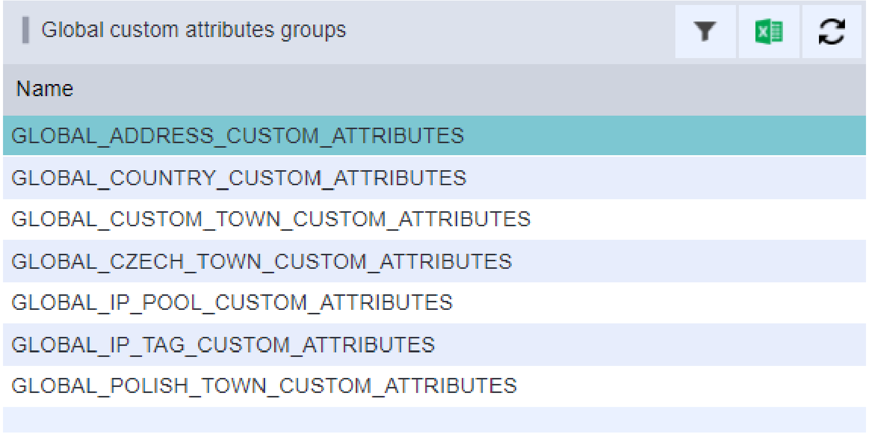
- P1 - Groups of global custom attributes
- P2 - Global attributes in the group
- P3 - Editor


Global custom attributes
GENERAL
Global custom attributes groups
Name
GLOBAL_ADDRESS_CUSTOM_ATTRIBUTES
GLOBAL_COUNTRY_CUSTOM_ATTRIBUTES
GLOBAL_CUSTOM_TOWN_CUSTOM_ATTRIBUTES
GLOBAL_CZECH_TOWN_CUSTOM_ATTRIBUTES
GLOBAL_IP_POOL_CUSTOM_ATTRIBUTES
GLOBAL_IP_TAG_CUSTOM_ATTRIBUTES
GLOBAL_POLISH_TOWN_CUSTOM_ATTRIBUTES
P1
Global custom attributes in group
Name
Translation
Type
Order
Mandat...
Default value
P2
Editor
Submit
P3

3.1.9.1. P1 - Groups of global custom attributes

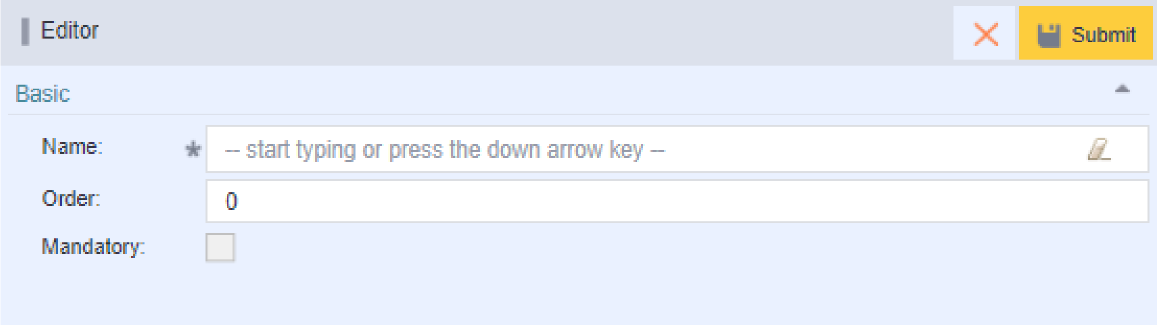
Groups of global custom attributes are implemented into the application - it is not possible to create them. Global custom attributes in the panel P2 can be added to a group by right-clicking to the panel area and selecting the action Add attribute.

3.1.9.2. P2 - Global attributes in the group



Name
GLOBAL_ADDRESS_CUSTOM_ATTRIBUTES
GLOBAL_COUNTRY_CUSTOM_ATTRIBUTES
GLOBAL_CUSTOM_TOWN_CUSTOM_ATTRIBUTES
GLOBAL_CZECH_TOWN_CUSTOM_ATTRIBUTES
GLOBAL_IP_POOL_CUSTOM_ATTRIBUTES
GLOBAL_IP_TAG_CUSTOM_ATTRIBUTES
GLOBAL_POLISH_TOWN_CUSTOM_ATTRIBUTES

3.1.9.3. P3 - Editor



Name: * – start typing or press the down arrow key –

Order: 0

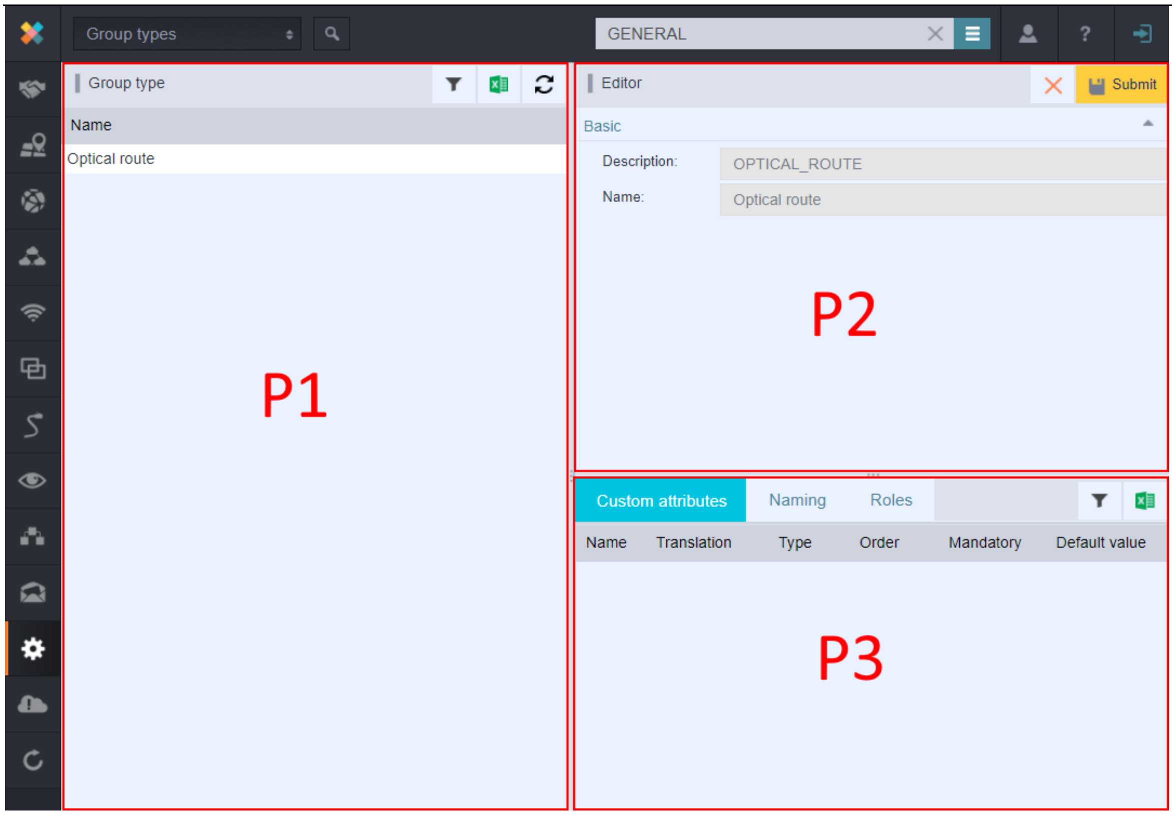
Mandatory: ☐

3.1.10. Group types

This submodule serves for creating new group types that are used for group defining in the module Groups.

The window consists of three panels:

- P1 - Group type
- P1 - Editor
- P3 - Bookmark panel - Custom attributes, Naming rules, Roles


Group types
GENERAL
Group type
Name
Optical route
P1
Editor
Submit
Basic
P2
Custom attributes
Naming
Roles
Name
Translation
Type
Order
Mandatory
Default value
P3

Description: OPTICAL_ROUTE

Name: Optical route

Creating a new group type

Right-click in the panel P1 and select "New group type" from the context menu.

Fill the name and description in the editor in the panel P2.

Add roles in the group.

Created group type can be seen in group structure in the Group module

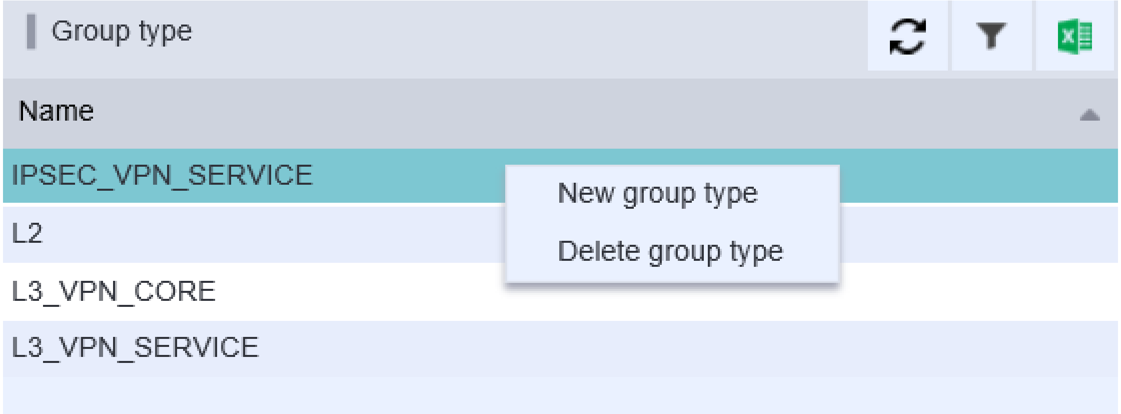
Save the new group type by clicking Confirm

New group type will be displayed in the list in the panel P1.

Group type deleting

Group type deleting - select action Delete group type from the context menu of selected group type. Group type cannot be deleted if a group of this type already exists. When you try to delete such a group type, informative message will appear that statuses Group type is in use and cannot be deleted.

3.1.10.1. P1 - Group type


Group type
Name
New group type
Delete group type

IPSEC_VPN_SERVICE

L2

L3_VPN_CORE

L3_VPN_SERVICE

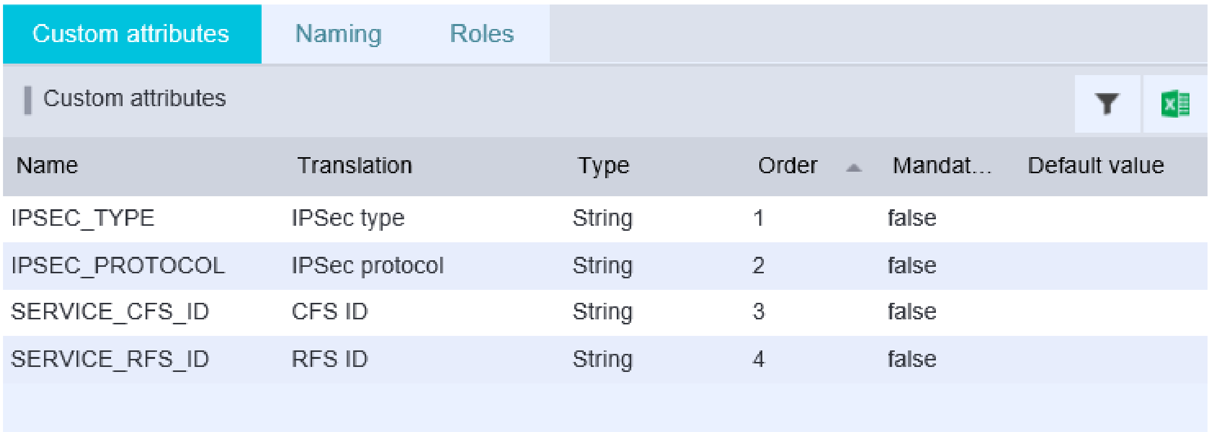
3.1.10.2. P1 - Editor

New group types can me created in the editor.

3.1.10.3. P3 - Bookmark panel - Custom attributes, Naming rules, Roles

Custom attributes

Custom attributes bookmark serves as preview of custom attributes in groups. Custom attributes can be modified in Configuration module, Custom attributes bookmark.



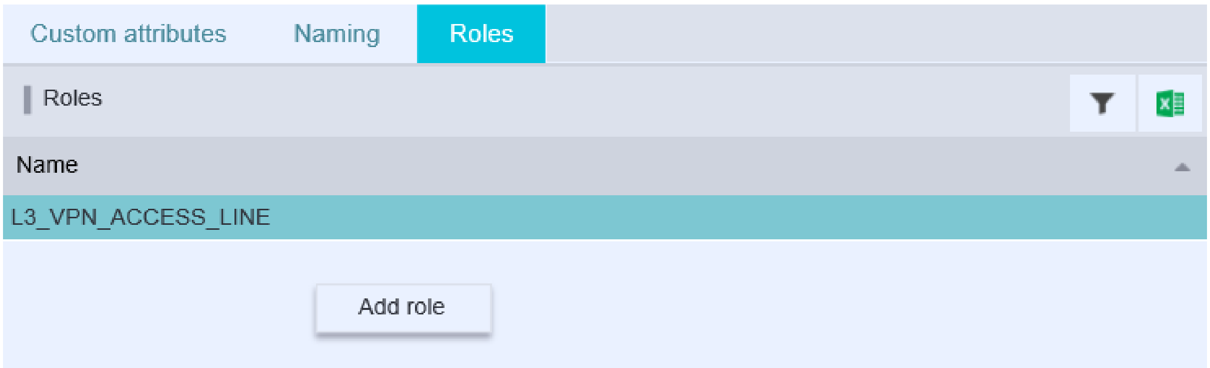
Name	Translation	Type	Order	Mandat...	Default value
IPSEC_TYPE	IPSec type	String	1	false	
IPSEC_PROTOCOL	IPSec protocol	String	2	false	
SERVICE_CFS_ID	CFS ID	String	3	false	
SERVICE_RFS_ID	RFS ID	String	4	false	

Naming rules

Naming rules can be set in Naming bookmark.

Roles

Bookmark Roles serves as preview for roles of each group. Role can be added from the context menu. Fill Name, Type and save by pressing the Submit button.



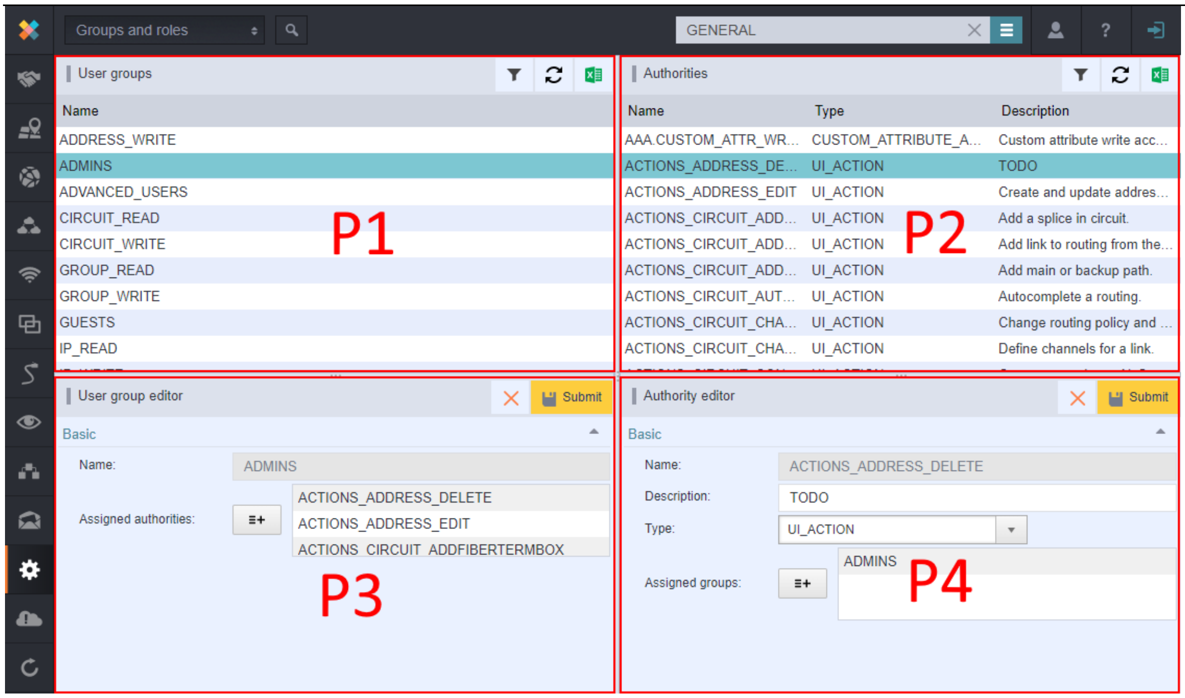
Name
L3_VPN_ACCESS_LINE

3.1.11. Groups and roles

Configuration of user groups and their roles (authorities) allows you to manage access to individual application modules and the way of working with them (read-only, read-write etc.).

The window of Groups and roles is divided into these panels:

- P1 - User groups
- P2 - Authorities
- P3 - User group editor
- P4 - Authority editor


Groups and roles
GENERAL
User groups
Authorities
User group editor
Authority editor
Submit
Submit
Basic
Basic
P1
P2
P3
P4

Name
ADDRESS_WRITE
ADMINS
ADVANCED_USERS
CIRCUIT_READ
CIRCUIT_WRITE
GROUP_READ
GROUP_WRITE
GUESTS
IP_READ

Name	Type	Description
AAA.CUSTOM_ATTR_WR...	CUSTOM_ATTRIBUTE_A...	Custom attribute write acc...
ACTIONS_ADDRESS_DE...	UI_ACTION	TODO
ACTIONS_ADDRESS_EDIT	UI_ACTION	Create and update addres...
ACTIONS_CIRCUIT_ADD...	UI_ACTION	Add a splice in circuit.
ACTIONS_CIRCUIT_ADD...	UI_ACTION	Add link to routing from the...
ACTIONS_CIRCUIT_ADD...	UI_ACTION	Add main or backup path.
ACTIONS_CIRCUIT_AUT...	UI_ACTION	Autocomplete a routing.
ACTIONS_CIRCUIT_CHA...	UI_ACTION	Change routing policy and ...
ACTIONS_CIRCUIT_CHA...	UI_ACTION	Define channels for a link.

Name: ADMINS

Assigned authorities:
ACTIONS_ADDRESS_DELETE
ACTIONS_ADDRESS_EDIT
ACTIONS_CIRCUIT_ADDFIBERTERMBOX

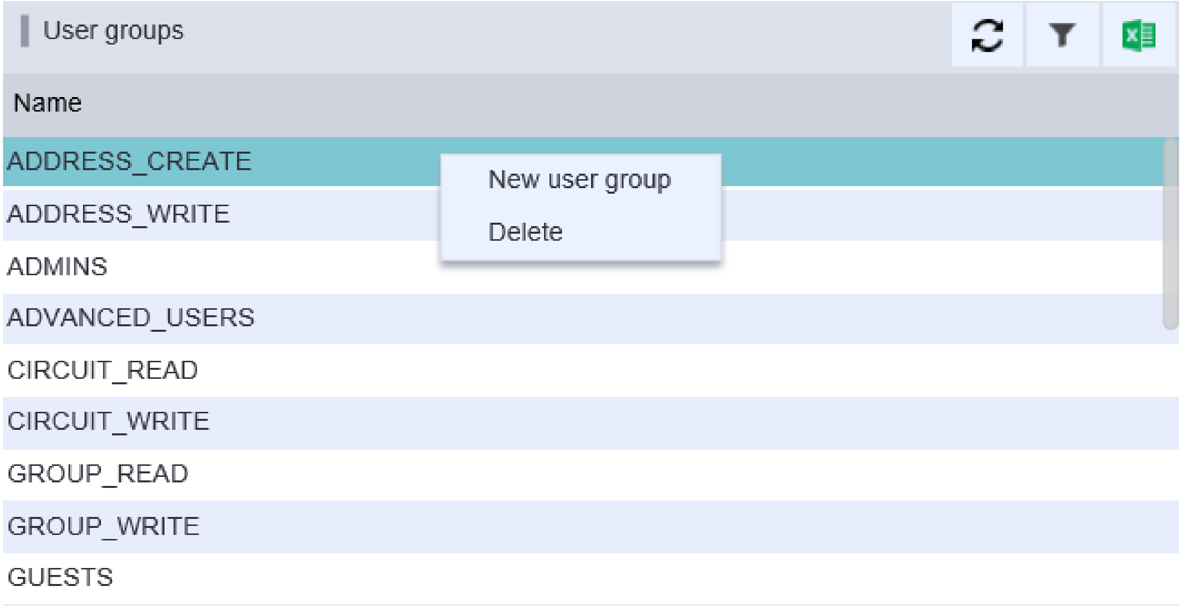
Name: ACTIONS_ADDRESS_DELETE

Description: TODO

Type: UI_ACTION

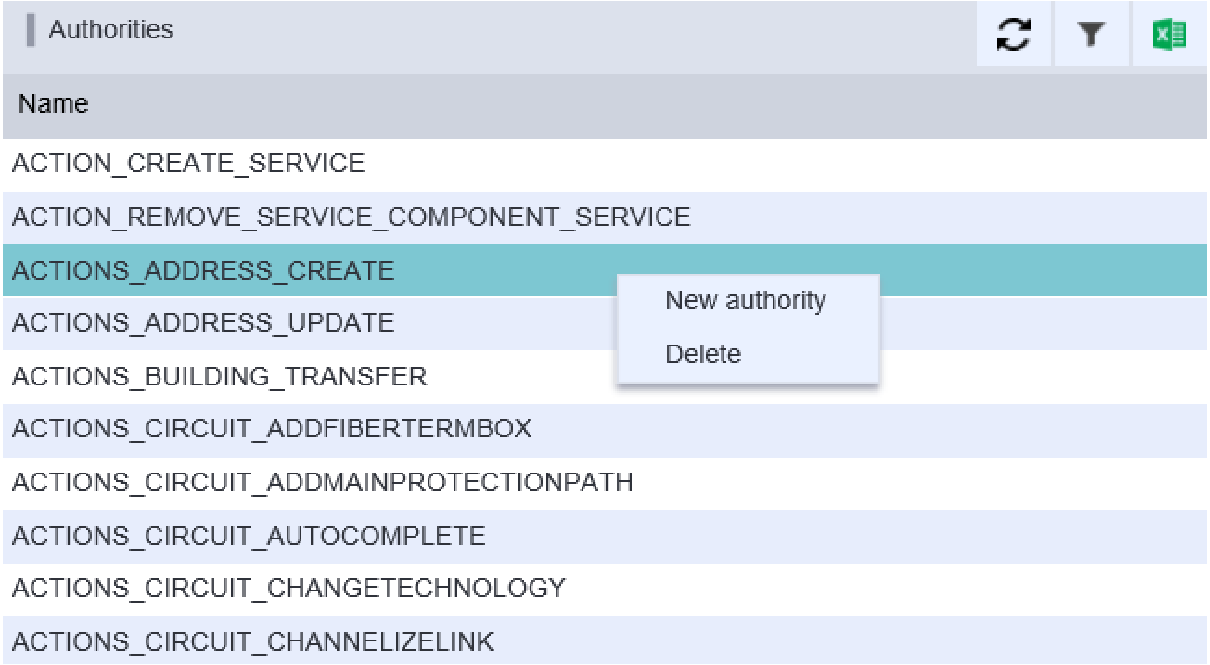
Assigned groups:
ADMINS

3.1.11.1. P1 - User groups


User groups
New user group
Delete

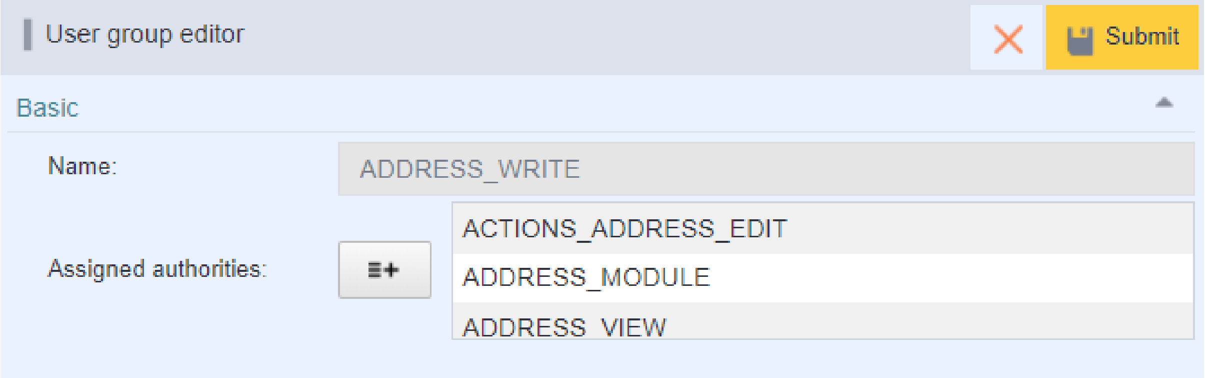
Name
ADDRESS_CREATE
ADDRESS_WRITE
ADMINS
ADVANCED_USERS
CIRCUIT_READ
CIRCUIT_WRITE
GROUP_READ
GROUP_WRITE
GUESTS

3.1.11.2. P2 - Authorities


Authorities
New authority
Delete

Name
ACTION_CREATE_SERVICE
ACTION_REMOVE_SERVICE_COMPONENT_SERVICE
ACTIONS_ADDRESS_CREATE
ACTIONS_ADDRESS_UPDATE
ACTIONS_BUILDING_TRANSFER
ACTIONS_CIRCUIT_ADDFIBERTERMBOX
ACTIONS_CIRCUIT_ADDMAINPROTECTIONPATH
ACTIONS_CIRCUIT_AUTOCOMPLETE
ACTIONS_CIRCUIT_CHANGETECHNOLOGY
ACTIONS_CIRCUIT_CHANNELIZELINK

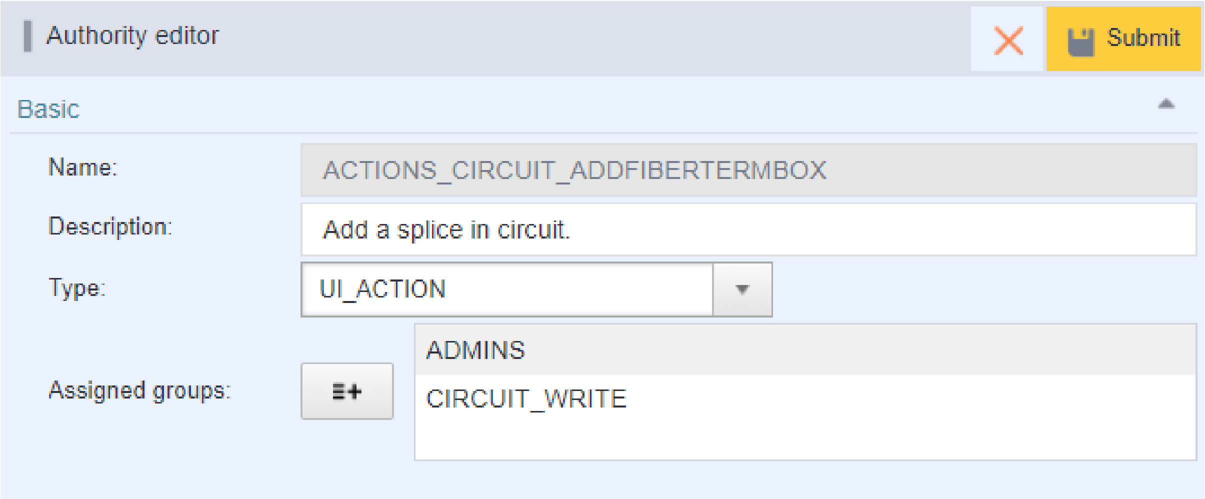
3.1.11.3. P3 - User group editor


User group editor
Submit
Basic

Name: ADDRESS_WRITE

Assigned authorities:
- ACTIONS_ADDRESS_EDIT
- ADDRESS_MODULE
- ADDRESS_VIEW

3.1.11.4. P4 - Authority editor


Authority editor
Submit
Basic

Name: ACTIONS_CIRCUIT_ADDFIBERTERMBOX

Description: Add a splice in circuit.

Type: UI_ACTION

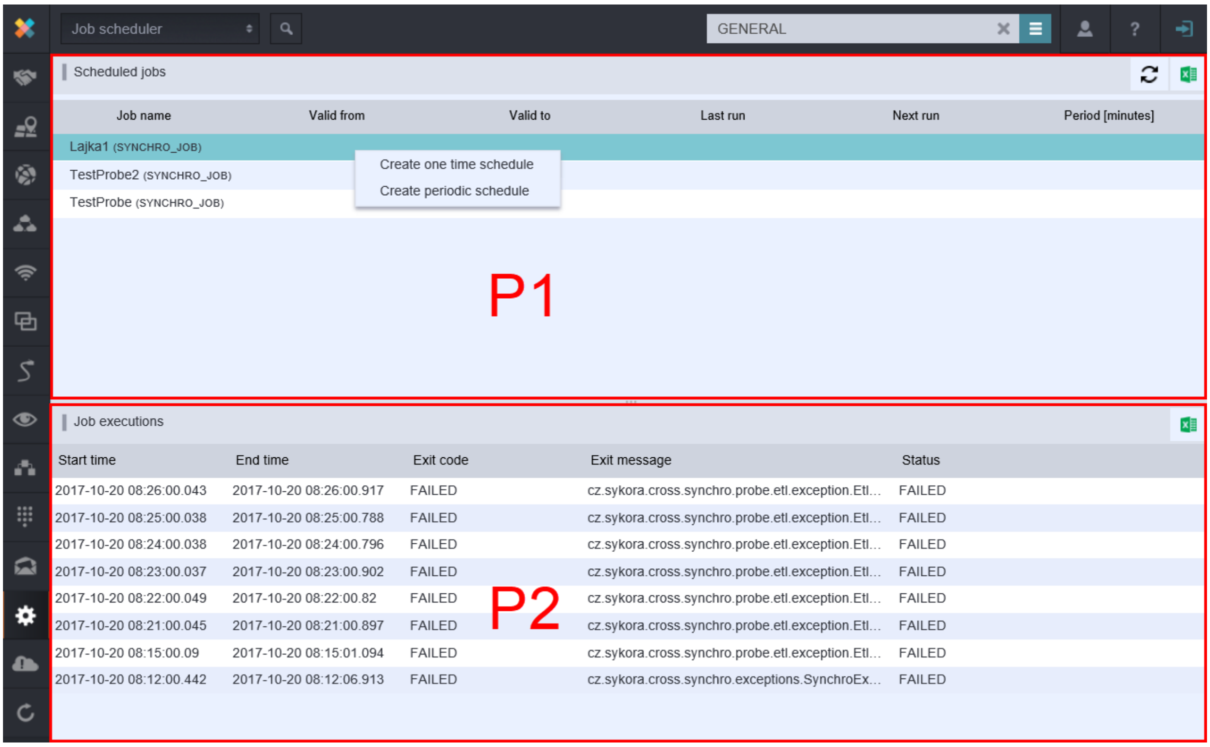
Assigned groups:
- ADMINS
- CIRCUIT_WRITE

3.1.12. Job scheduler

This submodule serves for planned running of preconfigured jobs and probes.

The window of the submodule Job scheduler is divided into two panels

- P1 - Scheduled jobs
- P2 - Job executions



Scheduled jobs

Job name	Valid from	Valid to	Last run	Next run	Period [minutes]
Lajka1 (SYNCHRO_JOB)					
TestProbe2 (SYNCHRO_JOB)					
TestProbe (SYNCHRO_JOB)					

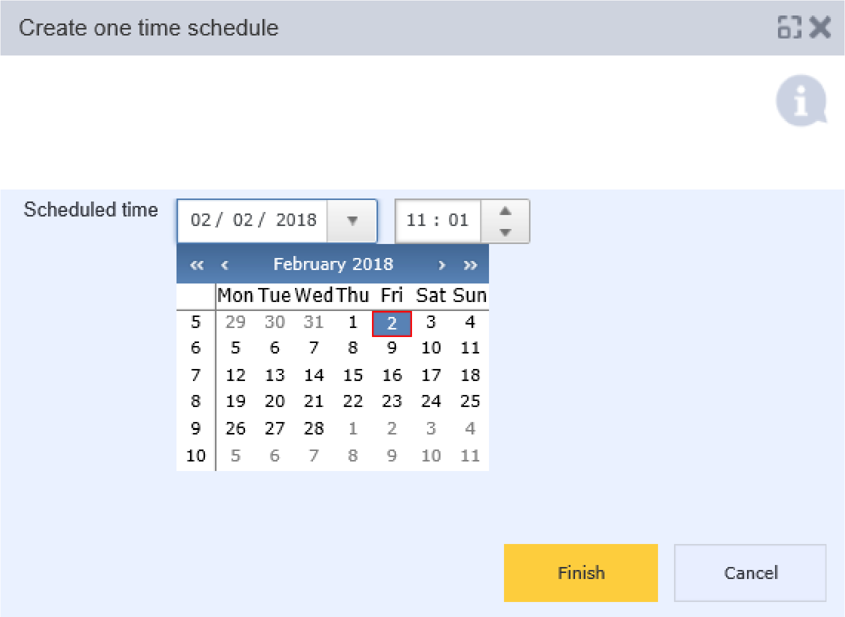
Job executions

Start time	End time	Exit code	Exit message	Status
2017-10-20 08:26:00.043	2017-10-20 08:26:00.917	FAILED	cz.sykora.cross.synchro.probe.etl.exception.Etl...	FAILED
2017-10-20 08:25:00.038	2017-10-20 08:25:00.788	FAILED	cz.sykora.cross.synchro.probe.etl.exception.Etl...	FAILED
2017-10-20 08:24:00.038	2017-10-20 08:24:00.796	FAILED	cz.sykora.cross.synchro.probe.etl.exception.Etl...	FAILED
2017-10-20 08:23:00.037	2017-10-20 08:23:00.902	FAILED	cz.sykora.cross.synchro.probe.etl.exception.Etl...	FAILED
2017-10-20 08:22:00.049	2017-10-20 08:22:00.82	FAILED	cz.sykora.cross.synchro.probe.etl.exception.Etl...	FAILED
2017-10-20 08:21:00.045	2017-10-20 08:21:00.897	FAILED	cz.sykora.cross.synchro.probe.etl.exception.Etl...	FAILED
2017-10-20 08:15:00.09	2017-10-20 08:15:01.094	FAILED	cz.sykora.cross.synchro.probe.etl.exception.Etl...	FAILED
2017-10-20 08:12:00.442	2017-10-20 08:12:06.913	FAILED	cz.sykora.cross.synchro.exceptions.SynchroEx...	FAILED

3.1.12.1. P1 - Scheduled jobs

From the context menu on an entry we can run two actions:

Create one time schedule

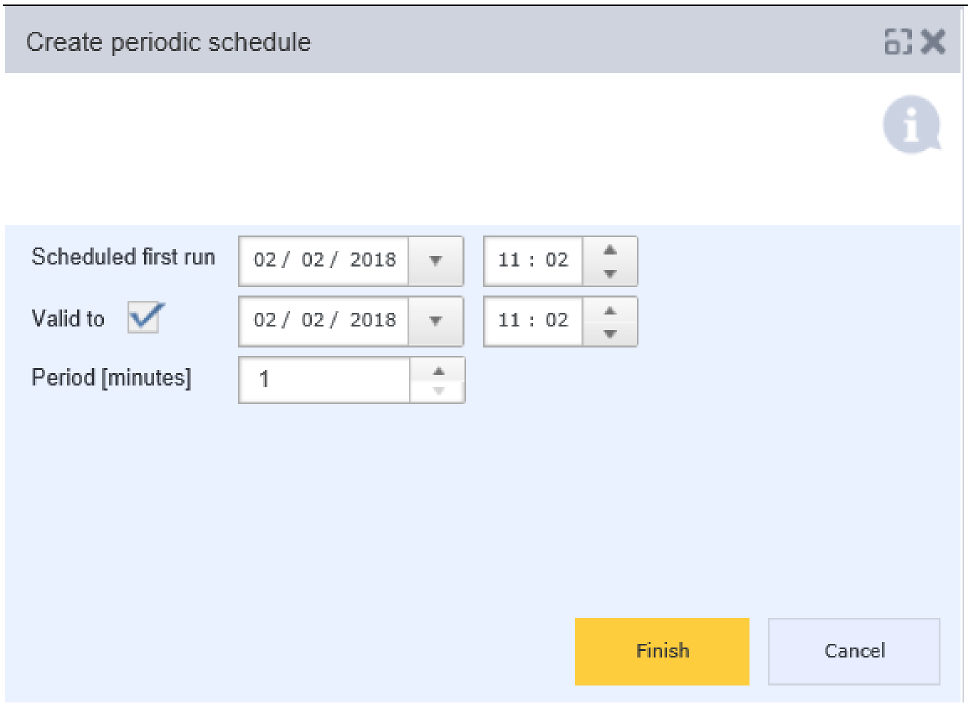


Scheduled time: 02 / 02 / 2018 11 : 01

February 2018

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
5	29	30	31	1	2	3	4
6	5	6	7	8	9	10	11
7	12	13	14	15	16	17	18
8	19	20	21	22	23	24	25
9	26	27	28	1	2	3	4
10	5	6	7	8	9	10	11

Create periodic schedule



Create periodic schedule

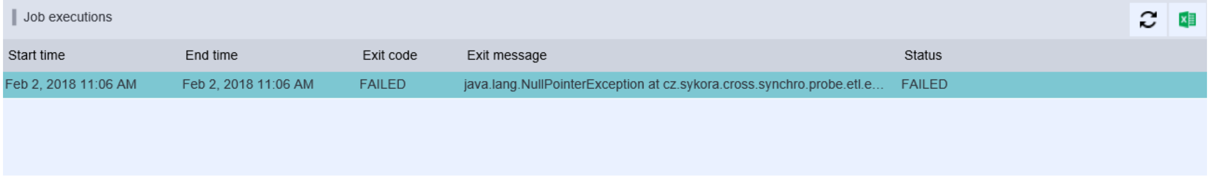
Scheduled first run 02 / 02 / 2018 11 : 02

Valid to ☑ 02 / 02 / 2018 11 : 02

Period [minutes] 1

3.1.12.2. P2 - Job executions

Job executions panel displays the start and end of the completed job. It will also appear exit code exit message a status.



Job executions

Start time	End time	Exit code	Exit message	Status
Feb 2, 2018 11:06 AM	Feb 2, 2018 11:06 AM	FAILED	java.lang.NullPointerException at cz.sykora.cross.synchro.probe.etl.e...	FAILED

3.1.12.2.1 Preconfigured jobs

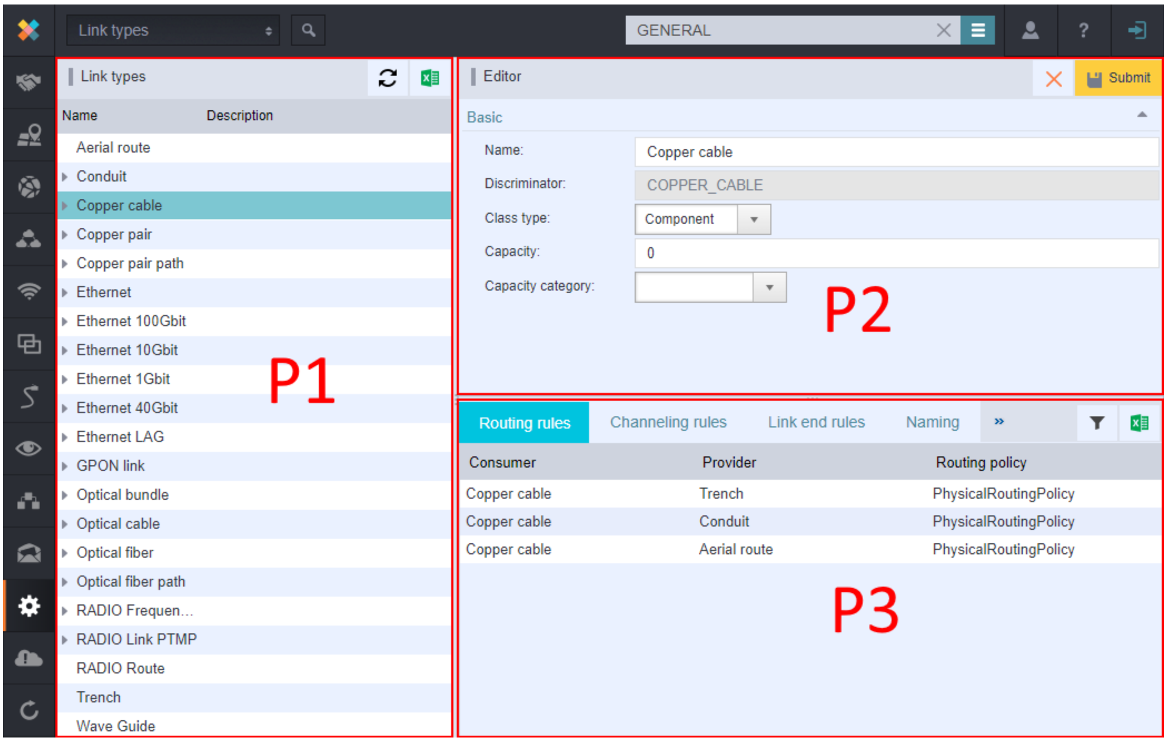
In the version 3.1 there are three preconfigured jobs. Other will appear when a new Probe is created.

a) FIBRE_TRACING_DATA_REFRESH - scheduled preparation of cached data for fiber tracing
b) STORAGE_ENGINE_CLEANUP - This job periodically deletes unused files, because files couldn’t be deleted from AttachmentField in version 3.0. But attachments version 3.1 are now created by createDetachedAttachment and are present throughout CaSet.
c) TRACING_LAYER_REFRESH - scheduled preparation of cached data for tracing

3.1.13. Link types

Configuration window of link types contains three panels:

- P1 - Link types
- P2 - Editor
- P3 - Link type rules



Name	Description
Aerial route	
Conduit	
Copper cable	
Copper pair	
Copper pair path	
Ethernet	
Ethernet 100Gbit	
Ethernet 10Gbit	
Ethernet 1Gbit	
Ethernet 40Gbit	
Ethernet LAG	
GPON link	
Optical bundle	
Optical cable	
Optical fiber	
Optical fiber path	
RADIO Frequen...	
RADIO Link PTMP	
RADIO Route	
Trench	
Wave Guide	

Name: Copper cable
Discriminator: COPPER_CABLE
Class type: Component
Capacity: 0
Capacity category:

Consumer	Provider	Routing policy
Copper cable	Trench	PhysicalRoutingPolicy
Copper cable	Conduit	PhysicalRoutingPolicy
Copper cable	Aerial route	PhysicalRoutingPolicy

3.1.13.1. P1 - Link types

This panel displays the list of all link types with a drop-down tree structure according to their providers. Names of link types are in the first column and descriptions of providers are in the second column.

You can perform following actions in this panel:

- Create new link type - right-click anywhere in the list - context menu will be displayed. Select action New link type. In the editor panel, fill in the attributes and save the new link type by clicking Submit.
- Link type editing - select any type from the list and its attributes will be displayed in the panel P2 Editor and in the panel P3 Properties. At system link types, it is possible only to edit its name, all other attributes are not editable. User-defined link types can be edited in all attributes except Discriminator - this field is not editable.
- Deleting a link type - select action Delete from the context menu of selected link type. It is possible to delete only user-defined types. System types cannot be deleted.
- Export to excel - by clicking on this icon in the panel P3 you can export content of an active bookmark.

3.1.13.2. P2 - Editor

Editor serves for inserting and editing attributes of the link types from the panel P1 as well as for their properties (link consumption rules, link end rules, etc.) in the panel P3. Editor contains attributes and their values of currently selected object from the panel P1 or P3.

There are two buttons in the panel:

Cancel ✕ - cancels all attribute changes and sets their latest values.

Submit- saves the currently edited object.

3.1.13.3. P3 - Link type rules

In this panel, you can set configuration of currently selected link type.

This panel contains bookmarks for individual configurations.

- Link type rules
- Link end rules
- Naming
- Attributes
- Material

Link type rules

The list of consumption rules - list of providers, from which the link type can consume, and a consumption method.

It is possible to perform actions from the context menu displayed after right-clicking:

- New consumption rule - fill all attributes defining a new rule in the editor and save it by clicking Submit.
- Delete rule- deletes selected rule.

Link ends rules

Contains the list of rules specifying the possible end nodes for selected link type.

New link end rule - fill all attributes defining a new rule in the editor and save it by clicking Submit.

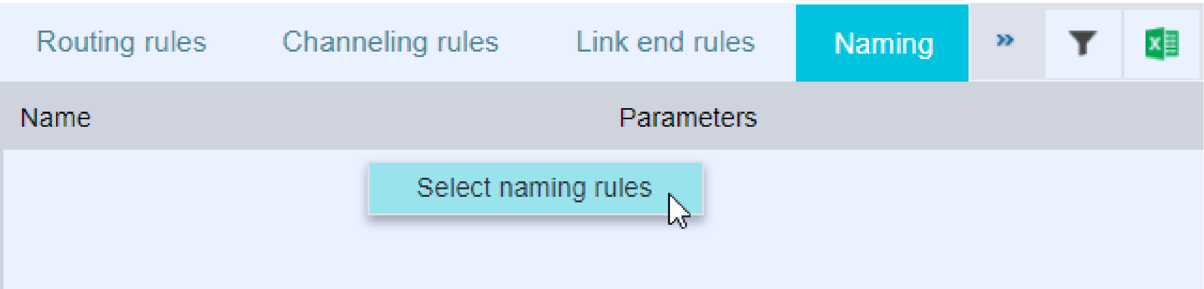
Delete rule - deletes selected rule

Naming

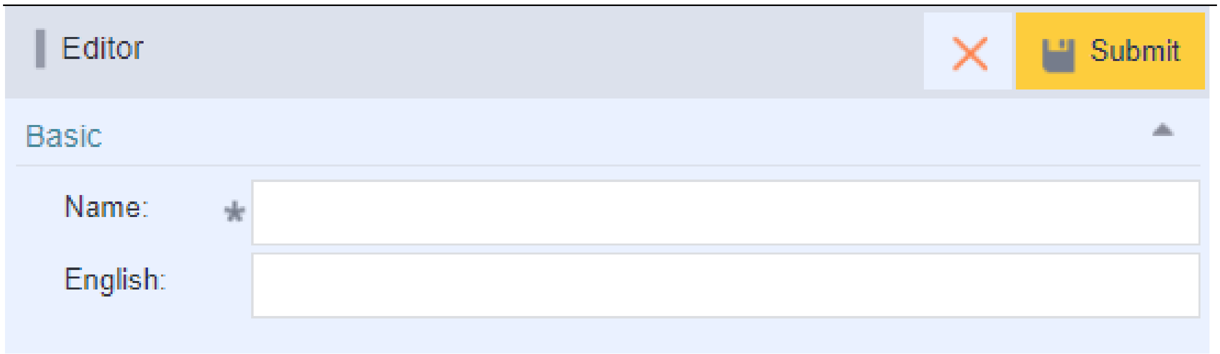
This bookmark contains the list of naming rules for selected link type.

After right click on context menu, select Naming rules.

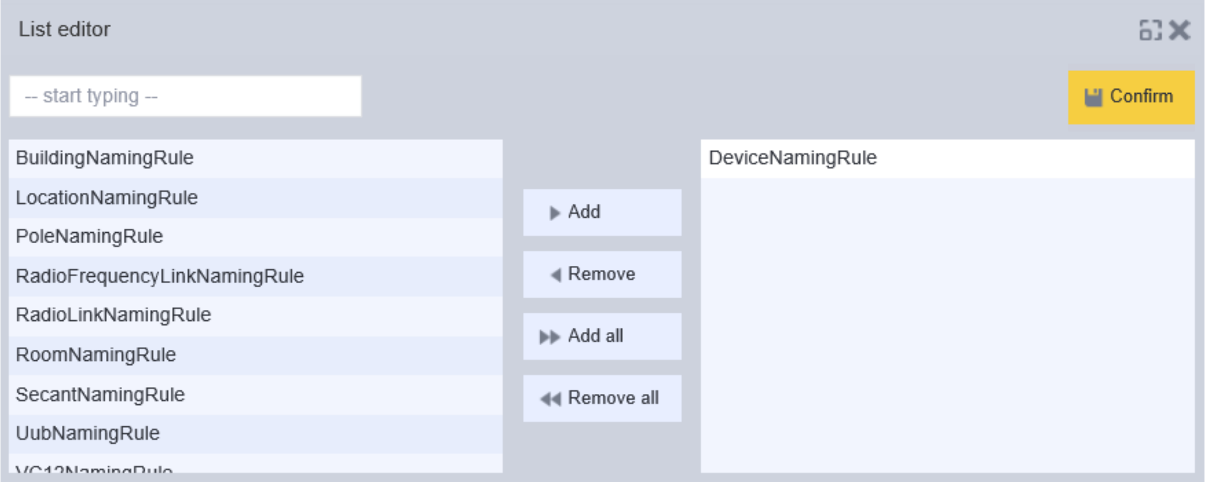
List of currently set rules appears in Editor panel. Select the rule to open the naming rule. Add or remove rules are possible by action in context menu.



In editor select an option Select naming rules.


Editor
Submit
Basic
Name: *
English:

Naming rules for selected link type can be added or removed in this window. Changes will be saved by pressing submit button and confirm button in the Editor.


List editor
-- start typing --
Confirm
BuildingNamingRule
LocationNamingRule
PoleNamingRule
RadioFrequencyLinkNamingRule
RadioLinkNamingRule
RoomNamingRule
SecantNamingRule
UubNamingRule
Add
Remove
Add all
Remove all
DeviceNamingRule

Attributes

This bookmark contains the list of custom link attributes for selected link type.

The list is read-only, new attributes can be defined in Custom attributes configuration.

By selecting an attribute in the list, its properties are displayed in the editor. In this attribute editor, it is possible to assign the attribute to various object types, as well as in custom attribute configuration, see chapter Custom attributes.

Materials

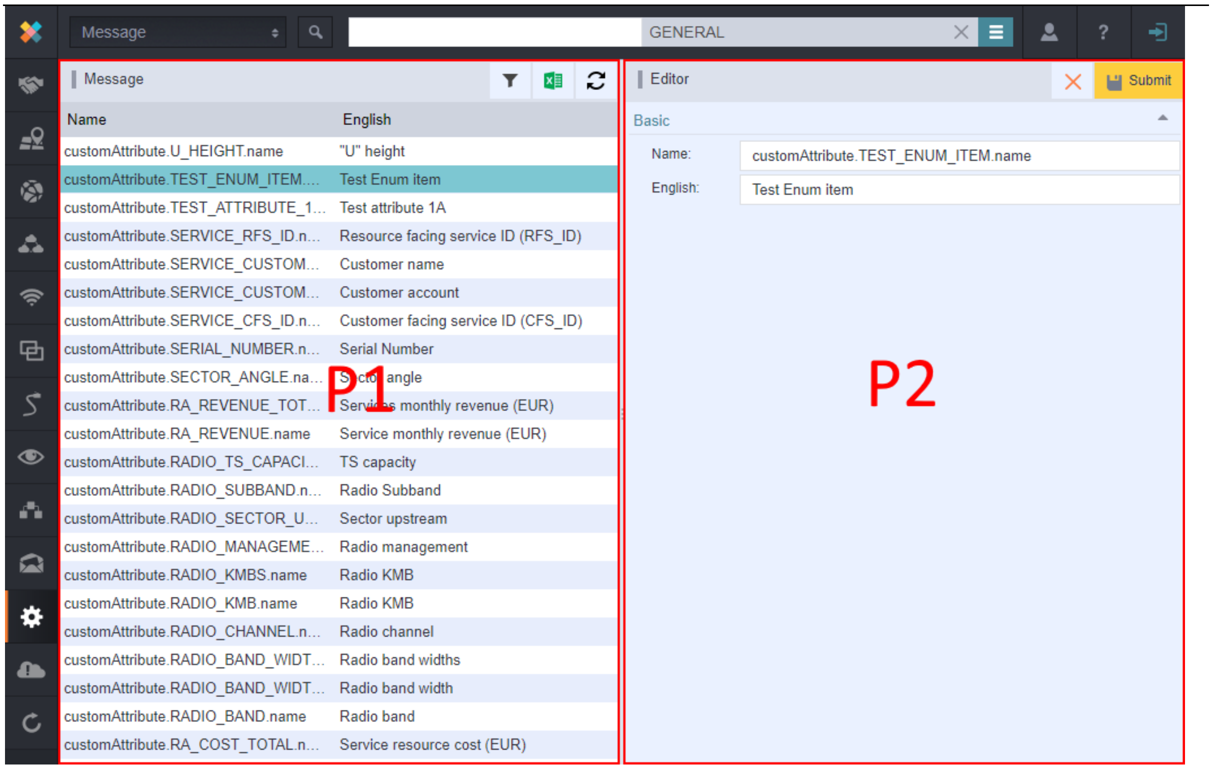
This bookmark contains the list of materials for selected link type.

3.1.14. Message

Message configuration serves for creating names of custom attributes in the editor in two languages - Czech and English. Message configuration window is divided into two panels, Message and Editor. Panel Message contains a list of all defined messages, panel Editor contains a field with Czech and English names for selected attribute.

Message window contains two panels:

- P1 - Message
- P2 - Editor



Name	English
customAttribute.U_HEIGHT.name	"U" height
customAttribute.TEST_ENUM_ITEM....	Test Enum item
customAttribute.TEST_ATTRIBUTE_1...	Test attribute 1A
customAttribute.SERVICE_RFS_ID.n...	Resource facing service ID (RFS_ID)
customAttribute.SERVICE_CUSTOM...	Customer name
customAttribute.SERVICE_CUSTOM...	Customer account
customAttribute.SERVICE_CFS_ID.n...	Customer facing service ID (CFS_ID)
customAttribute.SERIAL_NUMBER.n...	Serial Number
customAttribute.SECTOR_ANGLE.na...	Sector angle
customAttribute.RA_REVENUE_TOT...	Services monthly revenue (EUR)
customAttribute.RA_REVENUE.name	Service monthly revenue (EUR)
customAttribute.RADIO_TS_CAPACI...	TS capacity
customAttribute.RADIO_SUBBAND.n...	Radio Subband
customAttribute.RADIO_SECTOR_U...	Sector upstream
customAttribute.RADIO_MANAGEME...	Radio management
customAttribute.RADIO_KMBS.name	Radio KMB
customAttribute.RADIO_KMB.name	Radio KMB
customAttribute.RADIO_CHANNEL.n...	Radio channel
customAttribute.RADIO_BAND_WIDT...	Radio band widths
customAttribute.RADIO_BAND_WIDT...	Radio band width
customAttribute.RADIO_BAND.name	Radio band
customAttribute.RA_COST_TOTAL.n...	Service resource cost (EUR)

Name: customAttribute.TEST_ENUM_ITEM.name
English: Test Enum item

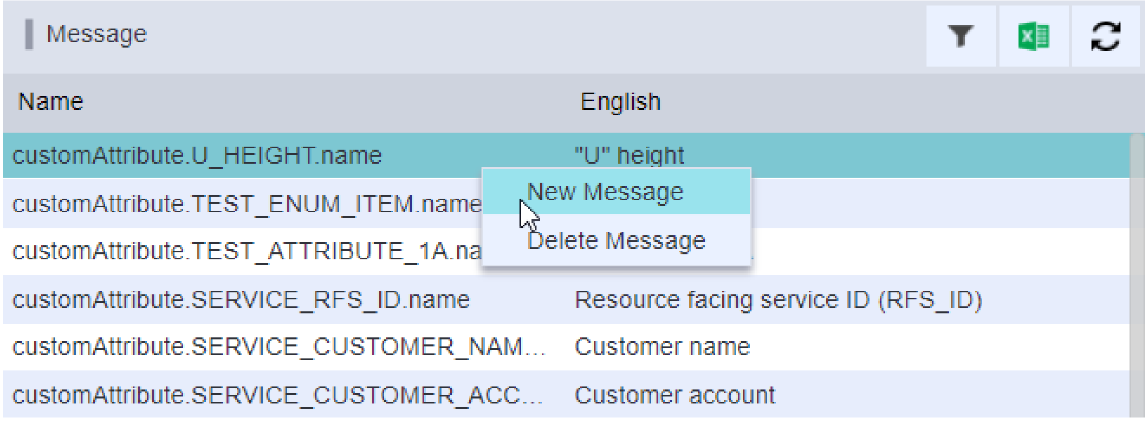
3.1.14.1. P1 - Message

How to assign a name to create attribute

Right-click in the panel Message and select the action New Message

Empty editor for entering Id and Czech and English name is displayed. Type Id and then Czech and English names.

Save the editor.



Name	English
customAttribute.U_HEIGHT.name	"U" height
customAttribute.TEST_ENUM_ITEM.name	
customAttribute.TEST_ATTRIBUTE_1A.na	
customAttribute.SERVICE_RFS_ID.name	Resource facing service ID (RFS_ID)
customAttribute.SERVICE_CUSTOMER_NAM...	Customer name
customAttribute.SERVICE_CUSTOMER_ACC...	Customer account

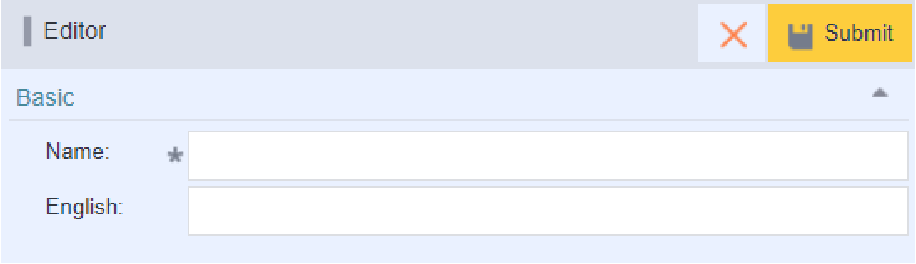
How to delete a message

Right-click in the Message panel and select action Delete Message and the selected Message will be deleted.

3.1.14.2. P2 - Editor

When a new custom attribute is created, its name is saved to the database in this form: customAttribute.NOTE.name New attribute is then displayed in the form ???customAttribute.NOTE.name??? in the editors across the entire application.

It is possible to define Czech and English name for newly created attribute in the configuration editor:

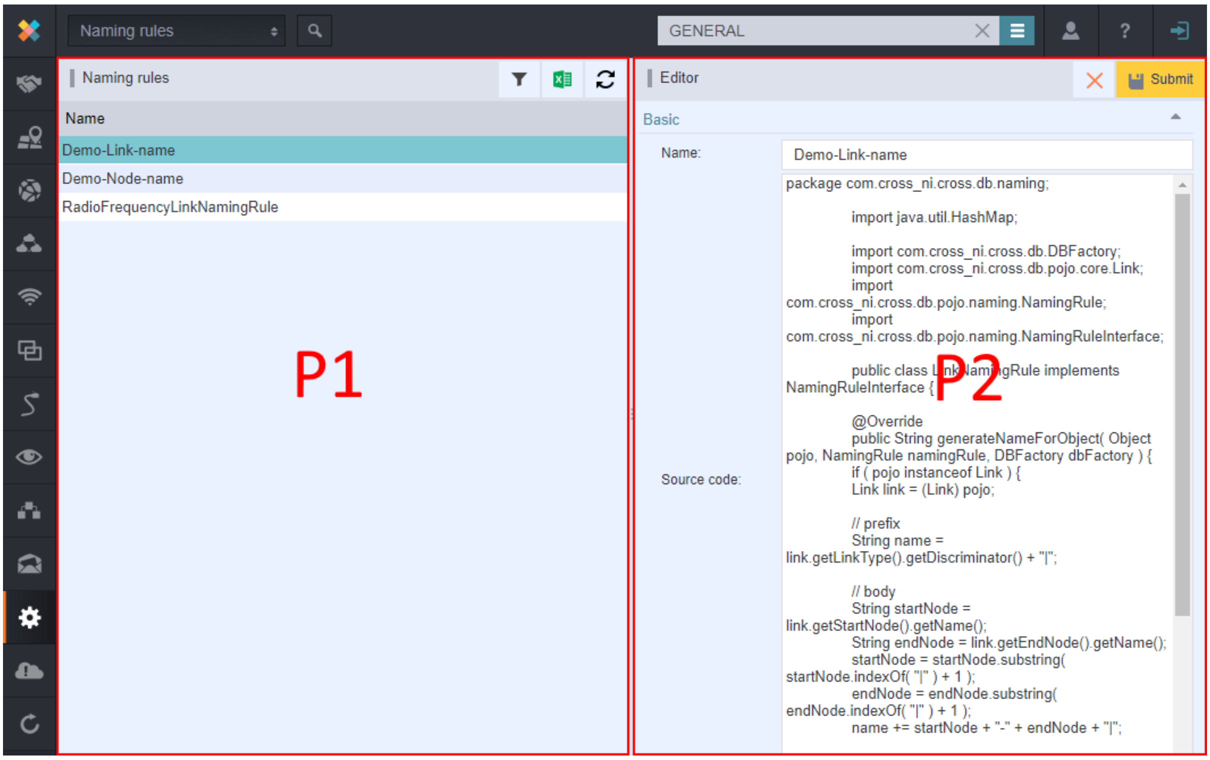


3.1.15. Naming rules

Naming rules define the way in which automatic names of objects (localities, buildings, devices) will be generated. These rules are defined by a method in the JAVA source code.

Naming rule window contains two panels:

- P1 - Naming rules
- P2 - Editor



Demo-Link-name
Demo-Node-name
RadioFrequencyLinkNamingRule

Name: Demo-Link-name

Source code:

```
package com.cross_ni.cross.db.naming;

            import java.util.HashMap;

            import com.cross_ni.cross.db.DBFactory;
            import com.cross_ni.cross.db.pojo.core.Link;
            import
com.cross_ni.cross.db.pojo.naming.NamingRule;
            import
com.cross_ni.cross.db.pojo.naming.NamingRuleInterface;

            public class LinkNamingRule implements
NamingRuleInterface {

            @Override
            public String generateNameForObject( Object
pojo, NamingRule namingRule, DBFactory dbFactory ) {
            if ( pojo instanceof Link ) {
            Link link = (Link) pojo;

            // prefix
            String name =
link.getLinkType().getDiscriminator() + "|";

            // body
            String startNode =
link.getStartNode().getName();
            String endNode = link.getEndNode().getName();
            startNode = startNode.substring(
startNode.indexOf( "|" ) + 1 );
            endNode = endNode.substring(
endNode.indexOf( "|" ) + 1 );
            name += startNode + "-" + endNode + "|";
```

3.1.15.1. P1 - Naming rules

Details of a naming rule are displayed in the Editor when you select a rule from the list of rules. It is possible to edit the name and source code of the rule in the Editor. Changes are saved by clicking **Submit**. Button **Cancel** returns all changes to the last save.

New rule can be created by a right-click anywhere in the panel P1 and by selecting the action **New naming rule**. The name and the source code of the rule can be then written into the Editor and saved by clicking **Submit.**

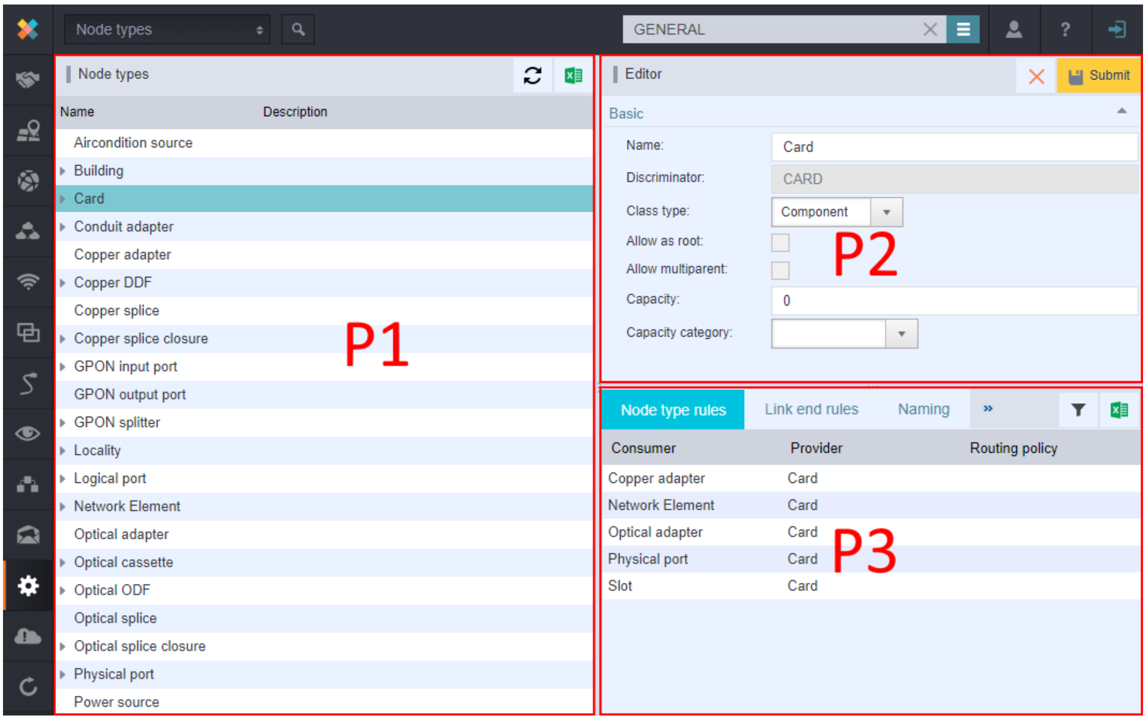
3.1.15.2. P2 - Editor

Rules for writing the source code for generating names is described in detail in the programmer documentation.

3.1.16. Node types

Configuration window of the nodes contains three panels:

- P1 - Node types
- P2 - Editor
- P3 - Node type rules, Link end rules, Naming, Attributes, Material attributes, Material



Name	Description
Aircondition source	
Building	
Card	
Conduit adapter	
Copper adapter	
Copper DDF	
Copper splice	
Copper splice closure	
GPON input port	
GPON output port	
GPON splitter	
Locality	
Logical port	
Network Element	
Optical adapter	
Optical cassette	
Optical ODF	
Optical splice	
Optical splice closure	
Physical port	
Power source	

Name: Card
Discriminator: CARD
Class type: Component
Allow as root: ☐
Allow multiparent: ☐
Capacity: 0
Capacity category:

Consumer	Provider	Routing policy
Copper adapter	Card	
Network Element	Card	
Optical adapter	Card	
Physical port	Card	
Slot	Card	

3.1.16.1. P1 - Node types

This panel displays the list of the node types in a hierarchical structure by their consumers.

You can perform following actions in this panel:

- Create a new node type - right-click anywhere in the list - context menu will be displayed. Select action New node type. In the editor, fill the attributes and save the new node type by clicking Submit.
- Node type editing - select any node type from the list and its attributes will be displayed in the panel P2 Editor and in the panel P3 with properties. It is only possible to edit name of the system node types, all other attributes are not editable. User-defined node types can be edited in all attributes except Discriminator - this field is not editable.
- Node type deleting - select action Delete from the context menu of selected node type. It is only possible to delete user-defined types. System types cannot be deleted.
- Export to Excel

3.1.16.2. P2 - Editor

The editor serves for inserting and editing attributes of the node types as well as for their properties (node consumption rules, naming rules, etc.). Editor contains attributes and their values of the currently selected object from the panel P1 or P3.

There are two buttons in the panel:

- Cancel ✕ - cancels all attribute changes and sets values of the last save.
- Submit - saves changes of currently edited object.

Map icons for node and link types are no longer implemented only on DB level and now can be configured in GUI. Map icons shown in a single query layer (saved search layer) are stored in a single separate database table. It’s necessary to keep an icon selected by the user even if a particular icon of node type is replaced by a new one. Users probably would not expect to silently change the icon selected once in a wizard.

3.1.16.3. P3 - Node type rules, Link end rules, Naming, Attributes, Material attributes, Material

In this panel, you can set configuration of a currently selected node type.

Contains a list of consumption rules - consumers, who can consume from selected node type.

It is possible to perform actions from the context menu displayed after right-clicking:

- New node type rule - fill all attributes defining a new rule in the Editor and save it by clicking Submit.
- Delete - deletes selected rule. Select the Delete action in the selected rule type.

Link end rules

Link end rules serve for configuration - what link types can be ended by which node types. Configuration is visible from the side of the link types as well as from the side of the node types. You can edit only from the side of the link types. From the side of the node types you can only view, what link types can be ended on the node type. Attribute Quality expresses how well a real link is modeled. For example, ETHERNET type link should be ideally ended on a port (quality = 1), but it is possible to model with a lower quality and end the link on a locality (quality = 2).

This functionality is used at the moment of planning.

- For example, when designing a new fiber optic cable, the planner knows in which locality it will be terminated. The quality has a value of 3.
- Later, you can refine the termination to room level. The quality has a value of 2.
- When the cable is physically installed, the cable termination can be upgraded to the rack and ODF level according to the as-built documentation. End quality improves to 1.

Naming rules

This bookmark contains the list of naming rules for selected link type.

Rule selection is described here.

Attributes

This bookmark contains the list of custom node attributes for selected node type.

The list is read-only, new attributes can be defined in Custom attributes configuration.

Properties of selected attribute are displayed in the editor. In this attribute editor, it is possible to assign the attribute to various object types, as well as in the custom attribute configuration, see chapter Custom attributes.

Material attributes

This bookmark contains the list of material attributes. The list is read-only.

If you do not see this bookmark displayed on the bookmark bar, click this icon » and other bookmarks will be displayed.

Materials

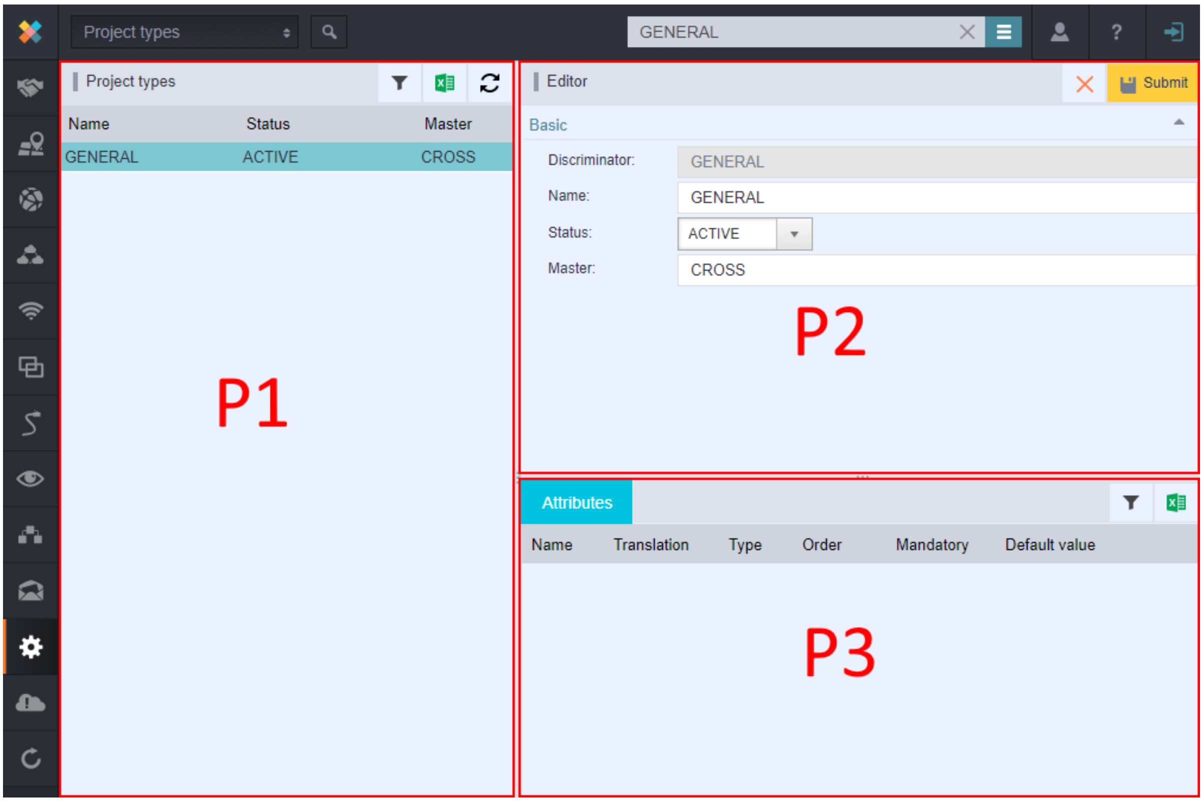
The list of materials assigned to a selected node type. This bookmark is read-only. Configuration of these materials can be done in the module Material.

3.1.17. Project types

This part of configuration serves for creating project types, that are used when defining a new project.

The window consists of two panels:

- P1 - Project types
- P2 - Editor


Project types
GENERAL
Project types
Editor
Submit
Basic
P1
P2
Attributes
P3

Name	Status	Master
GENERAL	ACTIVE	CROSS

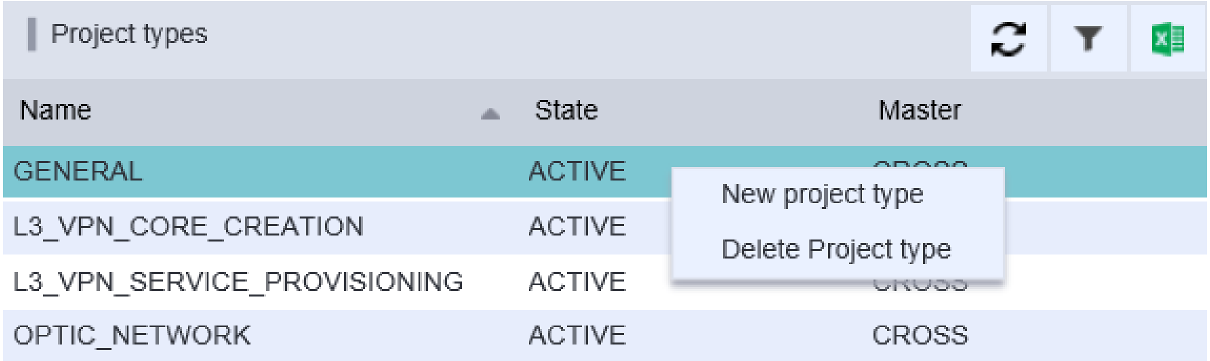
Discriminator: GENERAL
Name: GENERAL
Status: ACTIVE
Master: CROSS

Name	Translation	Type	Order	Mandatory	Default value

3.1.17.1. P1 - Project types

Project types panel contains the list of created projects.

Context menu consist two items - New project type and Delete project type.


Project types
New project type
Delete Project type

Name	State	Master
GENERAL	ACTIVE	CROSS
L3_VPN_CORE_CREATION	ACTIVE	
L3_VPN_SERVICE_PROVISIONING	ACTIVE	CROSS
OPTIC_NETWORK	ACTIVE	CROSS

Creating a new project type

Right-click in the panel P1 and start action "New project type" from the context menu.

In the Editor (panel P2) fill in the required attributes.

Save the editor by clicking Confirm.

New project type will be displayed in the list of panel P1.

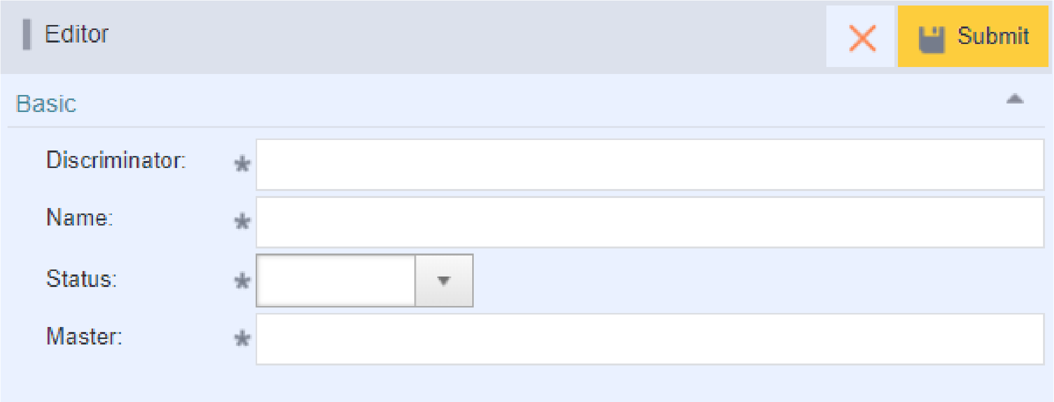
Deleting the project type

In the list of project types, select project type that you want to delete.

Right-click it and select action Delete project type.

Project type will be deleted.

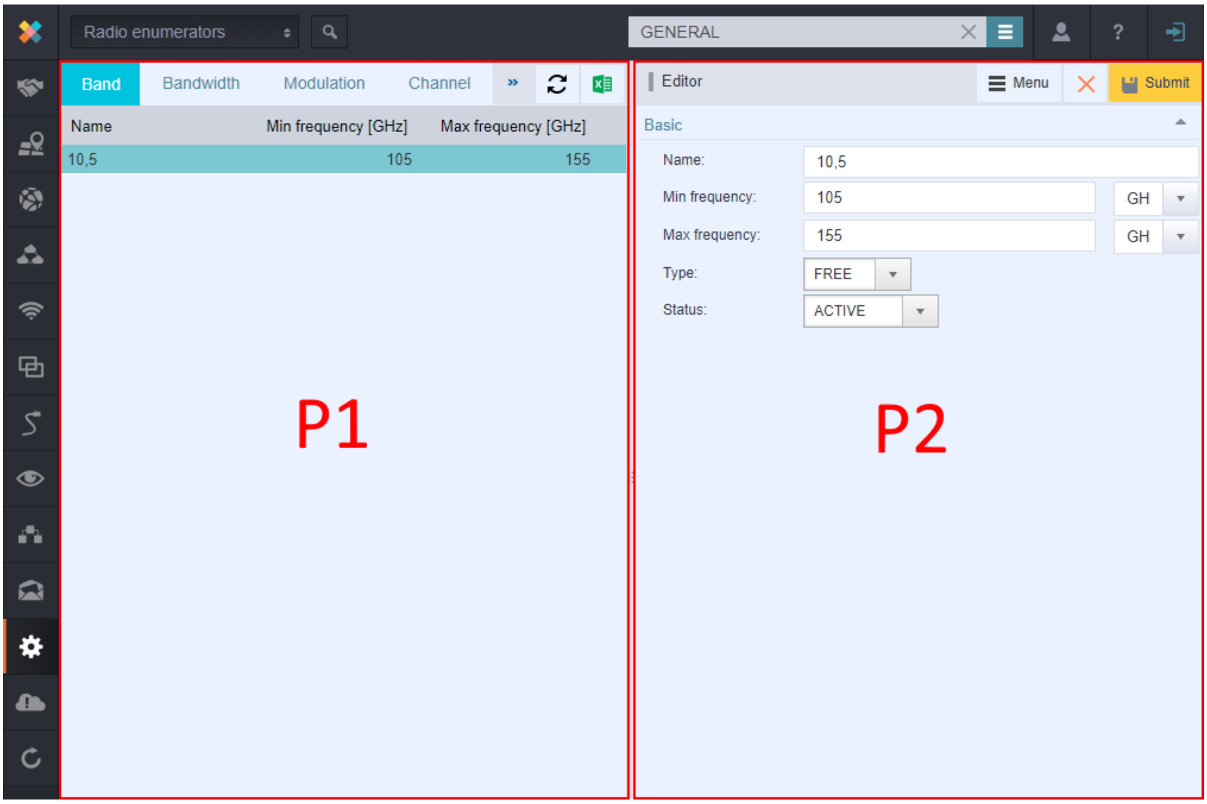
3.1.17.2. P2 - Editor


Editor
Submit
Basic
Discriminator:
Name:
Status:
Master:

3.1.18. Radio enumerators

Radio enumerators contains two panels:

- P1 - Band, Bandwidth, Modulation, Channel, Export / import config
- P2 - Editor

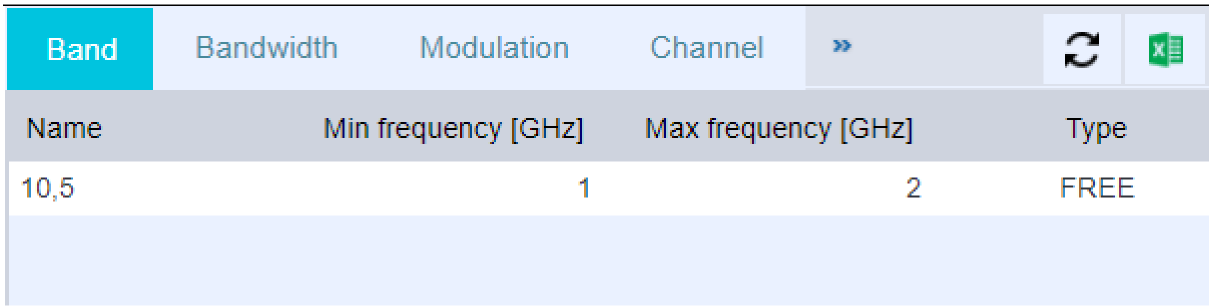

Radio enumerators
GENERAL
Band
Bandwidth
Modulation
Channel
»
Editor
Menu
Submit
Basic
P1
P2

Name	Min frequency [GHz]	Max frequency [GHz]
10,5	105	155

Name: 10,5
Min frequency: 105 GH
Max frequency: 155 GH
Type: FREE
Status: ACTIVE

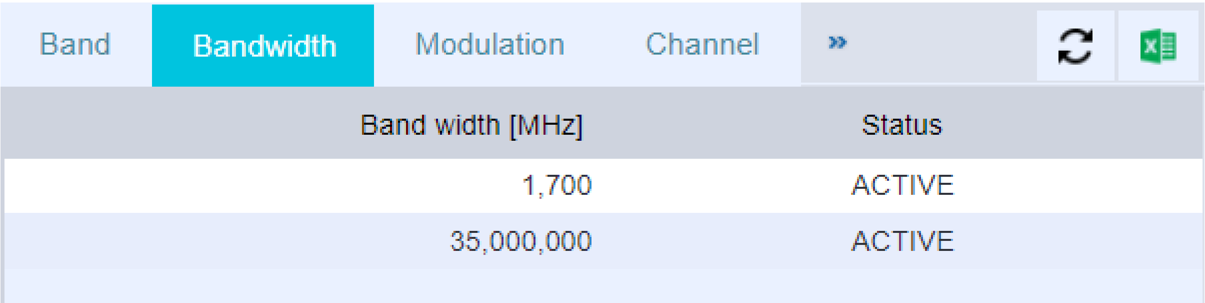
3.1.18.1. P1 - Band, Bandwidth, Modulation, Channel, Export / import config

Band


Band
Bandwidth
Modulation
Channel
»

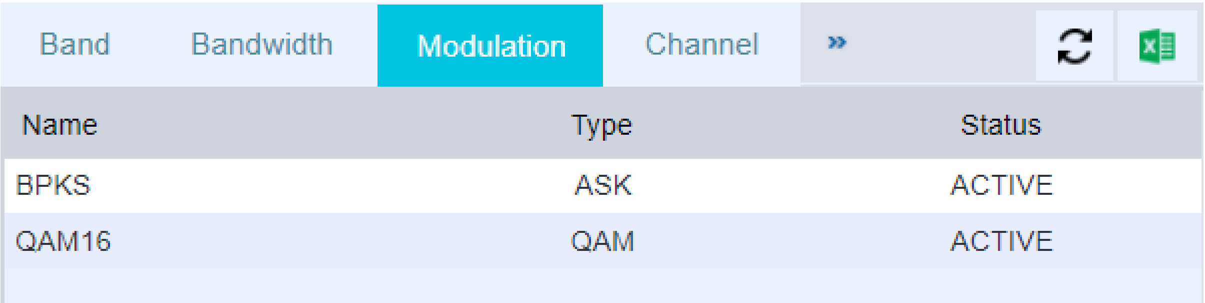
Name	Min frequency [GHz]	Max frequency [GHz]	Type
10,5	1	2	FREE

Bandwidth


Band
Bandwidth
Modulation
Channel
»

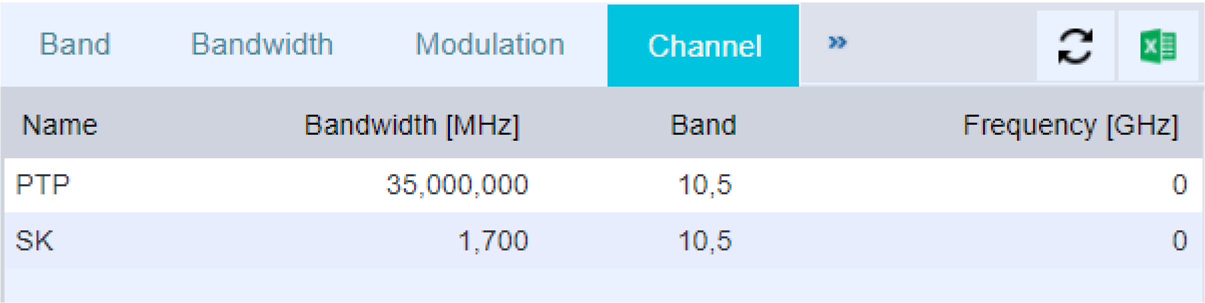
Band width [MHz]	Status
1,700	ACTIVE
35,000,000	ACTIVE

Modulation


Band
Bandwidth
Modulation
Channel
»

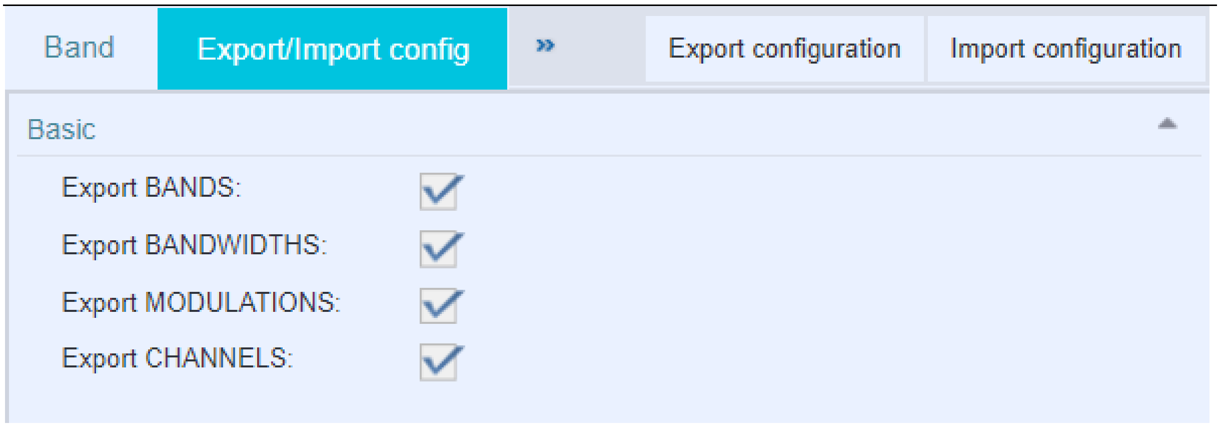
Name	Type	Status
BPKS	ASK	ACTIVE
QAM16	QAM	ACTIVE

Channel


Band
Bandwidth
Modulation
Channel
»

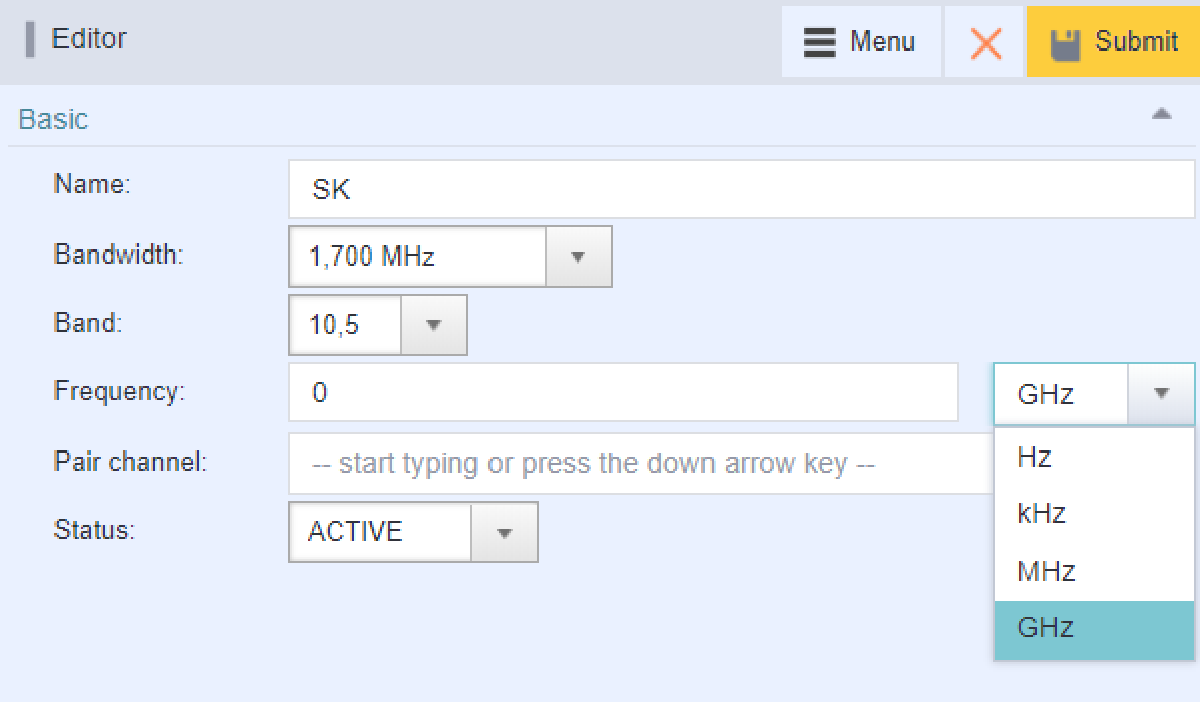
Name	Bandwidth [MHz]	Band	Frequency [GHz]
PTP	35,000,000	10,5	0
SK	1,700	10,5	0

Export / import config


Band
Export/Import config
»
Export configuration
Import configuration
Basic

Export BANDS: ☑
Export BANDWIDTHS: ☑
Export MODULATIONS: ☑
Export CHANNELS: ☑

3.1.18.2. P2 - Editor


Editor
Menu
Submit
Basic
Hz
kHz
MHz
GHz

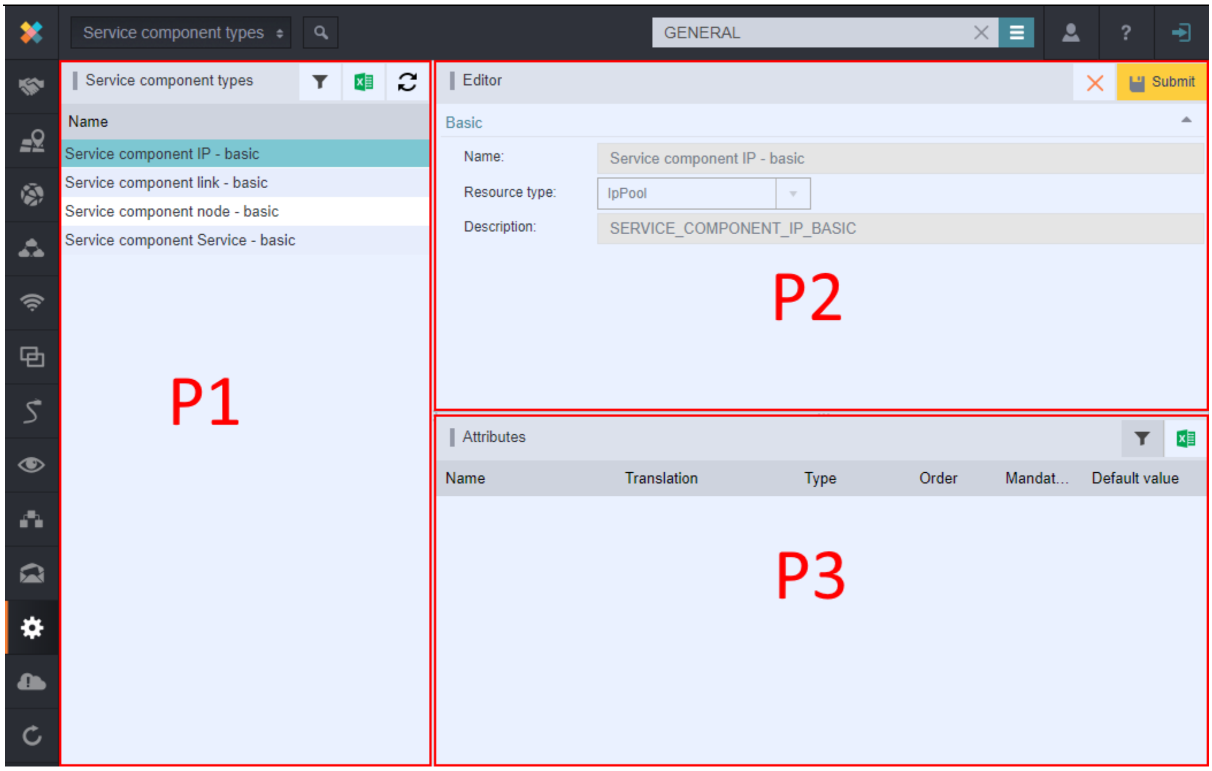
Name: SK
Bandwidth: 1,700 MHz
Band: 10,5
Frequency: 0 GHz
Pair channel: -- start typing or press the down arrow key --
Status: ACTIVE

3.1.19. Service component types

Configuration of service components types serves for creating and editing of services components, which are used in Service module for adding components into services. Service component type is defined by its name and type of source (defines object types of the component) and a set of custom attributes that will be displayed by service component of this type. Custom attributes for component service types are selected in Configuration module -> Custom attributes.

The window consists of three panels:

- P1 - Service component types
- P2 - Editor
- P3 - Attributes

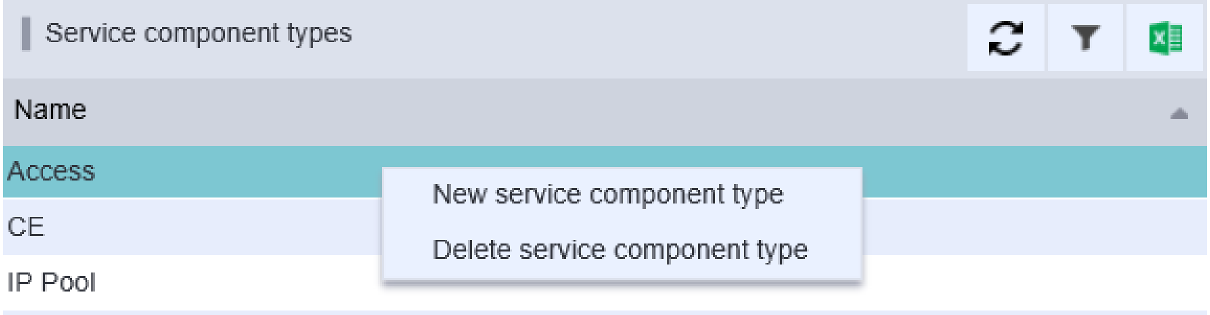

Service component types
GENERAL
Submit
Editor
Basic
Attributes
P1
P2
P3

Name
Service component IP - basic
Service component link - basic
Service component node - basic
Service component Service - basic

Name: Service component IP - basic
Resource type: IpPool
Description: SERVICE_COMPONENT_IP_BASIC

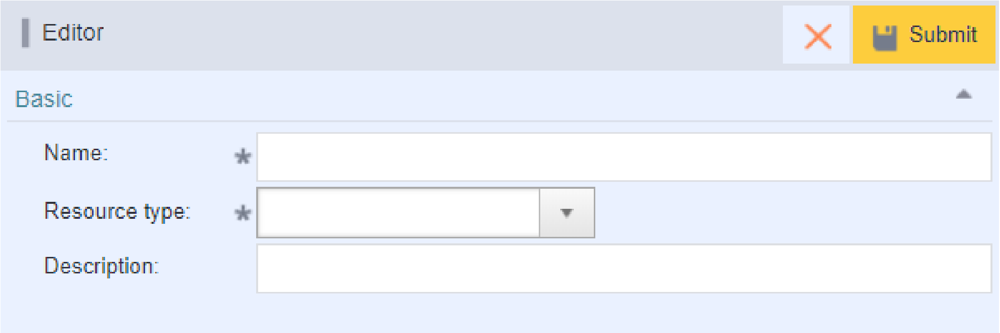
Name	Translation	Type	Order	Mandat...	Default value

3.1.19.1. P1 - Service component types

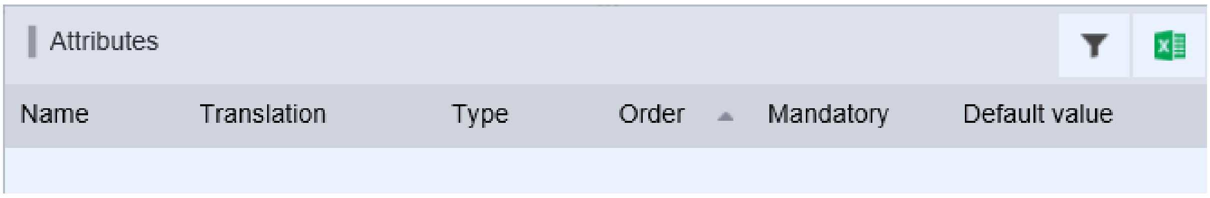

Service component types
New service component type
Delete service component type

Name
Access
CE
IP Pool

3.1.19.2. P2 - Editor


Editor
Submit
Basic
Name:
Resource type:
Description:

3.1.19.3. P3 - Attributes


Attributes

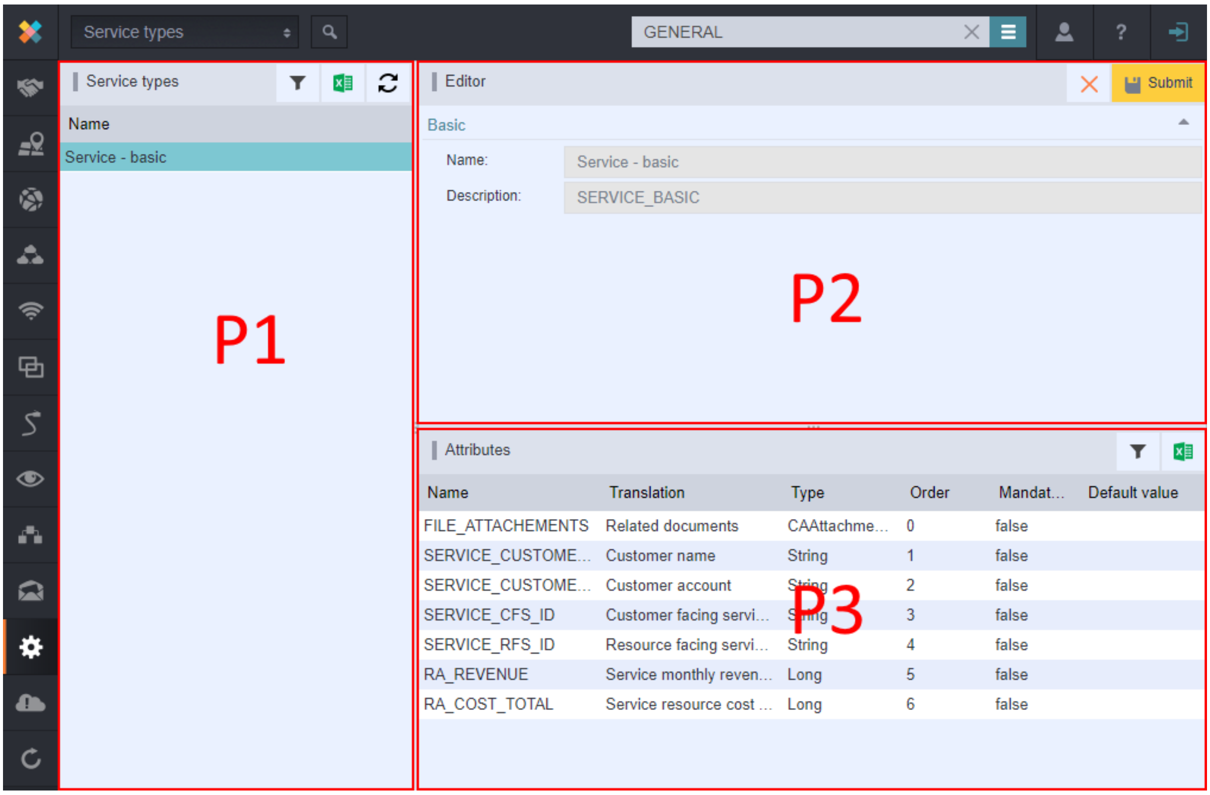
Name	Translation	Type	Order	Mandatory	Default value

3.1.20. Service types

Configuration of service types allows you to create and edit services types, which are used to define services in Service module. Service type is defined by its name and customization attributes that will be displayed in services of this type. Custom attributes for service types are selected in module Configuration -> Custom attributes

The window consists of three panels:

- P1 - Service types
- P2 - Editor
- P3 - Attributes

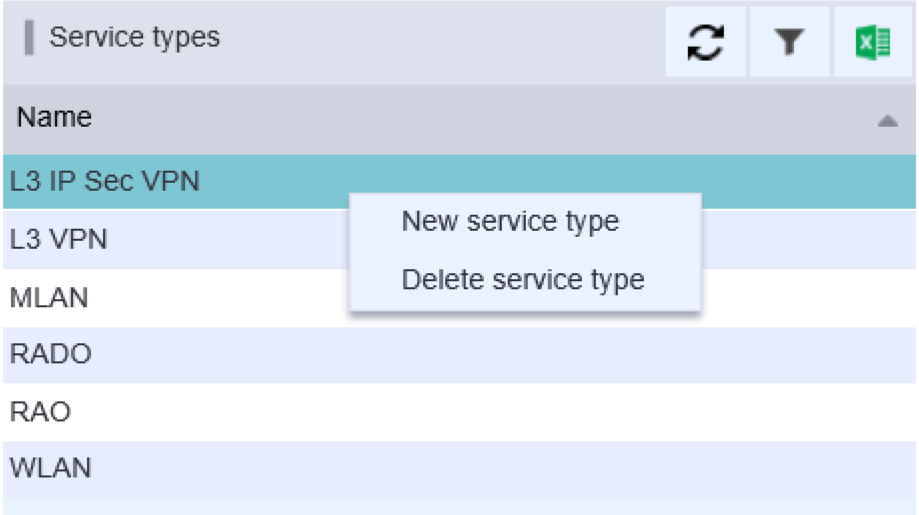

Service types
GENERAL
Service types
Editor
Submit
Basic
P1
P2
P3
Attributes

Name
Service - basic

Name: Service - basic
Description: SERVICE_BASIC

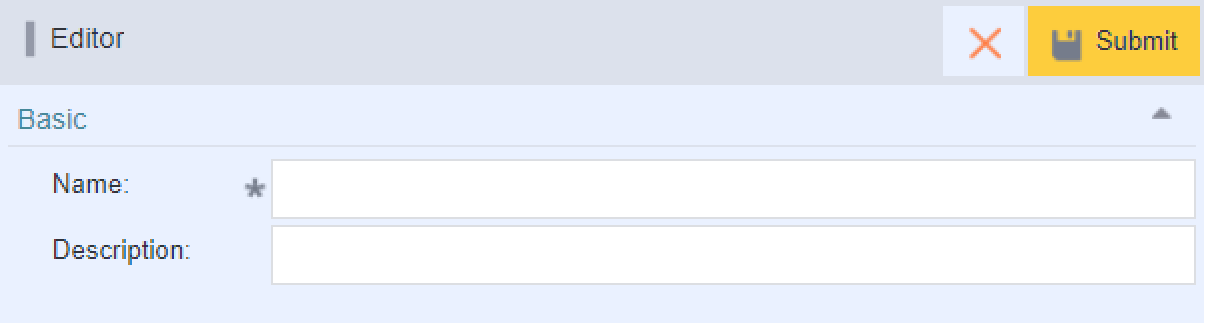
Name	Translation	Type	Order	Mandat...	Default value
FILE_ATTACHEMENTS	Related documents	CAAttachme...	0	false	
SERVICE_CUSTOME...	Customer name	String	1	false	
SERVICE_CUSTOME...	Customer account	String	2	false	
SERVICE_CFS_ID	Customer facing servi...	String	3	false	
SERVICE_RFS_ID	Resource facing servi...	String	4	false	
RA_REVENUE	Service monthly reven...	Long	5	false	
RA_COST_TOTAL	Service resource cost ...	Long	6	false	

3.1.20.1. P1 - Service types

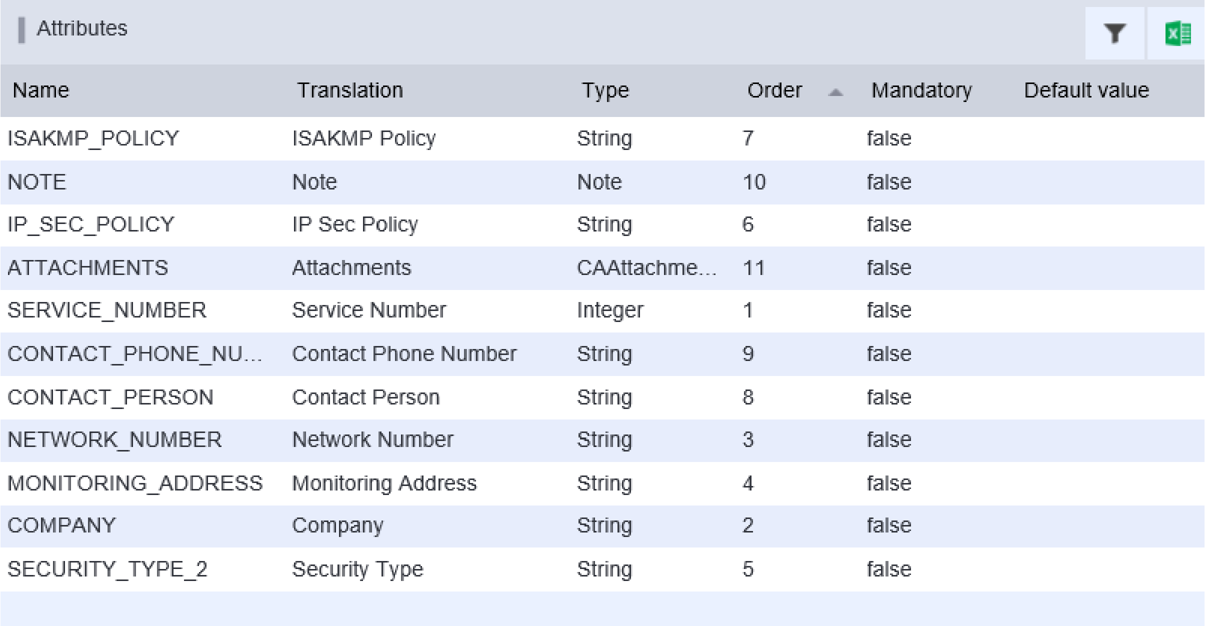

Service types
New service type
Delete service type

Name
L3 IP Sec VPN
L3 VPN
MLAN
RADO
RAO
WLAN

3.1.20.2. P2 - Editor



3.1.20.3. P3 - Attributes



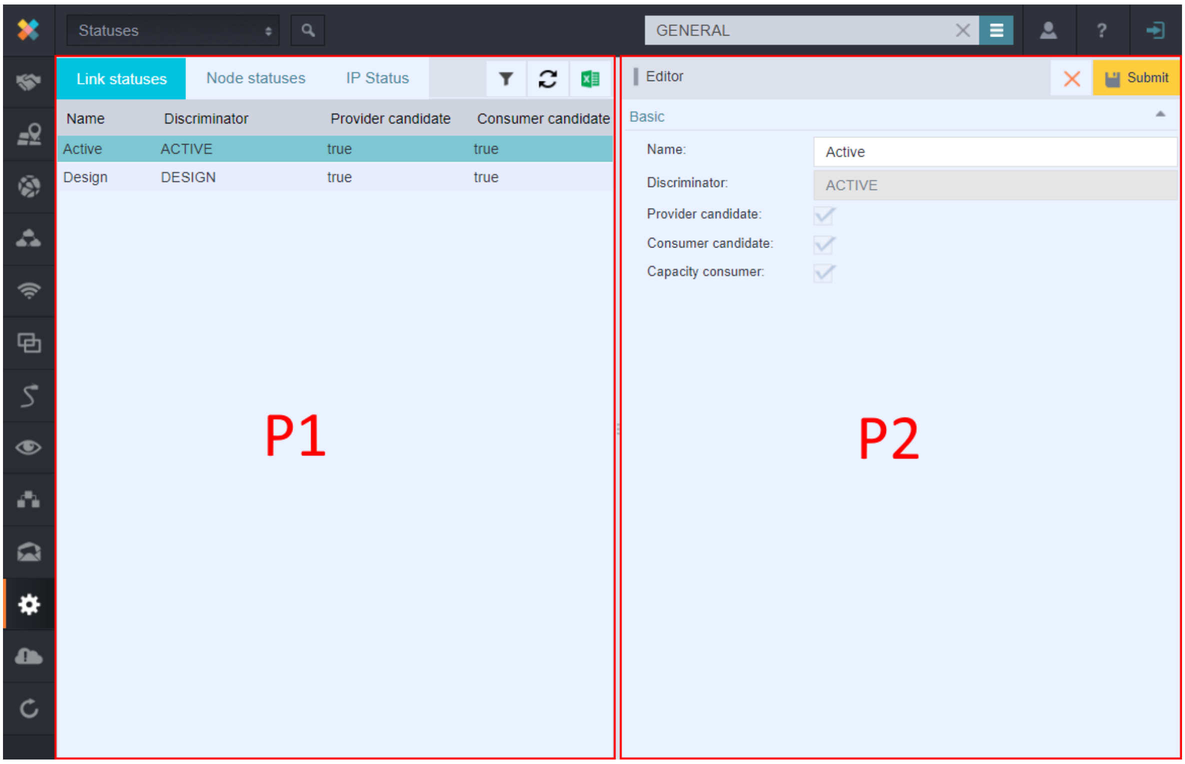
Name	Translation	Type	Order	Mandatory	Default value
ISAKMP_POLICY	ISAKMP Policy	String	7	false	
NOTE	Note	Note	10	false	
IP_SEC_POLICY	IP Sec Policy	String	6	false	
ATTACHMENTS	Attachments	CAAttachme...	11	false	
SERVICE_NUMBER	Service Number	Integer	1	false	
CONTACT_PHONE_NU...	Contact Phone Number	String	9	false	
CONTACT_PERSON	Contact Person	String	8	false	
NETWORK_NUMBER	Network Number	String	3	false	
MONITORING_ADDRESS	Monitoring Address	String	4	false	
COMPANY	Company	String	2	false	
SECURITY_TYPE_2	Security Type	String	5	false	

3.1.21. Statuses

Statuses configuration serves to register various object statuses. These statuses are labeled STATUSES in the editors and can have (for example) these values: ACTIVE, DELETED, UNKNOWN, DESIGNED. It allows you to have exact records in all phases of network building and development - from planning new objects to deleting inactive objects. The object state influences its ability to consume capacity.

The window is divided into two panels:

- P1 - Panel with bookmarks (Link status, Node status, IP status)
- P2 - Editor



Name	Discriminator	Provider candidate	Consumer candidate
Active	ACTIVE	true	true
Design	DESIGN	true	true

Name: Active
Discriminator: ACTIVE
Provider candidate: ✓
Consumer candidate: ✓
Capacity consumer: ✓

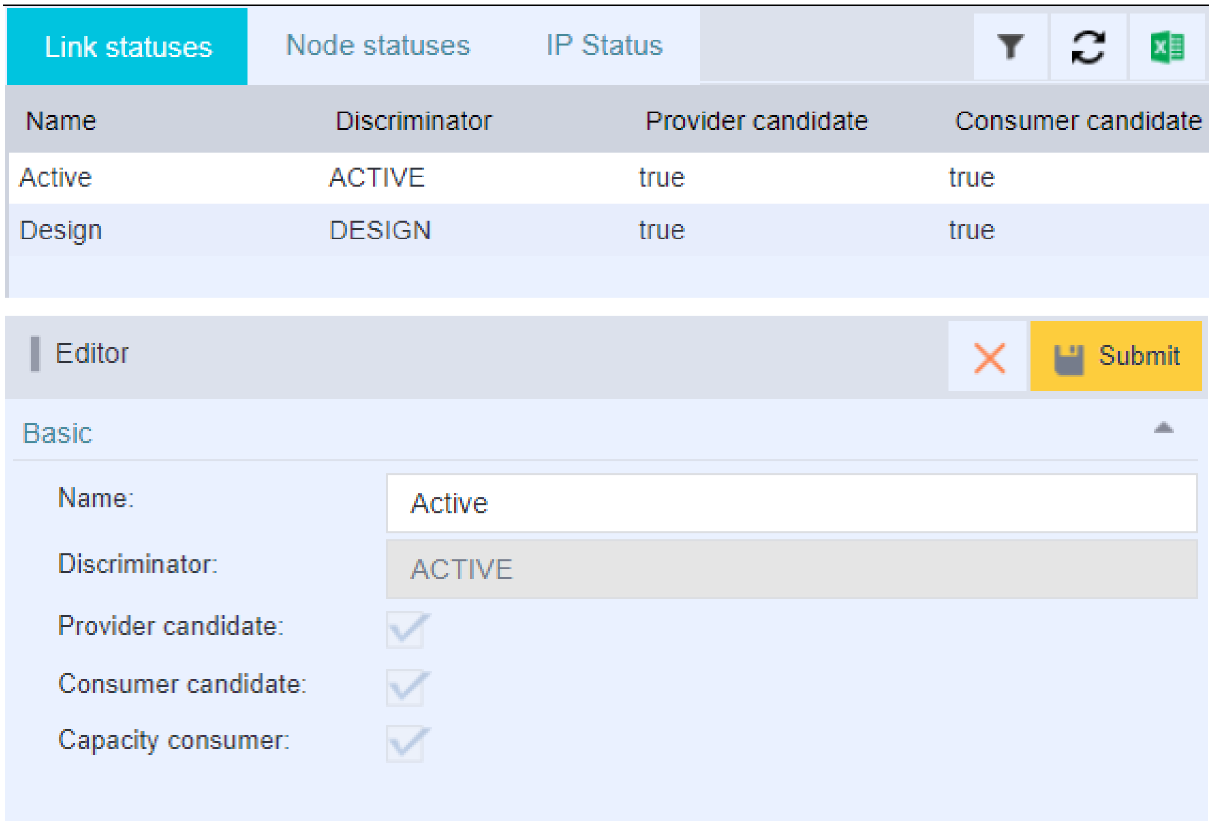
3.1.21.1. P1 - Panel with bookmarks (Link status, Node status, IP status)

In the application, statuses for these objects are recorded:

- Link statuses
- Node statuses
- IP status

Link statuses

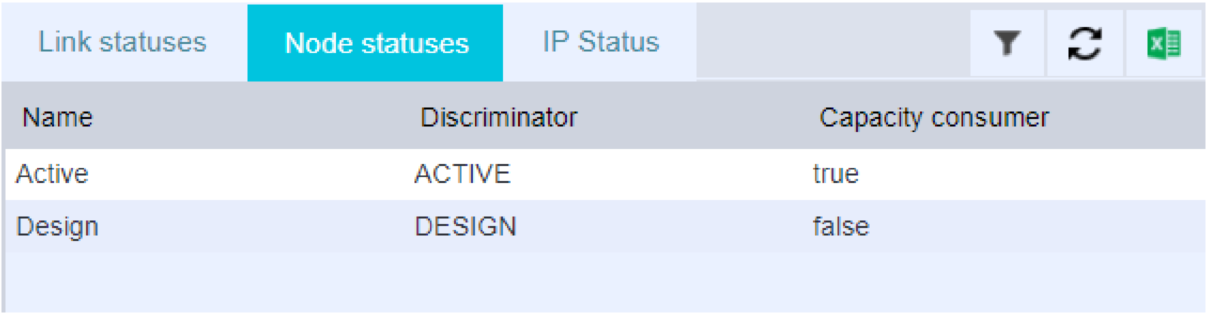
Link (circuit) statuses record - except the name and the discriminator - also information about possibilities of further use. Link state can affect application of a link - whether the link will be used as a provider or consumer candidate and whether it can consume certain capacity. For example, links in the ACTIVE state can consume capacity and can be candidates to be providers and consumers, links in the state DESIGNED can be candidates to be providers and consumers, but cannot consume any capacity yet, because they are not yet active, but they are expected to be used in the future.


Link statuses
Node statuses
IP Status
Editor
Submit
Basic

Name	Discriminator	Provider candidate	Consumer candidate
Active	ACTIVE	true	true
Design	DESIGN	true	true

Name: Active
Discriminator: ACTIVE
Provider candidate: ☑
Consumer candidate: ☑
Capacity consumer: ☑

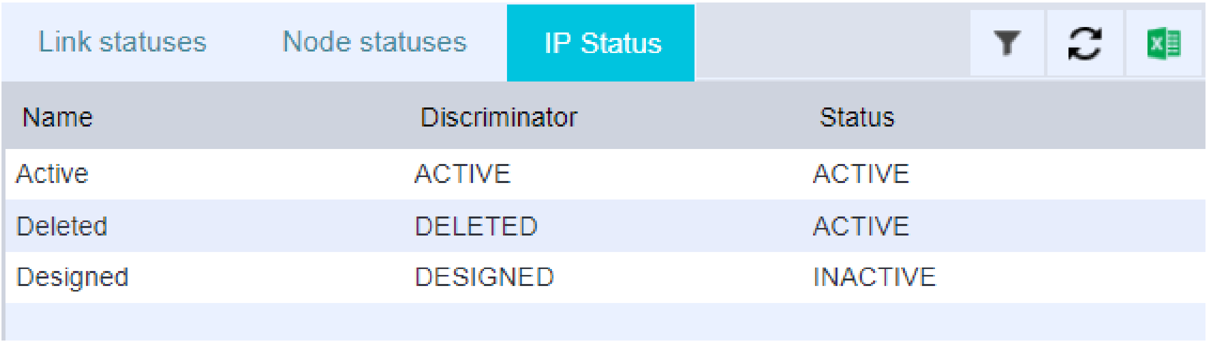
Node statuses


Link statuses
Node statuses
IP Status

Name	Discriminator	Capacity consumer
Active	ACTIVE	true
Design	DESIGN	false

IP status

Bookmark IP Status allows you to define statuses for IP pools.


Link statuses
Node statuses
IP Status

Name	Discriminator	Status
Active	ACTIVE	ACTIVE
Deleted	DELETED	ACTIVE
Designed	DESIGNED	INACTIVE

3.1.21.2. P2 - Editor

New statuses can be added in Editor. New state is created from context menu by right-clicking in the left panel.

Empty Editor will be opened. Fill mandatory items (Name, Discriminator). Then select the state:

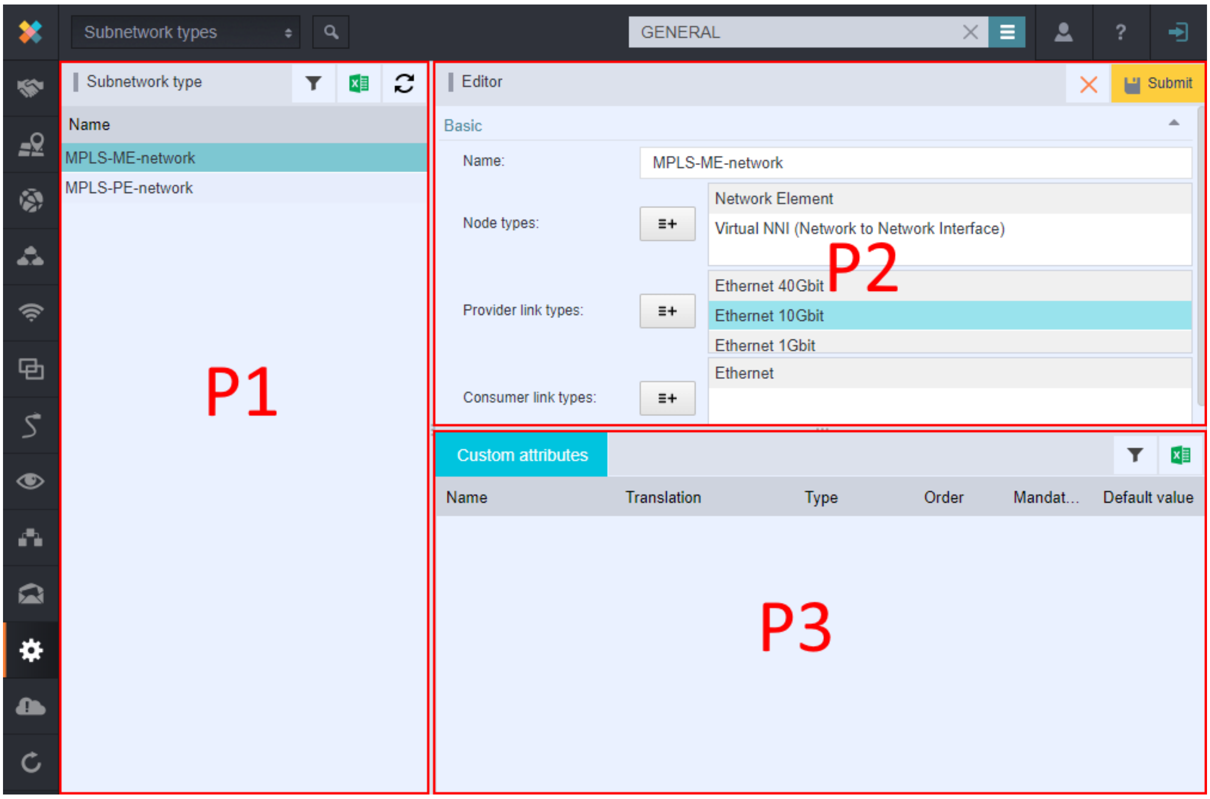
- ACTIVE - Consumption rule applies, may not overlap, each address must be unique.
- BLOCKED - Same function as "ACTIVE", there can be multiple BLOCKED statuses.
- INACTIVE - Can be used on more statuses

3.1.22. Subnetwork types

This submodule serves for creating new subnetwork types that are used for subnetwork defining in the module Subnetwork.

The window consists of three panels:

- P1 - Subnetwork type
- P2 - Editor
- P3 - Custom attributes


Subnetwork types
GENERAL
Subnetwork type
Name
Editor
Submit
Basic
Custom attributes
Name
Translation
Type
Order
Mandat...
Default value
P1
P2
P3

MPLS-ME-network
MPLS-PE-network

Name: MPLS-ME-network
Node types: Network Element, Virtual NNI (Network to Network Interface)
Provider link types: Ethernet 40Gbit, Ethernet 10Gbit, Ethernet 1Gbit
Consumer link types: Ethernet

3.1.22.1. P1 - Subnetwork type

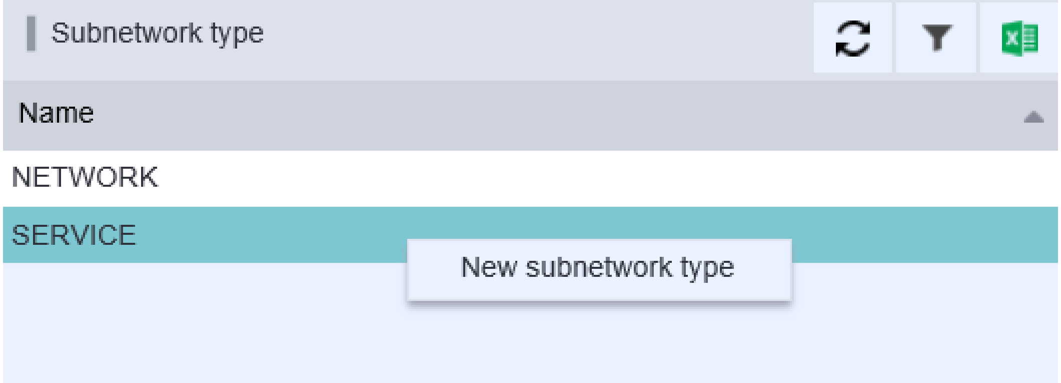
Creating a new subnetwork type

Right-click in the panel P1 and select "New subnetwork type" from the context menu.

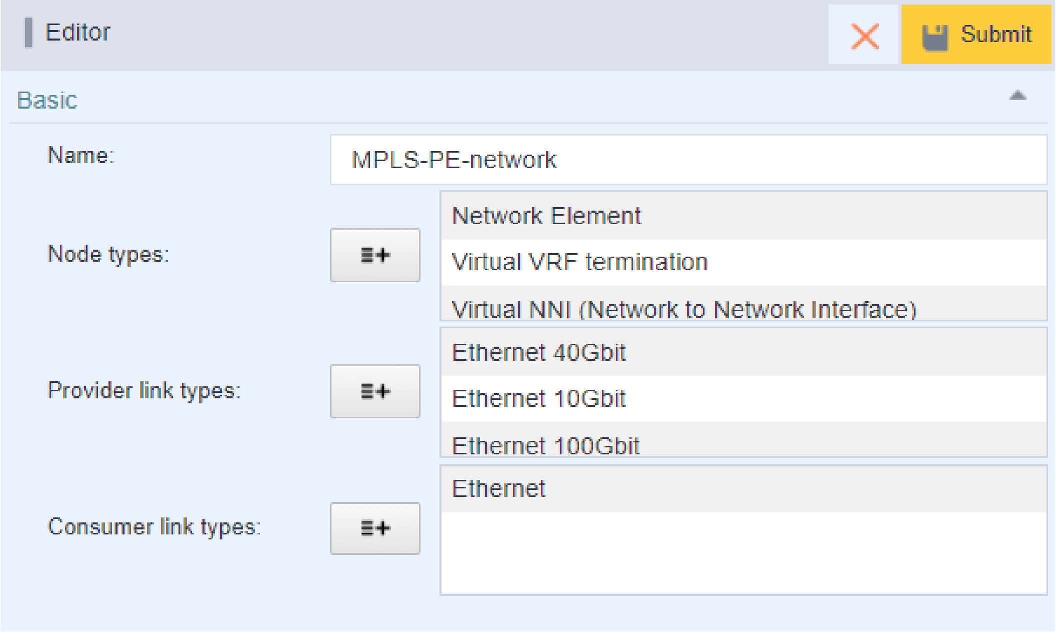
In the editor in the panel P2, fill the name of a new subnetwork type and select object types it may contain.

Save the new subnetwork by clicking Submit.

New subnetwork type will be displayed in the list in the panel P1.


Subnetwork type
Name
NETWORK
SERVICE
New subnetwork type

3.1.22.2. P2 - Editor


Editor
Submit
Basic

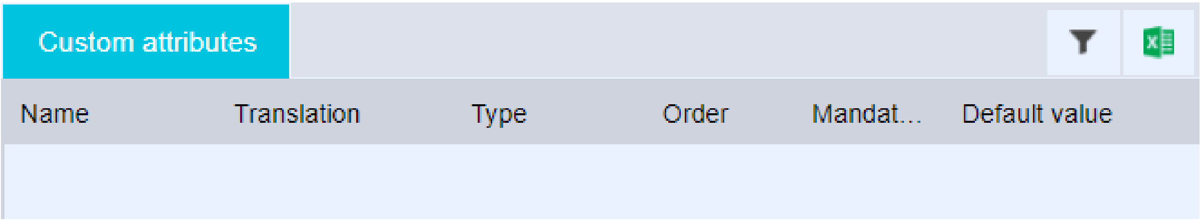
Name: MPLS-PE-network

Node types: Network Element, Virtual VRF termination, Virtual NNI (Network to Network Interface)

Provider link types: Ethernet 40Gbit, Ethernet 10Gbit, Ethernet 100Gbit

Consumer link types: Ethernet

3.1.22.3. P3 - Custom attributes

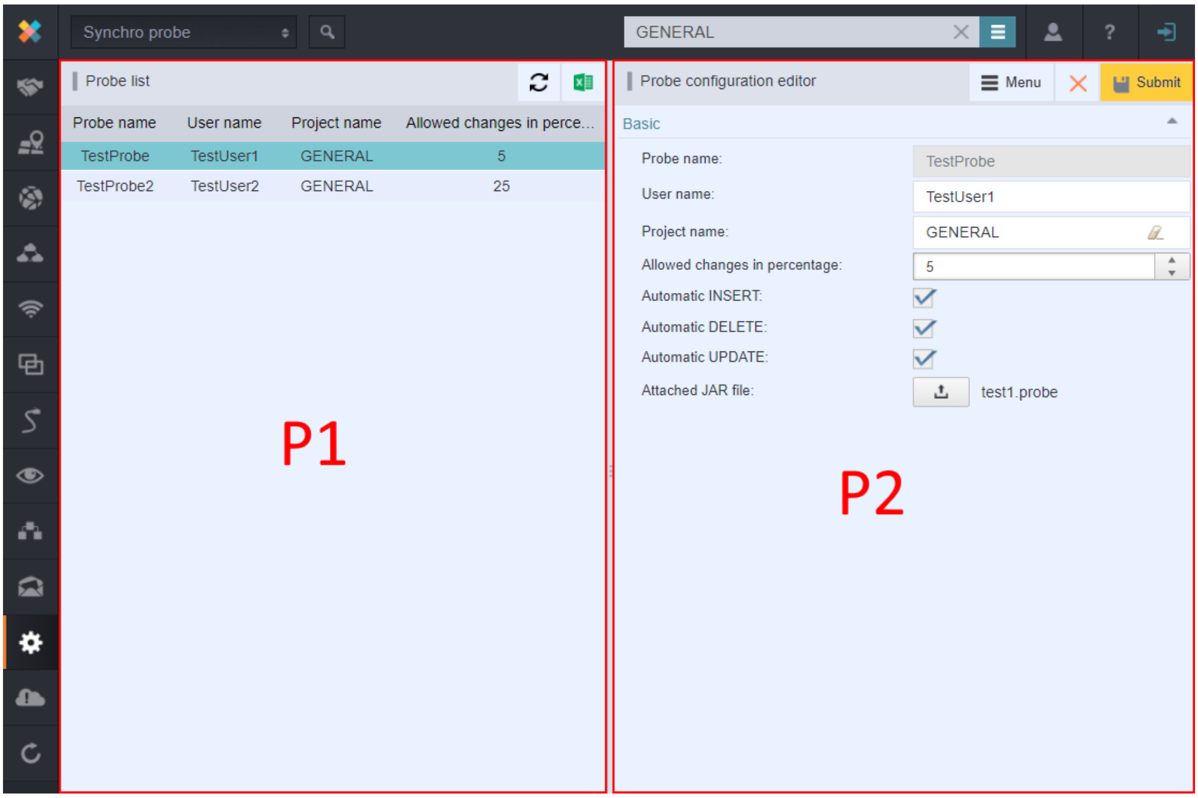

Custom attributes
Name
Translation
Type
Order
Mandat...
Default value

3.1.23. Synchro probe

This option serves for administration of individual probes and for defining parameters for individual probes.

The mode consists of two panels:

- P1 - Probe list
- P2 - Probe configuration editor


Synchro probe
GENERAL
Probe list
Probe configuration editor
Menu
Submit
Basic
P1
P2

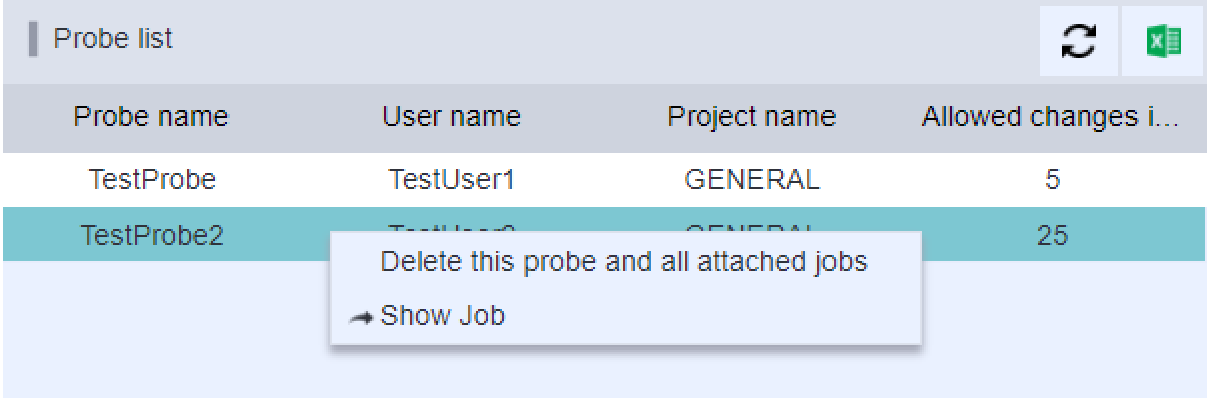
Probe name	User name	Project name	Allowed changes in perce…
TestProbe	TestUser1	GENERAL	5
TestProbe2	TestUser2	GENERAL	25

Probe name: TestProbe
User name: TestUser1
Project name: GENERAL
Allowed changes in percentage: 5
Automatic INSERT: ☑
Automatic DELETE: ☑
Automatic UPDATE: ☑
Attached JAR file: test1.probe

3.1.23.1. P1 - Probe list

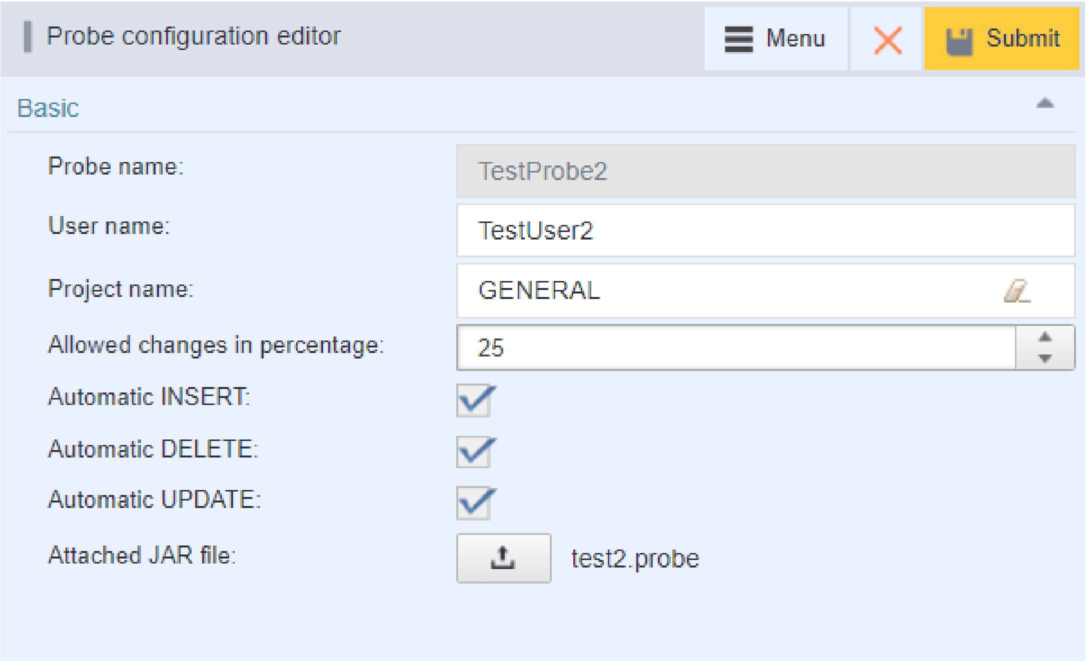
Choose one option from the context menu of P1 panel:

- Create new probes
- Delete this probe and all attached jobs


Probe list
Delete this probe and all attached jobs
Show Job

Probe name	User name	Project name	Allowed changes i…
TestProbe	TestUser1	GENERAL	5
TestProbe2			25

3.1.23.2. P2 - Probe configuration editor



Probe name: TestProbe2

User name: TestUser2

Project name: GENERAL

Allowed changes in percentage: 25

Automatic INSERT: ☑

Automatic DELETE: ☑

Automatic UPDATE: ☑

Attached JAR file: test2.probe

The Menu in the Editor contains the Create New Probe item.

In Task editor panel, those items will be filled:

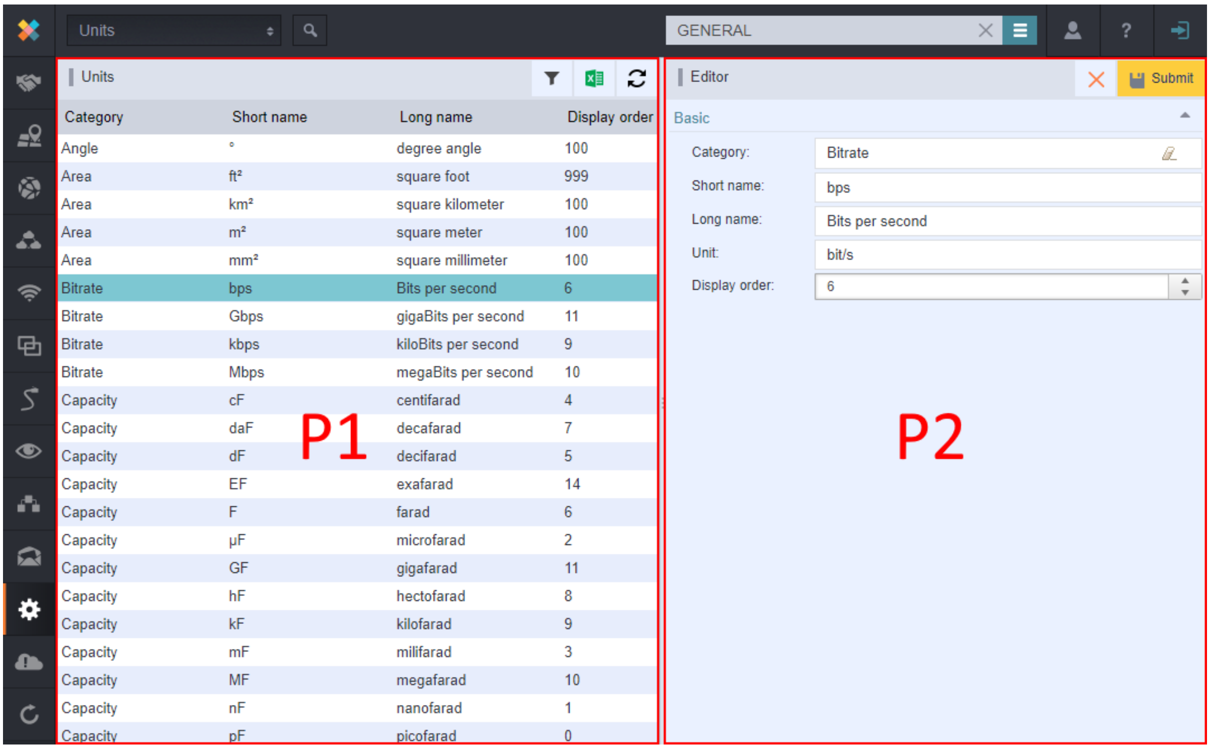
- **Probe name** - Probe name must be unique, uppercase, lowercase and digits can be used.
- **User name -** select the name of the project from the list. You can only select from already created projects.
- **Project name** - fill or select project name.
- **Allowed changes in percentage** - tolerance from 0 to 1. It is so called safety fuse. If there is more than 50% content change (0.5), the synchronization will not proceed. If there is less than 0.5, then the synchronization will be performed.
- INSERT Operation Sync Mode - Auto / Manual
- DELETE Operation Sync Mode - Auto / Manual
- UPDATE Operation Sync Mode - Auto / Manual
- **Attached JAR file** - attachment can be uploaded only in .JAR format.

3.1.24. Units

Configuration of units allows you to manage all units that are used in the application.

The window is divided into two panels

- P1 - Units
- P2 - Editor



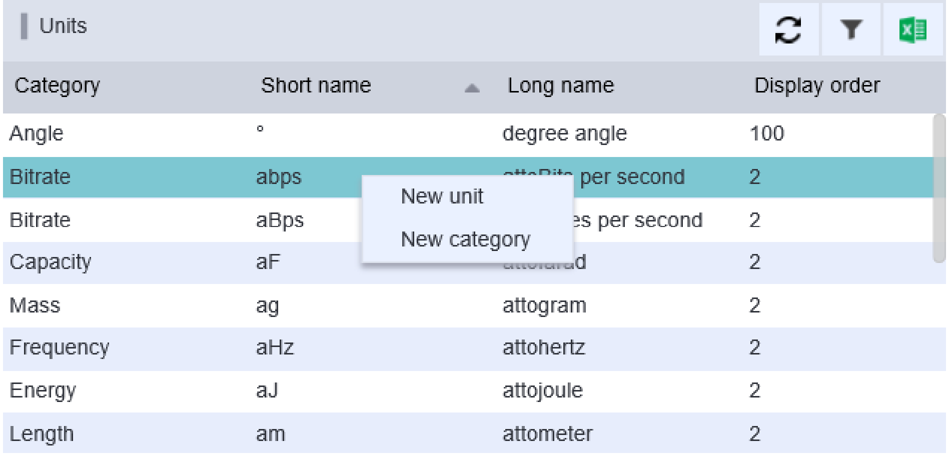
Category	Short name	Long name	Display order
Angle	°	degree angle	100
Area	ft^2	square foot	999
Area	km^2	square kilometer	100
Area	m^2	square meter	100
Area	mm^2	square millimeter	100
Bitrate	bps	Bits per second	6
Bitrate	Gbps	gigaBits per second	11
Bitrate	kbps	kiloBits per second	9
Bitrate	Mbps	megaBits per second	10
Capacity	cF	centifarad	4
Capacity	daF	decafarad	7
Capacity	dF	decifarad	5
Capacity	EF	exafarad	14
Capacity	F	farad	6
Capacity	µF	microfarad	2
Capacity	GF	gigafarad	11
Capacity	hF	hectofarad	8
Capacity	kF	kilofarad	9
Capacity	mF	milifarad	3
Capacity	MF	megafarad	10
Capacity	nF	nanofarad	1
Capacity	pF	picofarad	0

Category: Bitrate
Short name: bps
Long name: Bits per second
Unit: bit/s
Display order: 6

3.1.24.1. P1 - Units

Displays list of units, which are available in application.

Context menu contains two options: New unit and New category



Category	Short name	Long name	Display order
Angle	°	degree angle	100
Bitrate	abps	per second	2
Bitrate	aBps	es per second	2
Capacity	aF	d	2
Mass	ag	attogram	2
Frequency	aHz	attohertz	2
Energy	aJ	attojoule	2
Length	am	attometer	2

3.1.24.2. P2 - Editor

Existing units are modified in Editor. New units and categories are created in Editor.

3.2. MODULE IP

Chapter overview:

3.2.1. Description of module environment

3.2.2. IP view

3.2.2.1. P1 - IP address tree / Tag tree

3.2.2.2. P2 - IP Editor

3.2.2.3. P3 - Table of pools

3.2.3. Usage of user interface IP view

3.2.3.1. Creating a new Pool

3.2.3.2. Splitting occupied part of IP Pool into two parts

3.2.3.3. Changing the state of IP Pool

3.2.3.4. IP address searching

3.2.3.5. IP connection ranges

3.2.3.6. Setting status in Configuration Module

3.2.3.7. Create new tag

3.2.4. IP History search

3.2.4.1. P1 - IP History search

3.2.4.2. P2 - Found IP records

3.2.1. Description of module environment

This module fully covers the needs of the IP management for IPv4 as well as for IPv6, including the communication and reporting towards the RIPE. This is a complex solution that includes automatic splitting and merging of intervals of IP addresses by internally built rules of work with IPv4 and IPv6 address space. The schema outlines the complexity and flexibility of the solution from various user perspectives.

The module works in three basic sections, for which there are adapted various user interfaces and rights to individual functionalities. From the perspective of integration with other systems, the module IP Management is fully integrable via WEB functions in terms of automatic allocation of IP space according to specified criteria.

The module IP Management also records changes (history) and allows full reporting according to predefined or user-specified configuration.

IP pool can me modified by:

1. Add as Service component
2. Custom attribute

The module can be run by clicking the icon .

Definitions of terms:

IP range- segment of IP addresses

Network - type of IP range according to allocation method and IP address format

Tag - category of IP range use

Pool - IP range marked by a tag

Range - allocated IP range

Free Pool - free IP range for allocating (unallocated part of Pool)

IP address - unitary IP range for exact allocation specification of individual address

Quota - root IP range (does not have parent range)

Format of IP range displaying - address / CIDR mask (for example 88.20.0.0/16, or aa:6565::/50)

Module is divided into two views - submodules:

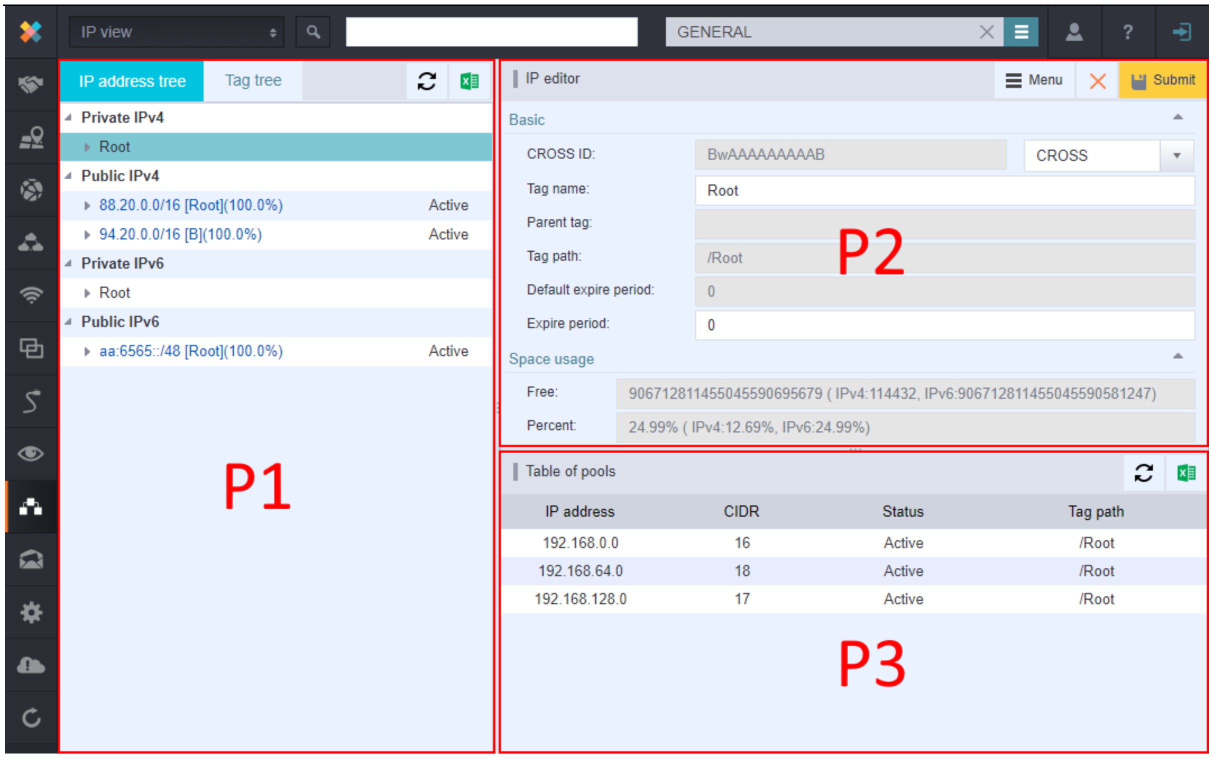
- IP View
- IP History search

3.2.2. IP view

IP view serves for management of IP addresses (allocated from the RIPE or from private ranges) and enables administrator to access the basic management of IP space:

Tag tree is divided into three panels:

- P1 - IP address tree / Tag tree
- P2 - IP Editor
- P3 - Table of pools



- Private IPv4
  - Root
- Public IPv4
  - 88.20.0.0/16 [Root](100.0%) Active
  - 94.20.0.0/16 [B](100.0%) Active
- Private IPv6
  - Root
- Public IPv6
  - aa:6565::/48 [Root](100.0%) Active

Basic

CROSS ID: BwAAAAAAAAAB CROSS
Tag name: Root
Parent tag:
Tag path: /Root
Default expire period: 0
Expire period: 0

Space usage

Free: 906712811455045590695679 (IPv4:114432, IPv6:906712811455045590581247)
Percent: 24.99% (IPv4:12.69%, IPv6:24.99%)

Table of pools

IP address	CIDR	Status	Tag path
192.168.0.0	16	Active	/Root
192.168.64.0	18	Active	/Root
192.168.128.0	17	Active	/Root

Opening window of the IP view is divided into several parts:

- Search field
- IP address tree
- Table of pools
- Tag tree
- IP editor

3.2.2.1. P1 - IP address tree / Tag tree

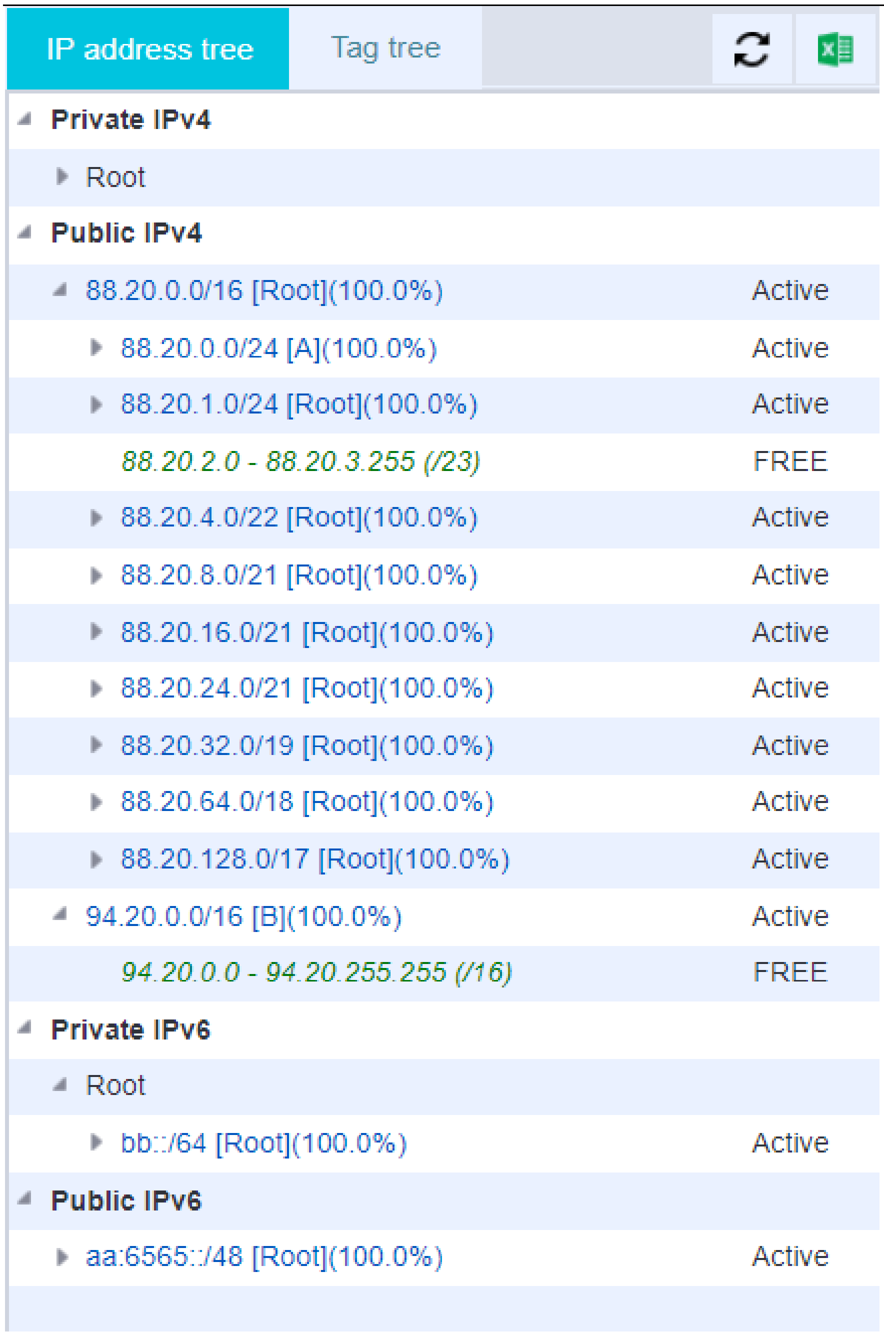
Tree of IP addresses has two tabs:

- IP address tree
- Tag tree

IP address tree

All managed IP address ranges can be displayed in the tree of IP addresses. Tag (full name) is displayed beside the IP address in square brackets. IP addresses are divided according to the format type (IPv4, IPv6) and the way of allocation (public ranges from the RIPE and private ranges) into four main groups (first tree level). Basic pools (from the RIPE or private) are displayed in the second level. In the next levels, there can be Ranges, Free Pools or Pools that clarify the tag of the parent pool. The last tree level can contain individual IP addresses.

Objects are sorted to a tree structure, by clicking the arrow ▸ you can open the lower level.



- Private IPv4
  - Root
- Public IPv4
  - 88.20.0.0/16 [Root](100.0%) Active
    - 88.20.0.0/24 [A](100.0%) Active
    - 88.20.1.0/24 [Root](100.0%) Active
    - 88.20.2.0 - 88.20.3.255 (/23) FREE
    - 88.20.4.0/22 [Root](100.0%) Active
    - 88.20.8.0/21 [Root](100.0%) Active
    - 88.20.16.0/21 [Root](100.0%) Active
    - 88.20.24.0/21 [Root](100.0%) Active
    - 88.20.32.0/19 [Root](100.0%) Active
    - 88.20.64.0/18 [Root](100.0%) Active
    - 88.20.128.0/17 [Root](100.0%) Active
  - 94.20.0.0/16 [B](100.0%) Active
    - 94.20.0.0 - 94.20.255.255 (/16) FREE
- Private IPv6
  - Root
    - bb::/64 [Root](100.0%) Active
- Public IPv6
  - aa:6565::/48 [Root](100.0%) Active

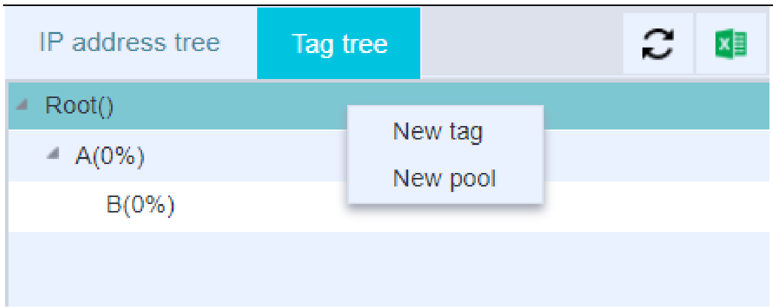
Displayed list of IP addresses can be exported to Excel by clicking the export icon in the upper right corner.

Pool / Quota availability

Details about availability of each IP pool or IP quota is displayed beside every IP pool or IP quota. Value is expressed by percentage utilization of originally allocated address range. Consuming means not only IP range under the IP Pool, but also inferior IP pools. The value is calculated dynamically in the moment of IP address tree loading. To update values, click the Refresh button.

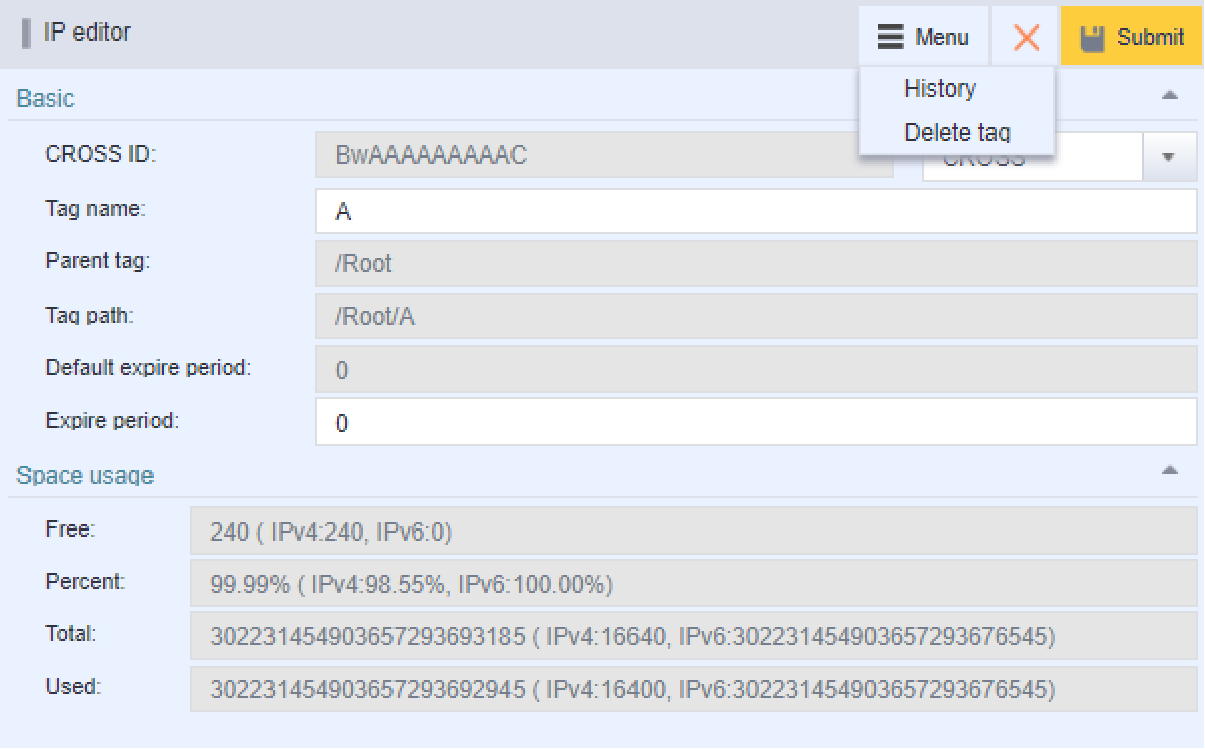
Tag tree

In the Tag tree shows the hierarchy of purposes defined by the customer.


IP address tree
Tag tree
Root()
A(0%)
B(0%)
New tag
New pool

3.2.2.2. P2 - IP Editor

The IP editor serves for creating and editing Ranges, Pools, Addresses and Quotas. Content and appearance of the editor and the drop-down menu depend on selected object.


IP editor
Menu
Submit
History
Delete tag
Basic
Space usage

CROSS ID:	BwAAAAAAAAAC
Tag name:	A
Parent tag:	/Root
Tag path:	/Root/A
Default expire period:	0
Expire period:	0

Free:	240 (IPv4:240, IPv6:0)
Percent:	99.99% (IPv4:98.55%, IPv6:100.00%)
Total:	302231454903657293693185 (IPv4:16640, IPv6:302231454903657293676545)
Used:	302231454903657293692945 (IPv4:16400, IPv6:302231454903657293676545)

Note: CROSS 3.5 and lower supports Ipv6 addresses only up to 4b3b:4ca8:5a86:c47a:98a:2239:ffff:ffff

Bigger addresses (like 4b3b:4ca8:5a86:c47a:098a:2240::) are not supported.

3.2.2.3. P3 - Table of pools

When selecting a tag from the Tag tree - panel P3 - all assigned pools are displayed in the Table of pools. Selected row - Pool - is then loaded into the editor, which is located under the table - panel IP editor.

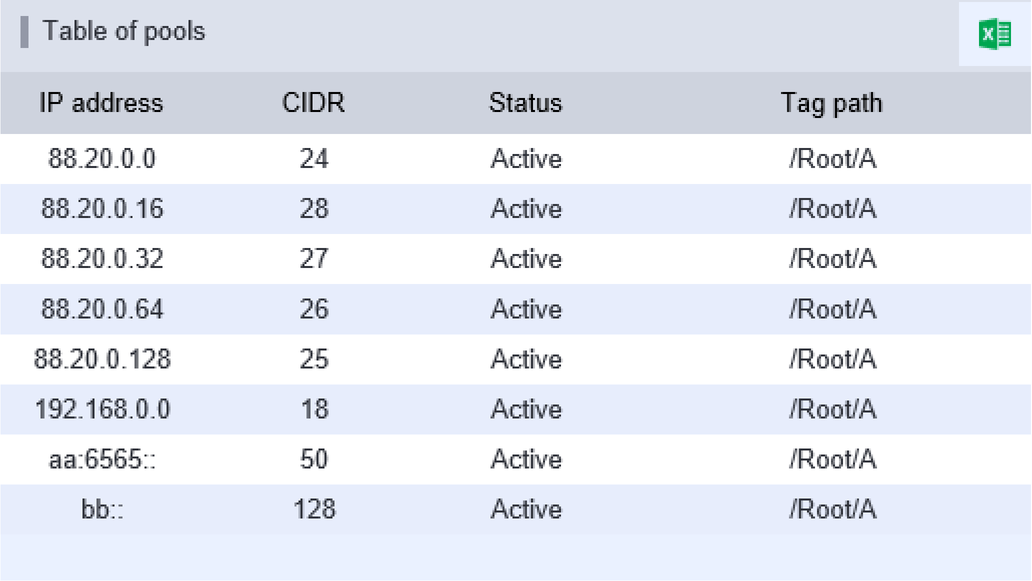


Table of pools

IP address	CIDR	Status	Tag path
88.20.0.0	24	Active	/Root/A
88.20.0.16	28	Active	/Root/A
88.20.0.32	27	Active	/Root/A
88.20.0.64	26	Active	/Root/A
88.20.0.128	25	Active	/Root/A
192.168.0.0	18	Active	/Root/A
aa:6565::	50	Active	/Root/A
bb::	128	Active	/Root/A

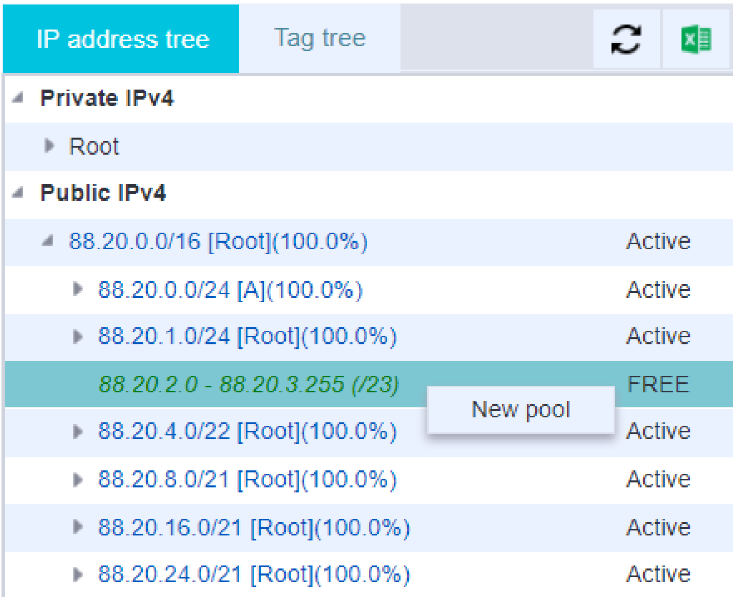
Displayed list of IP pools can be exported to Excel by clicking the export icon in the upper right corner.

3.2.3. Usage of user interface IP view

3.2.3.1. Creating a new Pool

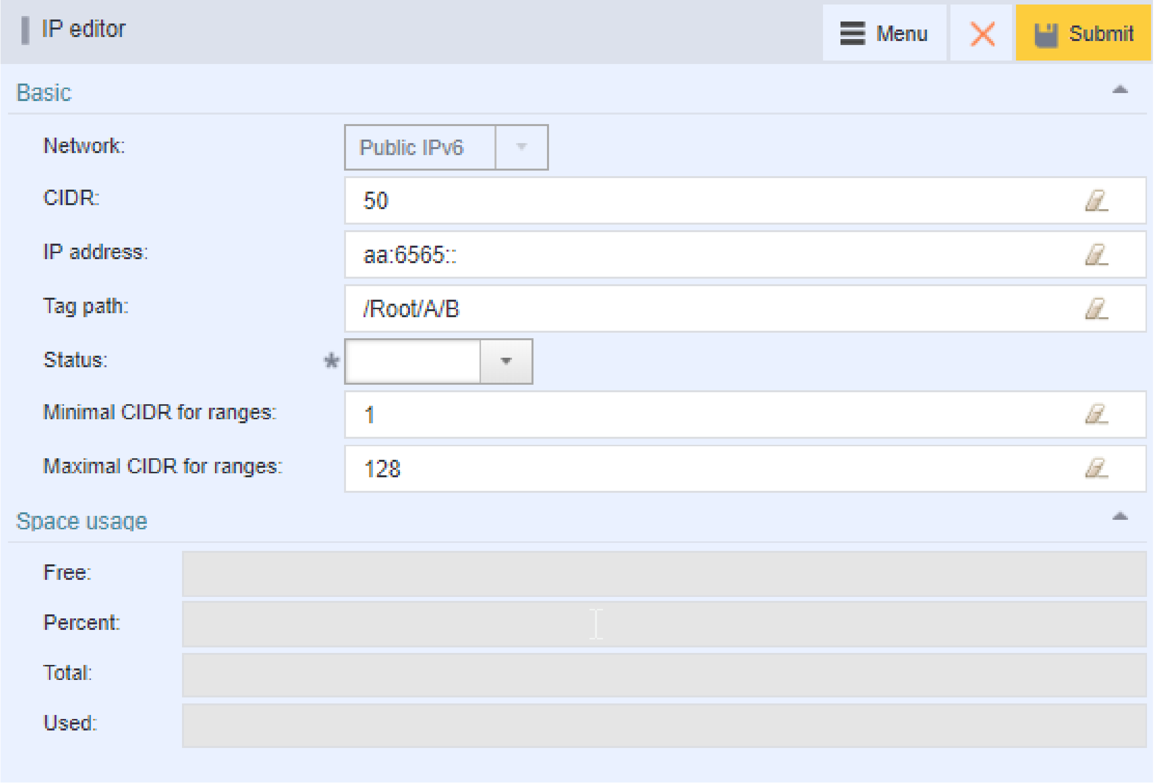
New pool can be created from the context menu by right-clicking on Free and selecting New pool.

FREE - it is not a range or consumed



Private IPv4
  Root
Public IPv4
  88.20.0.0/16 [Root](100.0%) Active
    88.20.0.0/24 [A](100.0%) Active
    88.20.1.0/24 [Root](100.0%) Active
    88.20.2.0 - 88.20.3.255 (/23) FREE
    88.20.4.0/22 [Root](100.0%) Active
    88.20.8.0/21 [Root](100.0%) Active
    88.20.16.0/21 [Root](100.0%) Active
    88.20.24.0/21 [Root](100.0%) Active

Fill all mandatory items for new IP address and confirm by Submit button. Cancel button will end creating a new IP address.



Basic

Network: Public IPv6

CIDR: 50

IP address: aa:6565::

Tag path: /Root/A/B

Status: *

Minimal CIDR for ranges: 1

Maximal CIDR for ranges: 128

Space usage

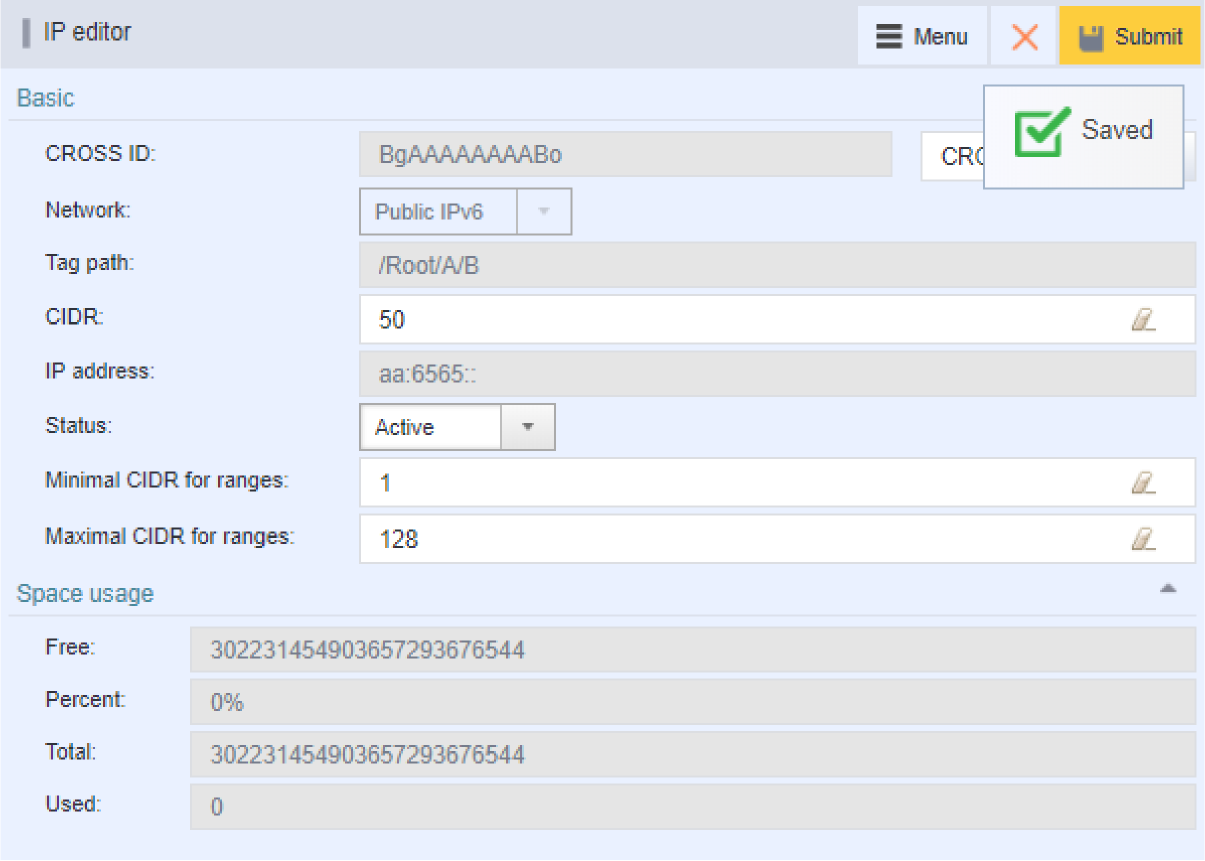
Free:

Percent:

Total:

Used:

Editor after saving.



Basic

CROSS ID: BgAAAAAAAABo

Network: Public IPv6

Tag path: /Root/A/B

CIDR: 50

IP address: aa:6565::

Status: Active

Minimal CIDR for ranges: 1

Maximal CIDR for ranges: 128

Space usage

Free: 302231454903657293676544

Percent: 0%

Total: 302231454903657293676544

Used: 0

Resizing used IP Range (Function)

Extension of IP range (smaller IP mask) will be allowed only to those values, which are near the free IP Range and has the same superior IP Range.

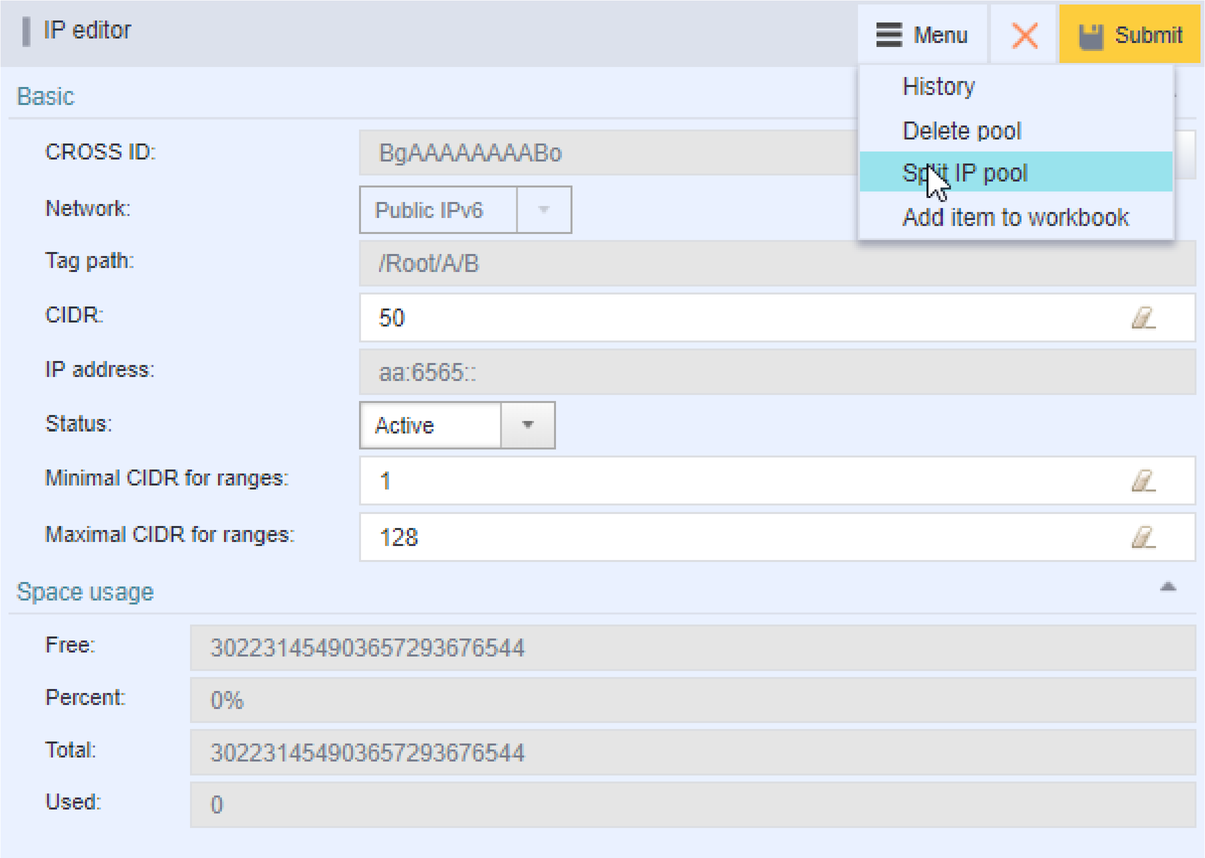
Reduction of IP Range (bigger IP mask) will be allowed only to those values, where are no child records in the edited IP Range.

Pool can be also created in the bookmark Tag tree.

3.2.3.2. Splitting occupied part of IP Pool into two parts

Select an IP range from the panel IP address tree

Select action "Split IP pool" in the IP editor


IP editor
Menu
Submit
History
Delete pool
Split IP pool
Add item to workbook
Basic
Space usage

CROSS ID: BgAAAAAAAABo

Network: Public IPv6

Tag path: /Root/A/B

CIDR: 50

IP address: aa:6565::

Status: Active

Minimal CIDR for ranges: 1

Maximal CIDR for ranges: 128

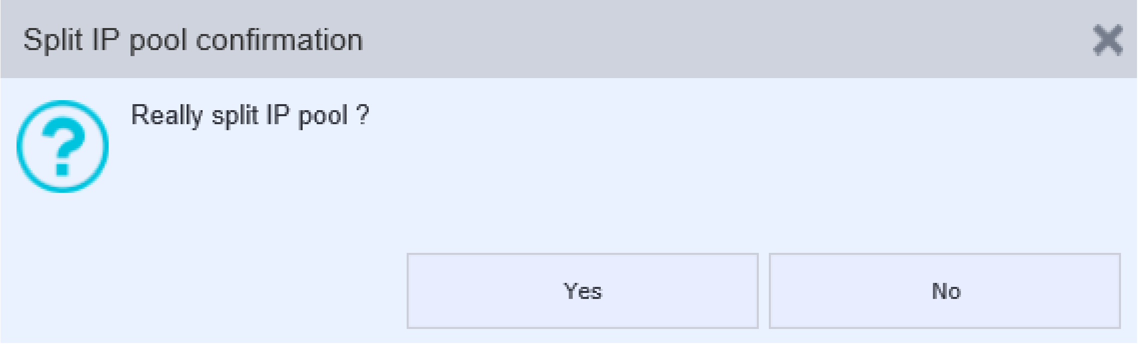
Free: 302231454903657293676544

Percent: 0%

Total: 302231454903657293676544

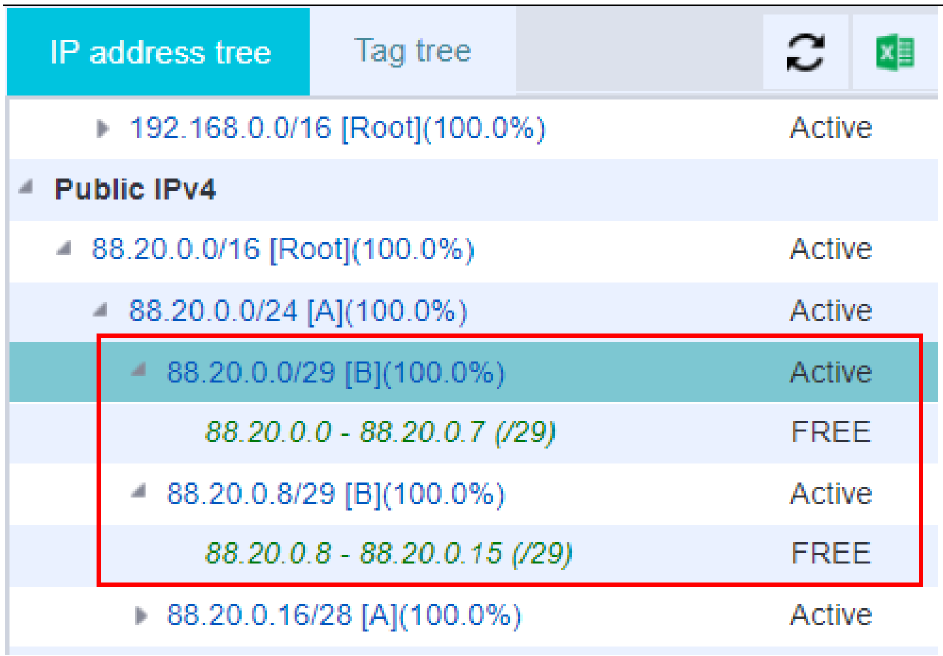
Used: 0

IP pool will be split into two IP Pools with half sizes and all descriptive attributes will remain in both objects (new IP pool will get the upper half of the range; original IP pool will get lower half of the range)


Split IP pool confirmation
Yes
No

Really split IP pool ?

Inferior objects (IP pool or IP address) will be assigned to superior objects that are related to them.



192.168.0.0/16 [Root](100.0%) Active

Public IPv4

88.20.0.0/16 [Root](100.0%) Active

88.20.0.0/24 [A](100.0%) Active

88.20.0.0/29 [B](100.0%) Active

88.20.0.0 - 88.20.0.7 (/29) FREE

88.20.0.8/29 [B](100.0%) Active

88.20.0.8 - 88.20.0.15 (/29) FREE

88.20.0.16/28 [A](100.0%) Active

3.2.3.3. Changing the state of IP Pool

Description of basic state logic for IP Pool:

When creating a new IP Pool are available to the following conditions:

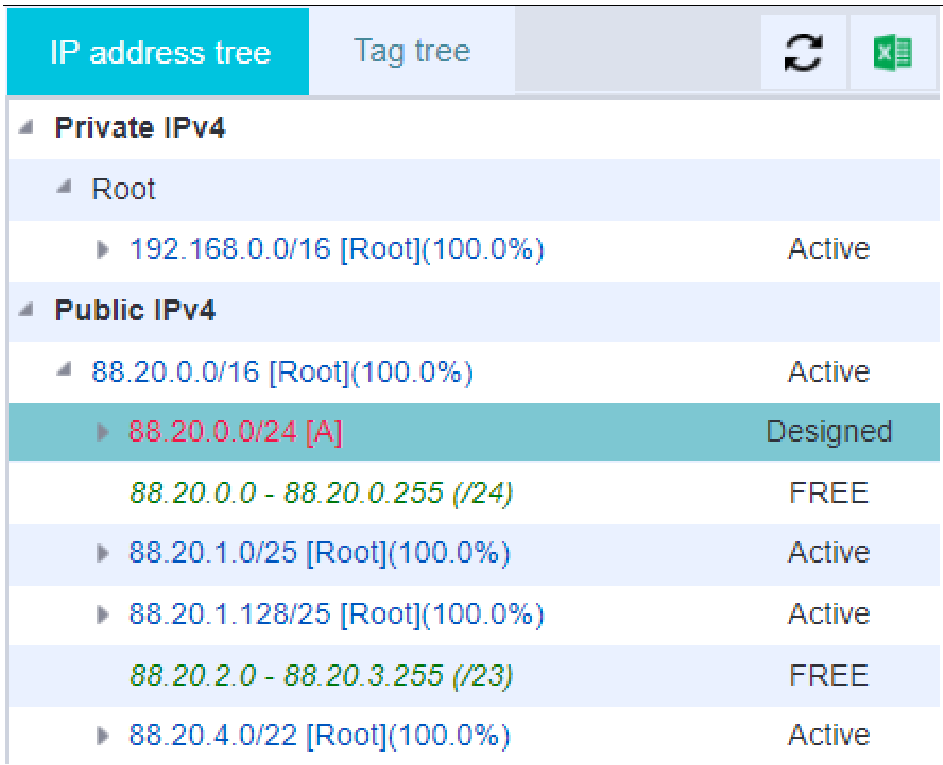
- Designed
- Active
- Deleted

Active status can be changed to Designed (IP address is changed to red).

Designed status can be changed to Active (IP address changes to blue).

Designed status can be changed to Deleted (IP address changes to blue).

FREE - it is not a range or consumed

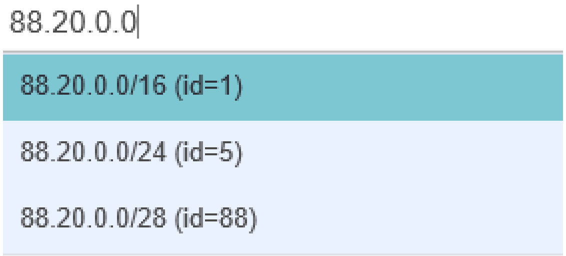


Private IPv4	
Root	
192.168.0.0/16 [Root](100.0%)	Active
Public IPv4	
88.20.0.0/16 [Root](100.0%)	Active
88.20.0.0/24 [A]	Designed
88.20.0.0 - 88.20.0.255 (/24)	FREE
88.20.1.0/25 [Root](100.0%)	Active
88.20.1.128/25 [Root](100.0%)	Active
88.20.2.0 - 88.20.3.255 (/23)	FREE
88.20.4.0/22 [Root](100.0%)	Active

3.2.3.4. IP address searching

Full-text search

It serves for fast full-text search for an existing address. By a gradual typing of (for example) IP address it is possible to select address from existing IP ranges from the list. Objects can be searched also by another attributes of IP range. After selecting one range from IP ranges, selected range will be displayed in the IP address tree and it will be loaded into the editor.

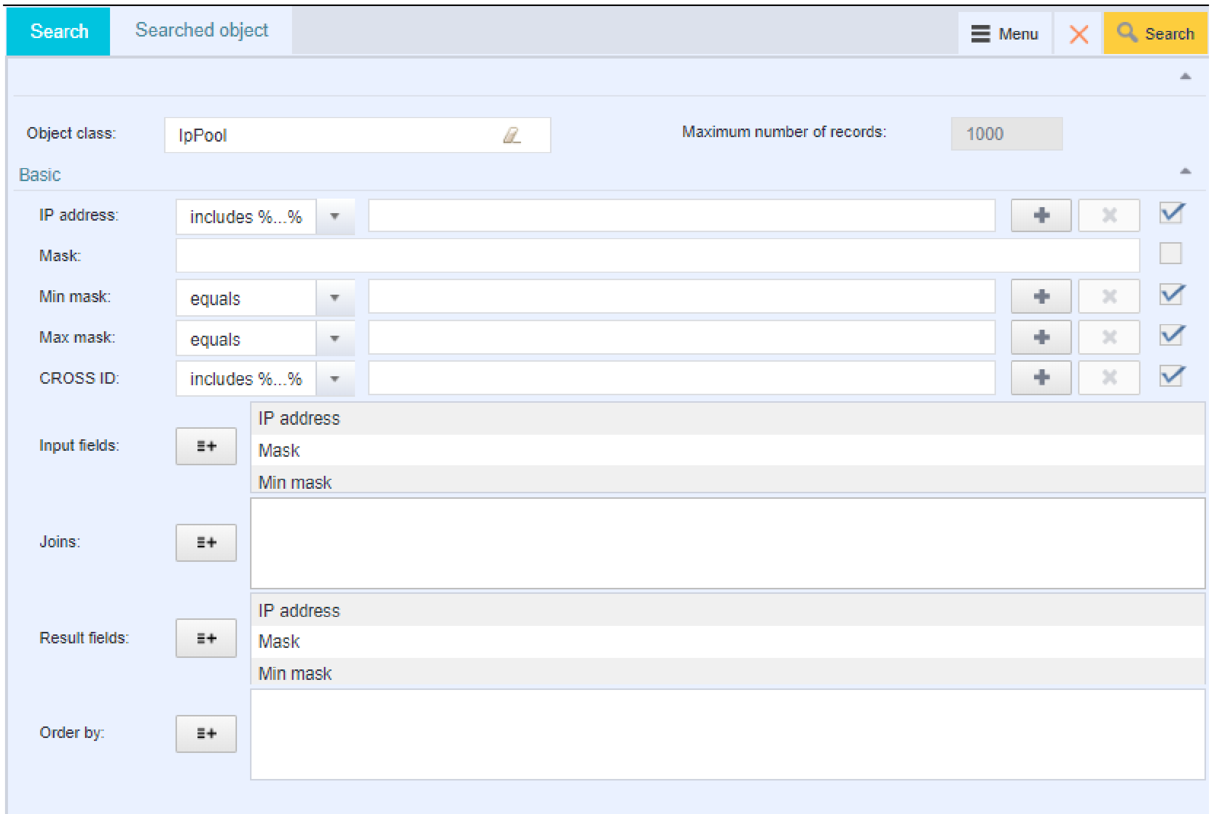


88.20.0.0

88.20.0.0/16 (id=1)
88.20.0.0/24 (id=5)
88.20.0.0/28 (id=88)

Searching by attributes

Open application module Search - beside the full-text search field click the icon . In the form, choose the Object class IP Pool. Attributes corresponding to selected object class will be displayed. After filling some of the attributes, click Search. Found IP ranges will be displayed in the table Search results. You can select any object from the table - its details will be displayed in the editor Search object. You can switch to the module IP Management from the editor drop-down menu or from the context menu of selected object. Object will be loaded into the IP view in the IP Management module.



Object class: IpPool

Maximum number of records: 1000

IP address: includes %...% ☑

Mask: ☐

Min mask: equals ☑

Max mask: equals ☑

CROSS ID: includes %...% ☑

Input fields:
- IP address
- Mask
- Min mask

Joins:

Result fields:
- IP address
- Mask
- Min mask

Order by:

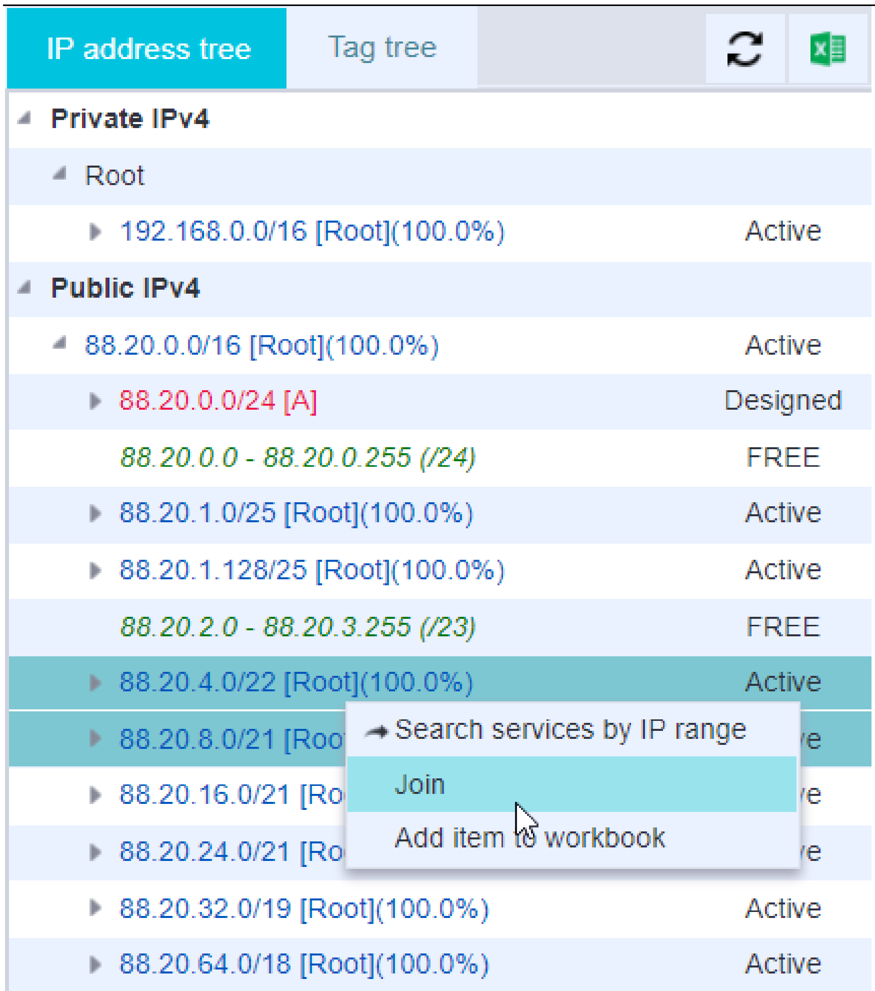
3.2.3.5. IP connection ranges

In IP addresses tree select IP connection ranges and choose action Merge from context menu. Context menu will be opened by right-click on selected ranges.

If pools doesn´t fulfill the conditions of the merge, this action won´t be available.

For connection of IP ranges will be offered near ranges so that result range will be compact IP range. Merged ranges must fulfill the same purpose, same type (occupied/ project-occupied) and parental Poll.

After selecting the target mask, selected IP ranges will be merged into one. Other attributes (e.g. custom) will be picked form the first IP range in the list.


IP address tree
Tag tree
Search services by IP range
Join
Add item to workbook

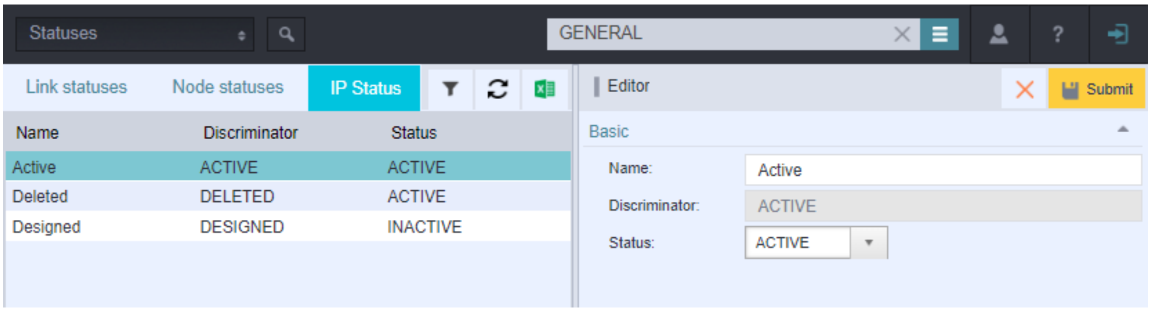
Private IPv4
Root
192.168.0.0/16 [Root](100.0%) Active
Public IPv4
88.20.0.0/16 [Root](100.0%) Active
88.20.0.0/24 [A] Designed
88.20.0.0 - 88.20.0.255 (/24) FREE
88.20.1.0/25 [Root](100.0%) Active
88.20.1.128/25 [Root](100.0%) Active
88.20.2.0 - 88.20.3.255 (/23) FREE
88.20.4.0/22 [Root](100.0%) Active
88.20.8.0/21 [Roo ve
88.20.16.0/21 [Ro ve
88.20.24.0/21 [Ro ve
88.20.32.0/19 [Root](100.0%) Active
88.20.64.0/18 [Root](100.0%) Active

Note

This symbol [/] indicates range of addresses about 65000.

3.2.3.6. Setting status in Configuration Module

Module Configuration, state window in bookmark IP status you can define each one IP address.

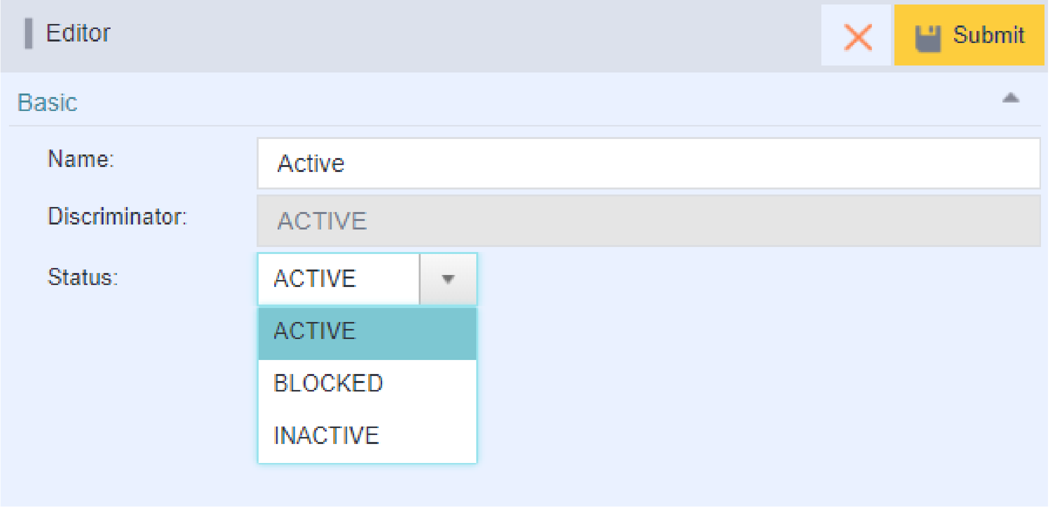

Statuses
GENERAL
Link statuses
Node statuses
IP Status
Editor
Submit
Basic

Name	Discriminator	Status
Active	ACTIVE	ACTIVE
Deleted	DELETED	ACTIVE
Designed	DESIGNED	INACTIVE

Name: Active
Discriminator: ACTIVE
Status: ACTIVE

New state can be added in Editor. Right-click to P1 panel and select New state from context menu. Fill mandatory data Name, Discriminator and State) in the empty Editor:

- ACTIVE - for one value
- BLOCKED - for one value
- INACTIVE - for multiple values



Editor
Submit
Basic

Name: Active

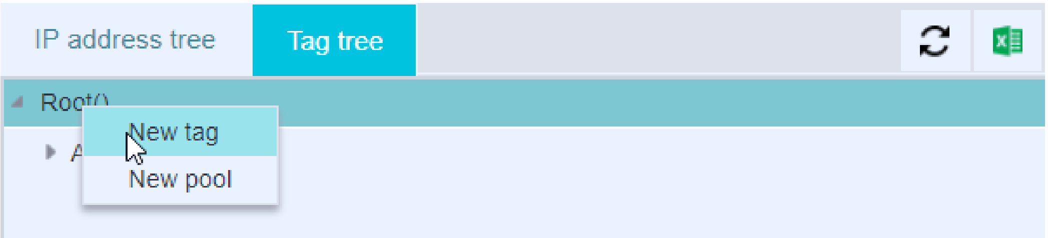
Discriminator: ACTIVE

Status: ACTIVE

ACTIVE
BLOCKED
INACTIVE

3.2.3.7. Create new tag

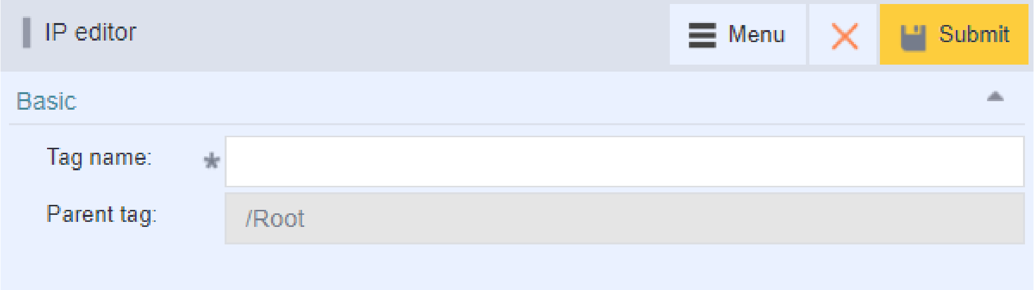
New tag can be created in the Tag tree bookmark.



IP address tree
Tag tree
Root()
New tag
New pool

From the context menu, you can create a New tag, New pool:

The IP editor is then activated. After creating a new tag, fill the mandatory fields and click Submit. If you do not want to save the changes, click Cancel.

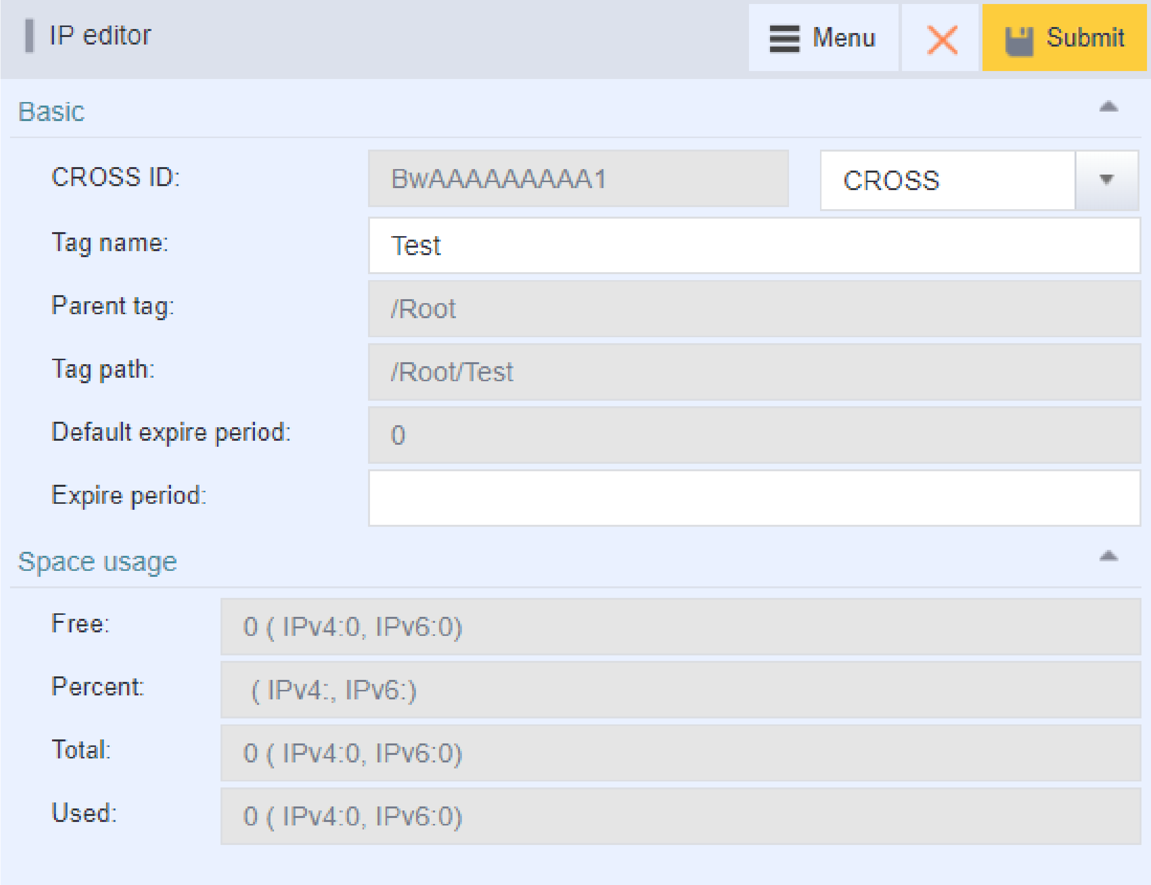


IP editor
Menu
Submit
Basic

Tag name: *

Parent tag: /Root

Other attributes are displayed in the editor after saving.


IP editor
Menu
Submit

Basic

CROSS ID: BwAAAAAAAAA1 CROSS

Tag name: Test

Parent tag: /Root

Tag path: /Root/Test

Default expire period: 0

Expire period:

Space usage

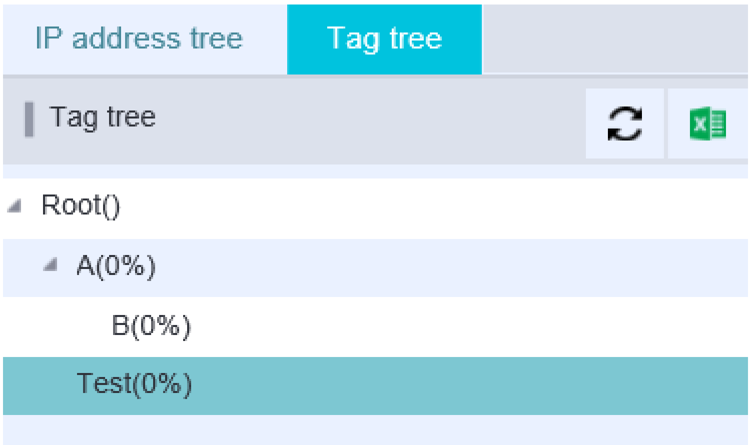
Free: 0 (IPv4:0, IPv6:0)

Percent: (IPv4:, IPv6:)

Total: 0 (IPv4:0, IPv6:0)

Used: 0 (IPv4:0, IPv6:0)

New tag will be displayed in the Tag tree.

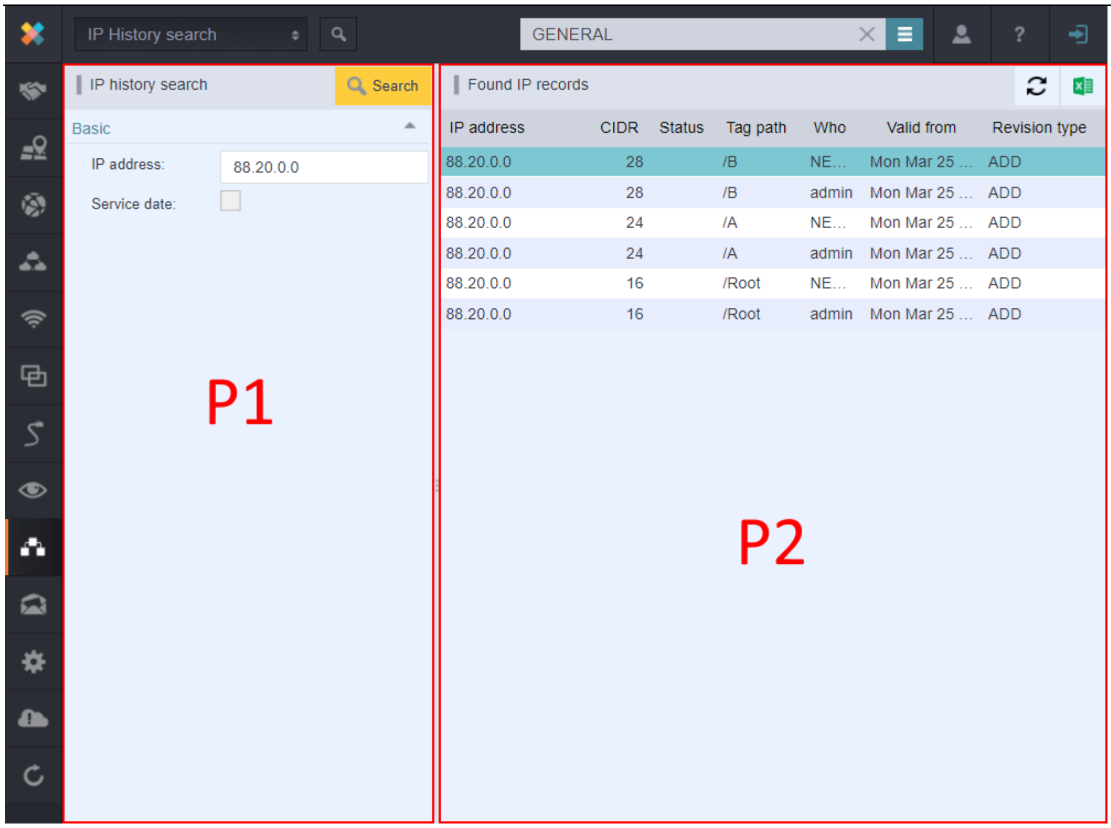

IP address tree
Tag tree
Tag tree
Root()
A(0%)
B(0%)
Test(0%)

3.2.4. IP History search

IP History search is used to search and display IP address history.

Opening window of IP History search is divided into two parts:

- P1 - IP History search
- P2 - Found IP records



IP history search — Search

Basic

IP address: 88.20.0.0

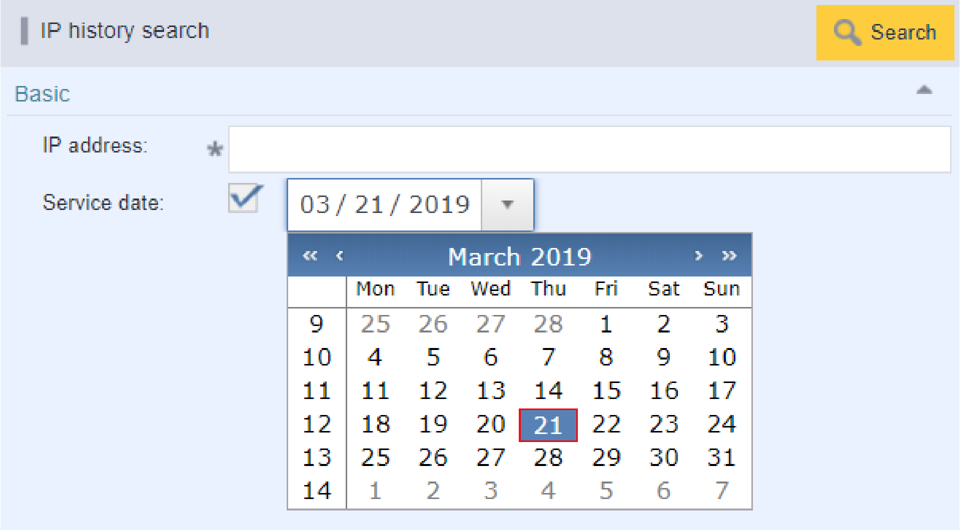
Service date: ☐

Found IP records

IP address	CIDR	Status	Tag path	Who	Valid from	Revision type
88.20.0.0	28		/B	NE...	Mon Mar 25 ...	ADD
88.20.0.0	28		/B	admin	Mon Mar 25 ...	ADD
88.20.0.0	24		/A	NE...	Mon Mar 25 ...	ADD
88.20.0.0	24		/A	admin	Mon Mar 25 ...	ADD
88.20.0.0	16		/Root	NE...	Mon Mar 25 ...	ADD
88.20.0.0	16		/Root	admin	Mon Mar 25 ...	ADD

3.2.4.1. P1 - IP History search

To view an IP address history, you must first find the address. Enter the IP address and click Search.



IP history search — Search

Basic

IP address: *

Service date: ☑ 03 / 21 / 2019

« ‹ March 2019 › »

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
9	25	26	27	28	1	2	3
10	4	5	6	7	8	9	10
11	11	12	13	14	15	16	17
12	18	19	20	21	22	23	24
13	25	26	27	28	29	30	31
14	1	2	3	4	5	6	7

Found IP address is displayed in the panel Found IP records.

3.2.4.2. P2 - Found IP records

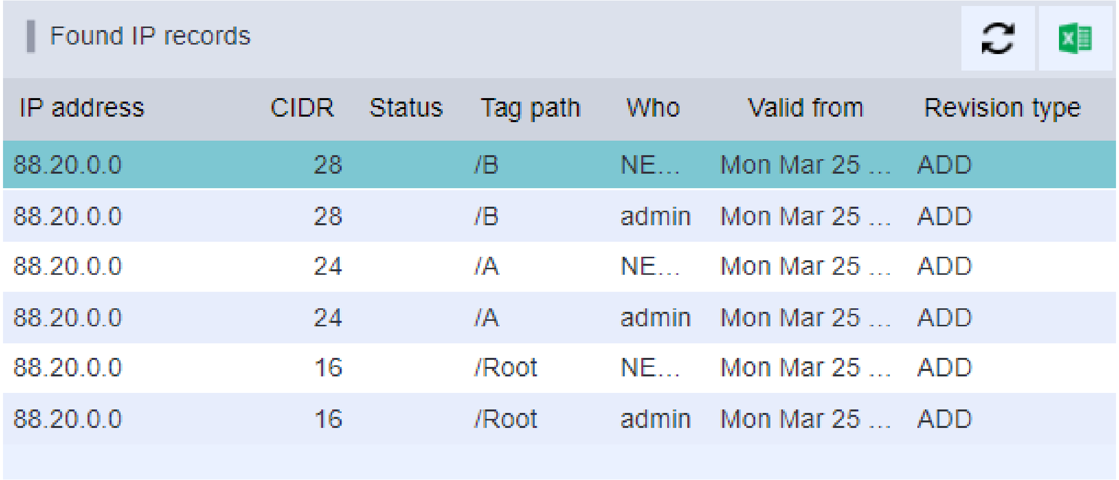
Found IP records:

These values are displayed in the table Found IP records: IP address, CIDR, State, Tag path, Who (changed) and Valid from.

CIDR - address mask (count of valid address bits)

Valid from - date of creation or change

Type of change - can be ADD (added) or MOD (modified)



IP address	CIDR	Status	Tag path	Who	Valid from	Revision type
88.20.0.0	28		/B	NE…	Mon Mar 25 …	ADD
88.20.0.0	28		/B	admin	Mon Mar 25 …	ADD
88.20.0.0	24		/A	NE…	Mon Mar 25 …	ADD
88.20.0.0	24		/A	admin	Mon Mar 25 …	ADD
88.20.0.0	16		/Root	NE…	Mon Mar 25 …	ADD
88.20.0.0	16		/Root	admin	Mon Mar 25 …	ADD

3.3. MODULE MATERIAL – catalogue of materials and material templates

Chapter overview:

3.3.1. Description of module environment

3.3.2. Material view

3.3.2.1 P1 - Material Tree Structure

3.3.2.2 P2 - Editor

3.3.3. Usage of user interface

3.3.3.1. Create material node

3.3.3.2. Create material link

3.3.3.3. Create material template node

3.3.3.4. Create material template link

3.3.3.5. Create new template from material

3.3.3.6. Deleting materials and material templates

3.3.3.7. Duplicating material template

3.3.3.8. Creating search queries

3.3.3.9. Methods of use material templates

3.3.3.10. Material search

3.3.1. Description of module environment

Module Material serves to record materials and material templates and their attributes across various technical systems, and mutual mapping of specifications in those systems. By this, it is possible to create material templates for specific types of nodes and links, which greatly simplifies the work, especially in more complicated system architecture, and there, where strict logic of used elements is required. These objects are used when new assets are documented in network inventory.

In this module, it is possible to create – insert materials and material templates and define their attributes and methods of use. It is also possible to search (filter) materials and material templates by the defined parameters. Classic full-text search can be used as in other modules and is in the application header (the search field is situated next to the application logo).

The module can be opened by clicking this icon

The module consists of one view:

- Materials

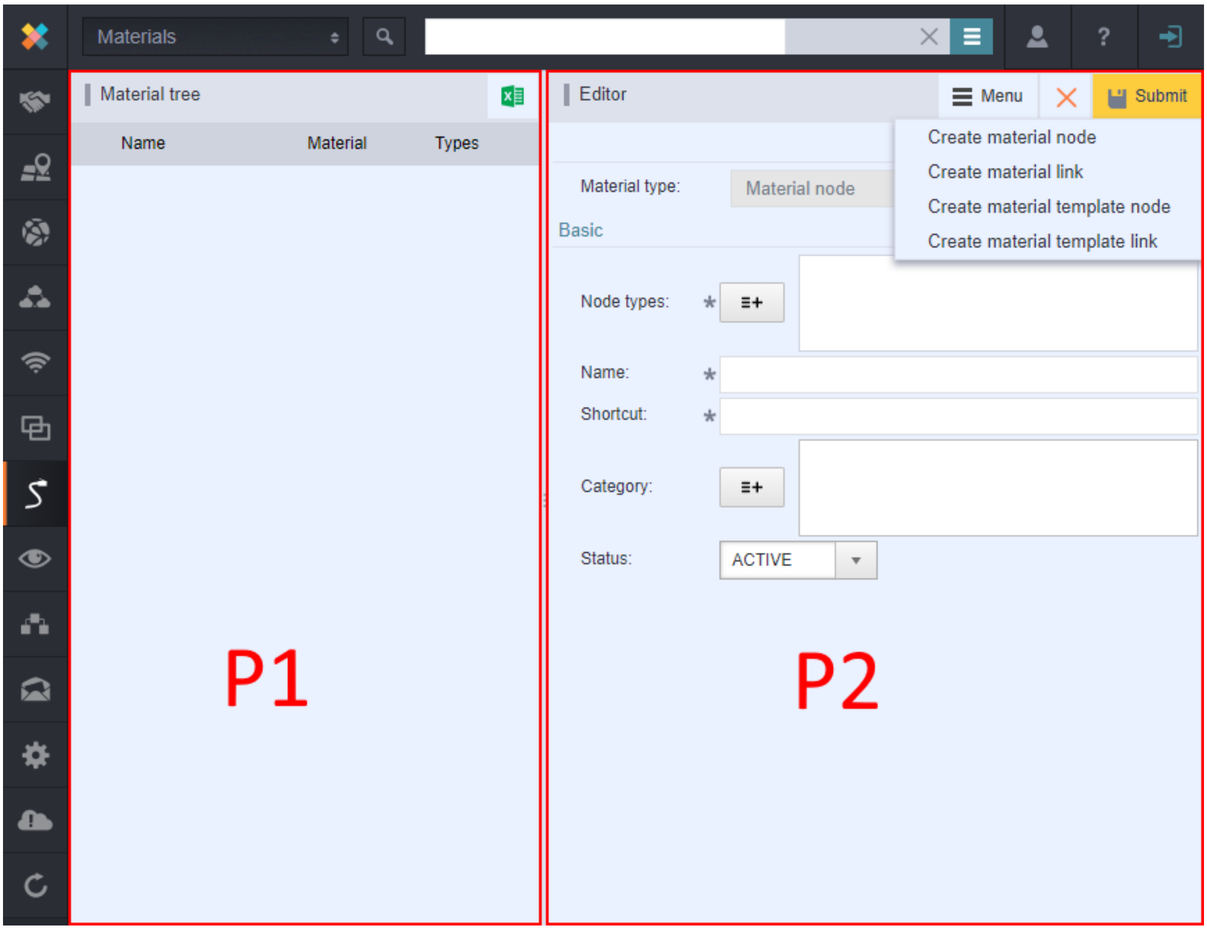
Materials
Materials

3.3.2. Materials view

Materials view is divided into two panels:

- P1 - Material tree structure
- P2 - Editor

Default view of Materials module.


Materials
Material tree
Name
Material
Types
Editor
Menu
Submit
Create material node
Create material link
Create material template node
Create material template link
Basic
P1
P2

Material type: Material node

Node types: *

Name: *

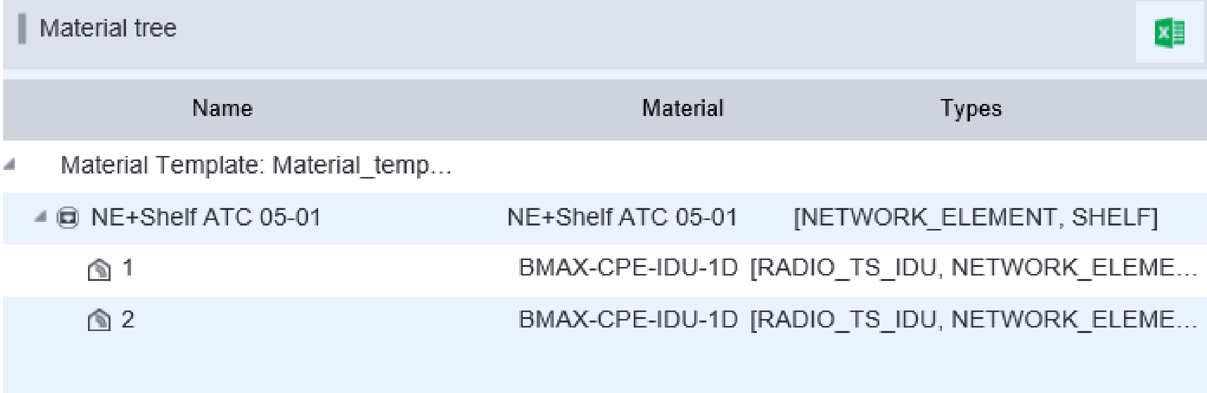
Shortcut: *

Category:

Status: ACTIVE

3.3.2.1. P1 - Material tree structure

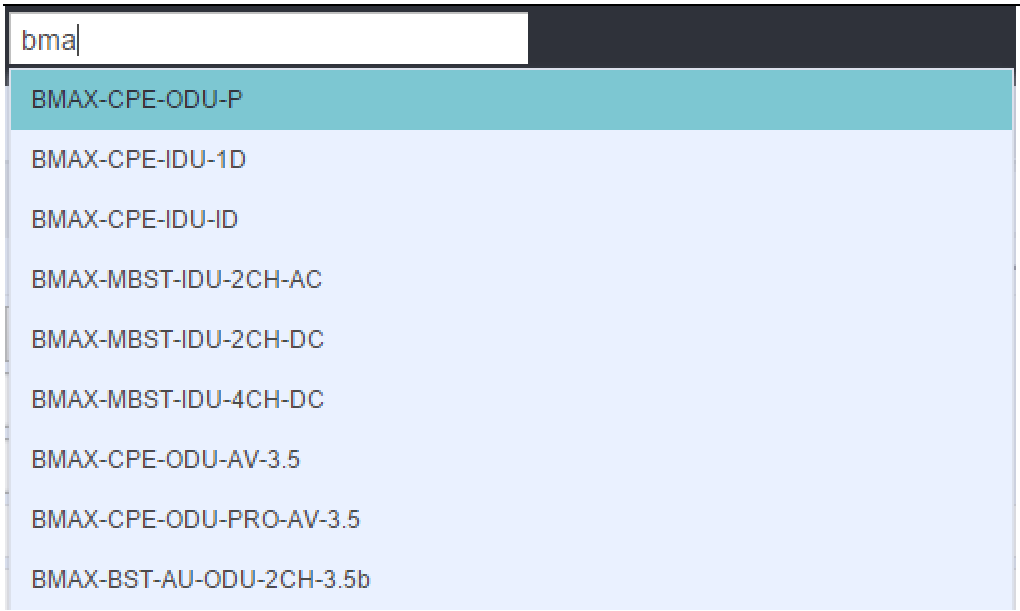
When ran for the first time, the panel is empty. The tree structure is shown only once a material or template is created in the Editor.



Material tree

Name	Material	Types
Material Template: Material_temp…		
NE+Shelf ATC 05-01	NE+Shelf ATC 05-01	[NETWORK_ELEMENT, SHELF]
1	BMAX-CPE-IDU-1D	[RADIO_TS_IDU, NETWORK_ELEME…
2	BMAX-CPE-IDU-1D	[RADIO_TS_IDU, NETWORK_ELEME…

Full-text search is available in the top part of the module.



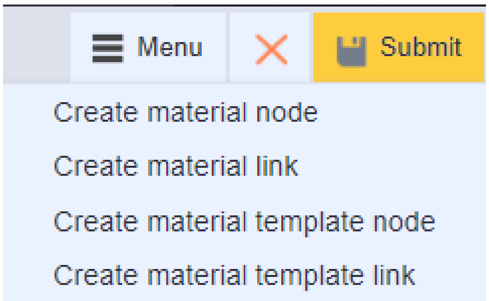
bma

BMAX-CPE-ODU-P
BMAX-CPE-IDU-1D
BMAX-CPE-IDU-ID
BMAX-MBST-IDU-2CH-AC
BMAX-MBST-IDU-2CH-DC
BMAX-MBST-IDU-4CH-DC
BMAX-CPE-ODU-AV-3.5
BMAX-CPE-ODU-PRO-AV-3.5
BMAX-BST-AU-ODU-2CH-3.5b

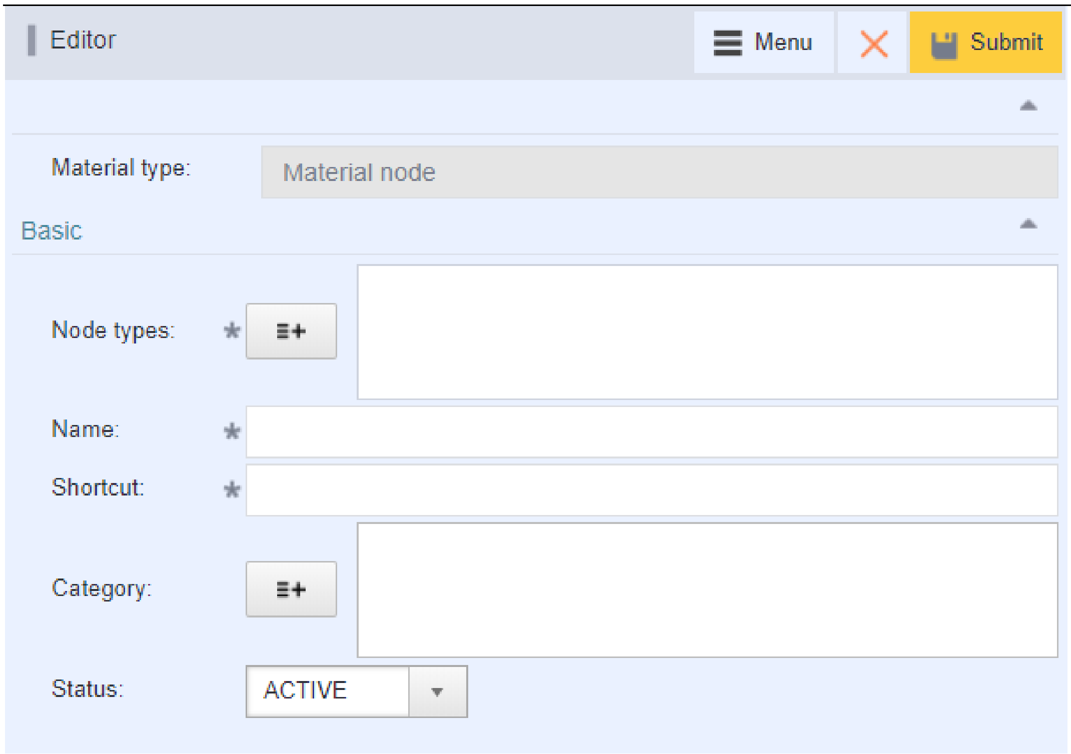
3.3.2.2. P2 - Editor

Editor menu contains these items:

- Create material node
- Create material link
- Create material template node
- Create material template link


Menu
Submit
Create material node
Create material link
Create material template node
Create material template link

The editor can be used for searching, creating and editing of materials for node or link device types and also node and link material templates.

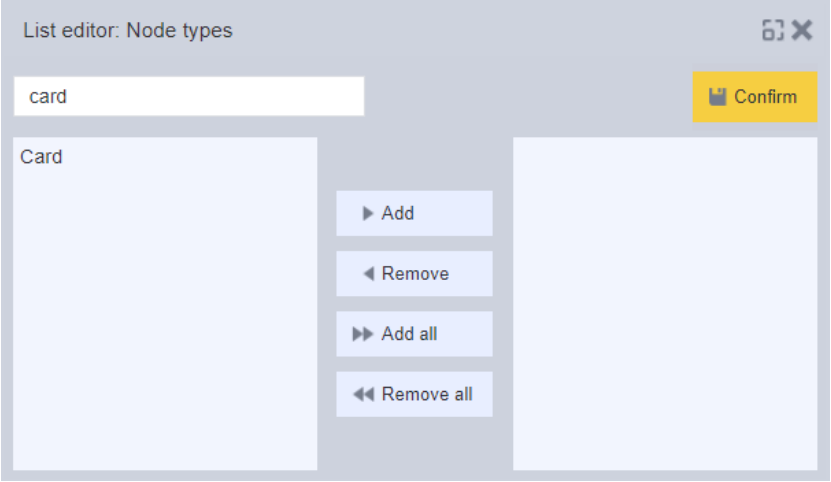

Editor
Menu
Submit
Basic
Node types: *
Name: *
Shortcut: *
Category:

Material type: Material node

Status: ACTIVE

Values can be filled into the editor directly by entering the value into the field or by selecting them from a drop-down list. At some attributes, e.g. Node types, the selection of values may be performed by clicking on the icon ≡+ - a dialogue window for selecting the given node type will open. It is possible to use a filter, which is to be found at all similar multi-selections.

You can see the filter "link" used on the picture below. Only nodes containing the word "link" are displayed.


List editor: Node types
Confirm
Add
Remove
Add all
Remove all

card

Card

3.3.3. Usage of user interface

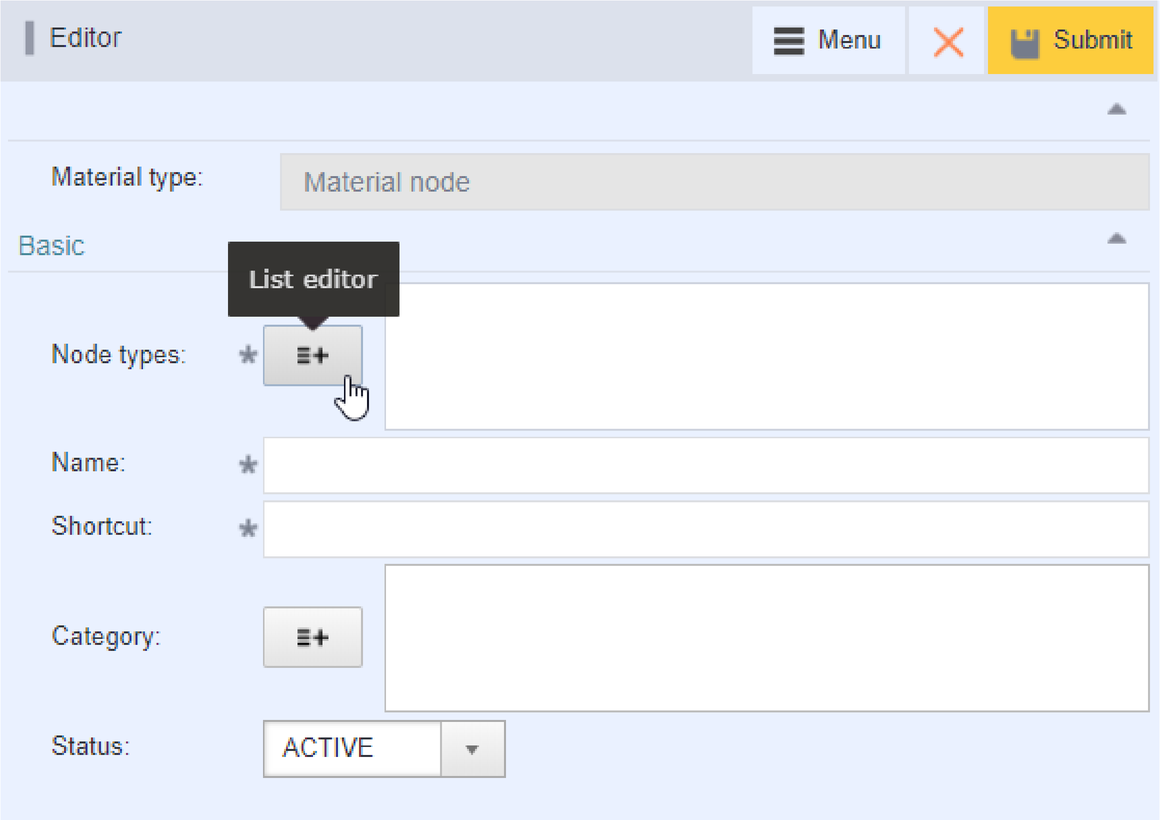
In this chapter are basics description of functions and means of work in the Materials module.

3.3.3.1. Create material node

Shelf is an example of node material. The system keeps record of the name of the material, its shortcut, the node type it is used for (more than one type can be assigned), the technology it is used for (also more than one technology type can be assigned) and state of the material, whether it is active or inactive. These parameters are monitored for all types of node materials. Other specific parameters (producer, height, depth etc.) may differ according to the material type.

New material is created in Material editor panel in Material view – nodes or Material – links. By clicking on the drop–down menu chooses Create new material. An empty editor appears, and material values can be inserted.

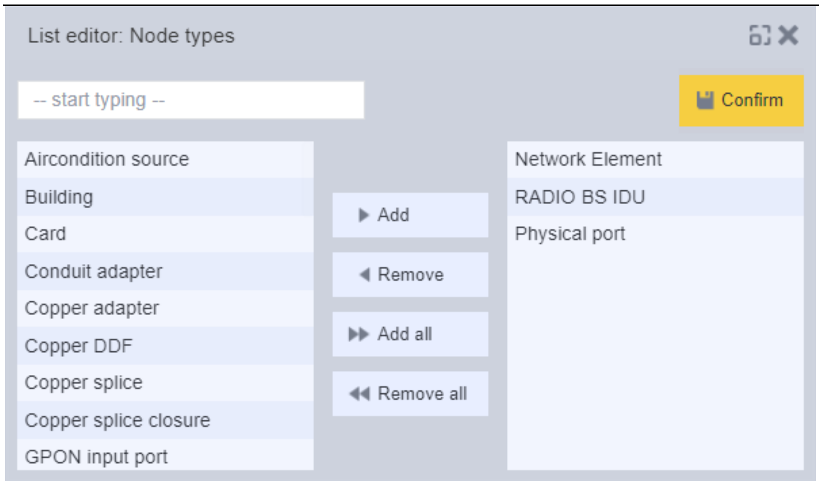
Node types attribute contains a selection of node types that are selected for given material. Material can then be inserted into a node that is superior to the selected type (in the editor of the given node in the Locality module). It is possible to select more than one node types for one material. A window for a node type selection open by clicking the icon ≡+. Select the corresponding type form the list of all types on the left and click the button Add. It is possible to use multi–select (holding down CTRL and clicking on the values, then click Add) or add all of the values by clicking the button "Add all" if there are multiple types.



Material type: Material node

Status: ACTIVE

This function - one material for more node types at once - can be used in the situation, when one "piece" of material performs multiple functions, e.g. a physical port also functions as a logical port, or (when talking about radio nodes) BS ODU functions also as an antenna. When creating a node structure in the Locality module, you can insert one node instead of two, because one node contains attributes of the second node. That means that only one node is inserted at ports instead of two nodes (physical and logical ports). The only node inserted is then the physical port with attributes of a logical port.

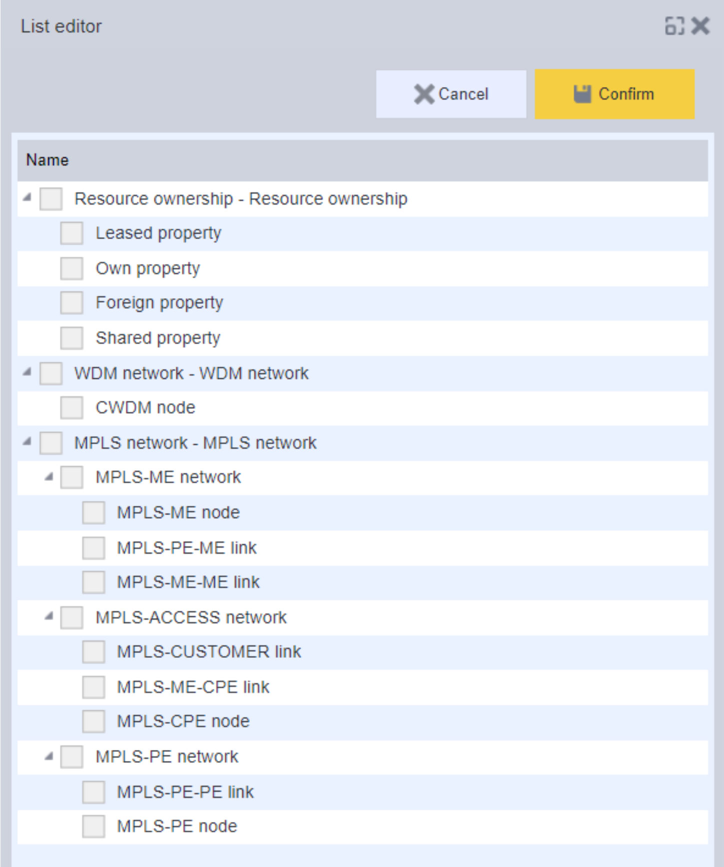


Aircondition source
Building
Card
Conduit adapter
Copper adapter
Copper DDF
Copper splice
Copper splice closure
GPON input port

Network Element
RADIO BS IDU
Physical port

Categories

The Category item is active only after the Editor is saved.



Name
☐ Resource ownership - Resource ownership
☐ Leased property
☐ Own property
☐ Foreign property
☐ Shared property
☐ WDM network - WDM network
☐ CWDM node
☐ MPLS network - MPLS network
☐ MPLS-ME network
☐ MPLS-ME node
☐ MPLS-PE-ME link
☐ MPLS-ME-ME link
☐ MPLS-ACCESS network
☐ MPLS-CUSTOMER link
☐ MPLS-ME-CPE link
☐ MPLS-CPE node
☐ MPLS-PE network
☐ MPLS-PE-PE link
☐ MPLS-PE node

The same way of selecting multiple values can be applied when selecting technologies.

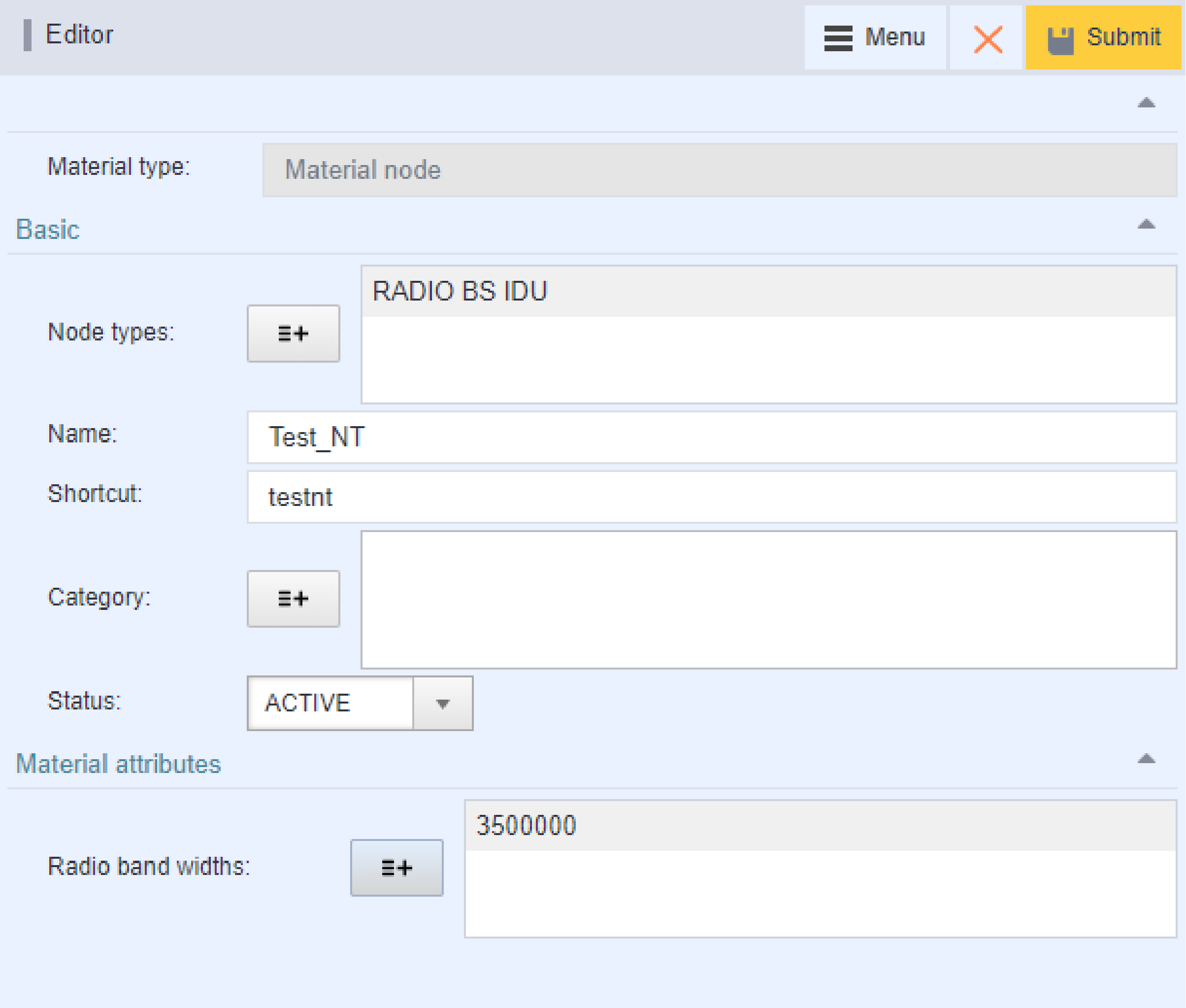
Mandatory fields marked by the icon * must be filled in.

Meaning of the attribute State:

- if of INACTIVE value, it cannot be inserted into material template or into locality, and it is not possible to create a circuit from it
- if a material is part of some material template (meaning in the ACTIVE state) it cannot be switched into the INACTIVE state
- the same rules for State attribute apply not only for material but also for material template

After entering all values, save the editor.

The editor can be extended with additional attributes depending on the selected node type.


Editor
Menu
Submit
Basic
Material attributes

Material type: Material node

Node types: RADIO BS IDU

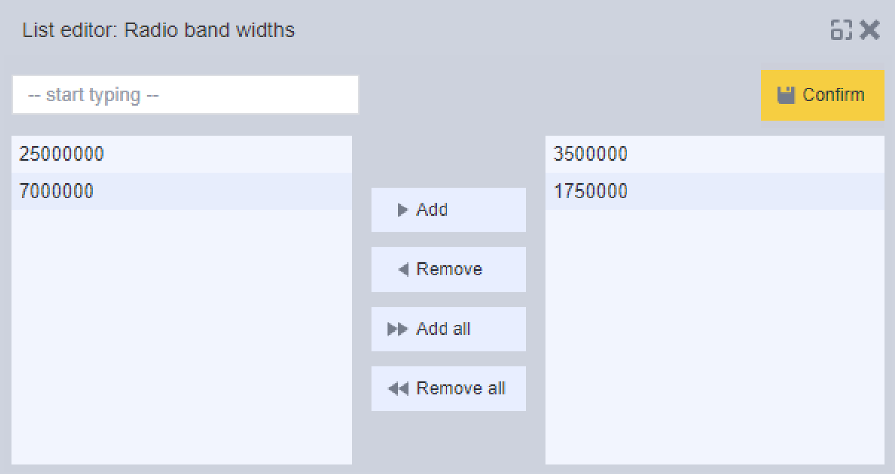
Name: Test_NT

Shortcut: testnt

Category:

Status: ACTIVE

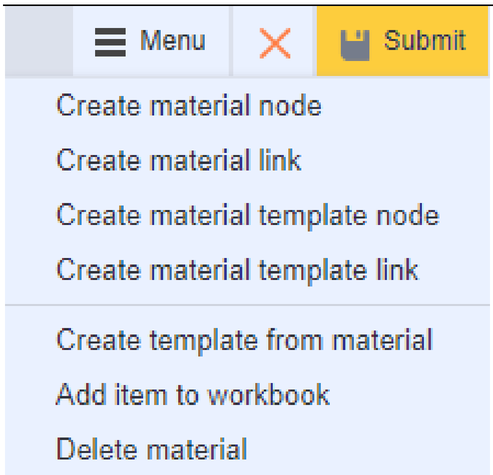
Radio band widths: 3500000


List editor: Radio band widths
-- start typing --
Confirm
Add
Remove
Add all
Remove all

25000000	3500000
7000000	1750000

After saving the created material, the Menu will change, more items will appear:

- Create new template from material
- Add item into workbook
- Delete material

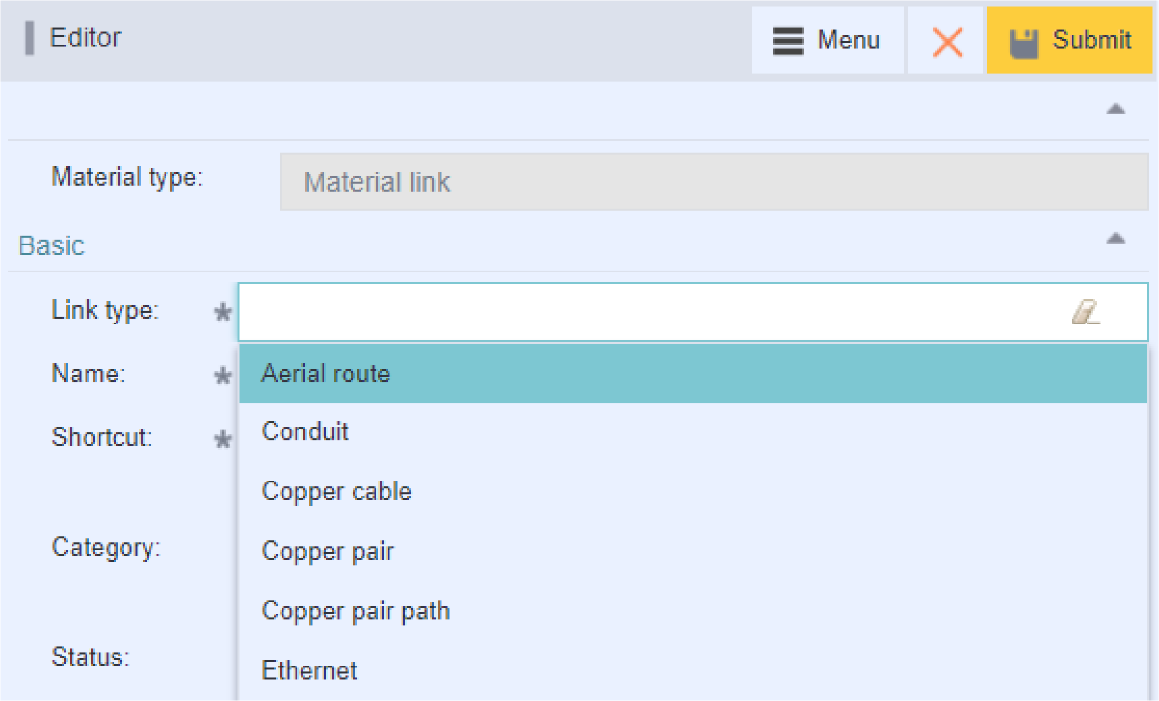

Menu
Submit
Create material node
Create material link
Create material template node
Create material template link
Create template from material
Add item to workbook
Delete material

3.3.3.2. Create material link

The editor can be used for searching, creating and editing of materials for link device types.

Optical bundle is an example of link material. The system keeps record of the name of the material, its shortcut, the link type it is used for (more than one type can be assigned), the technology it is used for (also more than one technology type can be assigned) and also state of the material, whether it is active or inactive. These parameters are monitored for all types of link materials. Other specific parameters (producer, height, depth etc.) may differ according to the material type.

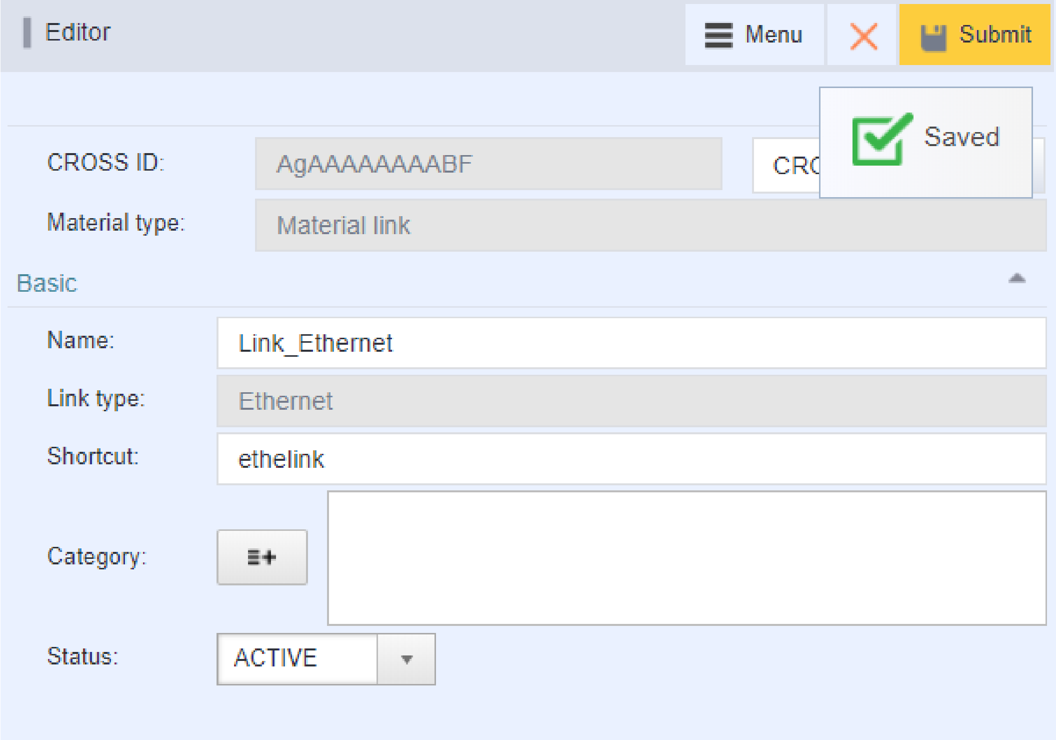
New link material can be created from the Menu in the Editor. An empty editor will be displayed:


Editor
Menu
Submit
Basic
Link type: *
Name: *
Shortcut: *
Category:
Status:
Aerial route
Conduit
Copper cable
Copper pair
Copper pair path
Ethernet

Material type: Material link

Field of link type Material link is now enhanced by autocomplete (previously select only field)

Insert the mandatory data and save.



CROSS ID: AgAAAAAAABF

Material type: Material link

Basic

Name: Link_Ethernet

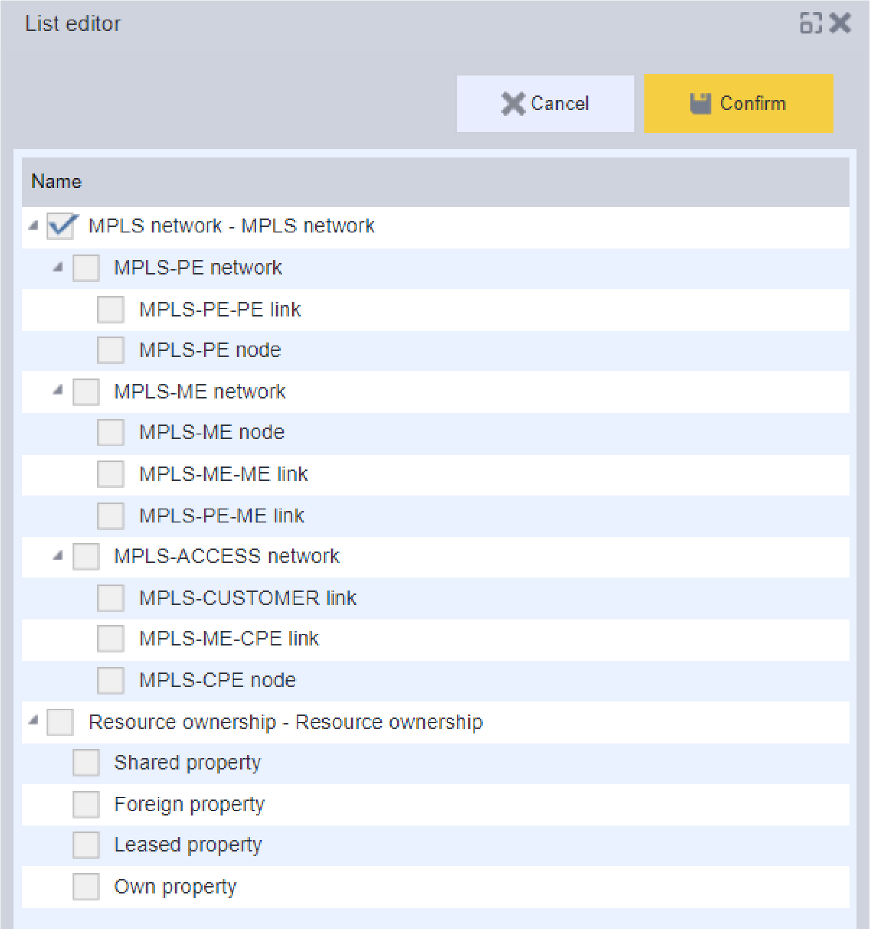
Link type: Ethernet

Shortcut: ethelink

Category:

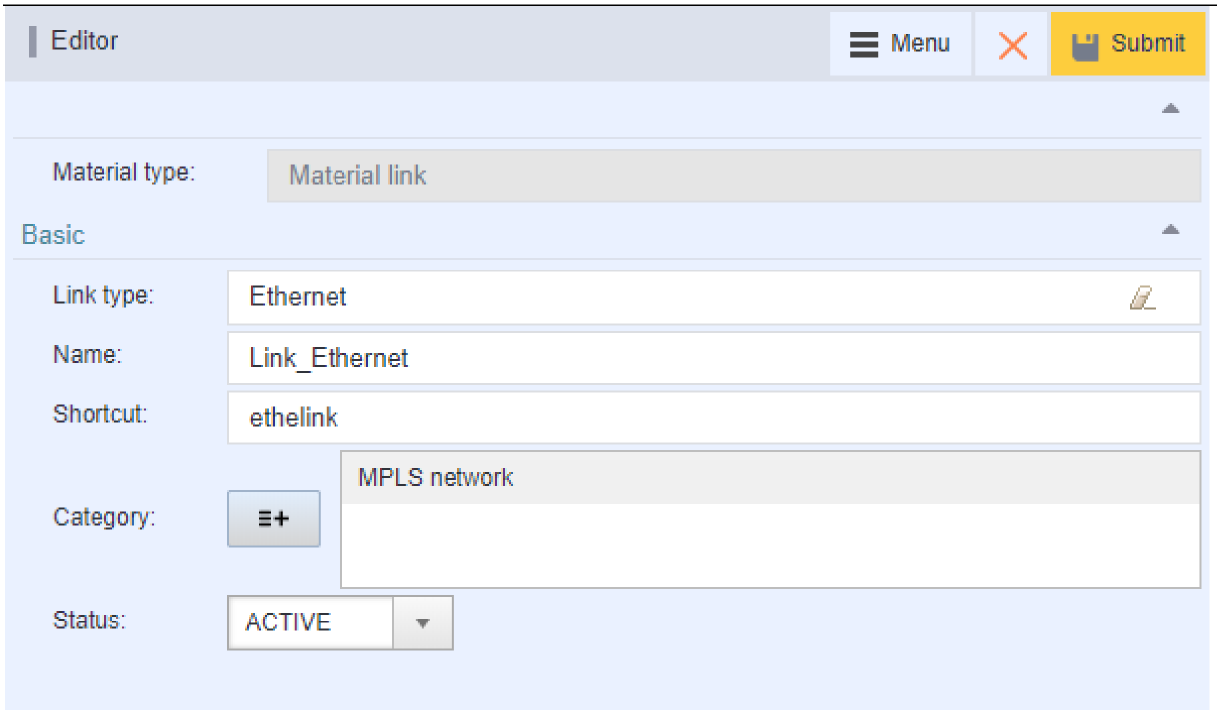
Status: ACTIVE

After saving the Editor, we may add the link into a Category.



- ☑ MPLS network - MPLS network
  - ☐ MPLS-PE network
    - ☐ MPLS-PE-PE link
    - ☐ MPLS-PE node
  - ☐ MPLS-ME network
    - ☐ MPLS-ME node
    - ☐ MPLS-ME-ME link
    - ☐ MPLS-PE-ME link
  - ☐ MPLS-ACCESS network
    - ☐ MPLS-CUSTOMER link
    - ☐ MPLS-ME-CPE link
    - ☐ MPLS-CPE node
- ☐ Resource ownership - Resource ownership
  - ☐ Shared property
  - ☐ Foreign property
  - ☐ Leased property
  - ☐ Own property

After saving, the chosen Category will appear in the Editor.


Editor
Menu
Submit
Basic

Material type: Material link

Link type: Ethernet

Name: Link_Ethernet

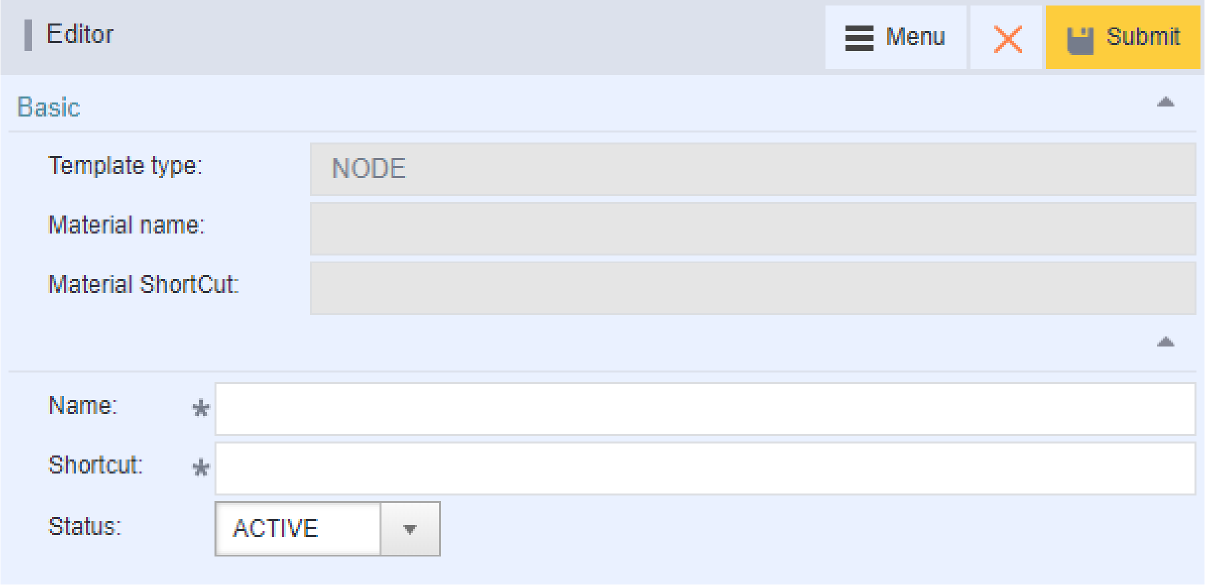
Shortcut: ethelink

Category: MPLS network

Status: ACTIVE

3.3.3.3. Create material template node

Select New link material template from the Menu. An empty Editor will open.


Editor
Menu
Submit
Basic

Template type: NODE

Material name:

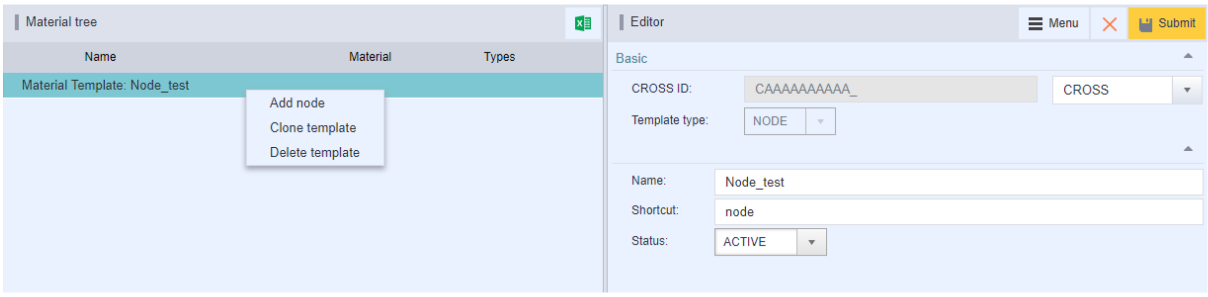
Material ShortCut:

Name: *

Shortcut: *

Status: ACTIVE

Insert the mandatory items Name and Shortcut. Then save. The created template will be shown in P1 panel - Material tree structure.


Material tree
Name
Material
Types
Add node
Clone template
Delete template
Editor
Menu
Submit
Basic

Material Template: Node_test

CROSS ID: CAAAAAAAAAA_ CROSS

Template type: NODE

Name: Node_test

Shortcut: node

Status: ACTIVE

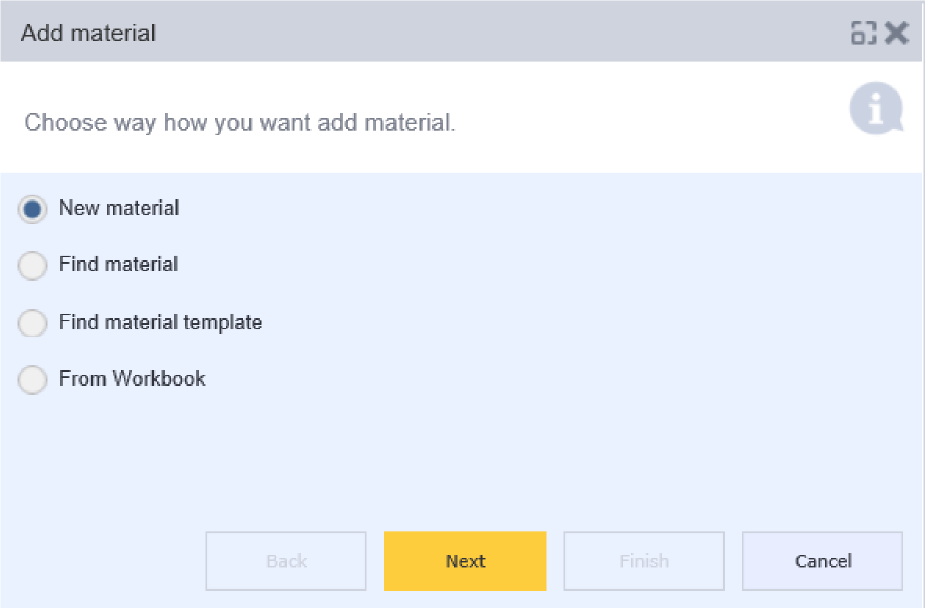
The context menu in the created link material template contains the following items:

- Insert link
- Duplicate material template
- Delete material template

Insert node

Add material with the following options will appear after selecting this menu:

- New material
- Search for material
- Search for material template
- From Workbook

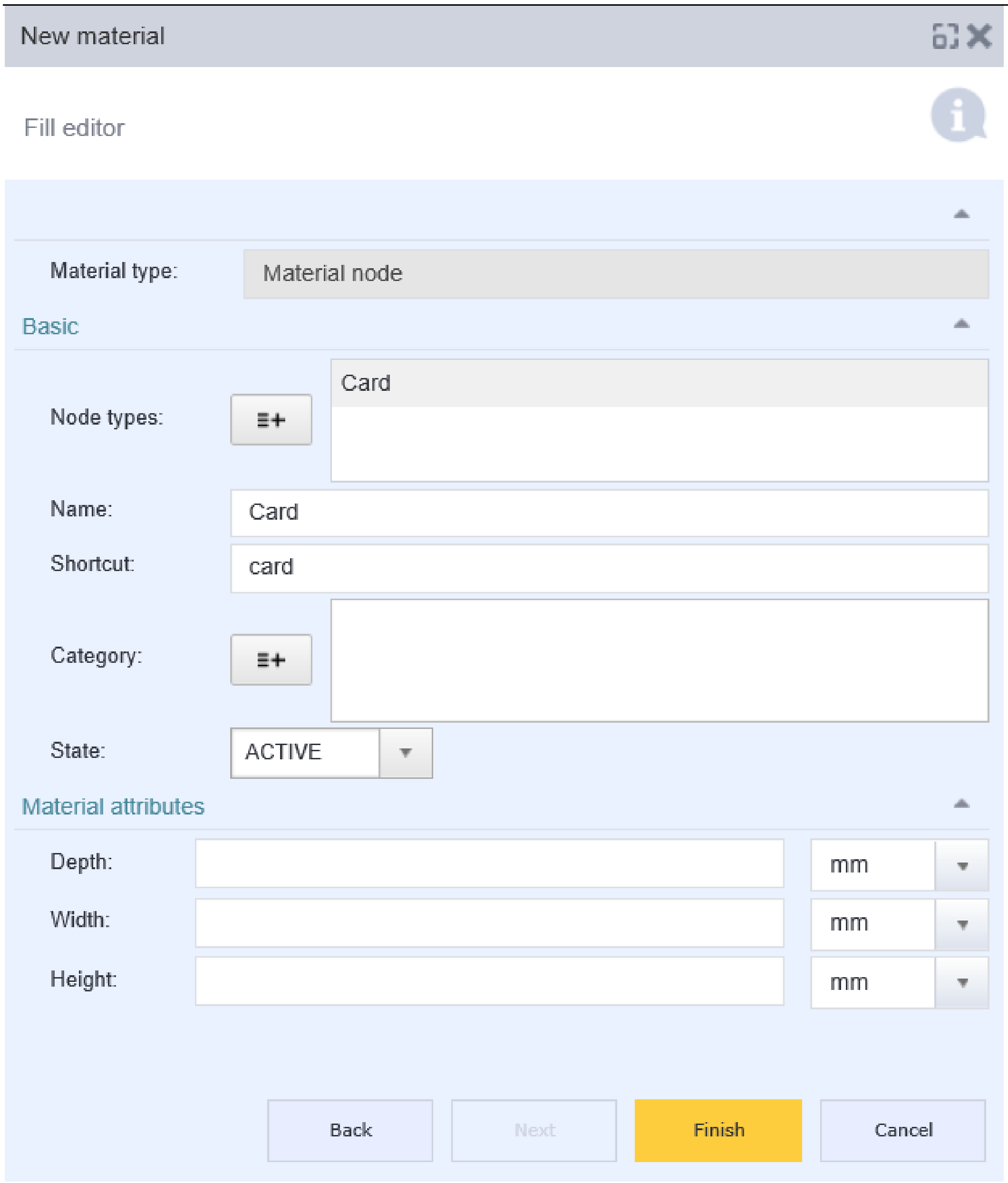


Add material

Choose way how you want add material.

● New material
○ Find material
○ Find material template
○ From Workbook

Select New material and then click Next. An editor for new material will appear. Insert mandatory data and click Finish.


New material
Fill editor
Basic
Material attributes
Back
Next
Finish
Cancel

Material type: Material node

Node types: Card

Name: Card

Shortcut: card

Category:

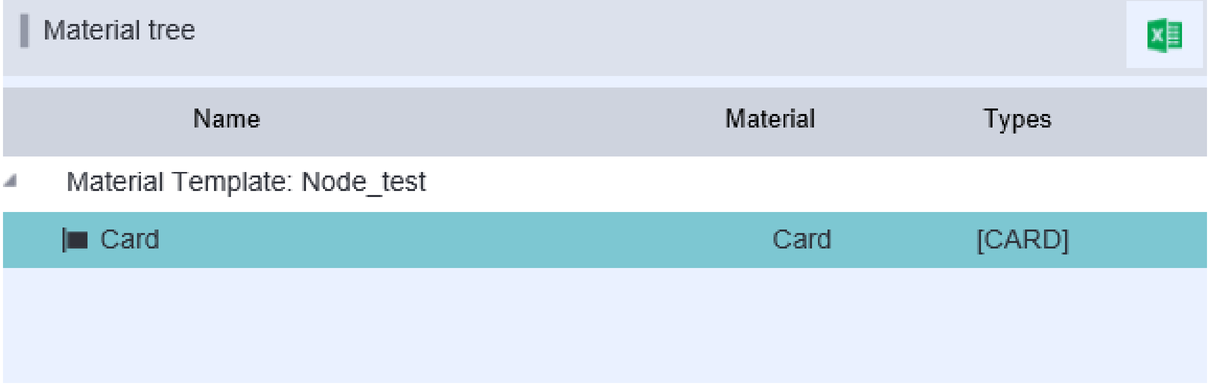
State: ACTIVE

Depth: mm

Width: mm

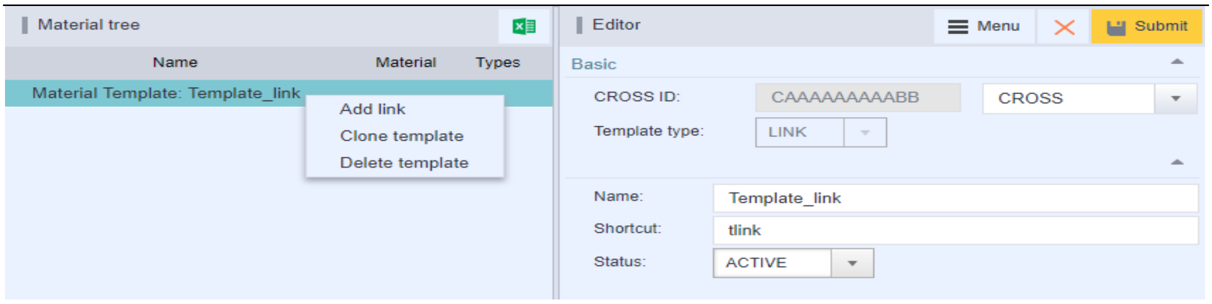
Height: mm

Click Finish and created material will be displayed in P1 panel - Material tree structure:


Material tree

Name	Material	Types
Material Template: Node_test		
Card	Card	[CARD]

From the context menu, we may select Add node PHYSICAL_PORT or SLOT.


Material tree
Name
Material
Types
Add link
Clone template
Delete template
Editor
Menu
Submit
Basic

Material Template: Template_link

CROSS ID: CAAAAAAAAABB CROSS

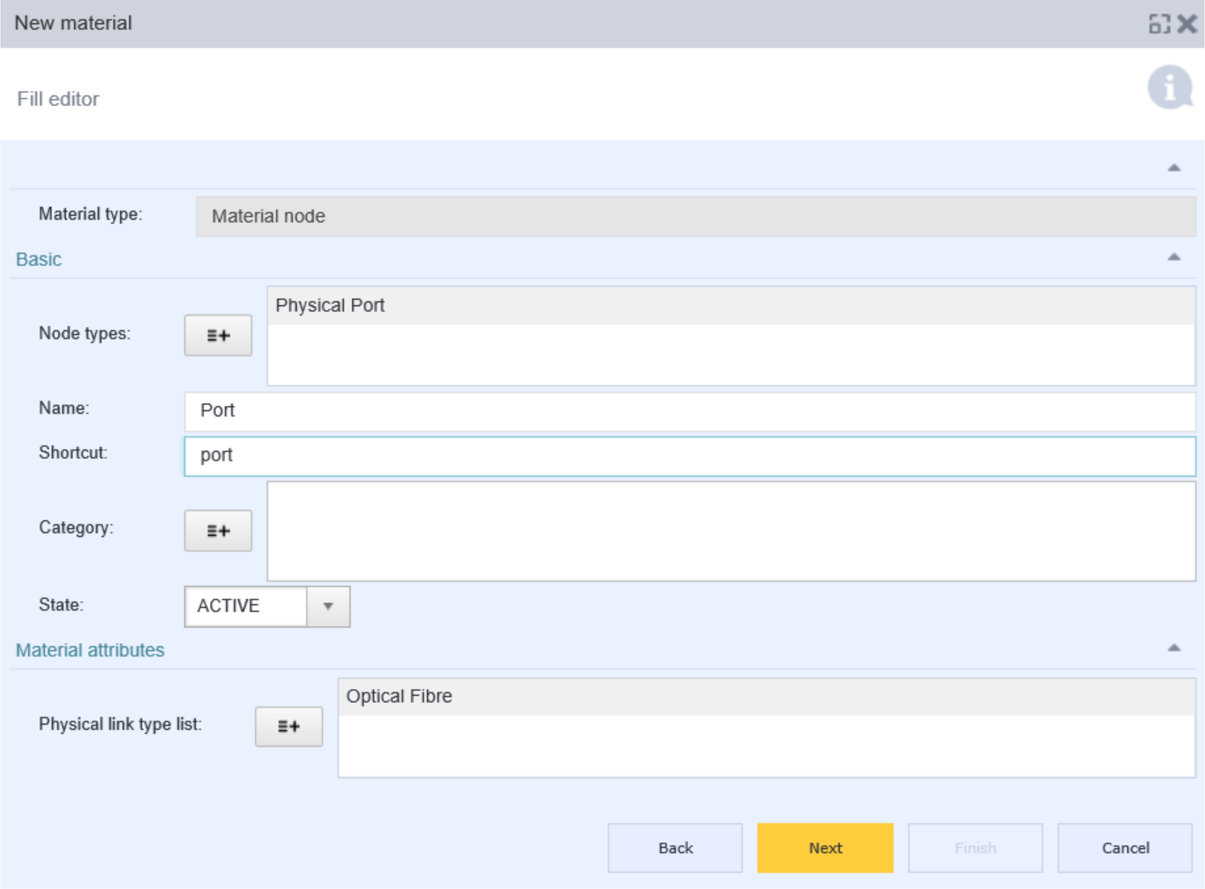
Template type: LINK

Name: Template_link

Shortcut: tlink

Status: ACTIVE

After selecting an item in the context menu, a Material (template) insert wizard will appear.


New material
Fill editor
Basic
Material attributes
Back
Next
Finish
Cancel

Material type: Material node

Node types: Physical Port

Name: Port

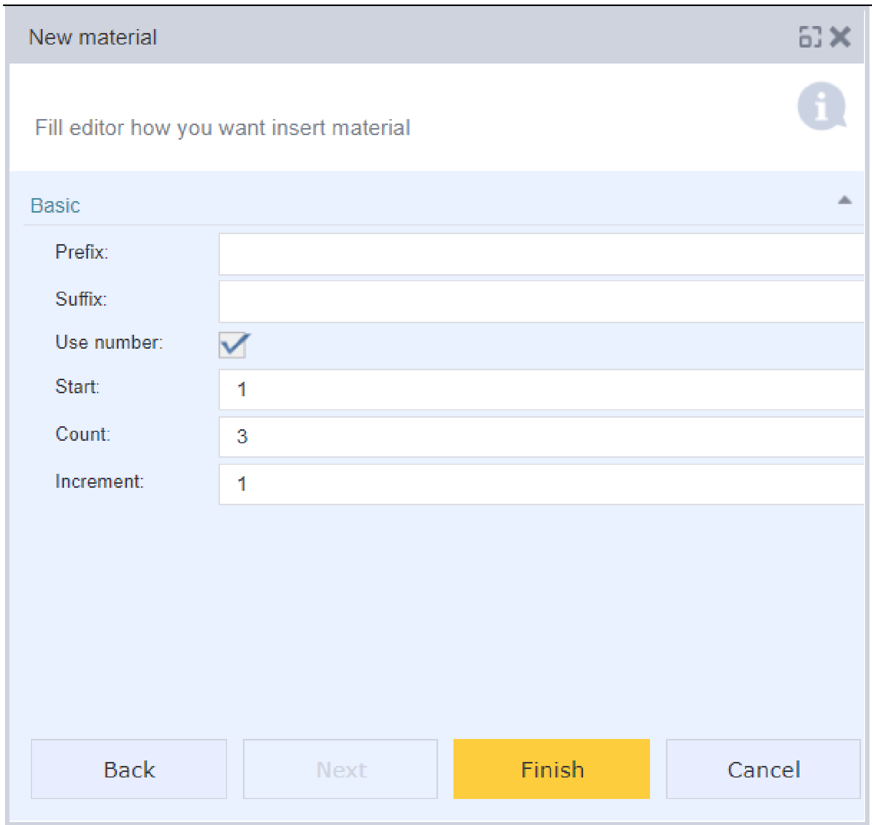
Shortcut: port

Category:

State: ACTIVE

Physical link type list: Optical Fibre

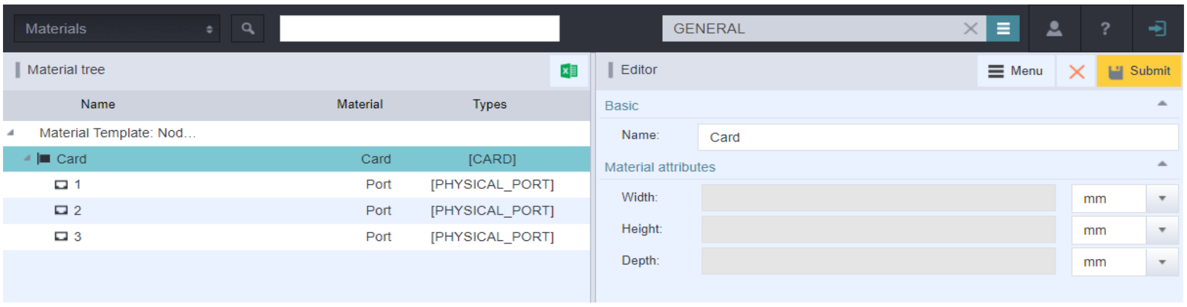
Select link type in the Physical link type list, press next button.


New material
Basic
Back
Next
Finish
Cancel

Fill editor how you want insert material

Prefix:
Suffix:
Use number: ☑
Start: 1
Count: 3
Increment: 1

After filling all mandatory items, press Finish button. New node material template will be displayed in the tree structure.


Materials
GENERAL
Material tree
Editor
Menu
Submit
Basic
Material attributes

Name	Material	Types
Material Template: Nod…		
Card	Card	[CARD]
1	Port	[PHYSICAL_PORT]
2	Port	[PHYSICAL_PORT]
3	Port	[PHYSICAL_PORT]

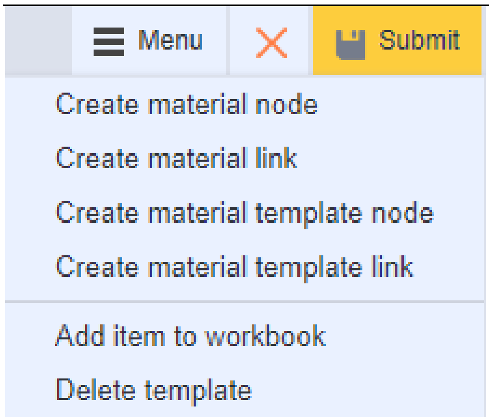
Name: Card
Width: mm
Height: mm
Depth: mm

After clicking on an entry in material template, another context menu will appear. Additional data will appear in the Editor that we can edit:

After selecting an item in the context menu, a Material (template) insert wizard will appear.

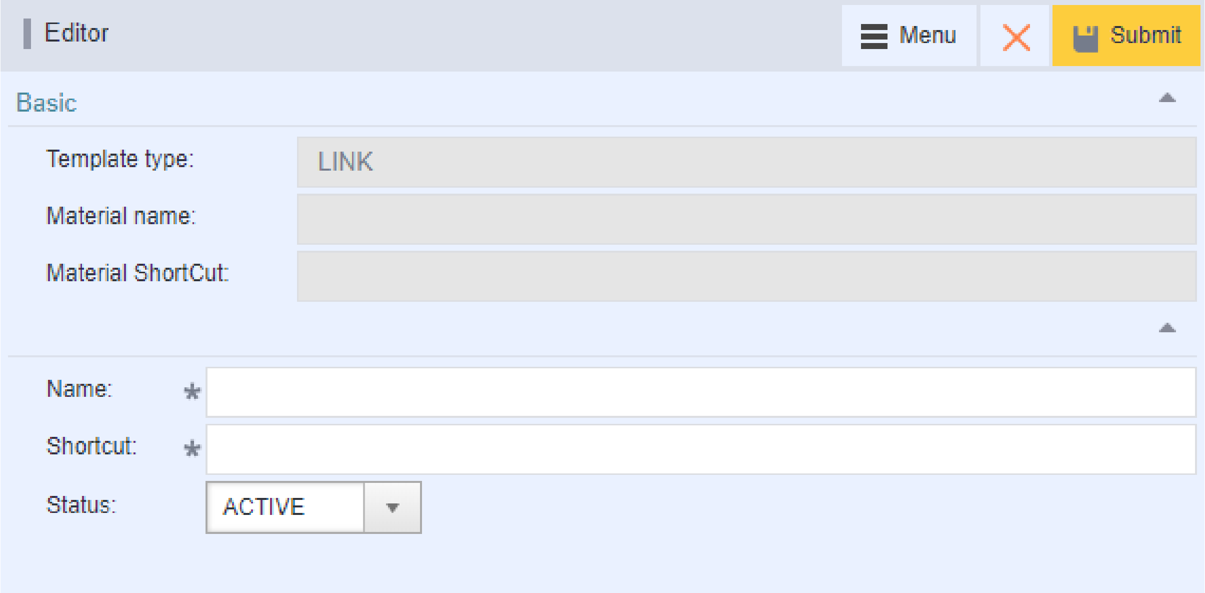
In the Editor menu, two items were added:

- Insert item into Workbook
- Delete material template


Menu
Submit
Create material node
Create material link
Create material template node
Create material template link
Add item to workbook
Delete template

3.3.3.4. Create material template link

Select New link material template from the Menu. An empty Editor will open.


Editor
Menu
Submit
Basic

Template type: LINK

Material name:

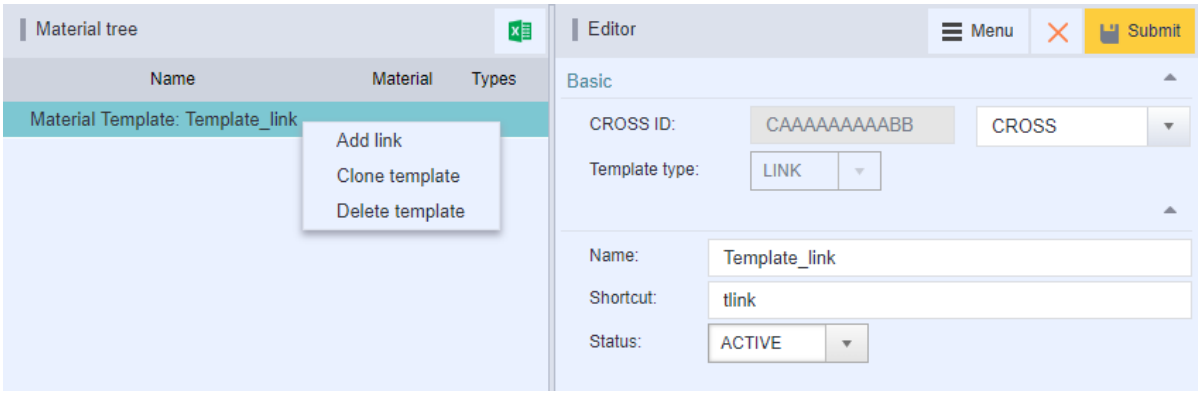
Material ShortCut:

Name: *

Shortcut: *

Status: ACTIVE

Insert the mandatory items Name and Shortcut. Then save. The created template will be shown in P1 panel - Material tree structure:


Material tree
Name
Material
Types
Material Template: Template_link
Add link
Clone template
Delete template
Editor
Menu
Submit
Basic

CROSS ID: CAAAAAAAAABB CROSS

Template type: LINK

Name: Template_link

Shortcut: tlink

Status: ACTIVE

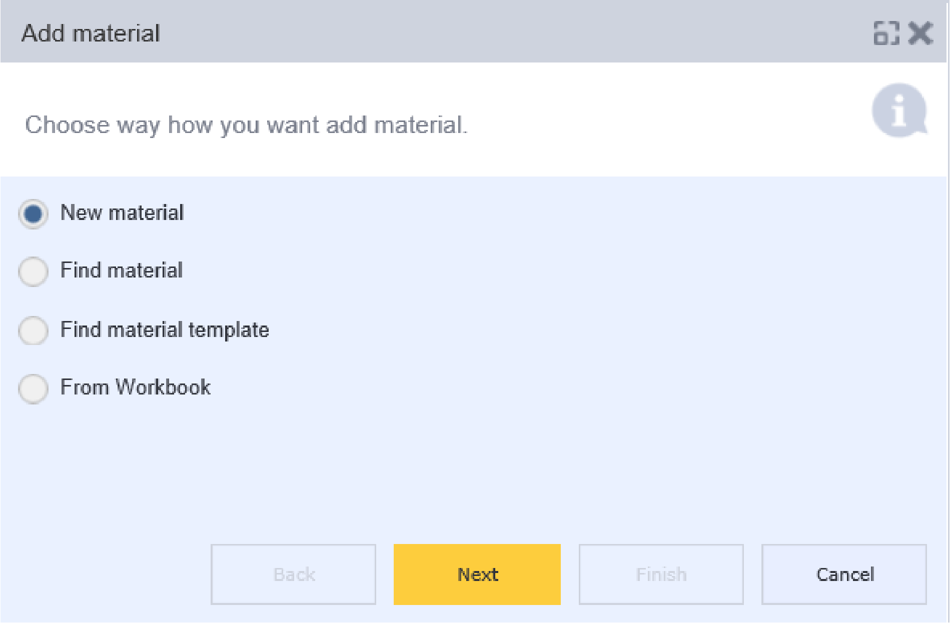
The context menu in the created link material template contains the following items:

- Insert node
- Duplicate material template
- Delete material template

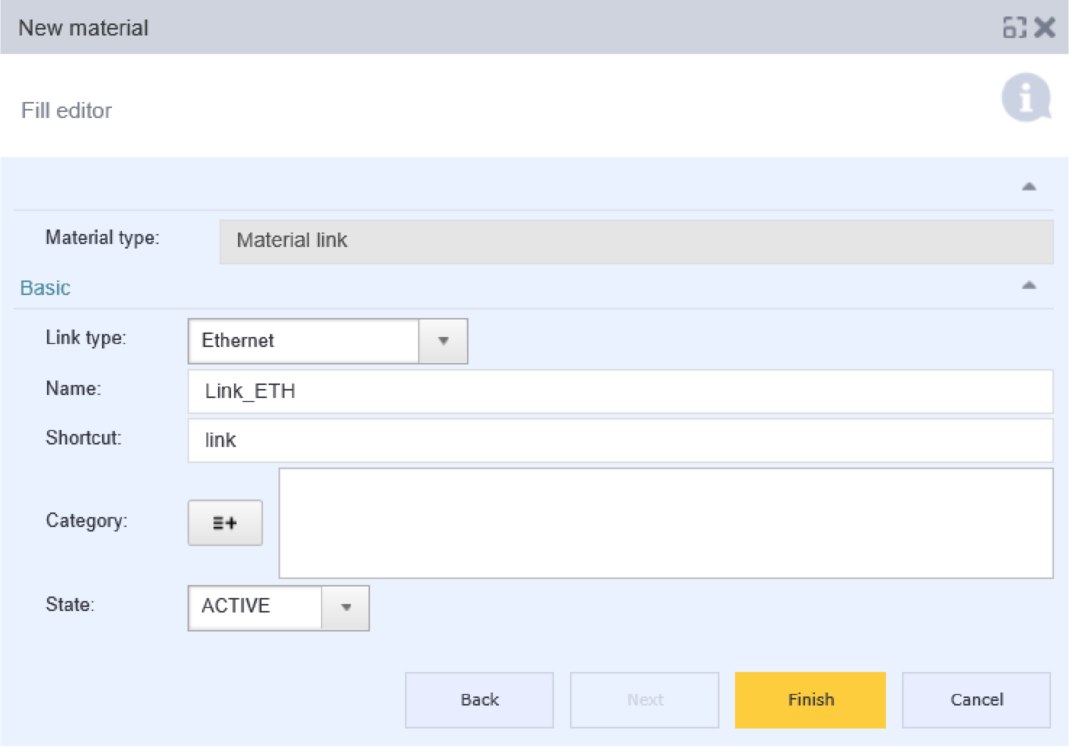
Insert link

After selecting this menu, a window with the following options will appear:

- New material
- Search for material
- Search for material template
- From Workbook

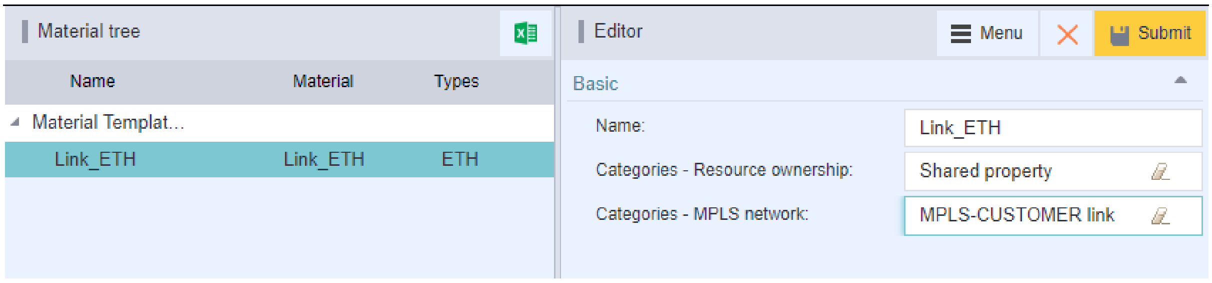

Add material
Choose way how you want add material.
● New material
○ Find material
○ Find material template
○ From Workbook
Back
Next
Finish
Cancel

Fill Link type, Name and Shortcut. Click Finish.


New material
Fill editor
Basic
Back
Next
Finish
Cancel

Material type:	Material link
Link type:	Ethernet
Name:	Link_ETH
Shortcut:	link
Category:	
State:	ACTIVE

The newly created link will appear in panel P1.

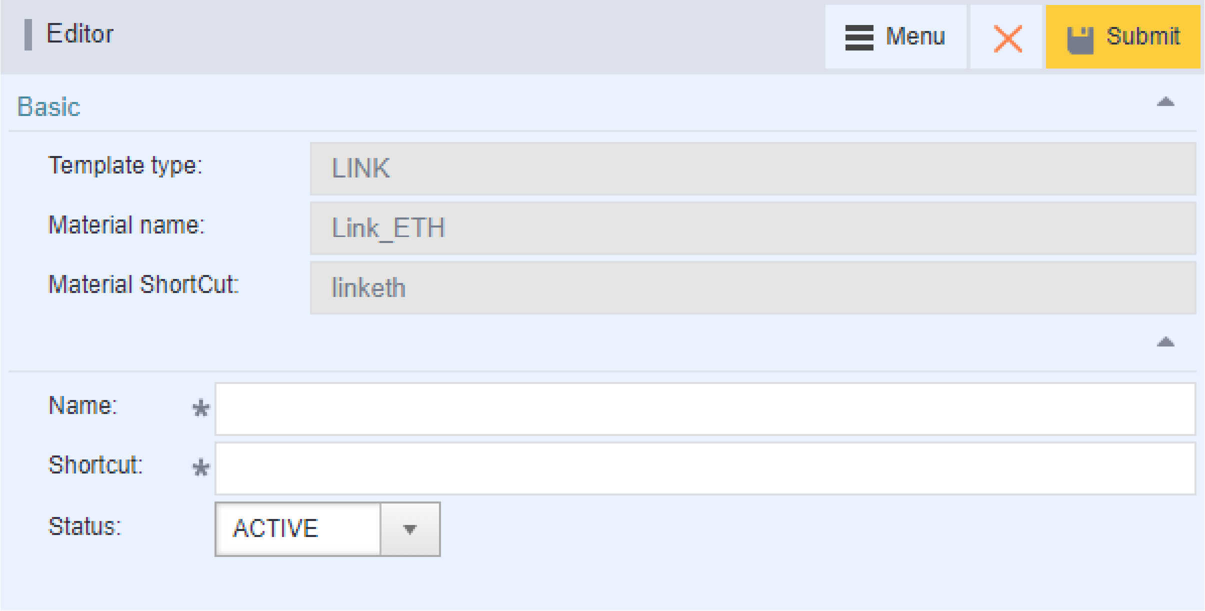

Material tree
Name
Material
Types
Material Templat...
Editor
Menu
Submit
Basic

Name	Material	Types
Link_ETH	Link_ETH	ETH

Name: Link_ETH
Categories - Resource ownership: Shared property
Categories - MPLS network: MPLS-CUSTOMER link

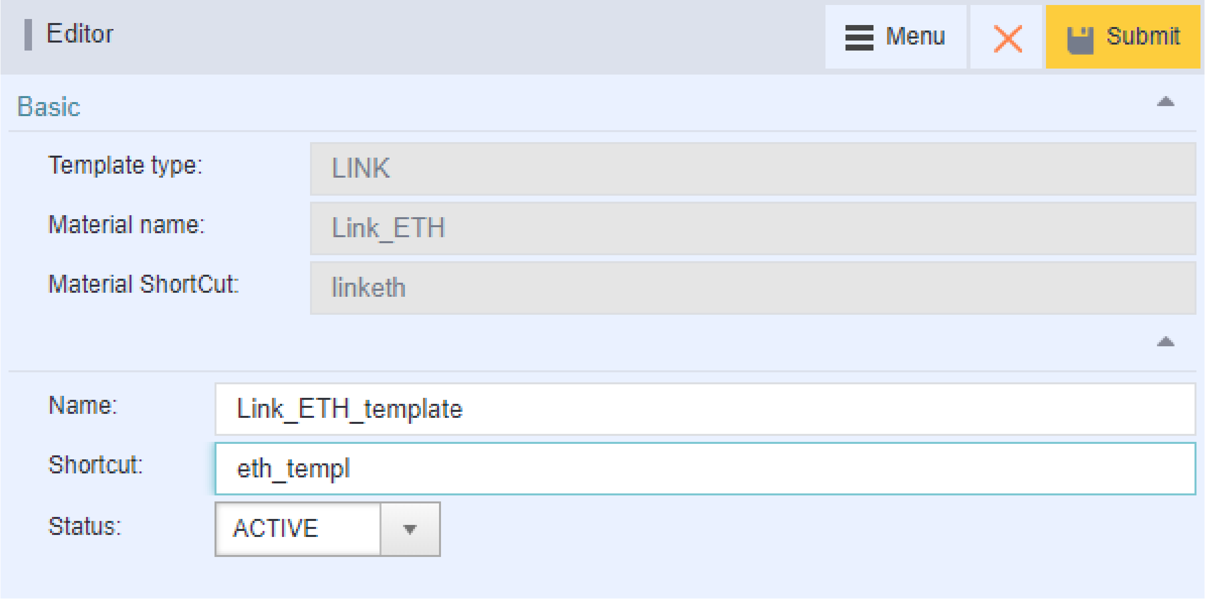
3.3.3.5. Create a new template from material

First, we create New link material or New node material. After saving, the menu Create new template from material will appear, an Editor will open.


Editor
Menu
Submit
Basic

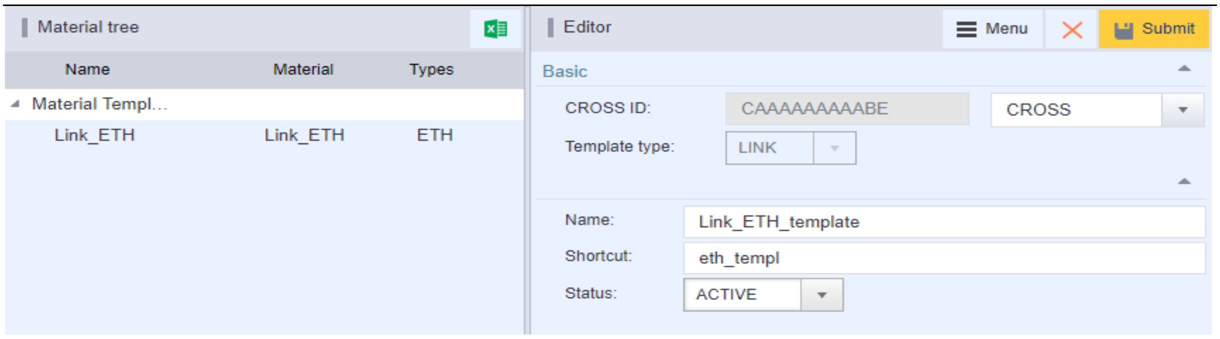
Template type: LINK
Material name: Link_ETH
Material ShortCut: linketh
Name: *
Shortcut: *
Status: ACTIVE

Insert the mandatory items Name and Shortcut and save.


Editor
Menu
Submit
Basic

Template type: LINK
Material name: Link_ETH
Material ShortCut: linketh
Name: Link_ETH_template
Shortcut: eth_templ
Status: ACTIVE

After saving, the new template will appear in P1 panel and the material is below it.

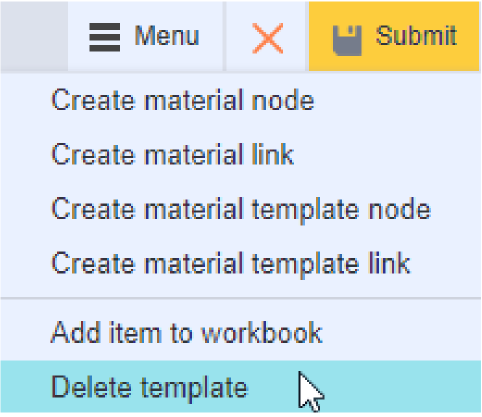

Material tree
Editor
Menu
Submit
Basic

Name	Material	Types
Material Templ…		
Link_ETH	Link_ETH	ETH

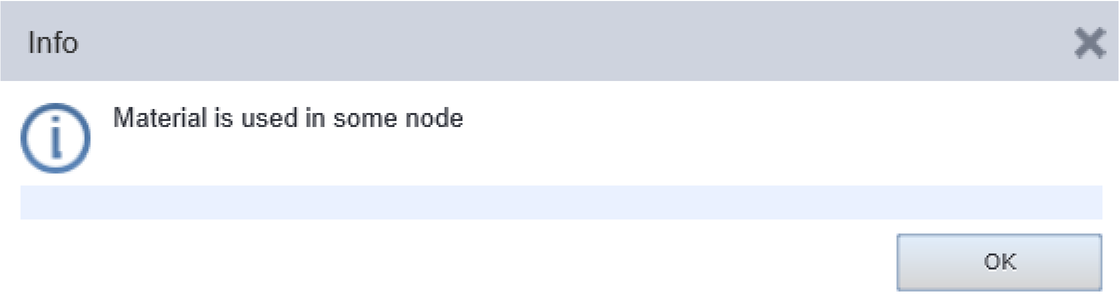
CROSS ID: CAAAAAAAAABE CROSS
Template type: LINK
Name: Link_ETH_template
Shortcut: eth_templ
Status: ACTIVE

3.3.3.6. Deleting materials and material templates

It is possible to delete a material from the Material editor panel menu. Click on the drop-down menu and select Delete material option.

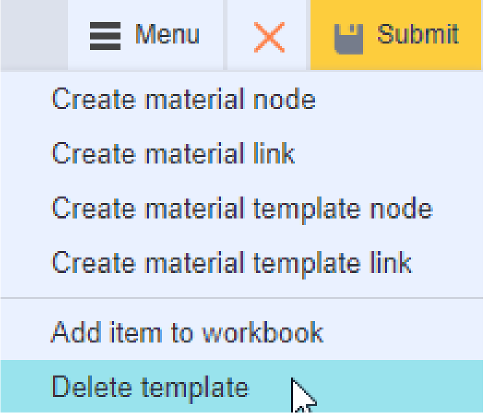

Menu
Submit
Create material node
Create material link
Create material template node
Create material template link
Add item to workbook
Delete template

If the selected material is not being used in any node or template, it will be deleted. If it is being used anywhere, it will not be deleted, and you will be informed about it - see picture below:



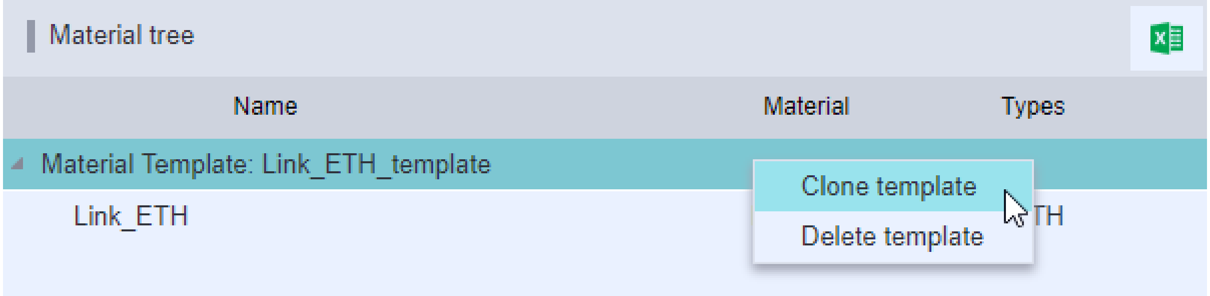
Material is used in some node

Material template can be deleted in the Material template editor.

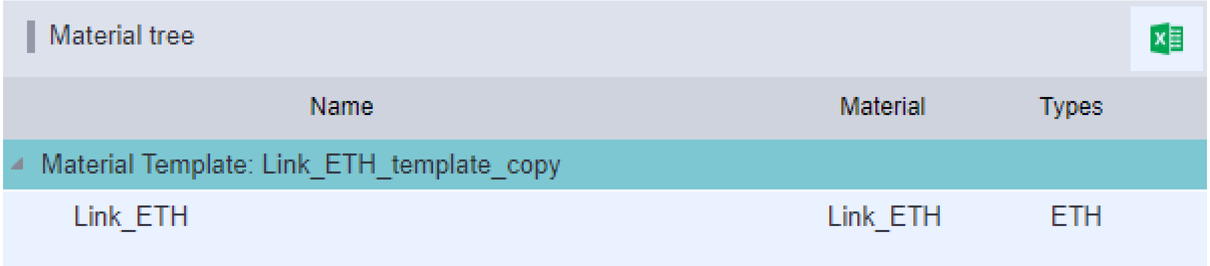

Menu
Submit
Create material node
Create material link
Create material template node
Create material template link
Add item to workbook
Delete template

3.3.3.7. Duplicating material template

From the context menu on the template, select item Duplicate material template.

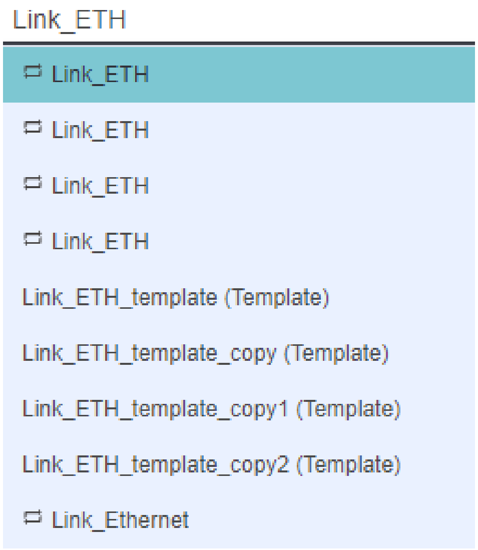

Material tree
Name
Material
Types
Material Template: Link_ETH_template
Link_ETH
Clone template
Delete template
TH

The word "copy" will appear in the name of the duplicated template.


Material tree

Name	Material	Types
Material Template: Link_ETH_template_copy		
Link_ETH	Link_ETH	ETH

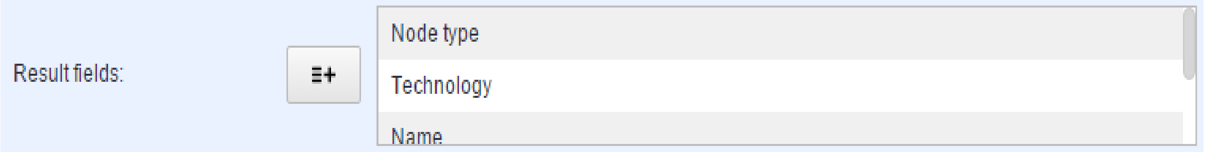
The material template can be duplicated more times. The templates may appear in the full-text search in the following ways.


Link_ETH

- Link_ETH
- Link_ETH
- Link_ETH
- Link_ETH
- Link_ETH_template (Template)
- Link_ETH_template_copy (Template)
- Link_ETH_template_copy1 (Template)
- Link_ETH_template_copy2 (Template)
- Link_Ethernet

3.3.3.8. Creating search queries

You can set columns (attributes) of material to be displayed by clicking the icon ≡+ beside the Column in result attribute - a panel for columns selection of selected node will be displayed.


Result fields:
≡+
Node type
Technology
Name

3.3.3.9. Methods of use material templates

In the Circuit module - use of material template as a start/end device when creating a circuit.

In the Locality module - unloading the material template from the option from the context tree structure menu.

You can find detailed information about the usage of material templates in the Circuit and Locality module.

3.3.3.10. Material search

Material can be searched by Search module or using full text window in Material module.

Create Material template in Material module, the select Insert node from the context menu.

Add Material window will be opened.

Select Material search and press Next button.

Fill all mandatory information and press Next button.

According to selected criteria, list of searched materials will be displayed.

Select wanted material and press Finish button.

Material will be imported to Material template in the Material tree structure window.

Link search is done by similar way.

3.4. MODULE ADDRESS – postal address management

Chapter overview:

3.4.1. Description of module environment

3.4.2. Address view

3.4.2.1. P1 - Address editor

3.4.2.2. P2 - Map

3.4.3. Usage of user interface Address

3.4.3.1. Address records

3.4.3.2. Creating a new address

3.4.3.3. Clone address

3.4.3.4. Address search

3.4.3.5. Deleting an address

3.4.3.6. Address history

3.4.4. Address enumerators - address models

3.4.4.1. P1 - Address enumerators

3.4.4.2. P2 - Editor

3.4.4.3. P3 - Map window

3.4.5. Usage of user interface Address enumerators

3.4.5.1. Creating new administrative units

3.4.5.1. History

3.4.5.1. Address models and their configurations

3.4.1. Description of module environment

Address module serves as a postal address enumerator for identification of the CROSS objects.

Address module can be opened by clicking its icon ✉ in the module selection bar.

User functions in the module**:**

- Full-text address search
- Creating and deleting unauthenticated addresses
- History of address changes
- Automatic address update from RUIAN
- Management of personal enumerators and address models for addresses in other countries

Evidence of addresses supports two address types:

Valid – imported addresses

Imported addresses from authoritative sources. The system is connected directly to the RUIAN system for automatic data update for the Czech Republic needs. An address import is done by contractor when data are migrated, but system also supports user import of XML files. This process can be done only by a system administrator, and therefore it is not described in this user documentation.

Unauthenticated – user defined addresses

User define addresses must respect set data structure (for example region, township, town, street etc).

Addresses can be searched by a full-text search, that searches through all the attributes. All the address attributes are displayed in the editor when address is found and selected. Attributes of valid imported addresses are not editable - their fields are grayed, that means read-only.

Addresses in the application are obtained from external sources (RUIAN), or they can be added by a user (for example in situation, when required address is missing). Addresses from external sources are so called valid or authenticated. Addresses inserted by a user do not have this value. Only administrator can assign state Valid to addresses inserted by a user.

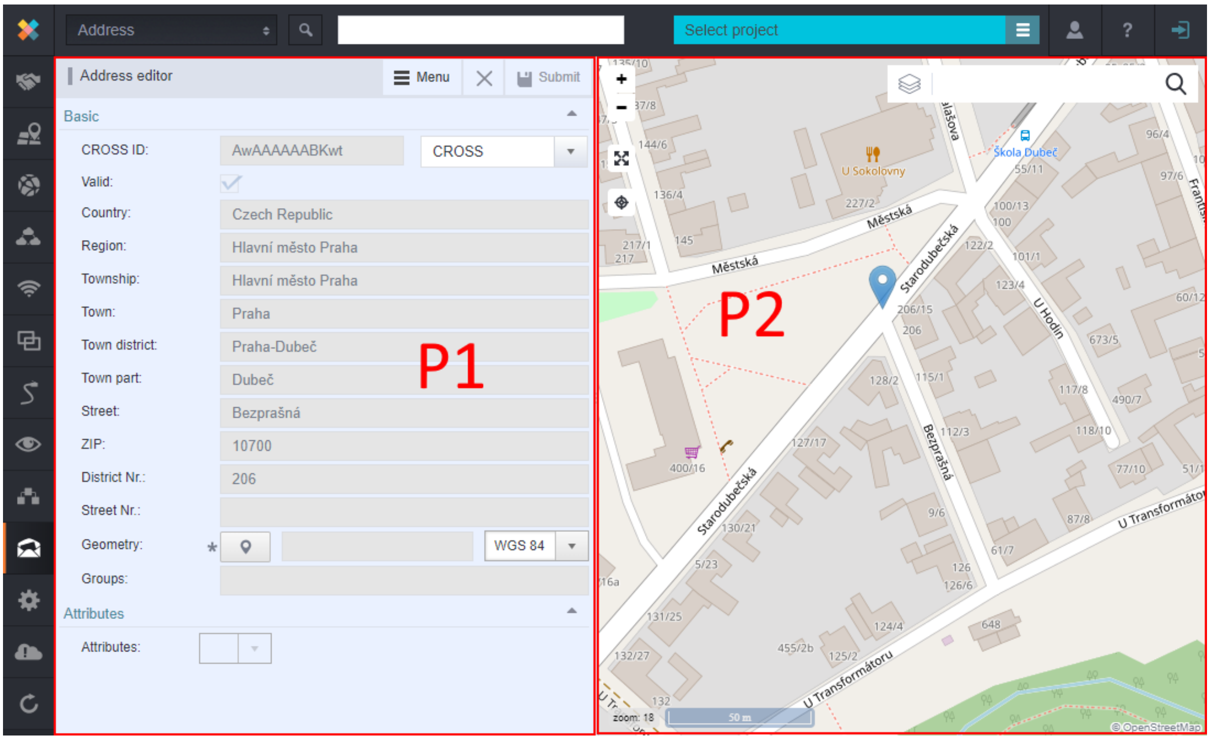
The module is divided into two submodules that serves for enumerator definition and management of address points.

- Address
- Address enumerators

3.4.2. Address view

Address view contains two panels:

- P1 - Address editor
- P2 - Map



Address editor

Basic

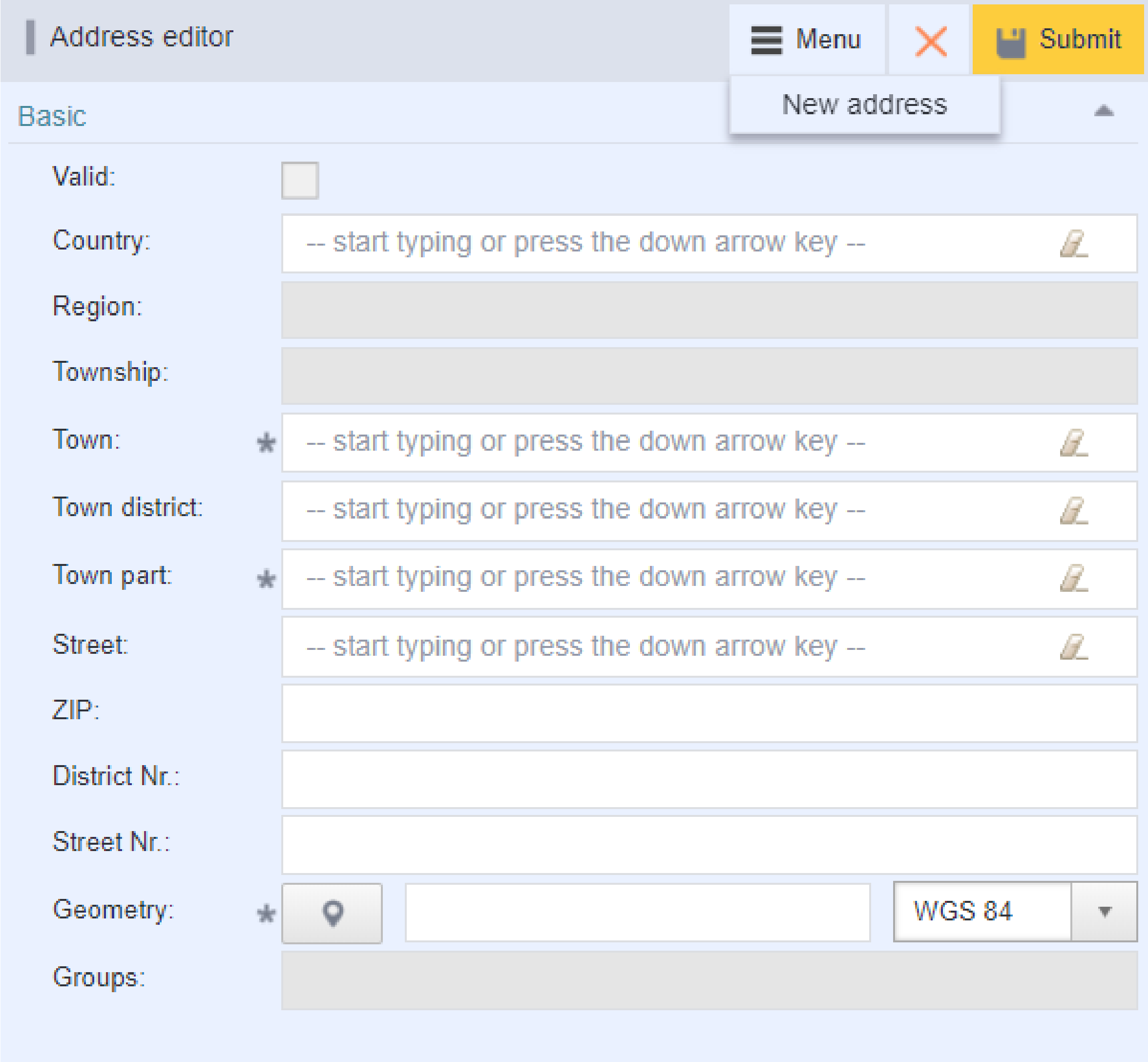
CROSS ID:	AwAAAAAABKwt · CROSS
Valid:	☑
Country:	Czech Republic
Region:	Hlavní město Praha
Township:	Hlavní město Praha
Town:	Praha
Town district:	Praha-Dubeč
Town part:	Dubeč
Street:	Bezprašná
ZIP:	10700
District Nr.:	206
Street Nr.:	
Geometry: *	WGS 84
Groups:	

Attributes

Attributes:

3.4.2.1. P1 - Address editor

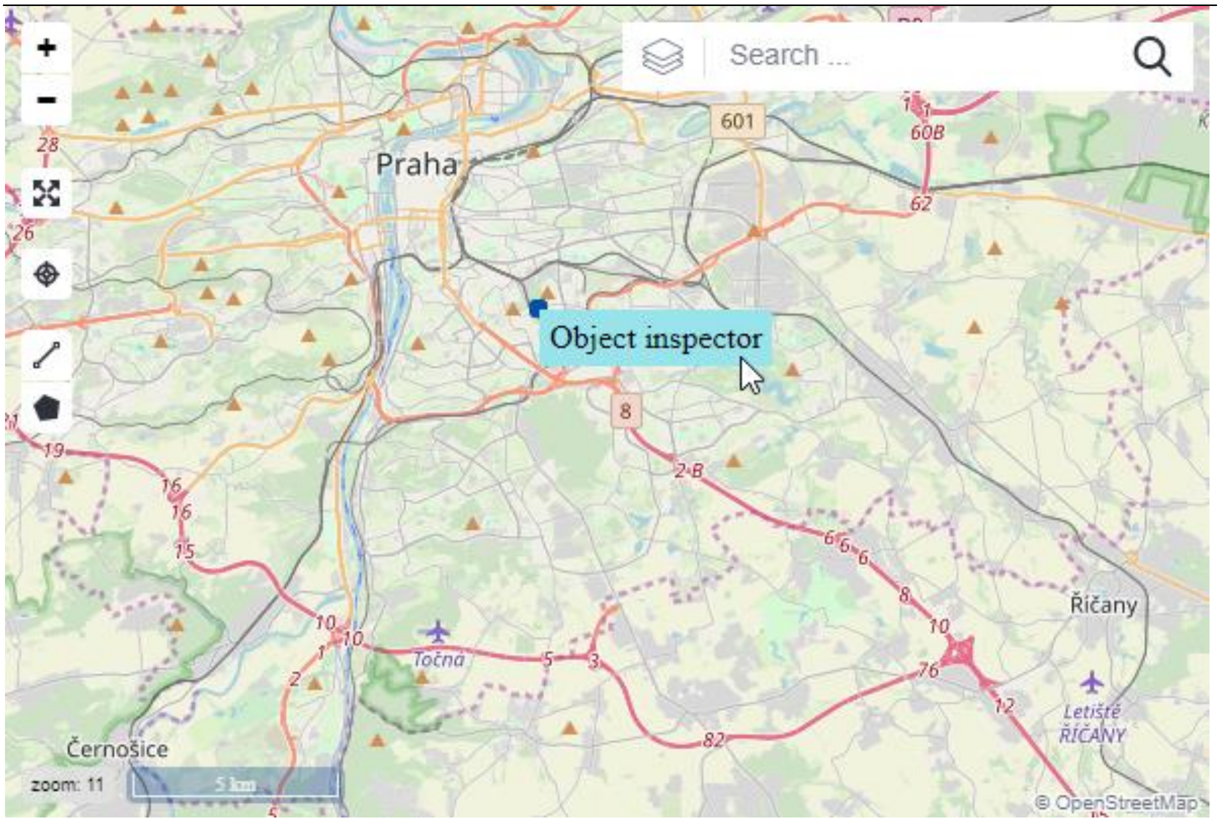
Creating new addresses, cloning addresses, removing addresses is done by Address editor.


Address editor
Menu
Submit
New address
Basic
Valid:
Country:
-- start typing or press the down arrow key --
Region:
Township:
Town:
-- start typing or press the down arrow key --
Town district:
-- start typing or press the down arrow key --
Town part:
-- start typing or press the down arrow key --
Street:
-- start typing or press the down arrow key --
ZIP:
District Nr.:
Street Nr.:
Geometry:
WGS 84
Groups:

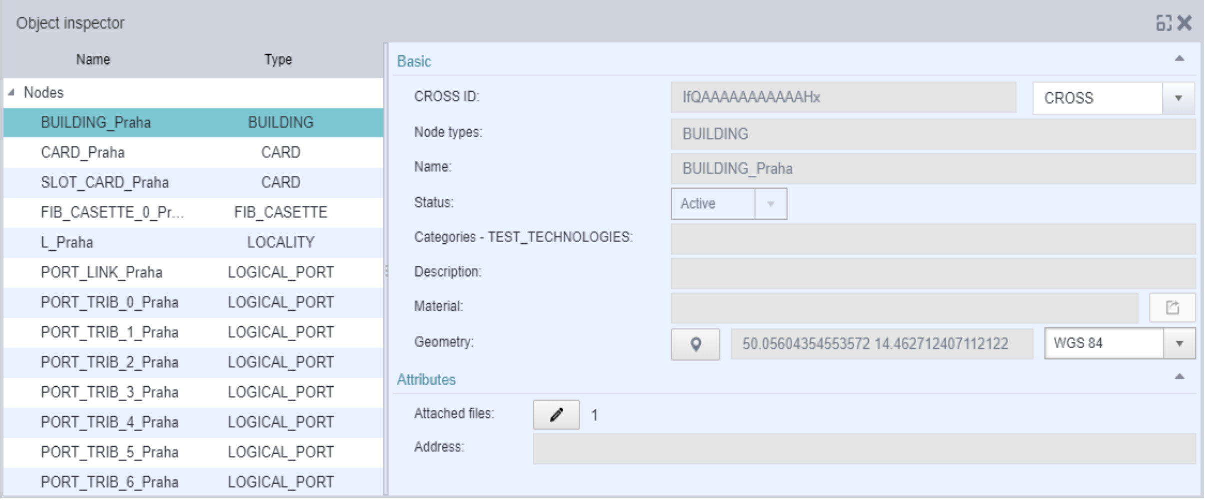
3.4.2.2. P2 - Map

Selected address is displayed in map window. Raster option is set on default.

Working with map windows is described in Locality module - chapter Map window.


Search ...
Object inspector
Praha
Říčany
Černošice
Točná
Letiště ŘÍČANY
zoom: 11
5 km
© OpenStreetMap

Object inspector is displayed by right clicking on the map.


Object inspector

Name	Type
Nodes	
BUILDING_Praha	BUILDING
CARD_Praha	CARD
SLOT_CARD_Praha	CARD
FIB_CASETTE_0_Pr...	FIB_CASETTE
L_Praha	LOCALITY
PORT_LINK_Praha	LOGICAL_PORT
PORT_TRIB_0_Praha	LOGICAL_PORT
PORT_TRIB_1_Praha	LOGICAL_PORT
PORT_TRIB_2_Praha	LOGICAL_PORT
PORT_TRIB_3_Praha	LOGICAL_PORT
PORT_TRIB_4_Praha	LOGICAL_PORT
PORT_TRIB_5_Praha	LOGICAL_PORT
PORT_TRIB_6_Praha	LOGICAL_PORT

Basic

CROSS ID: IfQAAAAAAAAAAAHx CROSS
Node types: BUILDING
Name: BUILDING_Praha
Status: Active
Categories - TEST_TECHNOLOGIES:
Description:
Material:
Geometry: 50.05604354553572 14.462712407112122 WGS 84

Attributes

Attached files: 1
Address:

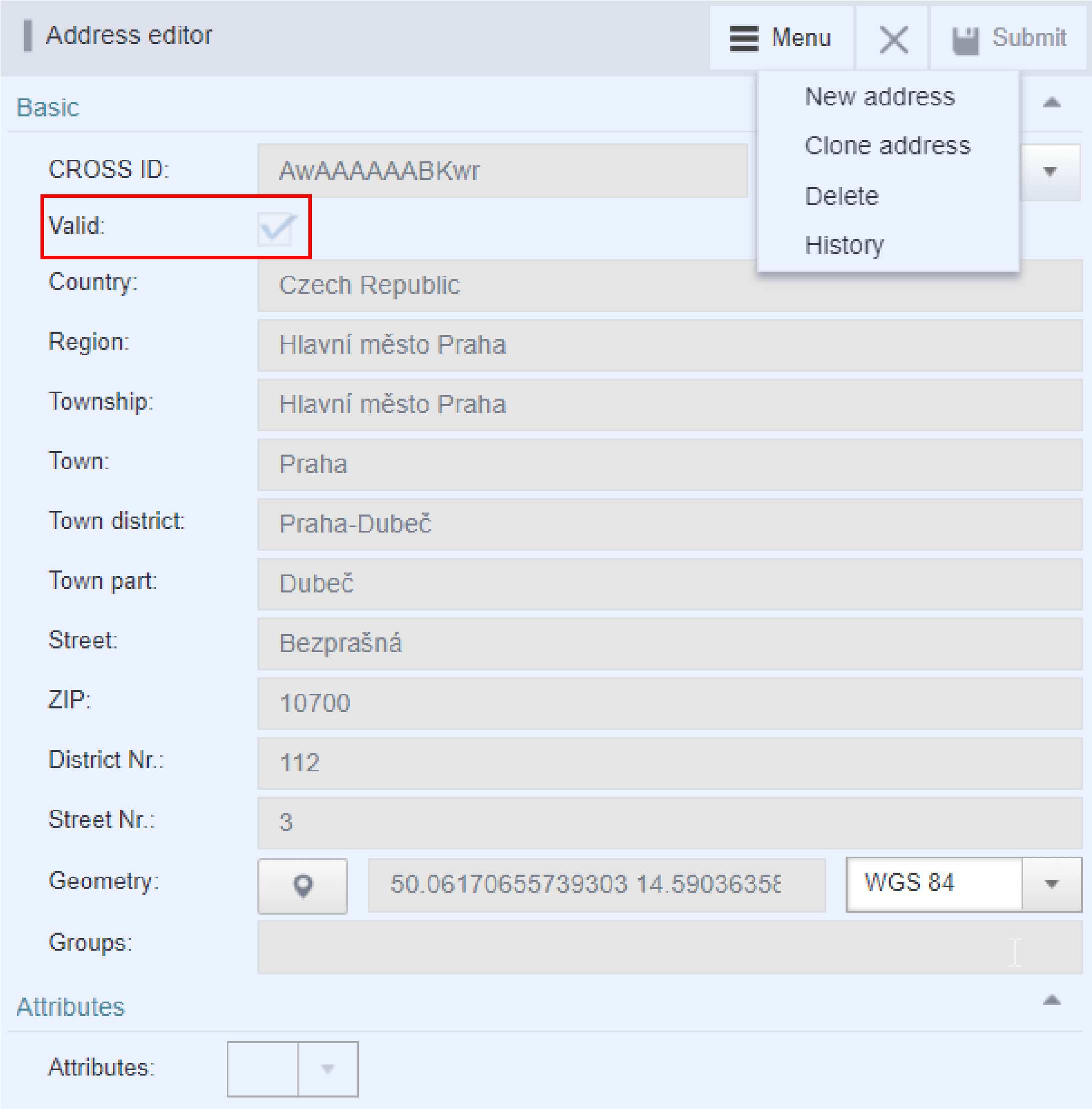
3.4.3. Usage of user interface Address

3.4.3.1. Address records

Address editor is used to view imported verified addresses, to edit user addresses and to create new addresses.

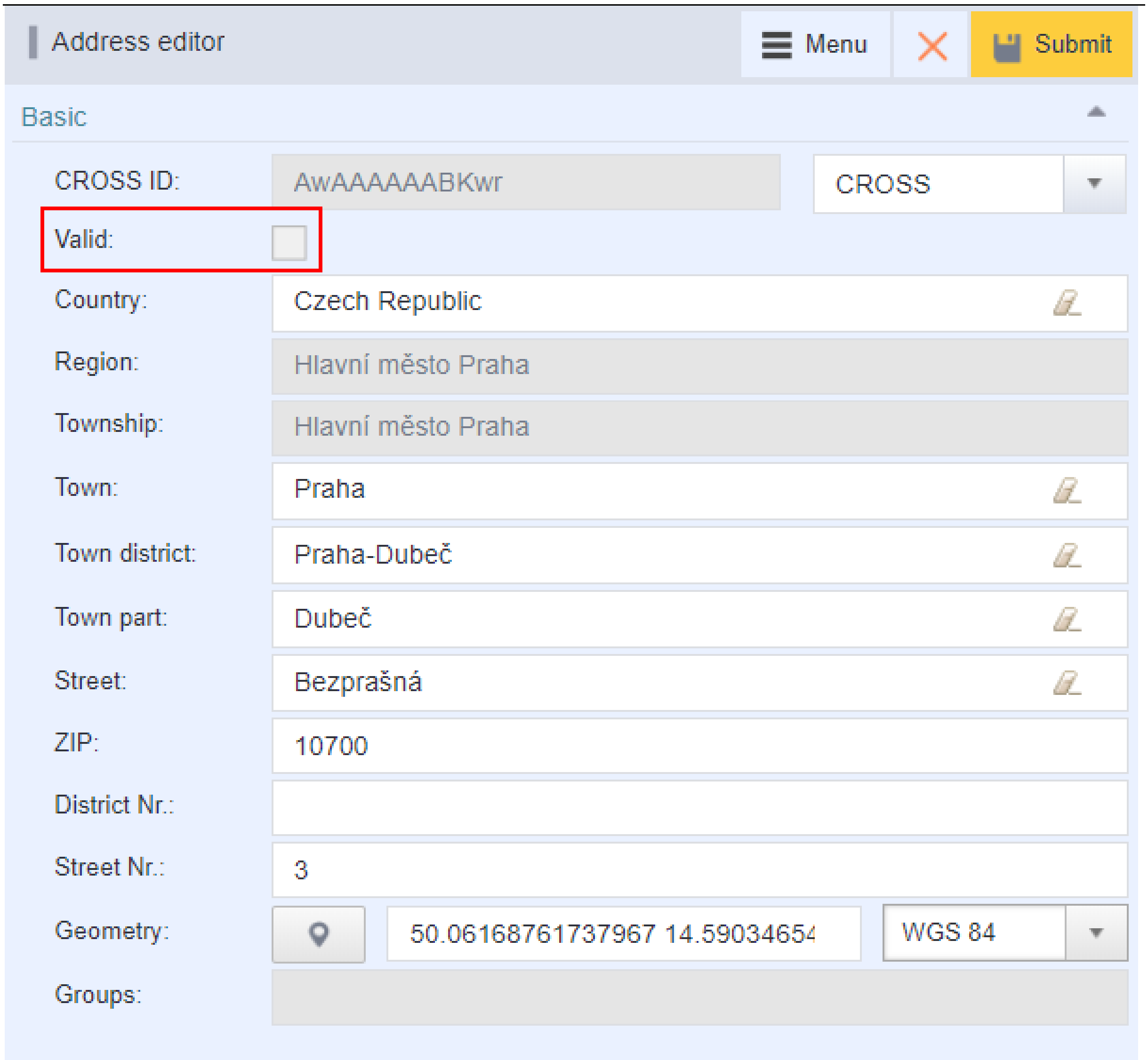
Displayed address can be edited in the editor (if user is authorized) and then saved. Edited data will be correctly displayed at the next search. If you do not want to save edited data, click Cancel. All edited and not saved data in the editor will be canceled.

This is how imported verified address looks like in the editor. Valid option is marked in the editor.



CROSS ID: AwAAAAAABKwr
Valid: ✓
Country: Czech Republic
Region: Hlavní město Praha
Township: Hlavní město Praha
Town: Praha
Town district: Praha-Dubeč
Town part: Dubeč
Street: Bezprašná
ZIP: 10700
District Nr.: 112
Street Nr.: 3
Geometry: 50.06170655739303 14.5903635 WGS 84
Groups:
Attributes:

This is how manually created address looks like in the editor:



CROSS ID: AwAAAAAABKwr CROSS

Valid: ☐

Country: Czech Republic

Region: Hlavní město Praha

Township: Hlavní město Praha

Town: Praha

Town district: Praha-Dubeč

Town part: Dubeč

Street: Bezprašná

ZIP: 10700

District Nr.:

Street Nr.: 3

Geometry: 50.06168761737967 14.59034654 WGS 84

Groups:

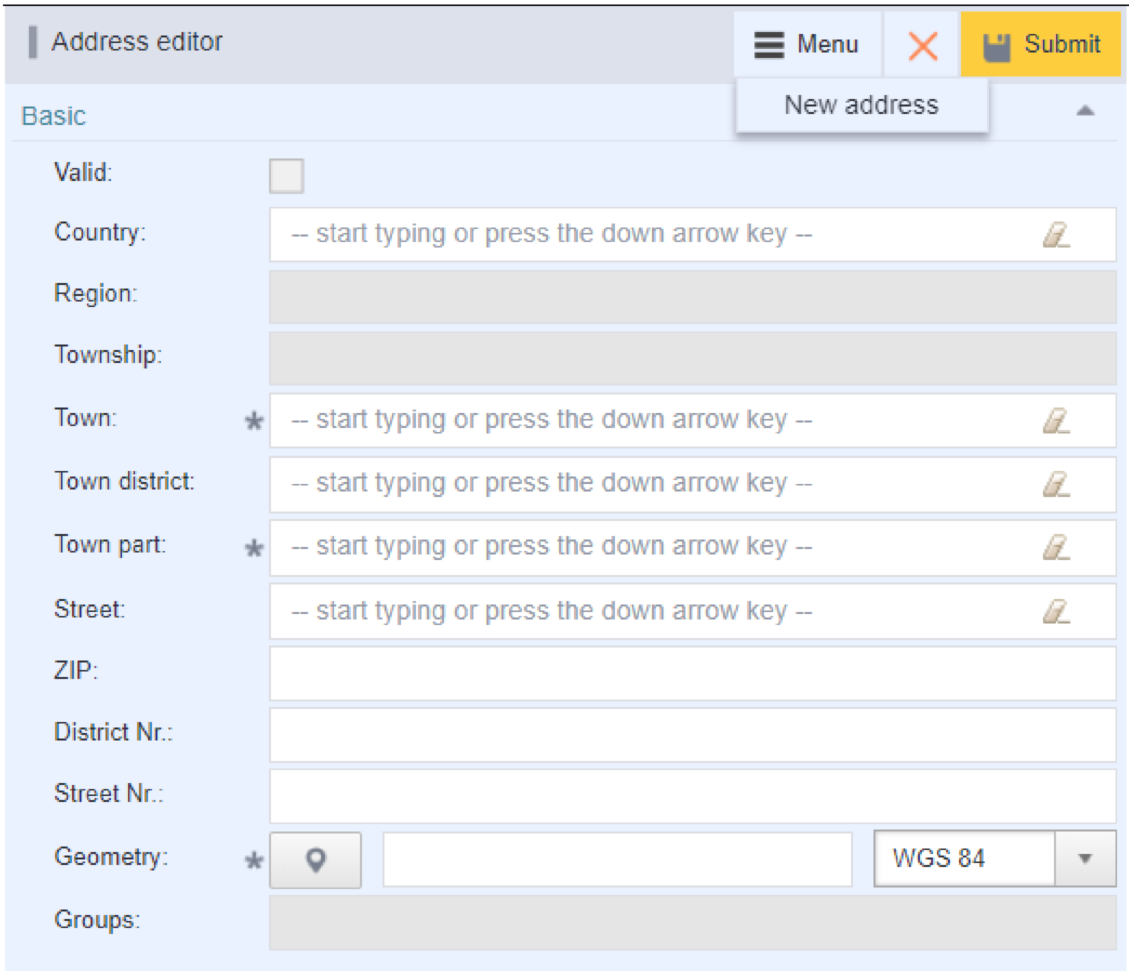
Manually created address has no mark in the valid field.

Editor panel has a drop-down menu with functions:

- **History** - panel with a history of revisions of selected address is displayed
- **Clone address** - creates a new address by duplicating the address loaded into the editor
- **Delete** - deletes address (only manually created address)
- **New** - displays empty editor for creating a new address
- **Cancel** - cancels all unsaved changes in the editor
- **Submit** - saves all changes made in the editor

3.4.3.2. Creating a new address

There are two ways to create a new address. First of them is cloning an address with editing only descriptive, street etc. Second is creating a brand-new address with manual filling of all parameters.



Valid: ☐

Country: -- start typing or press the down arrow key --

Region:

Township:

Town: * -- start typing or press the down arrow key --

Town district: -- start typing or press the down arrow key --

Town part: * -- start typing or press the down arrow key --

Street: -- start typing or press the down arrow key --

ZIP:

District Nr.:

Street Nr.:

Geometry: * WGS 84

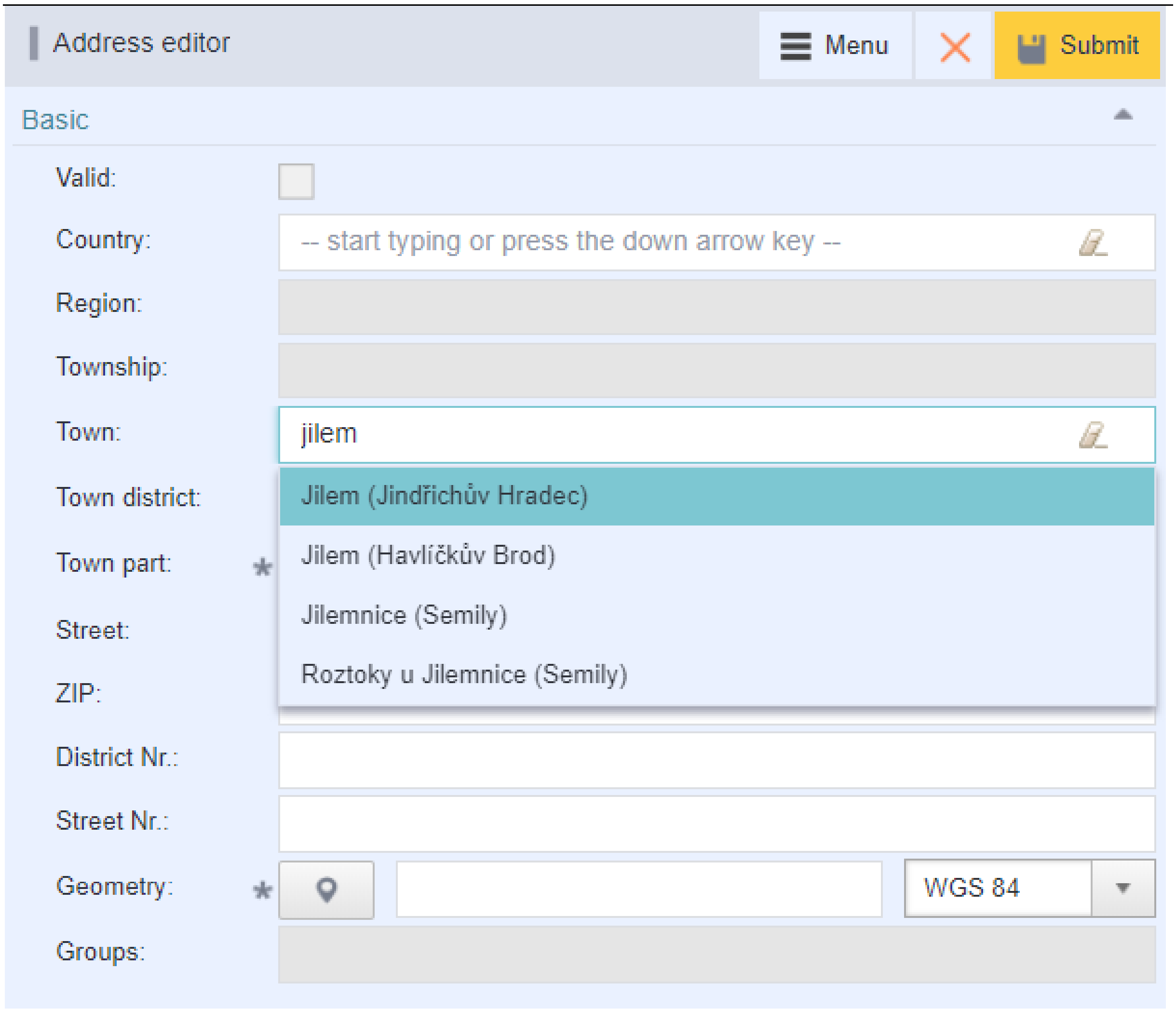
Groups:

Creating new address from the menu by New address function.

In the editor menu click New address.

Empty editor for a new address creating will be opened.

First select Town.



Valid: ☐

Country: -- start typing or press the down arrow key --

Region:

Township:

Town: jilem

- Jilem (Jindřichův Hradec)
- Jilem (Havlíčkův Brod)
- Jilemnice (Semily)
- Roztoky u Jilemnice (Semily)

Town district:

Town part: *

Street:

ZIP:

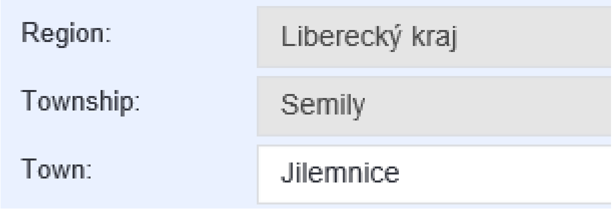
District Nr.:

Street Nr.:

Geometry: * WGS 84

Groups:

After selecting town, non-editable fields Region and Country are automatically filled in



Region: Liberecký kraj

Township: Semily

Town: Jilemnice

Selected town is now highlighted in the map window

Then set geometry - click the button beside the title Geometry or fill in the coordinates directly into the field beside the geometry button in the editor, for example 49.176941307350646 15.26850163936615. In this case you do not need to mark a point in the map (2 next steps).

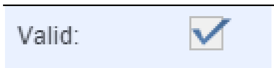
Tools for point marking are displayed in the map window 📍.

Click on the icon Draw the marker and then click in the map to the new address location.

Save the editor after filling all needed attributes.

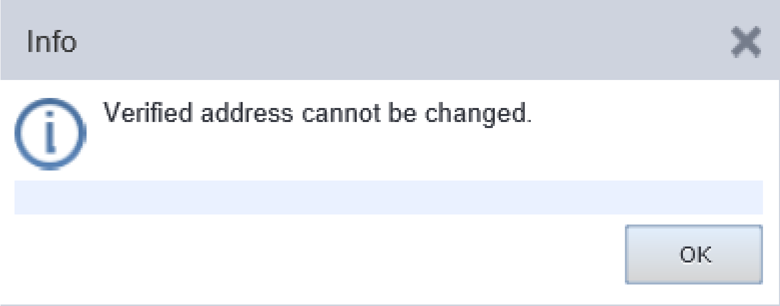
New address is now saved in the database.

Administrator can assign state Valid to manually created address. This can be done by checking the check box Valid in the address editor



Valid: ☑

Valid addresses cannot be edited. Information note will be displayed.



Info

Verified address cannot be changed.

Editing names can be done by ADMIN. Access to this function is configurable.

3.4.3.3. Clone address

Creating a new address by cloning.

In full-text search, find an address with parameters similar to the parameters of a new address, and display it in the editor.

Select action Clone address from the editor drop-down menu.

Address stays loaded in the editor, only some of the fields are unlocked for writing.

Make address changes as needed (for example write a new descriptive).

Then make geometry change - click the button beside the title Geometry or fill in the coordinates directly into the field beside the geometry button in the editor, for example 49.176941307350646 15.26850163936615. In this case you do not need to mark a point in the map (2 next steps).

Tools for point marking are displayed in the map window 📍

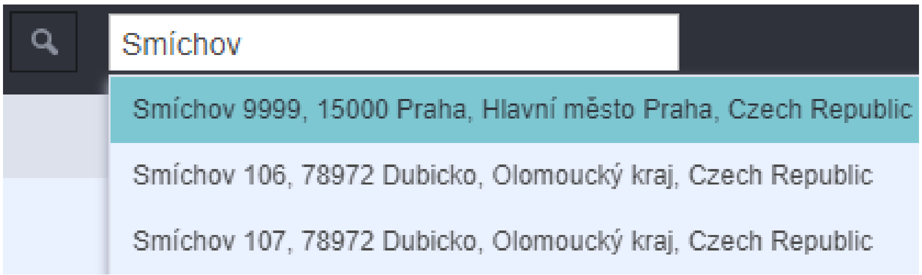
Click on the icon Draw the marker and then click in the map to a new address location.

Finally, save all changes by clicking Submit.

3.4.3.4. Address search

Search field serves for fast full-text search. It is necessary to fill in at least two attributes of an address, for example town and street, separated by a space.

Relevant results are searched and displayed after filling a part of an address.



Smíchov

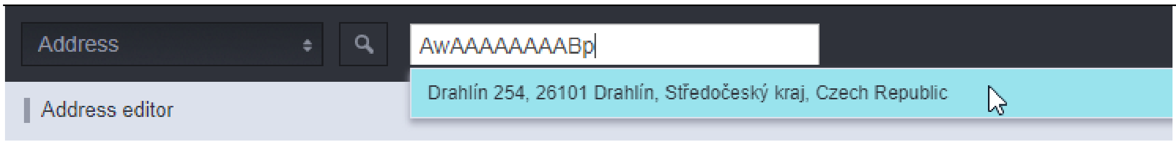
Smíchov 9999, 15000 Praha, Hlavní město Praha, Czech Republic

Smíchov 106, 78972 Dubicko, Olomoucký kraj, Czech Republic

Smíchov 107, 78972 Dubicko, Olomoucký kraj, Czech Republic

Address selection is done by clicking the required address. Selected address is then displayed in the address editor.

Addresses can be searched by Cross ID in Address module.


Address
Address editor

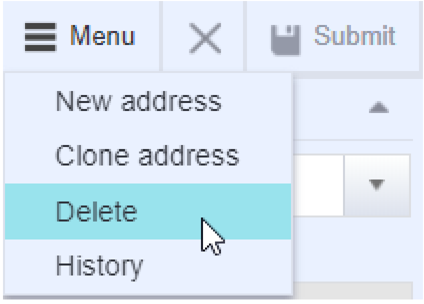
AwAAAAAAAABp

Drahlín 254, 26101 Drahlín, Středočeský kraj, Czech Republic

3.4.3.5. Deleting an address

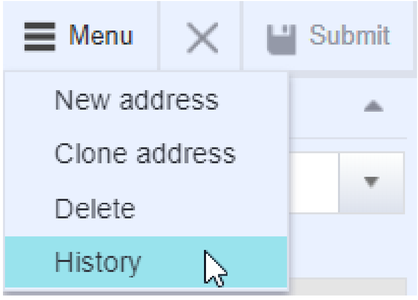
Only manually created address can be deleted, that means only address, which is created as a new one by creating a new address or by cloning an existing address (where everything remains the same, except for example descriptive and geometry) can be deleted.

Address deleting - search required address and display it in the editor. Then select action Delete from the editor drop-down menu.


Menu
Submit
New address
Clone address
Delete
History

3.4.5.3.6. Address history

The window History on the bookmark Revisions is opened by selecting History from the editor drop-down menu. Here it is possible to look at the history of selected address, that means by who, what and when it was modified. Modification statuses: ADD - added, MOD - modified. Bookmark Preview with address attributes can be opened by clicking on one of the records.


Menu
Submit
New address
Clone address
Delete
History

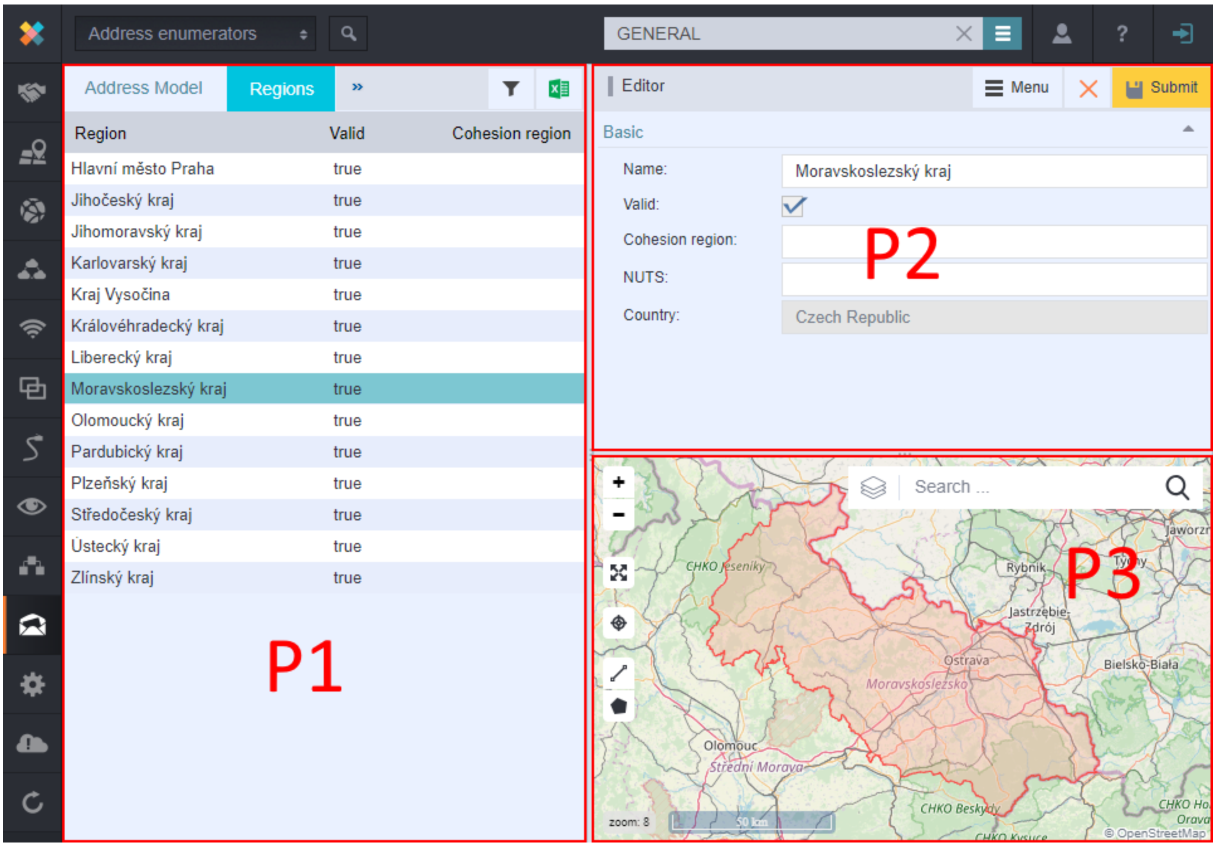
3.4.4. Address enumerators view

Section Address enumerators serves for adding and editing address enumerators (value fields with the lists) of individual address models. You can also display their history.

Different patterns of address models for different states and user-selectable attributes are supported.

Opening window of the address enumerators is divided into several parts.

- P1 - Address enumerators
- P2 - Editor
- P3 - Map window

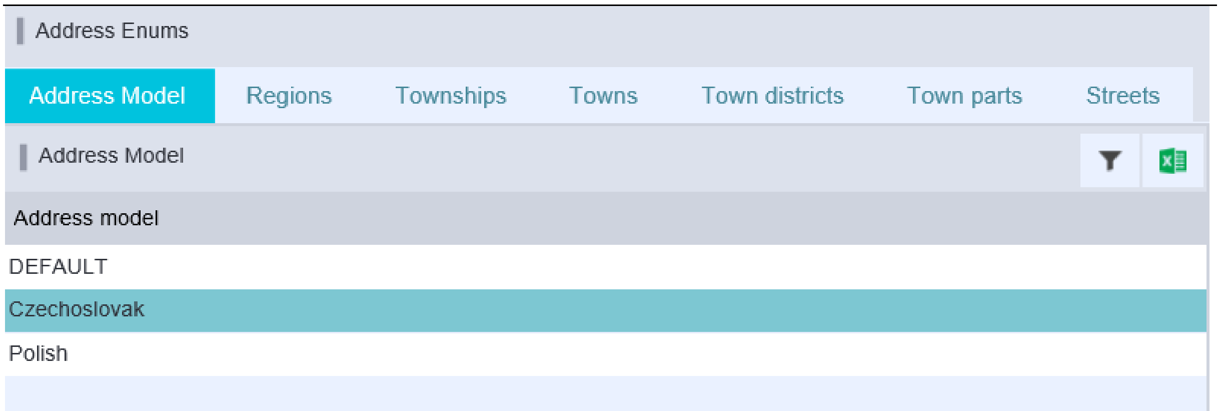

Address enumerators
GENERAL
Address Model
Regions
»
Editor
Menu
Submit
Basic
P1
P2
P3
Search ...
CHKO Jeseníky
Rybník
Jastrzębie-Zdrój
Ostrava
Bielsko-Biała
Moravskoslezsko
Olomouc
Střední Morava
CHKO Beskydy
zoom: 8
50 km
© OpenStreetMap

Region	Valid	Cohesion region
Hlavní město Praha	true	
Jihočeský kraj	true	
Jihomoravský kraj	true	
Karlovarský kraj	true	
Kraj Vysočina	true	
Královéhradecký kraj	true	
Liberecký kraj	true	
Moravskoslezský kraj	true	
Olomoucký kraj	true	
Pardubický kraj	true	
Plzeňský kraj	true	
Středočeský kraj	true	
Ústecký kraj	true	
Zlínský kraj	true	

Name: Moravskoslezský kraj
Valid: ☑
Cohesion region:
NUTS:
Country: Czech Republic

3.4.4.1. P1 - Address enumerators

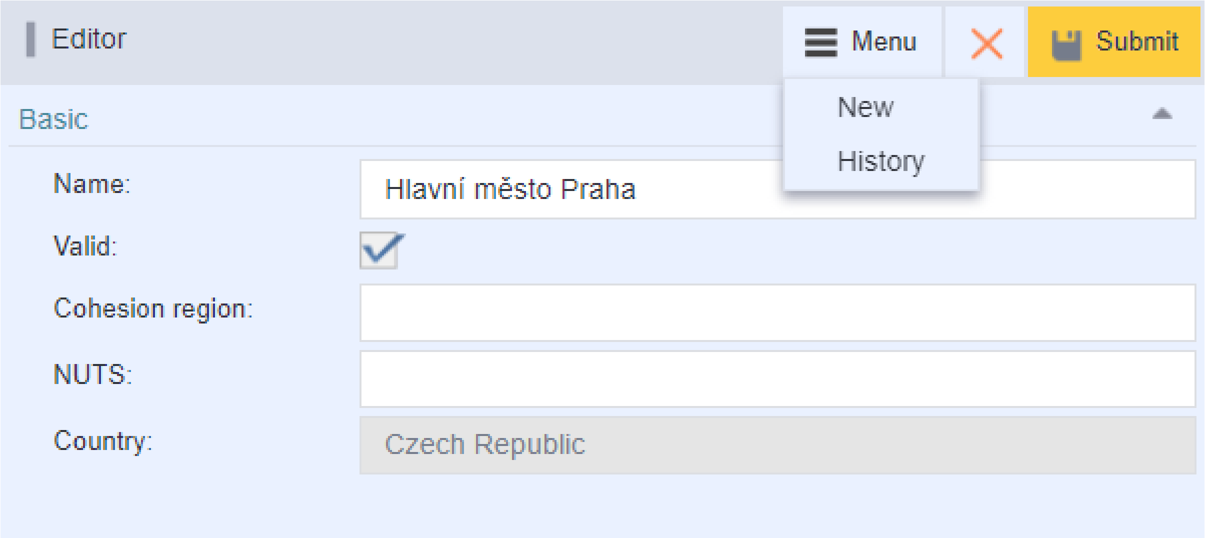
This panel displays Address models on the first bookmark. Display of other bookmarks depends on the group of enumerators of selected address model. For example: Regions, Townships, Towns, Town districts, Town parts and Streets are parts of Czech address model. All Czech regions are displayed in the bookmark Regions - the townships that belong to this region can be displayed in the bookmark Townships by selecting one of the regions. Towns that belong to this township are displayed in the bookmark Towns when one of the townships is selected, etc. These values, which are visible here, are list of values in the drop-down box when selecting an address in the editor.


Address Enums
Address Model
Regions
Townships
Towns
Town districts
Town parts
Streets
Address Model

Address model
DEFAULT
Czechoslovak
Polish

3.4.4.2. P2 - Editor

Editor displays attributes of a record selected from the list of enumerators. Only fields, that are not greyed, are editable. A record is loaded into the editor when selected from the list of enumerators. Editor must be saved for applying changes. If you do not want to save your changes, click Cancel. For creating a new enumerator record it is necessary to click on the bookmark to which the record should be added. Then click New in the editor. Empty editor will be displayed. After filling the details, you must save the editor.


Editor
Menu
Submit
New
History
Basic

Name: Hlavní město Praha

Valid: ☑

Cohesion region:

NUTS:

Country: Czech Republic

3.4.4.3. P3 - Map window

In map windows you can display selected address. Raster map is set as default.

Working with map windows is described in chapter Map window - Locality module.

Search ...
Libčice nad Vltavou
D7
Kladno
Roztoky
Letiště Václava Havla Praha
Vojenské Letiště Kbely
Čelákovice
D10
Praha letec Heliport
Hostivice
Praha
Praha
Úvaly
Vrátkov
Rudná
D0
D1
Letiště Točná
Letiště Bubovice
Říčany
Černošice
CHKO Český kras
D0
zoom: 10
10 km
© OpenStreetMap

3.4.5. Usage of user interface Address enumerators

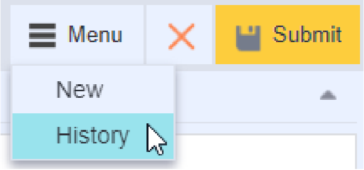
3.4.5.1. Creating new administrative units

CROSS allows you to extend any superior administrative unit.

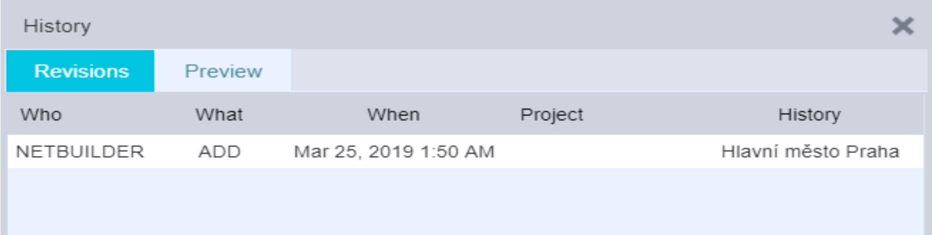
1. In the Address Models bookmark, select the Czechoslovak.
2. Switch to the Regions bookmark. Select the region. In the editor, we can edit or create a new region.
3. Switch to the Regions bookmark and select your district.
4. Switch to the Towns bookmark.
5. Switch to Part of the Village bookmark.
6. Switch to the Street bookmark.
7. Enter the name of the new street and save it.

3.4.5.2. History

Select History option from the context menu in the editor.

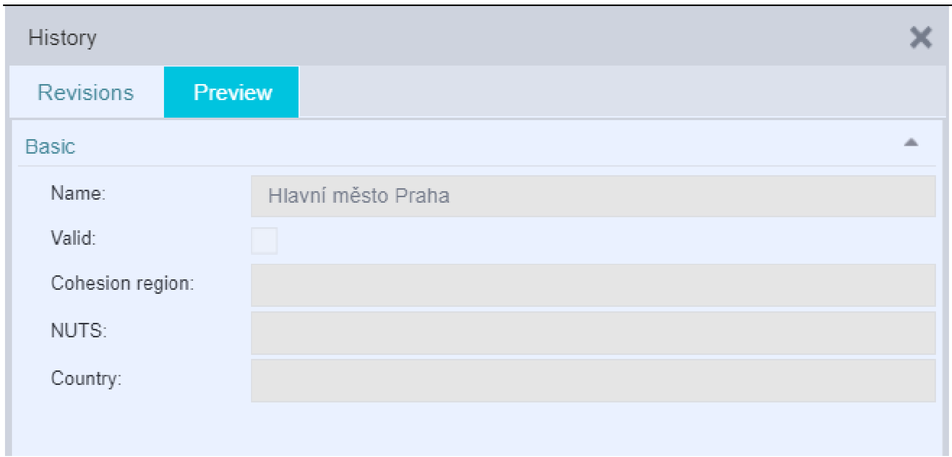

Menu
Submit
New
History

History window and Revision bookmark are displayed.


History
Revisions
Preview

Who	What	When	Project	History
NETBUILDER	ADD	Mar 25, 2019 1:50 AM		Hlavní město Praha

After clicking on the record, switch to Review bookmark.



Name: Hlavní město Praha

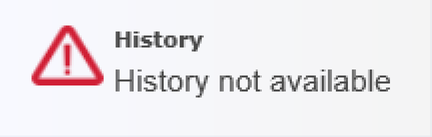
Valid: ☐

Cohesion region:

NUTS:

Country:

Address enumerators history may not appear for each item. Warning notice will be displayed for items without history.



History

History not available

3.4.5.3. Address models and their configurations

Although the work with the address models is the matter of the module ADDRESS, their configuration and creation are mainly done in the module Configuration.

Module Configuration - Address models: Create New address model.

Module Configuration - Custom attributes: Create attributes for address records - enumerator groups.

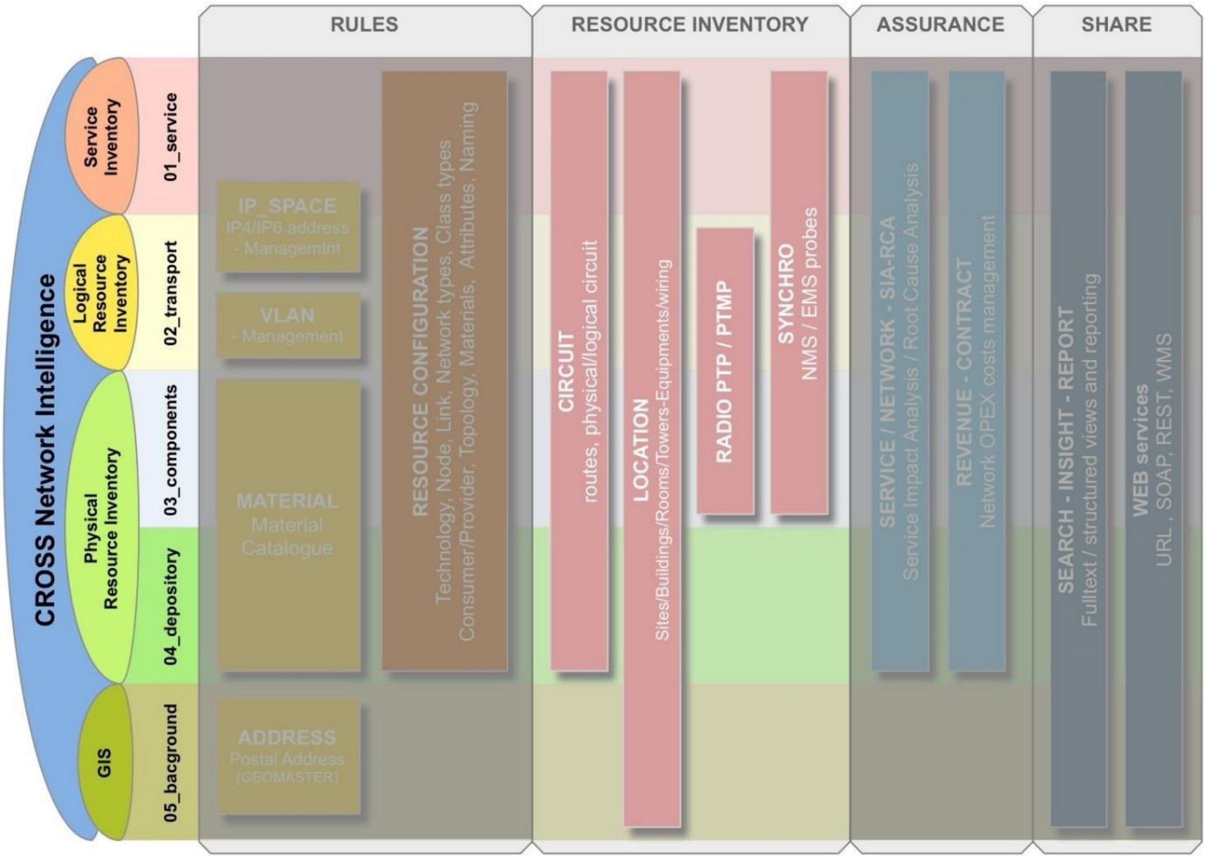
Module Configuration - Message: Create attribute names for their correct display in the editors.

Module Configuration - Countries: Assign new Address model to the country.

Module Address - Address enumerators: Inserting values - enumerators - to the groups in the address model.

4. Module group CROSS – RESOURCE INVENTORY

Group of modules CROSS_RESOURCE INVENTORY serves for user records of network sources from alphanumeric point of view and graphic presentation on geographic space. Specialized tools will help you to work with different types of objects. Automatic data update from external data sources is part of this group.


RULES
RESOURCE INVENTORY
ASSURANCE
SHARE
CROSS Network Intelligence
Service Inventory
Logical Resource Inventory
Physical Resource Inventory
GIS
01_service
02_transport
03_components
04_depository
05_bacground
IP_SPACE
IP4/IP6 address - Managemtnt
VLAN
- Management
MATERIAL
Material Catalogue
ADDRESS
Postal Address (GEOMASTER)
RESOURCE CONFIGURATION
Technology, Node, Link, Network types, Class types
Consumer/Provider, Topology, Materials, Attributes, Naming
CIRCUIT
routes, physical/logical circuit
LOCATION
Sites/Buildings/Rooms/Towers-Equipments/wiring
RADIO PTP / PTMP
SYNCHRO
NMS / EMS probes
SERVICE / NETWORK - SIA-RCA
Service Impact Analysis / Root Cause Analysis
REVENUE - CONTRACT
Network OPEX costs management
SEARCH - INSIGHT - REPORT
Fulltext / structured views and reporting
WEB services
URL , SOAP, REST, WMS

CROSS - RESOURCE INVENTORY is made from following modules:

LOCALITY – registration and management of locality, buildings, rooms and indoor facilities

CIRCUIT – register circuits in the network

SUBNETWORK – network inventory

GROUP – evidence of logical groups of objects

SYNCHRO – automatic data updates

RADIO

4.1. MODULE LOCALITY - records of the nodes in the network

Chapter overview:

4.1.1. Description of module environment Locality

4.1.2. Locality

4.1.2.1. P1 - Locality tree structure / Schema

4.1.2.2. P2 - Editor

4.1.2.3. P3 - Map window

4.1.3. Usage of user interface

4.1.3 1. Creating new localities - node creation

4.1.3 2. Creating basic nodes from the main menu option

4.1.3 3. General node creation from the node context menu

4.1.3 4. Insert material

4.1.3 5. Insert material template

4.1.3.6. Create material template

4.1.3.7. Inserting and changing a node geometry

4.1.3.8. Other options from context menu of the objects in tree structure

4.1.3.9. Node display in the assemble modules

4.1.3.10. How to generate a QR code

4.1.3.11. Display of node history

4.1.3.12. Inserting and downloads

4.1.4. Connectivity view

4.1.4.1. P1 - Connectivity - Left Tree

4.1.4.2. P2 - Connectivity - Right Tree

4.1.5. Usage of user interface Connectivity

4.1.5.1. Display of selected node connectivity

4.1.5.2. Cable connectivity

4.1.5.3. Equipment connectivity

4.1.5.4. Metallic connection

4.1.5.5. Optical connection

4.1.5.6. Remove cross connection

4.1.5.6. Remove cross connection

4.1.1. Description of module environment

Record and administration of localities, buildings, rooms and indoor equipment.

The Locality module serves as a table of NI keys for structure Location (Area) – Building – Room. It also contains Connectivity function for connecting different pieces of equipment by cables via physical ports. It is possible to use full text search to find the node objects – localities, buildings, NE, ports etc. Objects are displayed on the map and in the tree structure of locality when selected from the search results. Objects are editable in the Editor mode when selected from the tree structure.

User functions:

- Full-text search
- Inserting / Editing / Removing
- Administration of aliases (nicknames)
- Displaying objects on the map
- Administration of access to object
- Equipment connectivity

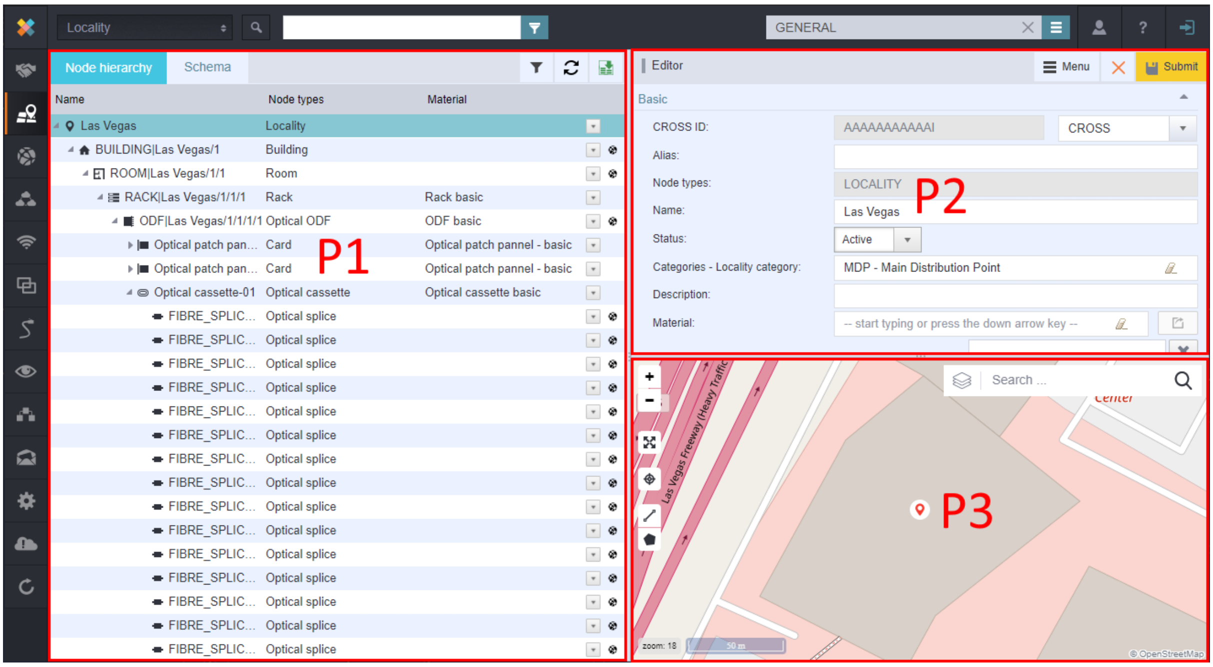
Module Locality contains two views:

- Locality
- Connectivity

4.1.2. Locality

Locality view consist of three panel and search windows.

- P1 - Location tree structure / Schema
- P2 - Editor
- P3 - Map window



Name	Node types	Material
Las Vegas	Locality	
BUILDING|Las Vegas/1	Building	
ROOM|Las Vegas/1/1	Room	
RACK|Las Vegas/1/1/1	Rack	Rack basic
ODF|Las Vegas/1/1/1/1	Optical ODF	ODF basic
Optical patch pan...	Card	Optical patch pannel - basic
Optical patch pan...	Card	Optical patch pannel - basic
Optical cassette-01	Optical cassette	Optical cassette basic
FIBRE_SPLIC...	Optical splice	
FIBRE_SPLIC...	Optical splice	
FIBRE_SPLIC...	Optical splice	
FIBRE_SPLIC...	Optical splice	
FIBRE_SPLIC...	Optical splice	
FIBRE_SPLIC...	Optical splice	
FIBRE_SPLIC...	Optical splice	
FIBRE_SPLIC...	Optical splice	
FIBRE_SPLIC...	Optical splice	
FIBRE_SPLIC...	Optical splice	
FIBRE_SPLIC...	Optical splice	
FIBRE_SPLIC...	Optical splice	
FIBRE_SPLIC...	Optical splice	
FIBRE_SPLIC...	Optical splice	
FIBRE_SPLIC...	Optical splice	

CROSS ID: AAAAAAAAAAAI CROSS
Alias:
Node types: LOCALITY
Name: Las Vegas
Status: Active
Categories - Locality category: MDP - Main Distribution Point
Description:
Material: -- start typing or press the down arrow key --

4.1.2.1. P1 - Location tree structure / Schema

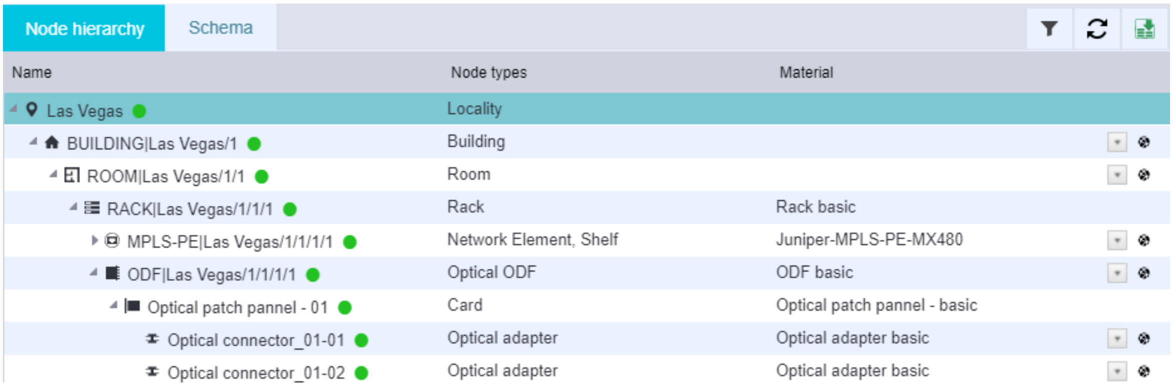
Panel P1 contains two bookmarks:

- Node hierarchy
- Schema

Node hierarchy

The Node hierarchy contains superior and inferior groups of objects. Each individual levels of the tree structure are also called "nodes". Each node can be expanded and collapsed repeatedly. If this icon ▸ appears by the name of the node, that means that this group contains other subgroups. This icon ▸ marks a node in the default state – meaning the node is collapsed. If a certain group contains other sublevels, the icon of the expanded node is marked by this icon ◢. Collapsing and expanding of the groups can be achieved by clicking on the icons mentioned.

Localities and their subgroups (Buildings, Rooms, Equipment etc.) are displayed in the Locality tree structure.



Name	Node types	Material	
◢ Las Vegas ●	Locality		
◢ BUILDING|Las Vegas/1 ●	Building		▾
◢ ROOM|Las Vegas/1/1 ●	Room		▾
◢ RACK|Las Vegas/1/1/1 ●	Rack	Rack basic	
▸ MPLS-PE|Las Vegas/1/1/1/1 ●	Network Element, Shelf	Juniper-MPLS-PE-MX480	▾
◢ ODF|Las Vegas/1/1/1/1 ●	Optical ODF	ODF basic	▾
◢ Optical patch pannel - 01 ●	Card	Optical patch pannel - basic	
Optical connector_01-01 ●	Optical adapter	Optical adapter basic	▾
Optical connector_01-02 ●	Optical adapter	Optical adapter basic	▾

There are four columns with information about listed Nodes: Name, Node types, Material and a column for menu with all links terminated on this node. **Note:** Menu is active only when black Circuit icon ▾ is shown.

Filter option ▼ allows you to filter the localities displayed in the tree structure by the nodes. By clicking on the Filter icon, a menu will open to choose the type of nodes selected (see picture). You can confirm your filter setting by pressing the Filter button which is in the bottom of the dialogue window.

The Filter window can be closed by clicking the cross in its upper right corner. Filter settings can be saved into a profile by all users or set as a default by administrators. Saved setting can be restored from a profile menu. Current setting can be reset into previously defined default (including previously saved settings into a profile).

Refresh data button ⟳ reloads data from database and allows to see any changes done by other users.

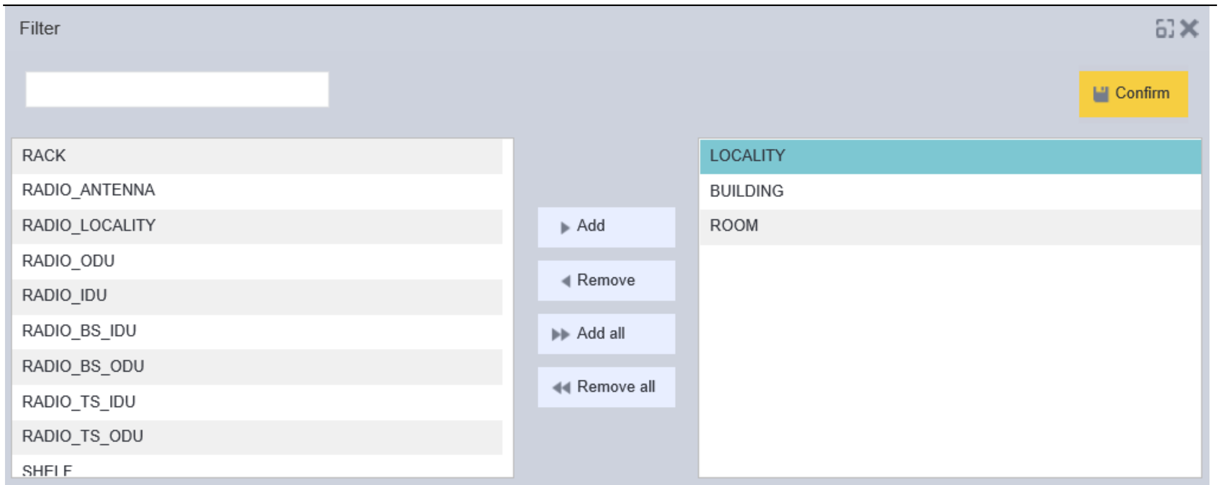
It is also possible to export some of the values of the menu into the Excel spreadsheet by clicking the Export to Excel icon ⇩. Selected node from the tree structure (which is also displayed in the editor) and the hierarchy of its interior objects if expanded will be exported and saved as an xlsx file.

Status of the object is now represented by a colored icon next to the object’s name.

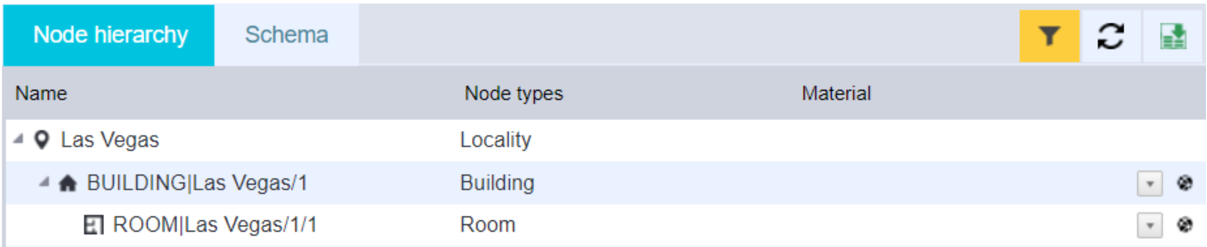
Icon is an UTF-8 symbol configurable in the default.properties, where also position can be defined, or an icon be disabled.

User can define a color for any already defined status in Configuration/Statuses.

It can be seen in the Locality (in the tree) and Circuit (in the tree and for start/end node in both Routing and Consumers tabs).


Filter
Confirm
RACK
RADIO_ANTENNA
RADIO_LOCALITY
RADIO_ODU
RADIO_IDU
RADIO_BS_IDU
RADIO_BS_ODU
RADIO_TS_IDU
RADIO_TS_ODU
SHELF
Add
Remove
Add all
Remove all
LOCALITY
BUILDING
ROOM

Press Confirm button to filter selected items. Filter button then turns yellow, this means that created filter is active.


Node hierarchy
Schema

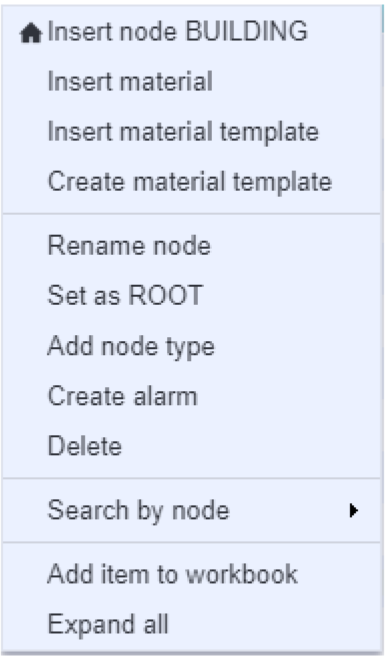
Name	Node types	Material
Las Vegas	Locality	
BUILDING|Las Vegas/1	Building	
ROOM|Las Vegas/1/1	Room	

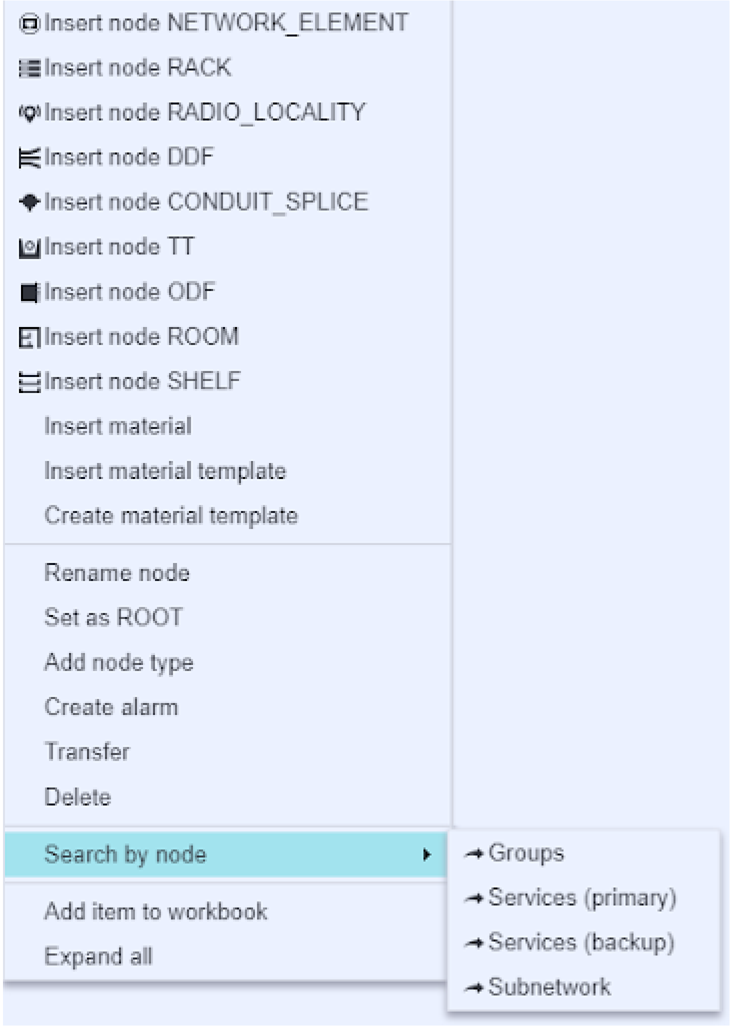
To cancel the filter, press the filter button again and remove all items. Confirm this action by Confirm button.

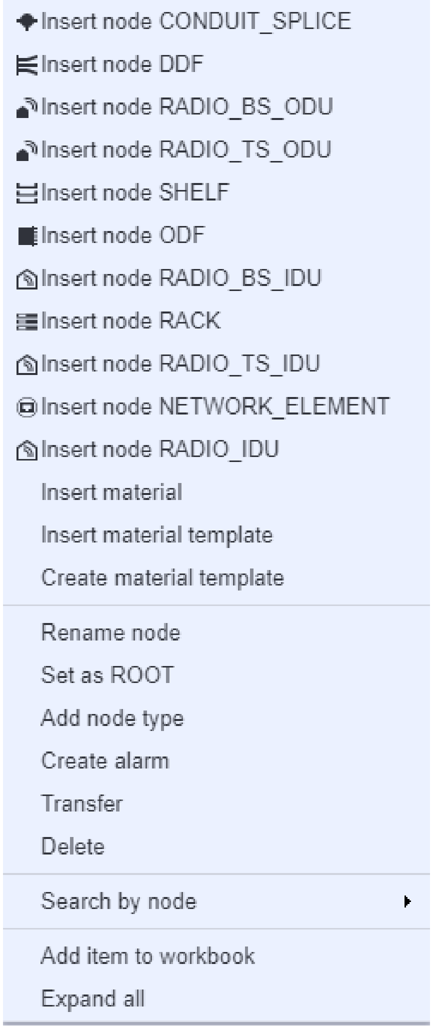
Context menu of objects in the tree structure

Creating new nodes is possible because of the tree structure of all related localities objects. A context menu of options relevant for each node is displayed by right-clicking it. Every node has its own specific context menu – that means that some options are available for the building and different are available for the radio locality.

Context menu of locality, building and room

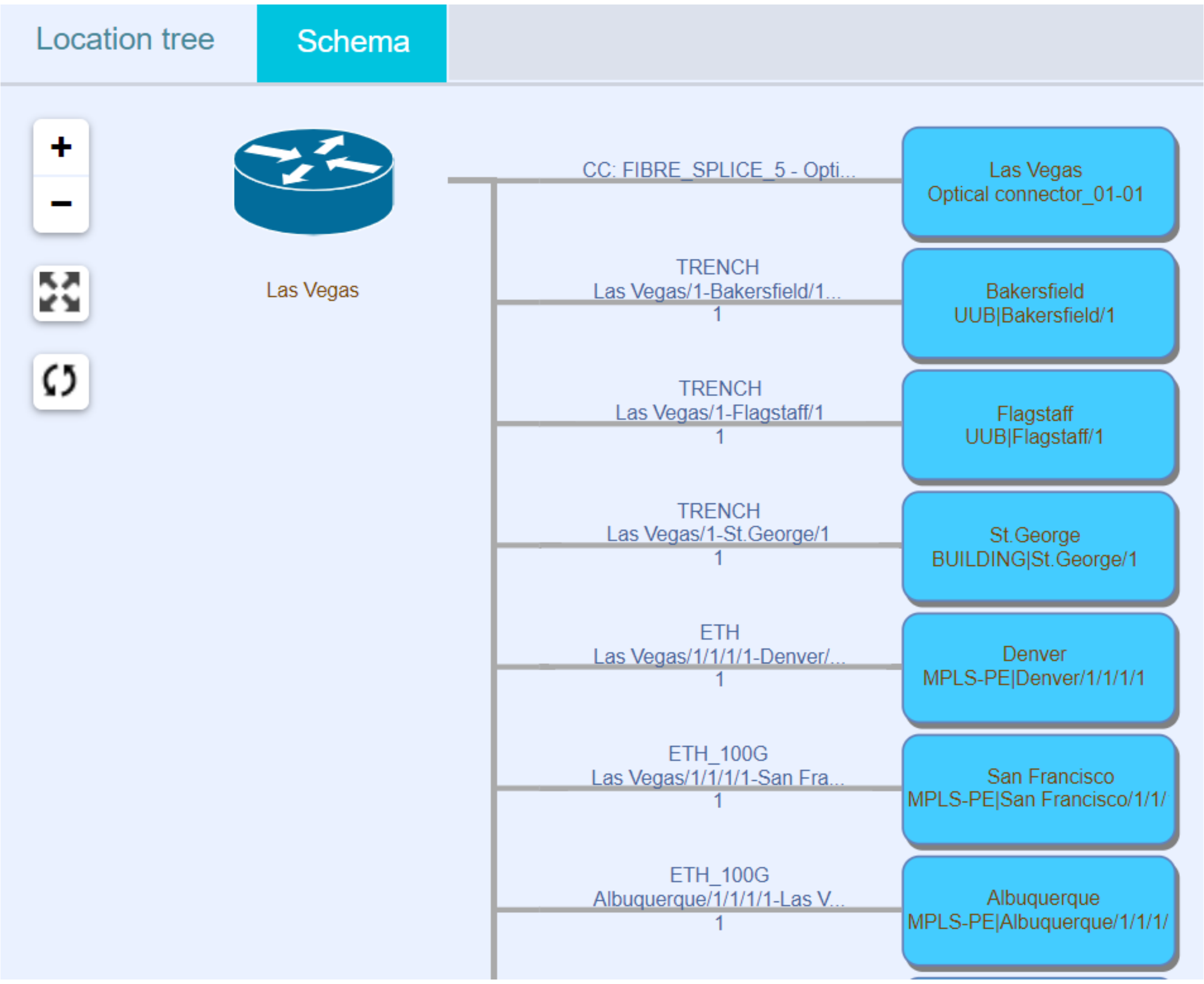

Insert node BUILDING
Insert material
Insert material template
Create material template
Rename node
Set as ROOT
Add node type
Create alarm
Delete
Search by node
Add item to workbook
Expand all


Insert node NETWORK_ELEMENT
Insert node RACK
Insert node RADIO_LOCALITY
Insert node DDF
Insert node CONDUIT_SPLICE
Insert node TT
Insert node ODF
Insert node ROOM
Insert node SHELF
Insert material
Insert material template
Create material template
Rename node
Set as ROOT
Add node type
Create alarm
Transfer
Delete
Search by node
Groups
Services (primary)
Services (backup)
Subnetwork
Add item to workbook
Expand all


Insert node CONDUIT_SPLICE
Insert node DDF
Insert node RADIO_BS_ODU
Insert node RADIO_TS_ODU
Insert node SHELF
Insert node ODF
Insert node RADIO_BS_IDU
Insert node RACK
Insert node RADIO_TS_IDU
Insert node NETWORK_ELEMENT
Insert node RADIO_IDU
Insert material
Insert material template
Create material template
Rename node
Set as ROOT
Add node type
Create alarm
Transfer
Delete
Search by node
Add item to workbook
Expand all

Schema

Diagram shows the graphic schematic idea of connecting the locality with other localities via links. It is necessary to set the required locality as a root in the tree structure and after clicking the Schema bookmark a graph of root locality connections will appear.


Location tree
Schema
+
−
Las Vegas
CC: FIBRE_SPLICE_5 - Opti...
Las Vegas
Optical connector_01-01
TRENCH
Las Vegas/1-Bakersfield/1...
1
Bakersfield
UUB|Bakersfield/1
TRENCH
Las Vegas/1-Flagstaff/1
1
Flagstaff
UUB|Flagstaff/1
TRENCH
Las Vegas/1-St.George/1
1
St.George
BUILDING|St.George/1
ETH
Las Vegas/1/1/1/1-Denver/...
1
Denver
MPLS-PE|Denver/1/1/1/1
ETH_100G
Las Vegas/1/1/1/1-San Fra...
1
San Francisco
MPLS-PE|San Francisco/1/1/
ETH_100G
Albuquerque/1/1/1/1-Las V...
1
Albuquerque
MPLS-PE|Albuquerque/1/1/1/

By clicking on the link (grey lines with description) or on the locality (blue rectangles with description) in the graph itself, this object will appear in the editor and its geometry will appear at the map window at the same time.

You can move the graph within the window by dragging it by the left mouse button.

Buttons for zooming are placed in the upper left corner of the window.

+ zooms in

− zooms out

⤢ will expand the graph on the size of the browser window while the Editor and Map panels are closed

⤡ returns the graph window to its default size

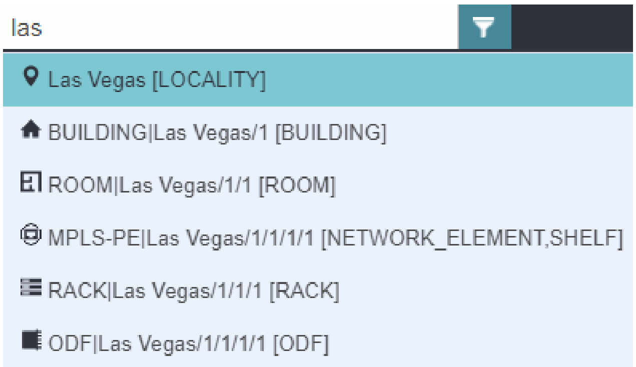
⟳ first click on the button only reloads the data in the graph, second click reloads both the data and the view

When user switch to Location tree pane and then back to Schema, the Reload of Schema is activated. So, if a user clicked Reload button in the Scheme pane once, then switched to Location tree pane and after that switched back to the Schema pane, second full refresh of the data and view is used in this case.

Search field for full text searching

It is possible to search by a name of locality, building, room, network element, rack, shelf, UUB, ODF and DDF in the search field.

Once you enter first few letters of the name searched, the autocomplete will display the list of relevant values to choose from. You can select the right value by clicking it. Selected search result will appear in the Locality tree structure and in the editor as well as in the Map window.

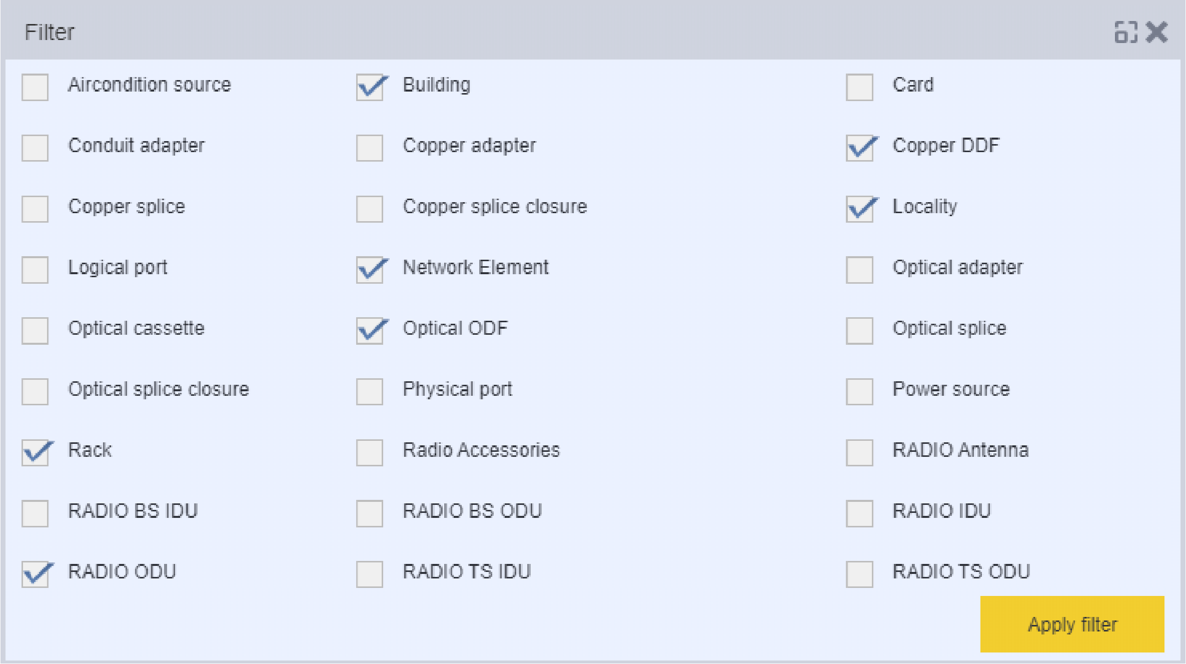


las

- Las Vegas [LOCALITY]
- BUILDING|Las Vegas/1 [BUILDING]
- ROOM|Las Vegas/1/1 [ROOM]
- MPLS-PE|Las Vegas/1/1/1/1 [NETWORK_ELEMENT,SHELF]
- RACK|Las Vegas/1/1/1 [RACK]
- ODF|Las Vegas/1/1/1/1 [ODF]

Search in the Locality module is automatically filtered by a set of selected node types. Filter icon will show Filter popup window where user can select which node types wants to be found.

Note: This filter also affects selecting of Start node and End node in Circuit Editor.



Filter

☐ Aircondition source	☑ Building	☐ Card
☐ Conduit adapter	☐ Copper adapter	☑ Copper DDF
☐ Copper splice	☐ Copper splice closure	☑ Locality
☐ Logical port	☑ Network Element	☐ Optical adapter
☐ Optical cassette	☑ Optical ODF	☐ Optical splice
☐ Optical splice closure	☐ Physical port	☐ Power source
☑ Rack	☐ Radio Accessories	☐ RADIO Antenna
☐ RADIO BS IDU	☐ RADIO BS ODU	☐ RADIO IDU
☑ RADIO ODU	☐ RADIO TS IDU	☐ RADIO TS ODU

4.1.2.2. P2 - Editor

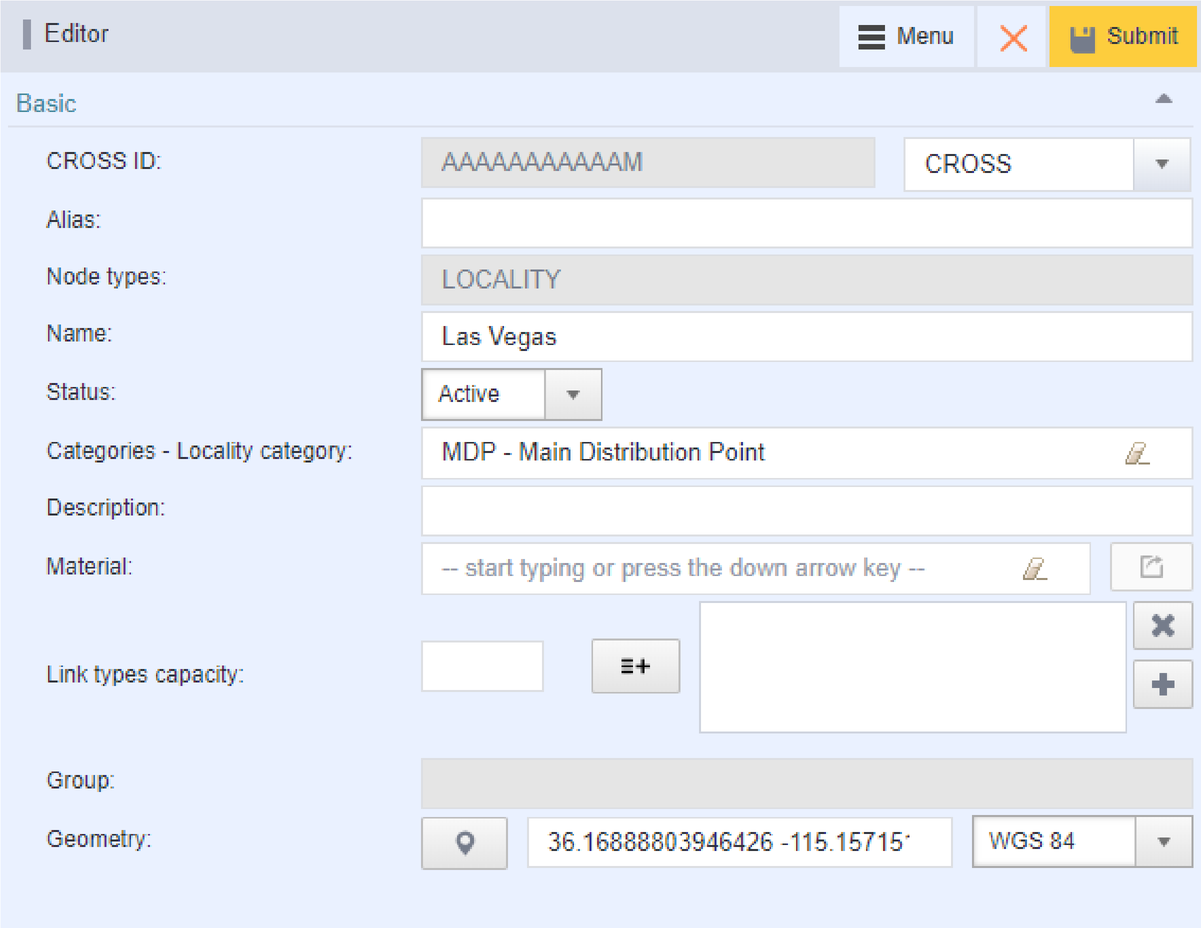
You can use the Editor to enter a new data for each node objects and to display and edit the data already inserted. The editor contains individual attributes (e.g. object and locality details) and attribute values fields.

Values of those attributes are in a form of text or numbers (so called alphanumeric characters).

Data can be entered in the Editor by typing them directly into the fields or it is also possible to select a relevant value out of the drop-down list. If a text in the value field is marked by a grey color, that means that the value cannot be edited; if the text is displayed in black color, that means that you can overwrite the value.

The Editor of the selected object is displayed in the right side of the screen.

It is possible to track changes of Technology and Technology tree structure in Object history option.



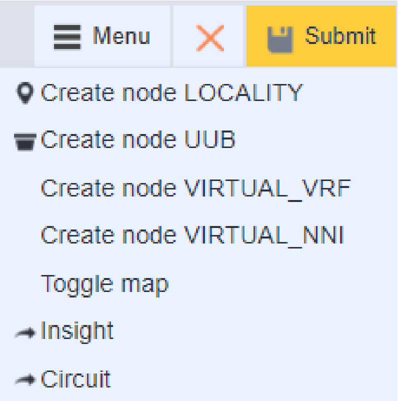
CROSS ID: AAAAAAAAAAAM CROSS
Alias:
Node types: LOCALITY
Name: Las Vegas
Status: Active
Categories - Locality category: MDP - Main Distribution Point
Description:
Material: -- start typing or press the down arrow key --
Link types capacity:
Group:
Geometry: 36.16888803946426 -115.15715 WGS 84

Alias - after filling alias and saving the editor, new field for another alias is available. More aliases can be attached.

There is a menu in the Editor header which contains a save and cancel button and there is also a drop down menu of other options - switching to other modules, generation of QR codes, node history tracking etc.

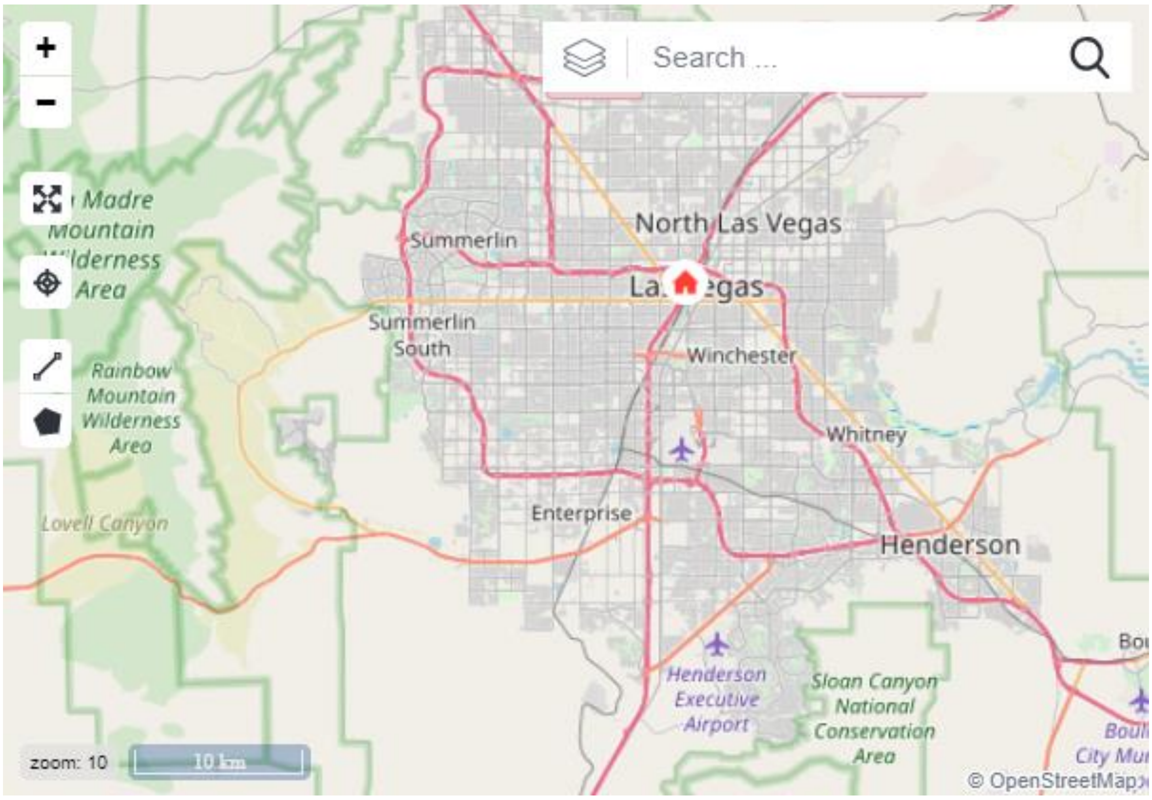
Options from this menu are described in more details in the following chapters.

- Create node GENERIC_LINK_END
- Create node LOCALITY (hierarchically the highest node type in the tree)
- Create node UUB (Underground Utility Box)
- Create node POLE (pylon, column)
- Create node TT

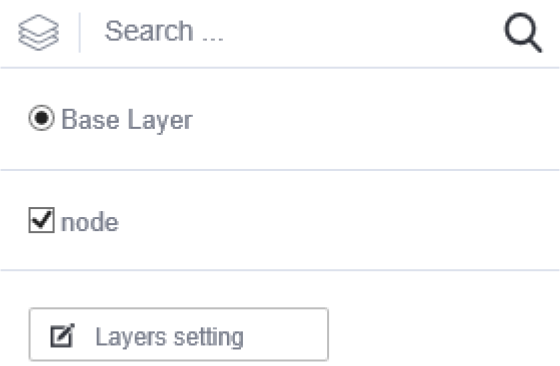


4.1.2.3. P3 - Map window

It is possible to display the object selected from the tree structure in the map window. Also, different types of links and nodes can be displayed after relevant layers are turned on. Raster map is set as default view option.


+
−
Search ...
North Las Vegas
Las Vegas
Summerlin
Summerlin South
Winchester
Whitney
Enterprise
Henderson
Madre Mountain Wilderness Area
Rainbow Mountain Wilderness Area
Lovell Canyon
Henderson Executive Airport
Sloan Canyon National Conservation Area
zoom: 10
10 km
© OpenStreetMap

The Map window has an option of displaying topographical details in various layers that are independent on each other. It is also possible to switch among the layers. After clicking the icon , a list of map layers will be opened.


Search ...

● Base Layer

☑ node

Layers setting

Map source materials are obtained online via WMS services. Geometries of each parcels are obtained via WFS service. Data relevance depends on the service being used.

You can find typical navigation tools in the map window options. Those are the zoom in + , zoom out − , will expand the map on the size of the browser window (returns the map window to its default size) , actual scale of displayed map 2 km and also a field for address searching.

Search ...

The tools for length and area measurement are also among the options of the map window: polyline and polygon. The measurement is launched after clicking the first point on the map which launches those tools. Vertexes are created by clicking other points on the map (while the continues measurement value is displayed). You can stop the measuring by two clicks. Double clicking will stop the measuring and enable zoom in the same time. The bubble dialogue with measured value will pop up accordingly. This measurement result dialogue will disappear with the next click.

You can find specific tools for a map configuration (with respect to selected object) hidden under those icons: ⌖ ⌖ ⌖ .

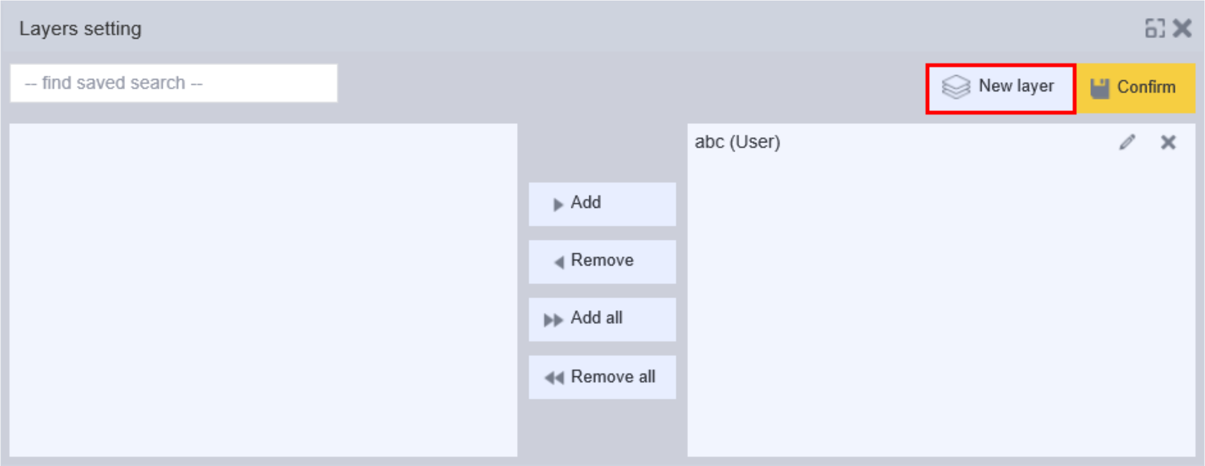
The icon for a map shift and for zooming it in to a selected object from the tree structure is set as default ⌖ - after selecting it, the object is zoomed in and positioned in the center of the map.

If you click the icon mentioned above, the icon will change its appearance into this icon ⌖ . This icon stands for a tool which shifts the map in order for the object to be in its center, but the map scale will stay the same.

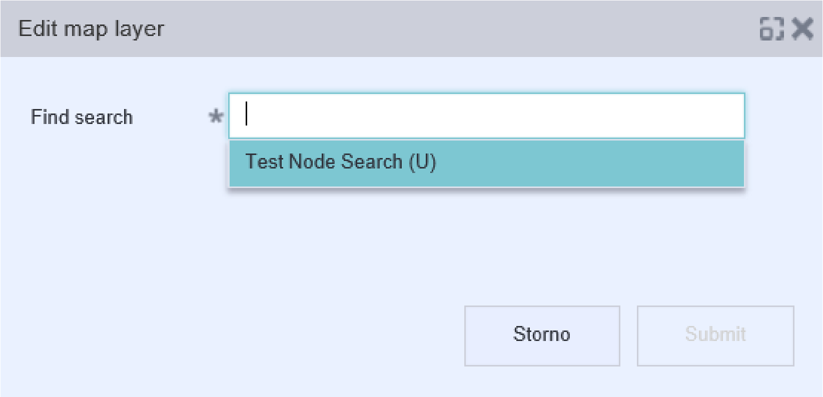
By clicking the icon again, it changes its appearance once more, into this icon ⌖. This icon stands for a tool with a map lock function - the map does not change its position nor scale regarding the selected object. If the object is located on the map field, it will be just highlighted.

The map configuration (turning on the option for displaying the visibility of relevant layers)

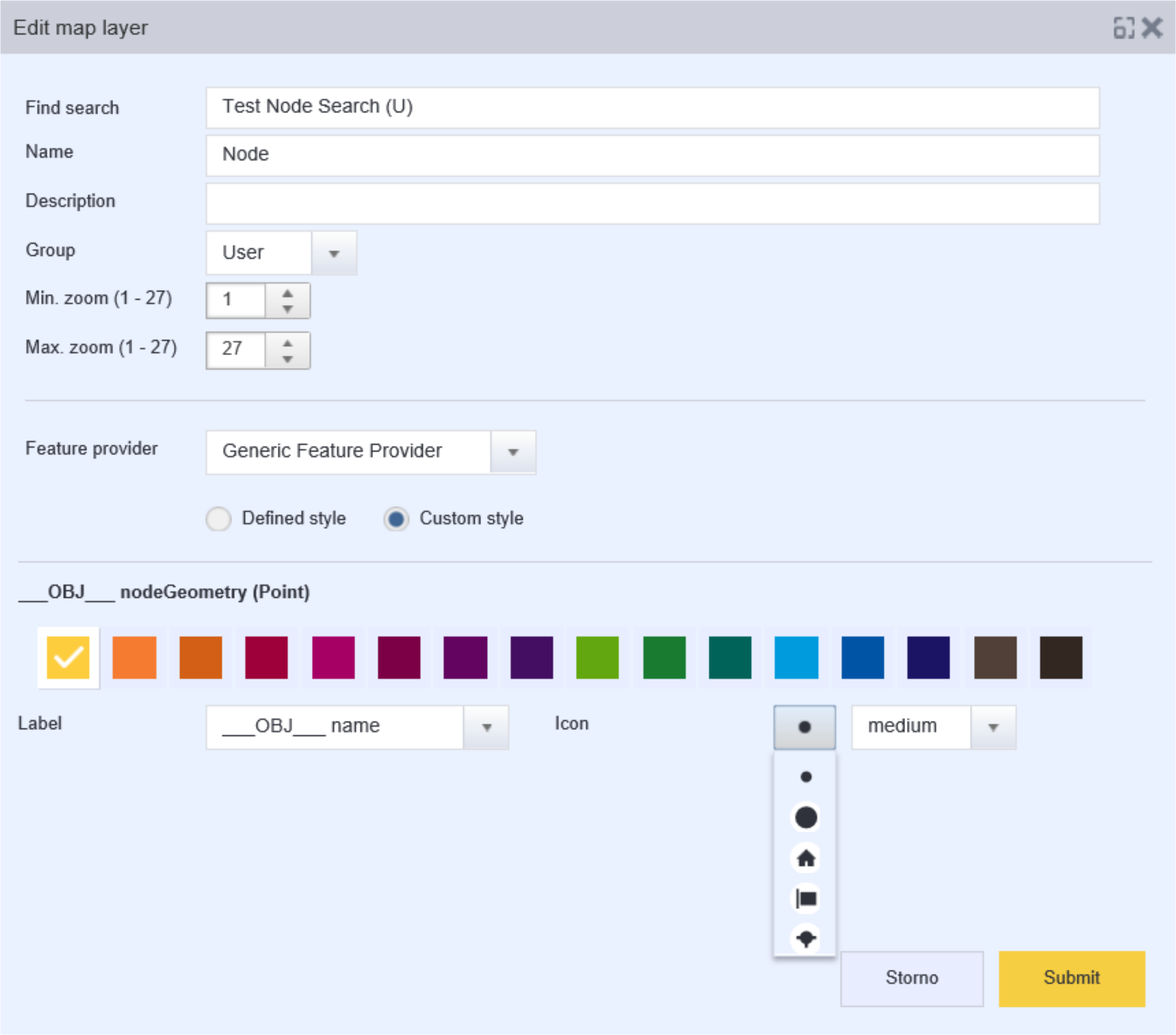
☑ Cross Layer ✎ A table of the map configuration is opened by clicking on a symbol of pencil in a frame. Here you can choose which objects are to be displayed in the map window. After you are done with selecting, you need to save your settings by clicking the Submit button.



Edit map layer windows will be open. Select one of the existing layers.



More options are available after selecting a layer.



Find search: Test Node Search (U)

Name: Node

Description:

Group: User

Min. zoom (1 - 27): 1

Max. zoom (1 - 27): 27

Feature provider: Generic Feature Provider

○ Defined style ● Custom style

___OBJ___ nodeGeometry (Point)

Label: ___OBJ___ name

Icon: ● medium

Press Submit button after filling all mandatory information.

You´ll be switcher to Layers settings window.

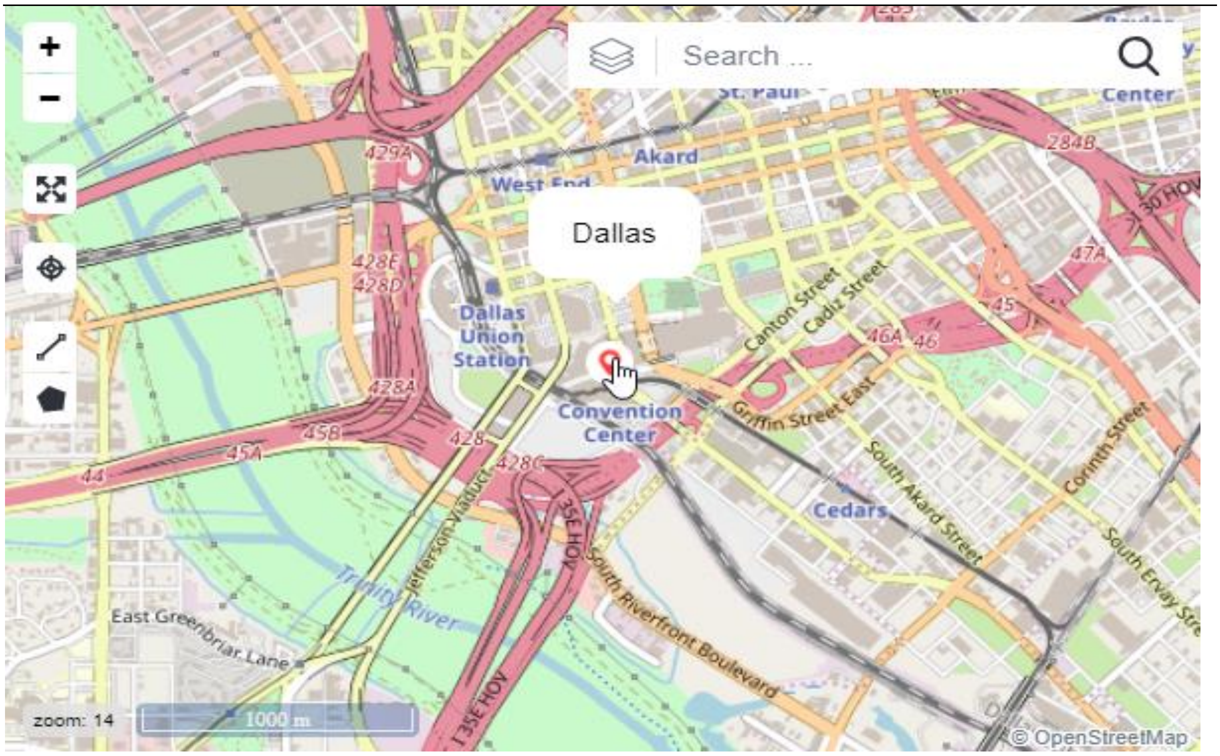
Setting will be saved after pressing Submit button.

Selecting locality from the map

Every node can be found and opened in the editor directly by selecting it from the map.

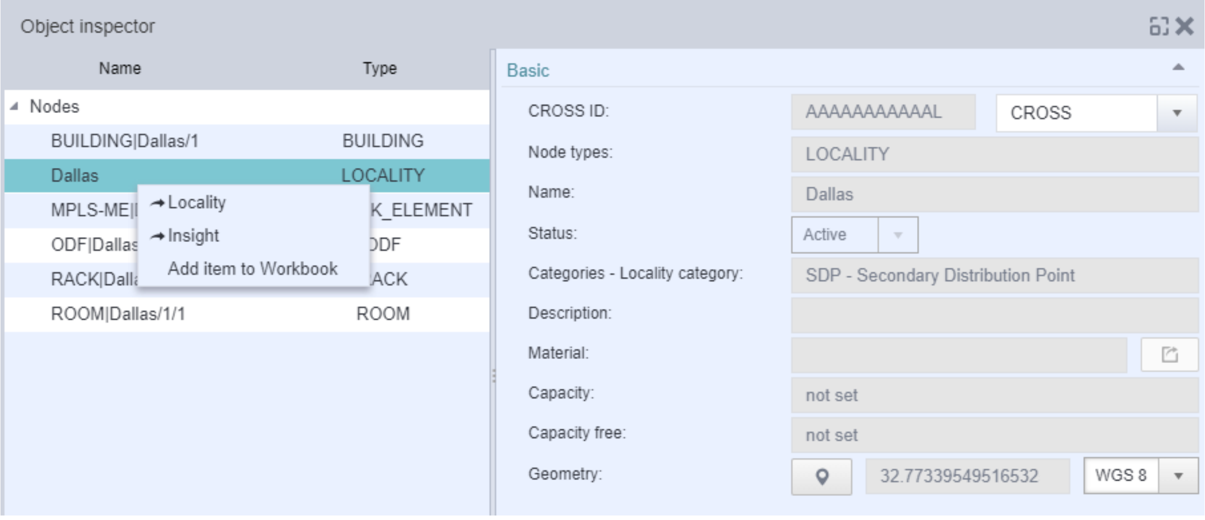
The visibility of required node types must be set as in the map configuration option.

Hold Ctrl key and click on the required locality in the map, e.g. in Olomouc:


Search ...
Dallas
zoom: 14
1000 m
© OpenStreetMap

A window Object inspector with the list of all objects in this locality will be opened.

Context menu will be displayed by right-clicking the required node. In this case you can open the selected node in Locality module or Insight module. You can also add it into the Workbook.


Object inspector
→ Locality
→ Insight
Add item to Workbook
Basic

Name	Type
Nodes	
BUILDING|Dallas/1	BUILDING
Dallas	LOCALITY
MPLS-ME|I	K_ELEMENT
ODF|Dallas	DDF
RACK|Dall	ACK
ROOM|Dallas/1/1	ROOM

CROSS ID:	AAAAAAAAAAAL CROSS
Node types:	LOCALITY
Name:	Dallas
Status:	Active
Categories - Locality category:	SDP - Secondary Distribution Point
Description:	
Material:	
Capacity:	not set
Capacity free:	not set
Geometry:	32.77339549516532 WGS 8

4.1.3. Usage of user interface

4.1.3.1. Creating new localities - node creation

A creation of nodes will be described in this chapter in more details. This system is adjustable, which means that the context menu and inferior objects could be modified. This customization can be set in the Configuration module.

Node creation can be performed in several ways:

- Creating basic nodes from the main menu option

Hierarchically supreme objects (nodes of the Locality, UUB, Pole or Generic Link End types) can be created directly from the main menu of the tree structure panel.

- General node creation from the node context menu

It is possible to create other objects according to the type of its superior object from the object context menu in the tree structure.

- Creating nodes from material

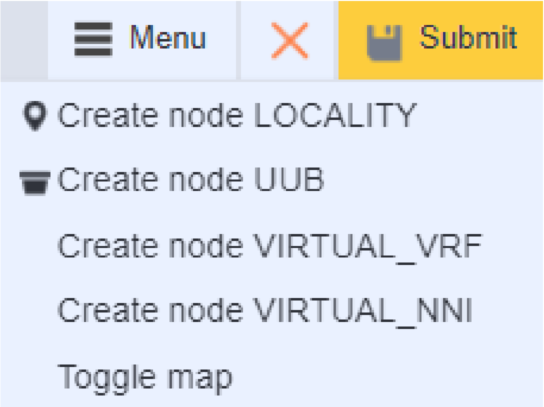
This method of creating new nodes is suitable e.g. for inserting network elements, slots, cards etc.

- Node creation from material template

Creating new objects from a material template is a very effective way of doing this, because it is possible to insert a new object with a whole structure of inferior objects - e.g. it is possible to insert an IDU (indoor unit) as a whole structure of network equipment, shelves, cards, slots, ports etc. in the radio locality

4.1.3.2. Creating basic nodes from the main menu option

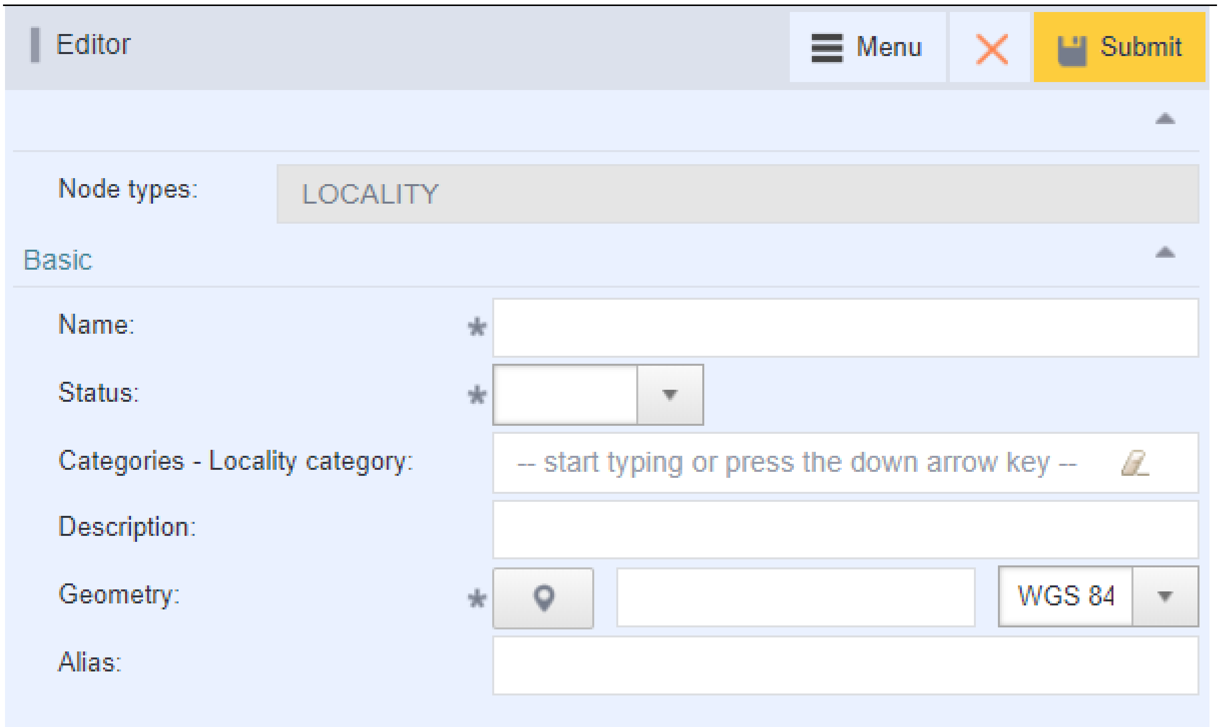
You can create only hierarchically supreme tree structure objects from the main menu option. Those are e.g. localities, UUBs, poles etc.



Creating Locality node

Locality can be created from the drop-down menu situated in the upper right corner of the locality tree structure by selecting the Create node LOCALITY option.

Empty editor for a locality object will appear in the side panel. Mandatory items to be filled are Status and Geometry. Other items can be filled only if needed. Click on Submit button for saving.



Node types: LOCALITY

Name: *

Status: *

Categories - Locality category:

Description:

Geometry: * WGS 84

Alias:

Name of recently created locality will be displayed in the Locality tree structure after the editor is saved.

Generic Link End

A generic link end functions serves as a general, unspecified end of the link.

The Generic Link End can be created from the drop-down menu situated in the upper right corner of the locality tree structure by selecting the Create node GENERIC LINK END option. Then it is necessary to fill the Editor. Mandatory items to be filled are Status, Name and Geometry. Click on Submit button for saving.

Name of recently created Generic Link End will be displayed in the Locality tree structure after the editor is saved.

UUB (Underground Utility Box)

An UUB can be created from the context menu by right-clicking on the locality node and selecting the Create node UUB option**.** Then it is necessary to fill the Editor for UUB. Mandatory items to be filled are Status and Geometry. Click on Submit button for saving after filling the editor.

Name of recently created UUB will be displayed in the Locality tree structure after the editor is saved.

Pole (Column)

A pole can be created from the context menu by right-clicking on the locality node and selecting the Create node POLE option**.** Then it is necessary to fill the Editor for POLE. Mandatory items to be filled are Status and Geometry. Click on Submit for saving after filling the editor.

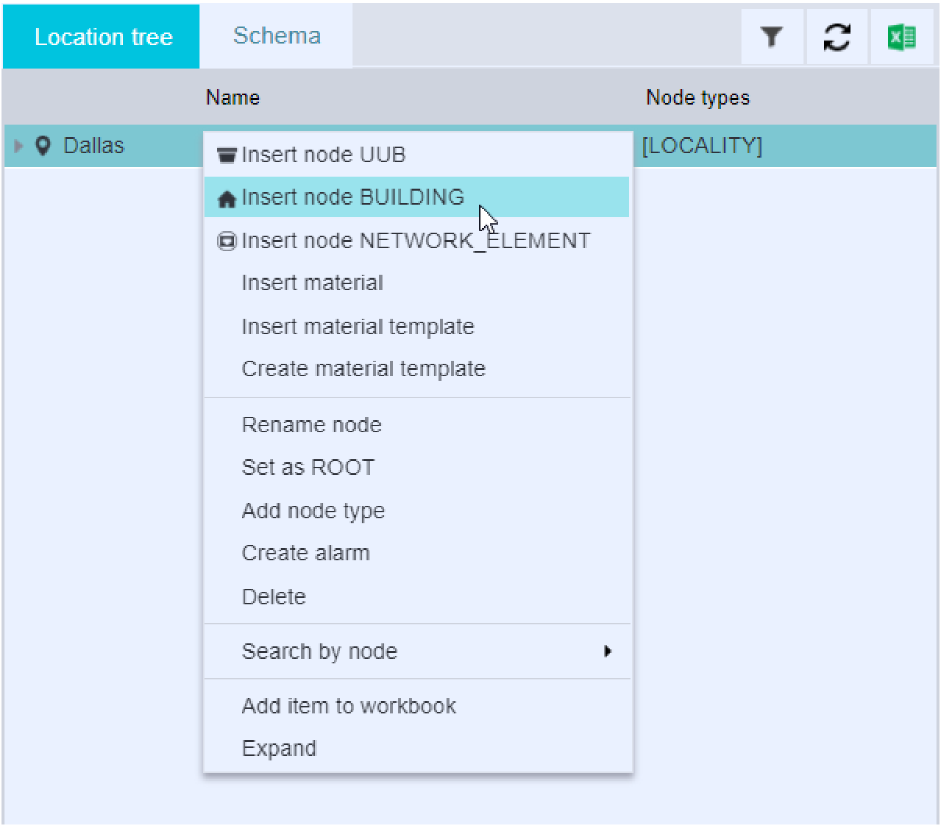
Name of recently created POLE will be displayed in the Locality tree structure after the editor is saved.

4.1.3.3. General node creation from the node context menu

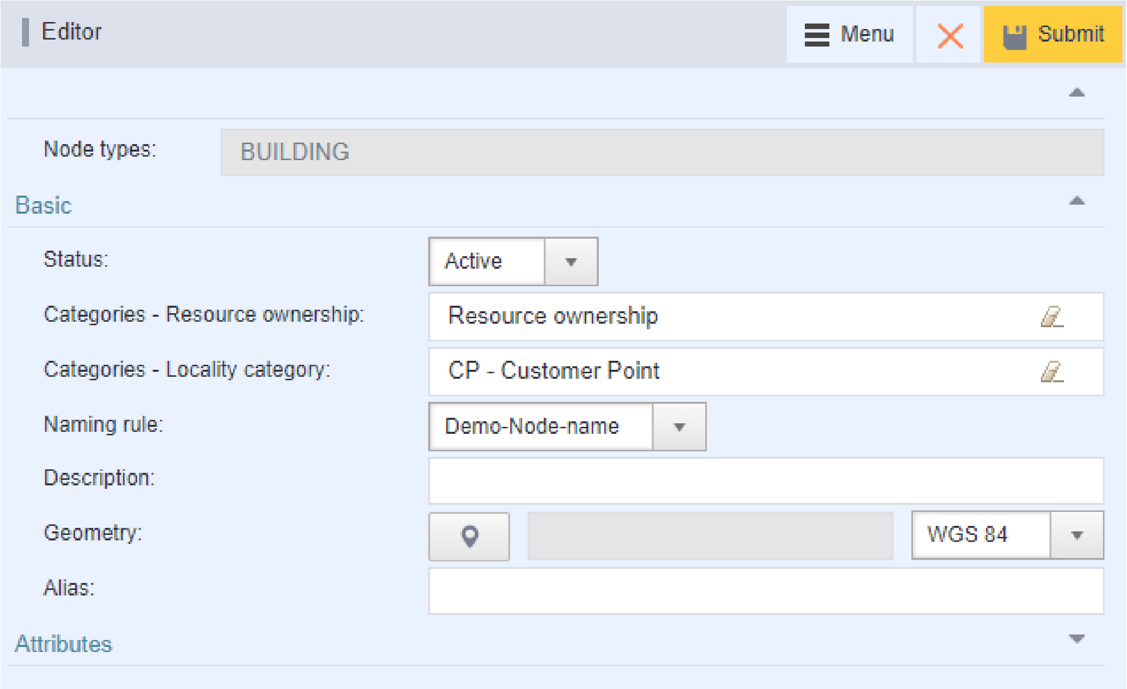
General generation (modulation) of nodes directly from the context menu is possible for every object in the tree structure. A general node will be created. You can assign a relevant material created in the Material module to this node later.

Building

A building can be created from the context menu by right-clicking on the locality node and selecting Insert node BUILDING option.


Location tree
Schema
Name
Node types
Dallas
[LOCALITY]
Insert node UUB
Insert node BUILDING
Insert node NETWORK_ELEMENT
Insert material
Insert material template
Create material template
Rename node
Set as ROOT
Add node type
Create alarm
Delete
Search by node
Add item to workbook
Expand

Then it is necessary to fill the building Editor. Mandatory item to be filled is Status. Click on Submit button for saving after filling the editor.


Editor
Menu
Submit
Basic
Attributes

Node types: BUILDING

Status: Active

Categories - Resource ownership: Resource ownership

Categories - Locality category: CP - Customer Point

Naming rule: Demo-Node-name

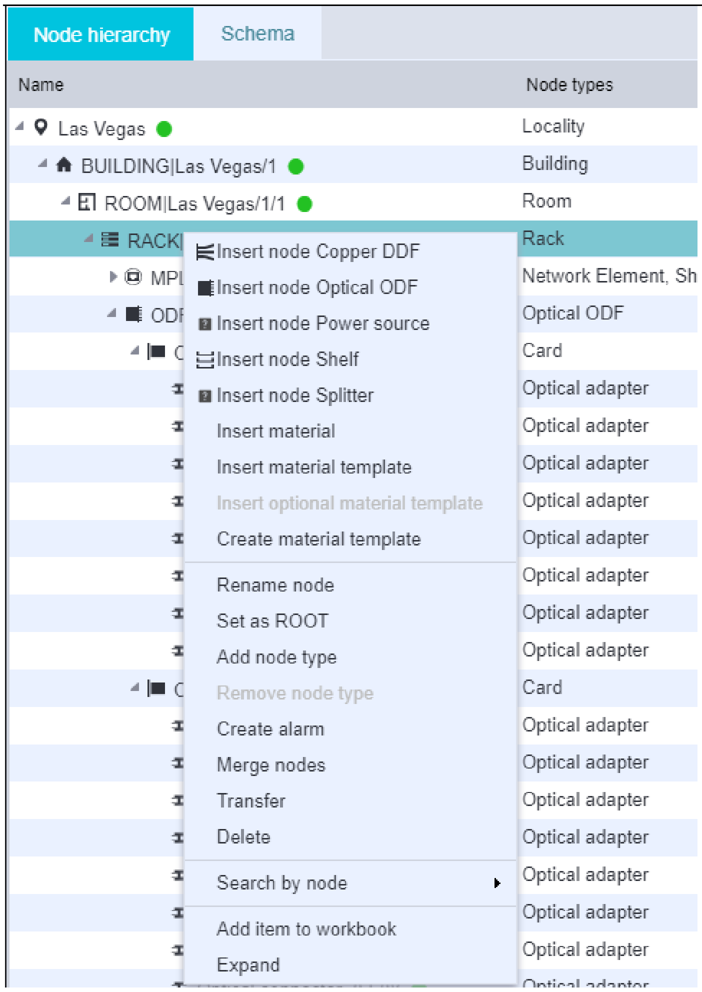
Description:

Geometry: WGS 84

Alias:

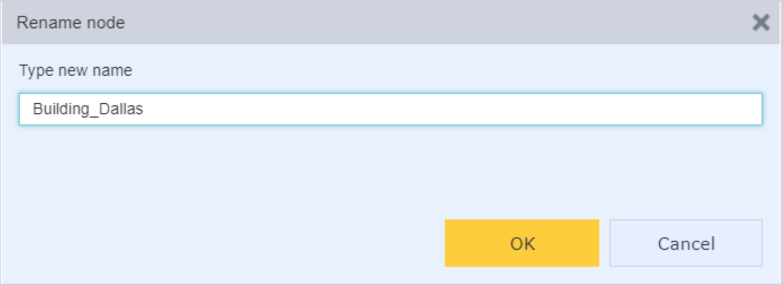
Name of recently created building will be displayed in the Locality tree structure after the editor is saved. A button for switching to superior node, in this case to locality, will be displayed above the name.

Every node in the tree can be renamed. Select Rename node from the context menu.


Node hierarchy
Schema
Insert node Copper DDF
Insert node Optical ODF
Insert node Power source
Insert node Shelf
Insert node Splitter
Insert material
Insert material template
Insert optional material template
Create material template
Rename node
Set as ROOT
Add node type
Remove node type
Create alarm
Merge nodes
Transfer
Delete
Search by node
Add item to workbook
Expand

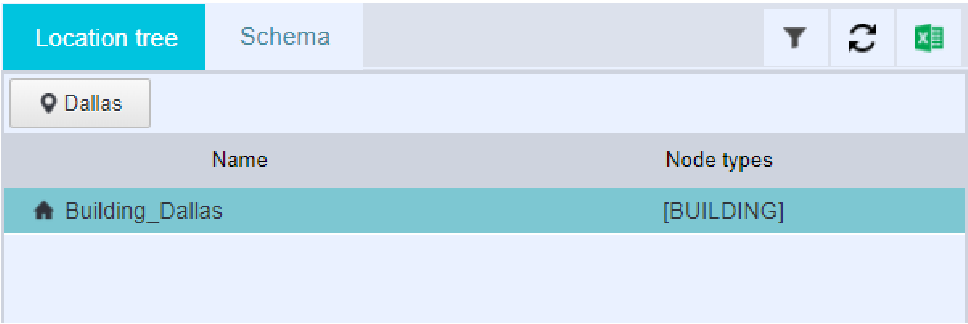
Name	Node types
Las Vegas	Locality
BUILDING|Las Vegas/1	Building
ROOM|Las Vegas/1/1	Room
RACK|	Rack
MPL	Network Element, Sh
ODF	Optical ODF
C	Card
	Optical adapter
	Optical adapter
	Optical adapter
	Optical adapter
	Optical adapter
	Optical adapter
	Optical adapter
	Optical adapter
C	Card
	Optical adapter
	Optical adapter
	Optical adapter
	Optical adapter
	Optical adapter
	Optical adapter
	Optical adapter

Rename node window will be opened. Type a new name and press OK button. Press the Submit button, for saving a new name to the tree structure.


Rename node
OK
Cancel

Type new name: Building_Dallas

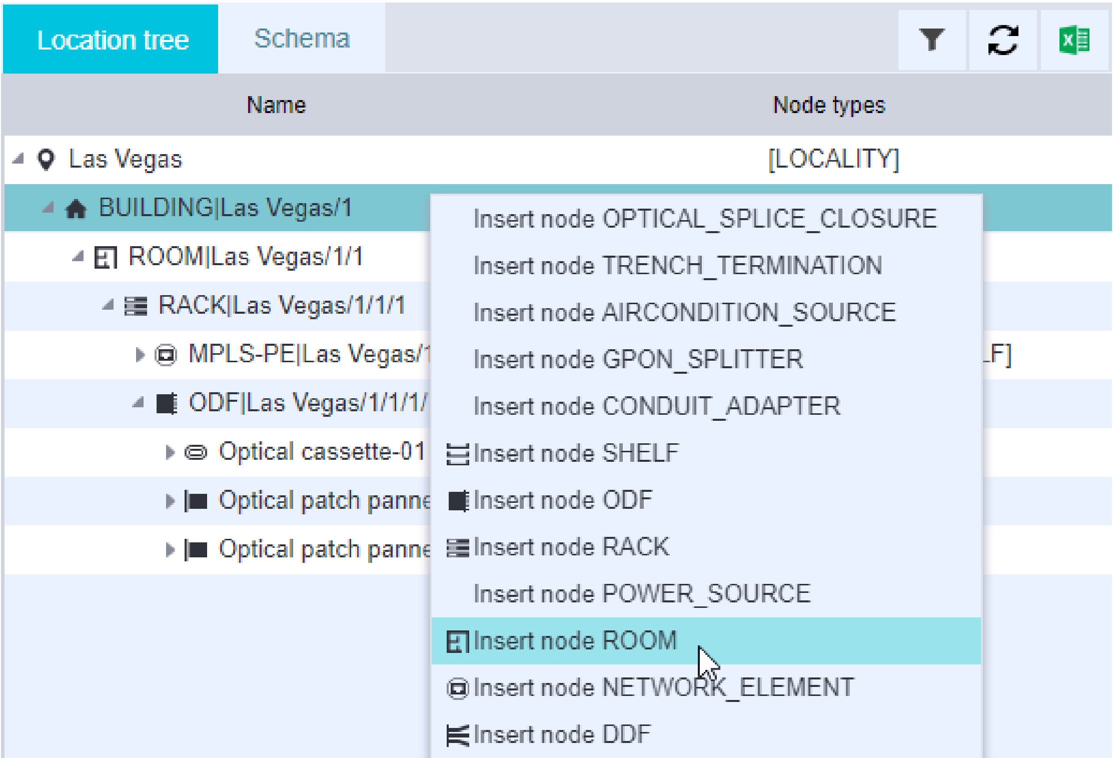
Renamed node will be displayed in the tree.


Location tree
Schema
Dallas

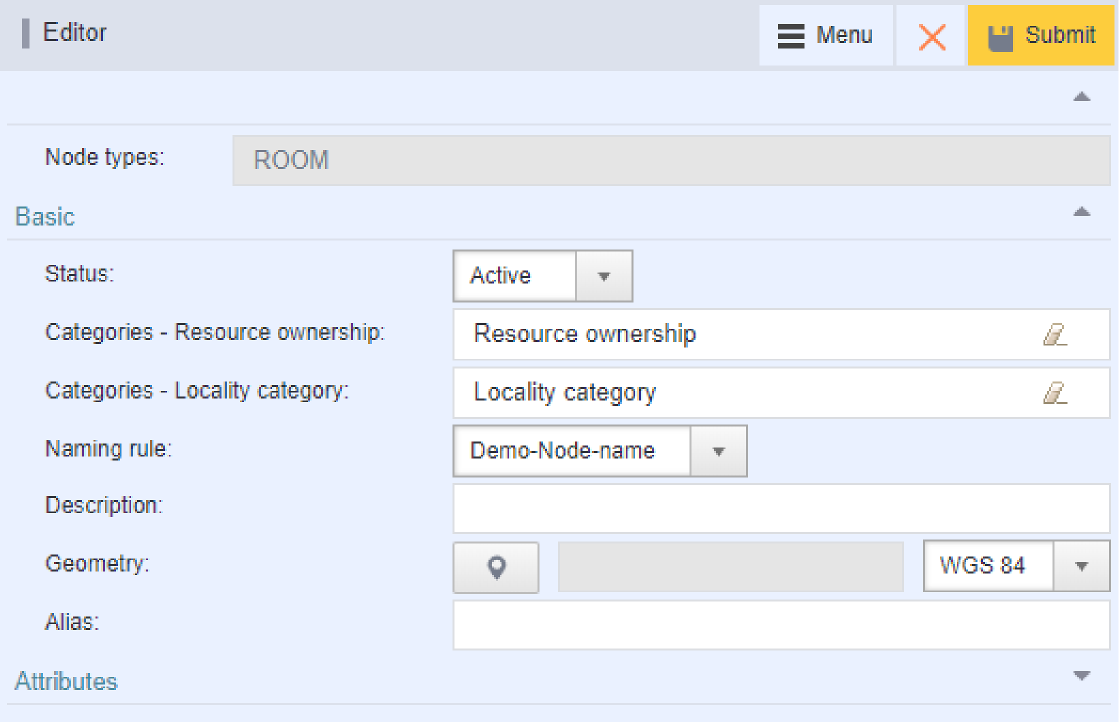
Name	Node types
Building_Dallas	[BUILDING]

Room

A room can be created from the context menu by right-clicking on the building node and selecting Insert node ROOM option.


Location tree
Schema
Name
Node types
Las Vegas
[LOCALITY]
BUILDING|Las Vegas/1
ROOM|Las Vegas/1/1
RACK|Las Vegas/1/1/1
MPLS-PE|Las Vegas/1
ODF|Las Vegas/1/1/1/
Optical cassette-01
Optical patch panne
Optical patch panne
F]
Insert node OPTICAL_SPLICE_CLOSURE
Insert node TRENCH_TERMINATION
Insert node AIRCONDITION_SOURCE
Insert node GPON_SPLITTER
Insert node CONDUIT_ADAPTER
Insert node SHELF
Insert node ODF
Insert node RACK
Insert node POWER_SOURCE
Insert node ROOM
Insert node NETWORK_ELEMENT
Insert node DDF

It is necessary to fill the room Editor. Mandatory item to be filled is Status. Click on Submit button for saving after filling the editor.


Editor
Menu
Submit

Node types: ROOM

Basic

Status: Active

Categories - Resource ownership: Resource ownership

Categories - Locality category: Locality category

Naming rule: Demo-Node-name

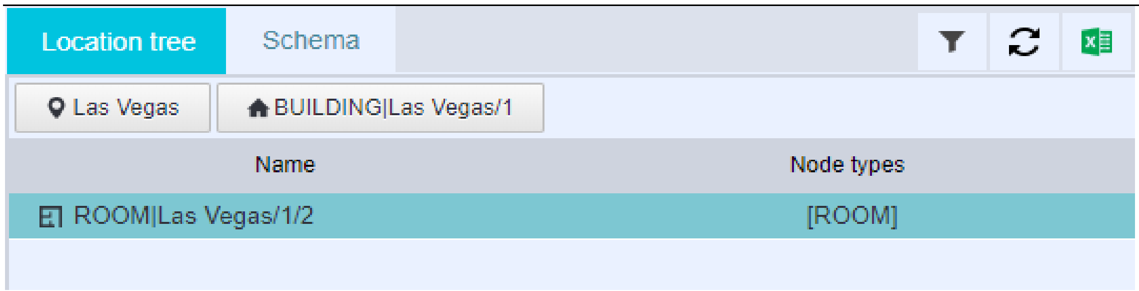
Description:

Geometry: WGS 84

Alias:

Attributes

Name of recently created room will be displayed in the Locality tree structure after the editor is saved. A button for switching to superior node, in this case to building, will be displayed above the name.



Name	Node types
ROOM|Las Vegas/1/2	[ROOM]

Radio Antenna

A radio antenna can be created from the context menu by right-clicking on the radio locality node and selecting Insert node RADIO_ANTENNA option**.** Then it is necessary to fill the radio antenna Editor. Mandatory items to be filled are Name and Status. Click on Submit button for saving after filling the editor.

Name of recently created Radio Antenna will be displayed in the Locality tree structure after the editor is saved. A button for switching to superior node, in this case to radio locality, will be displayed above the name.

Network Element

A Network Element (NE) can be created from the context menu by right-clicking on for example room node and selecting Insert node NETWORK_ELEMENT option. It is necessary to fill the network editor. Mandatory item to be filled is Status. Click on Submit button for saving after filling the editor.

Name of recently created Network Element will be displayed in the Locality tree structure after the editor is saved. A button for switching to superior node, in this case to room, will be displayed above the name.

Rack

A rack can be created from the context menu by right-clicking on for example room node and selecting Insert node RACK option. Then it is necessary to fill the rack Editor. Mandatory items to be filled are Name and Status. Click on Submit button for saving after filling the editor.

Name of recently created Rack will be displayed in the Locality tree structure after the editor is saved. A button for switching to superior node, in this case to room, will be displayed above the name.

Radio ODU

A radio ODU can be created from the context menu by right-clicking on the room node and selecting Insert node RADIO_ODU option. Then it is necessary to fill the radio ODU Editor. Mandatory items to be filled are Name and Status. Click on Submit button for saving after filling the editor.

Name of recently created Radio ODU will be displayed in the Locality tree structure after the editor is saved. A button for switching to superior node, in this case to room, will be displayed above the name.

Shelf

A shelf can be created from the context menu by right-clicking on for example room node and selecting Insert node SHELF option. Then it is necessary to fill the shelf Editor. Mandatory item to be filled is Status. Click on Submit button for saving after filling the editor.

Name of recently created Shelf will be displayed in the Locality tree structure after the editor is saved. A button for switching to superior node, in this case to room, will be displayed above the name.

Conduit Splice

A conduit Splice can be created from the context menu by right-clicking on for example room node and selecting Insert node CONDUIT_SPLICE option. Then it is necessary to fill the conduit Splice Editor. Mandatory items to be filled are Name and Status. Click on Submit button for saving after filling the editor.

Name of recently created Conduit Splice will be displayed in the Locality tree structure after the editor is saved. A button for switching to superior node, in this case to room, will be displayed above the name.

Card

A card can be created from the context menu by right-clicking on for example slot node and selecting Insert node CARD option. Then it is necessary to fill the card Editor. Mandatory items to be filled are Name and Status. Click on Submit button for saving after filling the editor.

Name of recently created Card will be displayed in the Locality tree structure after the editor is saved. A button for switching to superior node, in this case to slot, will be displayed above the name.

Slot

A slot can be created from the context menu by right-clicking on for example shelf node and selecting Insert node SLOT option. Then it is necessary to fill the slot Editor. Mandatory items to be filled are Name and Status. Click on Submit button for saving after filling the editor.

Name of recently created Slot will be displayed in the Locality tree structure after the editor is saved. A button for switching to superior node, in this case to shelf, will be displayed above the name.

Physical port

A physical port can be created from the context menu by right-clicking on for example Shelf node and selecting Insert node PHYSICAL_PORT option. Then it is necessary to fill the physical port Editor. Mandatory items to be filled are Name and Status. Click on Submit button for saving after filling the editor.

Name of recently created Physical port will be displayed in the Locality tree structure after the editor is saved. A button for switching to superior node, in this case to shelf, will be displayed above the name.

Logical port

A logical port can be created from the context menu by right-clicking on for example Shelf node and selecting Insert node LOGICAL_PORT option. Then it is necessary to fill the logical port Editor. Mandatory items to be filled are Name and Status. Click on Submit button for saving after filling the editor.

Name of recently created Logical port will be displayed in the Locality tree structure after the editor is saved. A button for switching to superior node, in this case to shelf, will be displayed above the name.

DDF

A DDF can be created from the context menu by right-clicking on for example Rack node and selecting Insert node DDF option**.** Then it is necessary to fill the DDF Editor. Mandatory item to be filled is Status. Click on Submit button for saving after filling the editor.

Name of recently created DDF will be displayed in the Locality tree structure after the editor is saved. A button for switching to superior node, in this case to rack, will be displayed above the name.

ODF

An ODF can be created from the context menu by right-clicking on for example Rack node and selecting Insert node ODF option. Then it is necessary to fill the ODF Editor. Mandatory item to be filled is Status. Click on Submit button for saving after filling the editor.

Name of recently created ODF will be displayed in the Locality tree structure after the editor is saved. A button for switching to superior node, in this case to rack, will be displayed above the name.

Fiber termination report

This option generates an export in the Excel format with all connections on a selected node (ODF or Optical splice closure). For more info see Appendix 8.2. This action is active for object which can be opened in "Connectivity: optical welding".

Radio BS ODU

A radio BS ODU can be created from the context menu by right-clicking on the radio locality node and selecting Insert node Radio_BS_ODU option. Then it is necessary to fill the radio BS ODU Editor. Mandatory items to be filled are Name and Status. Click on Submit button for saving after filling the editor.

Name of recently created Radio BS ODU will be displayed in the Locality tree structure after the editor is saved. A button for switching to superior node, in this case to radio locality, will be displayed above the name.

Radio TS ODU

A radio TS ODU can be created from the context menu by right-clicking on the radio locality node and selecting Insert node Radio_TS_ODU option. Then it is necessary to fill the radio TS ODU Editor. Mandatory items to be filled are Name and Status. Click on Submit button for saving after filling the editor.

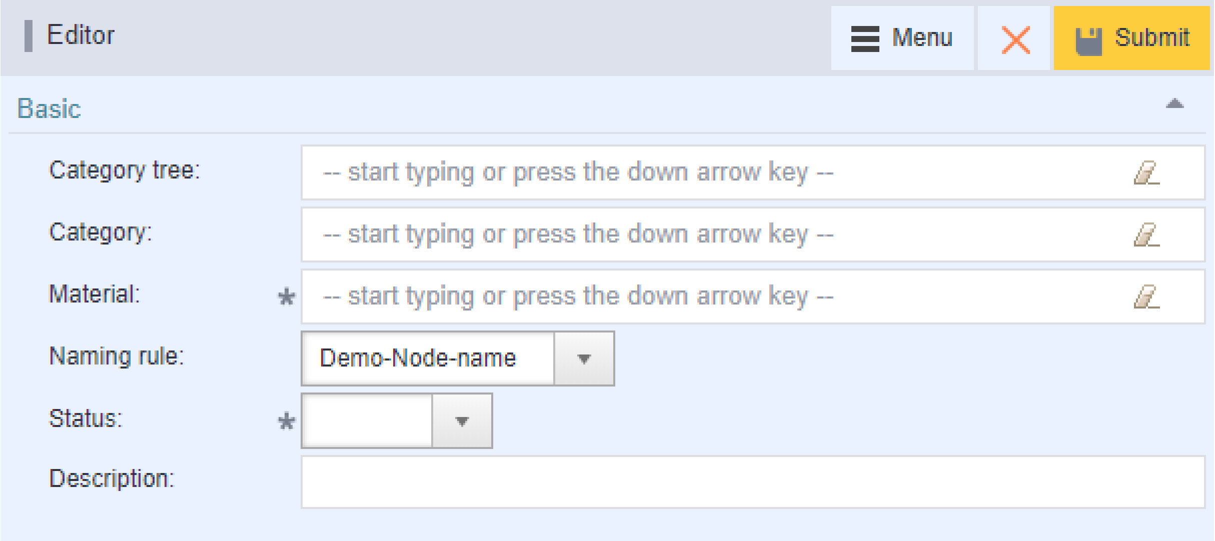
Name of recently created Radio TS ODU will be displayed in the Locality tree structure after the editor is saved. A button for switching to superior node, in this case to radio locality, will be displayed above the name.

The process is similar for other nodes that can be selected from the context menu of objects from the tree structure.

4.1.3.4. Insert material

It is possible to insert a material to each node. Material we wish to add must be defined for those nodes. You can find detailed description in the following chapter called Material module.

Material could be inserted via the context menu of the node. Right-click the node and select Insert material option. An editor for material will appear on the right side of the screen.



Category tree: -- start typing or press the down arrow key --

Category: -- start typing or press the down arrow key --

Material: * -- start typing or press the down arrow key --

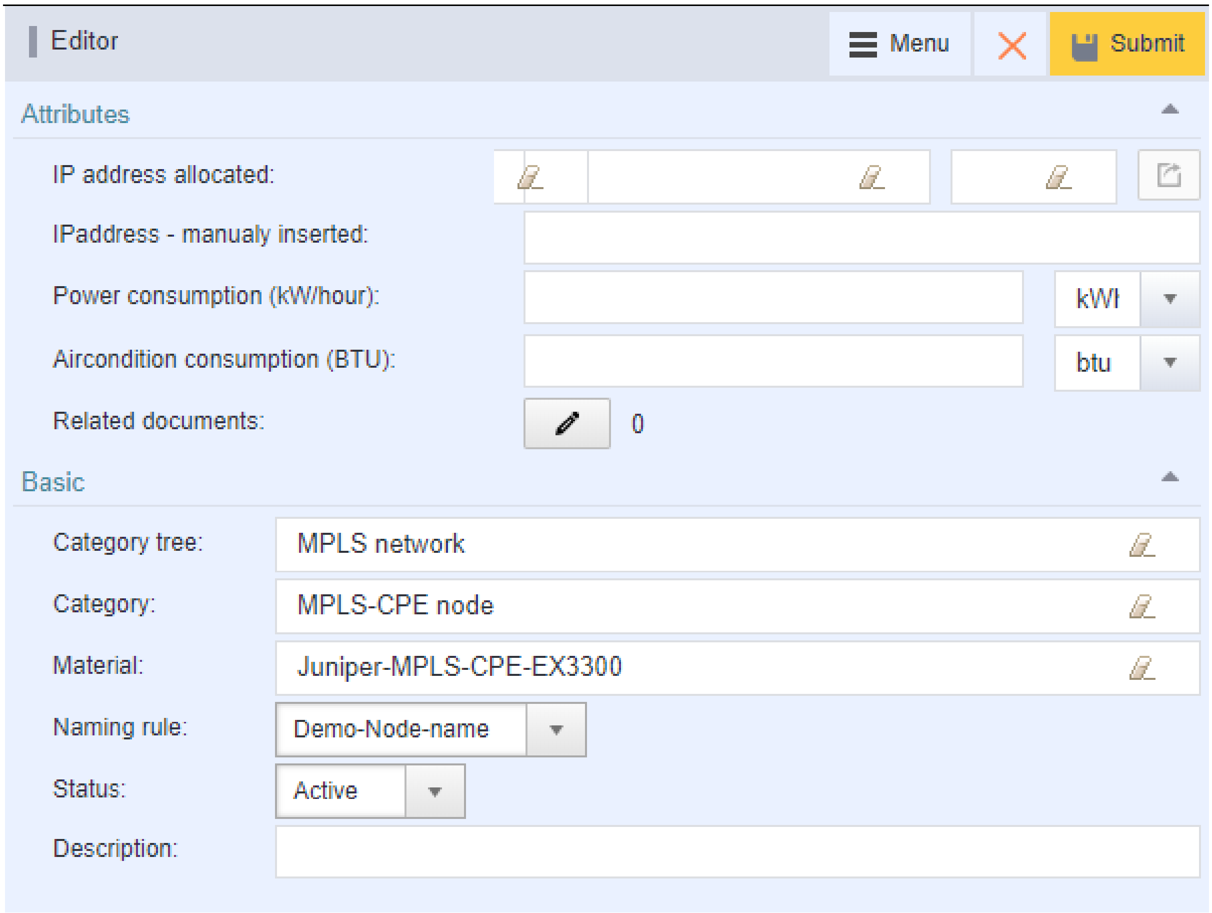
Naming rule: Demo-Node-name

Status: *

Description:

A list of materials to choose from a given Category will open after Category option is selected.

You can select the predefined Material from here. An attribute Naming rule will be added automatically. Some fields could be also filled for some Materials, e.g. a Technology and Material fields will be filled for Radio Locality. An extended editor based on selected material will appear after you select the material. In extended editor, a mandatory - Name field must be filled in, it is the name under which the material will be displayed in the tree structure. When you are done, press Submit button.



Attributes

IP address allocated:

IPaddress - manualy inserted:

Power consumption (kW/hour): kW

Aircondition consumption (BTU): btu

Related documents: 0

Basic

Category tree: MPLS network

Category: MPLS-CPE node

Material: Juniper-MPLS-CPE-EX3300

Naming rule: Demo-Node-name

Status: Active

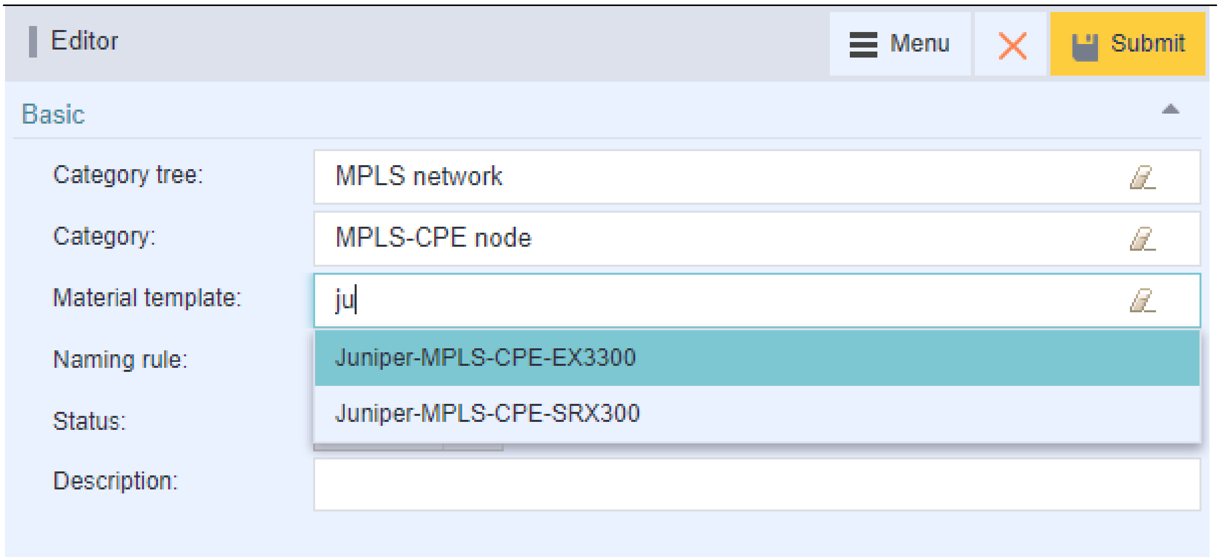
Description:

4.1.3.5. Insert material template

It is possible to insert material template to each node. Material template we wish to add must be defined for those nodes. You can find detailed description in the following chapter called Material module.

Material template could be inserted via the context menu of the relevant superior node to which you wish to add a new node based on the template. Right - click the node and select Insert material template option. An editor for material template will appear on the right side of the screen. Fill in the required data: Material template and Status.

You can search for the material template via the full text search by name. The Category will be filled in automatically according to the definition of the template in the Material module. You can also search for the material template by Category and then by name. The full text search list will display only those technologies which are assigned selected Category. You can enter the name under which the material template will be displayed in the tree structure according to the type of inserted node or you could use the Naming rule if available for given node. When you are done, press Submit button.


Editor
Menu
Submit
Basic

Category tree: MPLS network

Category: MPLS-CPE node

Material template: ju

Juniper-MPLS-CPE-EX3300

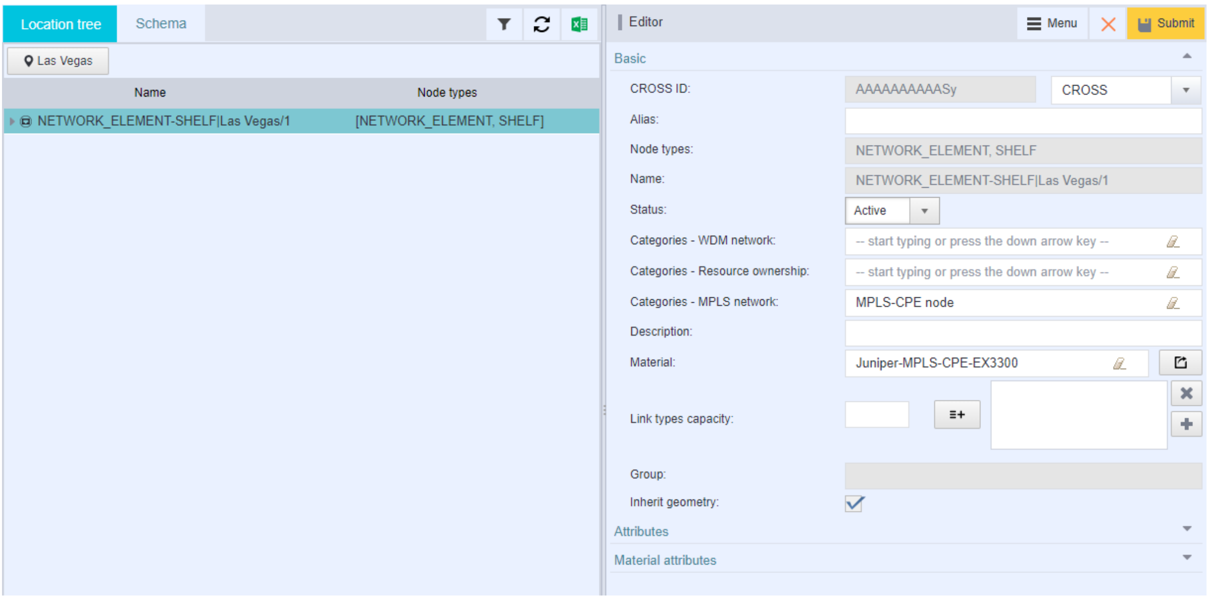
Juniper-MPLS-CPE-SRX300

Naming rule:

Status:

Description:

The material template is displayed in the tree structure when saved. At the same time, the complete editor of the material template is opened.


Location tree
Schema
Las Vegas
Editor
Menu
Submit
Basic
Attributes
Material attributes

Name	Node types
NETWORK_ELEMENT-SHELF|Las Vegas/1	[NETWORK_ELEMENT, SHELF]

CROSS ID: AAAAAAAAAASy CROSS

Alias:

Node types: NETWORK_ELEMENT, SHELF

Name: NETWORK_ELEMENT-SHELF|Las Vegas/1

Status: Active

Categories - WDM network: -- start typing or press the down arrow key --

Categories - Resource ownership: -- start typing or press the down arrow key --

Categories - MPLS network: MPLS-CPE node

Description:

Material: Juniper-MPLS-CPE-EX3300

Link types capacity:

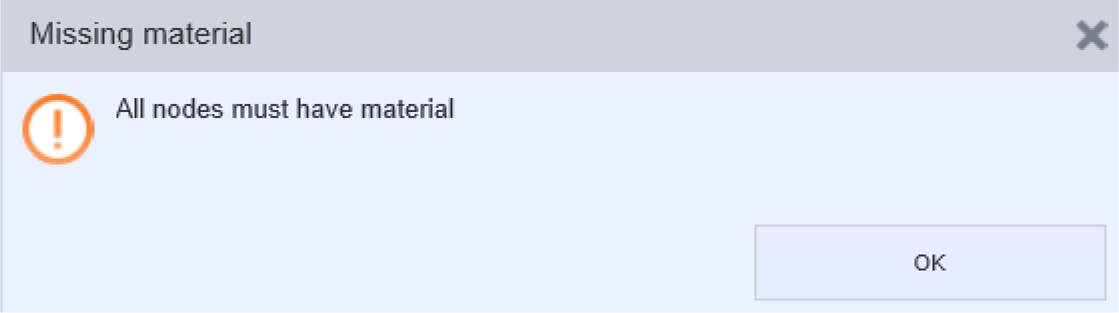
Group:

Inherit geometry: ☑

4.1.3.6. Create material template

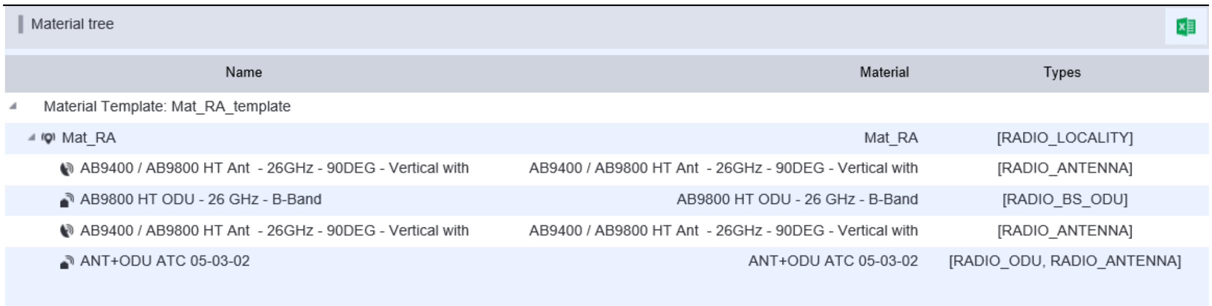
From the context menu, select Create material template.

If none of the nodes are set to the material, the Missing Material window is displayed.


Missing material
OK

All nodes must have material

If all nodes have a material set, the application switches to the Materials module where a material pattern is displayed in the P1 Tree of the Material.



Material tree

Name	Material	Types
Material Template: Mat_RA_template		
Mat_RA	Mat_RA	[RADIO_LOCALITY]
AB9400 / AB9800 HT Ant - 26GHz - 90DEG - Vertical with	AB9400 / AB9800 HT Ant - 26GHz - 90DEG - Vertical with	[RADIO_ANTENNA]
AB9800 HT ODU - 26 GHz - B-Band	AB9800 HT ODU - 26 GHz - B-Band	[RADIO_BS_ODU]
AB9400 / AB9800 HT Ant - 26GHz - 90DEG - Vertical with	AB9400 / AB9800 HT Ant - 26GHz - 90DEG - Vertical with	[RADIO_ANTENNA]
ANT+ODU ATC 05-03-02	ANT+ODU ATC 05-03-02	[RADIO_ODU, RADIO_ANTENNA]

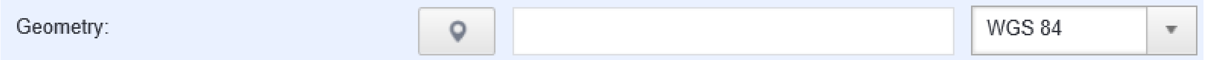
4.1.3.7. Inserting and changing a node geometry

In order for nodes to be visible on the map, they need to have their geometry set, which is a point situated in a map. You can set the geometry while creating a new node or you can edit it later for the node with geometry which already exists.

Inserting new geometry

You can insert new geometry if the node does not have any inserted already and its Geometry attribute is empty.

Click on the button by the attribute Geometry in the Locality editor:

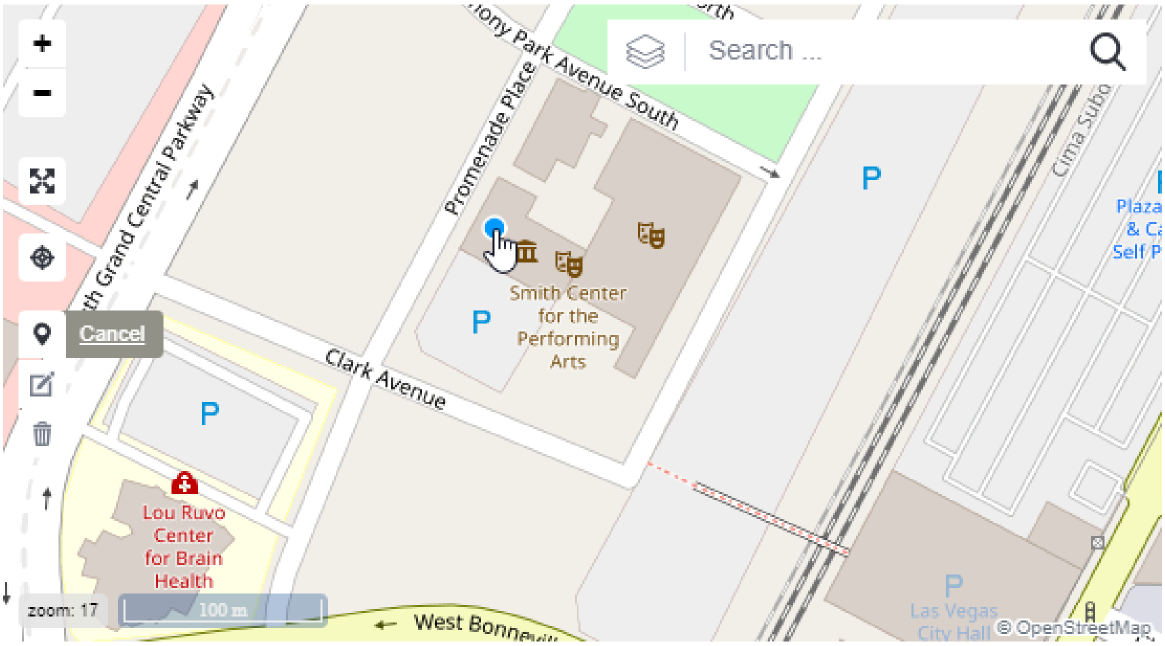


Geometry:

Zoom in the map view on the point where you want the geometry to be placed.

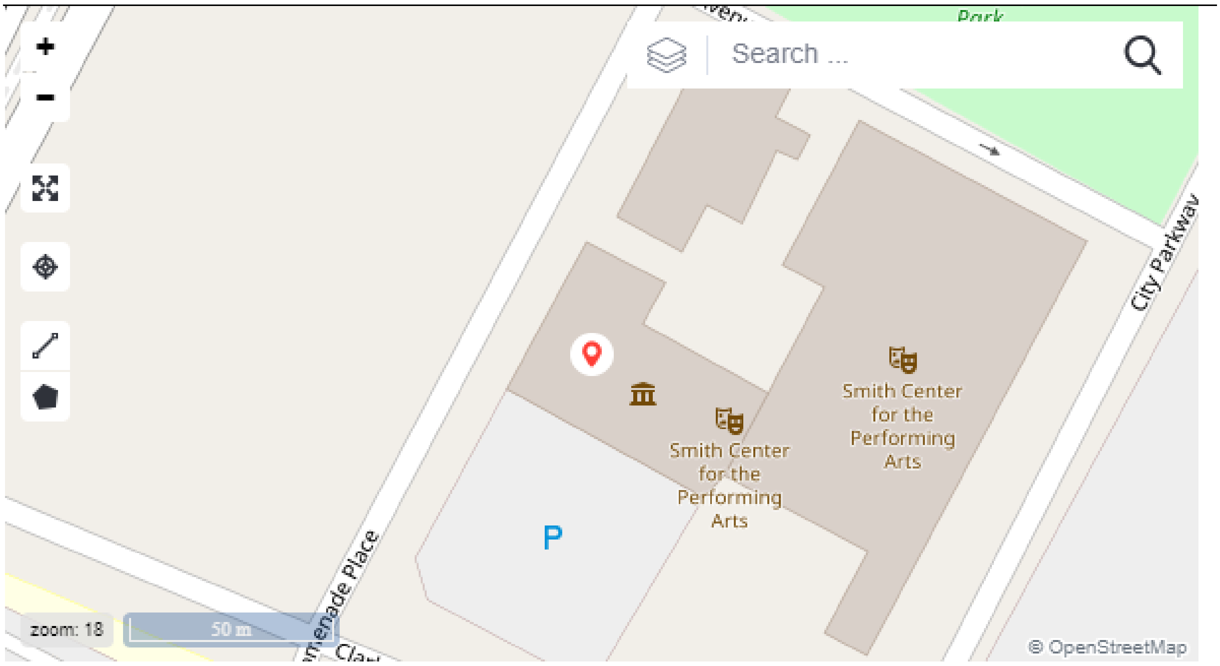
Click on the Draw a marker icon in the map panel .

Choose a locality of the point in the map:

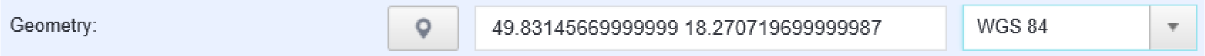


Search ...
Cancel
zoom: 17
100 m
Symphony Park Avenue South
Promenade Place
Grand Central Parkway
Clark Avenue
West Bonneville
Smith Center for the Performing Arts
Lou Ruvo Center for Brain Health
P
Las Vegas City Hall
Plaza & Ca Self P
Cima Subo
© OpenStreetMap

Click on Submit button in the Locality editor.


Search ...
zoom: 18
50 m
Smith Center for the Performing Arts
Smith Center for the Performing Arts
P
Park
City Parkway
© OpenStreetMap

New locality geometry will be saved and its coordinates will be displayed by the Geometry attribute:



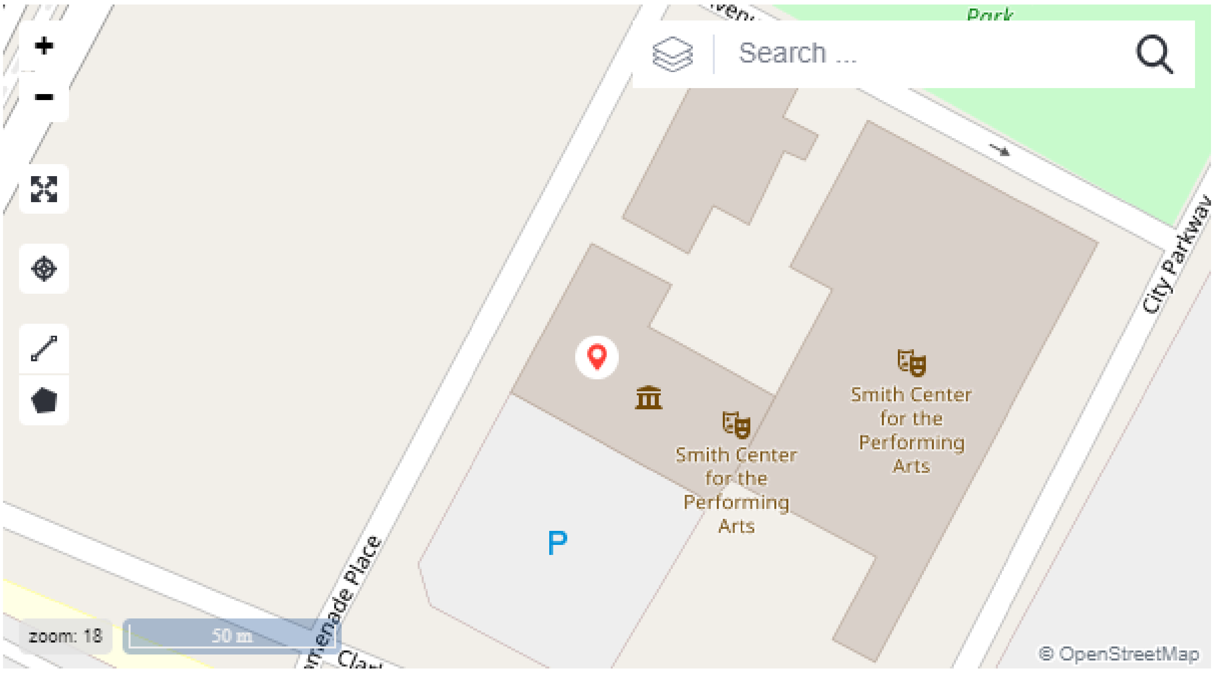
Geometry: 49.83145669999999 18.270719699999987 WGS 84

Geometry editing

Open the locality with the geometry you wish to edit In the Locality editor.

Click on the button by the Geometry attribute.

Click on the Edit geometry icon in the map panel. . The symbol of the original geometry will be marked. Click on it and drag it to a new position.


Search ...
zoom: 18
50 m
Smith Center for the Performing Arts
Smith Center for the Performing Arts
P
Park
City Parkway
© OpenStreetMap

Save new geometry by clicking the Save button in the map panel.
save
cancel
. Save the locality by clicking the Submit button in the editor. Coordinates will be changed by the Geometry attribute and new locality you set will be displayed on the map.

4.1.3.8. Other options from context menu of the objects in tree structure

Delete

This option deletes selected node. If there are inferior nodes to this node in the tree structure, the selected node will not be deleted. Instead, the user will be informed via dialogue window that this node cannot be deleted because of existing inferior records.

Expand all

This option expands the whole tree structure of selected node up to the level of Shelf or NE. If the option is selected again on Shelf or NE node, the rest of the tree structure under this node will be expanded.

Set as ROOT

This option sets selected node as a root node. That means that selected node will be displayed on the top of the tree structure. All nodes which are hierarchically higher will be displayed above the tree structure.

Create alarm

This option creates a user alarm on a selected node. This node (including all other affected objects) can be displayed and inspected in the Sia module.

Merge nodes

Moves fully terminated links from a source to a selected target node. Deletes source node after the transfer when allowed. Usually used when replacing an ODF for a bigger one or merging duplicity data. See chapter 4.1.3.9.

Transfer

This option enables individual nodes to be shifted into different superior object. You can perform the shift by writing a CROSS ID of superior object into the dialogue window which will appear.

The shift is possible from -> into:

ROOM -> BUILDING

BUILDING -> LOCALITY

SHELF -> RACK, ROOM, BUILDING

CARD -> SLOT

A confirmation window will pop up in case the node you are trying to shift includes any links. If you still decide to shift the node, choose the OK button. The shift will be cancelled by clicking on the Cancel button.

Delete

Deletes a node if it’s not connected to a link.

Search by node

Services - Search module is opened in the Search result bookmark. Cross Id of the node is filled in the Search bookmark. The Class of Service object is selected.

Groups - Search module is opened in the Search result bookmark. Cross Id of the node is filled in the Search bookmark. The Class of Service object is selected.

Add item to Workbook

This option adds an item to the Workbook.

Rename node

Allows you to rename the selected node.

Create PON path

Allows you to create a PON path between OLT and ONT nodes.

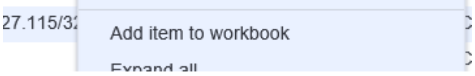
4.1.3.9. Merge nodes

Merge nodes serves for merging two nodes into one including a possibility to transfer terminated links on a source node onto target node. It’s possible to move all sub-nodes to target node. Wizard can delete source node after the transfer from all terminated links if desired.

Usually used when replacing an ODF for a bigger one or merging duplicity data. Or merging duplicities into a single node.

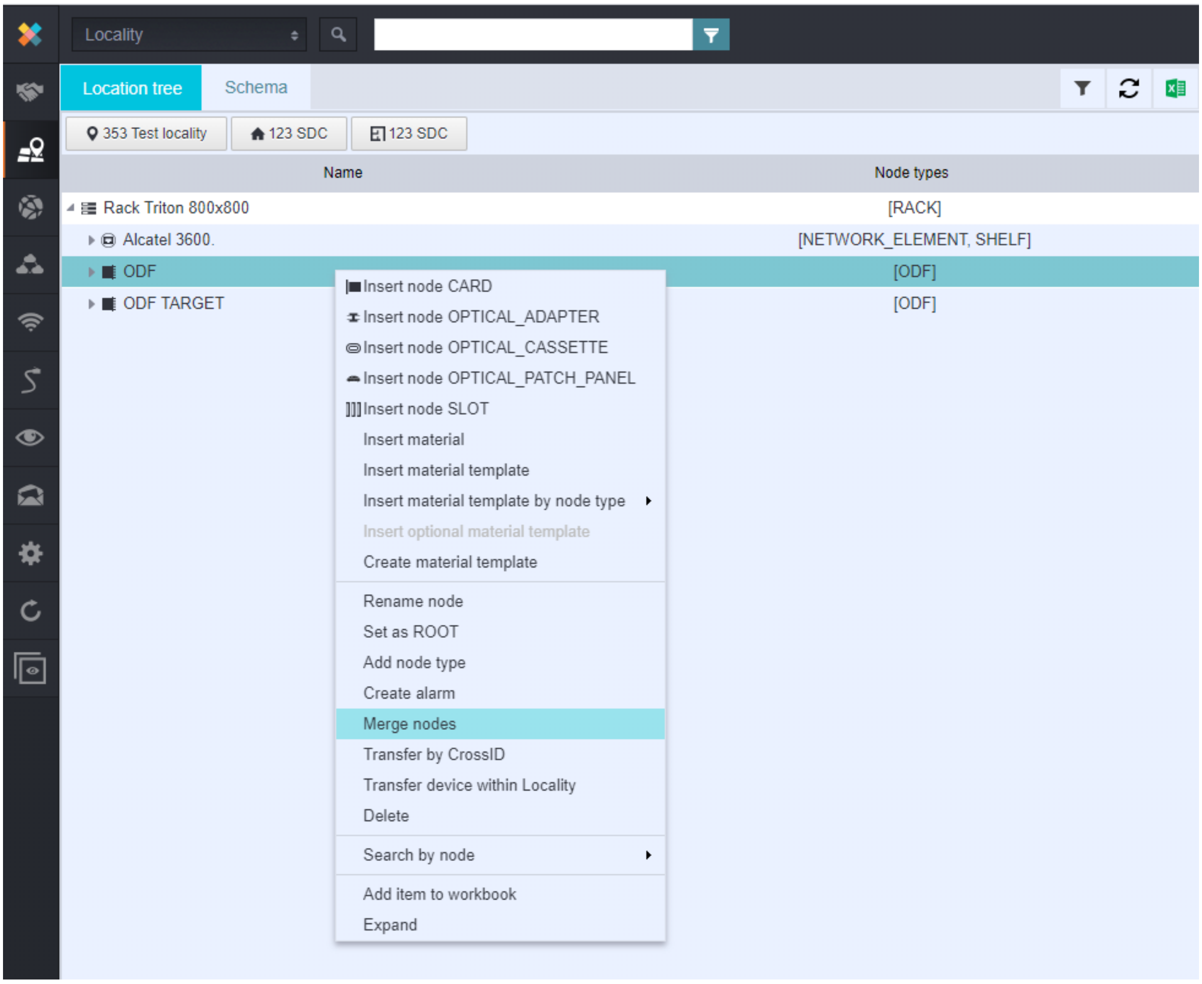
User must have ACTIONS_LOCATION_UPDATE authority.

Target nodes are stored in Workbook:


27.115/3
Add item to workbook
Expand all

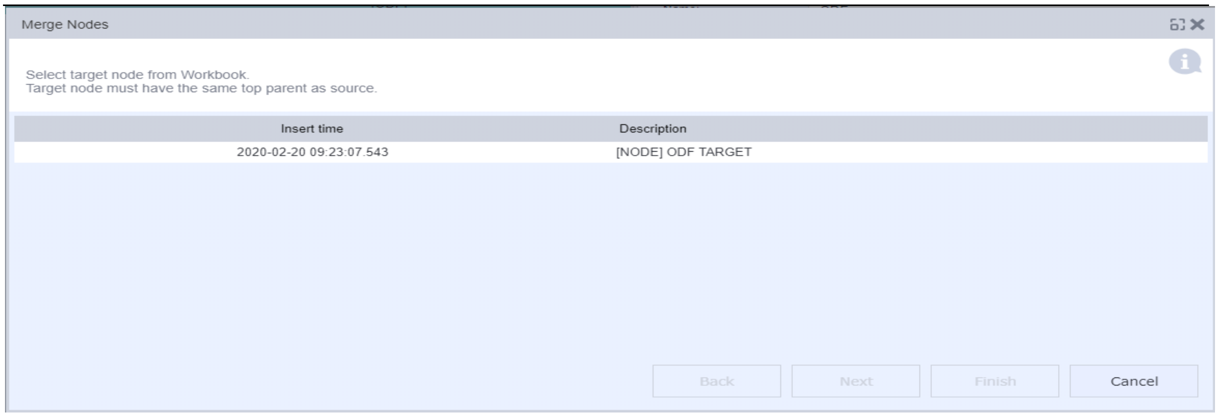
Default supported node types to : RACK, SHELF, NETWORK_ELEMENT, ODF, DDF, RADIO_IDU, RADIO_BS_IDU, RADIO_TS_IDU, LOGICAL_PORT, PHYSICAL_PORT.

Select action Merge nodes from the context menu on node which should be merged:


Locality
Location tree
Schema
353 Test locality
123 SDC
123 SDC
Insert node CARD
Insert node OPTICAL_ADAPTER
Insert node OPTICAL_CASSETTE
Insert node OPTICAL_PATCH_PANEL
Insert node SLOT
Insert material
Insert material template
Insert material template by node type
Insert optional material template
Create material template
Rename node
Set as ROOT
Add node type
Create alarm
Merge nodes
Transfer by CrossID
Transfer device within Locality
Delete
Search by node
Add item to workbook
Expand

Name	Node types
Rack Triton 800x800	[RACK]
Alcatel 3600.	[NETWORK_ELEMENT, SHELF]
ODF	[ODF]
ODF TARGET	[ODF]

Choose Target node from table on first wizard page:

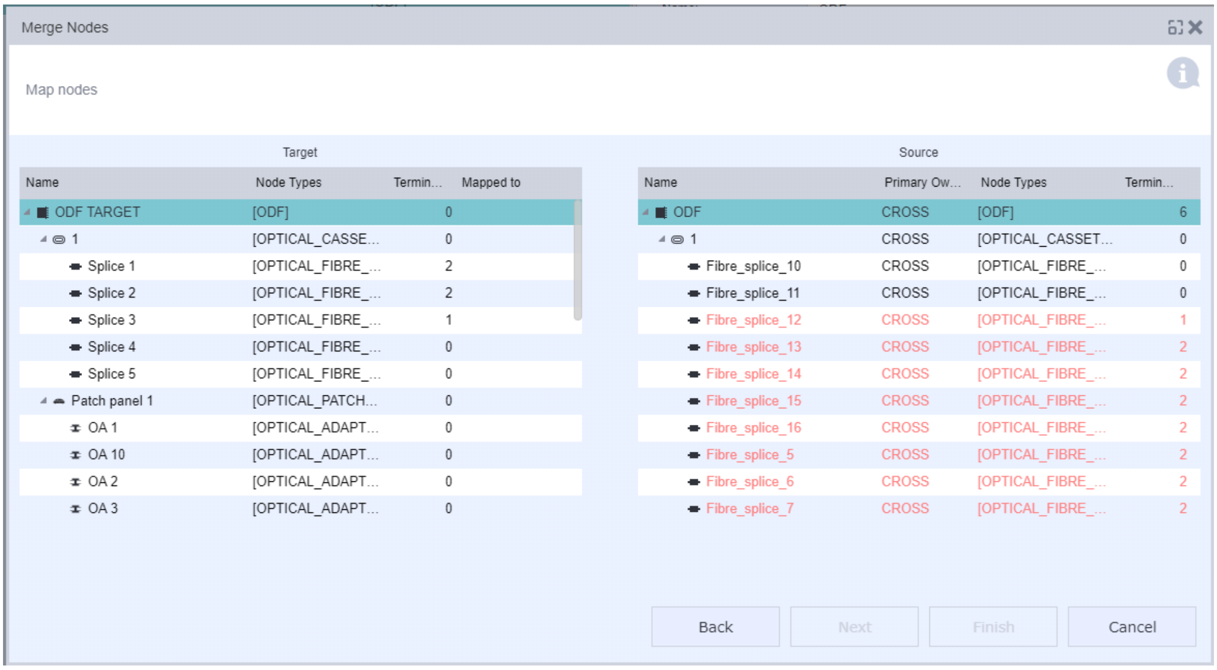


Merge Nodes

Select target node from Workbook.
Target node must have the same top parent as source.

Insert time	Description
2020-02-20 09:23:07.543	[NODE] ODF TARGET

Target and Source mapping:



Merge Nodes

Map nodes

Target

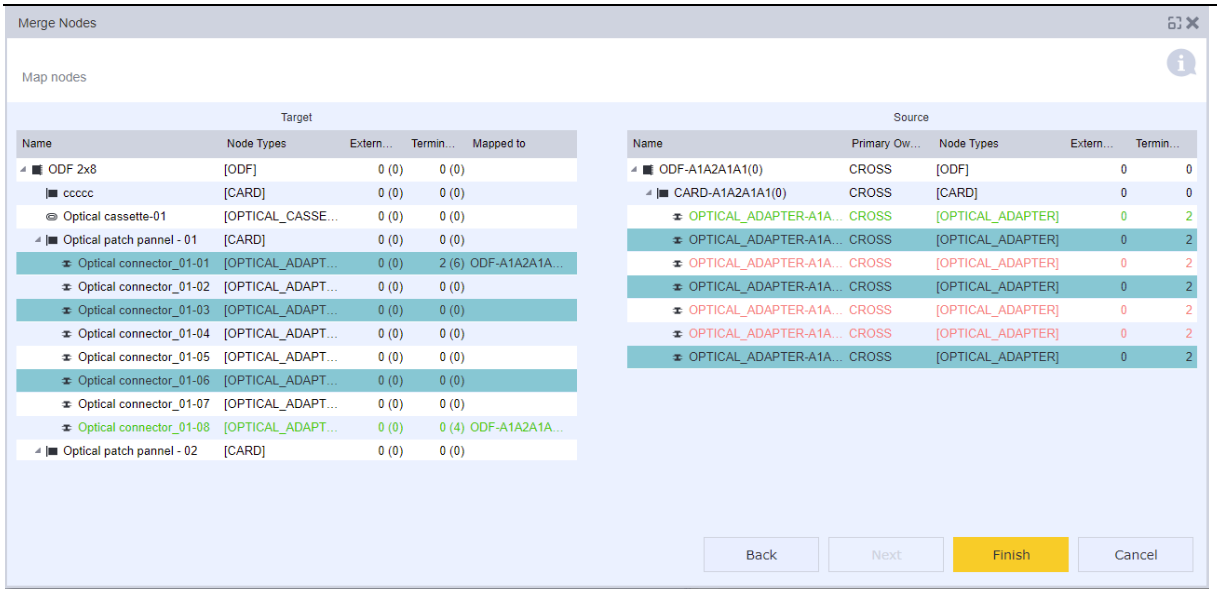
Name	Node Types	Termin...	Mapped to
ODF TARGET	[ODF]	0	
1	[OPTICAL_CASSE...	0	
Splice 1	[OPTICAL_FIBRE_...	2	
Splice 2	[OPTICAL_FIBRE_...	2	
Splice 3	[OPTICAL_FIBRE_...	1	
Splice 4	[OPTICAL_FIBRE_...	0	
Splice 5	[OPTICAL_FIBRE_...	0	
Patch panel 1	[OPTICAL_PATCH...	0	
OA 1	[OPTICAL_ADAPT...	0	
OA 10	[OPTICAL_ADAPT...	0	
OA 2	[OPTICAL_ADAPT...	0	
OA 3	[OPTICAL_ADAPT...	0	

Source

Name	Primary Ow...	Node Types	Termin...
ODF	CROSS	[ODF]	6
1	CROSS	[OPTICAL_CASSET...	0
Fibre_splice_10	CROSS	[OPTICAL_FIBRE_...	0
Fibre_splice_11	CROSS	[OPTICAL_FIBRE_...	0
Fibre_splice_12	CROSS	[OPTICAL_FIBRE_...	1
Fibre_splice_13	CROSS	[OPTICAL_FIBRE_...	2
Fibre_splice_14	CROSS	[OPTICAL_FIBRE_...	2
Fibre_splice_15	CROSS	[OPTICAL_FIBRE_...	2
Fibre_splice_16	CROSS	[OPTICAL_FIBRE_...	2
Fibre_splice_5	CROSS	[OPTICAL_FIBRE_...	2
Fibre_splice_6	CROSS	[OPTICAL_FIBRE_...	2
Fibre_splice_7	CROSS	[OPTICAL_FIBRE_...	2

Source context menu functions:

- **Move all terminated links from source to target** – there can be multiple links terminated on a selected source node, so this function moves all terminated links on those nodes in 3 scenarios:
    - from one selected source nodes to one selected target node of the same Node type
    - from a selection set (multiple selected nodes) of source nodes to a single selected target node of the same Node type
    - from a selection set of source nodes to the same amount of selected target nodes
        - *Note:* marked nodes are mapped based on the order of the selection set
    - *Note:* this functionality is not available when different number of multiple source and target nodes are selected, or when different types of nodes are selected
- **Move selected terminated links from source to target –** there can be multiple links terminated on a selected source node, so this function opens a wizard with all terminated links on the selected node. User needs to select nodes for transfer and after user press the OK button, system will move those:
    - from one selected source node to one selected target node of the same Node type
    - from a selection set of source nodes to one selected target node of the same Node type
    - from a selection set of source nodes to the same amount of selected target nodes
        - *Note:* marked nodes are mapped based on the order of the selection set



Target

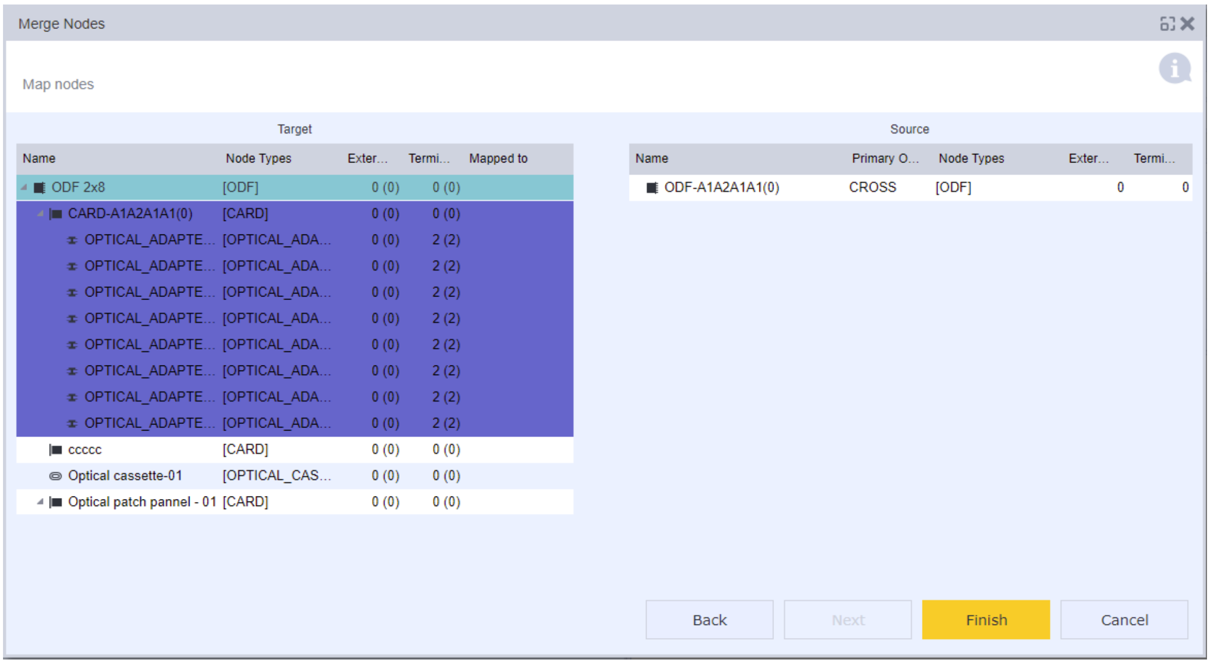
Name	Node Types	Extern...	Termin...	Mapped to
ODF 2x8	[ODF]	0 (0)	0 (0)	
ccccc	[CARD]	0 (0)	0 (0)	
Optical cassette-01	[OPTICAL_CASSE...	0 (0)	0 (0)	
Optical patch pannel - 01	[CARD]	0 (0)	0 (0)	
Optical connector_01-01	[OPTICAL_ADAPT...	0 (0)	2 (6)	ODF-A1A2A1A...
Optical connector_01-02	[OPTICAL_ADAPT...	0 (0)	0 (0)	
Optical connector_01-03	[OPTICAL_ADAPT...	0 (0)	0 (0)	
Optical connector_01-04	[OPTICAL_ADAPT...	0 (0)	0 (0)	
Optical connector_01-05	[OPTICAL_ADAPT...	0 (0)	0 (0)	
Optical connector_01-06	[OPTICAL_ADAPT...	0 (0)	0 (0)	
Optical connector_01-07	[OPTICAL_ADAPT...	0 (0)	0 (0)	
Optical connector_01-08	[OPTICAL_ADAPT...	0 (0)	0 (4)	ODF-A1A2A1A...
Optical patch pannel - 02	[CARD]	0 (0)	0 (0)	

Source

Name	Primary Ow...	Node Types	Extern...	Termin...
ODF-A1A2A1A1(0)	CROSS	[ODF]	0	0
CARD-A1A2A1A1(0)	CROSS	[CARD]	0	0
OPTICAL_ADAPTER-A1A...	CROSS	[OPTICAL_ADAPTER]	0	2
OPTICAL_ADAPTER-A1A...	CROSS	[OPTICAL_ADAPTER]	0	2
OPTICAL_ADAPTER-A1A...	CROSS	[OPTICAL_ADAPTER]	0	2
OPTICAL_ADAPTER-A1A...	CROSS	[OPTICAL_ADAPTER]	0	2
OPTICAL_ADAPTER-A1A...	CROSS	[OPTICAL_ADAPTER]	0	2
OPTICAL_ADAPTER-A1A...	CROSS	[OPTICAL_ADAPTER]	0	2
OPTICAL_ADAPTER-A1A...	CROSS	[OPTICAL_ADAPTER]	0	2

  - *Note:* this functionality is not available when different number of multiple source and target nodes are selected, or when different types of nodes are selected

- **Move all terminated links from source to target and delete source node** – this function behaves the same as *Move all terminated links from source to target* (see above) but also the source node will be deleted after the process of movement is completed.
- **Automatically move all terminated links from source to target** – Ignoring all selected source and target nodes this function will map all source nodes in the tree to source nodes using pairing based on the type and the name of the node. After that it will move all links as in *Move all terminated links from source to target* (see above). Prerequisites are matching naming of nodes like adapters and other objects on the lowest level of tree structure. Names of root nodes like ODFs may be different. Mapping of differently named nodes must be done manually using previously mentioned function *Move all terminated links from source to target*.
- **Move source node to target –** moves selected source nodes and their children as subordinate to selected target nodes. Nodes planned to be moved are highlighted in the left pane marked with a violet color. Advantage of this solution is keeping original nodes and their identifications and no need for deleting incorrect nodes.



Target

Name	Node Types	Exter...	Termi...	Mapped to
ODF 2x8	[ODF]	0 (0)	0 (0)	
CARD-A1A2A1A1(0)	[CARD]	0 (0)	0 (0)	
OPTICAL_ADAPTE...	[OPTICAL_ADA...	0 (0)	2 (2)	
OPTICAL_ADAPTE...	[OPTICAL_ADA...	0 (0)	2 (2)	
OPTICAL_ADAPTE...	[OPTICAL_ADA...	0 (0)	2 (2)	
OPTICAL_ADAPTE...	[OPTICAL_ADA...	0 (0)	2 (2)	
OPTICAL_ADAPTE...	[OPTICAL_ADA...	0 (0)	2 (2)	
OPTICAL_ADAPTE...	[OPTICAL_ADA...	0 (0)	2 (2)	
OPTICAL_ADAPTE...	[OPTICAL_ADA...	0 (0)	2 (2)	
OPTICAL_ADAPTE...	[OPTICAL_ADA...	0 (0)	2 (2)	
ccccc	[CARD]	0 (0)	0 (0)	
Optical cassette-01	[OPTICAL_CAS...	0 (0)	0 (0)	
Optical patch pannel - 01	[CARD]	0 (0)	0 (0)	

Source

Name	Primary O...	Node Types	Exter...	Termi...
ODF-A1A2A1A1(0)	CROSS	[ODF]	0	0

- **Show terminated links –** Show all terminated links for selected node or selection set in Terminated links dialog.
- **Expand all** – Expand all nodes in tree to the lowest level

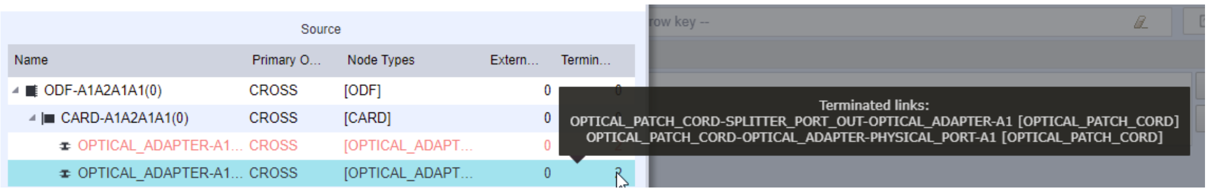
Target context menu functions:

- **Unmap selected target nodes –** Cancel selected new tree node in Target tree
- **Unmap ALL target nodes** – Cancel all new tree nodes in Target tree
- **Show terminated links –** Show all terminated links for selected node or selection set in Terminated links dialog
- **Expand all** – Expand all nodes in tree to the lowest level

Mapping is displayed in Target tree like color tree nodes:

- Green – mapped node
- Red – not mapped node with terminated links

For a quick preview of terminated links on a node user can move a mouse cursor to number of terminated links and a bubble with detailed list of terminated links will show.



Name	Primary O...	Node Types	Extern...	Termin...
ODF-A1A2A1A1(0)	CROSS	[ODF]	0	0
CARD-A1A2A1A1(0)	CROSS	[CARD]	0	
OPTICAL_ADAPTER-A1...	CROSS	[OPTICAL_ADAPT...	0	
OPTICAL_ADAPTER-A1...	CROSS	[OPTICAL_ADAPT...	0	2

Terminated links:
OPTICAL_PATCH_CORD-SPLITTER_PORT_OUT-OPTICAL_ADAPTER-A1 [OPTICAL_PATCH_CORD]
OPTICAL_PATCH_CORD-OPTICAL_ADAPTER-PHYSICAL_PORT-A1 [OPTICAL_PATCH_CORD]

Finish button is necessary to save all changes and to run movements of terminated links to selected nodes.

Cancel button cancels the mapping and closes the Merge nodes wizard window.

Finish
Cancel

4.1.3.10. PON Tracing

PON Tracing is a type of tracing which traces a path from ONT (optical network terminal) to the nearest OLT (optical line termination). Because of easier use, the tracing of PON Path from ONT to OLT was implemented into the Locality module.

For creating PON path between ONT and the nearest OLT, there must be already pre-created OLT node, nodes with splitters and PON links between those. Nodes must be created in Locality module, links in Circuit module. A map in a wizard with show traced path from ONT to the OLT. See Appendix

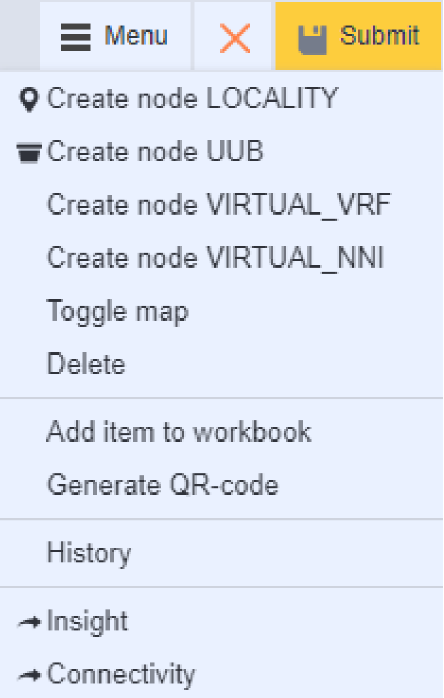
PON Tracing is possible to use only on Nodes which can terminate PON Path link type. It is required to set material Link-types capacity to 1 for Splitter Port IN and all Splitter Port OUT.

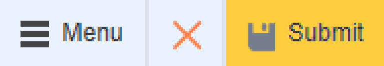
4.1.3.10. Node display in the assemble modules

It is possible to switch over to the Insight module from any node.

The Insight module serves for analysis of finished and routed links.

If any node is selected, there are 3 buttons displayed above the Editor: Menu, Cancel and Submit.





The first one expands the menu for switching to the Insight module etc.

4.1.3.11. How to generate a QR code

It is possible to generate a QR code for given node or link.

Click on the drop-down menu with options in Locality Editor.

Select Generate QR code option.

An image with .png extension will be created.

Dallas

4.1.3.12. Display of node history

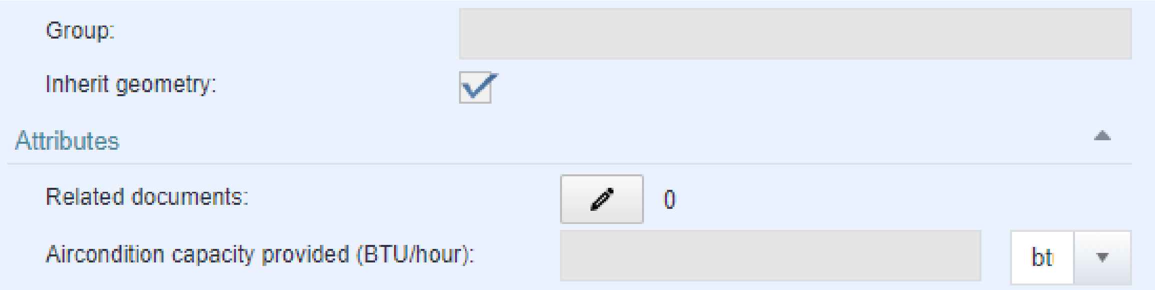
This function will display an object history, meaning what changes were performed on selected object.

In Revision bookmark there are several columns: Who (what user), What (ADD - added, MOD - modified, DEL - deleted), When (date and time), Project, Name and Description. Other columns can be displayed according to the object type, e.g. Geometry (true/false), Geometry (type and coordinates), Capacity consumer (true/false), Status discriminator, Status name, and more.

A Preview bookmark is displayed by clicking on the revision link. There is the list of attributes that record the history of the object. There are these attributes: ID, Aliases, Name, Status, Technology tree, technology, Description, Material, Groups, Inherit geometry and some other attributes according to the type of object.

4.1.3.13. Inserting and downloading of attachments

It is possible to upload or download files in the Editor. Only Building, Room, Rack, Shelf, ODF and DDF are supported as default. This can be changed in Configuration of Custom attribute FILE_ATTACHMENTS.



Group:

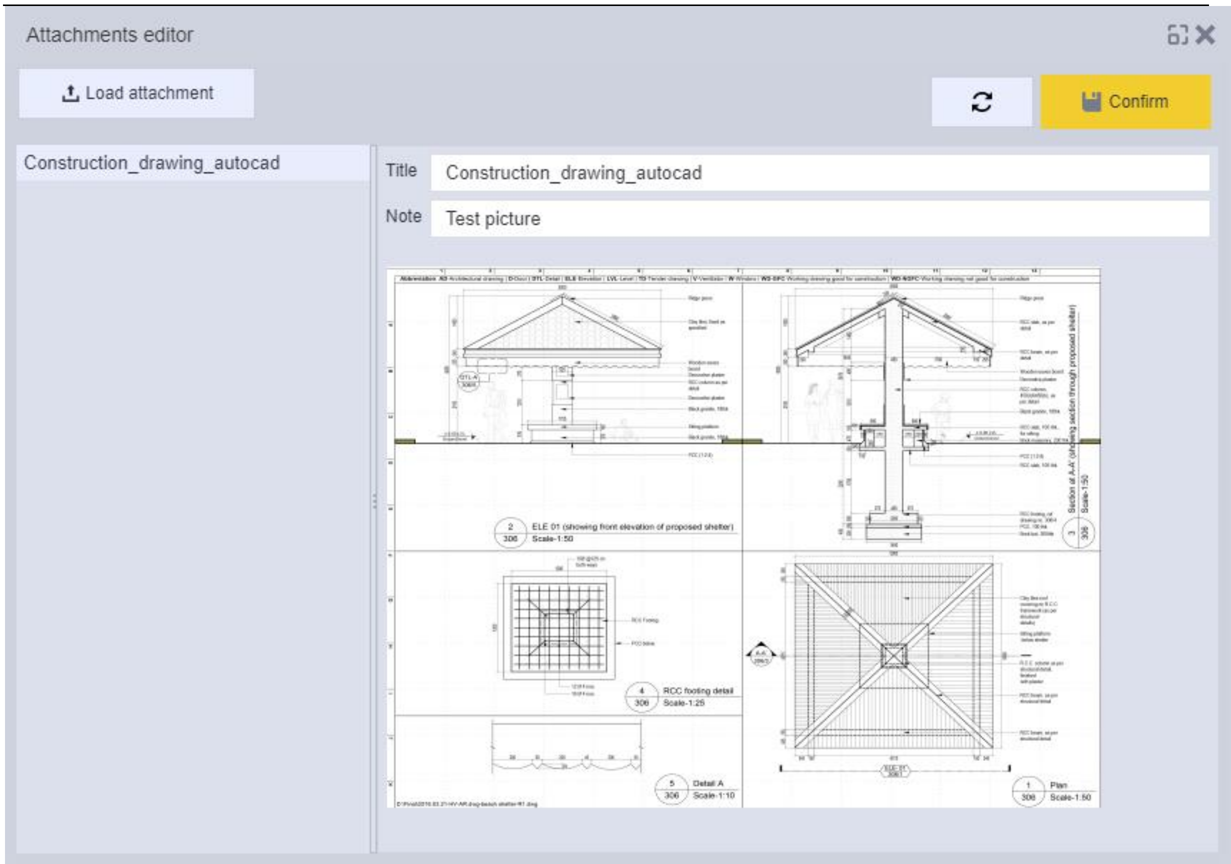
Inherit geometry: ☑

Attributes

Related documents: 0

Aircondition capacity provided (BTU/hour): bt

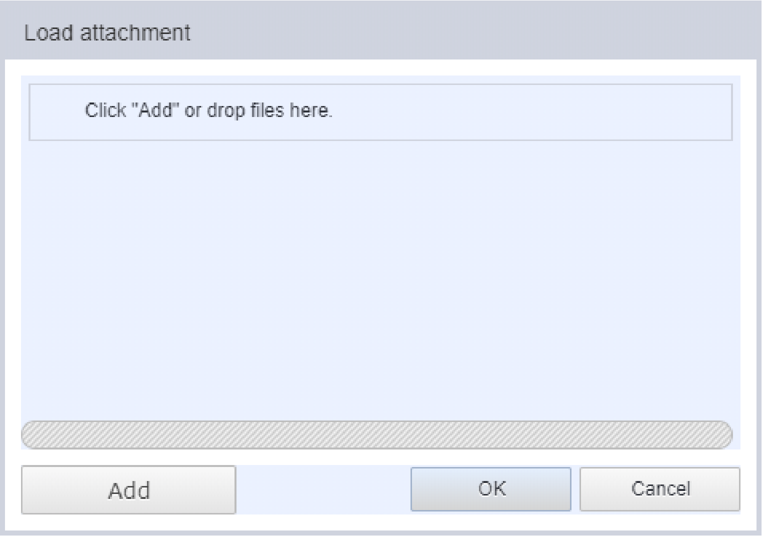
Click on the Pencil icon on the line named Related documents in the Attributes subsection. Attachment’s editor will appear.


Attachments editor
Load attachment
Confirm
Construction_drawing_autocad
Title
Note

Title: Construction_drawing_autocad

Note: Test picture

Use the button *Load attachment* for uploading of files. A window for file upload will be opened.


Load attachment
Add
OK
Cancel

Click "Add" or drop files here.

You can browse for a file using button *Add* or simply drop files on the window. Multiple files drop is supported. Confirm by *OK* button.

Preview of file is shown if the format is a picture.

Note: The file is truly uploaded and saved in the CROSS only when user press the button *Submit* in the editor. The *Confirm* button only closes the Attachment editor. If user will try to do some action which can cause losing of the attachment, then warning popup window will appear.

User can add a Title and a Note to a selected file in the Attachment editor view. Refresh icon ⟳ will change the file list on the left side based on entered information. **Note:** Any changes of a Title or a Note are not truly saved until the button *Submit* is pressed.

Saved attachment can be downloaded by clicking the icon ⤓ in the left pane of the Attachment editor.

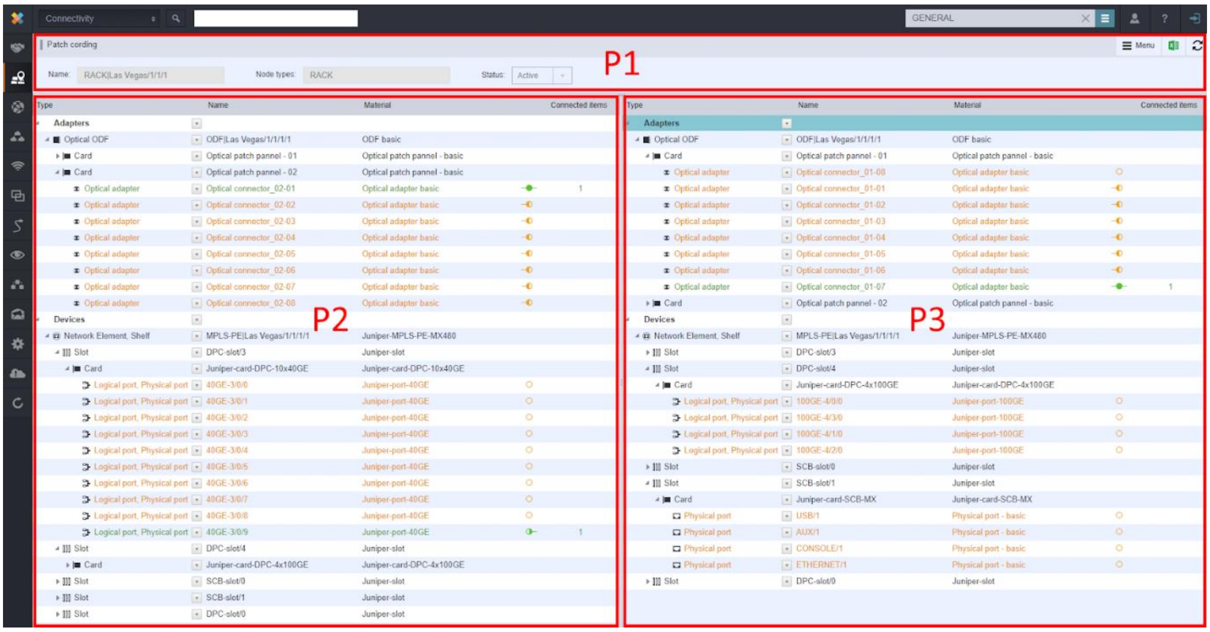
4.1.4. Connectivity view

Connectivity submodule can be accessed from several modules using Menu button or context menu. Based on the type of the selected node it will open either Connectivity: Patch cording, Connectivity: Optical welding (for ODF and Optical splice closure nodes only), or Connectivity: Copper welding (for DDF)

- Service - from context menu on any Node
- Locality - from the menu under the Editor Menu button or by switching submodule
- Circuit - from any termination (start/end) node cell menu (button with arrow)
- Subnetwork - from context menu on any Node
- Groups - from context menu on any Node
- Insight - from context menu on any Node

Connectivity view is divided into three panels:

- P1 – Connectivity/Patch cording/Optical welding
- P2 - Connectivity - Left Tree
- P3 - Connectivity - Right Tree



Name: RACK|Las Vegas/1/1/1 Node types: RACK Status: Active

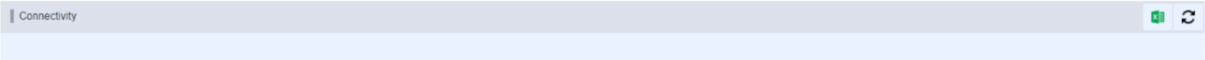
Type	Name	Material	Connected items
Adapters			
Optical ODF	ODF|Las Vegas/1/1/1/1	ODF basic	
Card	Optical patch pannel - 01	Optical patch pannel - basic	
Card	Optical patch pannel - 02	Optical patch pannel - basic	
Optical adapter	Optical connector_02-01	Optical adapter basic	1
Optical adapter	Optical connector_02-02	Optical adapter basic	
Optical adapter	Optical connector_02-03	Optical adapter basic	
Optical adapter	Optical connector_02-04	Optical adapter basic	
Optical adapter	Optical connector_02-05	Optical adapter basic	
Optical adapter	Optical connector_02-06	Optical adapter basic	
Optical adapter	Optical connector_02-07	Optical adapter basic	
Optical adapter	Optical connector_02-08	Optical adapter basic	
Devices			
Network Element, Shelf	MPLS-PE|Las Vegas/1/1/1/1	Juniper-MPLS-PE-MX480	
Slot	DPC-slot/3	Juniper-slot	
Card	Juniper-card-DPC-10x40GE	Juniper-card-DPC-10x40GE	
Logical port, Physical port	40GE-3/0/0	Juniper-port-40GE	
Logical port, Physical port	40GE-3/0/1	Juniper-port-40GE	
Logical port, Physical port	40GE-3/0/2	Juniper-port-40GE	
Logical port, Physical port	40GE-3/0/3	Juniper-port-40GE	
Logical port, Physical port	40GE-3/0/4	Juniper-port-40GE	
Logical port, Physical port	40GE-3/0/5	Juniper-port-40GE	
Logical port, Physical port	40GE-3/0/6	Juniper-port-40GE	
Logical port, Physical port	40GE-3/0/7	Juniper-port-40GE	
Logical port, Physical port	40GE-3/0/8	Juniper-port-40GE	
Logical port, Physical port	40GE-3/0/9	Juniper-port-40GE	1
Slot	DPC-slot/4	Juniper-slot	
Card	Juniper-card-DPC-4x100GE	Juniper-card-DPC-4x100GE	
Slot	SCB-slot/0	Juniper-slot	
Slot	SCB-slot/1	Juniper-slot	
Slot	DPC-slot/0	Juniper-slot	

Type	Name	Material	Connected items
Adapters			
Optical ODF	ODF|Las Vegas/1/1/1/1	ODF basic	
Card	Optical patch pannel - 01	Optical patch pannel - basic	
Optical adapter	Optical connector_01-00	Optical adapter basic	
Optical adapter	Optical connector_01-01	Optical adapter basic	
Optical adapter	Optical connector_01-02	Optical adapter basic	
Optical adapter	Optical connector_01-03	Optical adapter basic	
Optical adapter	Optical connector_01-04	Optical adapter basic	
Optical adapter	Optical connector_01-05	Optical adapter basic	
Optical adapter	Optical connector_01-06	Optical adapter basic	
Optical adapter	Optical connector_01-07	Optical adapter basic	1
Card	Optical patch pannel - 02	Optical patch pannel - basic	
Devices			
Network Element, Shelf	MPLS-PE|Las Vegas/1/1/1/1	Juniper-MPLS-PE-MX480	
Slot	DPC-slot/3	Juniper-slot	
Slot	DPC-slot/4	Juniper-slot	
Card	Juniper-card-DPC-4x100GE	Juniper-card-DPC-4x100GE	
Logical port, Physical port	100GE-4/0/0	Juniper-port-100GE	
Logical port, Physical port	100GE-4/3/0	Juniper-port-100GE	
Logical port, Physical port	100GE-4/1/0	Juniper-port-100GE	
Logical port, Physical port	100GE-4/2/0	Juniper-port-100GE	
Slot	SCB-slot/0	Juniper-slot	
Slot	SCB-slot/1	Juniper-slot	
Card	Juniper-card-SCB-MX	Juniper-card-SCB-MX	
Physical port	USB/1	Physical port - basic	
Physical port	AUX/1	Physical port - basic	
Physical port	CONSOLE/1	Physical port - basic	
Physical port	ETHERNET/1	Physical port - basic	
Slot	DPC-slot/0	Juniper-slot	

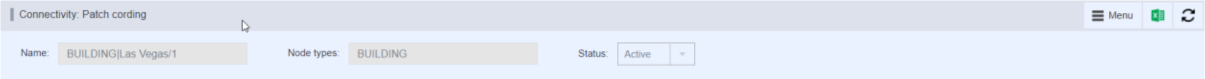
4.1.4.1. P1 - Connectivity/Patch cording/Optical welding

This bar has three different views based on the type of selected node (set as root):

1. Connectivity is the default view when no node is selected and is empty as default.

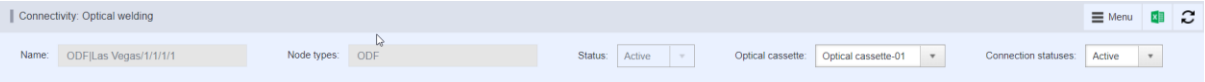


2. Patch cording is a view for all nodes except ODF and Optical splice closure. This view contains information about the currently selected node.



Name: BUILDING|Las Vegas/1 Node types: BUILDING Status: Active

3. Optical welding is a view for all ODF and Optical splice closure nodes. This view contains information about the currently selected node and possibility to select an Optical cassette and set connection statuses.



Name: ODF|Las Vegas/1/1/1/1 Node types: ODF Status: Active Optical cassette: Optical cassette-01 Connection statuses: Active

4.1.4.2. P2 - Connectivity - Left Tree

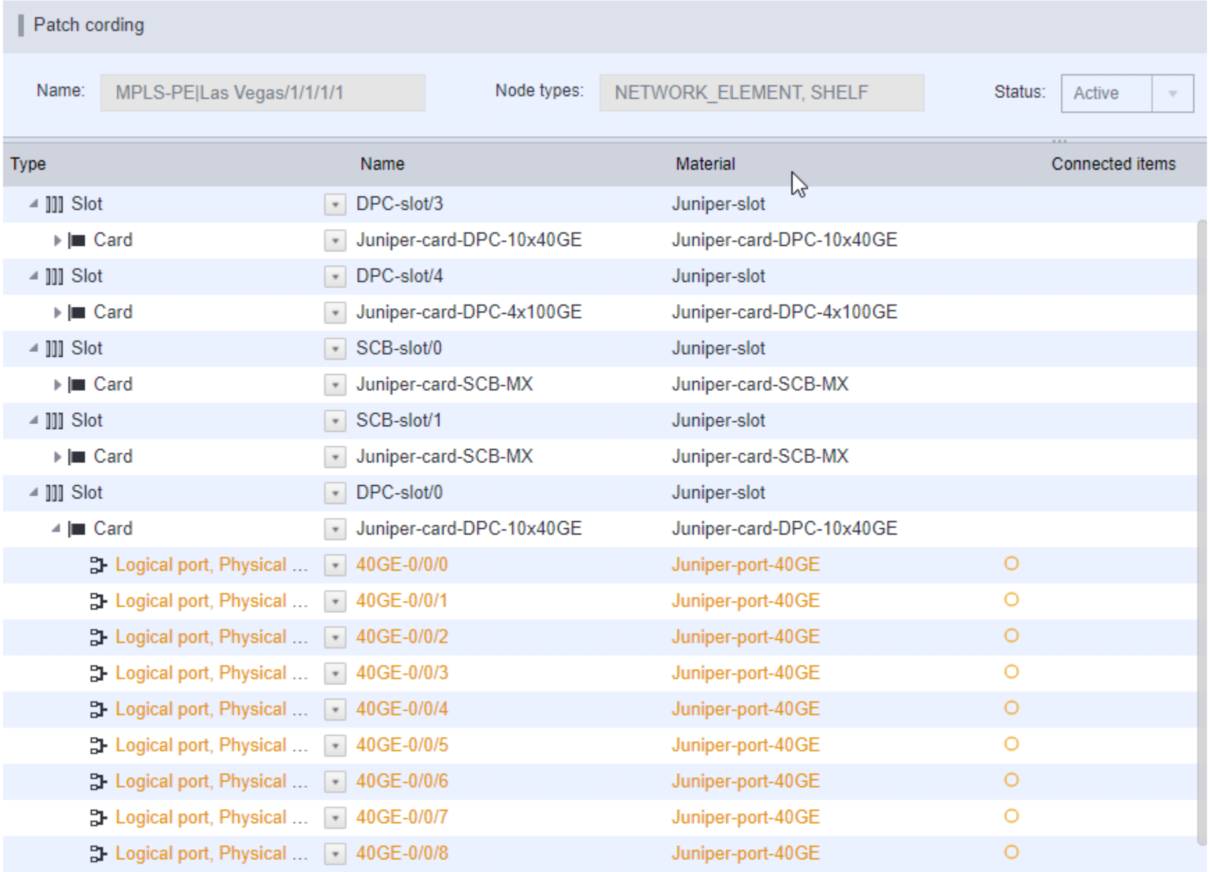
Since the left and right panels are the same, its function is explained in the next subchapter about usage.

4.1.4.3. P3 - Connectivity - Right Tree

Both panels have the same controls and serves for patch cording, optical welding (possible only for ODF and Optical splice closure nodes), and copper welding (for DDF only).

4.1.5. Usage of user interface Connectivity

4.1.5.1. Patch cording



Name: MPLS-PE|Las Vegas/1/1/1/1

Node types: NETWORK_ELEMENT, SHELF

Status: Active ▾

Type		Name	Material	Connected items
◢ Slot	▾	DPC-slot/3	Juniper-slot	
▸ Card	▾	Juniper-card-DPC-10x40GE	Juniper-card-DPC-10x40GE	
◢ Slot	▾	DPC-slot/4	Juniper-slot	
▸ Card	▾	Juniper-card-DPC-4x100GE	Juniper-card-DPC-4x100GE	
◢ Slot	▾	SCB-slot/0	Juniper-slot	
▸ Card	▾	Juniper-card-SCB-MX	Juniper-card-SCB-MX	
◢ Slot	▾	SCB-slot/1	Juniper-slot	
▸ Card	▾	Juniper-card-SCB-MX	Juniper-card-SCB-MX	
◢ Slot	▾	DPC-slot/0	Juniper-slot	
◢ Card	▾	Juniper-card-DPC-10x40GE	Juniper-card-DPC-10x40GE	
Logical port, Physical ...	▾	40GE-0/0/0	Juniper-port-40GE	○
Logical port, Physical ...	▾	40GE-0/0/1	Juniper-port-40GE	○
Logical port, Physical ...	▾	40GE-0/0/2	Juniper-port-40GE	○
Logical port, Physical ...	▾	40GE-0/0/3	Juniper-port-40GE	○
Logical port, Physical ...	▾	40GE-0/0/4	Juniper-port-40GE	○
Logical port, Physical ...	▾	40GE-0/0/5	Juniper-port-40GE	○
Logical port, Physical ...	▾	40GE-0/0/6	Juniper-port-40GE	○
Logical port, Physical ...	▾	40GE-0/0/7	Juniper-port-40GE	○
Logical port, Physical ...	▾	40GE-0/0/8	Juniper-port-40GE	○

Patch cording left and right panels are colored based on the connection status:

- Orange - patch cord not connected
- Green - connected using patch cord

Patch cording left and right panels includes several columns:

- Type - type of the Node
- Cell menu button ▾ - shows the context menu by using the left mouse button
- Name - name of the Node
- Material - material used by this Node
- Icon - shows if this node is connected

—●— connected on both sides (ODF and patch cord)

◐— connected only by using patch cord

○ disconnected on both sides

⊸◐	connected only on ODF (welded)

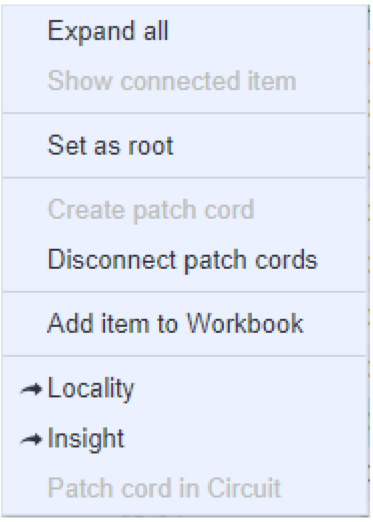
- Connected items - number of items connected to this node based on the number of connectable fibers in the optical patch cord which is defined by material template link. One Physical port can be connected to several Optical adapters.

There are also several specific row dividers in the Patch cording panels:

1. Adapters - optical devices (ODF and Optical splice closure) are listed here
    - They have an optical adapter at the end of the tree
2. Devices - physical devices (Shelf, Slot, Card) are listed here
    - They have Physical port at the end of the tree

Note: Patch cording requires some pre-created material template link for connecting nodes of types: physical port and optical adapter. Both types are hardcoded, and more types can’t be added using GUI.

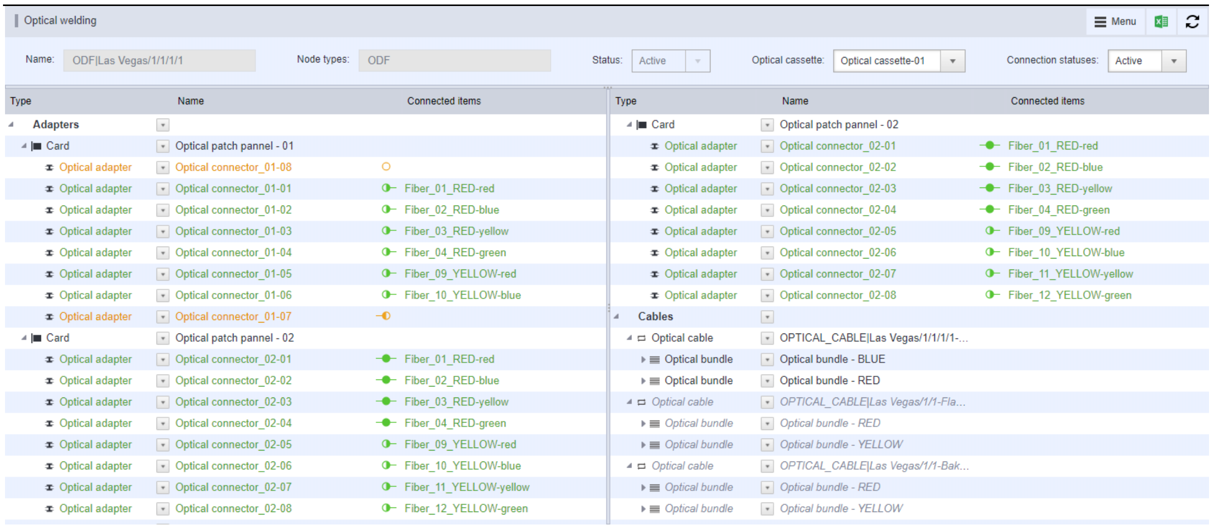
Context menu can be shown by using the right mouse button on any row or by using cell menu button in front of the name of any node.



- Expand all - expands all collapsed items in the tree
- Show connected item - displays item connected to the selected node. If connected item is not part of a currently expanded tree, this action expands or changes the view of hierarchy of a tree according to placement of connected node.
- Set as root - sets selected node as root for the tree
    - User can return to parent nodes using Locality submodule
- Create patch cord - when two unconnected physical ports are selected on both panels then this menu item will automatically connect these two ports and changes the color of the row to green
- Disconnect patch cord - removes connection between two ports and makes them available for patch cording with another
    - Row will change the color to orange
- Add item to Workbook - adds selected node into Workbook
- Locality - shows this node in the Locality module
    - Can be used for switching to a parent
- Insight - shows this node in the Insight module
- Patch cord in Circuit - shows connected patch cord as a link in Circuit module

4.1.5.1. Optical welding

Connectivity: Optical welding is shown only for ODF and Optical splice closure nodes.



Name: ODF|Las Vegas/1/1/1/1
Node types: ODF
Status: Active
Optical cassette: Optical cassette-01
Connection statuses: Active

Type	Name	Connected items
Adapters		
Card	Optical patch pannel - 01	
Optical adapter	Optical connector_01-08	○
Optical adapter	Optical connector_01-01	◐— Fiber_01_RED-red
Optical adapter	Optical connector_01-02	◐— Fiber_02_RED-blue
Optical adapter	Optical connector_01-03	◐— Fiber_03_RED-yellow
Optical adapter	Optical connector_01-04	◐— Fiber_04_RED-green
Optical adapter	Optical connector_01-05	◐— Fiber_09_YELLOW-red
Optical adapter	Optical connector_01-06	◐— Fiber_10_YELLOW-blue
Optical adapter	Optical connector_01-07	—◐
Card	Optical patch pannel - 02	
Optical adapter	Optical connector_02-01	—●— Fiber_01_RED-red
Optical adapter	Optical connector_02-02	—●— Fiber_02_RED-blue
Optical adapter	Optical connector_02-03	—●— Fiber_03_RED-yellow
Optical adapter	Optical connector_02-04	—●— Fiber_04_RED-green
Optical adapter	Optical connector_02-05	◐— Fiber_09_YELLOW-red
Optical adapter	Optical connector_02-06	◐— Fiber_10_YELLOW-blue
Optical adapter	Optical connector_02-07	◐— Fiber_11_YELLOW-yellow
Optical adapter	Optical connector_02-08	◐— Fiber_12_YELLOW-green

Type	Name	Connected items
Card	Optical patch pannel - 02	
Optical adapter	Optical connector_02-01	—●— Fiber_01_RED-red
Optical adapter	Optical connector_02-02	—●— Fiber_02_RED-blue
Optical adapter	Optical connector_02-03	—●— Fiber_03_RED-yellow
Optical adapter	Optical connector_02-04	—●— Fiber_04_RED-green
Optical adapter	Optical connector_02-05	◐— Fiber_09_YELLOW-red
Optical adapter	Optical connector_02-06	◐— Fiber_10_YELLOW-blue
Optical adapter	Optical connector_02-07	◐— Fiber_11_YELLOW-yellow
Optical adapter	Optical connector_02-08	◐— Fiber_12_YELLOW-green
Cables		
Optical cable	OPTICAL_CABLE|Las Vegas/1/1/1/1-...	
Optical bundle	Optical bundle - BLUE	
Optical bundle	Optical bundle - RED	
Optical cable	*OPTICAL_CABLE|Las Vegas/1/1-Fla...*	
Optical bundle	*Optical bundle - RED*	
Optical bundle	*Optical bundle - YELLOW*	
Optical cable	*OPTICAL_CABLE|Las Vegas/1/1-Bak...*	
Optical bundle	*Optical bundle - RED*	
Optical bundle	*Optical bundle - YELLOW*	

Optical welding view is very similar to Patch cording view, but it serves for welding optical fibers, bundles, or cables to ODF (and disconnecting also) so some items in menus are slightly different. Optical splice is created under an Optical cassette selected in the upper panel.

Optical welding left and right panels are colored based on the connection status:

- Orange - not welded inside selected ODF
- Green - welded inside selected ODF

Optical welding left and right panels includes several columns:

- Type - type of the Node
- Cell menu button ▾ - shows the context menu by using the left mouse button
- Name - name of the Node
- Icon - shows if this node is connected

—●— connected on both sides (welded in ODF and by a patch cord)

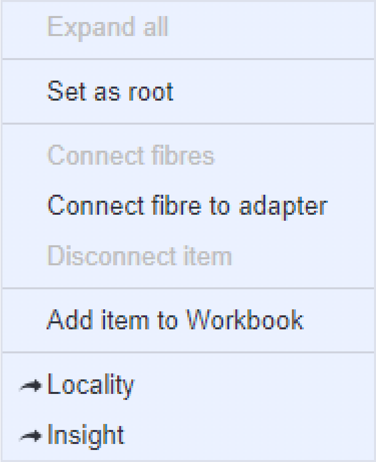
◐— connected only on ODF (welded)

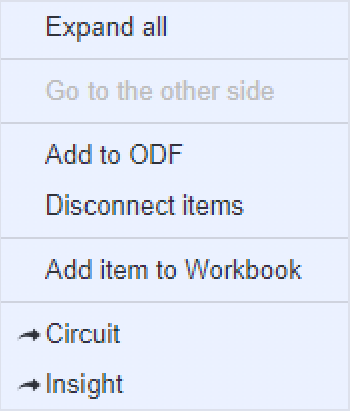
○ disconnected on both sides

—◐ connected only by using patch cord

- Connected item - shows item connected to an object on the same row

Context menu includes several specific welding items





- Connect fibers - allows to connect (weld) two unconnected fibers together
    - This action creates a new Optical Splice node under selected optical cassette, which terminates both fibers.
- Connect fiber to adapter - allows to connect (weld) a fiber (category cable) to an adapter via pigtail
    - Cross automatically connects selected fiber to a new Optical Splice created under selected Optical Cassette in Optical welding editor. Pigtail (Optical fiber) link is then created between this Optical Splice and selected optical adapter by a Cross.
- Disconnects item - disconnects a fiber from an adapter or another fiber
- Go to the other side - shows an ODF from a different locality on the other side of the selected cable
- Add to ODF - changes ending of selected cables to ODF currently selected as root, so they can be connected to other cables and/or adapters in this ODF
- Disconnects items - removes welding between fibers or a fiber and an adapter
    - Fiber will be terminated on the same termination node as it’s provider
    - Fiber splice and pigtails will be deleted
- Circuit - shows selected cable, bundle, or fiber in the Circuit module

Typical scenario of use of Optical welding

1. User will open some ODF (using full-text search in Locality, or a search result, or from a map, or creating a new one)
2. Using a menu item Connectivity – optical welding the view will switch to Connectivity module into Optical welding functionality. This view shows all cables terminated on optical connectors with all bundles, fibers, and adapters
3. User needs to select optical cassette in the upper bar (P1) which will contain all fibers with splices.
4. Now user can select adapters, fibers, or their parent nodes. In the left P2 pane user can select:
    a. Fiber, a continuous selection of following fibers or specific fiber selection
    b. Bundle, a continuous selection of following bundles or specific bundle selection
    c. Optical cable, a continuous selection of following cables or specific cable selection

   This selection can be combined with following objects in the right P3 pane:
    d. Adapter, a continuous selection of following adapters or specific adapter selection
    e. Patch panel, a continuous selection of following patch panels or specific patch panel selection
5. When some lines are selected on both sides, user can use context menu item **Connect fiber to adapter (no pigtail)** and system will weld selected fibers to selected adapters following rules in this table:

P2 - Left pane User selects: Condition	P3 – Right pane User selects: Condition	Conditions for both left and right panes • Checks for connection creation
Fiber Fiber must not be connected to the adapter.	Adapter Adapter is available for connecting a fiber (there are no fibers connected and none or a single connected patch-cord)	Number of selected fibers and adapters must be the same.
Fiber	Single patch panel	There cannot be more selected fibers then selected adapters.

Fiber must not be connected to the adapter.	There must be big enough continuous number of unconnected adapters inside of patch panel.	• System informs if there is an adapter with a connected fiber • System informs if there is a different number of selected fibers and adapters
Fiber Fiber must not be connected to the adapter.	Multiple patch panels No adapter in the patch panel can have a connected fiber.	Number of selected fibers cannot be bigger than a number of selected adapters. • System informs if there is a different number of selected fibers and adapters
Single optical bundle There must be big enough continuous number of unconnected fibers inside of bundle.	Adapters	• System informs if there some connected fibers • System informs if there is a different number of selected fibers and adapters
Single optical bundle There must be big enough continuous number of unconnected fibers inside of bundle.	Single patch panel There must be big enough continuous number of unconnected adapters inside of patch panel.	• System informs if there some connected fibers • System informs if there is a different number of selected fibers and adapters
Single optical bundle There must be big enough continuous number of unconnected fibers inside of bundle.	Multiple patch panels No adapter in the patch panel can have a connected fiber.	• System informs if there some connected fibers • System informs if there is a different number of selected fibers and adapters
Multiple bundles/One or more optical cables None of fibers optical in bundles/cables can be connected to an adapter.	Adapters	Number of selected adapters cannot be bigger than a number of selected fibers. • System informs if there is a different number of selected fibers and adapters
Multiple bundles/One or more optical cables	Single patch panel	• System informs if there some connected adapters

None of fibers optical in bundles/cables can be connected to an adapter.	There must be big enough continuous number of unconnected adapters inside of patch panel.	• System informs if there is a different number of selected fibers and adapters
Multiple bundles/One or more optical cables None of fibers optical in bundles/cables can be connected to an adapter.	Multiple patch panels No adapter in the patch panel can have a connected fiber.	• System informs if there is a different number of selected fibers and adapters

- Welding of multiple fibers and adapters is done in an order of selection in the welding panes.
- If there are some selected fibers in the left pane and a patch panel in the right pane, system will weld all selected fibers, or none of them.
- If there are some selected adapters in the left pane and a bundles or optical cables in the right pane, system will weld all selected adapters, or none of them.

Disconnecting fibers

- Either a user selects one or more fibers from a cable in the left pane or selects one or more optical adapters in the right pane. Then user can use a context menu to disconnect it.
- If a connection with a pigtail is selected for disconnection, then selected fibers will be disconnected and relevant pigtail will be deleted.

4.2. MODULE CIRCUIT – circuits records in the network

Chapter overview:

4.2.1. Description of the module environment

4.2.2. Circuit view

4.2.2.1. P1 - Routing / Schema/ Simple schema/ Consumers

4.2.2.2. P2 - Editor

4.2.2.3. P3 - Map

4.3.3. Usage of user interface

4.3.3.1. Creating a new link

4.3.3.2. Records of optical cables and their connecting (and/or distribution)

4.3.3.3. Full-text link search

4.3.3.4. Dividing cables by adding splices

4.3.3.5. Define channels

4.3.3.6. Deleting lines

4.2.1. Description of the module environment

Module CIRCUIT is the main part of the CROSS system, and it is created for designing, recording and presenting line parts of the network - links and subnetworks. Module allows you to define channels at TDM technologies. CIRCUIT is fully integrated with other CROSS modules, especially with:

- Configuration – definition for working with the rules of capacity allocation (Providers and Consumers) and for correctness check of entered elements (port connection check etc.)

- Locality – work with the node objects – buildings, devices, ports...
- Insight – relation between links and nodes and their providers and consumers

The module CIRCUIT in the combination with the module LOCALITY allows you to completely record inner and outer, physical and logical network elements.

The module can be run by clicking the icon from the module selection menu ⊛ .

The module contains one view:

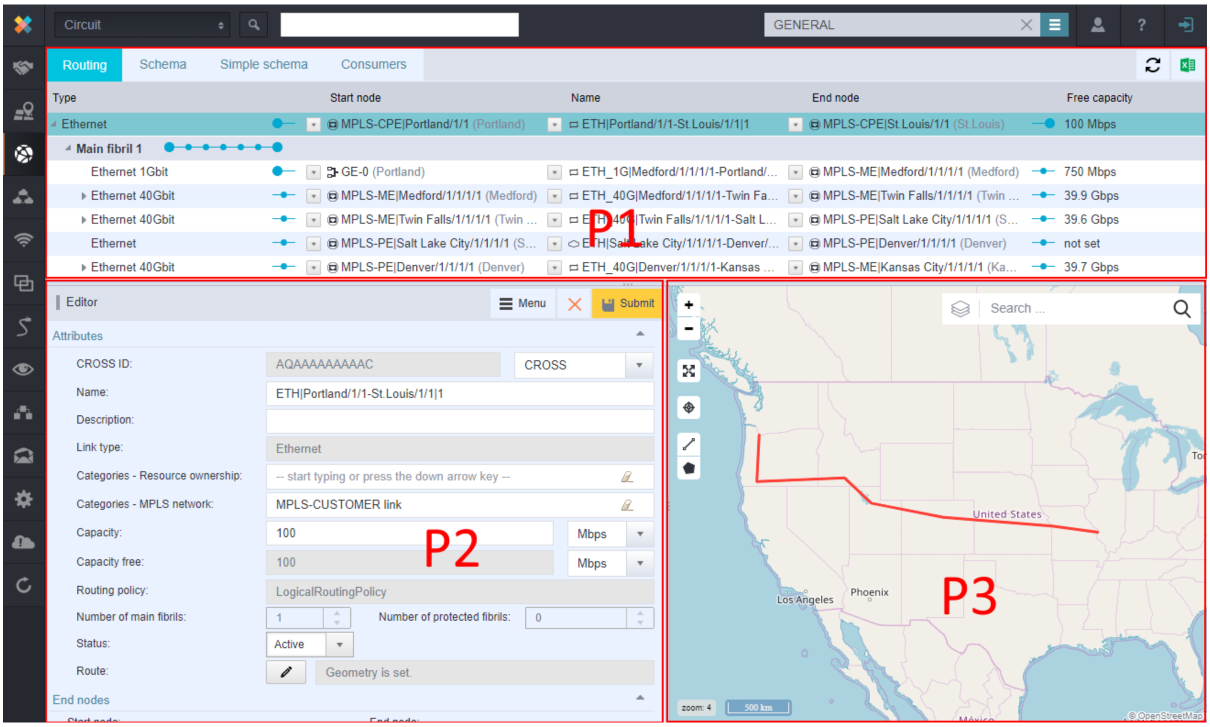
- Circuit view

4.2.2. Circuit view

Module contains records of routes (routing) of selected circuit in clearly organized hierarchical structure, for example circuit - cable - pipe - excavation.

The module contains following panels:

- P1 - Routing / Schema/ Simple schema/ Consumers
- P2 - Editor
- P3 - Map



Type	Start node	Name	End node	Free capacity
Ethernet	MPLS-CPE|Portland/1/1 (Portland)	ETH|Portland/1/1-St.Louis/1/1|1	MPLS-CPE|St.Louis/1/1 (St.Louis)	100 Mbps
Main fibril 1				
Ethernet 1Gbit	GE-0 (Portland)	ETH_1G|Medford/1/1/1/1-Portland/…	MPLS-ME|Medford/1/1/1/1 (Medford)	750 Mbps
Ethernet 40Gbit	MPLS-ME|Medford/1/1/1/1 (Medford)	ETH_40G|Medford/1/1/1/1-Twin Fa…	MPLS-ME|Twin Falls/1/1/1/1 (Twin …	39.9 Gbps
Ethernet 40Gbit	MPLS-ME|Twin Falls/1/1/1/1 (Twin …	E[illegible]|Twin Falls/1/1/1/1-Salt L…	MPLS-PE|Salt Lake City/1/1/1/1 (S…	39.6 Gbps
Ethernet	MPLS-PE|Salt Lake City/1/1/1/1 (S…	E[illegible]TH|Sa[illegible]ake City/1/1/1/1-Denver/…	MPLS-PE|Denver/1/1/1/1 (Denver)	not set
Ethernet 40Gbit	MPLS-PE|Denver/1/1/1/1 (Denver)	ETH_40G|Denver/1/1/1/1-Kansas …	MPLS-ME|Kansas City/1/1/1/1 (Ka…	39.7 Gbps

CROSS ID: AQAAAAAAAAAC CROSS
Name: ETH|Portland/1/1-St.Louis/1/1|1
Description:
Link type: Ethernet
Categories - Resource ownership: -- start typing or press the down arrow key --
Categories - MPLS network: MPLS-CUSTOMER link
Capacity: 100 Mbps
Capacity free: 100 Mbps
Routing policy: LogicalRoutingPolicy
Number of main fibrils: 1 Number of protected fibrils: 0
Status: Active
Route: Geometry is set.

4.2.2.1. P1 - Routing / Schema / Simple schema / Consumers

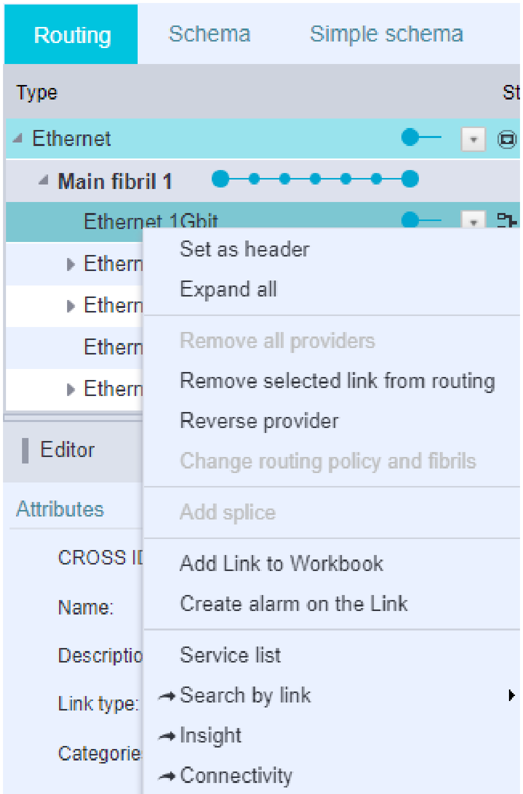
P1 panel contains four bookmarks - Routing, Schema, Simple schema and Consumers. In Routing you can see hierarchical structure of the link and their schematic graphic display are available.

Export to Excel icon exports routing structure table to Excel. Only branches that are expanded and displayed in the panel Routing are exported. Output table contains the same columns and rows as are in the panel Routing. First columns of the table indicate hierarchical structure of the routing in the following order - tree root type is in the first column; link type is in the second column in the second level under the root etc.

Routing

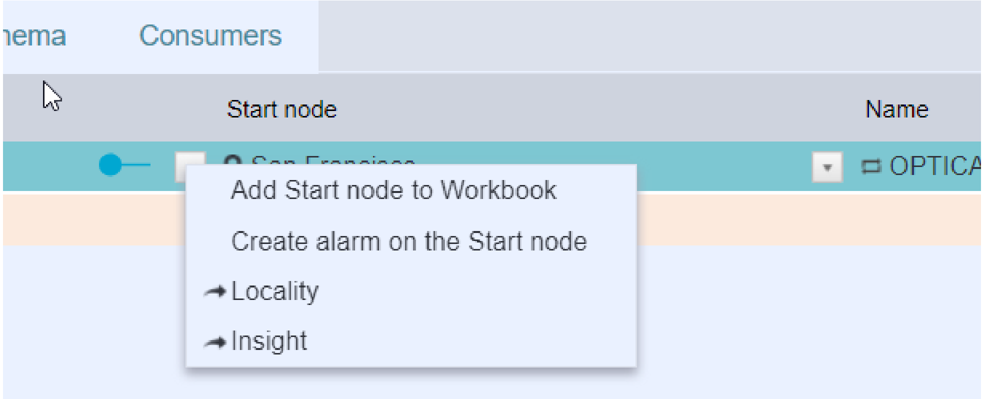
This function helps you to explore hierarchical structure of the routing. Table consist evidence about type, name on the line, initial and ending localities, nodes and helpful information of correct route connection (OK - X). More information about Routing bookmark are in special chapter. Full-text results are in the routing bookmark.

Every column of the table (when right-clicked) has its context menu for another functions. The context menu is the same for all the columns in the Routing panel.


Routing
Schema
Simple schema
Type
St
Ethernet
Main fibril 1
Ethernet 1Gbit
Ethern
Ethern
Ethern
Ethern
Editor
Attributes
CROSS II
Name:
Descriptio
Link type:
Categorie
Set as header
Expand all
Remove all providers
Remove selected link from routing
Reverse provider
Change routing policy and fibrils
Add splice
Add Link to Workbook
Create alarm on the Link
Service list
Search by link
Insight
Connectivity

- **Set as header** - sets selected tree branch (table row) as a header
- **Expand all** - expands all tree branches up to individual leaves
- **Remove all providers** – removes all providers of selected link
- **Remove selected line from routing** - selected line will be removed from the routing.
- **Reverse provider** - starting and ending location and knot will be swapped for the selected line. This rotation is only reflected in the routing and has no impact on other circuits, and it will not change the beginning and end of the line.
- Change routing policy and fibrils – not implemented yet
- **Add Link to Workbook** - adds selected items into Workbook.
- **Create an alarm on the Link** - creates an alarm set on the selected item.
- **Service list** – lists all services on the selected item.
- **Search by link** - contains a sub menu: Services, Groups and Subnetworks. Searches for services, groups or subnetworks which contain selected line. The result is displayed in the Search module, in the search results bookmark.
- **Insight** - displays the selected item of the sub menu in the Insight module.
- **Connectivity** - displays the selected item in the Connectivity sub-module in Locality.

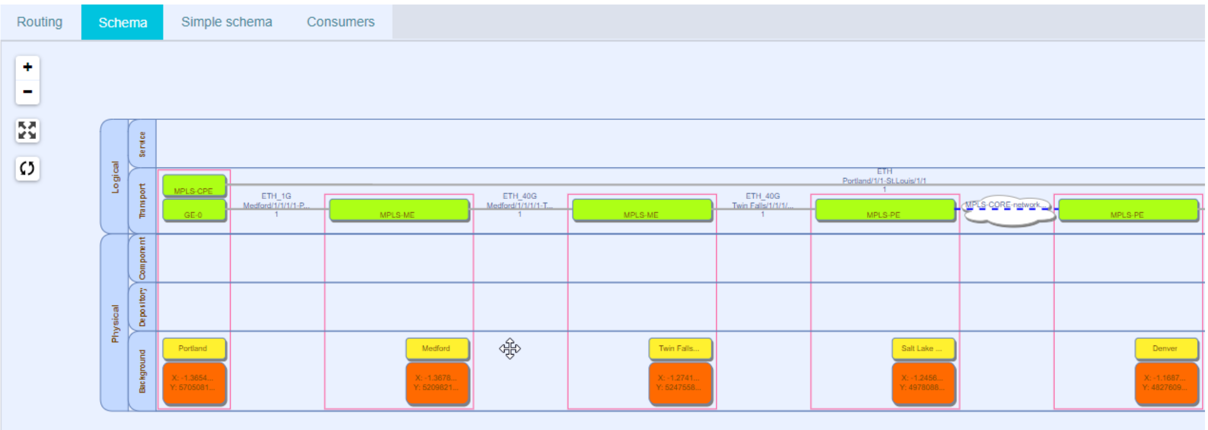
Start and End nodes has a specific context menu containing:


ema
Consumers
Start node
Name
OPTICA
Add Start node to Workbook
Create alarm on the Start node
Locality
Insight

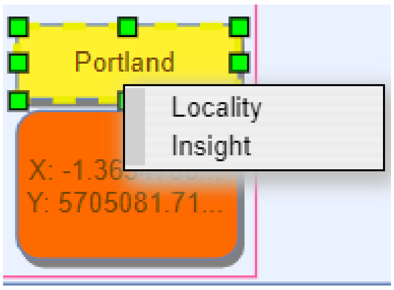
- **Add Start node to Workbook** - adds selected items into Workbook.
- **Create an alarm on the Start node** - creates an alarm set on the selected item.
- **Locality** - displays the selected item of the sub menu in the Locality module
- **Insight** - displays the selected item of the sub menu in the Insight module

Schema

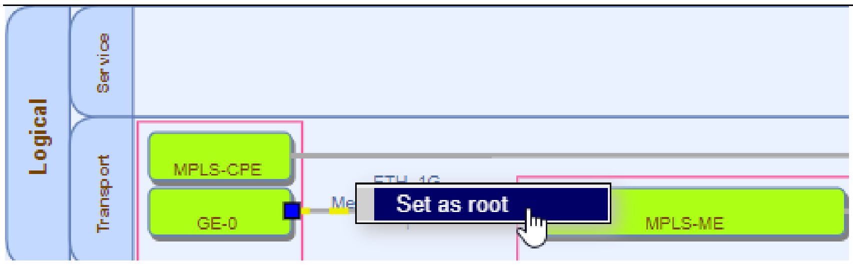
Graphical schematic representation of routing in an interactive interface. It is possible to select individual nodes and routes by a mouse left-clicking. Details of the selected object are then displayed in the editor of working panel and a geometry is displayed in the map panel.


Routing
Schema
Simple schema
Consumers
Logical
Physical
Service
Transport
Component
Depository
Background
MPLS-CPE
GE-0
ETH_1G
MPLS-ME
ETH_40G
MPLS-ME
ETH_40G
ETH
MPLS-PE
MPLS CORE network
MPLS-PE
Portland
Medford
Twin Falls...
Salt Lake ...
Denver

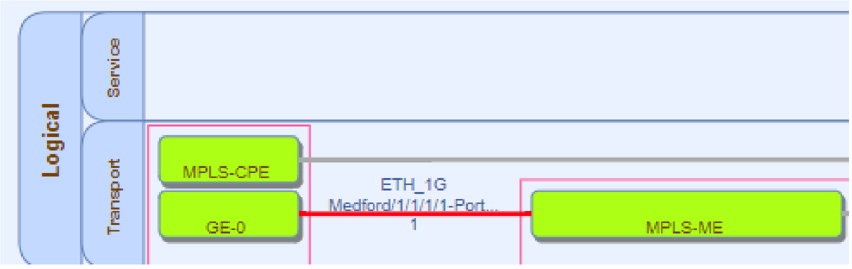
When you choose the node from the context menu and right-click on it, the chosen node will be opened in the Locality module and you can work with it further.


Portland
Locality
Insight
X: -1.36
Y: 5705081.71...

By a right-click on the link in the context menu, you can set it as the root. The change will appear in the panels Schema and Routing.

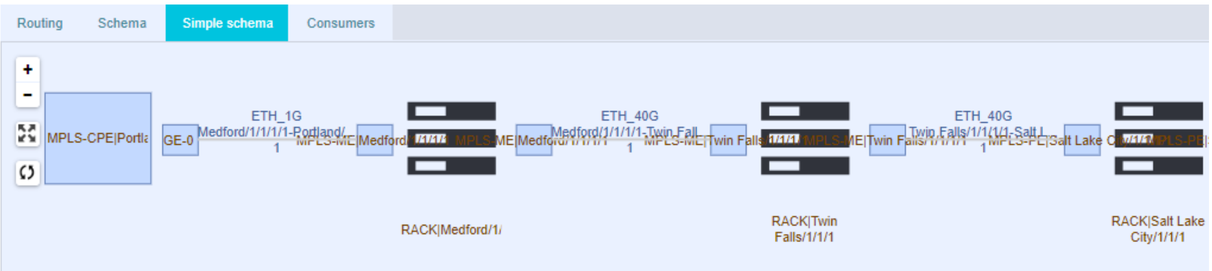

Logical
Service
Transport
MPLS-CPE
GE-0
ETH_1G
Set as root
MPLS-ME

If there is an alarm on any of the nodes, it is highlighted in the schema by red colour.

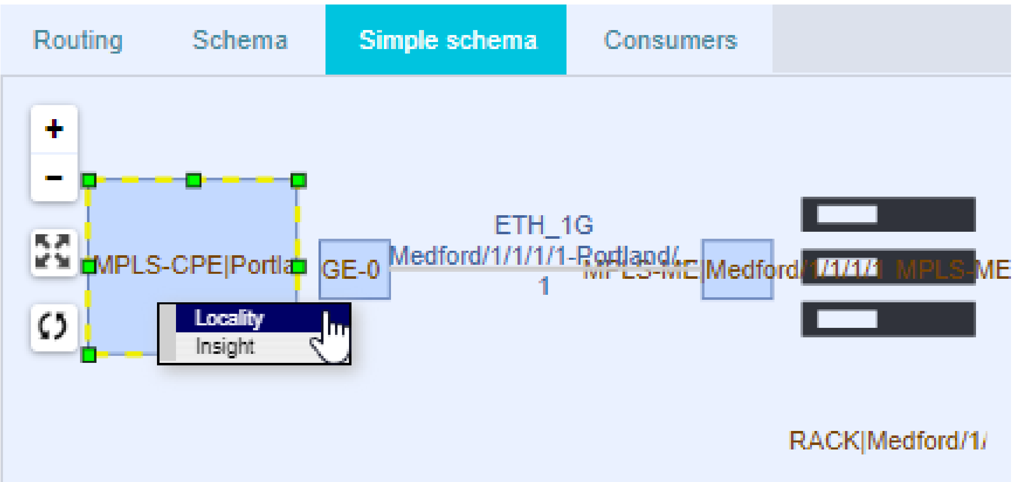

Logical
Service
Transport
MPLS-CPE
GE-0
ETH_1G
Medford/1/1/1/1-Port...
1
MPLS-ME

Simple schema

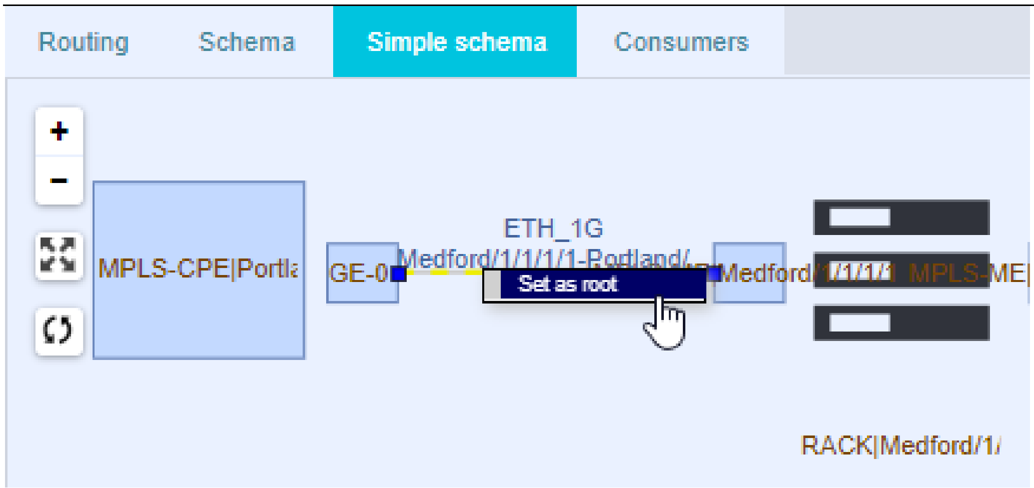
Graphical schematic representation of routing in an interactive interface. It is possible to select individual nodes and routes by a mouse left-clicking. Details of the selected object are then displayed in the editor of working panel and a geometry is displayed in the map panel.


Routing
Schema
Simple schema
Consumers
+
-
MPLS-CPE|Portla
GE-0
ETH_1G
Medford/1/1/1/1-Portland/
1
ETH_40G
Medford/1/1/1/1-Twin Fall
ETH_40G
Twin Falls/1/1/1/1-Salt L
RACK|Medford/1/
RACK|Twin Falls/1/1/1
RACK|Salt Lake City/1/1/1

When you choose the node from the context menu and right-click on it, the chosen node will be opened in the Locality module and you can work with it further.

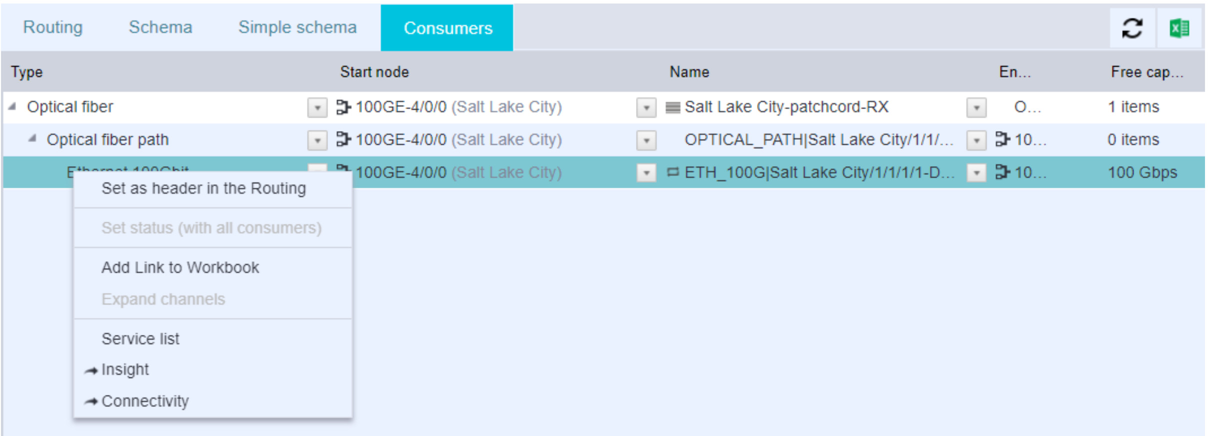

Routing
Schema
Simple schema
Consumers
+
-
MPLS-CPE|Portla
GE-0
ETH_1G
Medford/1/1/1/1-Portland/
1
MPLS-ME|Medford/1/1/1/1
MPLS-ME
Locality
Insight
RACK|Medford/1/

By a right-click on the link in the context menu, you can set it as the root. The change will appear in the panels Schema and Routing.


Routing
Schema
Simple schema
Consumers
MPLS-CPE|Portla
GE-0
ETH_1G
Medford/1/1/1/1-Portland/
Set as root
Medford/1/1/1/1
MPLS-ME|
RACK|Medford/1/

Consumers

Consumers bookmark contains a list of all consumers of selected link. It is possible to export the list of consumers into Excel spreadsheet.


Routing
Schema
Simple schema
Consumers

Type	Start node	Name	En...	Free cap...
Optical fiber	100GE-4/0/0 (Salt Lake City)	Salt Lake City-patchcord-RX	O...	1 items
Optical fiber path	100GE-4/0/0 (Salt Lake City)	OPTICAL_PATH|Salt Lake City/1/1/...	10...	0 items
Ethernet 100Gbit	100GE-4/0/0 (Salt Lake City)	ETH_100G|Salt Lake City/1/1/1/1-D...	10...	100 Gbps

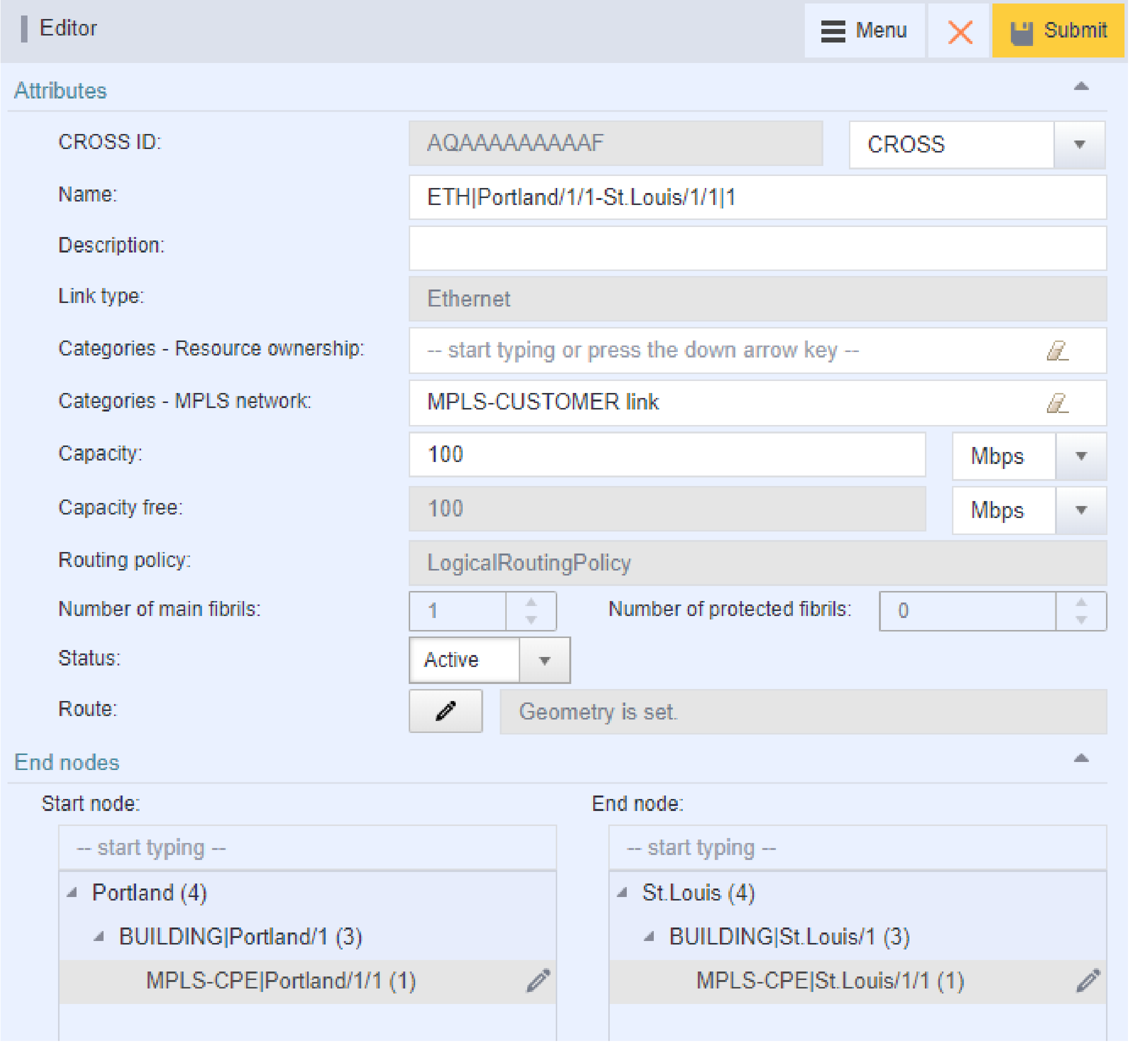
Set as header in the Routing
Set status (with all consumers)
Add Link to Workbook
Expand channels
Service list
Insight
Connectivity

Context menu contains options:

- **Set as header in the Routing** – this will load selected link as the header in the Routing
- **Set status (with all consumers)** – allows to change status for all consumers and it follows status rules defined in Configuration
- Add item to Workbook
- **Expand Channels** – expand all channel and channel owners of the selected link
- **Service list** – lists all services on the selected item.
- **Insight** - displays the selected item of the sub menu in the Insight module.
- **Connectivity** - displays the selected item in the Connectivity sub-module in Locality.

4.2.2.2. P2 - Editor

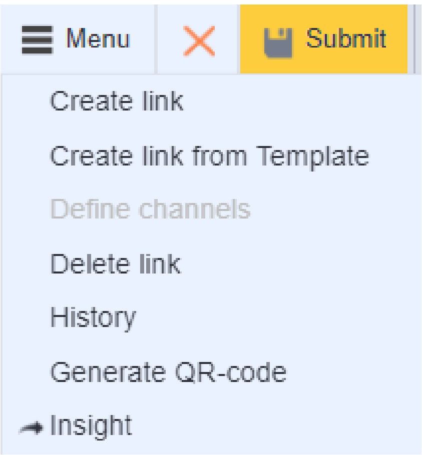
Editor displays details of selected link - more specifically details of the header of selected link. If there are more links in the hierarchy above the editor in the Routing panel, only the supreme link from the tree hierarchy will be displayed in the editor - no matter which row in the table is selected.



CROSS ID:	AQAAAAAAAAAF	CROSS
Name:	ETH|Portland/1/1-St.Louis/1/1|1	
Description:		
Link type:	Ethernet	
Categories - Resource ownership:	-- start typing or press the down arrow key --	
Categories - MPLS network:	MPLS-CUSTOMER link	
Capacity:	100	Mbps
Capacity free:	100	Mbps
Routing policy:	LogicalRoutingPolicy	
Number of main fibrils:	1	Number of protected fibrils: 0
Status:	Active	
Route:	Geometry is set.	

Start node:	End node:
-- start typing --	-- start typing --
Portland (4)	St.Louis (4)
BUILDING|Portland/1 (3)	BUILDING|St.Louis/1 (3)
MPLS-CPE|Portland/1/1 (1)	MPLS-CPE|St.Louis/1/1 (1)

Editor menu also contains a drop-down menu which contains following actions:

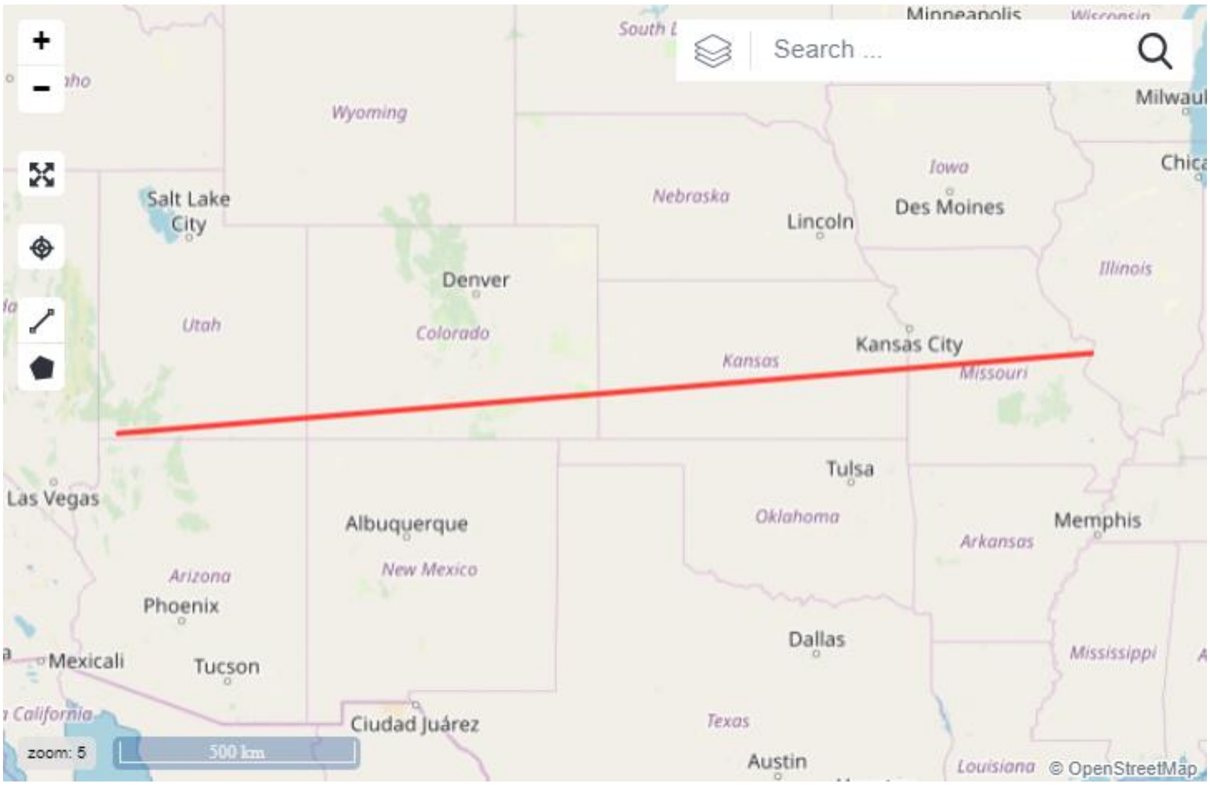


- **Create link -** erases content of the editor and enables you to enter attributes of a new link
- **Create link from Template** - erases content of the editor and enables you to enter attributes of a new link with a selection of material template for given link
- **Define channels -** this function serves for creating a channel breakdown of the link. For example, in the SDH technology you can generate a breakdown up to 4 VC4 links for the STM4 type link. There is a report in a dialog window that indicates if it is possible to generate the channel breakdown. A link will be broken into individual channels after selecting the compatible link type and clicking the Submit button. If there is a breakdown of a link existing already, it is not possible to change its start/end nor the type of start/end node.
- **Delete link** - deletes selected link
- **History** - displays a window with a list of changes performed on the selected link. More details in Locality chapter 4.1.3.11. Display of node history.
- **Generate QR code** - generates QR code with link parameters in png format.
- **Insight** - displays link in the Insight module

Dallas

4.2.2.3. P3 - Map

More information about working with the map, are described in chapter - Cross Network Intelligence basic description - Map panel


Search ...
Salt Lake City
Wyoming
Nebraska
Lincoln
Iowa
Des Moines
Denver
Colorado
Utah
Kansas
Kansas City
Missouri
Illinois
Minneapolis
Milwaukee
Las Vegas
Albuquerque
New Mexico
Arizona
Phoenix
Tucson
Mexicali
Oklahoma
Tulsa
Arkansas
Memphis
Dallas
Mississippi
Texas
Austin
Ciudad Juárez
Louisiana
zoom: 5
500 km
© OpenStreetMap

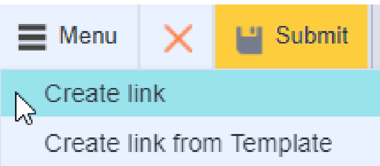
4.2.3. Usage of user interface

4.2.3.1. Creating a new link

A new link can be created from the edit menu of the P2 panel. There are two options for these purposes - Create link and Create link from Template.

Creating a new link

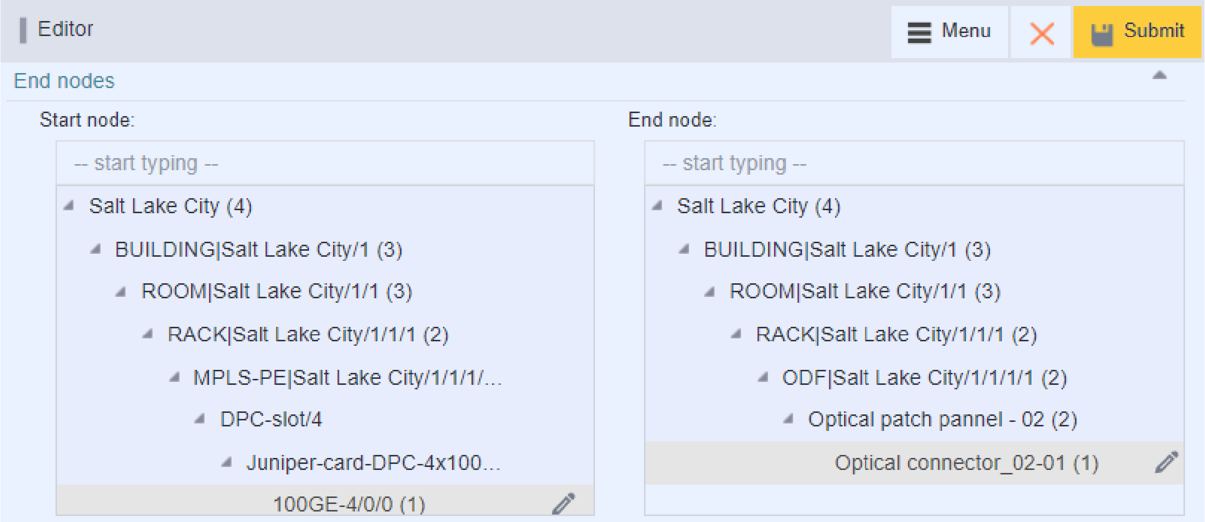
- Select the option Create link in the editor of working panel from a drop-down menu. An empty editor will be opened. If there are attributes of another link loaded into the editor, they will be cleared.
- Enter mandatory attributes - Name, State, Link type, e.g. Ethernet. If you change a link type, a list of attributes of a link will adjust accordingly.
- Select the Start node which must comply to Link type and related node type rules.
- If you write a character or a text to any of the attributes (meaning Locality, Building, Room, NE or SP), an autocomplete will offer you a list of objects to choose from and to finish what you meant easily. If you enter single letter and then press the down arrow key, autocomplete will display all objects of selected type according to selected attribute.
- Node can be also found by external id.
- Filter next to Search bar in the Locality module is also filtering results in the Circuit module in Start Node and End node fields. If no proper results are found than changing settings of Search filter in the Locality module can provide desired results.
- After entering all necessary attributes, save the new link by clicking the Submit button. The link will be saved to the database and displayed in the Routing panel as a header. Link geometry will be displayed in the map according to start and end


Menu
Submit
Create link
Create link from Template

Localities. There is a value "Geometry is set" in the Route attribute.

- If you need to edit the route geometry, you can do it by clicking the button with the symbol of a pencil at the Route attribute. Geometry will be highlighted in the map window and it will be possible to edit it. You can save the link by clicking the Submit button when you are done editing it - new geometry route will be displayed in the map.

After entering and submitting attributes of a new link, the editor will should appear as below:



Start node:

-- start typing --

- Salt Lake City (4)
  - BUILDING|Salt Lake City/1 (3)
    - ROOM|Salt Lake City/1/1 (3)
      - RACK|Salt Lake City/1/1/1 (2)
        - MPLS-PE|Salt Lake City/1/1/1/...
          - DPC-slot/4
            - Juniper-card-DPC-4x100...
              - 100GE-4/0/0 (1)

End node:

-- start typing --

- Salt Lake City (4)
  - BUILDING|Salt Lake City/1 (3)
    - ROOM|Salt Lake City/1/1 (3)
      - RACK|Salt Lake City/1/1/1 (2)
        - ODF|Salt Lake City/1/1/1/1 (2)
          - Optical patch pannel - 02 (2)
            - Optical connector_02-01 (1)

Relevant section with all attributes can be expanded by clicking the editor section header (or the arrow at the right side).

Creating a new link from a template

A process of creating a new link from a template is somewhat similar with the process described above, one of differences is that Material template must be entered as a first and mandatory attribute. This template must be created in the Material module. Material template for a link has a pre-specified link type and technology as well as material. That is a reason why some of the fields are automatically filled after selecting a template - especially Link type, Technology and Material.

Defined Material template can contain consumers like channels (e.g. for optical cables).

4.2.3.2. Records of optical cables and their connection (distribution)

Record of a link - optical cable - can be performed in several successive steps. First, create a material template for the specific type of optical cable. At both ends, there must be an equipment of the ODF type available (or another equipment with ports on which individual fibers can be welded). Connection of optical cables to equipment is performed after creating a link from the template. For the process described above you need to use cooperation of three modules - Circuits, Locality and Material.

Creating a link - optical cable:

- In the module Circuit, select the action Create link from template from the editor drop-down menu
- Select appropriate type of optical cable in the field Material template field**.**
- Fields Link type and Material are filled automatically according to template selected.
- There is an icon beside the Material field which serves to display details of selected material in the Material module.
- Enter the link name and select State.
- Then, enter the link start - select the type of the start node.
- Another editor’s fields are displayed according to selected node type. If you start to fill fields from top to bottom, the list of values will be successively limited according to previously selected value. If you fill the last editor field at first (all applicable values - without the use of higher-fields filter - will be displayed), other superior fields will be filled automatically.

- Enter the link end in the same way.
- At the end, save it.
- New link will be displayed in the map and in the panel Routing.

Connecting optical cable to the equipment:

- Select Connectivity option in the drop-down menu of link editor
- Application will switch to the Locality module - Connectivity submodule
- The Connectivity window is divided into two panels - left and right tree of one of the link ends.
- In the left panel, expand node of the link to the level of fibers. Select number of fibers you want to connect.
- In the right panel, expand Patch Panel node (or another suitable device) to the level of the ports. Select the same number of ports that should be connected with an optical fiber.
- Select Cable fiber to ODF option from the context menu of selected fibers.
- A text - information (number of port and number of bond) will be filled at every fiber being connected this way. Connection details will be filled at port.
- Select Go to opposite side of the cable option from the context menu of the link node in the left panel.
- Repeat the process above to connect the fibers to ODF.

4.2.3.3. Full-text link search

You can search circuits by using the option from the field in the upper part of the application window. After entering few letters, the autocomplete will display a list of relevant values. Once the values are offered, you can choose one by double clicking on it or by confirming it by the Enter key. Selected searched circuit will be displayed in the table "Routing".

A search is possible for the lines which include the inserted text. Search results are limited in number. This function serves as a quick search for a quick search. You can use CROSS module Search for unlimited search results.

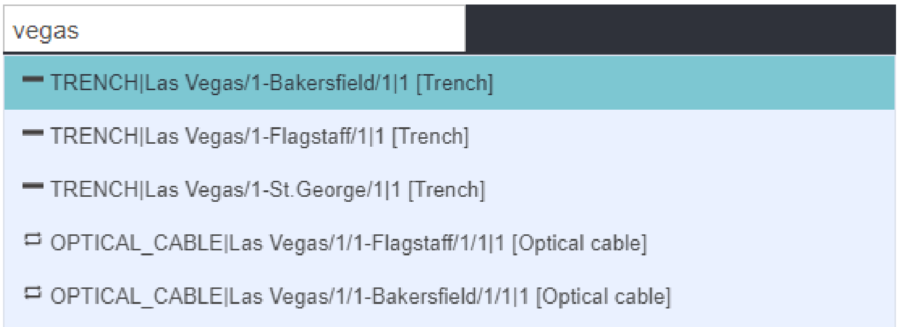
Links offered by the full-text search contain graphical representation of the link type before the name and the link type in the square brackets positioned after the name.

▬ Trench

○ Conduit

≣ Optical fiber

⇆ Others



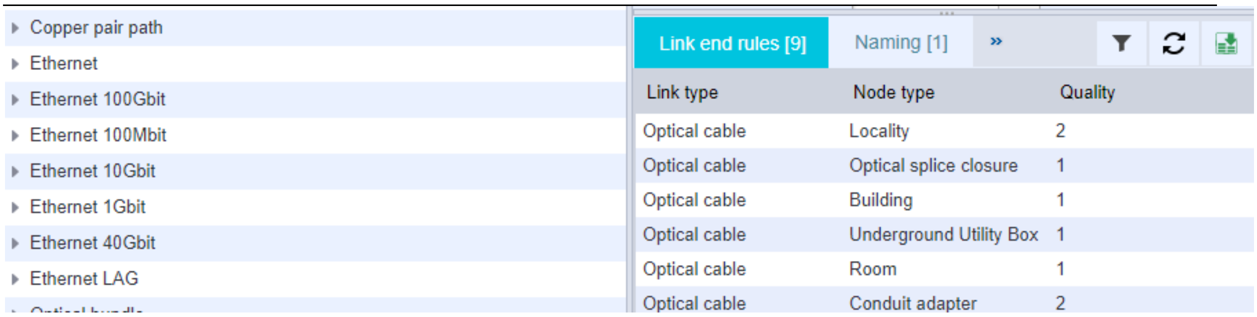
vegas

▬ TRENCH|Las Vegas/1-Bakersfield/1|1 [Trench]
▬ TRENCH|Las Vegas/1-Flagstaff/1|1 [Trench]
▬ TRENCH|Las Vegas/1-St.George/1|1 [Trench]
⇆ OPTICAL_CABLE|Las Vegas/1/1-Flagstaff/1/1|1 [Optical cable]
⇆ OPTICAL_CABLE|Las Vegas/1/1-Bakersfield/1/1|1 [Optical cable]

4.2.3.4. Filtering of Start and End nodes in a tree

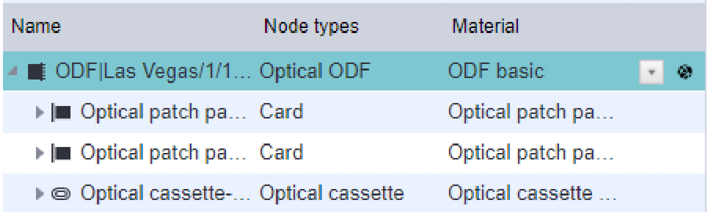
Only Nodes of a NodeType defined in the Link end rules, and Nodes containing a child Node of a NodeType defined in the Link end rules are shown in the panel containing the tree of Start/End Node and in the New link wizard for a hole in the edit mode.

Example of filtering: ODF’s child Node of Node type Card is not showing during creation of the Optical cable because Card is not defined in Link end rules.

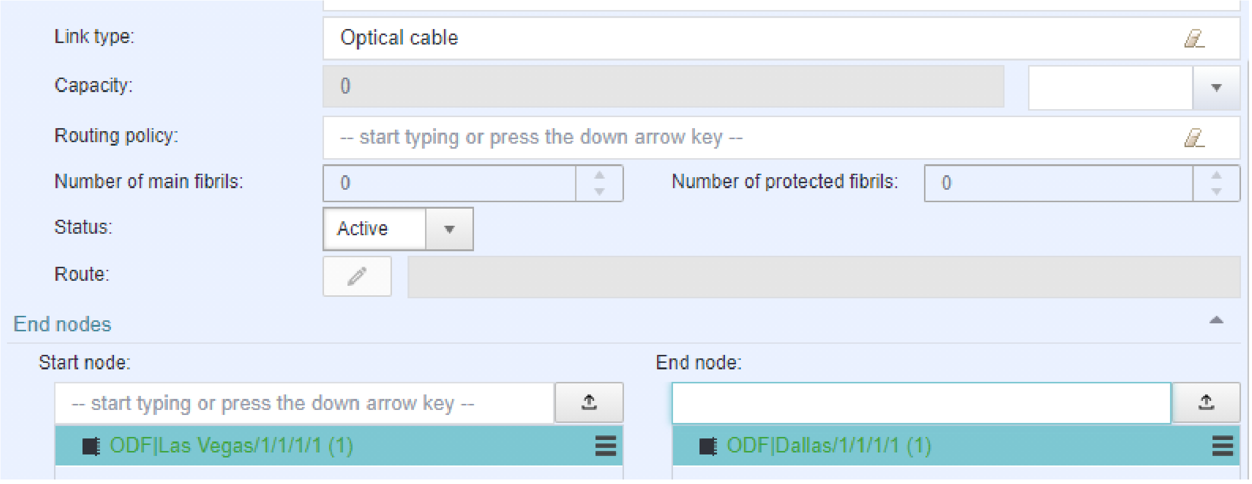


- Copper pair path
- Ethernet
- Ethernet 100Gbit
- Ethernet 100Mbit
- Ethernet 10Gbit
- Ethernet 1Gbit
- Ethernet 40Gbit
- Ethernet LAG

Link type	Node type	Quality
Optical cable	Locality	2
Optical cable	Optical splice closure	1
Optical cable	Building	1
Optical cable	Underground Utility Box	1
Optical cable	Room	1
Optical cable	Conduit adapter	2



Name	Node types	Material
ODF|Las Vegas/1/1…	Optical ODF	ODF basic
Optical patch pa…	Card	Optical patch pa…
Optical patch pa…	Card	Optical patch pa…
Optical cassette-…	Optical cassette	Optical cassette …

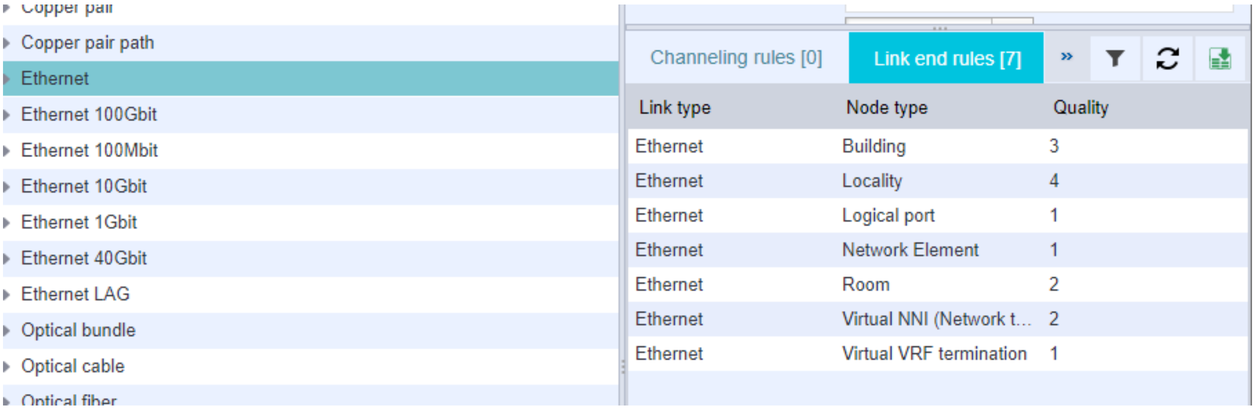


Link type: Optical cable
Capacity: 0
Routing policy: -- start typing or press the down arrow key --
Number of main fibrils: 0
Number of protected fibrils: 0
Status: Active
Route:

Start node: -- start typing or press the down arrow key --
ODF|Las Vegas/1/1/1/1 (1)

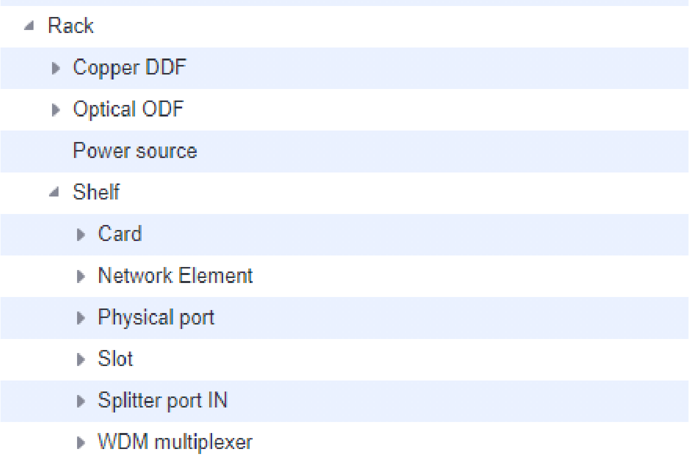
End node:
ODF|Dallas/1/1/1/1 (1)

Example of shown child Nodes: Link of Link type Ethernet can’t start on a Rack. But Rack in this example will show in the list since it contains a child Node of Node type Network element (MPLS on the picture).

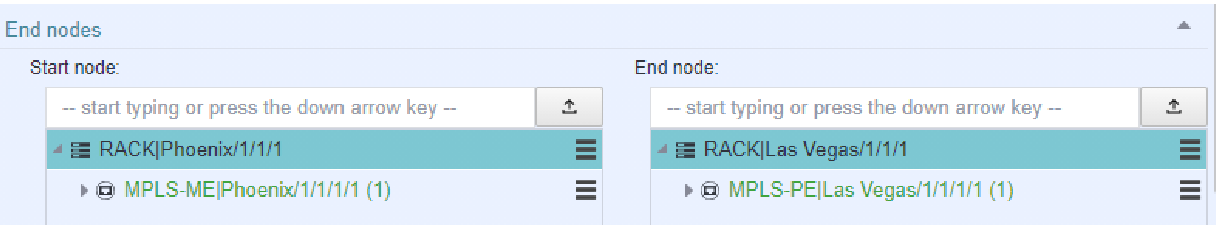


- Copper pair path
- Ethernet
- Ethernet 100Gbit
- Ethernet 100Mbit
- Ethernet 10Gbit
- Ethernet 1Gbit
- Ethernet 40Gbit
- Ethernet LAG
- Optical bundle
- Optical cable

Link type	Node type	Quality
Ethernet	Building	3
Ethernet	Locality	4
Ethernet	Logical port	1
Ethernet	Network Element	1
Ethernet	Room	2
Ethernet	Virtual NNI (Network t…	2
Ethernet	Virtual VRF termination	1



- Rack
  - Copper DDF
  - Optical ODF
  - Power source
  - Shelf
    - Card
    - Network Element
    - Physical port
    - Slot
    - Splitter port IN
    - WDM multiplexer



End nodes

Start node:

-- start typing or press the down arrow key --

- RACK|Phoenix/1/1/1
  - MPLS-ME|Phoenix/1/1/1/1 (1)

End node:

-- start typing or press the down arrow key --

- RACK|Las Vegas/1/1/1
  - MPLS-PE|Las Vegas/1/1/1/1 (1)

Note about full text filtering

There’s a full text filter available in the Locality module. This also affects search results for the Start and End Nodes in the Circuit module. This can be disabled only in the Locality module. This can be also overridden by using a CROSSID of a specific Node.

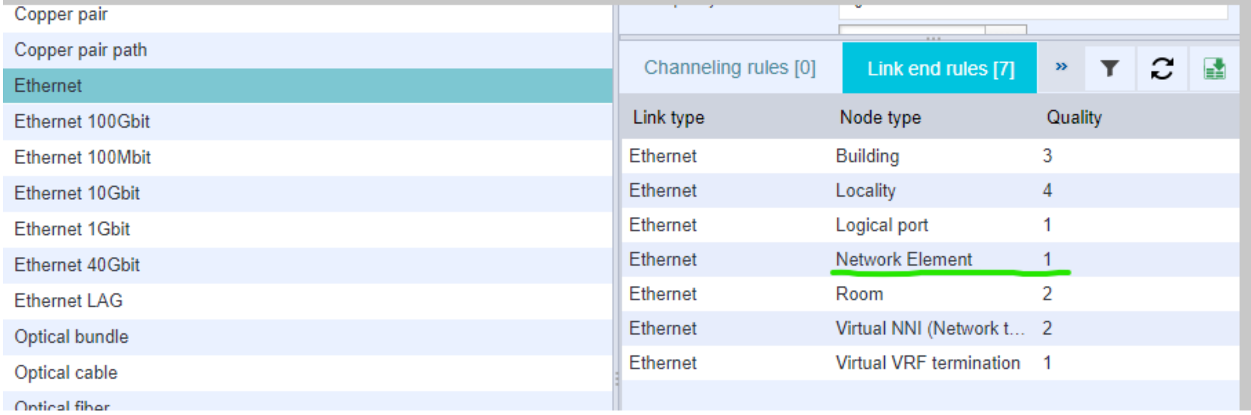
Note about read only view

Full tree is shown in a read only view of End nodes trees, but Nodes are filtered in an editing mode, so several lines will hide after clicking on a pen icon which enables editing mode.

Coloring Nodes based on a Link end quality and a Link type capacity

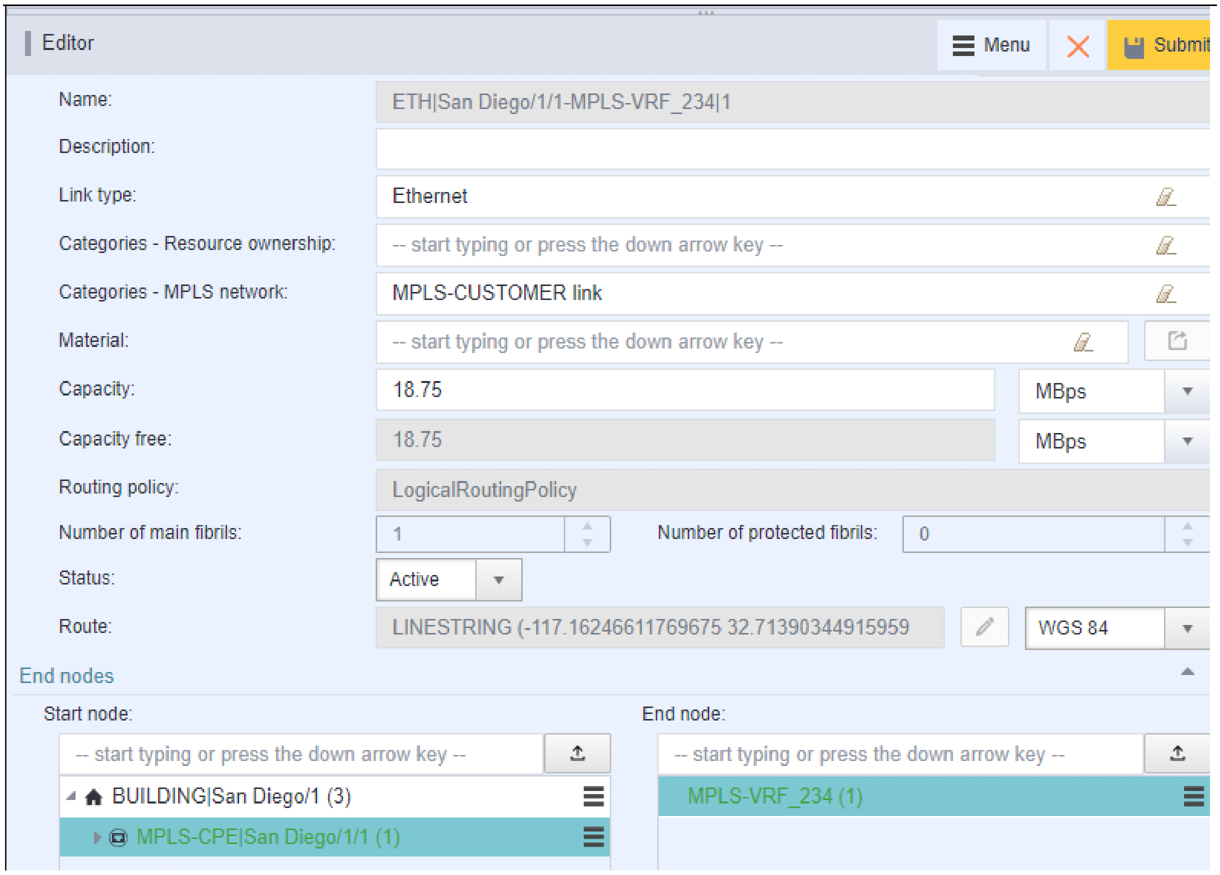
During creation or editing of a Link (including New link wizard for a hole, but not in a read only mode) in the Circuit module some Nodes are colored based on following rules:

1. If a Link end quality is 1 and there’s available capacity on a Node, than this Node is shown in green



Copper pair
Copper pair path
Ethernet
Ethernet 100Gbit
Ethernet 100Mbit
Ethernet 10Gbit
Ethernet 1Gbit
Ethernet 40Gbit
Ethernet LAG
Optical bundle
Optical cable
Optical fiber
Channeling rules [0]
Link end rules [7]

Link type	Node type	Quality
Ethernet	Building	3
Ethernet	Locality	4
Ethernet	Logical port	1
Ethernet	Network Element	1
Ethernet	Room	2
Ethernet	Virtual NNI (Network t…	2
Ethernet	Virtual VRF termination	1

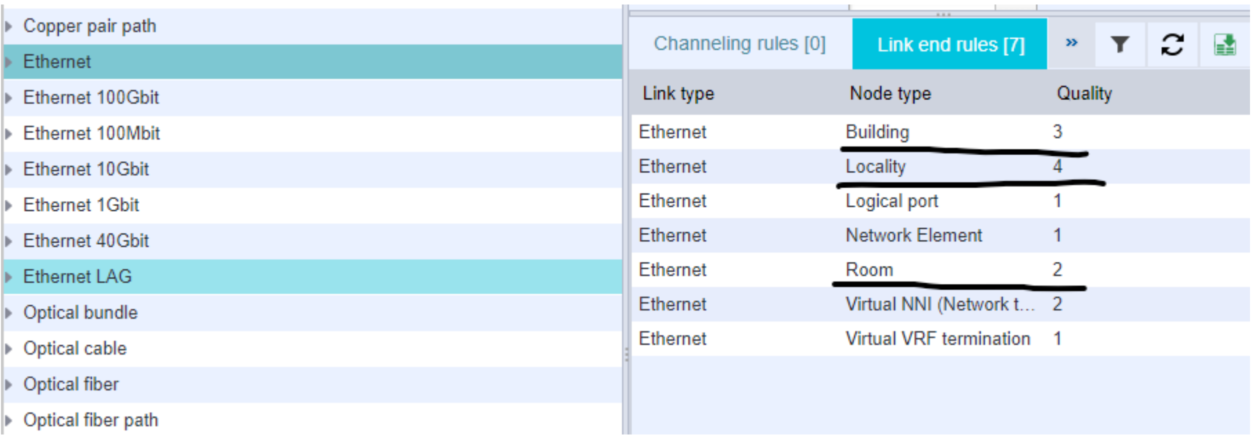

Editor
Menu
Submit
End nodes

Name: ETH|San Diego/1/1-MPLS-VRF_234|1
Description:
Link type: Ethernet
Categories - Resource ownership: -- start typing or press the down arrow key --
Categories - MPLS network: MPLS-CUSTOMER link
Material: -- start typing or press the down arrow key --
Capacity: 18.75 MBps
Capacity free: 18.75 MBps
Routing policy: LogicalRoutingPolicy
Number of main fibrils: 1 Number of protected fibrils: 0
Status: Active
Route: LINESTRING (-117.16246611769675 32.71390344915959 WGS 84

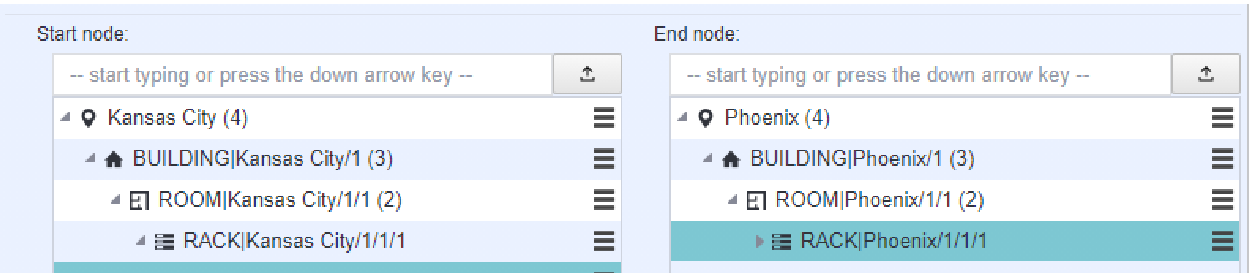
Start node: -- start typing or press the down arrow key --
BUILDING|San Diego/1 (3)
MPLS-CPE|San Diego/1/1 (1)

End node: -- start typing or press the down arrow key --
MPLS-VRF_234 (1)

2. If a selected Node is not supported as a Link end, then it will be shown in a default system color (black)
3. If a Link end quality is different from 1 and there’s available capacity on a Node, than this Node is shown in a default system color (black)

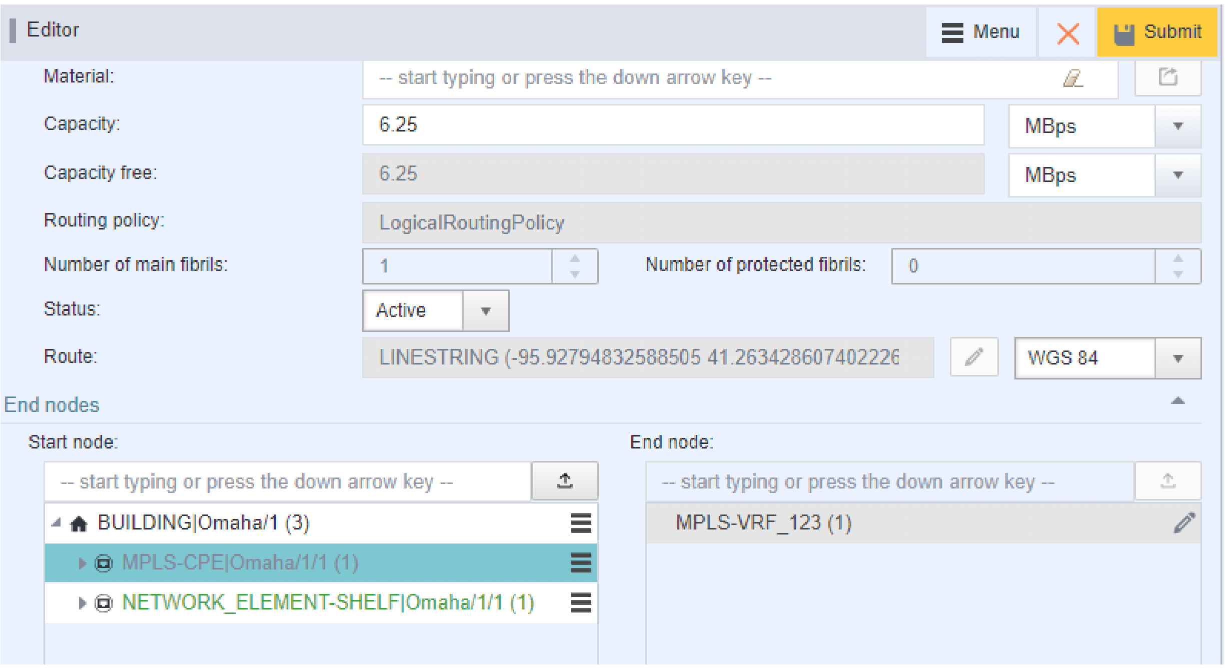

Copper pair path
Ethernet
Ethernet 100Gbit
Ethernet 100Mbit
Ethernet 10Gbit
Ethernet 1Gbit
Ethernet 40Gbit
Ethernet LAG
Optical bundle
Optical cable
Optical fiber
Optical fiber path
Channeling rules [0]
Link end rules [7]

Link type	Node type	Quality
Ethernet	Building	3
Ethernet	Locality	4
Ethernet	Logical port	1
Ethernet	Network Element	1
Ethernet	Room	2
Ethernet	Virtual NNI (Network t...	2
Ethernet	Virtual VRF termination	1


Start node: -- start typing or press the down arrow key --
Kansas City (4)
BUILDING|Kansas City/1 (3)
ROOM|Kansas City/1/1 (2)
RACK|Kansas City/1/1/1

End node: -- start typing or press the down arrow key --
Phoenix (4)
BUILDING|Phoenix/1 (3)
ROOM|Phoenix/1/1 (2)
RACK|Phoenix/1/1/1

4. If there isn't any available capacity on a Node, then this Node is shown in grey


Editor
Menu
Submit
End nodes

Material: -- start typing or press the down arrow key --

Capacity: 6.25 MBps

Capacity free: 6.25 MBps

Routing policy: LogicalRoutingPolicy

Number of main fibrils: 1

Number of protected fibrils: 0

Status: Active

Route: LINESTRING (-95.92794832588505 41.263428607402226 WGS 84

Start node: -- start typing or press the down arrow key --

- BUILDING|Omaha/1 (3)
  - MPLS-CPE|Omaha/1/1 (1)
  - NETWORK_ELEMENT-SHELF|Omaha/1/1 (1)

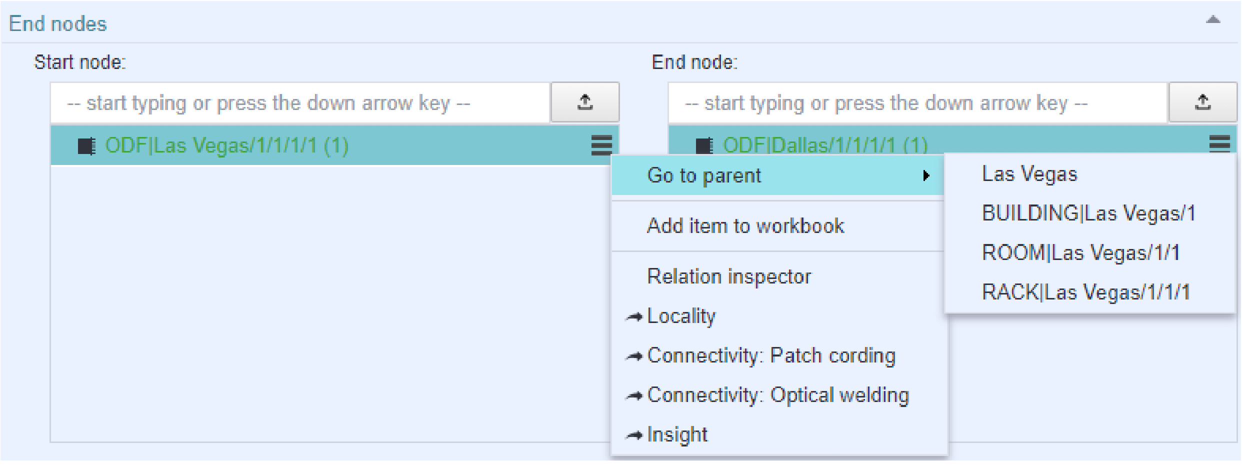
End node: -- start typing or press the down arrow key --

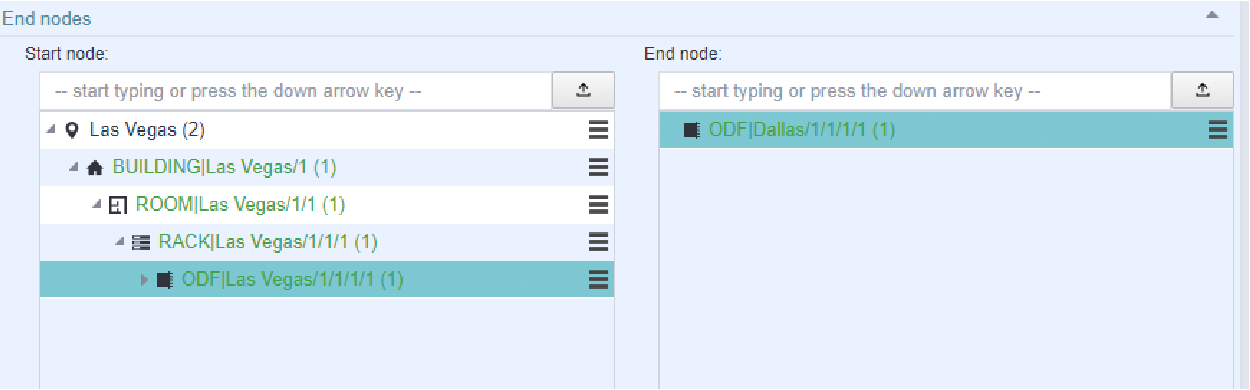
- MPLS-VRF_123 (1)

New Menu integrated into End nodes trees

Each Node in both Start and End nodes trees now has a new menu which includes:

- Go to parent - if selected node it the root of the tree and has a parent Node, then this will show selected Node's parent node above


End nodes
Start node:
-- start typing or press the down arrow key --
ODF|Las Vegas/1/1/1/1 (1)
End node:
-- start typing or press the down arrow key --
ODF|Dallas/1/1/1/1 (1)
Go to parent
Add item to workbook
Relation inspector
Locality
Connectivity: Patch cording
Connectivity: Optical welding
Insight
Las Vegas
BUILDING|Las Vegas/1
ROOM|Las Vegas/1/1
RACK|Las Vegas/1/1/1

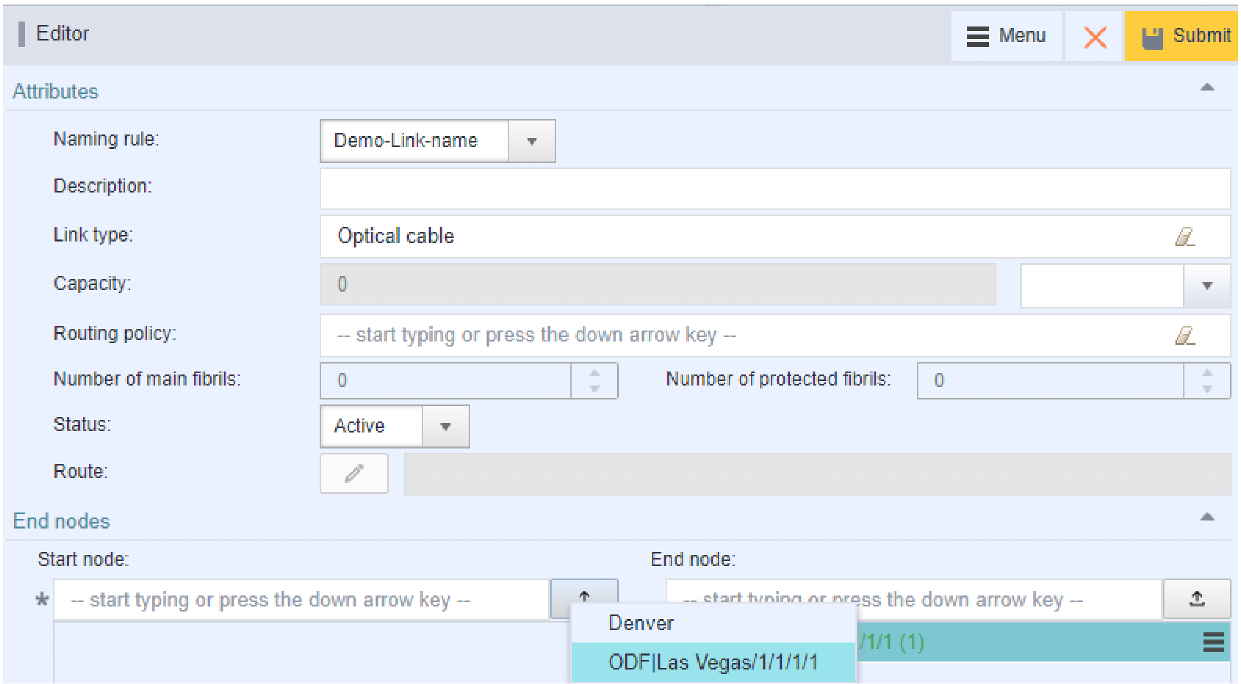

End nodes
Start node:
-- start typing or press the down arrow key --
Las Vegas (2)
BUILDING|Las Vegas/1 (1)
ROOM|Las Vegas/1/1 (1)
RACK|Las Vegas/1/1/1 (1)
ODF|Las Vegas/1/1/1/1 (1)
End node:
-- start typing or press the down arrow key --
ODF|Dallas/1/1/1/1 (1)

- Add item to workbook - adds selected Node into the Workbook

- Relation inspector - shows a popup window with Relation inspector
- Link to Locality module - switches view to the selected Node in the Locality module
- Link to other modules - switches view to other modules; modules differ for different Node types. E.g. for ODF:
    - Link to Connectivity: Patch cording - switches view to the Locality/Connectivity: Patch cording with selected Node as a root
    - Link to Connectivity: Optical welding - switches view to the Locality/Connectivity: Optical welding with selected Node as a root
- Link to Insight module - switches view to the selected Node in the Insight module

Add from workbook

A new icon allowing adding a Node previously sent to a Workbook is now present at the end of the edit box for both Start and End Nodes



Naming rule: Demo-Link-name
Description:
Link type: Optical cable
Capacity: 0
Routing policy: -- start typing or press the down arrow key --
Number of main fibrils: 0
Number of protected fibrils: 0
Status: Active
Route:

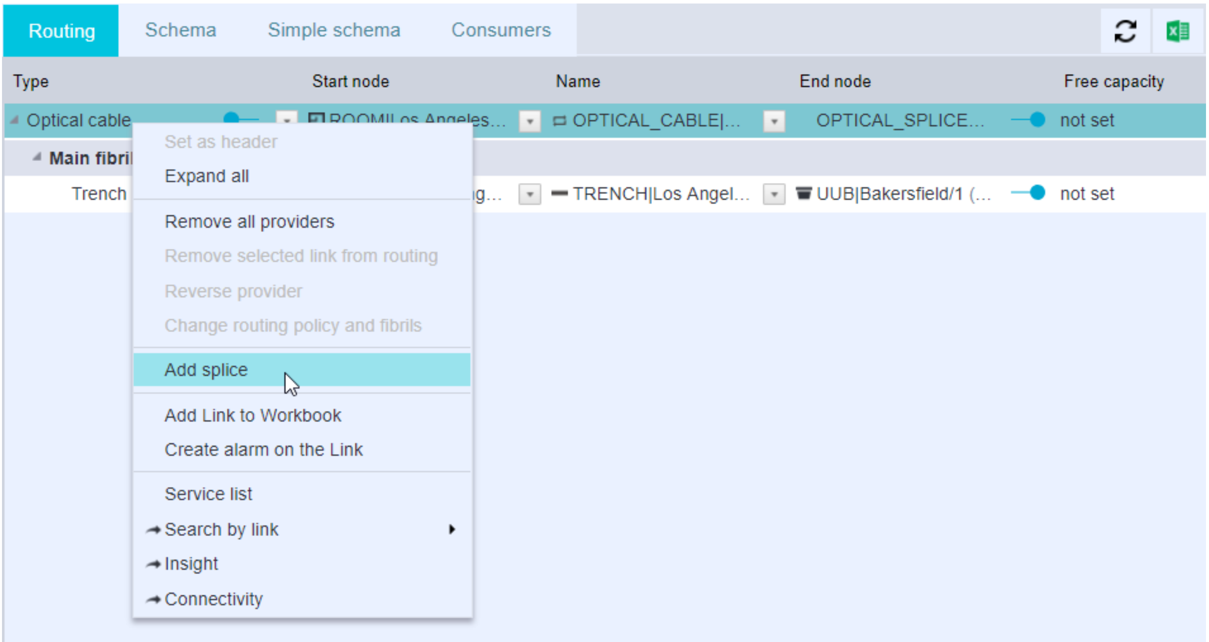
Start node: * -- start typing or press the down arrow key --
End node: -- start typing or press the down arrow key --

Denver
ODF|Las Vegas/1/1/1/1
/1/1 (1)

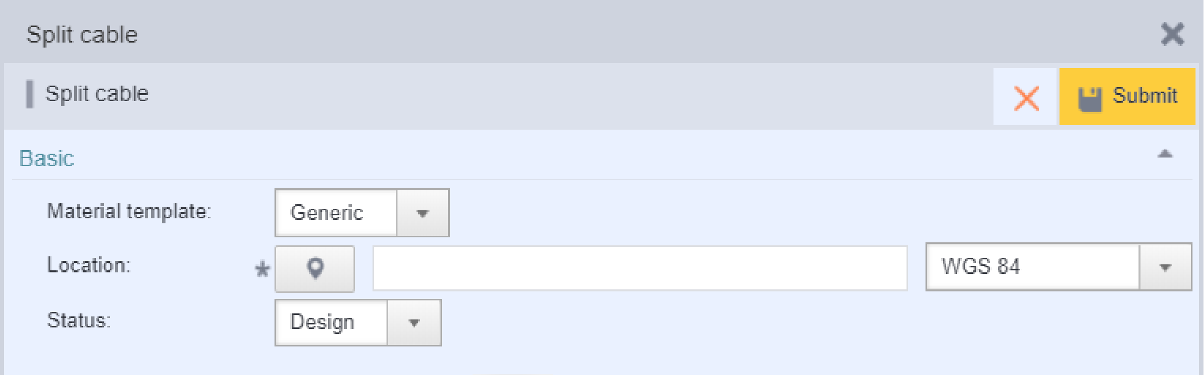
4.2.3.5. Dividing cables by adding splices

Add splice

Right-click in the column Name in the Routing panel in the optical cable link and select an option Add splice.


Routing
Schema
Simple schema
Consumers
Type
Start node
Name
End node
Free capacity
Optical cable
ROOM|Los Angeles...
OPTICAL_CABLE|...
OPTICAL_SPLICE...
not set
Main fibri
Trench
g...
TRENCH|Los Angel...
UUB|Bakersfield/1 (...
not set
Set as header
Expand all
Remove all providers
Remove selected link from routing
Reverse provider
Change routing policy and fibrils
Add splice
Add Link to Workbook
Create alarm on the Link
Service list
Search by link
Insight
Connectivity

Then, select Material template from the Split cable window and enter Locality by clicking the button beside the Locality attribute.


Split cable
Split cable
Submit
Basic

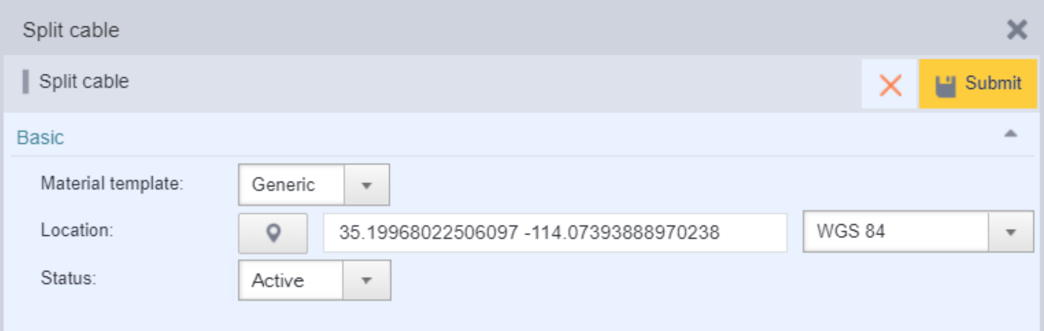
Material template: Generic

Location: * WGS 84

Status: Design

The window will close itself. Click the icon in the map and enter the Locality of the optical cable connector. If you do not place it precisely on the cable rout, it will be automatically placed to the nearest cable point.

Coordinates of the new splice will then be displayed at the Locality attribute in the Split cable window.


Split cable
Split cable
Submit
Basic

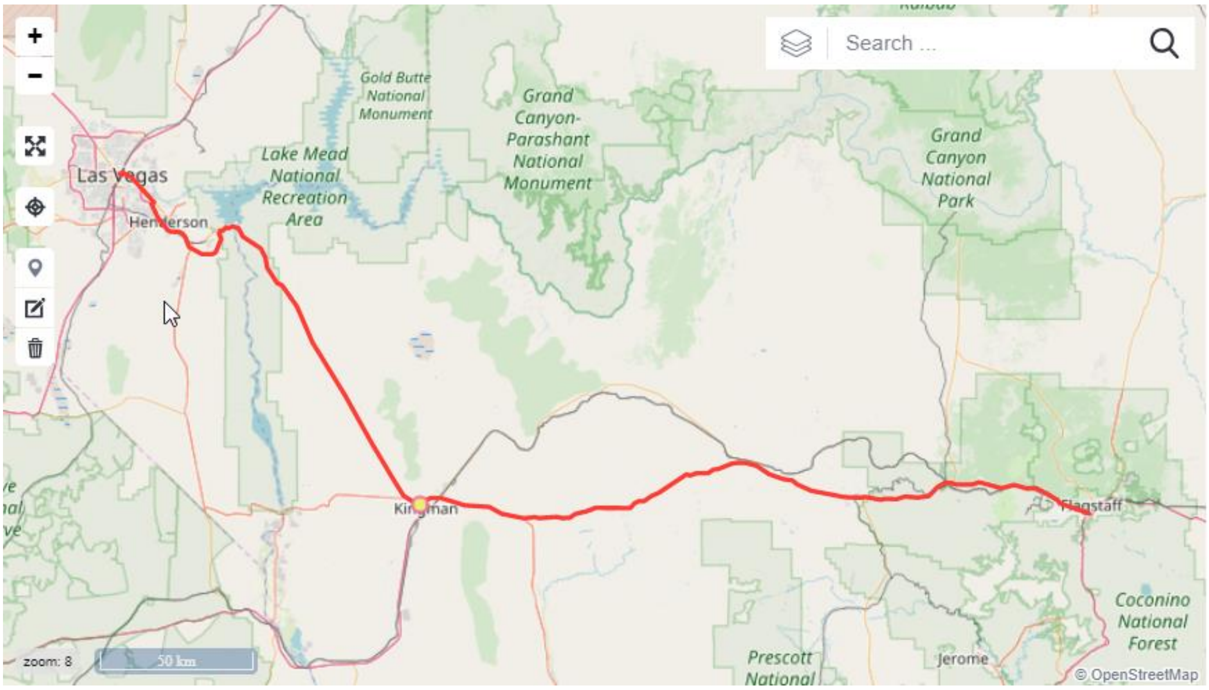
Material template: Generic

Location: 35.19968022506097 -114.07393888970238 WGS 84

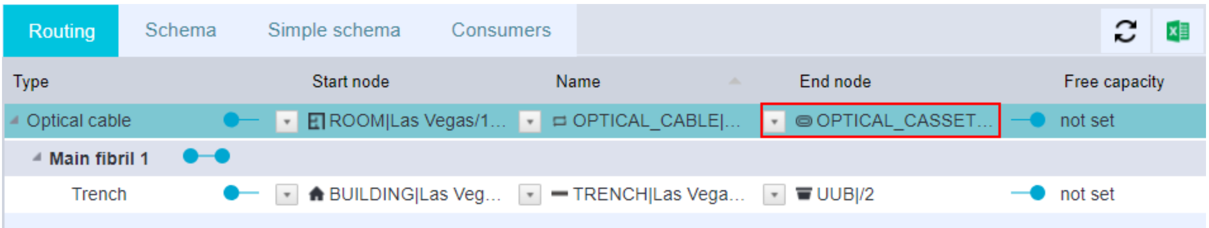
Status: Active

Save changes by clicking Submit button.

Original cable will be split into two new instances after a splice is added. Now, you can see one part of the original cable with a new end node in the map and in the Routing panel.


Search ...
Las Vegas
Henderson
Gold Butte National Monument
Lake Mead National Recreation Area
Grand Canyon-Parashant National Monument
Grand Canyon National Park
Kingman
Flagstaff
Coconino National Forest
Prescott National
Jerome
zoom: 8
50 km
© OpenStreetMap

Splice is inserted to the nearer place on spitted link. For example, if you need to split link going from Las Vegas to Flagstaff, click on the Kingman, but direction of the link won´t be going through Kingman. New line will be created, which are perpendicular to the main line (Las Vegas- Flagstaff line). New UBB will be created on the cross-section. Location of the UBB can be changed (to Kingman for example). After saving the UBB in map, link is changed. (Going from Las Vegas to Flagstaff thought Kingman).


Routing
Schema
Simple schema
Consumers

Type	Start node	Name	End node	Free capacity
Optical cable	ROOM|Las Vegas/1...	OPTICAL_CABLE|...	OPTICAL_CASSET...	not set
Main fibril 1				
Trench	BUILDING|Las Veg...	TRENCH|Las Vega...	UUB|/2	not set

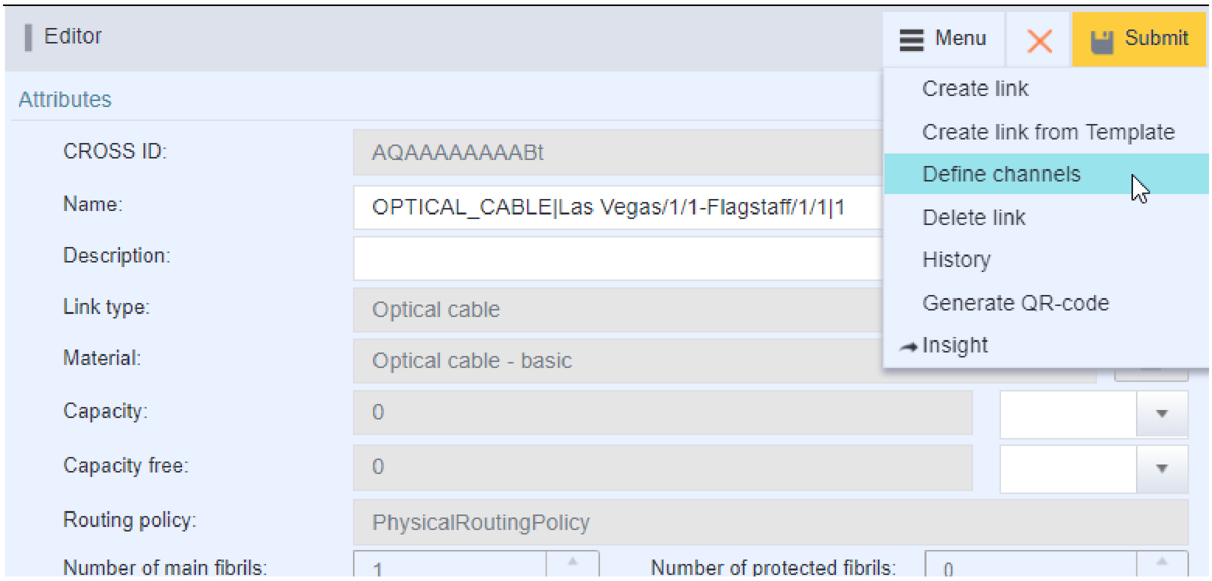
4.2.3.6. Define channels

Define channels

Channel breakdown allows a line breakdown through multiple levels - such as Optical bundle => Optical fiber in one step.

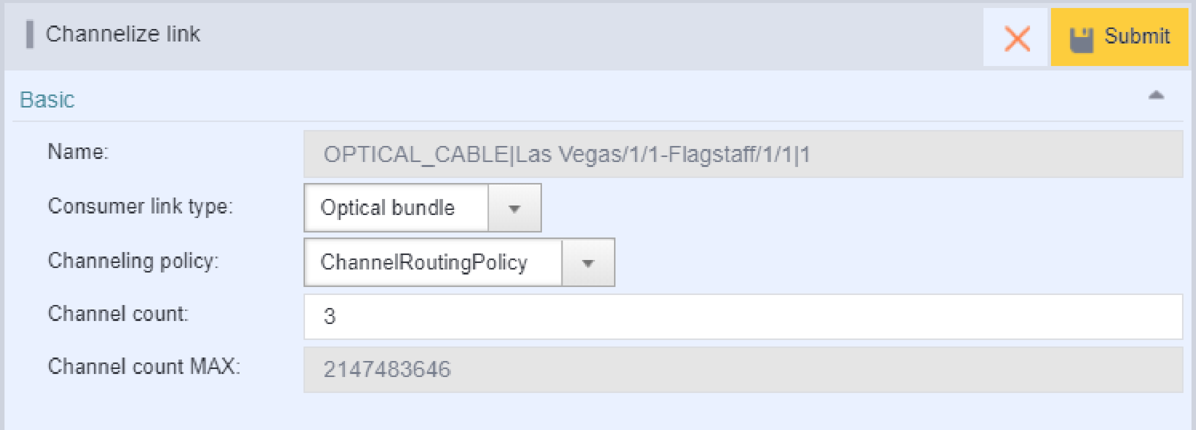
If only one channel is created, you can specify the channels which are available for the breakdown to be performed.

When creating multiple channels, or if specifying one channel breakdown does not make sense (the number of channels is not specified) the breakdown will be performed automatically.


Editor
Menu
Submit
Attributes
Create link
Create link from Template
Define channels
Delete link
History
Generate QR-code
Insight

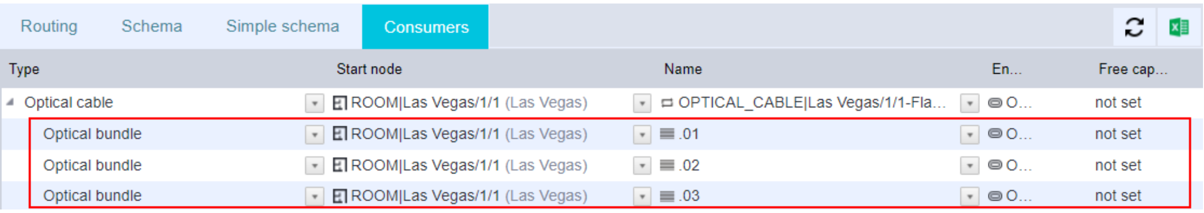
CROSS ID: AQAAAAAAABt
Name: OPTICAL_CABLE|Las Vegas/1/1-Flagstaff/1/1|1
Description:
Link type: Optical cable
Material: Optical cable - basic
Capacity: 0
Capacity free: 0
Routing policy: PhysicalRoutingPolicy
Number of main fibrils: 1
Number of protected fibrils: 0

The window will be displayed - Channelize link.


Channelize link
Submit
Basic

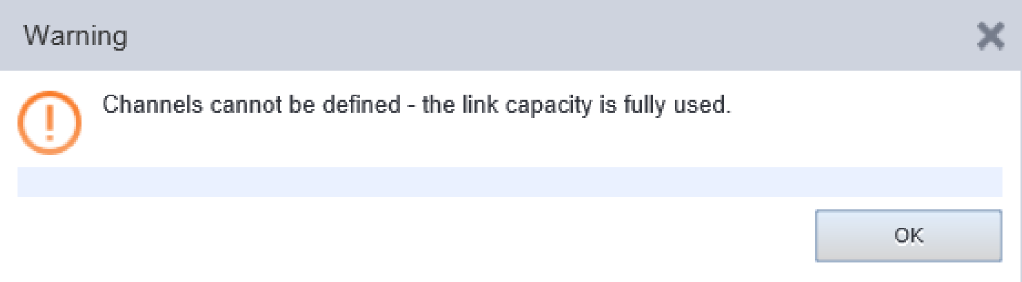
Name: OPTICAL_CABLE|Las Vegas/1/1-Flagstaff/1/1|1
Consumer link type: Optical bundle
Channeling policy: ChannelRoutingPolicy
Channel count: 3
Channel count MAX: 2147483646

The impact of channel disintegration will be displayed in Consumers bookmark.


Routing
Schema
Simple schema
Consumers

Type	Start node	Name	En...	Free cap...
Optical cable	ROOM|Las Vegas/1/1 (Las Vegas)	OPTICAL_CABLE|Las Vegas/1/1-Fla...	O...	not set
Optical bundle	ROOM|Las Vegas/1/1 (Las Vegas)	.01	O...	not set
Optical bundle	ROOM|Las Vegas/1/1 (Las Vegas)	.02	O...	not set
Optical bundle	ROOM|Las Vegas/1/1 (Las Vegas)	.03	O...	not set

When the capacity of the link is reached, channel disintegration can´t be done. Error message will be displayed.

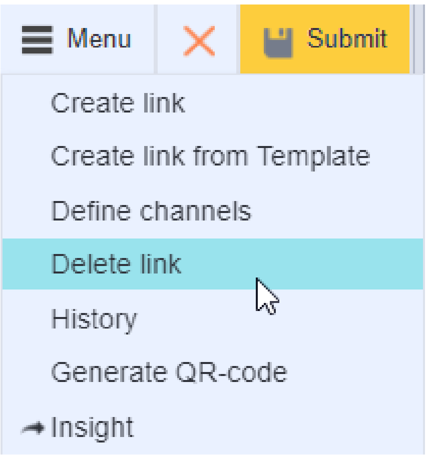


Channels cannot be defined - the link capacity is fully used.

4.2.3.7. Deleting lines

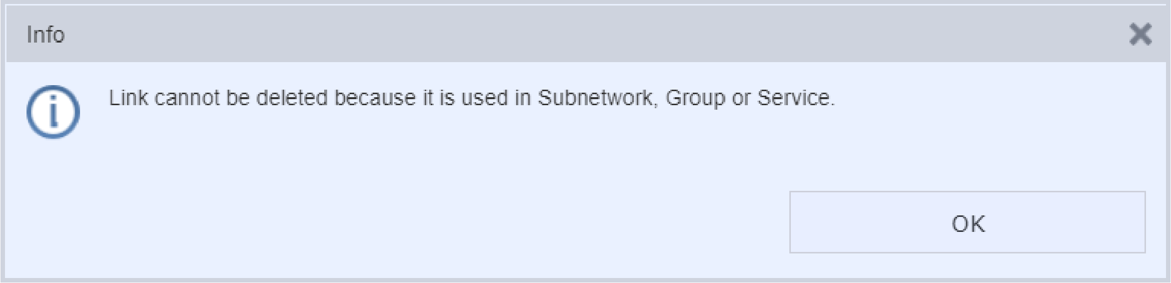
Deleting links

You can delete the link from the editor menu of the link itself by the Delete line option.


Menu
Submit
Create link
Create link from Template
Define channels
Delete link
History
Generate QR-code
Insight

The window with confirmation will be displayed.

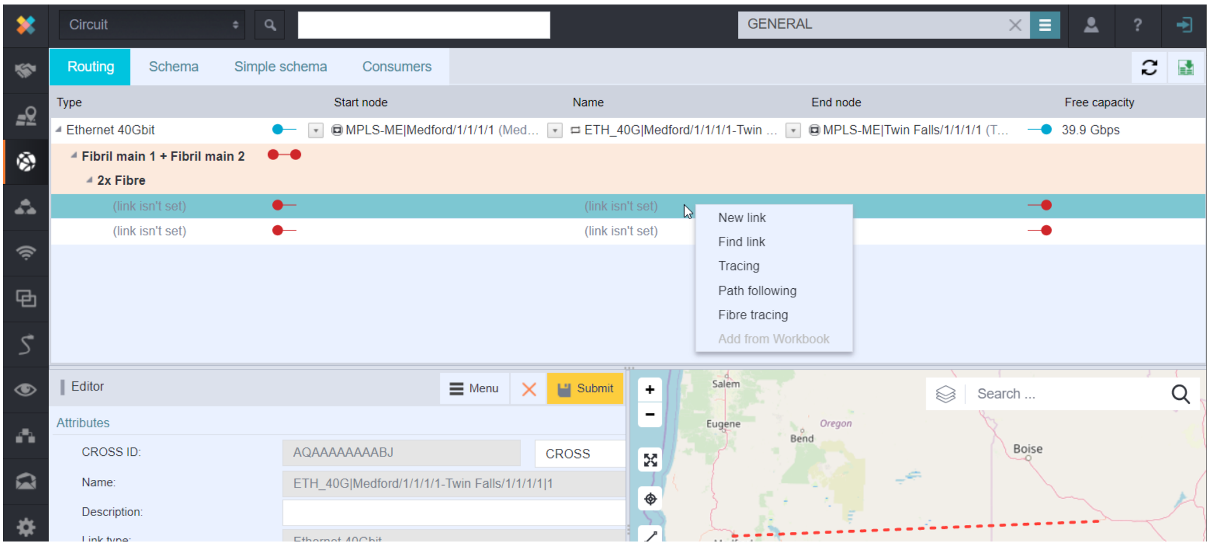
If the line is used in a Subnetwork, Group or Service, it is not possible to delete it. Dialog box is displayed bearing the text: The line cannot be deleted because it is used in a Subnetwork, Group or Services.



Link cannot be deleted because it is used in Subnetwork, Group or Service.

4.2.4. Tracing interfaces

There are several possible ways how to trace a link in CROSS: Tracing, Path following, Fiber tracing and PON. Three of them are accessible from Circuit module when provider is a Fiber (except of Tracing) as visible on the pictures below. PON is accessible from the Locality module.


Circuit
GENERAL
Routing
Schema
Simple schema
Consumers
New link
Find link
Tracing
Path following
Fibre tracing
Add from Workbook
Editor
Menu
Submit
Attributes
Search ...
Salem
Eugene
Oregon
Bend
Boise

Type	Start node	Name	End node	Free capacity
Ethernet 40Gbit	MPLS-ME|Medford/1/1/1/1 (Med...	ETH_40G|Medford/1/1/1/1-Twin ...	MPLS-ME|Twin Falls/1/1/1/1 (T...	39.9 Gbps
Fibril main 1 + Fibril main 2				
2x Fibre				
(link isn't set)		(link isn't set)		
(link isn't set)		(link isn't set)		

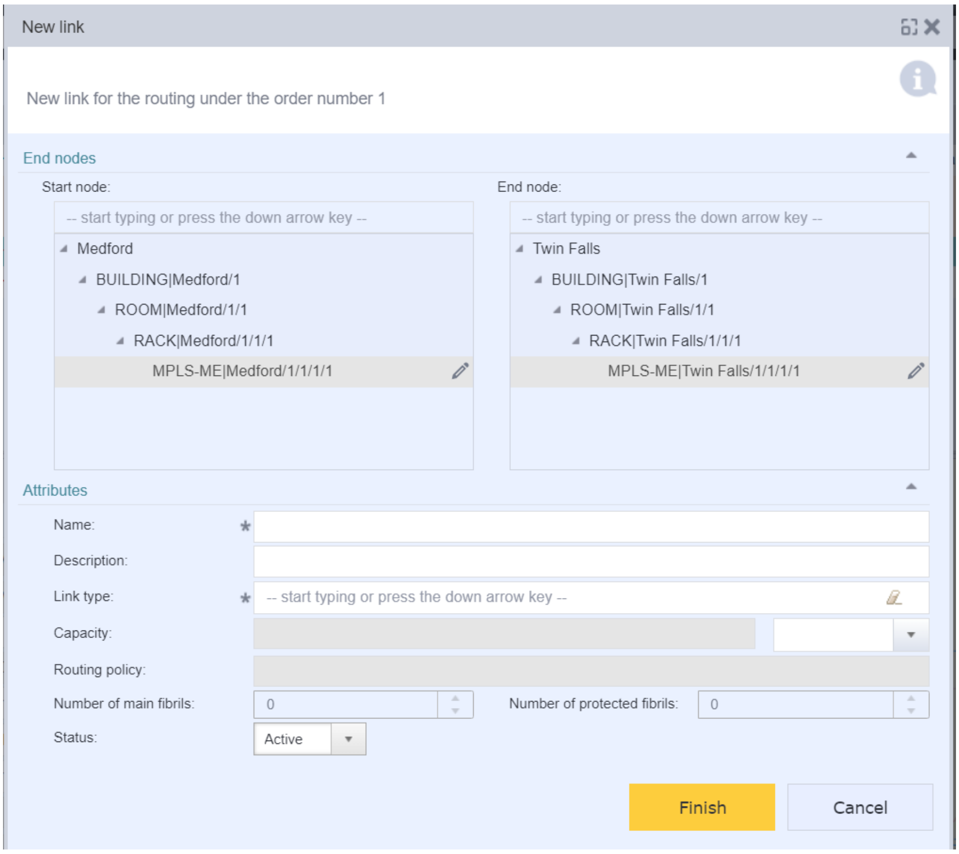
CROSS ID: AQAAAAAAAABJ CROSS

Name: ETH_40G|Medford/1/1/1/1-Twin Falls/1/1/1/1|1

Description:

4.2.4.1. New link

Creation of a new link for a selected fibril.



New link

New link for the routing under the order number 1

End nodes

Start node:

-- start typing or press the down arrow key --

- Medford
  - BUILDING|Medford/1
    - ROOM|Medford/1/1
      - RACK|Medford/1/1/1
        - MPLS-ME|Medford/1/1/1/1

End node:

-- start typing or press the down arrow key --

- Twin Falls
  - BUILDING|Twin Falls/1
    - ROOM|Twin Falls/1/1
      - RACK|Twin Falls/1/1/1
        - MPLS-ME|Twin Falls/1/1/1/1

Attributes

Name: *

Description:

Link type: * -- start typing or press the down arrow key --

Capacity:

Routing policy:

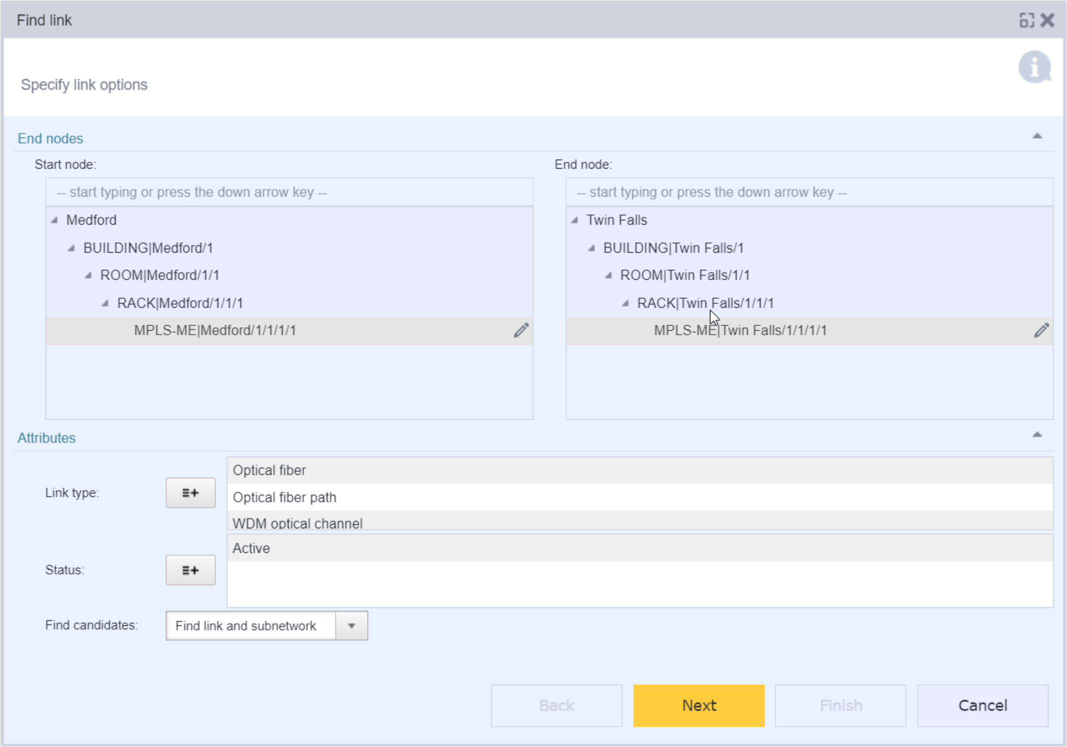
Number of main fibrils: 0

Number of protected fibrils: 0

Status: Active

4.2.4.1. Find link

Searching for an existing link using specified the Start and the End Node, and attributes Link type and Status.



Find link

Specify link options

End nodes

Start node:

-- start typing or press the down arrow key --

- Medford
  - BUILDING|Medford/1
    - ROOM|Medford/1/1
      - RACK|Medford/1/1/1
        - MPLS-ME|Medford/1/1/1/1

End node:

-- start typing or press the down arrow key --

- Twin Falls
  - BUILDING|Twin Falls/1
    - ROOM|Twin Falls/1/1
      - RACK|Twin Falls/1/1/1
        - MPLS-ME|Twin Falls/1/1/1/1

Attributes

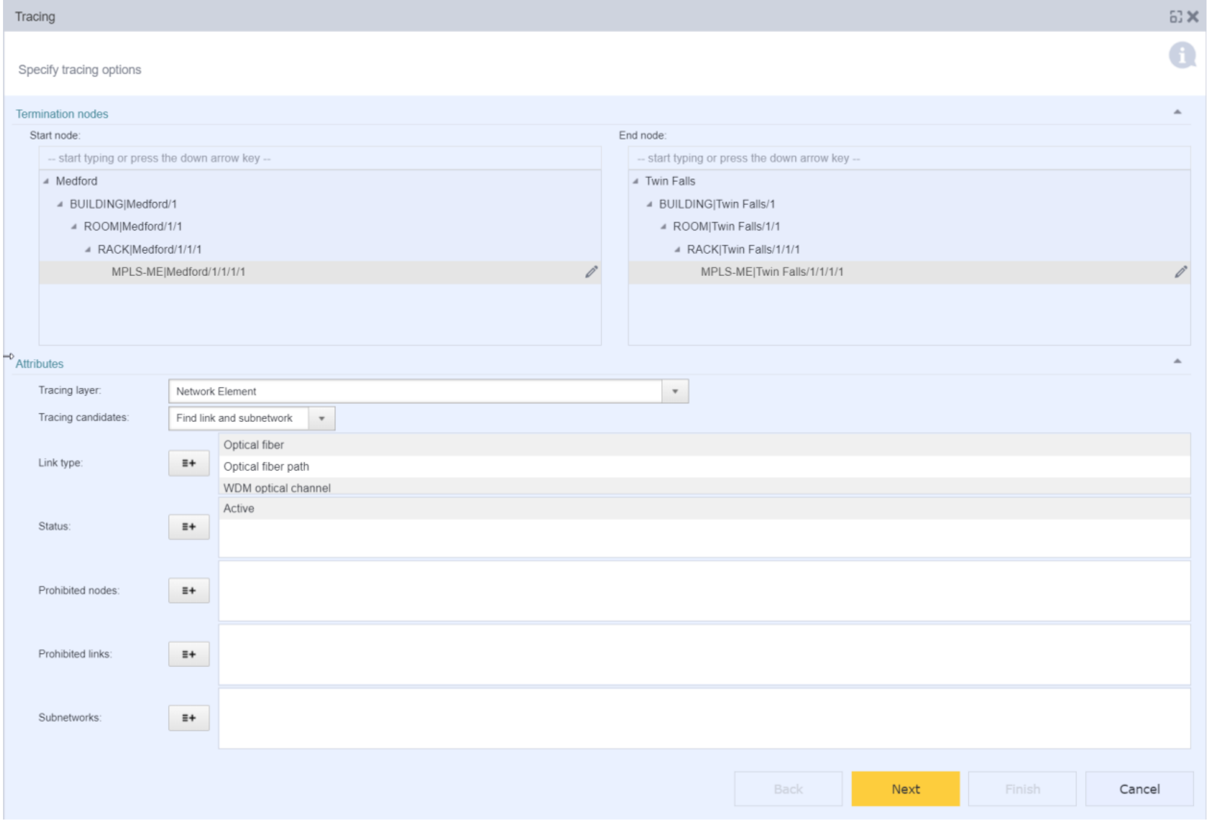
Link type:
Optical fiber
Optical fiber path
WDM optical channel

Status:
Active

Find candidates: Find link and subnetwork

4.2.4.3 Tracing

Tracing (without characteristics) traces existing links or subnetworks of selected type for a hole (space between nodes without a defined link).


Tracing
Specify tracing options
Back
Next
Finish
Cancel

Termination nodes

Start node: -- start typing or press the down arrow key --
- Medford
  - BUILDING|Medford/1
    - ROOM|Medford/1/1
      - RACK|Medford/1/1/1
        - MPLS-ME|Medford/1/1/1/1

End node: -- start typing or press the down arrow key --
- Twin Falls
  - BUILDING|Twin Falls/1
    - ROOM|Twin Falls/1/1
      - RACK|Twin Falls/1/1/1
        - MPLS-ME|Twin Falls/1/1/1/1

Attributes

Tracing layer: Network Element

Tracing candidates: Find link and subnetwork

Link type: Optical fiber, Optical fiber path, WDM optical channel

Status: Active

Prohibited nodes:

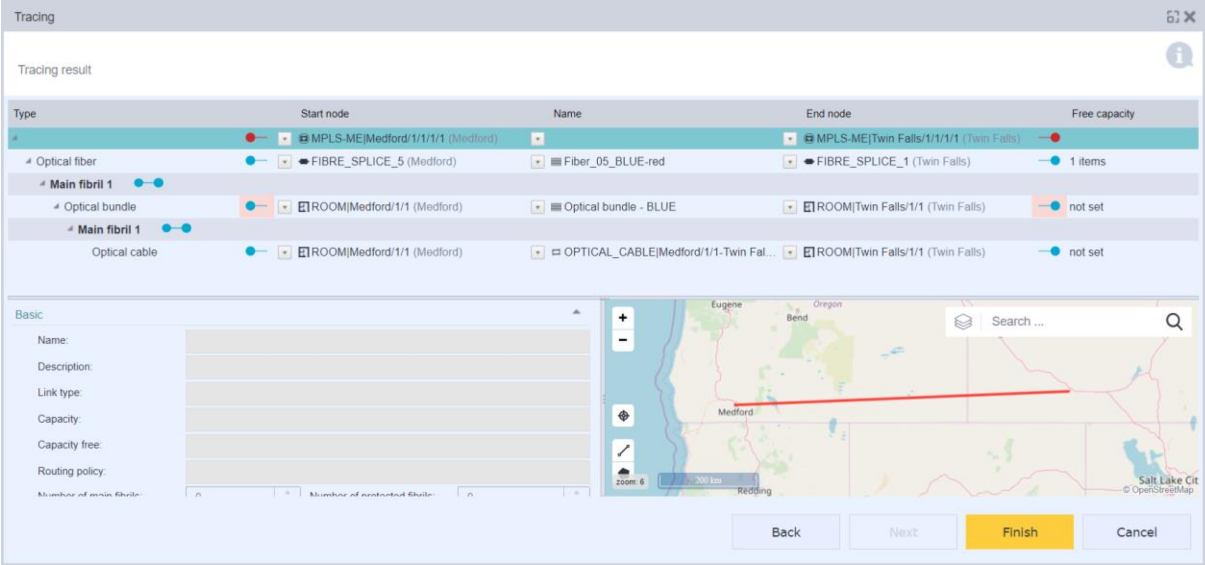
Prohibited links:

Subnetworks:

Please note, that both Tracing and Fiber Tracing requires periodically updated database for which a job must be run. Go to Configuration – Job scheduler and run a periodic schedule for FIBRE_TRACING_DATA_REFRESH and TRACING_LAYER_REFRESH. Period of 5 minutes is recommended.

Tracing layer defines type of Nodes used during search. Changing Tracing layer can help to find results.

By pressing the Finish button, wizard will apply found link into the selected fibril used for Tracing.


Tracing
Tracing result
Basic
Search ...
Eugene
Bend
Oregon
Medford
Redding
Salt Lake Cit
© OpenStreetMap
200 km
zoom: 6
Back
Next
Finish
Cancel

Type	Start node	Name	End node	Free capacity
	MPLS-ME|Medford/1/1/1/1 (Medford)		MPLS-ME|Twin Falls/1/1/1/1 (Twin Falls)	
Optical fiber	FIBRE_SPLICE_5 (Medford)	Fiber_05_BLUE-red	FIBRE_SPLICE_1 (Twin Falls)	1 items
Main fibril 1				
Optical bundle	ROOM|Medford/1/1 (Medford)	Optical bundle - BLUE	ROOM|Twin Falls/1/1 (Twin Falls)	not set
Main fibril 1				
Optical cable	ROOM|Medford/1/1 (Medford)	OPTICAL_CABLE|Medford/1/1-Twin Fal...	ROOM|Twin Falls/1/1 (Twin Falls)	not set

Name:

Description:

Link type:

Capacity:

Capacity free:

Routing policy:

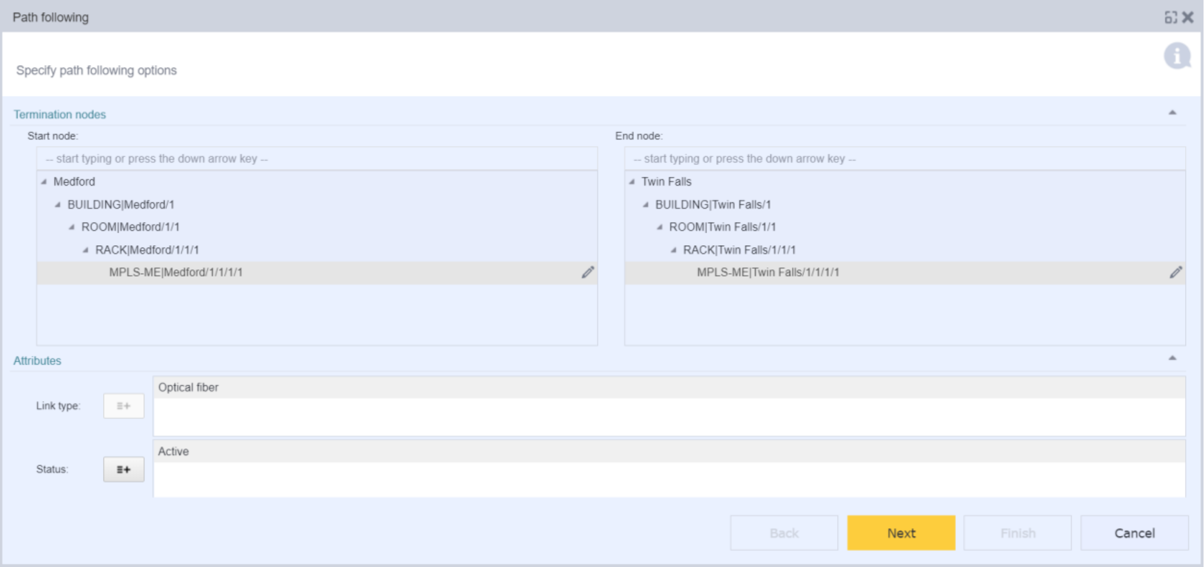
Number of main fibrils: 0

Number of protected fibrils: 0

4.2.4.4 Path following

This type of tracing follows only node types with a defined quality 1 for Optical fiber. This is defined as a default for: Optical splice, Optical adapter, Physical port.

This type of tracing has a limitation and will stop when optical fork is found.



Path following

Specify path following options

Termination nodes

Start node:
- Medford
  - BUILDING|Medford/1
    - ROOM|Medford/1/1
      - RACK|Medford/1/1/1
        - MPLS-ME|Medford/1/1/1/1

End node:
- Twin Falls
  - BUILDING|Twin Falls/1
    - ROOM|Twin Falls/1/1
      - RACK|Twin Falls/1/1/1
        - MPLS-ME|Twin Falls/1/1/1/1

Attributes

Link type: Optical fiber

Status: Active

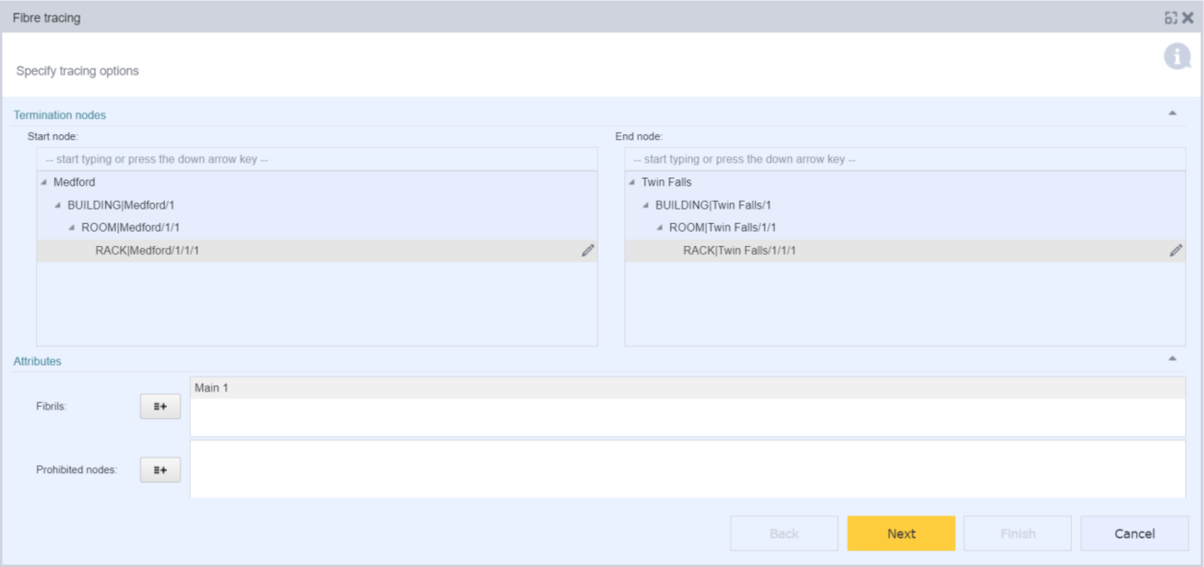
-- start typing or press the down arrow key --
-- start typing or press the down arrow key --
Back
Next
Finish
Cancel

It is needed to use a link supporting Fiber Routing Policy when creating a link.

By pressing the Finish button on the second screen of the wizard, the wizard will apply found link into the selected fibril.

4.2.4.5 Fiber tracing

This type of tracing is searching for fibers with a minimal number of splices between selected nodes. User can select single or both fibrils for tracing. Also, a user can add Nodes/Links from Workbook into the list of Prohibited Nodes/Links in the Attributes section.



Fibre tracing

Specify tracing options

Termination nodes

Start node:
- Medford
  - BUILDING|Medford/1
    - ROOM|Medford/1/1
      - RACK|Medford/1/1/1

End node:
- Twin Falls
  - BUILDING|Twin Falls/1
    - ROOM|Twin Falls/1/1
      - RACK|Twin Falls/1/1/1

Attributes

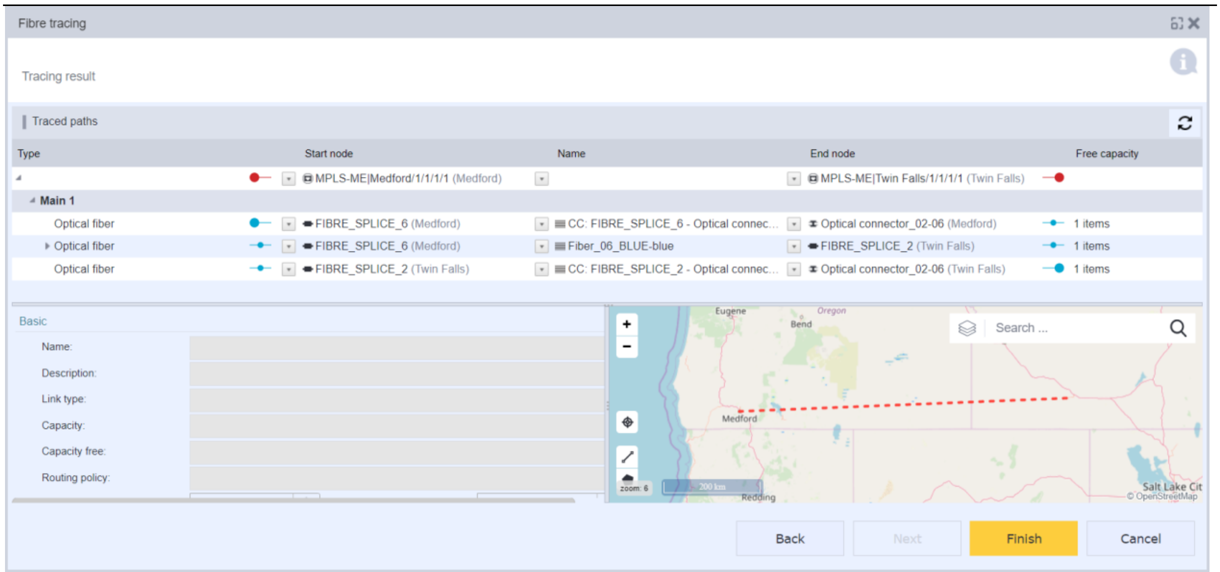
Fibrils: Main 1

Prohibited nodes:

-- start typing or press the down arrow key --
-- start typing or press the down arrow key --
Back
Next
Finish
Cancel

Fiber tracing works only outside of meeting points. Predefined meeting points are RACK and ODF outside of Rack. This is a typical problem when wizard do not want to accept the selected End node. More meeting points can be defined on a project level using FibreTracingDao.getAllMeetingPointIdsQuery()

After pressing the button Next, results are provided. Results can be refreshed by a Refresh button for situations when the background job did not process latest changes yet.

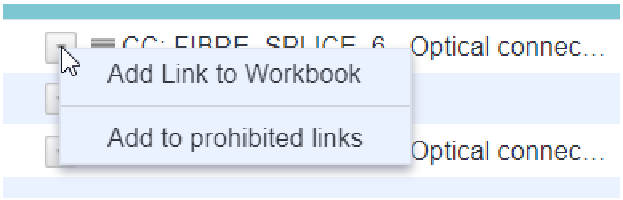


Fibre tracing
Tracing result
Traced paths

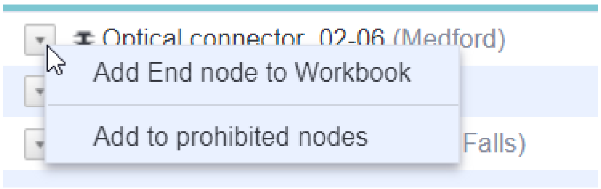
Type	Start node	Name	End node	Free capacity
	MPLS-ME|Medford/1/1/1/1 (Medford)		MPLS-ME|Twin Falls/1/1/1/1 (Twin Falls)	
Main 1				
Optical fiber	FIBRE_SPLICE_6 (Medford)	CC: FIBRE_SPLICE_6 - Optical connec…	Optical connector_02-06 (Medford)	1 items
Optical fiber	FIBRE_SPLICE_6 (Medford)	Fiber_06_BLUE-blue	FIBRE_SPLICE_2 (Twin Falls)	1 items
Optical fiber	FIBRE_SPLICE_2 (Twin Falls)	CC: FIBRE_SPLICE_2 - Optical connec…	Optical connector_02-06 (Twin Falls)	1 items

Basic
Name:
Description:
Link type:
Capacity:
Capacity free:
Routing policy:
Eugene
Bend
Oregon
Medford
Redding
Salt Lake Cit
Search ...
zoom: 6
200 km
© OpenStreetMap
Back
Next
Finish
Cancel

User can prohibit some links from Tracing and Fiber tracing in the wizard, which means that those links will be omitted from tracing. Simply use a button in front of a link or node in the tracing wizard and use Add to prohibited links. Links and Nodes can be also added into the Workbook.



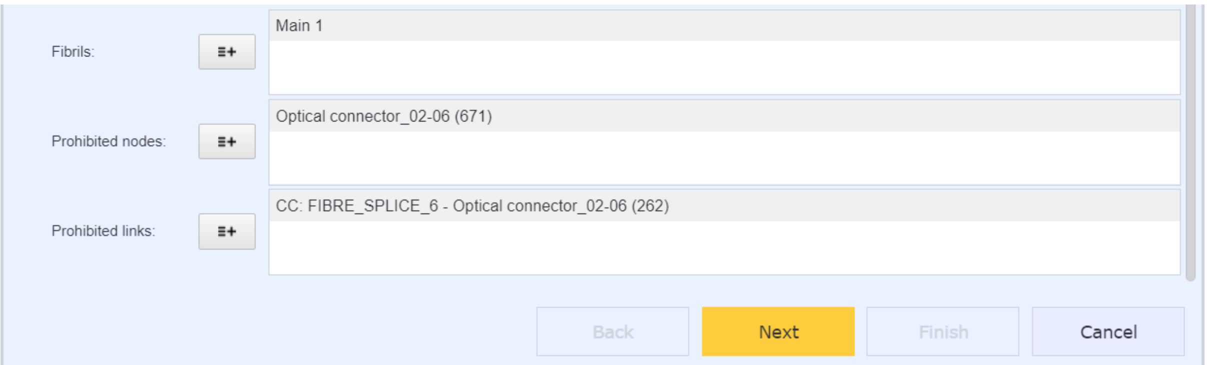
CC: FIBRE_SPLICE_6 Optical connec…
Add Link to Workbook
Add to prohibited links
Optical connec…



Optical connector_02-06 (Medford)
Add End node to Workbook
Add to prohibited nodes
Falls)

For a search, where links and/or nodes are prohibited, user must use Back button to the previous screen where he can check the list of Prohibited nodes/links in the Attributes section of the wizard.

User can add nodes and links from Workbook into Prohibited nodes/links here also.



Fibrils: Main 1

Prohibited nodes: Optical connector_02-06 (671)

Prohibited links: CC: FIBRE_SPLICE_6 - Optical connector_02-06 (262)

Back
Next
Finish
Cancel

A new search with selected Prohibited nodes/links must be done to get proper results.

4.2.4.6 PON

PON is a type of tracing which traces from ONT (optical network terminal) to the nearest OLT (optical line termination). For an easier use this has been implemented into the Locality module. See chapter PON Tracing.

4.2.4.6 Scheduled jobs

Both Tracing and Fiber Tracing requires periodically updated database for which a job must be run. Go to Configuration – Job scheduler and run a periodic schedule for FIBRE_TRACING_DATA_REFRESH and TRACING_LAYER_REFRESH. Period of 5 minutes is recommended.

4.2.5 Routing policies

CROSS has several built in default routing policies: Physical, Logical, Channel, Fibre and LAG.

4.2.5.1 Physical

- Consumer: Physical
- Provider: Physical
- Min/max number of main fibrils: 1/1
- Number of protected fibrils: 0/0
- To have consistent routing:
- End nodes in the fibril must have common parent with the termination rule 1
- Neighbor nodes must have common parent with the termination rule 1

4.2.5.2 Logical

- Consumer: Logical
- Provider: Logical / Physical
- Min/max number of main fibrils: 1/1
- Min/max number of protected fibrils: 0/1
- To have consistent routing (Logical / Logical):
- End nodes in the fibril must have common parent with the same class type (thus transport)
- Neighbor nodes must have common parent with the same class type (thus transport)
- To have consistent routing (Logical / Physical):
- End nodes in the fibril must have common parent with the termination rule 1
- Neighbor nodes must have common parent with the termination rule 1

4.2.5.3 Fibre

The main purpose of this routing policy is that it has different routing view than physical routing policy, otherwise, it has pretty much the same rules, as physical routing policy. We could say that this routing policy will be mainly used for optical fibers.

- Consumer: Physical
- Provider: Physical
- Min/max number of main fibrils: 1/2
- Number of protected fibrils: 0/0
- To have consistent routing:
- End nodes in the fibril must have common parent with the termination rule 1
- Neighbor nodes must have common parent with the termination rule 1
- The important thing to realize is, that if the routing has more than one fibril, each fibril’s links are also validated against other fibril’s links

4.2.5.4 LAG

- Should have just one provider (in the serial routing)
- Consumer: Logical
- Provider: Physical
- Min/max number of main fibrils: 1/n
- Min/max number of protected fibrils: 0/0
- To have consistent routing:
- End nodes in the fibril must have common parent with the termination rule 1
- Neighbor nodes must have common parent with the termination rule 1

4.2.5.5 Channel

- Min/max number of main fibrils: 1/1
- Min/max number of protected fibrils: 0/0
- To have consistent routing:

- Provider must be terminated on the same, or “higher” (meant parent) node

4.3. MODULE SUBNETWORK - network records

Chapter overview:

4.3.1. Description of the module environment

4.3.2. Subnetwork

4.3.2.1. P1 - Subnetwork

4.3.2.2. P2 - Editor / Workbook

4.3.2.3. P3 - Map

4.3.3. Usage of user interface Subnetwork

4.3.3.1. Creating a new Subnetwork

4.3.3.2. To add objects to Subnetwork

4.3.3.3. Context menu

4.3.3.4. Deleting Subnetwork

4.3.3.5. Searching Subnetworks

4.3.1. Description of the module environment

This module serves for subnetwork defining – it is a part of a network that is created by the structure of links and nodes that create one logical unit. Each subnetwork is of specific type that determines what types of nodes and links of consumers and providers it can contain (e.g. logical ports and links of Ethernet type). Types of subnetwork are defined in the Configuration module - Subnetwork types.

Those nodes that are part of the subnetwork can be either internal or external. Internal nodes exist only as a part of the internal structure of a subnetwork, while external nodes can be interconnected with external links that don't belong to the subnetwork, when creating a routing.

Subnetworks are processed as inseparable wholes (as well as links are) when defining routing in the Circuits module A context menu with options Links Candidates or Search candidates and their relevant bookmarks serve to find Subnetwork in a Circuit module. After entering the search criteria, you can find the subnetwork and drag it into the routing line to add it in there.

This module serves for defining subnetwork - the part of a network that is created by the structure of links and nodes that together create one logical unit.

The module is launched by clicking the icon .

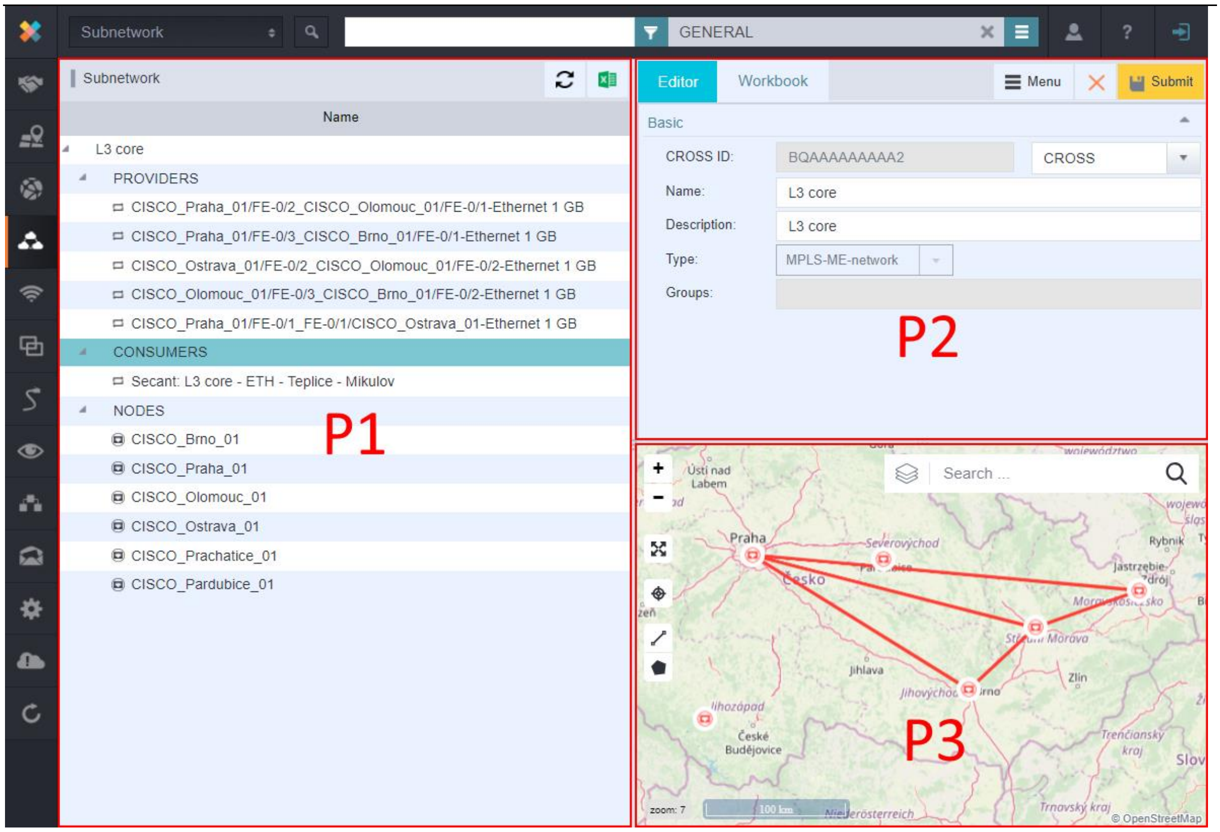
The module contains one view:

- Subnetwork

4.3.2. Subnetwork

The module window consists of three panels:

- P1 - Subnetwork
- P2 - Editor / Workbook
- P3 - Map



L3 core
PROVIDERS
CISCO_Praha_01/FE-0/2_CISCO_Olomouc_01/FE-0/1-Ethernet 1 GB
CISCO_Praha_01/FE-0/3_CISCO_Brno_01/FE-0/1-Ethernet 1 GB
CISCO_Ostrava_01/FE-0/2_CISCO_Olomouc_01/FE-0/2-Ethernet 1 GB
CISCO_Olomouc_01/FE-0/3_CISCO_Brno_01/FE-0/2-Ethernet 1 GB
CISCO_Praha_01/FE-0/1_FE-0/1/CISCO_Ostrava_01-Ethernet 1 GB
CONSUMERS
Secant: L3 core - ETH - Teplice - Mikulov
NODES
CISCO_Brno_01
CISCO_Praha_01
CISCO_Olomouc_01
CISCO_Ostrava_01
CISCO_Prachatice_01
CISCO_Pardubice_01

CROSS ID: BQAAAAAAAAA2 CROSS
Name: L3 core
Description: L3 core
Type: MPLS-ME-network
Groups:

4.3.2.1. P1 - Subnetwork panel

This panel displays the content of the subnetwork selected at the moment, list of its links and nodes divided into three sections:

PROVIDERS - list of internal links that constitute subnetwork

CONSUMERS - list of links that consume the subnetwork. Consuming links are added into this list automatically after the consuming link of this subnetwork is defined in the Circuits module routing

NODES - list of all internal and external subnetwork nodes

Geometry of an object link or node is displayed in the Map panel when selected in the list. After clicking the name of the subnetwork, geometries of all its objects are displayed in the map.

A context drop-down menu is shown after selecting and right-clicking the object. You can open selected item from this menu, meaning for line in Circuit or Insight module and for node in Locality or Insight module.

The context menu also has action to remove a node or provider from a subnetwork.

4.3.2.2. P2 - Editor panel / Workbook

This panel contains two bookmarks: Editor and Workbook.

Editor bookmark serves for entering and editing subnetwork attributes. It includes the Submit button for saving a subnetwork. The Cancel button removes all changes made to the attributes and fills the attribute fields with last values saved. Cross ID is generated automatically.

Workbook bookmark contains the list of objects that were inserted into the Workbook from other modules, e.g. Search. It is possible to insert objects from this list into a group by dragging them to the Groups panel.

4.3.2.3. P3 - Map panel

Map window displays geometry of selected objects or of all objects of the current subnetwork.

Work with the map window is described in further detail in the chapter called Map window.

4.3.3. Usage of user interface Subnetwork

4.3.3.1. Creating a new Subnetwork

In the Subnetwork panel click the New subnetwork button.

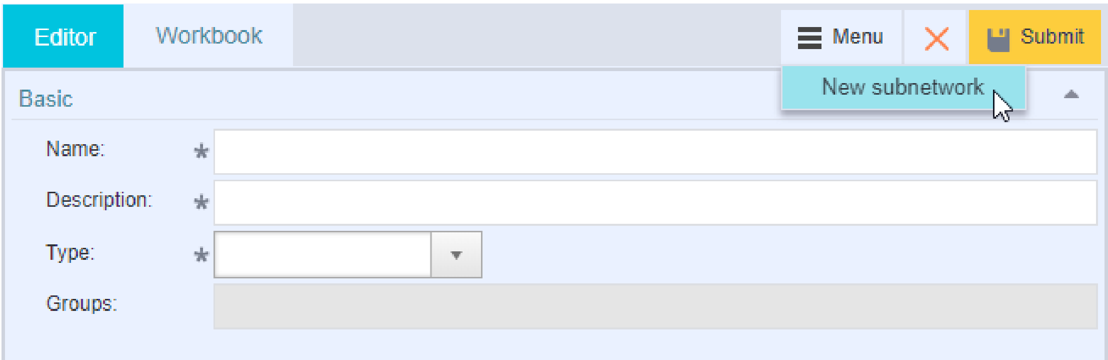
Enter name, description and subnetwork type in the Editor panel and save the new subnetwork by clicking the Submit button.

You need to fill obligatory fields in the Editor: Name, Description and Type.

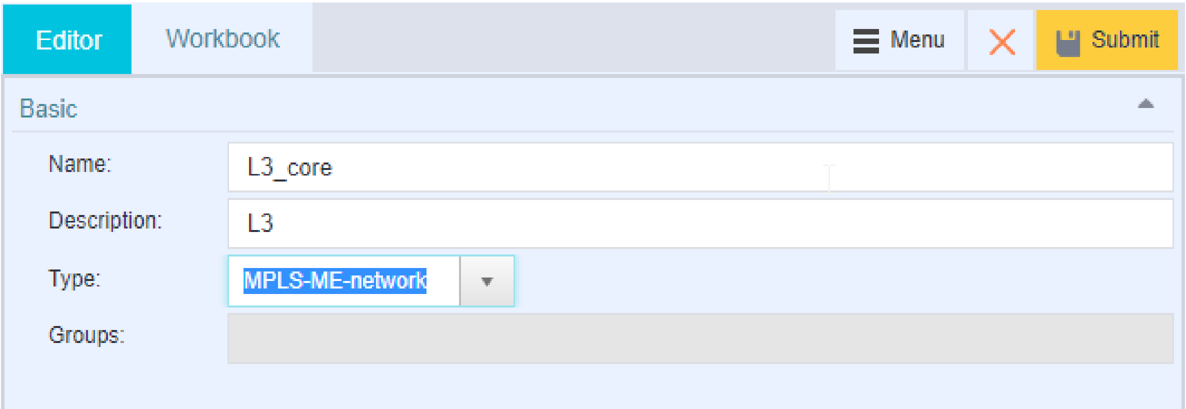
In Type field there are two options to choose from: Service and Network.

Groups and Cross ID are filled automatically after saving the Editor.

The new subnetwork will display in Subnetwork panel after you save it.

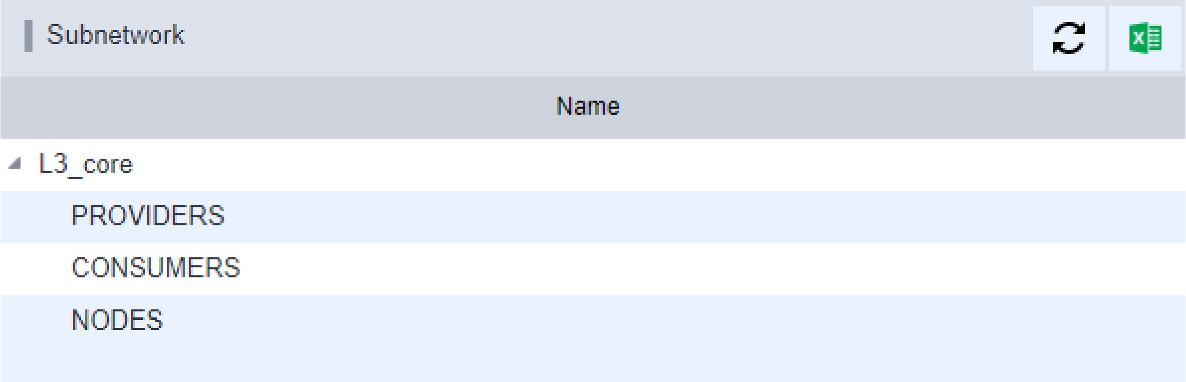

Editor
Workbook
Menu
Submit
New subnetwork
Basic
Name: *
Description: *
Type: *
Groups:

Created subnetwork


Editor
Workbook
Menu
Submit
Basic

Name: L3_core
Description: L3
Type: MPLS-ME-network
Groups:

Created subnetwork is displayed in P1 panel


Subnetwork
Name

L3_core
PROVIDERS
CONSUMERS
NODES

4.3.3.2. To add objects to Subnetwork

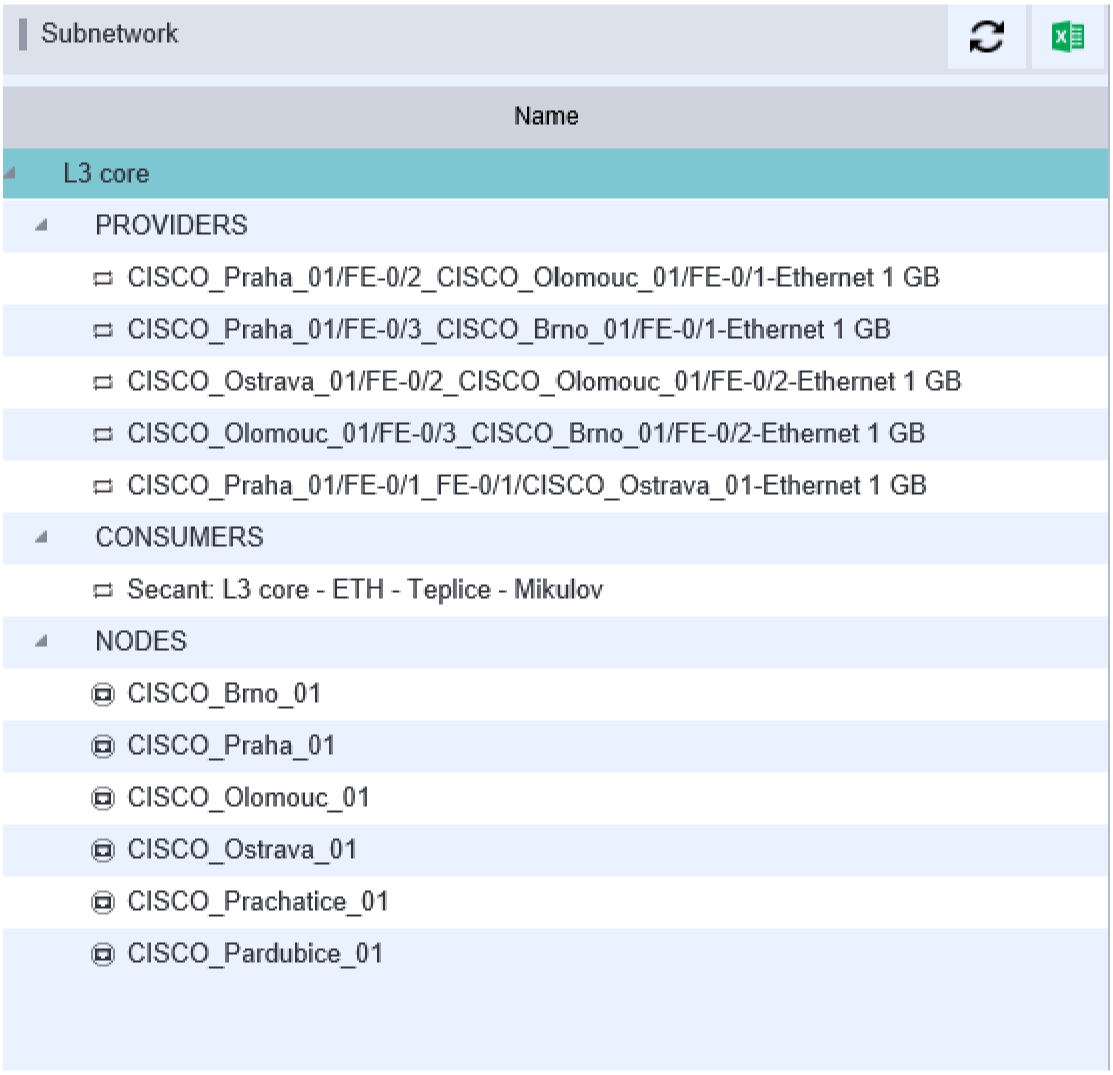
Add all the objects you want to insert into Subnetwork into the Workbook, e.g. from a Search module.

Switch to Workbook bookmark of P2 panel in the Subnetwork module.

Drag the objects from the list of Workbook objects into the Subnetwork panel right into the given section which is either Providers or Nodes (depends on the type of object).

The object will be inserted and will appear in the list of objects of the subnetwork.

Drag all the objects you wish to add into subnetwork in the same way.

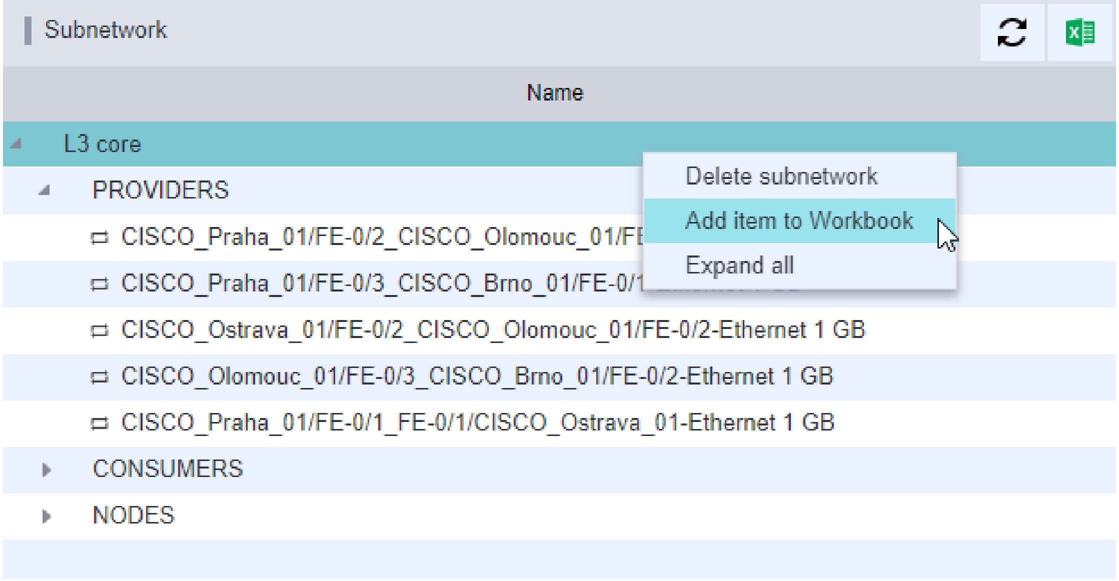


L3 core
PROVIDERS
CISCO_Praha_01/FE-0/2_CISCO_Olomouc_01/FE-0/1-Ethernet 1 GB
CISCO_Praha_01/FE-0/3_CISCO_Brno_01/FE-0/1-Ethernet 1 GB
CISCO_Ostrava_01/FE-0/2_CISCO_Olomouc_01/FE-0/2-Ethernet 1 GB
CISCO_Olomouc_01/FE-0/3_CISCO_Brno_01/FE-0/2-Ethernet 1 GB
CISCO_Praha_01/FE-0/1_FE-0/1/CISCO_Ostrava_01-Ethernet 1 GB
CONSUMERS
Secant: L3 core - ETH - Teplice - Mikulov
NODES
CISCO_Brno_01
CISCO_Praha_01
CISCO_Olomouc_01
CISCO_Ostrava_01
CISCO_Prachatice_01
CISCO_Pardubice_01

4.3.3.3. Context menu

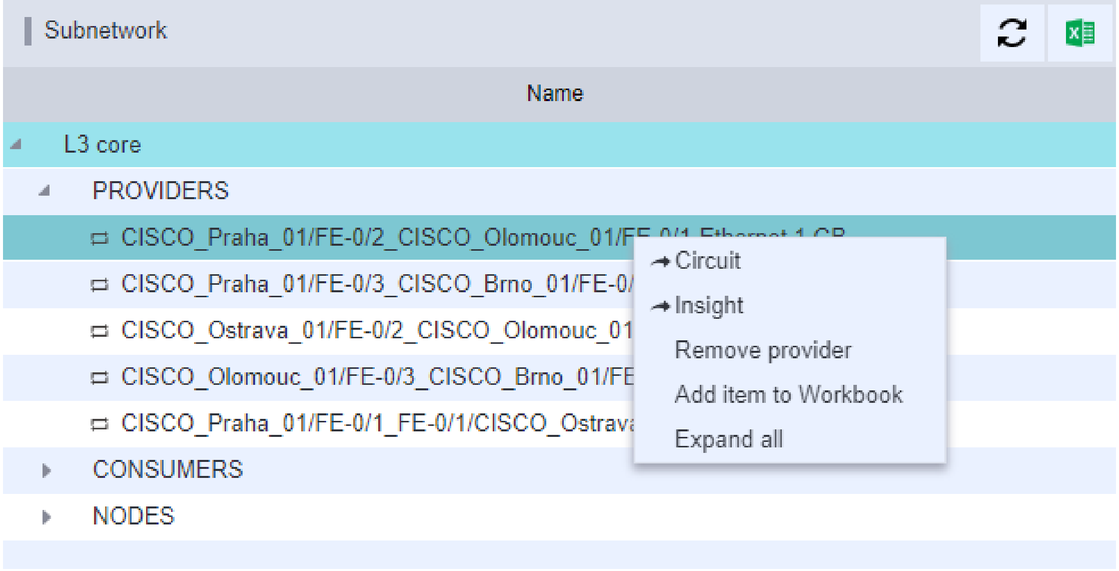
A context menu with following options will open after right-clicking the name of subnetwork:

- Delete subnetwork - deletes the subnetwork.
- Add item to Workbook - allows you to insert the given subnetwork into Workbook.
- Expand all


Subnetwork
Name
L3 core
PROVIDERS
CISCO_Praha_01/FE-0/2_CISCO_Olomouc_01/FE
CISCO_Praha_01/FE-0/3_CISCO_Brno_01/FE-0/1
CISCO_Ostrava_01/FE-0/2_CISCO_Olomouc_01/FE-0/2-Ethernet 1 GB
CISCO_Olomouc_01/FE-0/3_CISCO_Brno_01/FE-0/2-Ethernet 1 GB
CISCO_Praha_01/FE-0/1_FE-0/1/CISCO_Ostrava_01-Ethernet 1 GB
CONSUMERS
NODES
Delete subnetwork
Add item to Workbook
Expand all

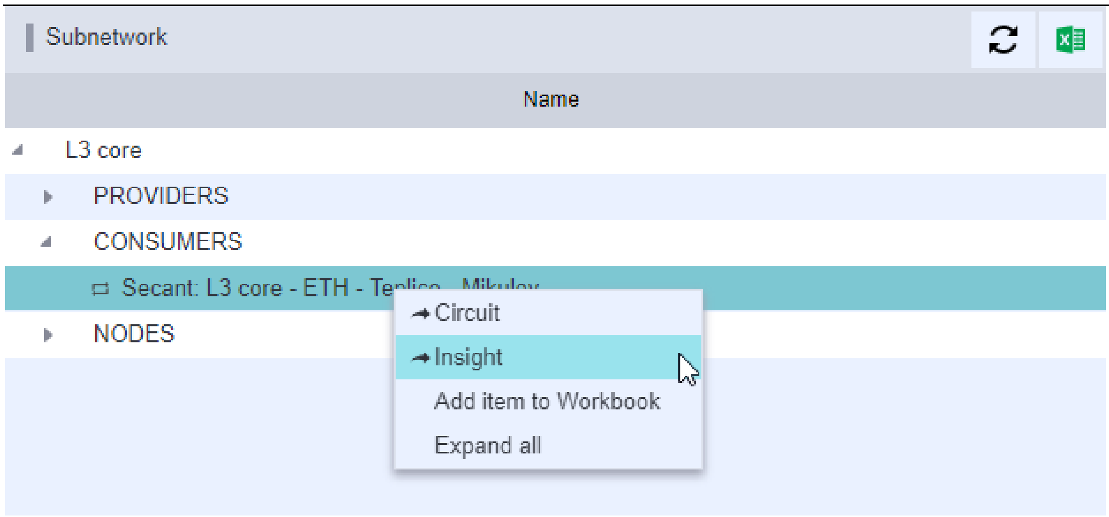
A context menu with following options will open after right-clicking the item in Providers section:

- Circuit - application will switch into Circuit module.
- Insight - application will switch into Insight module.
- Removing provider - removes provider from the tree structure.
- Add item to Workbook - allows you to insert the selected item into Workbook.
- Expand all

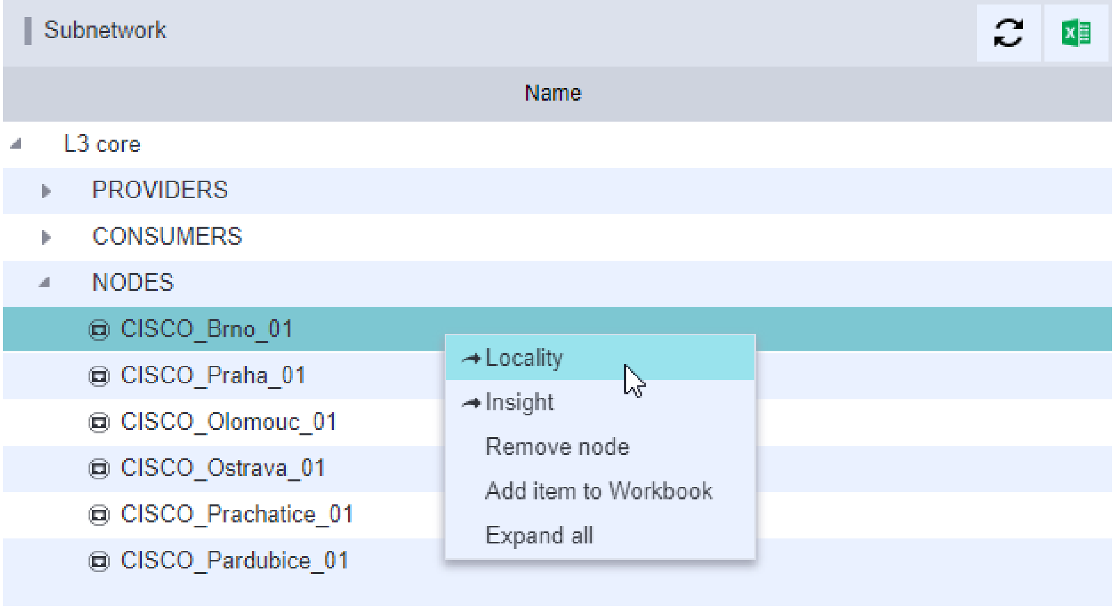

Subnetwork
Name
L3 core
PROVIDERS
CISCO_Praha_01/FE-0/2_CISCO_Olomouc_01/FE-0/1-Ethernet 1 GB
CISCO_Praha_01/FE-0/3_CISCO_Brno_01/FE-0/
CISCO_Ostrava_01/FE-0/2_CISCO_Olomouc_01
CISCO_Olomouc_01/FE-0/3_CISCO_Brno_01/FE
CISCO_Praha_01/FE-0/1_FE-0/1/CISCO_Ostrava
CONSUMERS
NODES
Circuit
Insight
Remove provider
Add item to Workbook
Expand all

- Circuit - application will switch into Circuit module.
- Insight - application will switch into Insight module.
- Add item to Workbook - allows you to insert the selected item into Workbook.
- Expand all

A context menu with following options will open after right-clicking the item in Nods section:

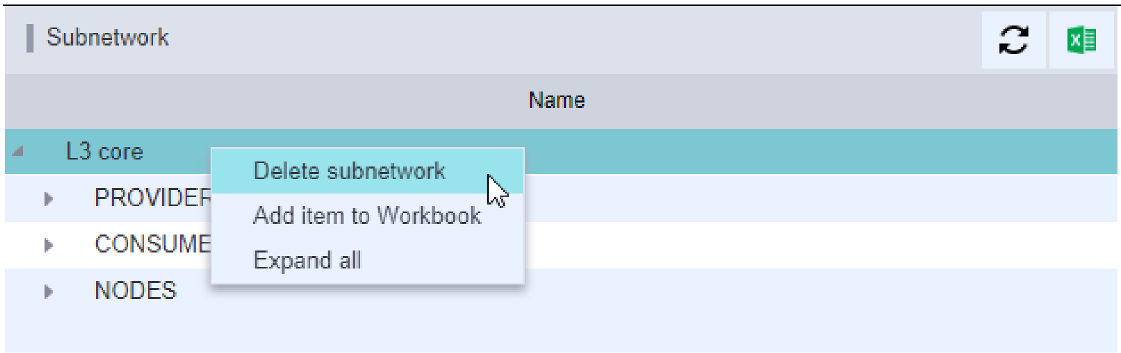

Subnetwork
Name
L3 core
PROVIDERS
CONSUMERS
Secant: L3 core - ETH - Te
NODES
Circuit
Insight
Add item to Workbook
Expand all

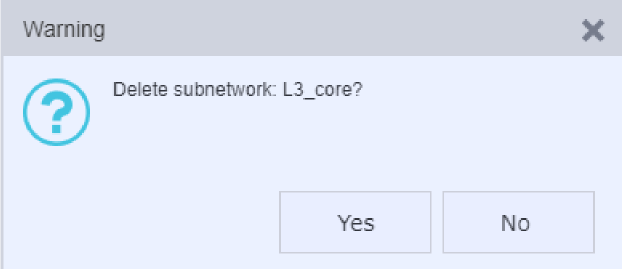
- Locality - application will switch into Locality module.
- Insight - application will switch into Insight module.
- Remove node - removes selected node.
- Add item to Workbook - allows you to insert the selected item into Workbook.
- Expand all


Subnetwork
Name
L3 core
PROVIDERS
CONSUMERS
NODES
CISCO_Brno_01
CISCO_Praha_01
CISCO_Olomouc_01
CISCO_Ostrava_01
CISCO_Prachatice_01
CISCO_Pardubice_01
Locality
Insight
Remove node
Add item to Workbook
Expand all

4.3.3.4. Deleting Subnetwork

You can delete a subnetwork by choosing Delete subnetwork option from the context menu in the name of given subnetwork. A confirmation window for deleting the subnetwork will pop up. The subnetwork is deleted after the confirmation.


Subnetwork
Name
L3 core
PROVIDER
CONSUME
NODES
Delete subnetwork
Add item to Workbook
Expand all


Warning
Yes
No

Delete subnetwork: L3_core?

4.3.3.5. Searching Subnetworks

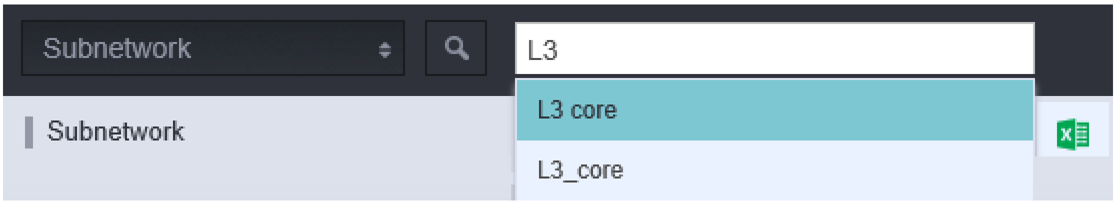
You can use the full text search right in the Subnetwork module or attribute search in the Search module in order to search a subnetwork.

It is possible to search a subnetwork via full text search by entering its name (or just a part of the name).

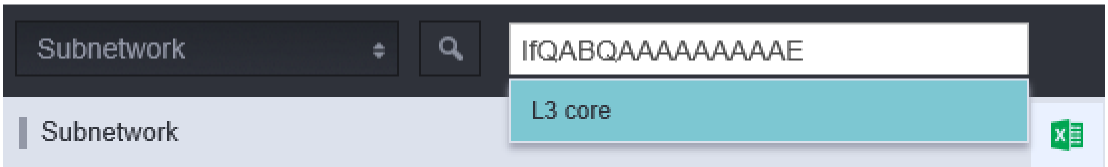
We can also search by the Cross ID identifier.

- Full text search

Full text search of the subnetwork is carried out in the field at the top of the application window. The autocomplete function with relevant values will appear after some of the letters of the name are entered. You can select a search result by mouse clicking of by moving the cursor over the searched value and pressing Enter key. You can also search by name of the subnetwork or by Cross ID identifier.


Subnetwork
Subnetwork
L3 core
L3_core

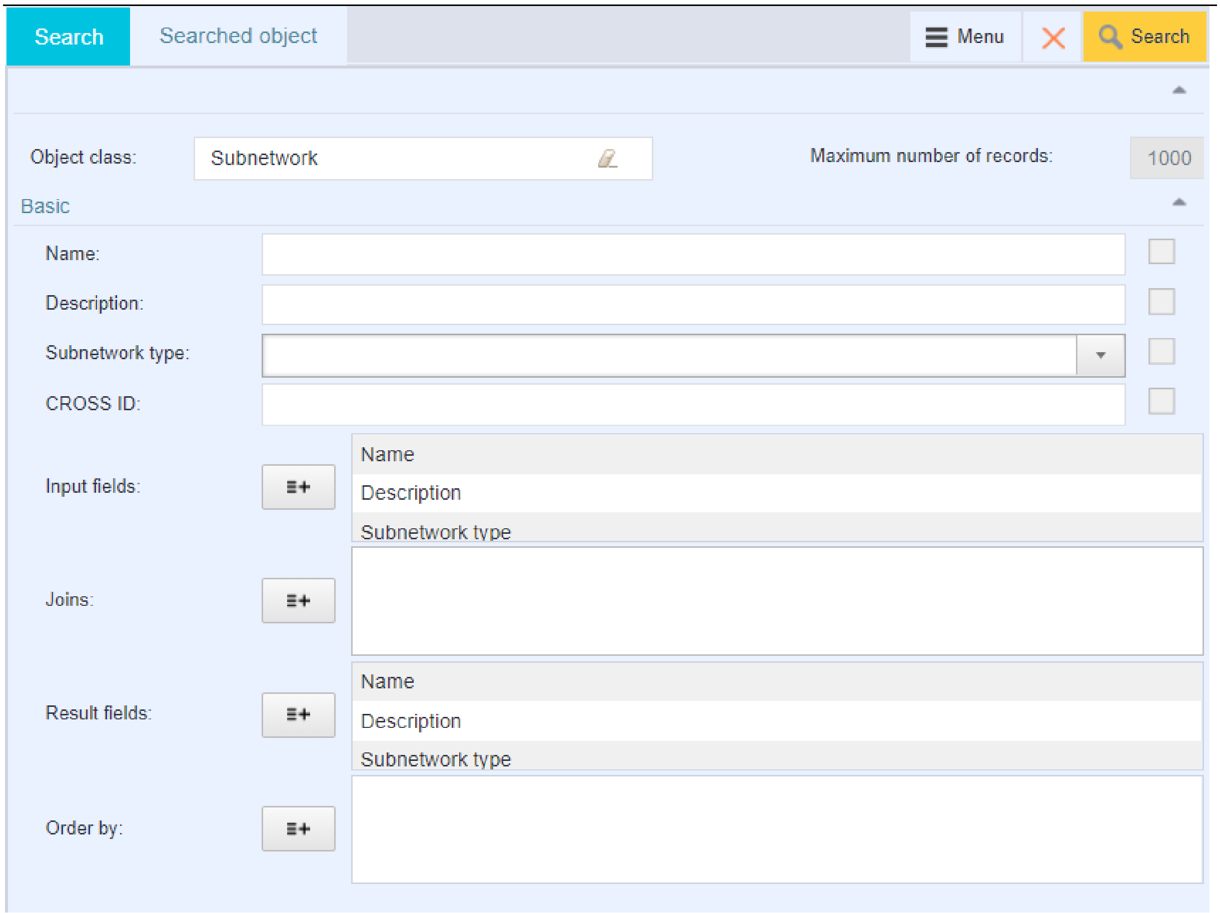
L3


Subnetwork
Subnetwork
L3 core

IfQABQAAAAAAAAAE

- Attribute search

Attribute search option is described in more details under the Search module section.



Object class: Subnetwork

Maximum number of records: 1000

Name:

Description:

Subnetwork type:

CROSS ID:

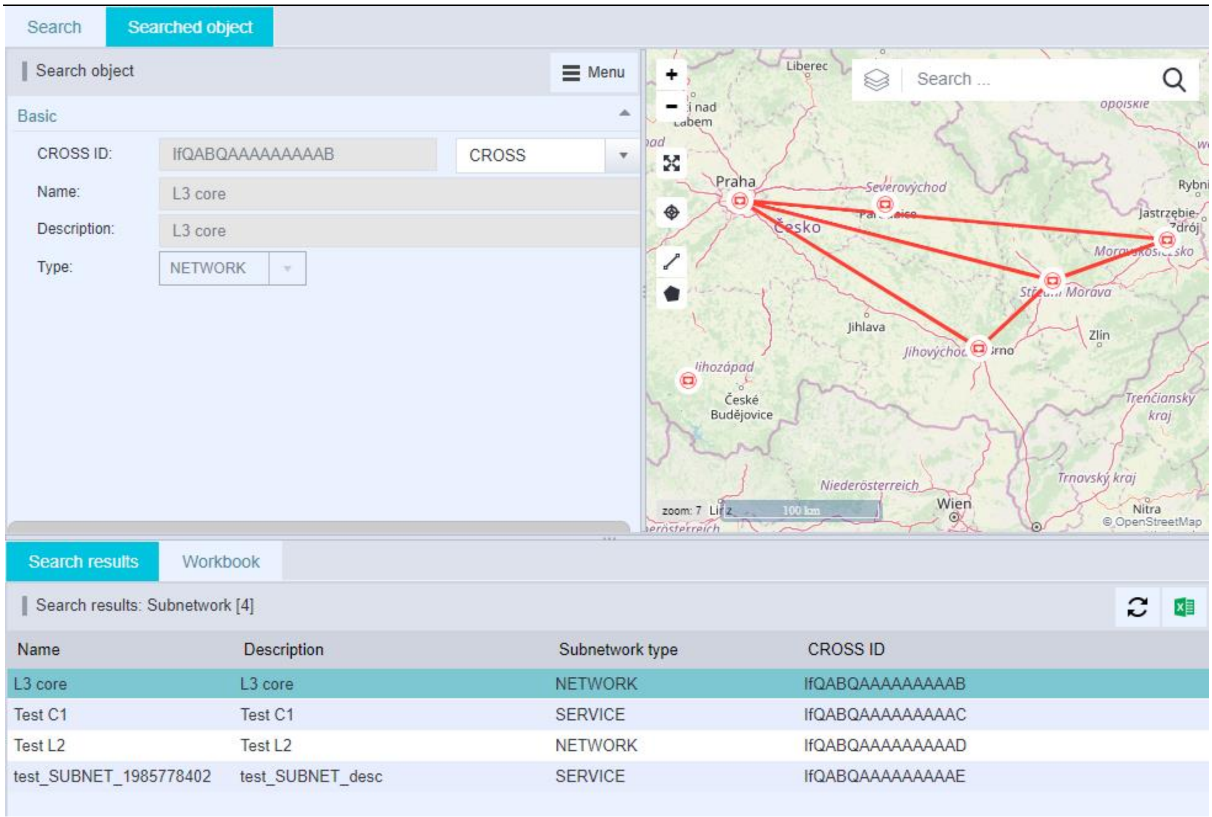
Input fields: Name, Description, Subnetwork type

Joins:

Result fields: Name, Description, Subnetwork type

Order by:

Searched subnetwork will be displayed in Searched object bookmark. After clicking on the name of subnetwork P1 panel will be switched on Searched object bookmark, which on all information about selected subnetwork are displayed.


Search
Searched object
Search object
Menu
Basic
Search ...
Liberec
Praha
Česko
Severovýchod
Jihlava
Jihovýchod
Brno
Zlín
Střední Morava
Jihozápad
České Budějovice
Niederösterreich
Wien
Trenčiansky kraj
Trnavský kraj
Nitra
zoom: 7
100 km
© OpenStreetMap
Search results
Workbook

CROSS ID: IfQABQAAAAAAAAAAB CROSS

Name: L3 core

Description: L3 core

Type: NETWORK

Search results: Subnetwork [4]

Name	Description	Subnetwork type	CROSS ID
L3 core	L3 core	NETWORK	IfQABQAAAAAAAAAAB
Test C1	Test C1	SERVICE	IfQABQAAAAAAAAAAC
Test L2	Test L2	NETWORK	IfQABQAAAAAAAAAAD
test_SUBNET_1985778402	test_SUBNET_desc	SERVICE	IfQABQAAAAAAAAAAE

4.4. MODULE GROUP – records of logical groups of objects

Chapter overview:

4.4.1. Description of the module environment

4.4.2. Group view

4.4.2.1. P1 – Groups

4.4.2.2. P2 - Editor / Workbook

4.4.2.3. P3 – Map

4.4.3. Usage of user interface

4.4.3.1. Creating a new group

4.4.3.2. Group search

4.4.3.3. Group export

4.4.3.4. Context menu

4.4.1. Description of the module environment

This module serves for grouping network objects (for example links, nodes, addresses, subnetworks) into logical units – groups. For example, list of links and devices providing services to the customer.

Every object can be a part of several groups.

Each group is of a specific type, its structure is created by roles (see LINK and EDGE on the example below) and it has a defined set of object types that it can contain. The types of groups are defined in the Configuration module – Group types.

The module is started by clicking the icon .

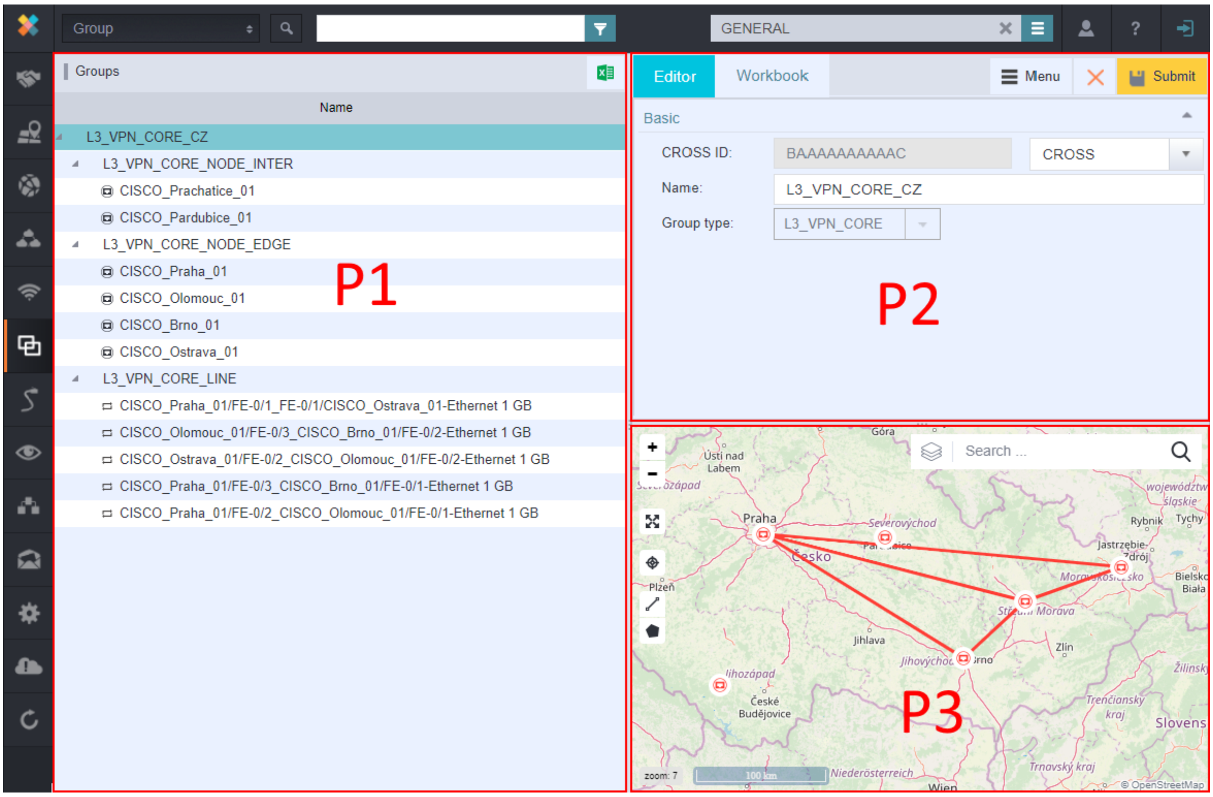
The module contains one view:

- Group view

4.4.2. Group view

The module window consists of three panels:

- P1 - Groups
- P2 - Editor / Workbook
- P3 - Map

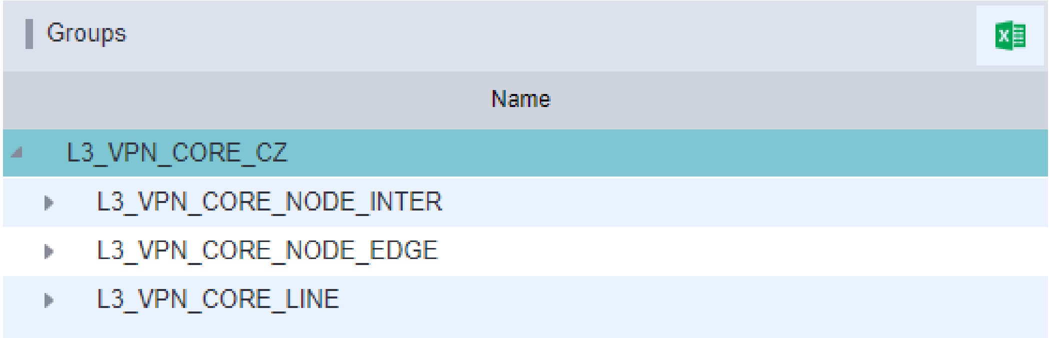

Group
GENERAL
Groups
Name
P1
Editor
Workbook
Menu
Submit
Basic
P2
Search ...
P3
Praha
Česko
Plzeň
Jihlava
České Budějovice
Zlín
Ústí nad Labem
Severovýchod
Jihozápad
Střední Morava
Moravskoslezsko
Jihovýchod
Trenčiansky kraj
Trnavský kraj
Niederösterreich
Wien
Slovensko
Rybnik
Tychy
Bielsko-Biała
Jastrzębie-Zdrój
Žilinský
zoom: 7
100 km
© OpenStreetMap

L3_VPN_CORE_CZ
- L3_VPN_CORE_NODE_INTER
  - CISCO_Prachatice_01
  - CISCO_Pardubice_01
- L3_VPN_CORE_NODE_EDGE
  - CISCO_Praha_01
  - CISCO_Olomouc_01
  - CISCO_Brno_01
  - CISCO_Ostrava_01
- L3_VPN_CORE_LINE
  - CISCO_Praha_01/FE-0/1_FE-0/1/CISCO_Ostrava_01-Ethernet 1 GB
  - CISCO_Olomouc_01/FE-0/3_CISCO_Brno_01/FE-0/2-Ethernet 1 GB
  - CISCO_Ostrava_01/FE-0/2_CISCO_Olomouc_01/FE-0/2-Ethernet 1 GB
  - CISCO_Praha_01/FE-0/3_CISCO_Brno_01/FE-0/1-Ethernet 1 GB
  - CISCO_Praha_01/FE-0/2_CISCO_Olomouc_01/FE-0/1-Ethernet 1 GB

CROSS ID: BAAAAAAAAAAC CROSS
Name: L3_VPN_CORE_CZ
Group type: L3_VPN_CORE

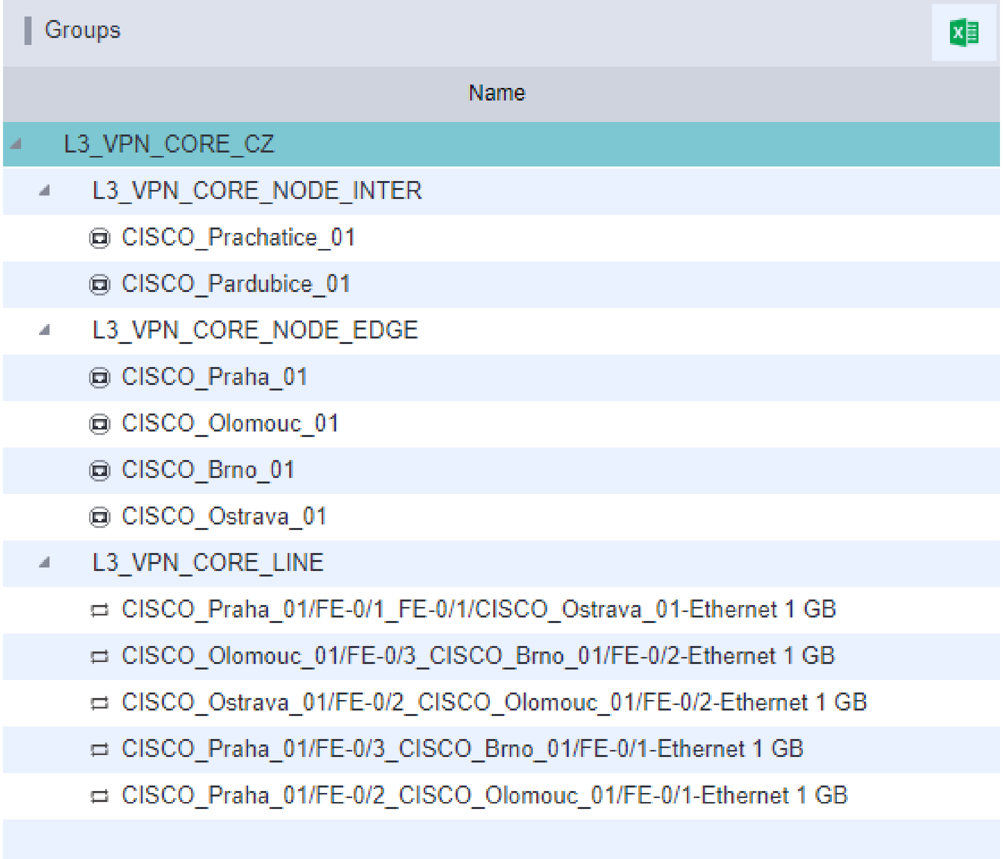
4.4.2.1. P1 - Groups

This panel displays content of selected group - structured list of its objects (by roles). In the current version, objects of the LINK and EDGE types can be inserted into the group.


Groups
Name

L3_VPN_CORE_CZ
- L3_VPN_CORE_NODE_INTER
- L3_VPN_CORE_NODE_EDGE
- L3_VPN_CORE_LINE

The tree can be expanded - select the option Expand all from the group name context menu.



Groups

Name

- L3_VPN_CORE_CZ
  - L3_VPN_CORE_NODE_INTER
    - CISCO_Prachatice_01
    - CISCO_Pardubice_01
  - L3_VPN_CORE_NODE_EDGE
    - CISCO_Praha_01
    - CISCO_Olomouc_01
    - CISCO_Brno_01
    - CISCO_Ostrava_01
  - L3_VPN_CORE_LINE
    - CISCO_Praha_01/FE-0/1_FE-0/1/CISCO_Ostrava_01-Ethernet 1 GB
    - CISCO_Olomouc_01/FE-0/3_CISCO_Brno_01/FE-0/2-Ethernet 1 GB
    - CISCO_Ostrava_01/FE-0/2_CISCO_Olomouc_01/FE-0/2-Ethernet 1 GB
    - CISCO_Praha_01/FE-0/3_CISCO_Brno_01/FE-0/1-Ethernet 1 GB
    - CISCO_Praha_01/FE-0/2_CISCO_Olomouc_01/FE-0/1-Ethernet 1 GB

Object geometry will be displayed in the map window when the object is selected (clicked on).

Geometries of all group objects are displayed in the map window when the header with a group name is selected.

Actions from the object context menu:

From the context menu of the whole group

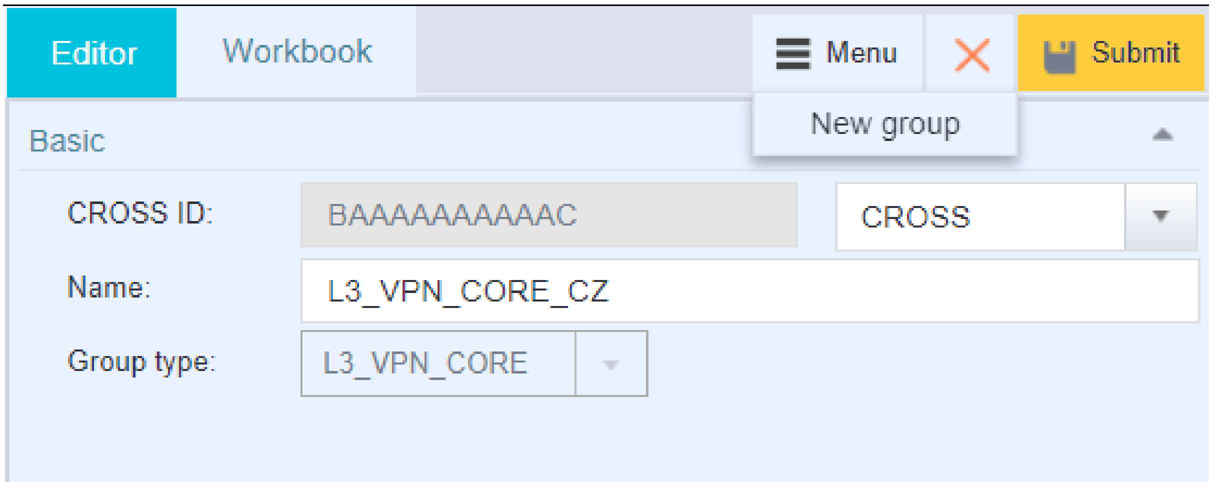
- Expend all - expands all levels of the tree up to the final objects
- Delete group - deletes a whole group with all inserted objects

From the context menu of a final expanded object

- Address, Circuit, Locality, Subnetwork - according to a selected type of an object you can switch to the "home" module of the object
- Remove object - removes selected object from the group list (link, node, address or subnetwork)
- Add to Workbook - adds selected object to the Workbook

4.4.2.2. P2 - Editor / Workbook

This panel contains two bookmarks: Editor and Workbook.


Editor
Workbook
Menu
Submit
New group
Basic

CROSS ID: BAAAAAAAAAAC CROSS

Name: L3_VPN_CORE_CZ

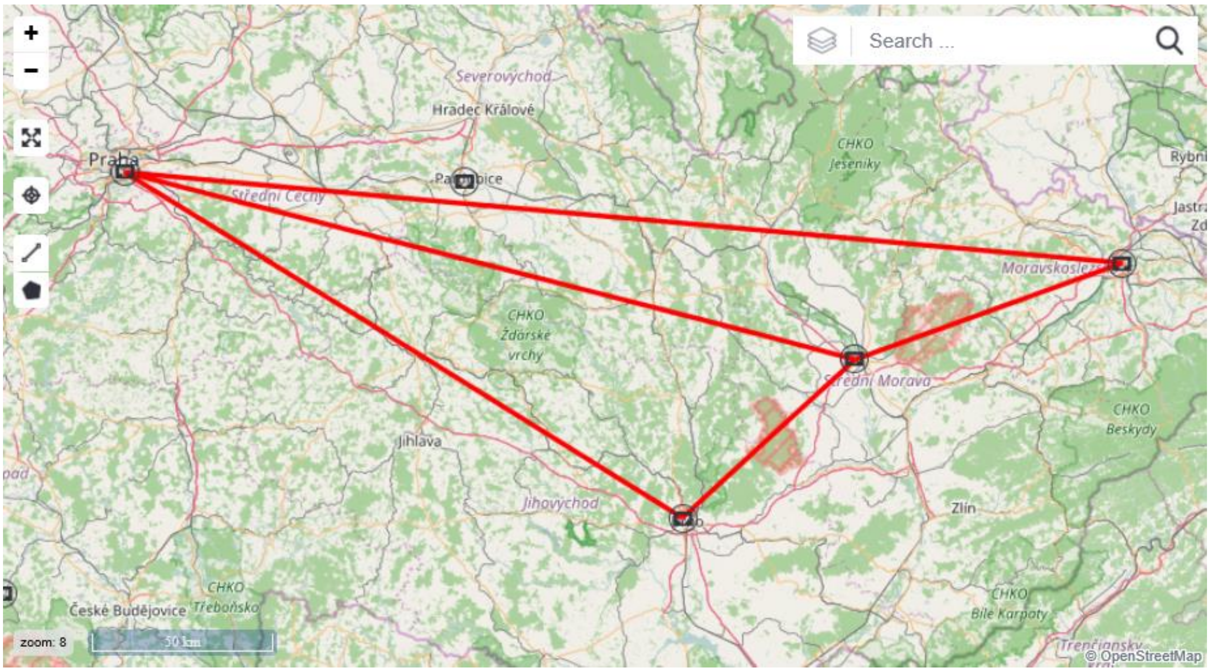
Group type: L3_VPN_CORE

Bookmark Editorserves for entering and editing group attributes. It contains the button Submitfor saving a group. Button Cancel functions as in all other editors; cancels all changes that were made to the attributes and fills them with the last saved values. Cross ID is generated automatically.

Bookmark Workbook contains the list of all objects added into the Workbook - these objects were added here from the other modules, for example Search. From this list, it is possible to insert objects into a group by dragging them to the panel Groups.

4.4.2.3. P3 - Map

The map window displays geometry of selected object or geometries of all objects of selected group.


Search ...
Severovýchod
Hradec Králové
Praha
Pardubice
Střední Čechy
CHKO Jeseníky
Moravskoslezsko
CHKO Žďárské vrchy
Střední Morava
Jihlava
Jihovýchod
Zlín
CHKO Beskydy
CHKO Bílé Karpaty
České Budějovice
CHKO Třeboňsko
zoom: 8
50 km
© OpenStreetMap

4.4.3. Usage of user interface Group view

4.4.3.1. Creating a new group

Method of creating a new group

In the Groups panel editor, select the button New group from the Menu.

In the Editor panel, enter obligatory fields such as Group name and Group type.

In the Editor panel, select a Group type from the list (selected type restricts what types of objects can be inserted into the group - links, nodes, addresses and subnetworks - that means what roles are assigned to the particular group type).

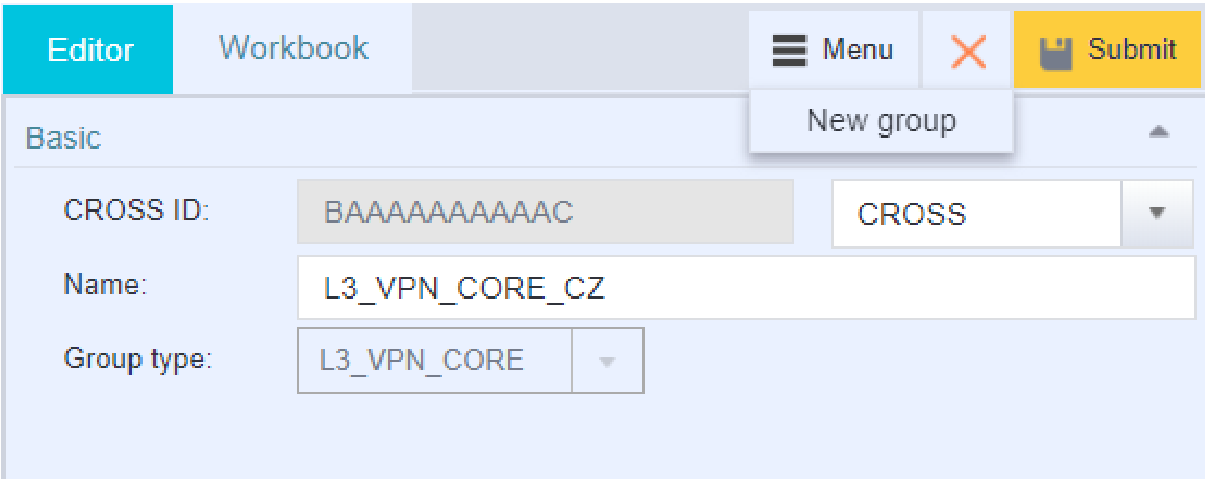
In the Search module (or other modules), search the objects and add them to Workbook. Only objects from the Workbook can be inserted into groups.

Switch to the bookmark Workbook in the panel Editor in the module Groups. Here you can find all objects added into the Workbook.

Add objects gradually by dragging them from the editor to the group in the tree according to the object type – addresses into ADDRESS group, links into LINK group etc. You can drag more objects of the same type at once.

If the type of inserted object differs from the type of the group, an error message (Object of this type is not allowed for the Group of this type) will appear.

Individual group objects will have the attribute Groups with information about assigned group in the editor in their "home" module.



CROSS ID: BAAAAAAAAAAC
CROSS
Name: L3_VPN_CORE_CZ
Group type: L3_VPN_CORE

Configuration of the Group type - role assignment

Creating new groups also relates with setting a correct group type (respectively assigning roles). You will want to insert only links or addresses into some groups, and localities or subnetworks into another ones. If you are missing some roles, you must add them. These roles are defined in the module Configuration**.** How to add missing roles to the selected group type:

In the Configuration, select a view Group type**.**

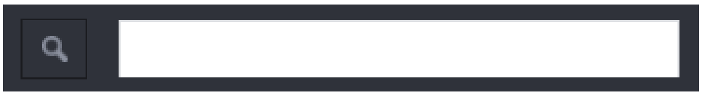
There is a list of created group types in a Group type panel. Select the type.

Under the editor there are three bookmarks - Optional attributes, Naming rules and Roles.

Click on the bookmark Roles. The list of assigned roles is displayed here.

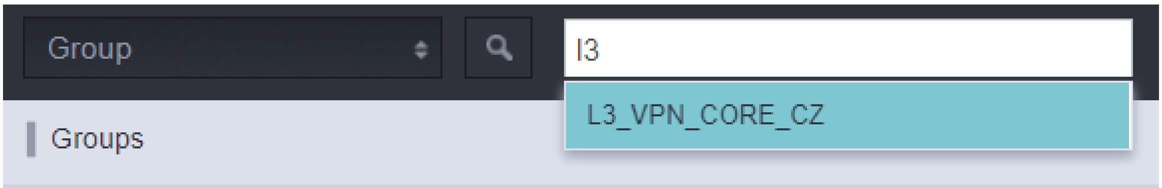
4.4.3.2. Group search

Searching can be performed by two methods - by the full-text search or through the Search module. Both options can be found in the upper left part of the application window.

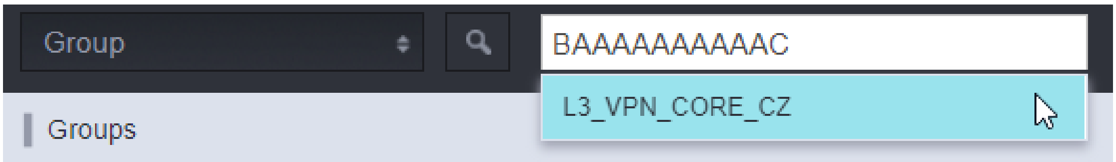


Searching groups by full-text search

In the Search box, enter part of the group name or Cross ID that you want to search - then select searched group from the autocomplete list.

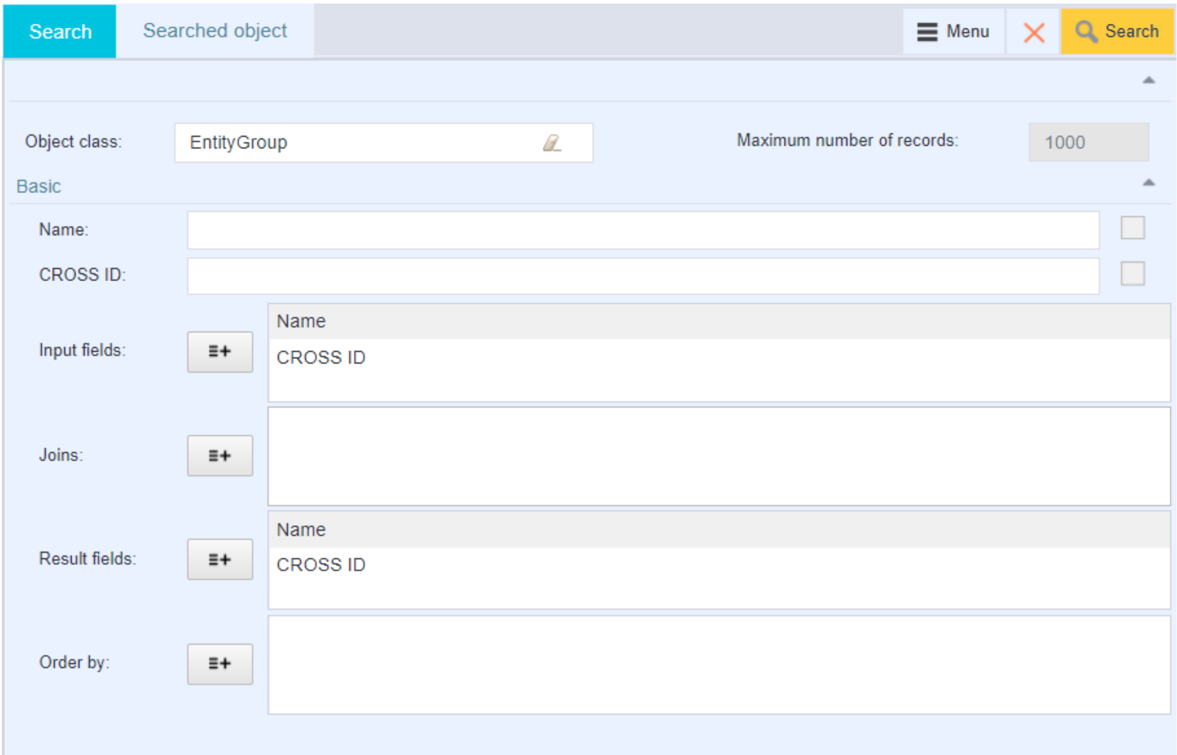

Group
l3
Groups
L3_VPN_CORE_CZ

Searching the Group by the Cross ID


Group
BAAAAAAAAAAC
Groups
L3_VPN_CORE_CZ

Searching groups by the Search module

Click the icon and the application will switch to the Search module. Select Group as the Object class. Editor for entering parameters will be displayed. Click the button Search after entering values. Application will automatically switch to the bookmark Results - groups corresponding to the entered criteria are displayed here.


Search
Searched object
Menu
Search
Basic
Name:
CROSS ID:
Input fields:
Joins:
Result fields:
Order by:

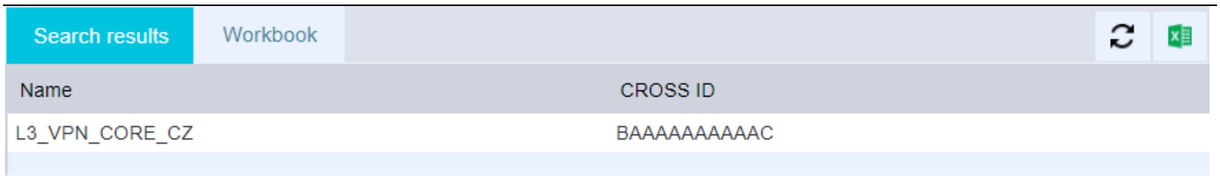
Object class: EntityGroup

Maximum number of records: 1000

Input fields
Name
CROSS ID

Result fields
Name
CROSS ID

Search result in module Search

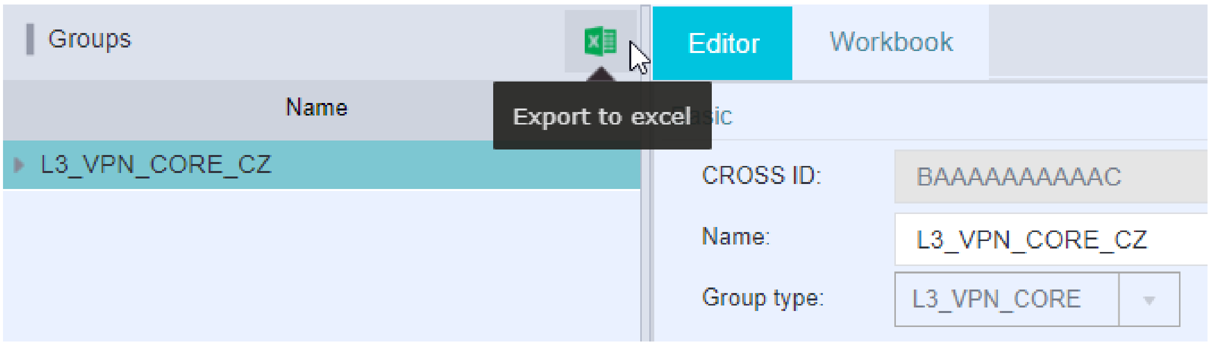


Name	CROSS ID
L3_VPN_CORE_CZ	BAAAAAAAAAAC

4.4.3.3. Group export

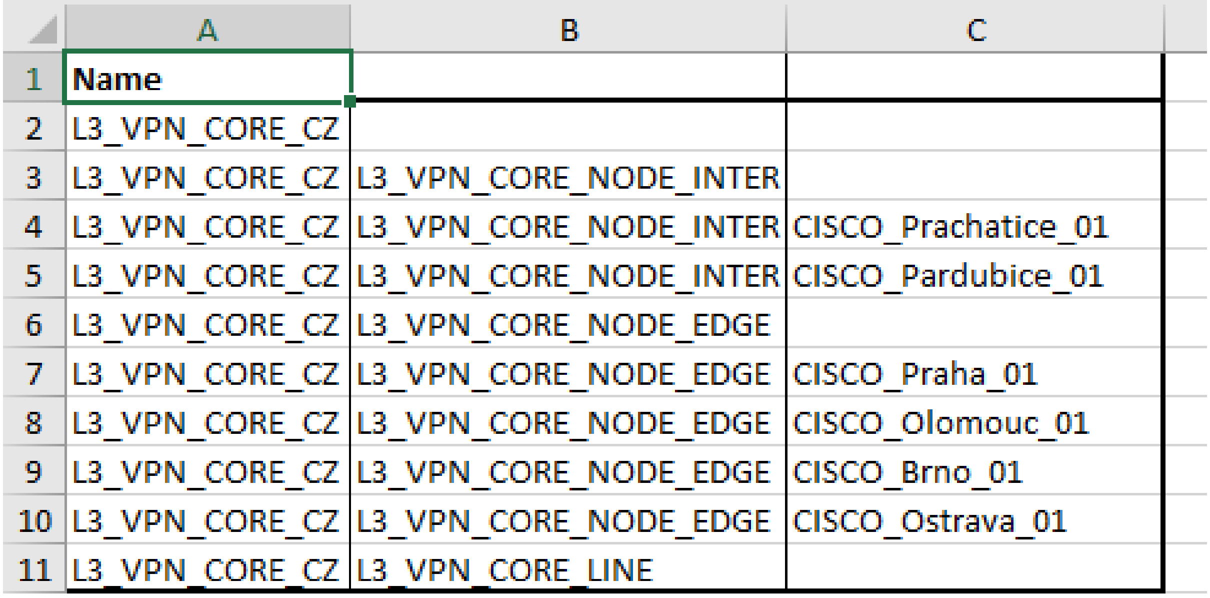
There is an icon for exporting data to Excel in the Group panel.

If you click on the export icon, the whole group will be exported into Excel. Only visible, meaning expanded part of the tree structure will be exported into Excel.



CROSS ID: BAAAAAAAAAAC
Name: L3_VPN_CORE_CZ
Group type: L3_VPN_CORE

The example of exported file (the tree structure is expanded completely)

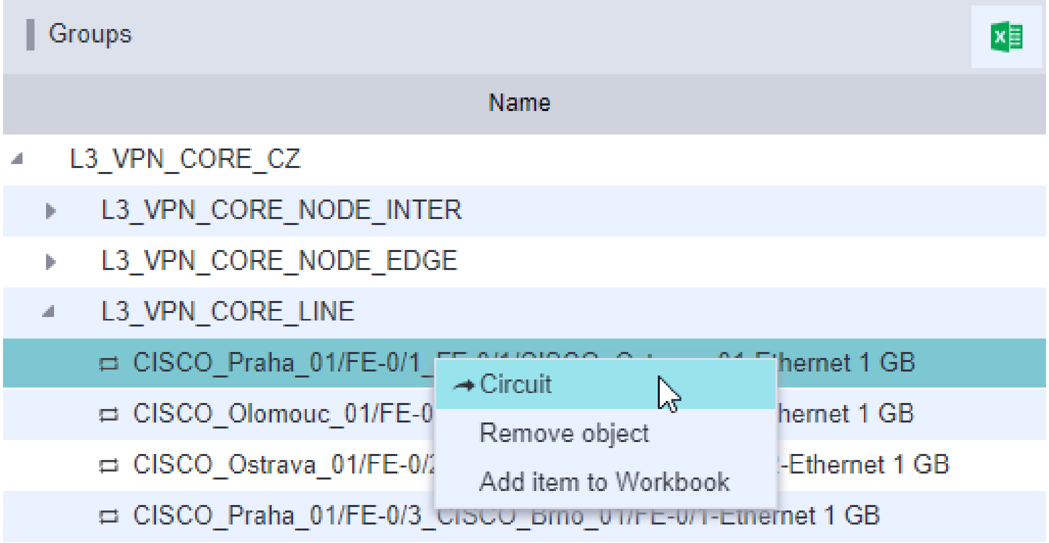


	A	B	C
1	Name		
2	L3_VPN_CORE_CZ		
3	L3_VPN_CORE_CZ	L3_VPN_CORE_NODE_INTER	
4	L3_VPN_CORE_CZ	L3_VPN_CORE_NODE_INTER	CISCO_Prachatice_01
5	L3_VPN_CORE_CZ	L3_VPN_CORE_NODE_INTER	CISCO_Pardubice_01
6	L3_VPN_CORE_CZ	L3_VPN_CORE_NODE_EDGE	
7	L3_VPN_CORE_CZ	L3_VPN_CORE_NODE_EDGE	CISCO_Praha_01
8	L3_VPN_CORE_CZ	L3_VPN_CORE_NODE_EDGE	CISCO_Olomouc_01
9	L3_VPN_CORE_CZ	L3_VPN_CORE_NODE_EDGE	CISCO_Brno_01
10	L3_VPN_CORE_CZ	L3_VPN_CORE_NODE_EDGE	CISCO_Ostrava_01
11	L3_VPN_CORE_CZ	L3_VPN_CORE_LINE	

4.4.3.4. Context menu

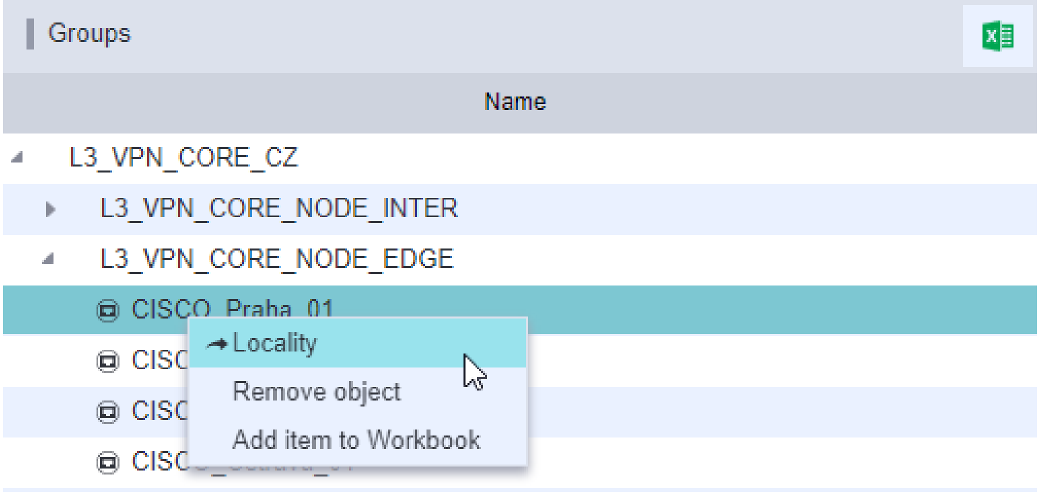
You can choose following options from the context menu of LINK item:

- Circuit - it switches into the Circuit module in the application.
- Remove object - removes object from the tree structure.
- Add item into the Workbook - places selected object into the Workbook.


Groups
Name
L3_VPN_CORE_CZ
L3_VPN_CORE_NODE_INTER
L3_VPN_CORE_NODE_EDGE
L3_VPN_CORE_LINE
CISCO_Praha_01/FE-0/1_
hernet 1 GB
CISCO_Olomouc_01/FE-0
hernet 1 GB
CISCO_Ostrava_01/FE-0/
-Ethernet 1 GB
CISCO_Praha_01/FE-0/3_
Circuit
Remove object
Add item to Workbook

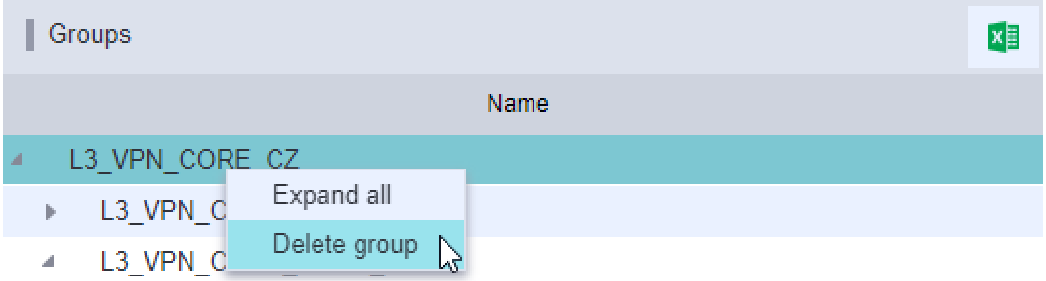
You can choose following options from the context menu of EDGE item:

- Locality - it switches into the Locality module in the application.
- Remove object - removes object from the tree structure.
- Add item into the Workbook - places selected object into the Workbook.


Groups
Name
L3_VPN_CORE_CZ
L3_VPN_CORE_NODE_INTER
L3_VPN_CORE_NODE_EDGE
CISCO_Praha_01
CISC
CISC
CISC
Locality
Remove object
Add item to Workbook

You can choose from two options from the context menu of the Group name:

- Expand all
- Delete group


Groups
Name
L3_VPN_CORE_CZ
L3_VPN_C
L3_VPN_C
Expand all
Delete group

4.5. SYNCHRO MODULE – automatic data update

Chapter overview:

4.5.1. Description of module environment

4.5.2. Synchro

4.5.2.1. P1 – Probe

4.5.2.2. P2 – Editor

4.5.5.3. P3 - Success

4.5.3. Usage of user interface Synchro

4.5.3.1. Creating a new probe

4.5.3.2. Delete probe

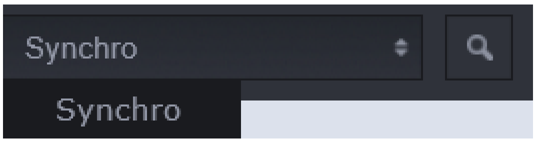
4.5.1. Description of module environment

Synchro module serves for automatic synchronization of data from external data sources.

- Definition of “PROBE” interface for any external data source.
- Objects of Node, Link and Subnetwork type can be synchronized.
- Change of any object can be: insert, update, delete.
- Link to Network Inventory Interface NMS (surveillance and control system).
- Automatic synchronization and data update in CROSS Inventory database.
- Setting of priorities and time schedule for the update.
- History of performed updates.

Synchro module contains one view:

- Synchro

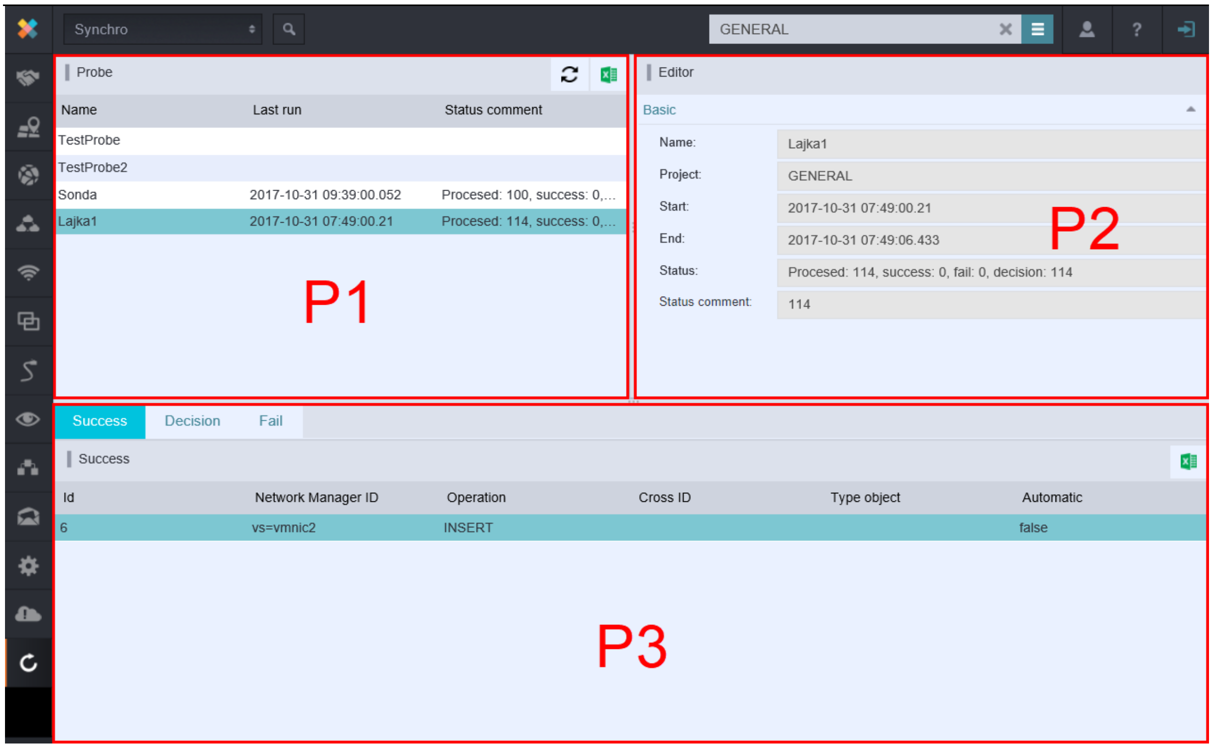


4.5.2. Synchro

This option serves as an overview of the list of probes and their statuses of synchronization into the CROSS, including the list of errors.

The module window consists of three panels:

- P1 – Probe
- P2 – Editor
- P3 - Success/Decision/Fail



Name	Last run	Status comment
TestProbe		
TestProbe2		
Sonda	2017-10-31 09:39:00.052	Procesed: 100, success: 0,...
Lajka1	2017-10-31 07:49:00.21	Procesed: 114, success: 0,...

Name: Lajka1
Project: GENERAL
Start: 2017-10-31 07:49:00.21
End: 2017-10-31 07:49:06.433
Status: Procesed: 114, success: 0, fail: 0, decision: 114
Status comment: 114

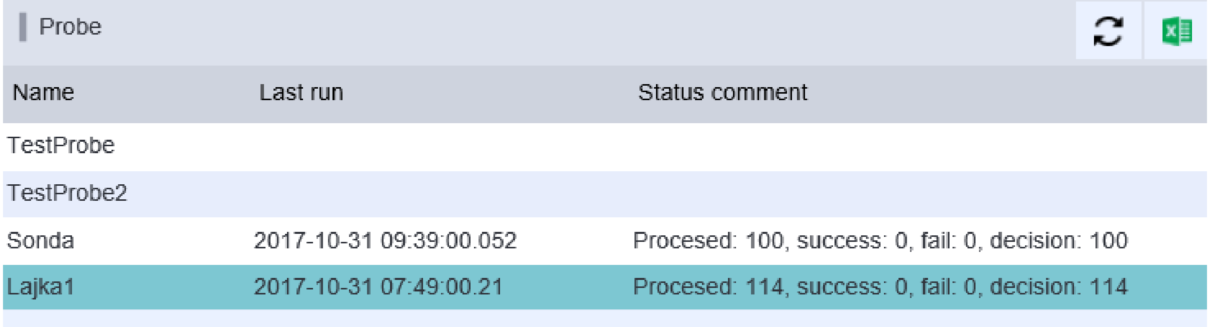
Id	Network Manager ID	Operation	Cross ID	Type object	Automatic
6	vs=vmnic2	INSERT			false

4.5.2.1. P1 - Probe

Probe is a tool (script) that retrieves data from a source (input file, surveillance system, etc.) as it processes, transforms, and stores it into the Synchro data model. This data is further processed and used to create, edit, and delete data in CROSS.

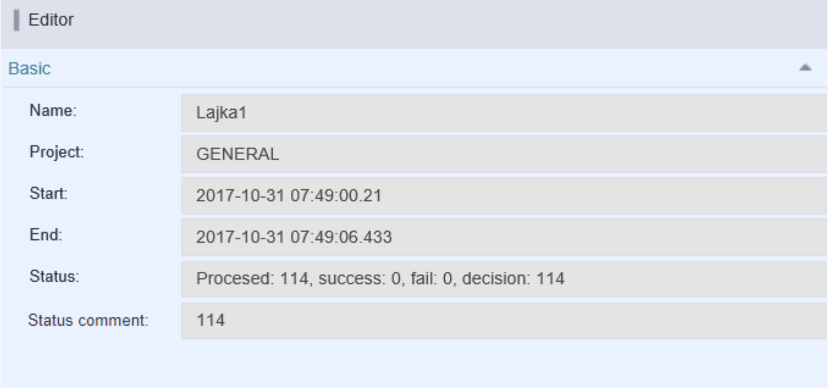
The P1 panel contains a list of supervisory probes with all attributes, including synchronization data.

Synchronization – the import of probes data is set to regular 24 hours interval.



Name	Last run	Status comment
TestProbe		
TestProbe2		
Sonda	2017-10-31 09:39:00.052	Procesed: 100, success: 0, fail: 0, decision: 100
Lajka1	2017-10-31 07:49:00.21	Procesed: 114, success: 0, fail: 0, decision: 114

4.5.2.2. Panel P2 – Editor



Name: Lajka1
Project: GENERAL
Start: 2017-10-31 07:49:00.21
End: 2017-10-31 07:49:06.433
Status: Procesed: 114, success: 0, fail: 0, decision: 114
Status comment: 114

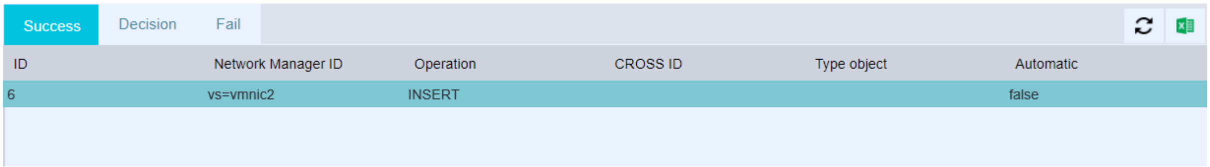
4.5.2.3. P3 – Success/Decision/Fail

Panel P3 serves for listing results of a finished probe and contains three bookmarks

- Bookmark - Success
- Bookmark - Decision
- Bookmark - Fail

Bookmark – Success

A list of all successfully processed changes.


Success
Decision
Fail

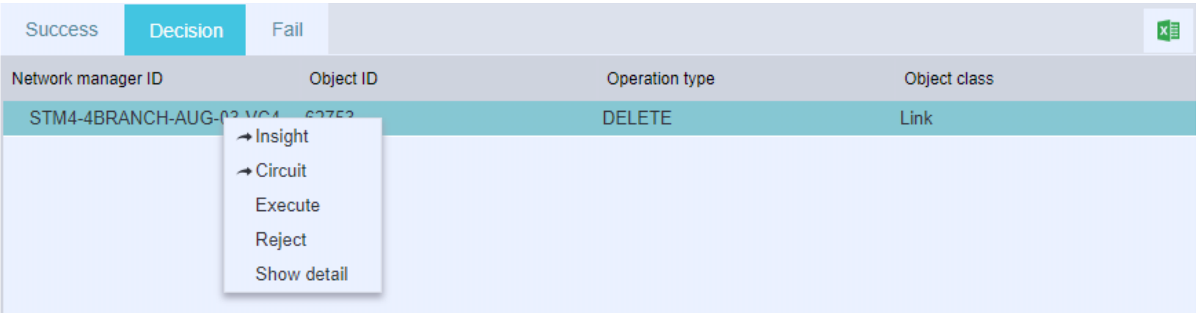
ID	Network Manager ID	Operation	CROSS ID	Type object	Automatic
6	vs=vmnic2	INSERT			false

Context menu on some of items in the table contains:

- Links to other modules
- Show detail - see subchapter **4.5.2.3.1. Show detail**
    - Not available on a row with operation type DELETE

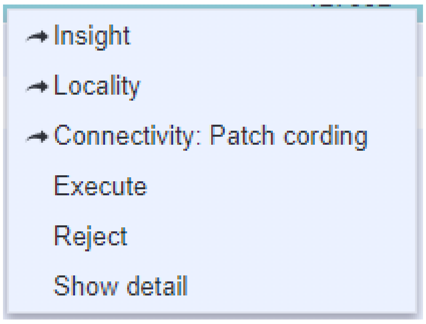
Bookmark - Decision

A list of all data changes for selected probe which are meant for manual approval by a user.


Success
Decision
Fail
Insight
Circuit
Execute
Reject
Show detail

Network manager ID	Object ID	Operation type	Object class
STM4-4BRANCH-AUG-0	[illegible]	DELETE	Link

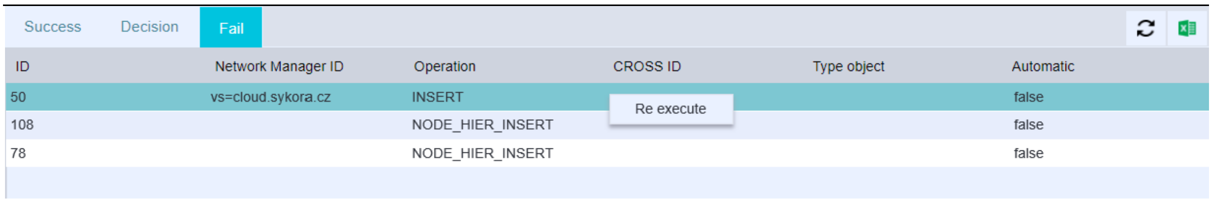
Context menu on some of items in the table contains:


Insight
Locality
Connectivity: Patch cording
Execute
Reject
Show detail

- Links to other modules
- Execute – executing of the selected change
- Reject – selected change will be marked as rejected and will be removed
- Show detail - see subchapter **4.5.2.3.1. Show detail**

Bookmark - Fail

A list of all data changes for selected probe which failed.


Success
Decision
Fail
Re execute

ID	Network Manager ID	Operation	CROSS ID	Type object	Automatic
50	vs=cloud.sykora.cz	INSERT			false
108		NODE_HIER_INSERT			false
78		NODE_HIER_INSERT			false

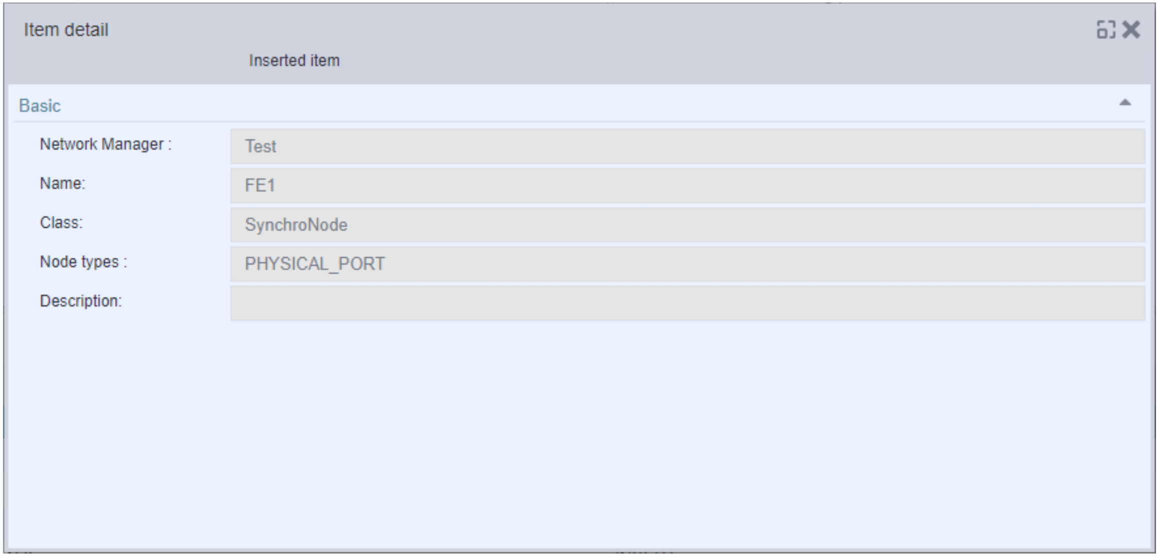
Context menu contains only one option:

- Re-execute – attempt to process the change again

4.5.2.3.1. Show detail

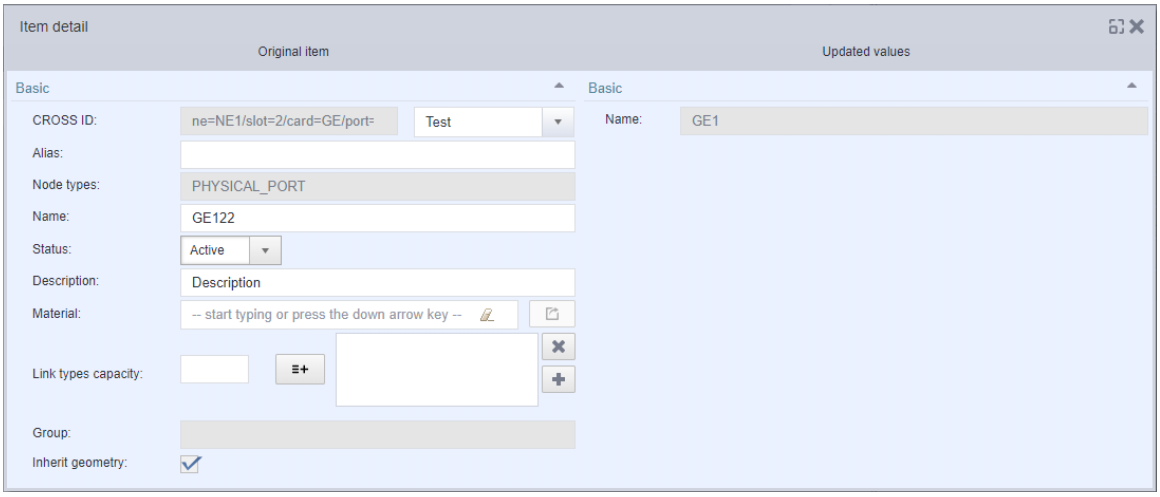
Show detail is a pop up window which shows details about selected object based on its Operation type:

- INSERT – shows details like Network manager (name of the probe), Name (name of the node), Class, Node types and a description.


Item detail
Inserted item
Basic

Network Manager : Test
Name: FE1
Class: SynchroNode
Node types : PHYSICAL_PORT
Description:

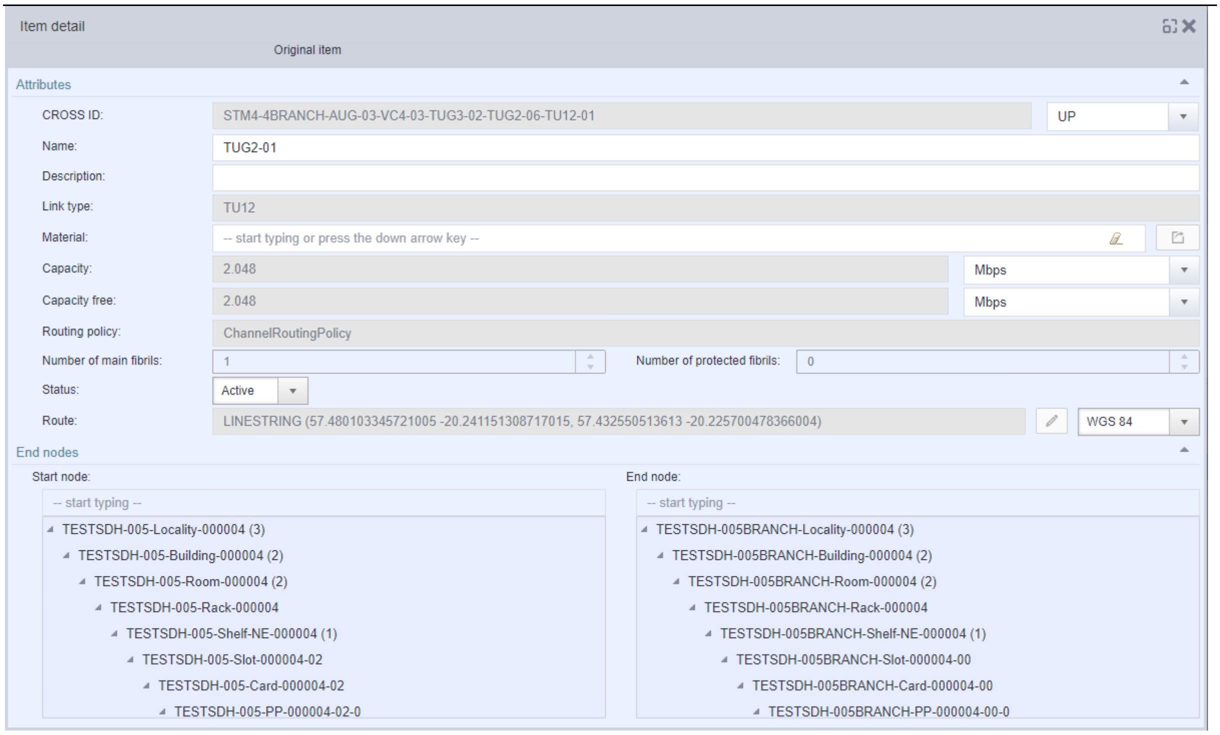
- Update – show details about existing object and details about what the probe will change
  - For each change there will be a separate line in the tree


Item detail
Original item
Updated values
Basic
Basic

CROSS ID: ne=NE1/slot=2/card=GE/port= Test
Alias:
Node types: PHYSICAL_PORT
Name: GE122
Status: Active
Description: Description
Material: -- start typing or press the down arrow key --
Link types capacity:
Group:
Inherit geometry: ☑

Name: GE1

- DELETE – show details about object which can be deleted
  - Only available on the Decision pane



CROSS ID: STM4-4BRANCH-AUG-03-VC4-03-TUG3-02-TUG2-06-TU12-01 UP

Name: TUG2-01

Description:

Link type: TU12

Material: -- start typing or press the down arrow key --

Capacity: 2.048 Mbps

Capacity free: 2.048 Mbps

Routing policy: ChannelRoutingPolicy

Number of main fibrils: 1

Number of protected fibrils: 0

Status: Active

Route: LINESTRING (57.480103345721005 -20.241151308717015, 57.432550513613 -20.225700478366004) WGS 84

Start node: -- start typing --

- TESTSDH-005-Locality-000004 (3)
  - TESTSDH-005-Building-000004 (2)
    - TESTSDH-005-Room-000004 (2)
      - TESTSDH-005-Rack-000004
        - TESTSDH-005-Shelf-NE-000004 (1)
          - TESTSDH-005-Slot-000004-02
            - TESTSDH-005-Card-000004-02
              - TESTSDH-005-PP-000004-02-0

End node: -- start typing --

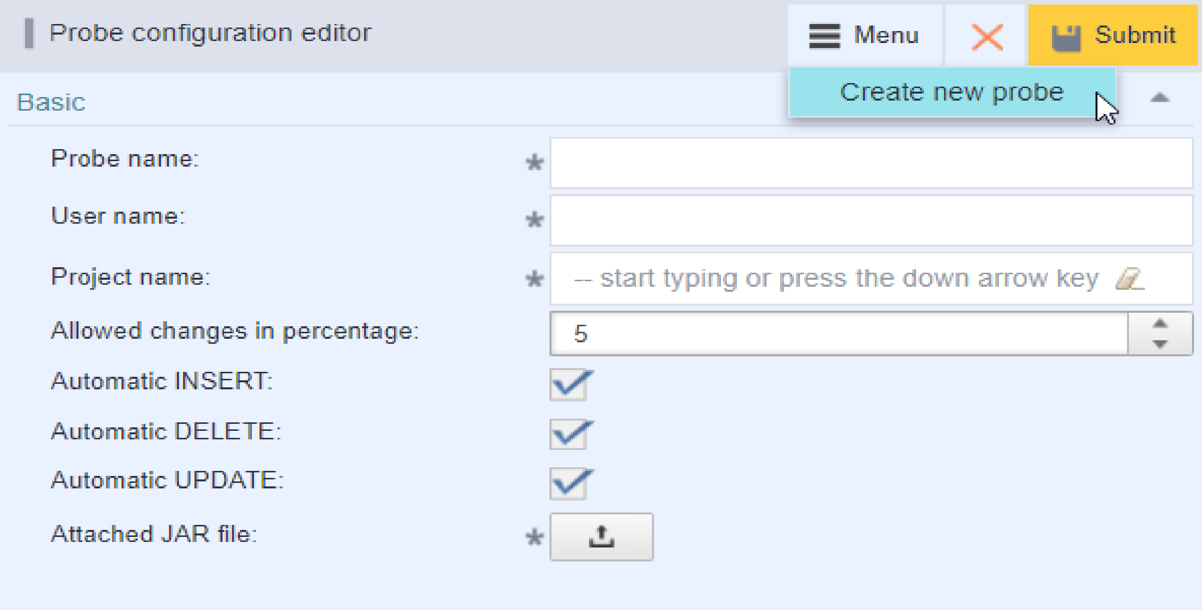
- TESTSDH-005BRANCH-Locality-000004 (3)
  - TESTSDH-005BRANCH-Building-000004 (2)
    - TESTSDH-005BRANCH-Room-000004 (2)
      - TESTSDH-005BRANCH-Rack-000004
        - TESTSDH-005BRANCH-Shelf-NE-000004 (1)
          - TESTSDH-005BRANCH-Slot-000004-00
            - TESTSDH-005BRANCH-Card-000004-00
              - TESTSDH-005BRANCH-PP-000004-00-0

4.5.3. Usage of user interface Synchro

4.5.3.1. Creating a new probe

Open the Configuration module and select the Synchro probe view (the current probe list and the empty editor are displayed).

From the Probe Configuration Editor menu, choose Create New Probe. In the Editor, fill in all required items



Probe name: *

User name: *

Project name: * -- start typing or press the down arrow key

Allowed changes in percentage: 5

Automatic INSERT: ☑

Automatic DELETE: ☑

Automatic UPDATE: ☑

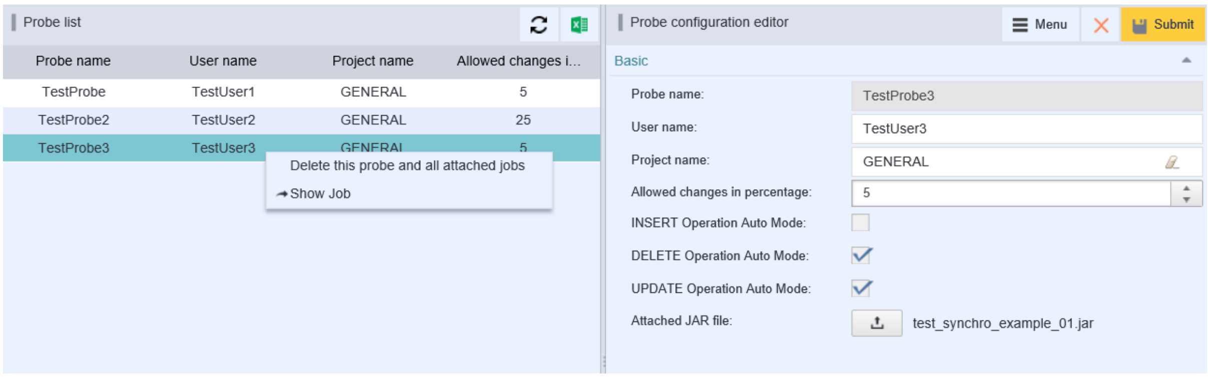
Attached JAR file: *

Select Project Name - Only select from already created projects. The changes made are linked to the selected project. The project will be listed in the User History log.

Choose Permitted Percentage Changes (Allowed Amount of Changes for Each Type of Entity Percentage If multiple changes of identical entity type are not made automatically)

Insert a JAR file.

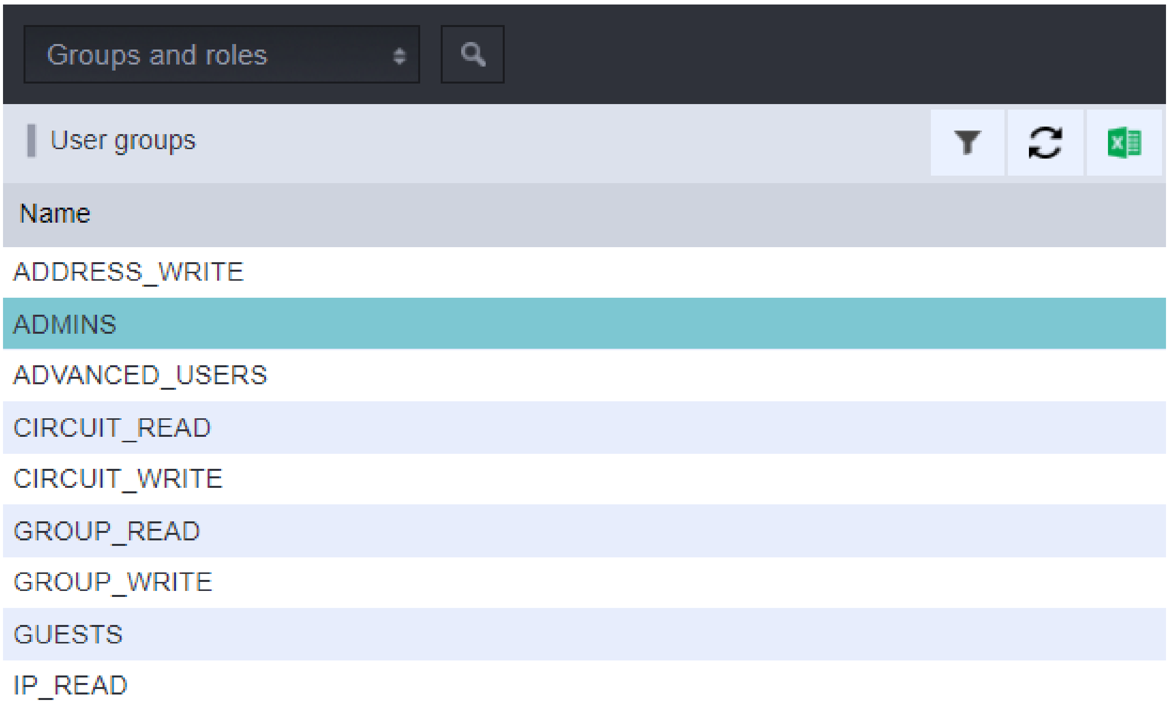
Select the Save button. A new probe will be created. The probe can be re-edited. From the context menu, select Show Job to move to the Job scheduler view.


Probe list
Delete this probe and all attached jobs
Show Job
Probe configuration editor
Menu
Submit
Basic

Probe name	User name	Project name	Allowed changes i...
TestProbe	TestUser1	GENERAL	5
TestProbe2	TestUser2	GENERAL	25
TestProbe3	TestUser3	GENERAL	5

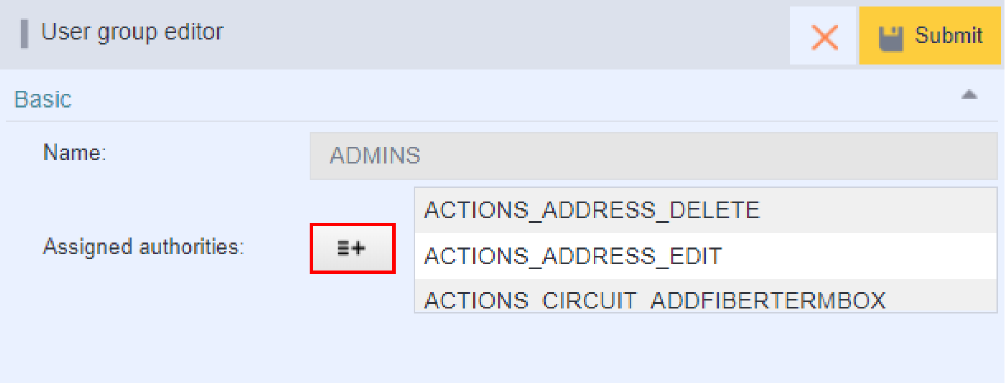
Probe name: TestProbe3
User name: TestUser3
Project name: GENERAL
Allowed changes in percentage: 5
INSERT Operation Auto Mode: ☐
DELETE Operation Auto Mode: ☑
UPDATE Operation Auto Mode: ☑
Attached JAR file: test_synchro_example_01.jar

Select the Groups and Roles view. In the P1 User Groups panel, select ADMINS.


Groups and roles
User groups

Name
ADDRESS_WRITE
ADMINS
ADVANCED_USERS
CIRCUIT_READ
CIRCUIT_WRITE
GROUP_READ
GROUP_WRITE
GUESTS
IP_READ

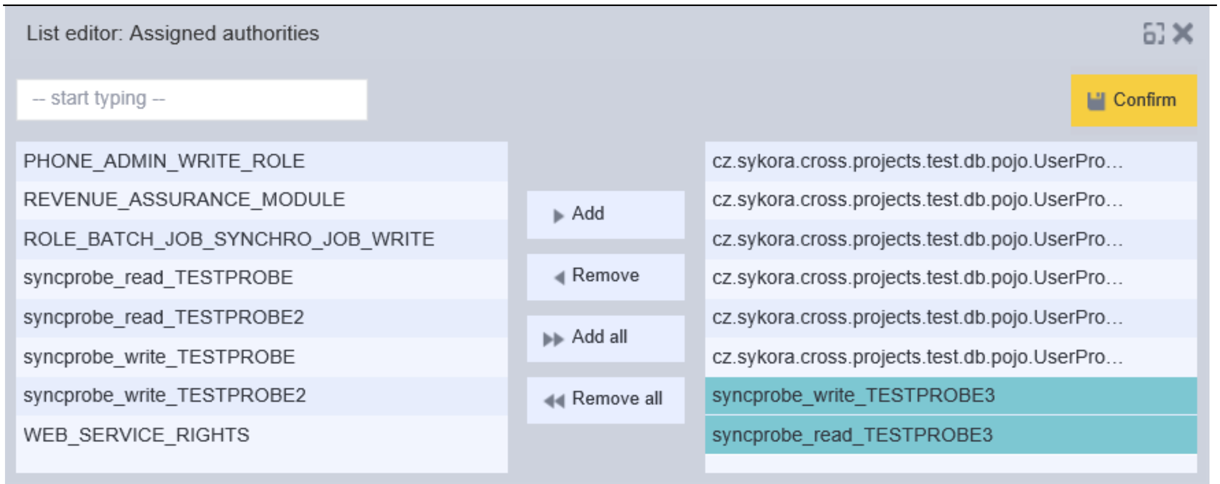
In the Group Editor Panel, select Assigned authorities.


User group editor
Submit
Basic

Name: ADMINS
Assigned authorities:
ACTIONS_ADDRESS_DELETE
ACTIONS_ADDRESS_EDIT
ACTIONS_CIRCUIT_ADDFIBERTERMBOX

The List editor: Assigned authorities window opens.

Assign syncprobe_read_nameprobe permissions (unless the probe has READ right, so it is not visible in Job scheduler) and syncprobe_write_nameprobe, then select Confirm.


List editor: Assigned authorities
-- start typing --
Confirm
Add
Remove
Add all
Remove all

PHONE_ADMIN_WRITE_ROLE
REVENUE_ASSURANCE_MODULE
ROLE_BATCH_JOB_SYNCHRO_JOB_WRITE
syncprobe_read_TESTPROBE
syncprobe_read_TESTPROBE2
syncprobe_write_TESTPROBE
syncprobe_write_TESTPROBE2
WEB_SERVICE_RIGHTS

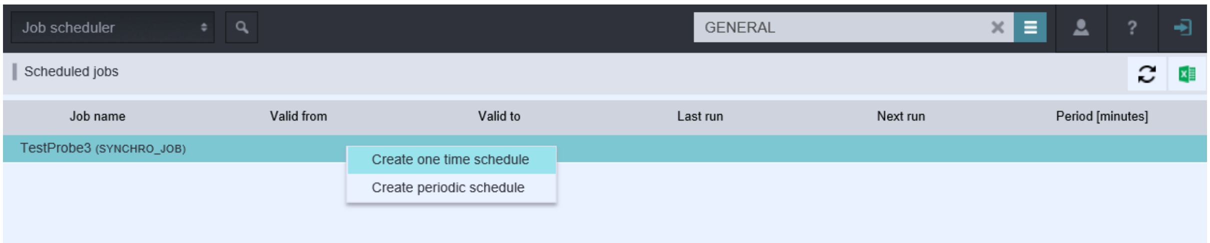
cz.sykora.cross.projects.test.db.pojo.UserPro…
cz.sykora.cross.projects.test.db.pojo.UserPro…
cz.sykora.cross.projects.test.db.pojo.UserPro…
cz.sykora.cross.projects.test.db.pojo.UserPro…
cz.sykora.cross.projects.test.db.pojo.UserPro…
cz.sykora.cross.projects.test.db.pojo.UserPro…
syncprobe_write_TESTPROBE3
syncprobe_read_TESTPROBE3

In Group Editor, press the Submit button, otherwise the changes will not be saved.

You must now log out and re-enter the CROSS application. This will update admin's admin rights, otherwise the synchro job will not be displayed for that probe in the Configuration module in the Job scheduler view.

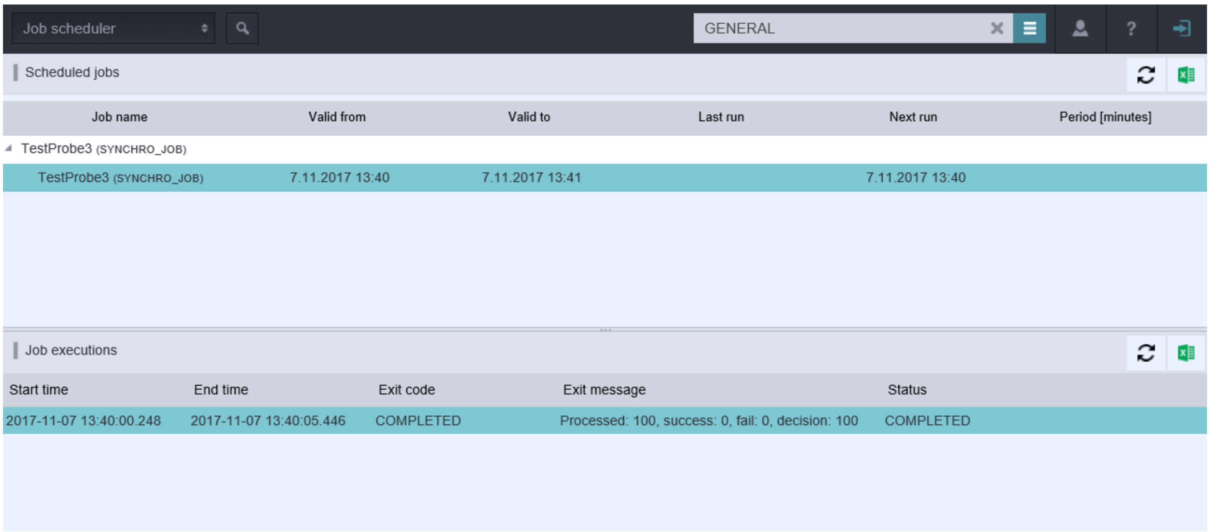
After signing in to CROSS, open the Configuration module and select the Job scheduler view.

Select the synchro job and choose Schedule One-Time Run or Schedule Periodic Trigger via the context menu


Job scheduler
GENERAL
Scheduled jobs
Create one time schedule
Create periodic schedule

Job name	Valid from	Valid to	Last run	Next run	Period [minutes]
TestProbe3 (SYNCHRO_JOB)					

When the sync job completes, the result of the operation in the Panel P2 Jobs executions is displayed. The Exit message column shows the resulting sync success statistics. The following statuses can be displayed in the Exit Code and Status columns: UNKNOWN, EXECUTING, COMPLETED, NOOP, FAILED, STOPPED. The Status column is not currently valid for Synchro.


Job scheduler
GENERAL
Scheduled jobs
Job executions

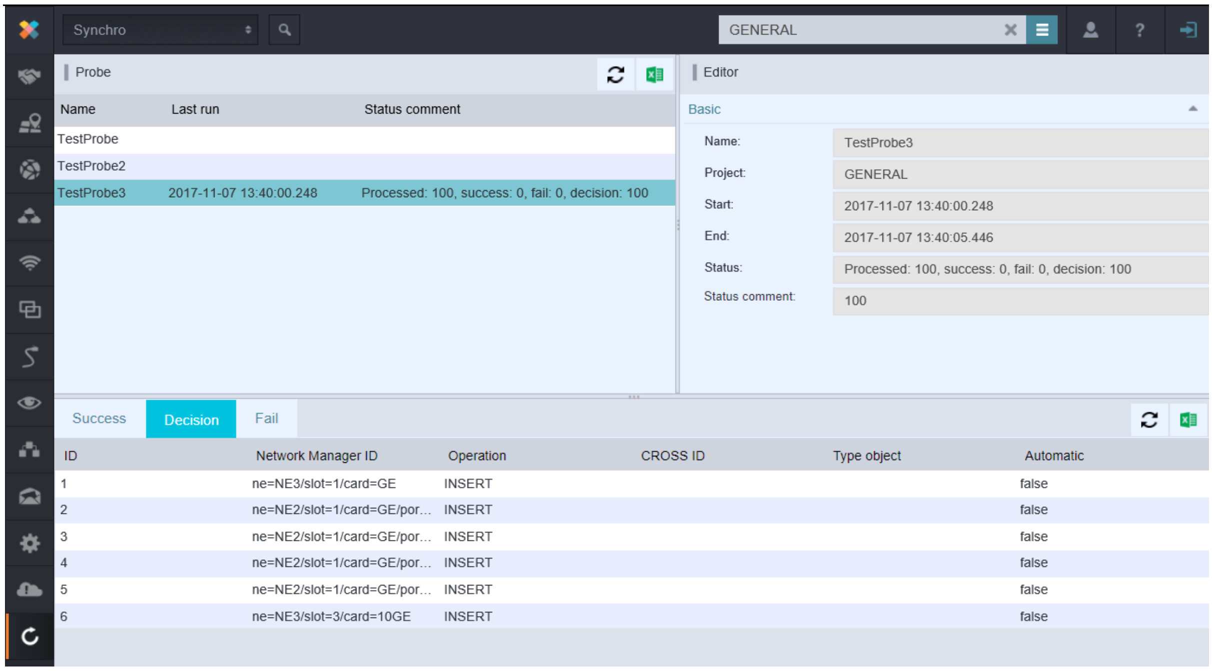
Job name	Valid from	Valid to	Last run	Next run	Period [minutes]
TestProbe3 (SYNCHRO_JOB)					
TestProbe3 (SYNCHRO_JOB)	7.11.2017 13:40	7.11.2017 13:41		7.11.2017 13:40	

Start time	End time	Exit code	Exit message	Status
2017-11-07 13:40:00.248	2017-11-07 13:40:05.446	COMPLETED	Processed: 100, success: 0, fail: 0, decision: 100	COMPLETED

Open Synchro

Select the probe in the P1 Panel Probe. The detail of the probe is displayed in the Editor

Successful, Decisions, and Failed tabs show the imported data according to the success of the operation



Name	Last run	Status comment
TestProbe		
TestProbe2		
TestProbe3	2017-11-07 13:40:00.248	Processed: 100, success: 0, fail: 0, decision: 100

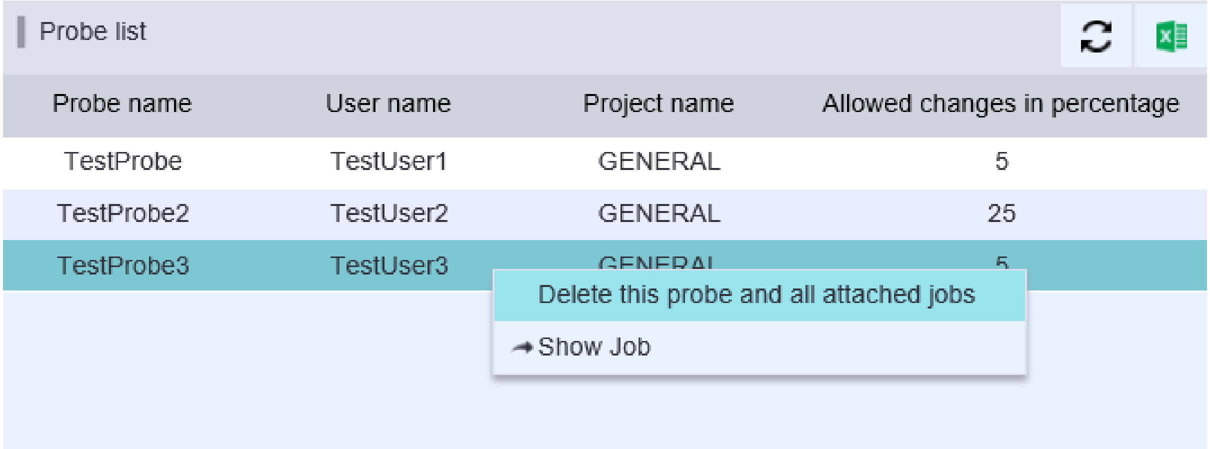
Name: TestProbe3
Project: GENERAL
Start: 2017-11-07 13:40:00.248
End: 2017-11-07 13:40:05.446
Status: Processed: 100, success: 0, fail: 0, decision: 100
Status comment: 100

ID	Network Manager ID	Operation	CROSS ID	Type object	Automatic
1	ne=NE3/slot=1/card=GE	INSERT			false
2	ne=NE2/slot=1/card=GE/por...	INSERT			false
3	ne=NE2/slot=1/card=GE/por...	INSERT			false
4	ne=NE2/slot=1/card=GE/por...	INSERT			false
5	ne=NE2/slot=1/card=GE/por...	INSERT			false
6	ne=NE3/slot=3/card=10GE	INSERT			false

4.5.3.2. Delete probe

Deleting the probe will be done in the Configuration module in the Synchro probe view.

In the Probe List panel, right-click on the record and select Delete this probe and attached jobs from the context menu.

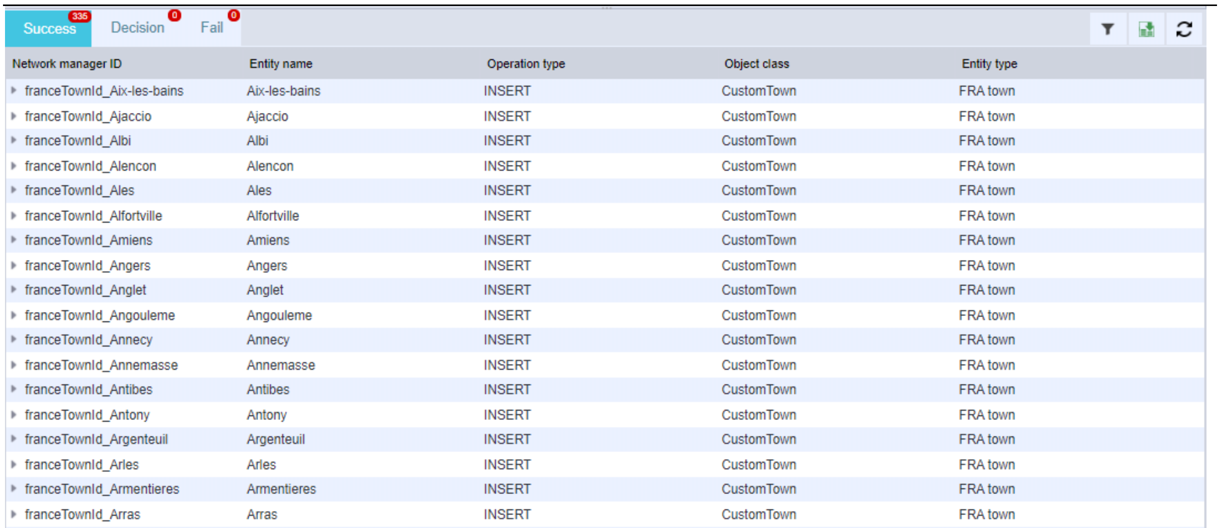


Probe name	User name	Project name	Allowed changes in percentage
TestProbe	TestUser1	GENERAL	5
TestProbe2	TestUser2	GENERAL	25
TestProbe3	TestUser3	GENERAL	5

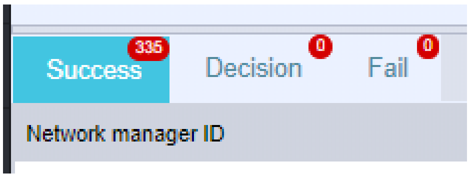
4.5.3.3. Export of Success/Decision/Fail records into Excel in a table format

The table contains five columns:

- **Network manager ID:** Id of an entity which is given from a probe
- **Entity name:** A name of the synchronized object.
- **Operation type:** Type of a synchro operation (Insert, Update, Delete)
- **Object class:** A class of a synchronized object.
- **Entity type:** Type of a synchronized entity if exists. (Node type, Link type, Service type etc.)


Success 335
Decision 0
Fail 0

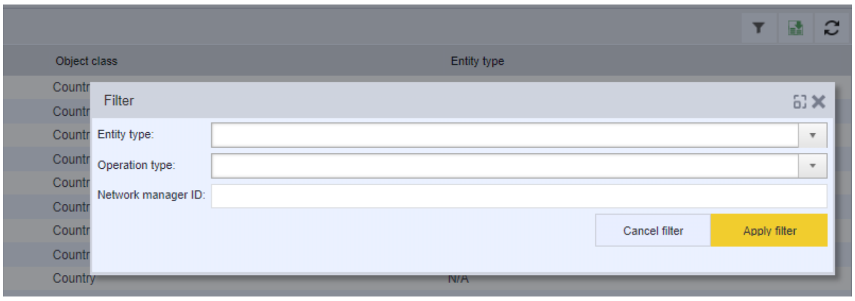
Network manager ID	Entity name	Operation type	Object class	Entity type
franceTownId_Aix-les-bains	Aix-les-bains	INSERT	CustomTown	FRA town
franceTownId_Ajaccio	Ajaccio	INSERT	CustomTown	FRA town
franceTownId_Albi	Albi	INSERT	CustomTown	FRA town
franceTownId_Alencon	Alencon	INSERT	CustomTown	FRA town
franceTownId_Ales	Ales	INSERT	CustomTown	FRA town
franceTownId_Alfortville	Alfortville	INSERT	CustomTown	FRA town
franceTownId_Amiens	Amiens	INSERT	CustomTown	FRA town
franceTownId_Angers	Angers	INSERT	CustomTown	FRA town
franceTownId_Anglet	Anglet	INSERT	CustomTown	FRA town
franceTownId_Angouleme	Angouleme	INSERT	CustomTown	FRA town
franceTownId_Annecy	Annecy	INSERT	CustomTown	FRA town
franceTownId_Annemasse	Annemasse	INSERT	CustomTown	FRA town
franceTownId_Antibes	Antibes	INSERT	CustomTown	FRA town
franceTownId_Antony	Antony	INSERT	CustomTown	FRA town
franceTownId_Argenteuil	Argenteuil	INSERT	CustomTown	FRA town
franceTownId_Arles	Arles	INSERT	CustomTown	FRA town
franceTownId_Armentieres	Armentieres	INSERT	CustomTown	FRA town
franceTownId_Arras	Arras	INSERT	CustomTown	FRA town

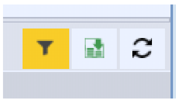

Success 335
Decision 0
Fail 0
Network manager ID

The number in the read oval means the number of root differences in each tab (Success, Decission, Fail).

You can filter the synchro differences by:

- Entity type
- Operation type
- Network manager ID

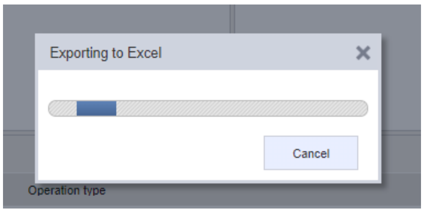

Object class
Entity type
Filter
Entity type:
Operation type:
Network manager ID:
Cancel filter
Apply filter



The filter works for each tab separately. If the filter is active, the tab is signed by yellow color.

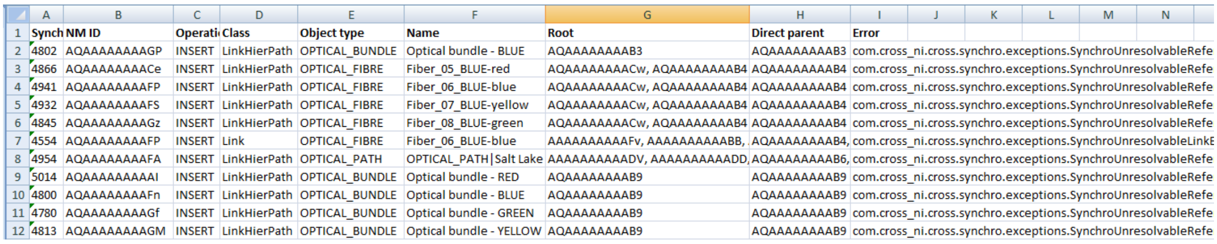
The table could be exported to the excel file using Export to Excel button

The export to the excel can be canceled anytime


Exporting to Excel
Cancel
Operation type

The excel file contains 8 columns (9 for fails)

- **Synchro diff Id:** Id of a synchro diference
- **NM ID:** Network manager ID
- **Operation type:** Type of a synchro operation (Insert, Update, Delete)
- **Class:** A class of a synchronized object.
- **Object type:** Type of a synchronized entity if exists. (Node type, Link type, Service type e.t.c.)
- **Name:** A name of the synchronized object.
- **Root:** A list of root synchro diferencies. (Network manager IDs)
- **Direct parent:** List of parent differencies. The curent diference is directly dependant on these parent diferences. (Network manager IDs)
- **Error:** (Occurs only in the export of fails). Description of the failure cause.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Synch	NM ID	Operati	Class	Object type	Name	Root	Direct parent	Error					
2	4802	AQAAAAAAAAGP	INSERT	LinkHierPath	OPTICAL_BUNDLE	Optical bundle - BLUE	AQAAAAAAAAB3	AQAAAAAAAAB3	com.cross_ni.cross.synchro.exceptions.SynchroUnresolvableRefe					
3	4866	AQAAAAAAAACe	INSERT	LinkHierPath	OPTICAL_FIBRE	Fiber_05_BLUE-red	AQAAAAAAAACw, AQAAAAAAAAB4	AQAAAAAAAAB4	com.cross_ni.cross.synchro.exceptions.SynchroUnresolvableRefe					
4	4941	AQAAAAAAAAFP	INSERT	LinkHierPath	OPTICAL_FIBRE	Fiber_06_BLUE-blue	AQAAAAAAAACw, AQAAAAAAAAB4	AQAAAAAAAAB4	com.cross_ni.cross.synchro.exceptions.SynchroUnresolvableRefe					
5	4932	AQAAAAAAAAFS	INSERT	LinkHierPath	OPTICAL_FIBRE	Fiber_07_BLUE-yellow	AQAAAAAAAACw, AQAAAAAAAAB4	AQAAAAAAAAB4	com.cross_ni.cross.synchro.exceptions.SynchroUnresolvableRefe					
6	4845	AQAAAAAAAAGz	INSERT	LinkHierPath	OPTICAL_FIBRE	Fiber_08_BLUE-green	AQAAAAAAAACw, AQAAAAAAAAB4	AQAAAAAAAAB4	com.cross_ni.cross.synchro.exceptions.SynchroUnresolvableRefe					
7	4554	AQAAAAAAAAFP	INSERT	Link	OPTICAL_FIBRE	Fiber_06_BLUE-blue	AAAAAAAAAAFv, AAAAAAAAAABB,	AQAAAAAAAAB4,	com.cross_ni.cross.synchro.exceptions.SynchroUnresolvableLinkE					
8	4954	AQAAAAAAAAFA	INSERT	LinkHierPath	OPTICAL_PATH	OPTICAL_PATH|Salt Lake	AAAAAAAAAADV, AAAAAAAAAADD,	AQAAAAAAAAB6,	com.cross_ni.cross.synchro.exceptions.SynchroUnresolvableRefe					
9	5014	AQAAAAAAAAAI	INSERT	LinkHierPath	OPTICAL_BUNDLE	Optical bundle - RED	AQAAAAAAAAB9	AQAAAAAAAAB9	com.cross_ni.cross.synchro.exceptions.SynchroUnresolvableRefe					
10	4800	AQAAAAAAAAFn	INSERT	LinkHierPath	OPTICAL_BUNDLE	Optical bundle - BLUE	AQAAAAAAAAB9	AQAAAAAAAAB9	com.cross_ni.cross.synchro.exceptions.SynchroUnresolvableRefe					
11	4780	AQAAAAAAAAGf	INSERT	LinkHierPath	OPTICAL_BUNDLE	Optical bundle - GREEN	AQAAAAAAAAB9	AQAAAAAAAAB9	com.cross_ni.cross.synchro.exceptions.SynchroUnresolvableRefe					
12	4813	AQAAAAAAAAGM	INSERT	LinkHierPath	OPTICAL_BUNDLE	Optical bundle - YELLOW	AQAAAAAAAAB9	AQAAAAAAAAB9	com.cross_ni.cross.synchro.exceptions.SynchroUnresolvableRefe					

4.6. RADIO MODULE – PTP / PtMP

Chapter overview:

4.6.1. Description of module environment

4.6.4. PTP Radio

4.6.4.1. P1 - Radio link editor / Channels / Materials panel

4.6.4.2. P2 - Radio frequency links

4.6.4.3. P3 - Map / Schema

4.6.4.4. P4 - Radio frequency link editor

4.6.5. Usage of user interface PTP Radio

4.6.5.1. Construction of PTP radio links

4.6.5.2. Materials and localities

4.6.5.3. Creating a new PTP radio link

4.6.5.4. Consuming circuit

4.6.5.5. Definition of radio frequency links of a PTP radio link

4.6.5.6. Creating a new PTP radio link via PTP wizard

4.6.5.7. Rules and limitations when creating PTP radio link via wizard

4.6.5.8. Calculation of elevation

4.6.6. PtMP Radio view

4.6.6.1. P1 - PTMP tree structure

4.6.6.2. P2 - PtMP Editor

4.6.6.3. P3 - Map

4.6.6.4. P4 - Accessories

4.6.7. Usage of user interface PtMP Radio

4.6.7.1. Construction of PTMP radio links

4.6.7.2. Preparation of materials and material templates

4.6.7.3. Preparation of radio locality (Locality module)

4.6.7.4. Creating a base station, sectors, and the gradual addition of terminal stations and services

4.6.8. PtMP Radio - Global view

4.6.8.1. P1 - PTMP radio systems

4.6.8.2. P2 - PTMP Editor

4.6.8.3. P3 - Map

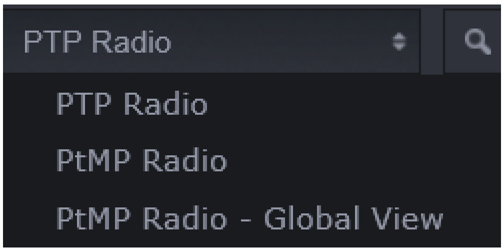
4.6.1. Description of module environment

Radio module is integrated directly into the CROSS application and it uses its graphical interface for presenting the PTP and PTMP radio networks on the map.

Radio module is launched by icon .

Module contains three views:

- PTP Radio
- PtMP Radio
- PtMP Radio - Global View



PTP Radio is default view.

Radio module is fully functioning system for designing and recording PTP (Point To Point) and PTMP (Point To Multi Point) radio systems. The module is divided into several functional parts that cover:

Administration of frequency bands

- Bundle, frequency channels

Radio Family config – configuration of radio technologies

- administrator definition of the PTP and PtMP radio technologies with a full connection to the Configuration module containing following definitions
- KMB – definitions of supported combinations (K-capacity, M-modulation, B-bandwidth)
- Capacity allocation for PtMP
- Frequency – frequency channels (L1 technologies)
- Capacity – capacity in KBs (L2 technologies)
- Physical components - definitions of possible configurations of devices based on material catalogue MATERIAL for IDU (In Door Unit), ODU (Out Door Unit), PTP antenna, PtMP sector antenna, PtMP – terminal antenna. Interconnection of physical and logical records is guaranteed by common templates of devices in the MATERIAL module - these templates make possible the existence of effective registry of physical and logical radio items
- Naming - rules for unique naming for devices, items, ports, radio connections
- Frequency - frequency channels (L1 technologies)
- Capacity – capacity in KBs (L2 technologies)

Radio Instances – records of radio network

- User part of the module that allows the user to keep detailed record of complete radio network
- PTP – in terms of physical records (radio localities ČTÚ, IDU and ODU unit, physical ports, antennas, radio connections, frequencies...) and logical records with a connection to physical records (NE - Network Elements, SP - Service Ports, CICR - circuits, such as radio connections and circuits consuming radio connections)
- PtMP - in terms of physical records (radio localities ČTÚ, IDU and ODU, physical ports, sector antennas, terminal antennas, radio connections, frequencies...) and logical records with a connection to physical records (NE - Network Elements, SP - Service Ports, CICR - circuits, such as radio connections and circuits consuming radio connections). Records for PtMP are based on the tree structure hierarchy:

- BS – Base Station
- SECTOR – sector antenna
- Radio connection SECTOR-TS
- TS – Terminal Station
- SERVICE – transmission channel in the radio connection

Capacity management – capacity rules

- There are built-in rules for PTP and PtMP technologies for monitoring possible capacity utilization, meaning in the physical terms (max. number of sectors on a base station, max. number of terminal stations on a sector antenna), and in the logical terms, where "frequency" or "capacity" allocation of capacities is distinguished according to the Family Config type.

ČTÚ process of frequency band allocation

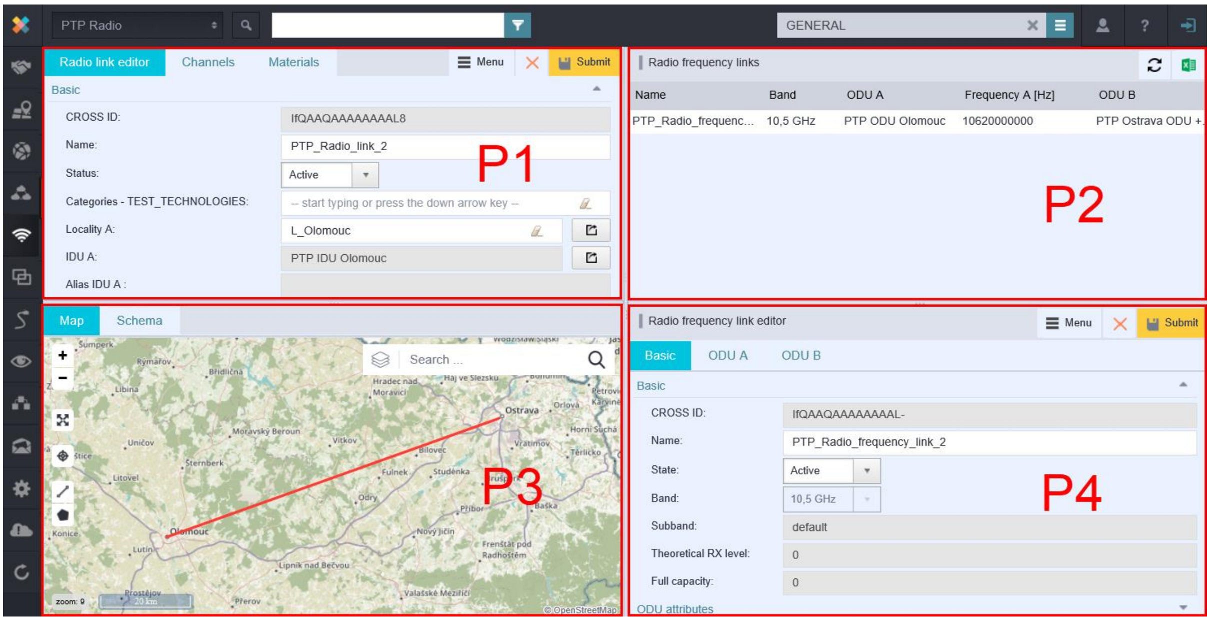
- Full support of process of frequency bands allocation related to individual instances of radio connections. Automatic generation of requests and allocation validity monitoring.

4.6.2. PTP Radio

This submodule serves for defining PTP radio connections. It combines functionalities of the Circuit, Location and Material modules and integrates them into one tool that allows you to easily create radio connections.

The module window consists of four panels:

- P1 - Radio link editor / Channels / Materials
- P2 - Radio frequency links
- P3 - Map / Schema
- P4 - Radio frequency link editor



CROSS ID: IfQAAQAAAAAAAAL8
Name: PTP_Radio_link_2
Status: Active
Categories - TEST_TECHNOLOGIES: -- start typing or press the down arrow key --
Locality A: L_Olomouc
IDU A: PTP IDU Olomouc
Alias IDU A :

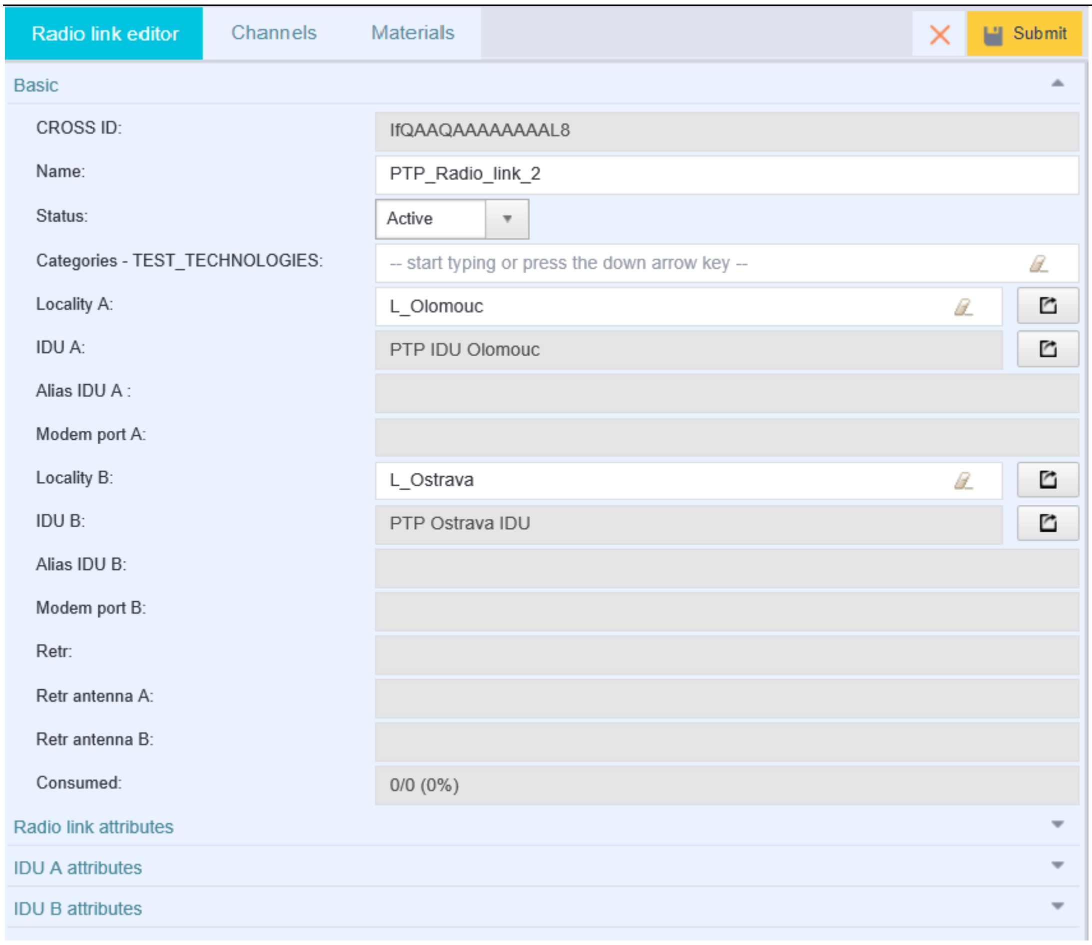
Name	Band	ODU A	Frequency A [Hz]	ODU B
PTP_Radio_frequenc...	10,5 GHz	PTP ODU Olomouc	10620000000	PTP Ostrava ODU +

CROSS ID: IfQAAQAAAAAAAAL-
Name: PTP_Radio_frequency_link_2
State: Active
Band: 10,5 GHz
Subband: default
Theoretical RX level: 0
Full capacity: 0

4.6.2.1. P1 - Radio link editor / Channels / Materials panel

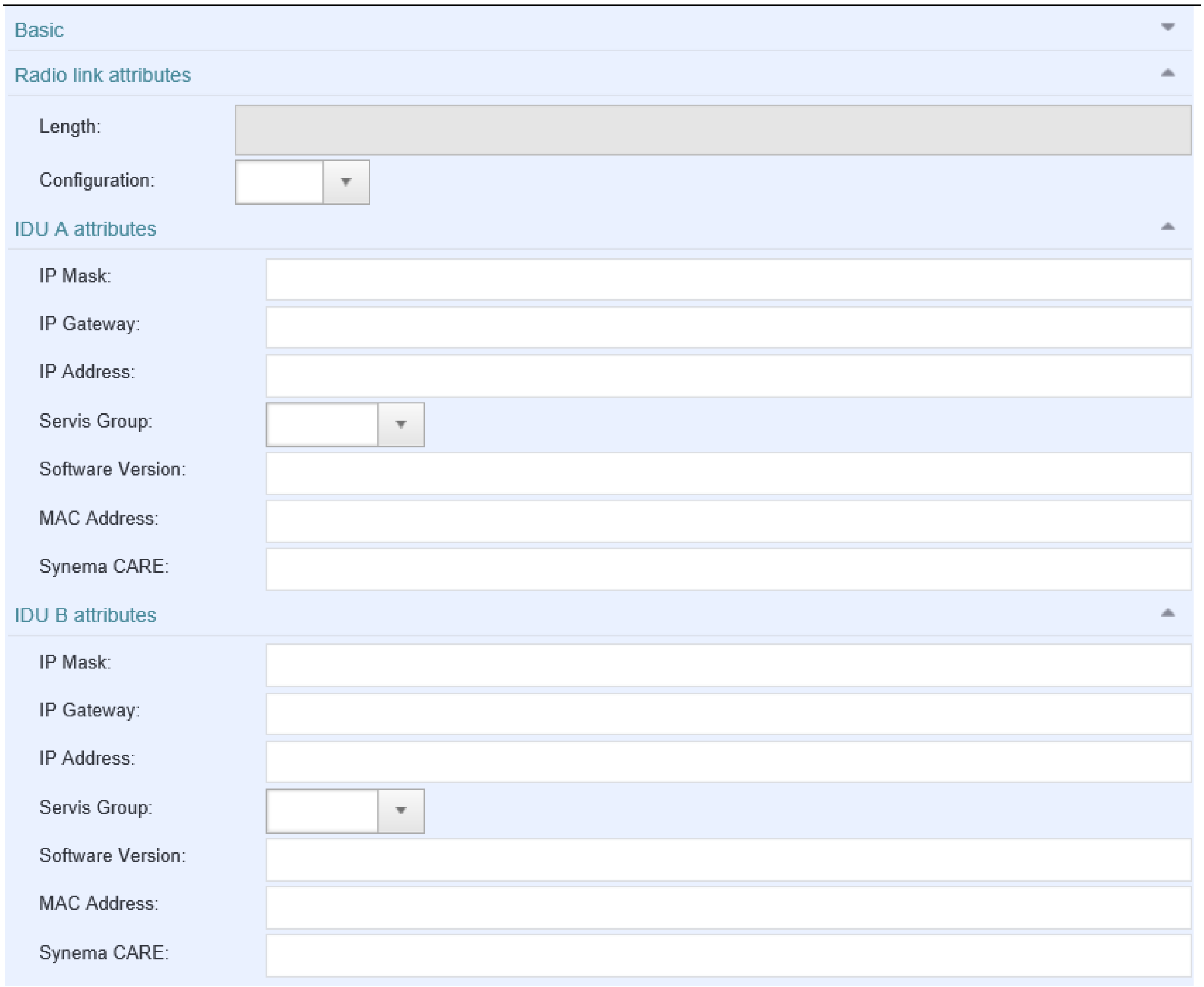
Radio Link Editor

This panel serves for creating and editing attributes of a link.

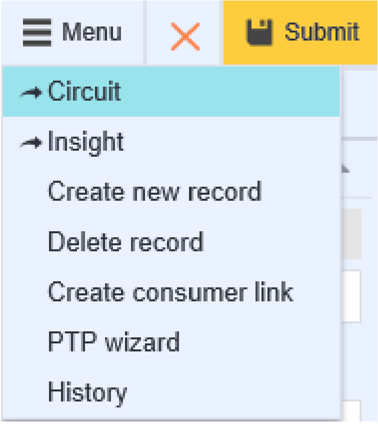

Radio link editor
Channels
Materials
Submit
Basic
Radio link attributes
IDU A attributes
IDU B attributes

CROSS ID:	IfQAAQAAAAAAAAL8
Name:	PTP_Radio_link_2
Status:	Active
Categories - TEST_TECHNOLOGIES:	-- start typing or press the down arrow key --
Locality A:	L_Olomouc
IDU A:	PTP IDU Olomouc
Alias IDU A :	
Modem port A:	
Locality B:	L_Ostrava
IDU B:	PTP Ostrava IDU
Alias IDU B:	
Modem port B:	
Retr:	
Retr antenna A:	
Retr antenna B:	
Consumed:	0/0 (0%)

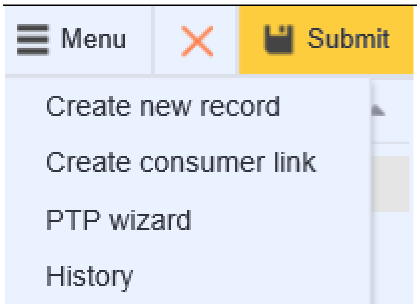
Editor contains other items: Link attributes, IDU A attributes, IDU B attributes,


Basic
Radio link attributes
Length:
Configuration:
IDU A attributes
IP Mask:
IP Gateway:
IP Address:
Servis Group:
Software Version:
MAC Address:
Synema CARE:
IDU B attributes
IP Mask:
IP Gateway:
IP Address:
Servis Group:
Software Version:
MAC Address:
Synema CARE:

You can run these options from the drop-down menu:


Menu
Submit
Circuit
Insight
Create new record
Delete record
Create consumer link
PTP wizard
History

For creating new record, menu has those items:


Menu
Submit
Create new record
Create consumer link
PTP wizard
History

Circuit - opens current link in the Circuit module.

Insight - opens current link in the Insight module.

Create new record -removes all attributes from the radio link editor. Enter attributes for the new radio link and save it by clicking on the Submit button. The entire process of creating new radio PTP links and their radio frequency links is described in the chapter called [Creating radio PTP links.]()

Delete record - deletes current radio link record and all its radio frequency links.

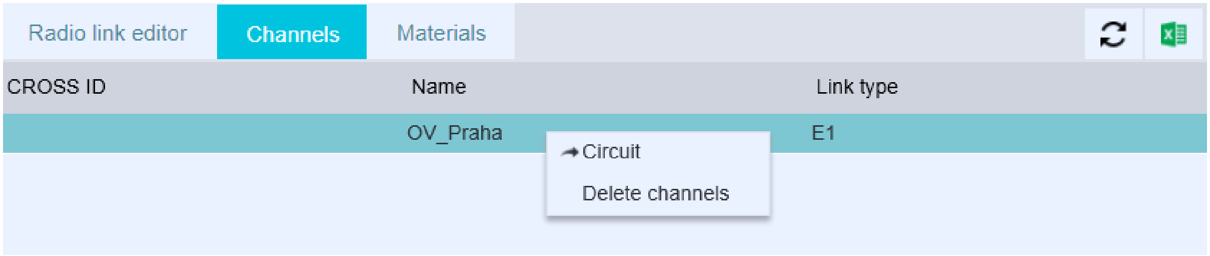
Create consumer link - creates new consumer link of the current radio link.

PTP wizard- utility that helps you to create PTP radio links (definitions of ODU and IDU, Antennas on both localities).

History - displays history of selected record.

Channels bookmark:

In this bookmark, you can see all consuming links of selected PTP radio link.

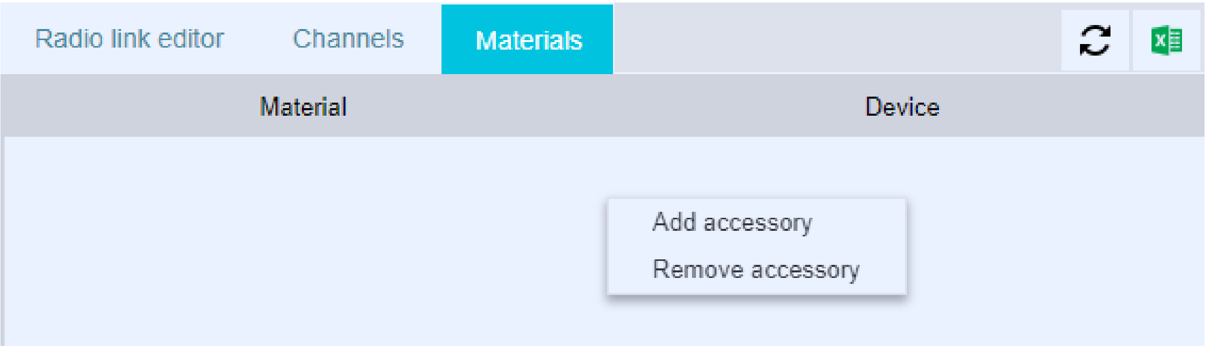

Radio link editor
Channels
Materials
Circuit
Delete channels

CROSS ID	Name	Link type
	OV_Praha	E1

From the context menu you can delete selected record and switch to Circuit module.

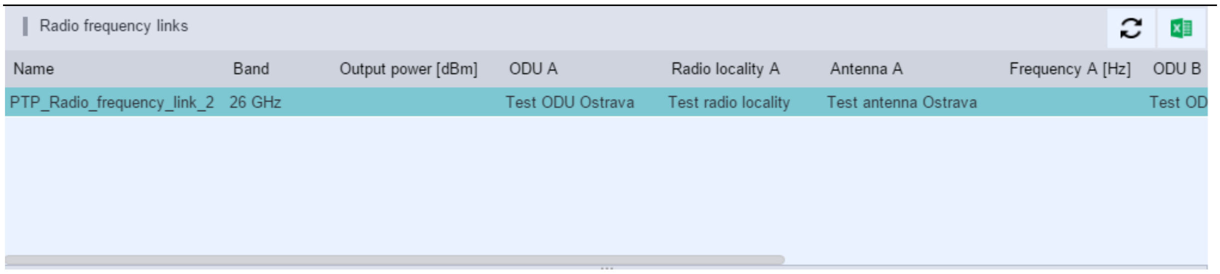
Materials bookmark:

All material accessories for selected PTP radio link are recorded here. You can add more materials from the context menu - click to the area of the Material column and select the Add accessory option.


Radio link editor
Channels
Materials
Material
Device
Add accessory
Remove accessory

4.6.2.2. P2 - Radio frequency links

This panel contains the list of radio frequency links.

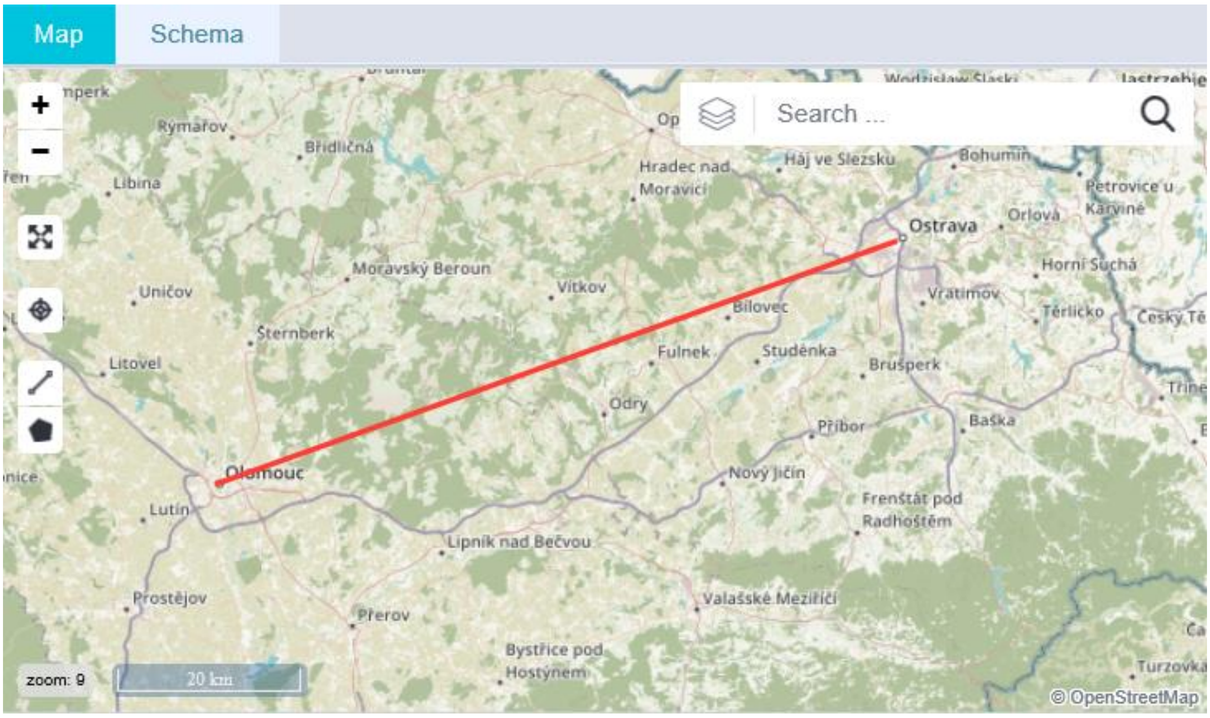


Radio frequency links

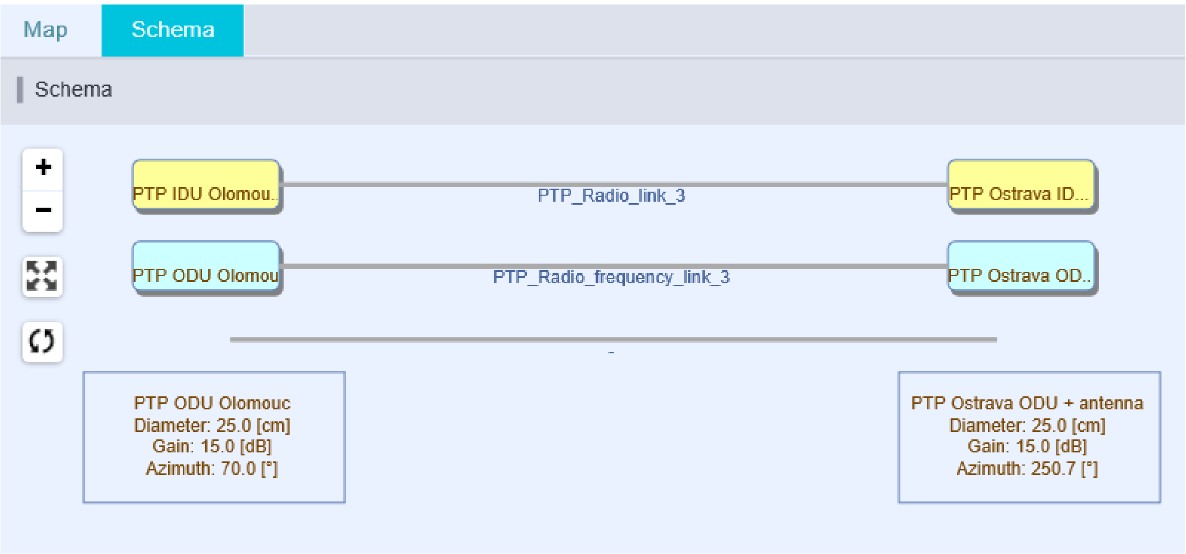
Name	Band	Output power [dBm]	ODU A	Radio locality A	Antenna A	Frequency A [Hz]	ODU B
PTP_Radio_frequency_link_2	26 GHz		Test ODU Ostrava	Test radio locality	Test antenna Ostrava		Test OD

4.6.2.3. P3 - Map / Schema panel

This panel displays a geometry of current radio link that is loaded in the Radio link editor.


Map
Schema
Search ...
Olomouc
Ostrava
zoom: 9
20 km
© OpenStreetMap

Schema bookmark

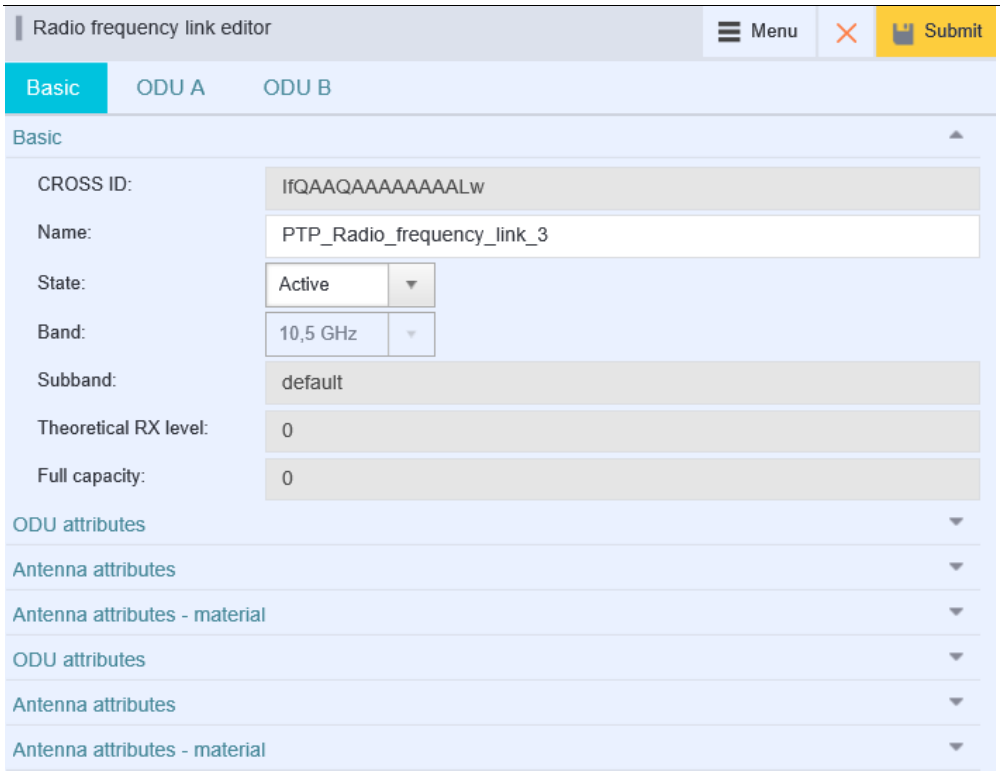

Map
Schema
Schema
PTP IDU Olomou..
PTP_Radio_link_3
PTP Ostrava ID...
PTP ODU Olomou
PTP_Radio_frequency_link_3
PTP Ostrava OD...
-

PTP ODU Olomouc
Diameter: 25.0 [cm]
Gain: 15.0 [dB]
Azimuth: 70.0 [°]

PTP Ostrava ODU + antenna
Diameter: 25.0 [cm]
Gain: 15.0 [dB]
Azimuth: 250.7 [°]

4.6.2.4. P4 - Radio frequency link editor

Radio frequency link editor


Radio frequency link editor
Menu
Submit
Basic
ODU A
ODU B
Basic
ODU attributes
Antenna attributes
Antenna attributes - material
ODU attributes
Antenna attributes
Antenna attributes - material

CROSS ID: IfQAAQAAAAAAAAALw

Name: PTP_Radio_frequency_link_3

State: Active

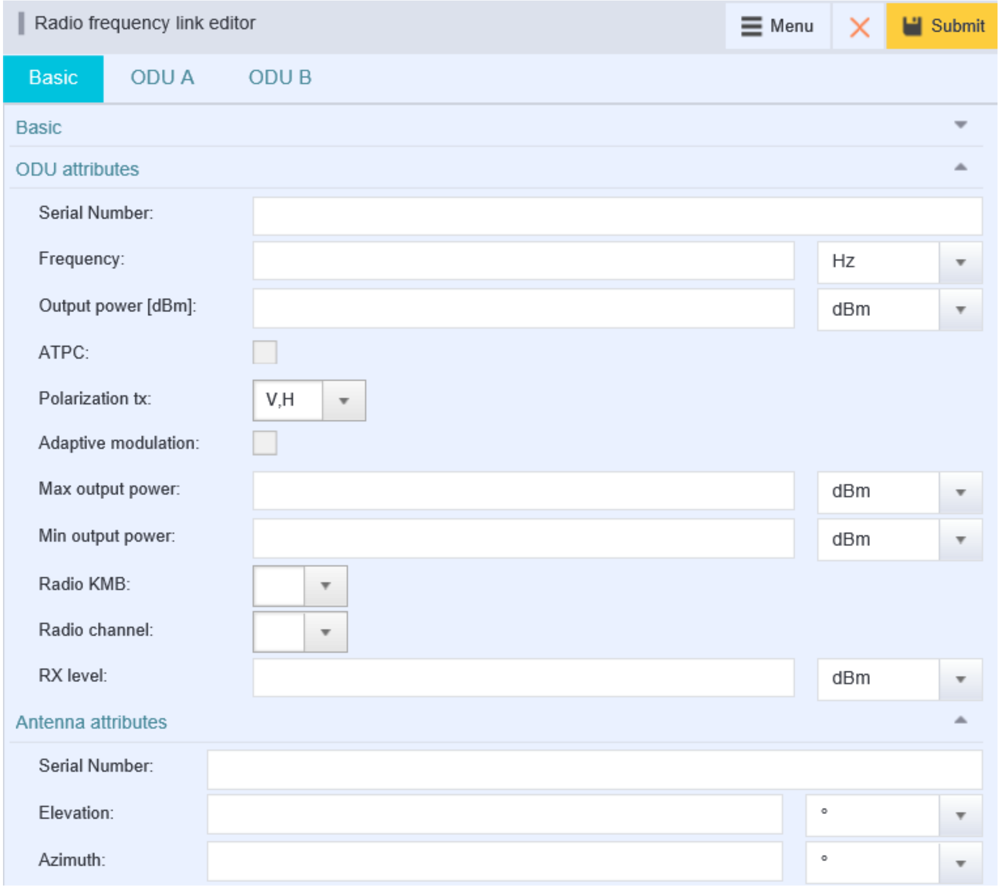
Band: 10,5 GHz

Subband: default

Theoretical RX level: 0

Full capacity: 0

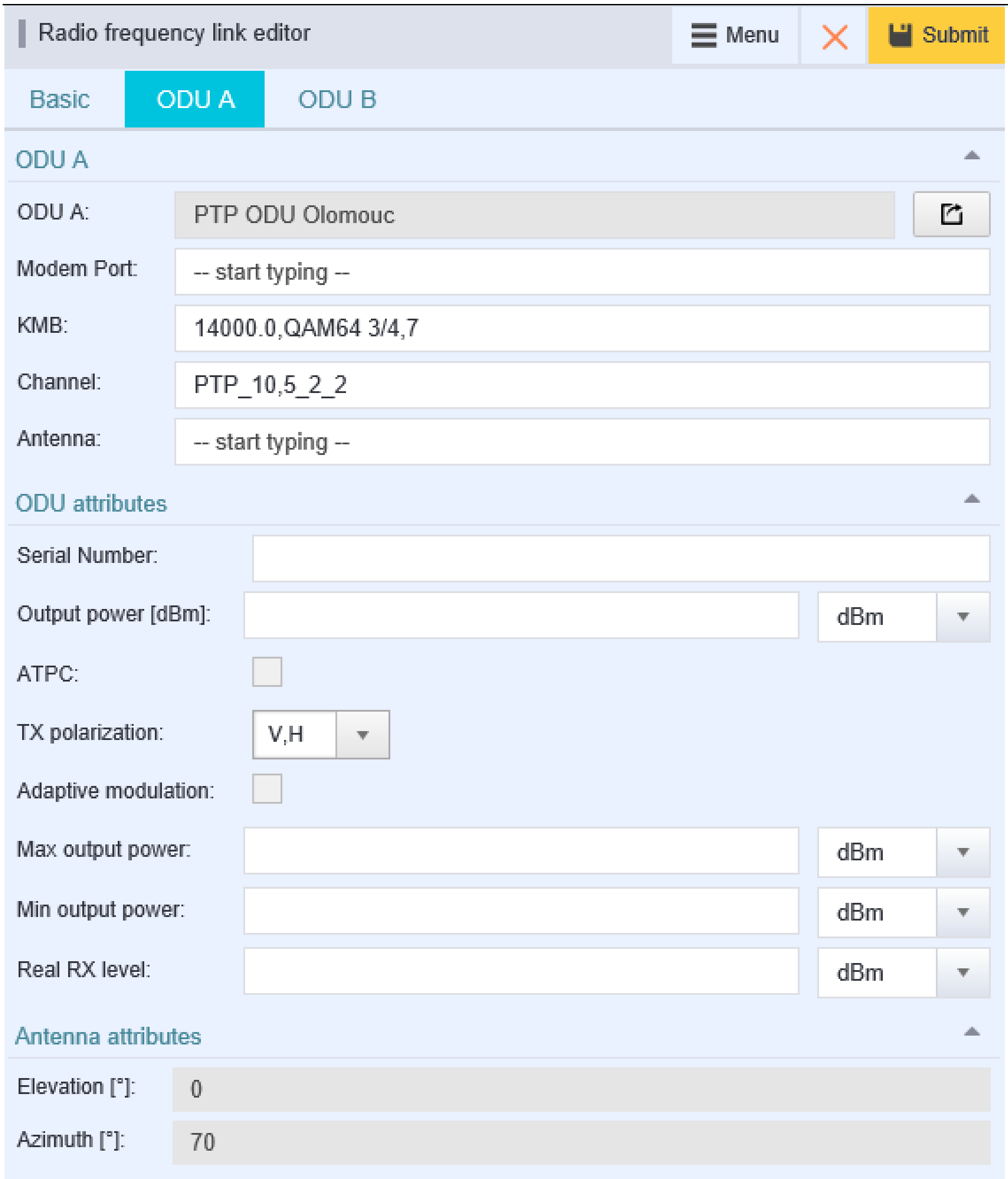
Editor contains ODU A attributes.


Radio frequency link editor
Menu
Submit
Basic
ODU A
ODU B
Basic
ODU attributes
Serial Number:
Frequency:
Hz
Output power [dBm]:
dBm
ATPC:
Adaptive modulation:
Max output power:
dBm
Min output power:
dBm
Radio KMB:
Radio channel:
RX level:
dBm
Antenna attributes
Serial Number:
Elevation:
°
Azimuth:
°

Polarization tx: V,H

Editor of the link ends - ODU-A and ODU-B

Editor of the ODU A radio frequency link


Radio frequency link editor
Menu
Submit
Basic
ODU A
ODU B

ODU A

ODU A: PTP ODU Olomouc

Modem Port: -- start typing --

KMB: 14000.0,QAM64 3/4,7

Channel: PTP_10,5_2_2

Antenna: -- start typing --

ODU attributes

Serial Number:

Output power [dBm]: dBm

ATPC: ☐

TX polarization: V,H

Adaptive modulation: ☐

Max output power: dBm

Min output power: dBm

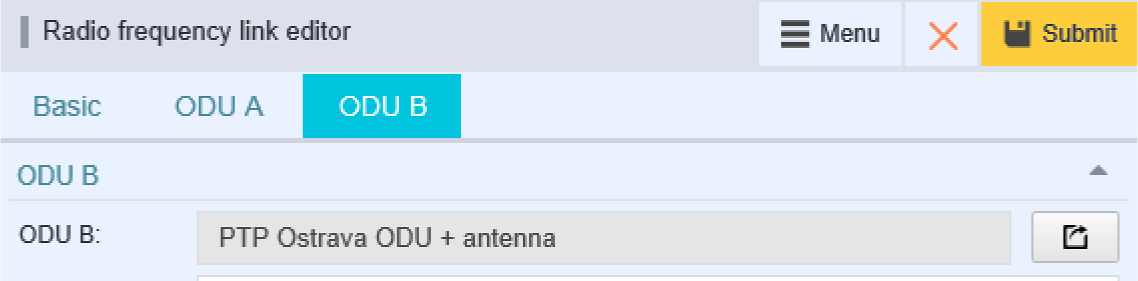
Real RX level: dBm

Antenna attributes

Elevation [°]: 0

Azimuth [°]: 70

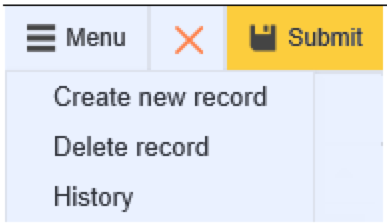
Editor of the ODU B radio frequency link


Radio frequency link editor
Menu
Submit
Basic
ODU A
ODU B

ODU B

ODU B: PTP Ostrava ODU + antenna

Editor menu shows these three options:



Create new record

Select the Create new record option from the editor drop-down menu.

Enter required radio frequency link attributes.

Save new radio frequency link by clicking on the Submit button.

A new radio frequency link defined by its end ODUs (that belong to the link end IDUs) will be created and added to the current radio link.

New radio frequency link will be displayed in the **Radio frequency links bookmark.**

Deleting a radio frequency link

Select a frequency link that you want to delete from the radio frequency link panel.

Select Delete record option from the Radio frequency link editor drop-down menu.

Deleted radio frequency link is not displayed in the list of radio frequency links anymore.

History

Displays history of selected radio frequency link.

4.6.3. Usage of user interface PTP Radio

4.6.3.1. Construction of PTP radio links

Construction of PTP radio links can be performed in several steps:

Preparation of materials and localities.

Creating a new radio link.

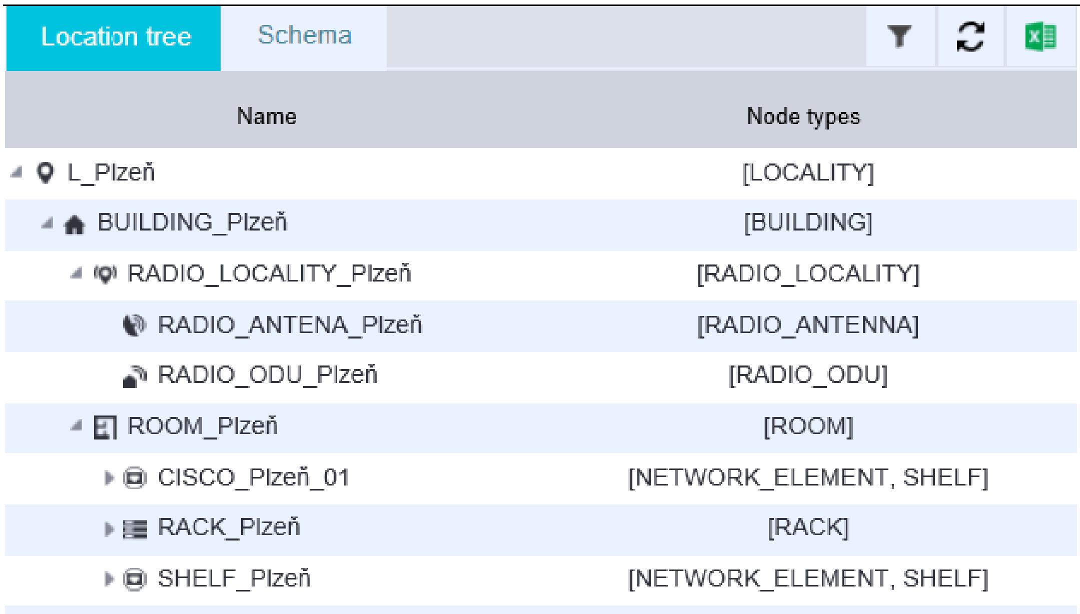
Defining radio frequency links.

4.6.3.2. Materials and localities

Every PTP radio link is defined by its two end IDUs (IDU A and IDU B). IDU is an indoor device located in a room of given building on a locality (e.g. see SHELF_Plzeň on the picture below).

A radio locality needs to be placed on the building in relevant locality. Furthermore, Radio ODU and Radio Antenna need to be placed on this radio locality.

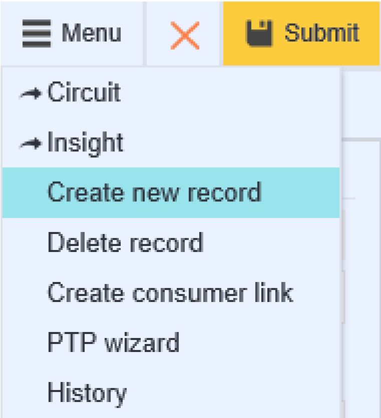
The whole structure of a locality should look similar to the example below:


Location tree
Schema

Name	Node types
L_Plzeň	[LOCALITY]
BUILDING_Plzeň	[BUILDING]
RADIO_LOCALITY_Plzeň	[RADIO_LOCALITY]
RADIO_ANTENA_Plzeň	[RADIO_ANTENNA]
RADIO_ODU_Plzeň	[RADIO_ODU]
ROOM_Plzeň	[ROOM]
CISCO_Plzeň_01	[NETWORK_ELEMENT, SHELF]
RACK_Plzeň	[RACK]
SHELF_Plzeň	[NETWORK_ELEMENT, SHELF]

4.6.3.3. Creating a new PTP radio link

Select Create new record option from the Radio link editor drop-down menu


Menu
Submit
Circuit
Insight
Create new record
Delete record
Create consumer link
PTP wizard
History

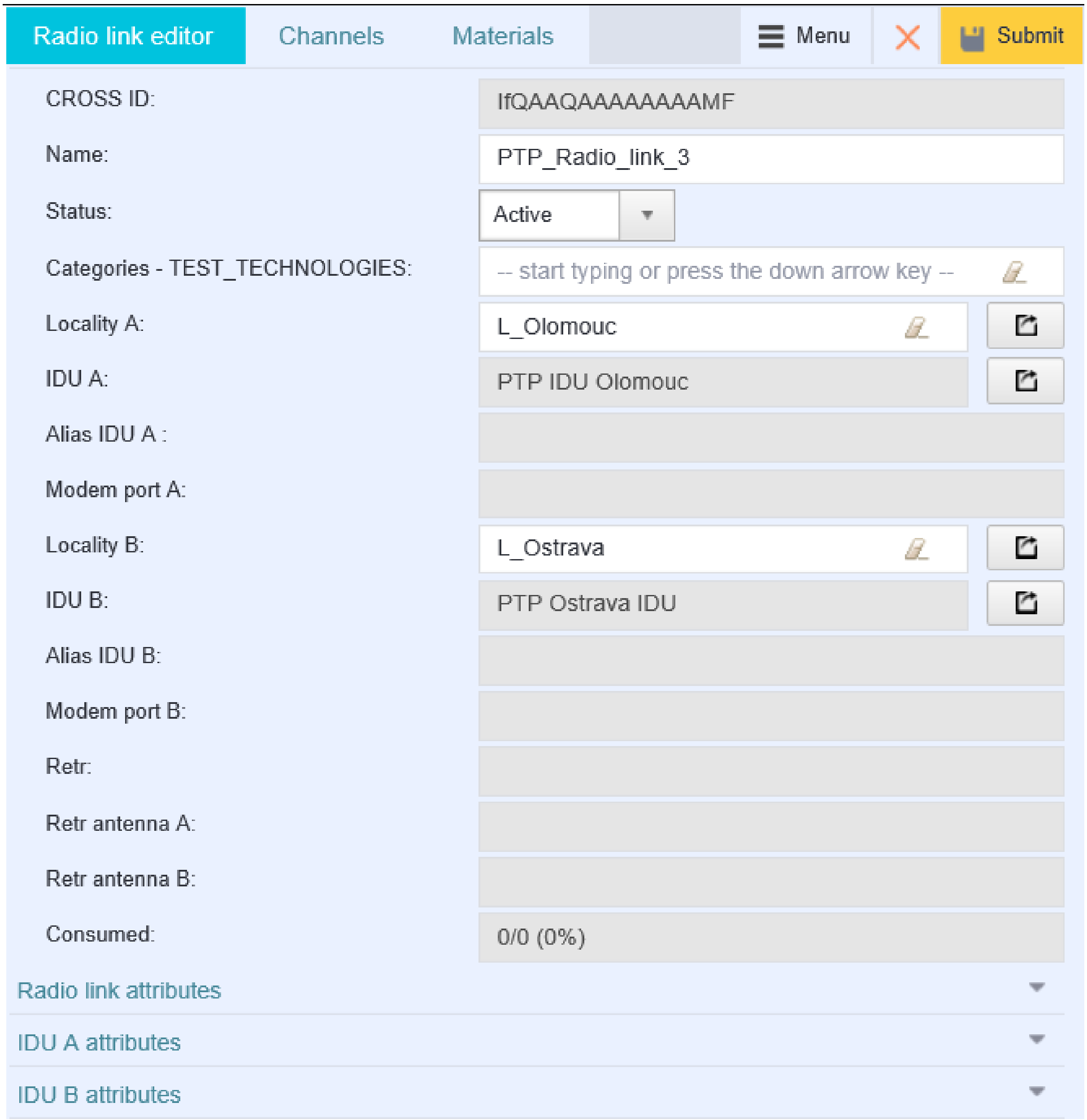
Enter Naming rule **and** State attributes.

Technology attribute is not mandatory. If you fill it in, only IDUs including this technology will be offered to choose from when entering IDUs.

If you fill the Locality A, Locality B attributes, only IDUs from this locality will be offered to choose from in the next step when entering IDU.

Enter Network Element A (IDU *A)* and Network Element B *(*IDU B) attributes.

If Locality A or Locality B attributes are not entered, they will be filled in automatically according to IDU selected.



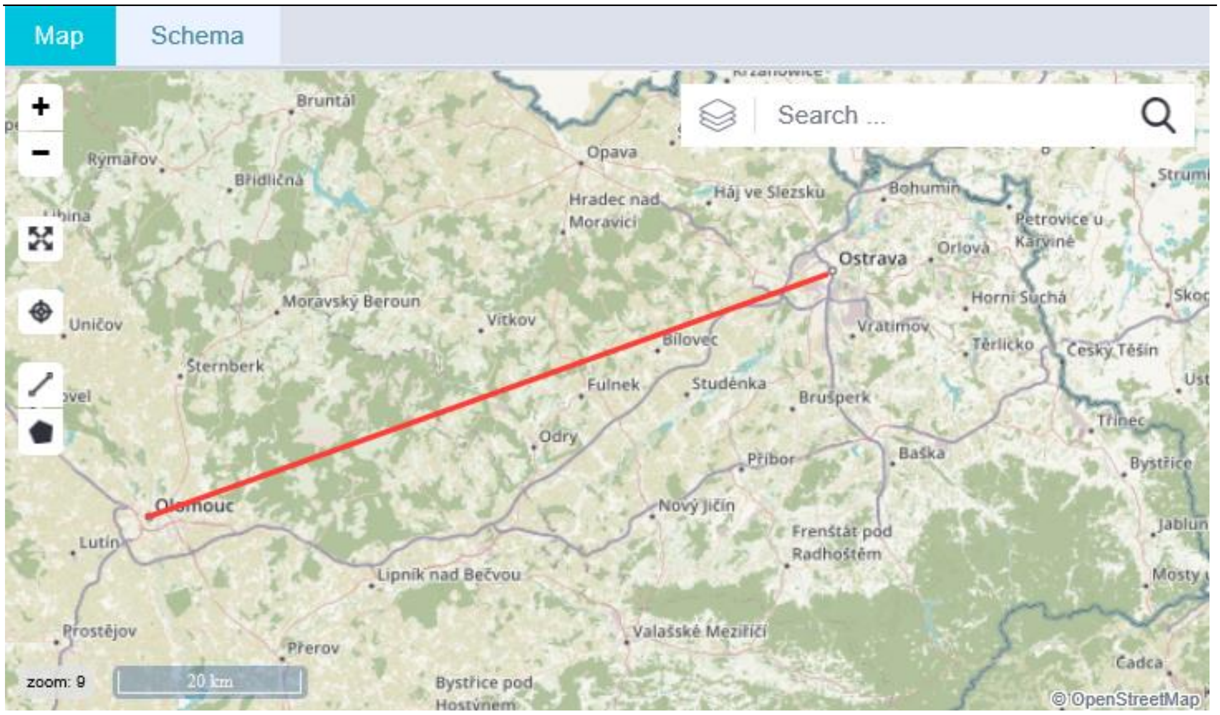
Radio link editor
Channels
Materials
Menu
Submit

CROSS ID:	IfQAAQAAAAAAAAMF
Name:	PTP_Radio_link_3
Status:	Active
Categories - TEST_TECHNOLOGIES:	-- start typing or press the down arrow key --
Locality A:	L_Olomouc
IDU A:	PTP IDU Olomouc
Alias IDU A :	
Modem port A:	
Locality B:	L_Ostrava
IDU B:	PTP Ostrava IDU
Alias IDU B:	
Modem port B:	
Retr:	
Retr antenna A:	
Retr antenna B:	
Consumed:	0/0 (0%)

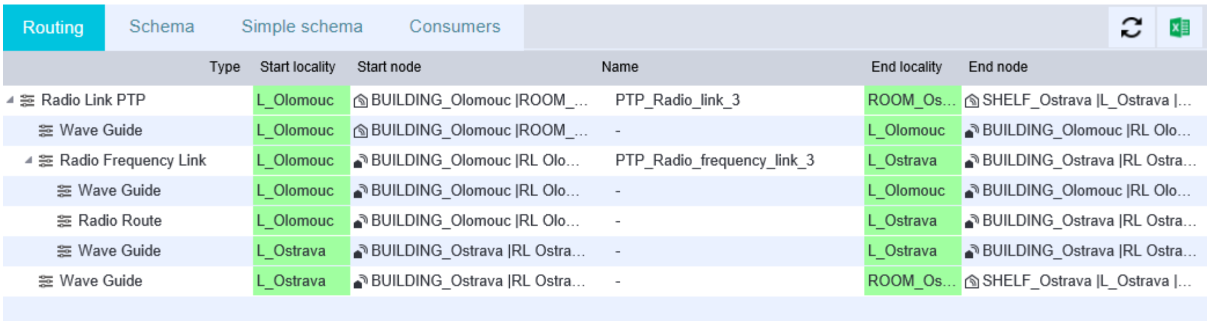
Radio link attributes
IDU A attributes
IDU B attributes

Save the new radio link by clicking on the Submit button.

Geometry of the recently created radio link will be displayed in the map window.


Map
Schema
Search ...
Bruntál
Rýmařov
Břidličná
Opava
Hradec nad Moravicí
Háj ve Slezsku
Bohumín
Ostrava
Orlová
Petrovice u Karviné
Horní Suchá
Moravský Beroun
Vítkov
Uničov
Šternberk
Bílovec
Vratimov
Těrlicko
Český Těšín
Fulnek
Studénka
Brušperk
Třinec
Odry
Příbor
Baška
Bystřice
Olomouc
Nový Jičín
Frenštát pod Radhoštěm
Lutín
Lipník nad Bečvou
Mosty u
Prostějov
Přerov
Valašské Meziříčí
Čadca
zoom: 9
20 km
Bystřice pod Hostýnem
© OpenStreetMap

Newly created radio link can be opened in the Circuit module by selecting the Circuit option from the drop-down menu. Here, you can find it in the Routing panel as a link of the Radio Link type.

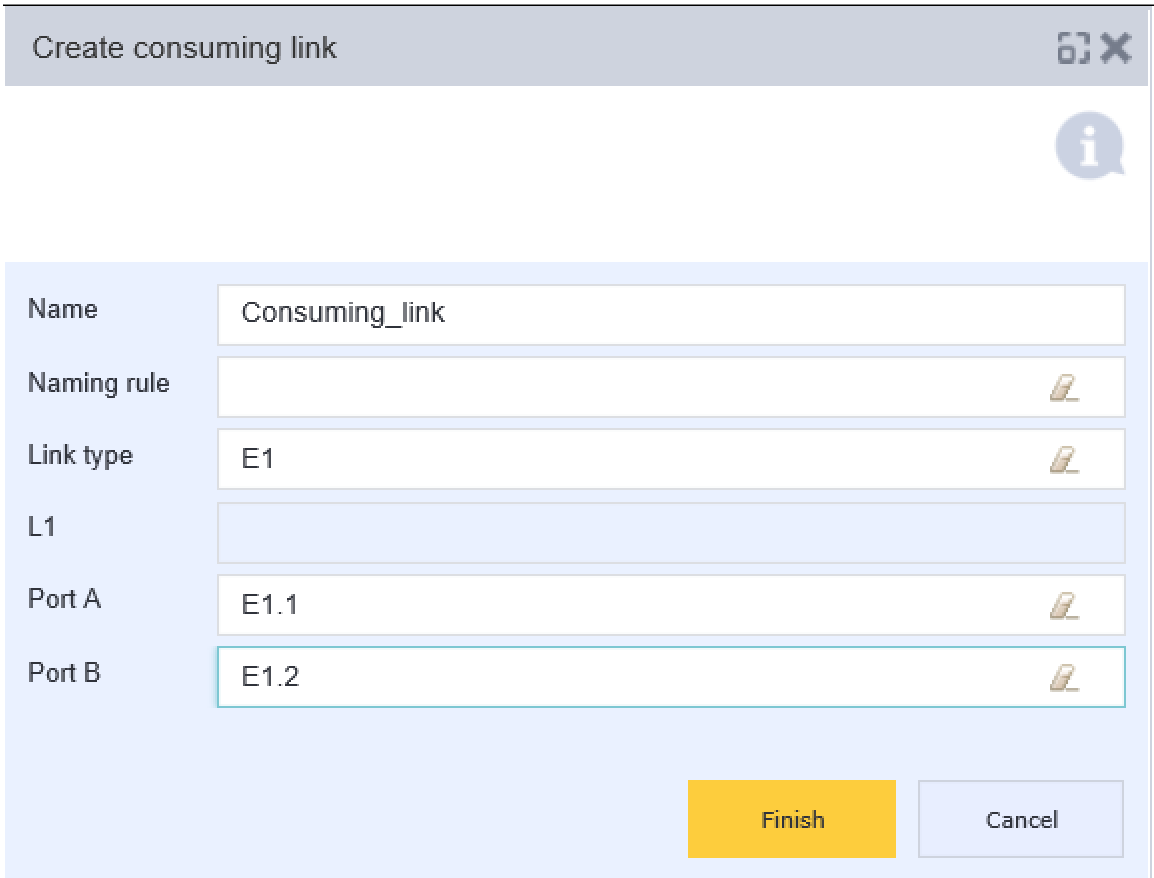

Routing
Schema
Simple schema
Consumers

Type	Start locality	Start node	Name	End locality	End node
Radio Link PTP	L_Olomouc	BUILDING_Olomouc |ROOM_...	PTP_Radio_link_3	ROOM_Os...	SHELF_Ostrava |L_Ostrava |...
Wave Guide	L_Olomouc	BUILDING_Olomouc |ROOM_...	-	L_Olomouc	BUILDING_Olomouc |RL Olo...
Radio Frequency Link	L_Olomouc	BUILDING_Olomouc |RL Olo...	PTP_Radio_frequency_link_3	L_Ostrava	BUILDING_Ostrava |RL Ostra...
Wave Guide	L_Olomouc	BUILDING_Olomouc |RL Olo...	-	L_Olomouc	BUILDING_Olomouc |RL Olo...
Radio Route	L_Olomouc	BUILDING_Olomouc |RL Olo...	-	L_Ostrava	BUILDING_Ostrava |RL Ostra...
Wave Guide	L_Ostrava	BUILDING_Ostrava |RL Ostra...	-	L_Ostrava	BUILDING_Ostrava |RL Ostra...
Wave Guide	L_Ostrava	BUILDING_Ostrava |RL Ostra...	-	ROOM_Os...	SHELF_Ostrava |L_Ostrava |...

4.6.3.4. Consuming circuit

It is possible to create a consuming circuit to the radio link in the Radio - PTP module and radio link will then be its provider.

Select Create consumer link option from the radio link editor drop-down menu:



Name	Consuming_link
Naming rule	
Link type	E1
L1	
Port A	E1.1
Port B	E1.2

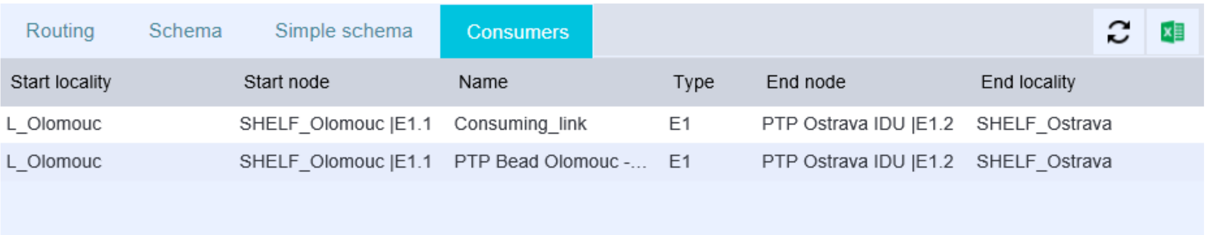
Enter its name and you may also enter Naming rule attribute which is optional.

Enter Link type attribute by selecting it from the list.

Enter Port A and Port B attributes by selecting them from the list. The list contains values of all ports of selected IDU.

Create new consuming circuit by clicking on the Finish button.

You can view this recent consuming circuit in the Circuit module in the Consumers bookmark:



Start locality	Start node	Name	Type	End node	End locality
L_Olomouc	SHELF_Olomouc |E1.1	Consuming_link	E1	PTP Ostrava IDU |E1.2	SHELF_Ostrava
L_Olomouc	SHELF_Olomouc |E1.1	PTP Bead Olomouc -...	E1	PTP Ostrava IDU |E1.2	SHELF_Ostrava

4.6.3.5. Definition of radio frequency links of a PTP radio link

Each PTP radio link is created by one or more radio frequency links according to the configuration. For example, 1+0 = one main radio frequency link, 1+1 = one main radio frequency link + one backup link etc.

Radio frequency link is defined by its end ODUs (ODU A a ODU B).

Select Create new record option from the Radio frequency link editor drop-down menu.

Enter Naming rule and State attributes.

Enter ODU A attribute by selecting it from the ODU list. In the list of offered options there are all ODUs that are placed on a building in which there is a radio IDU A link. This applies also for the ODU B attribute.

Radio locality attributes will be filled in automatically after the ODU attributes are entered.

Enter KMB and Channel attributes from the list for both end ODUs. Values displayed in the list are all values defined in the material of selected ODU.

Enter Antenna attribute from the list for both end ODUs. The list displays all antennas located on a building on which there is a selected ODU.

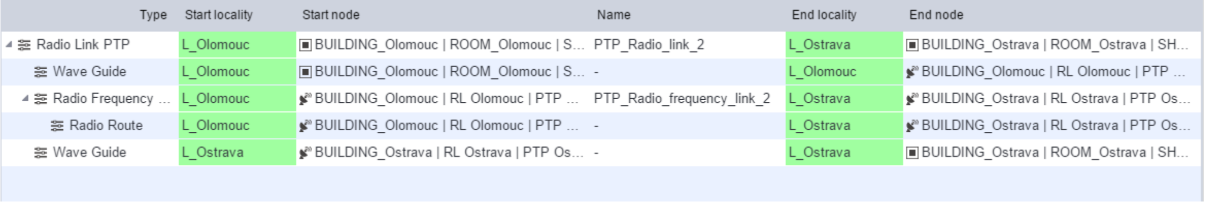
Save the radio frequency link by clicking on the Submit button.

Recent radio frequency link is now displayed in the list of radio frequency links.

When creating radio frequency link, a whole structure of links is created automatically:

- link between end ODUs defining radio frequency link
- link between antennas on both ends (Radio Route type)
- links between relevant IDUs and ODUs on both ends (Wave Guide type)
- links between relevant ODU and antenna on both ends (Wave Guide type)

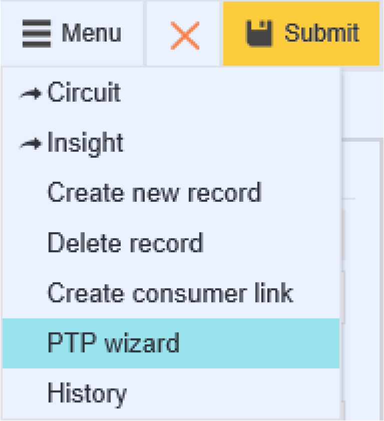
The whole structure of the PTP radio link can be displayed in the Circuit module



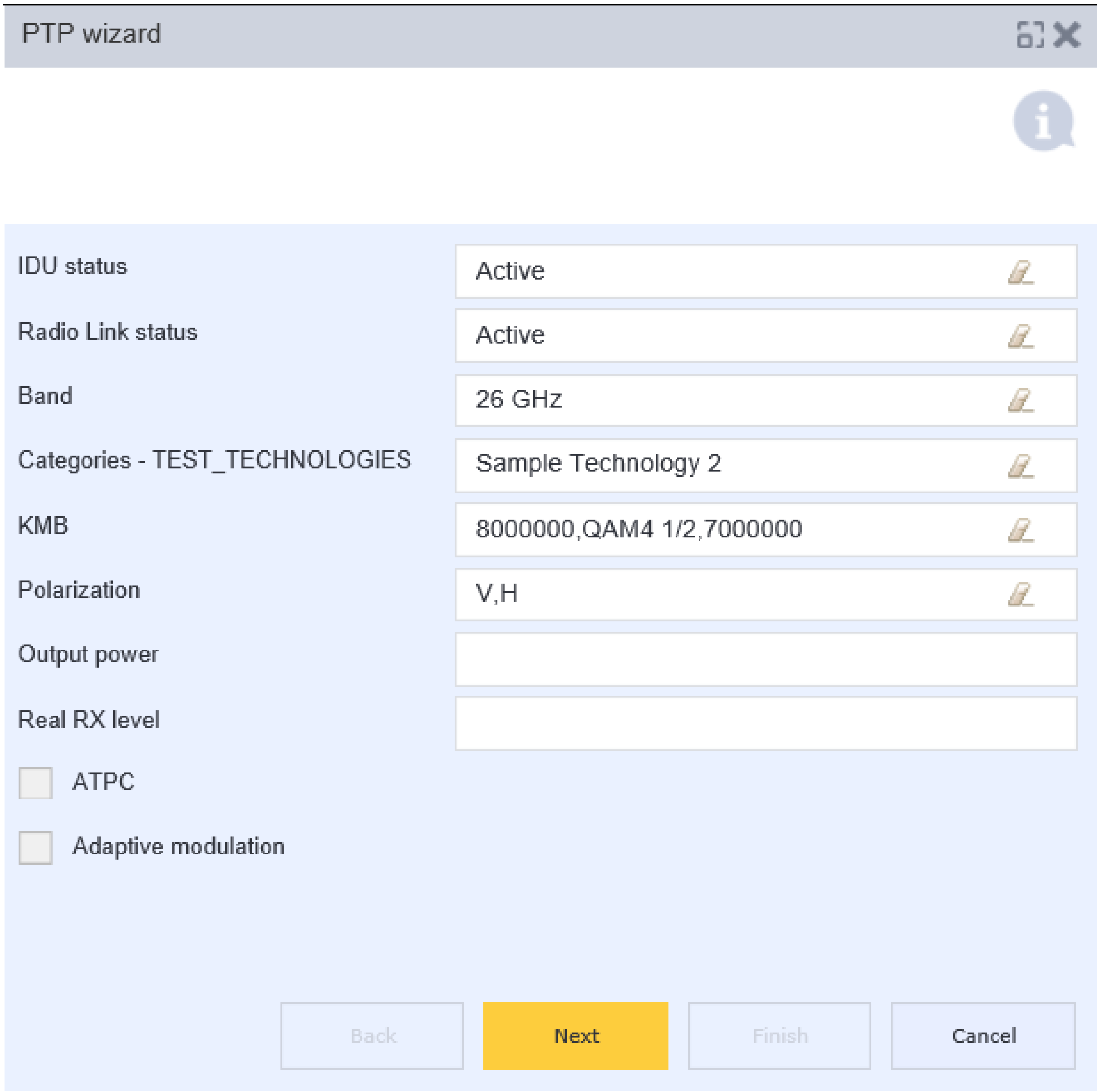
Type	Start locality	Start node	Name	End locality	End node
Radio Link PTP	L_Olomouc	BUILDING_Olomouc | ROOM_Olomouc | S...	PTP_Radio_link_2	L_Ostrava	BUILDING_Ostrava | ROOM_Ostrava | SH...
Wave Guide	L_Olomouc	BUILDING_Olomouc | ROOM_Olomouc | S...	-	L_Olomouc	BUILDING_Olomouc | RL Olomouc | PTP ...
Radio Frequency ...	L_Olomouc	BUILDING_Olomouc | RL Olomouc | PTP ...	PTP_Radio_frequency_link_2	L_Ostrava	BUILDING_Ostrava | RL Ostrava | PTP Os...
Radio Route	L_Olomouc	BUILDING_Olomouc | RL Olomouc | PTP ...	-	L_Ostrava	BUILDING_Ostrava | RL Ostrava | PTP Os...
Wave Guide	L_Ostrava	BUILDING_Ostrava | RL Ostrava | PTP Os...	-	L_Ostrava	BUILDING_Ostrava | ROOM_Ostrava | SH...

4.6.3.6. Creating a new PTP radio link via PTP wizard

PTP wizard can be launched by selecting the PTP wizard option from the drop-down menu:



After launching the PTP wizard, the first window will be opened

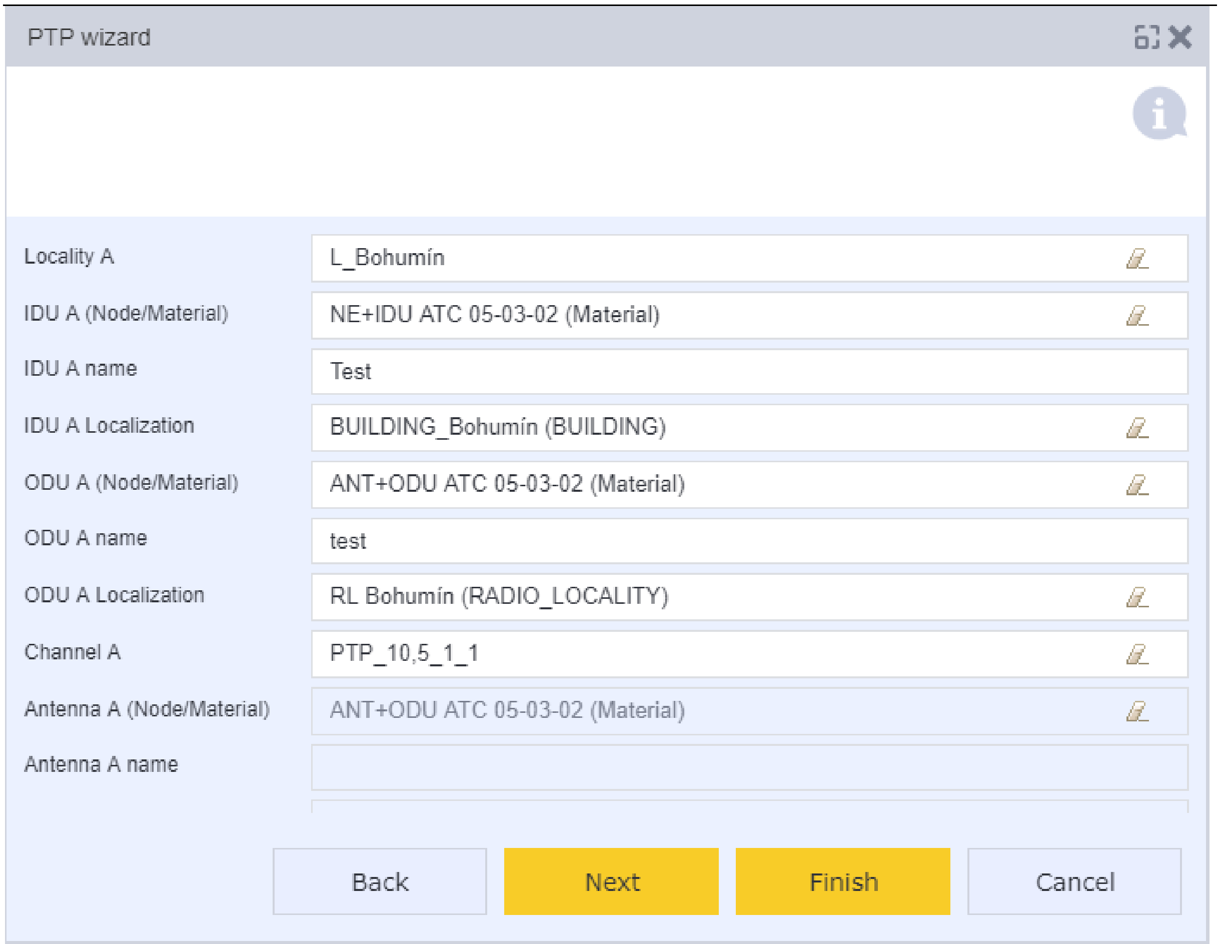


IDU status	Active
Radio Link status	Active
Band	26 GHz
Categories - TEST_TECHNOLOGIES	Sample Technology 2
KMB	8000000,QAM4 1/2,7000000
Polarization	V,H
Output power	
Real RX level	

☐ ATPC

☐ Adaptive modulation

After entering all mandatory attributes in the first wizard window, button Next is activated. By clicking it you will switch into the second wizard window:

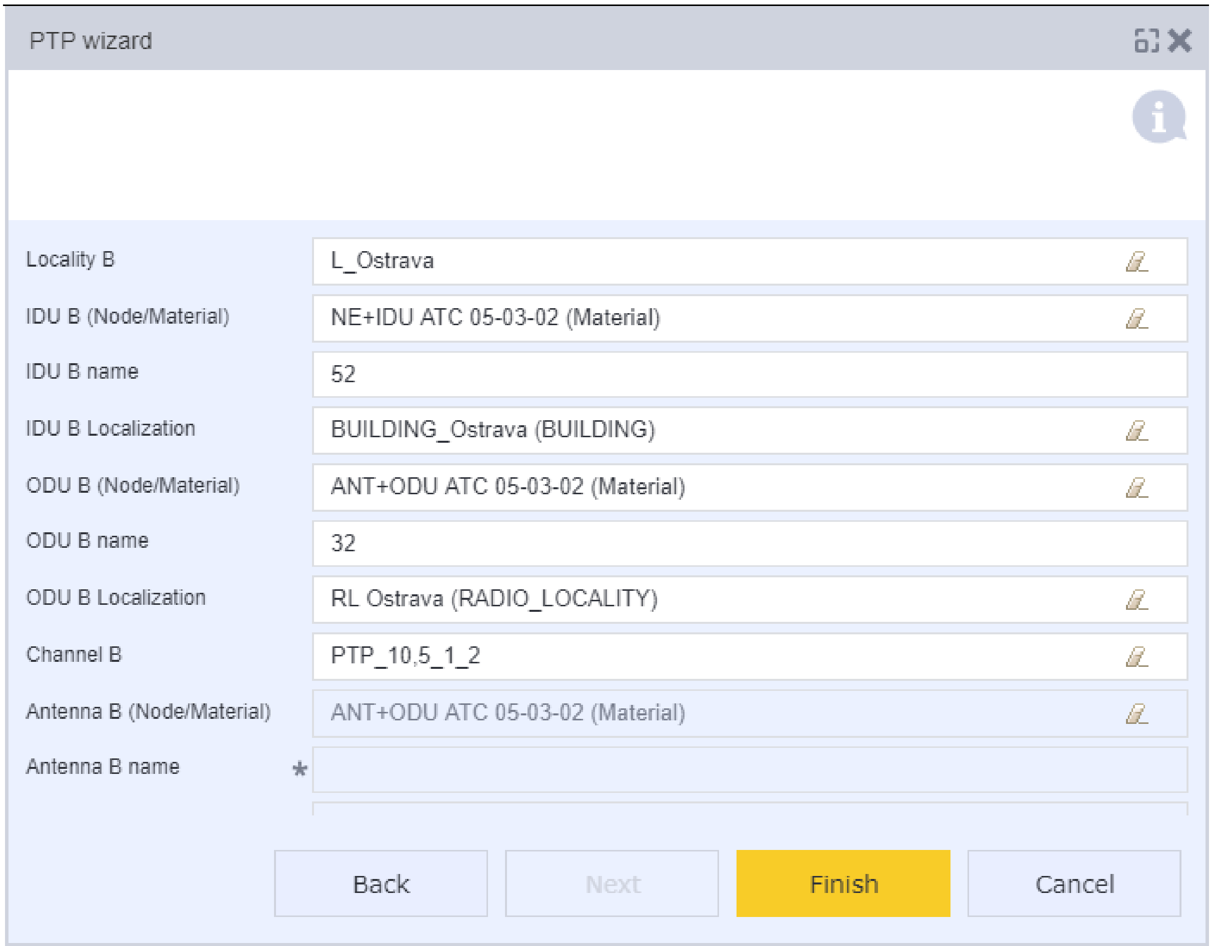


Locality A	L_Bohumín
IDU A (Node/Material)	NE+IDU ATC 05-03-02 (Material)
IDU A name	Test
IDU A Localization	BUILDING_Bohumín (BUILDING)
ODU A (Node/Material)	ANT+ODU ATC 05-03-02 (Material)
ODU A name	test
ODU A Localization	RL Bohumín (RADIO_LOCALITY)
Channel A	PTP_10,5_1_1
Antenna A (Node/Material)	ANT+ODU ATC 05-03-02 (Material)
Antenna A name	

If there is any radio locality on the locality selected, it is enough just to select it from the Radio locality A attribute. If there is no radio locality on the location, select the Create new Radio Locality A option. A new radio locality will be automatically created on given locality.

ODU - the list of option is limited by entered text, technology, band and KMB. Only those ODU whose Band and Technology are identical to Band and Technology entered in step one will be offered to choose from.

Back button is active now. This button allows you to go one step back, meaning the previous wizard window. As in the previous step, Next button is activated after all mandatory fields are filled in and you can continue to the last wizard window (creating PTP link) by clicking it.



Locality B	L_Ostrava
IDU B (Node/Material)	NE+IDU ATC 05-03-02 (Material)
IDU B name	52
IDU B Localization	BUILDING_Ostrava (BUILDING)
ODU B (Node/Material)	ANT+ODU ATC 05-03-02 (Material)
ODU B name	32
ODU B Localization	RL Ostrava (RADIO_LOCALITY)
Channel B	PTP_10,5_1_2
Antenna B (Node/Material)	ANT+ODU ATC 05-03-02 (Material)
Antenna B name *	

The Finish button is activated after all mandatory fields are filled in. A new PTP radio link is created after you click on it.

4.6.3.7. Rules and limitations when creating PTP radio link via wizard

State - limited by entered text.

Band - limited by entered text.

Technology - displays technologies relevant for given radio link.

KMB - limited by entered text, selected technology, KMB is obtained from materials active for the node of RADIO_ODU type.

Polarization - displays H, V and V, H values.

Output power - numerical value to be entered.

Real RX level - numerical value to be entered.

ATPC - logical value to be entered.

Adaptive modulation - logical value to be entered (the same value will be set to both ODUs).

Locality - displays existing localities, limited by entered text and technology selected.

Room - displays existing rooms, limited by entered text and technology and locality selected.

IDU - displays active materials, active material templates or instances of the RADIO_IDU type. Selection is limited by entered text and technology. It is also limited by selected room in case of instances.

IDU name - text name of the newly created IDU instance is to be entered here if material or template is selected as IDU.

Create new Radio locality - in case you select this option a new radio locality is created. Existing radio localities are displayed, limited by entered text, technology and locality selected.

Radio locality name - if a new radio locality is being created, here you can enter its name.

Radio locality geometry - you can enter the coordinates of newly created radio locality in here (otherwise the coordinates will be obtained from the building superior to the room selected)

Altitude - numerical value to be entered for a new radio locality for the Altitude attribute.

Antenna height - numerical value to be entered for a new radio locality for the Antenna height attribute.

ODU - active materials are displayed, active material templates or instances of the RADIO_ODU type. Selection is limited by entered text, technology, band and KMB. ODU cannot be used as an ending of another radio frequency link in case of instance.

ODU name - if the material or template is selected as ODU, text name of the newly created ODU instance is to be entered here.

Channel - displays channels, limited by a value of the bandwidth from selected KMB and by entered text. If there is a channel selected on one side, the selection on the other side is limited only to pair channel.

Antenna - displays active materials, active material templates or instances of the RADIO_ANTENNA type. Selection is limited by entered text and technology. It is also limited by selected radio locality in case of instances.

Antenna name - if material or template is selected as antenna, text name of the newly created antenna instance is to be entered here.

4.6.3.8. Calculation of elevation

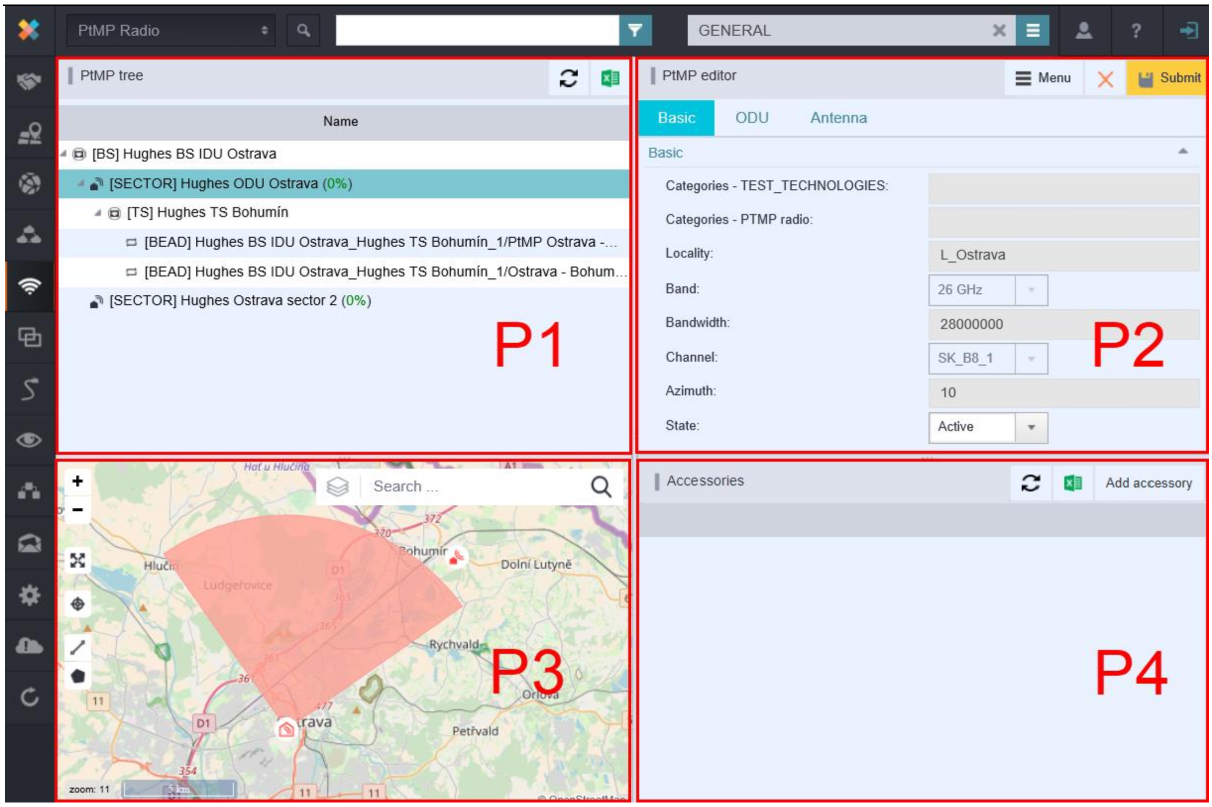
Calculation of elevation is performed with values from the Altitude field from Radio locality and with the highest priority with a value from the Antenna Altitude field.If there is no value in the Altitude field on Antenna, the value of Altitude from Radio locality is used.

4.6.4. PtMP Radio

This submodule serves for defining PtMP radio links. It combines functionalities of the Circuit, Locality and Material modules and integrates them into one tool that allows you to create radio links easily.

The main view of PtMP module contains those panels:

- P1 - PtMP tree structure
- P2 - PtMP Editor
- P3 - Map
- P4 - Accessories


PtMP Radio
GENERAL
PtMP tree
Name
PtMP editor
Menu
Submit
Basic
ODU
Antenna
Basic
Search ...
Accessories
Add accessory
P1
P2
P3
P4
Bohumín
Dolní Lutyně
Ludgeřovice
Rychvald
Orlová
Petřvald
Ostrava
zoom: 11

[BS] Hughes BS IDU Ostrava
[SECTOR] Hughes ODU Ostrava (0%)
[TS] Hughes TS Bohumín
[BEAD] Hughes BS IDU Ostrava_Hughes TS Bohumín_1/PtMP Ostrava -...
[BEAD] Hughes BS IDU Ostrava_Hughes TS Bohumín_1/Ostrava - Bohum...
[SECTOR] Hughes Ostrava sector 2 (0%)

Categories - TEST_TECHNOLOGIES:
Categories - PTMP radio:
Locality: L_Ostrava
Band: 26 GHz
Bandwidth: 28000000
Channel: SK_B8_1
Azimuth: 10
State: Active

4.6.4.1. P1 - PtMP tree structure

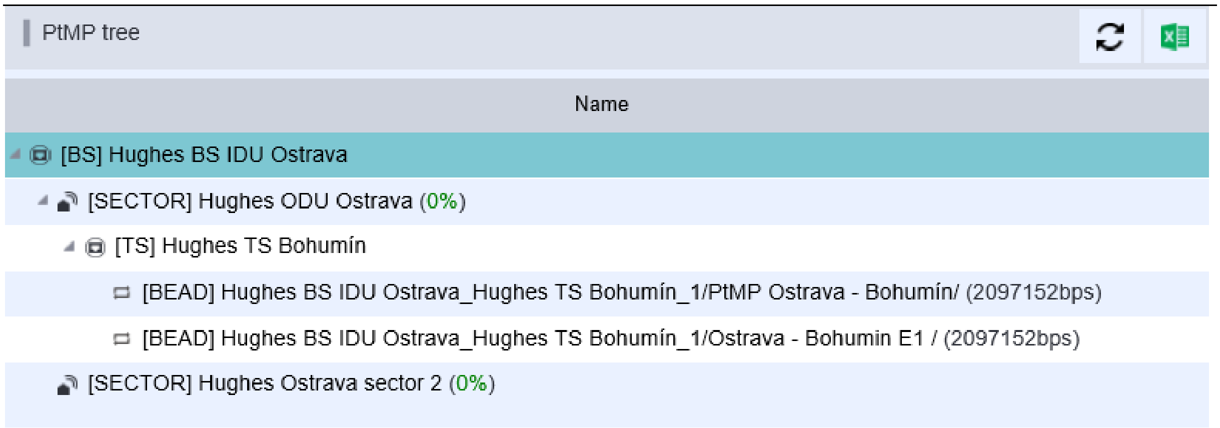
Base and terminal stations within individual radio localities (and also their services) are hierarchically displayed in the tree structure. Individual tree levels can be collapsed and expanded (by clicking the small arrow by the name). Every tree item has its context menu that is displayed when the item is right-clicked on. Context menu options differ according to the type of the item, e.g. there are New sector and New sector for BSoptions for the base station. Item of the terminal station type contains those options - New sector and New PtMP bead wizard.

The tree structure window is empty in the default view after you switch to the PtMP module from a different module. Records are loaded into the tree structure window after you search and select one of the radio localities in the search field located above the P1 panel. There is a full-text search implemented, so you do not need to know the exact name of the radio locality (or BS or TS, service etc.)

Instructions for creating new sectors and assigning services is described in more details in the separate chapter.

Color differentiation of the records in the tree structure is as follows:

- **Green color**- active status
- **Orange color**- planned status
- **Red color** - deactivated, canceled status


PtMP tree
Name

[BS] Hughes BS IDU Ostrava
[SECTOR] Hughes ODU Ostrava (0%)
[TS] Hughes TS Bohumín
[BEAD] Hughes BS IDU Ostrava_Hughes TS Bohumín_1/PtMP Ostrava - Bohumín/ (2097152bps)
[BEAD] Hughes BS IDU Ostrava_Hughes TS Bohumín_1/Ostrava - Bohumin E1 / (2097152bps)
[SECTOR] Hughes Ostrava sector 2 (0%)

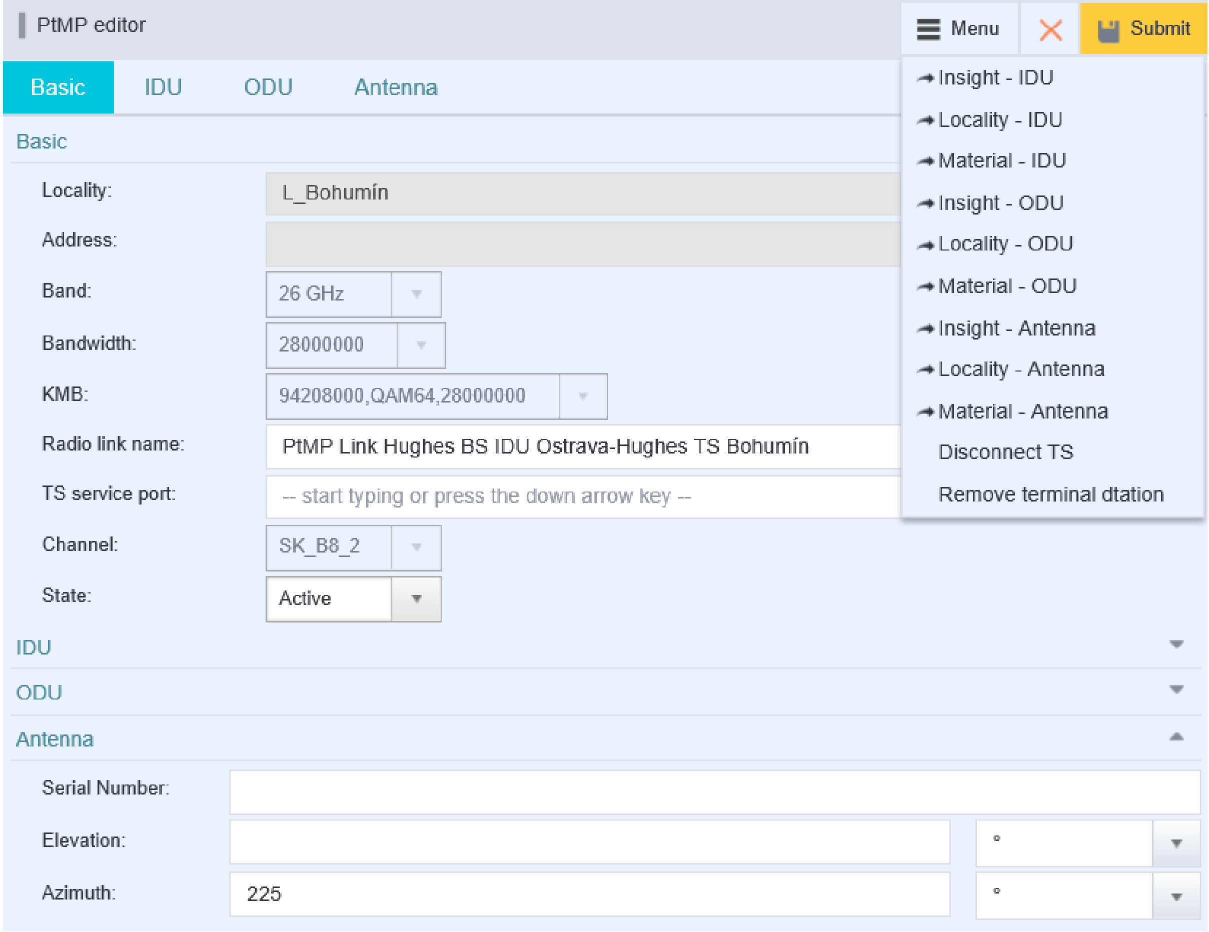
4.6.4.2. P2 - PtMP Editor

The PtMP instances editor enables you to insert and edit some of the attributes (although some attributes are loaded from other modules and are not editable). The item selected from the tree structure is also loaded into the map and its attributes are loaded into the editor panel. The editor's content differs according to the item selected from the tree structure. Also the content and number of bookmarks and options menu differ when displayed in other modules.

Some of the editor fields are similar for all tree structure items, e.g. STATUS. According to the status of the device, station, sector or service selected their color differ in the tree structure (green, orange or red).

The Editor contains several bookmarks. These are changing according to item selection from P1.

Bookmark Basic


PtMP editor
Menu
Submit
Basic
IDU
ODU
Antenna
Insight - IDU
Locality - IDU
Material - IDU
Insight - ODU
Locality - ODU
Material - ODU
Insight - Antenna
Locality - Antenna
Material - Antenna
Disconnect TS
Remove terminal dtation
IDU
ODU

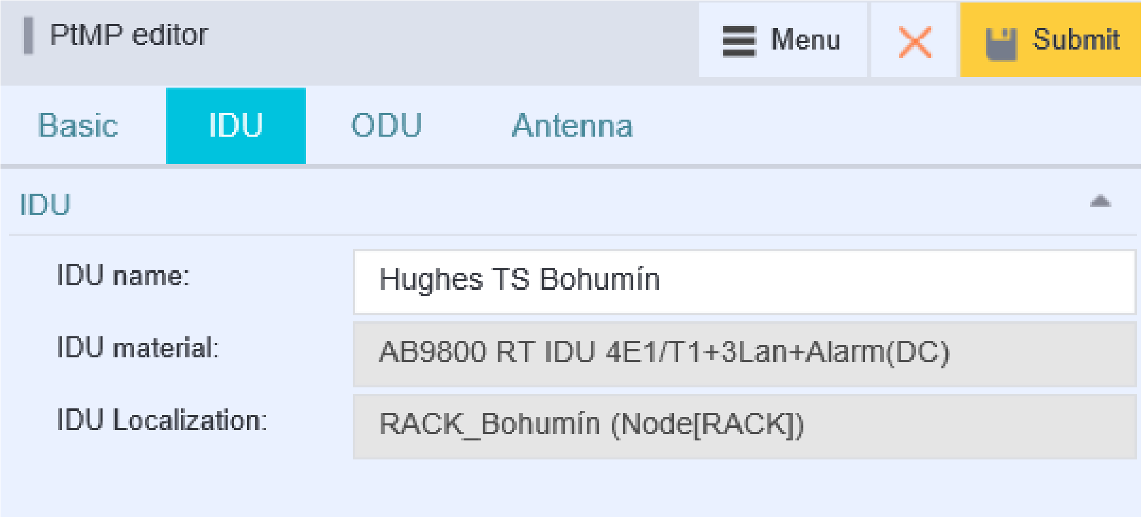
Basic

Locality: L_Bohumín
Address:
Band: 26 GHz
Bandwidth: 28000000
KMB: 94208000,QAM64,28000000
Radio link name: PtMP Link Hughes BS IDU Ostrava-Hughes TS Bohumín
TS service port: -- start typing or press the down arrow key --
Channel: SK_B8_2
State: Active

Antenna

Serial Number:
Elevation: °
Azimuth: 225 °

Bookmark IDU

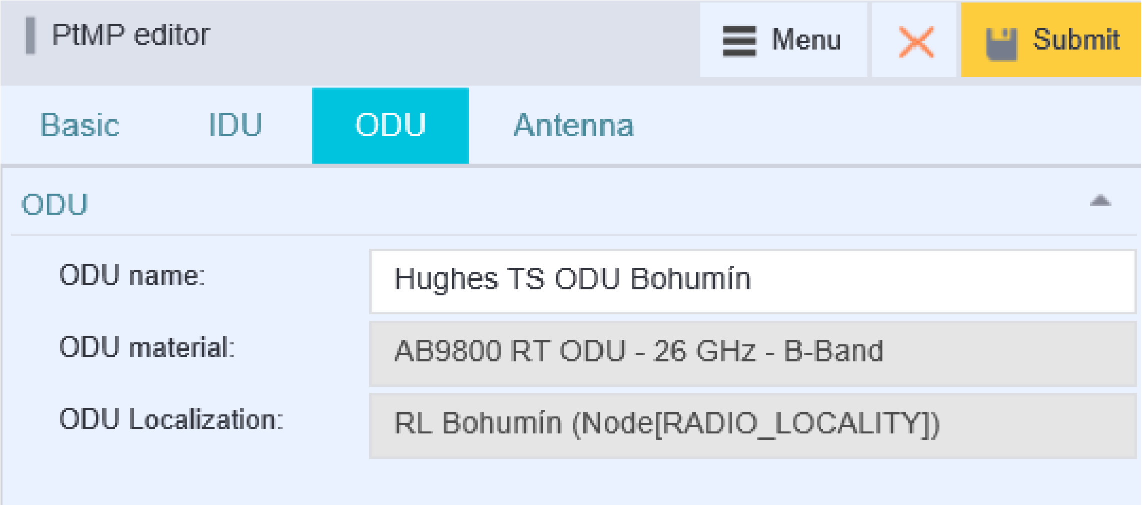

PtMP editor
Menu
Submit
Basic
IDU
ODU
Antenna
IDU

IDU name: Hughes TS Bohumín

IDU material: AB9800 RT IDU 4E1/T1+3Lan+Alarm(DC)

IDU Localization: RACK_Bohumín (Node[RACK])

Bookmark ODU

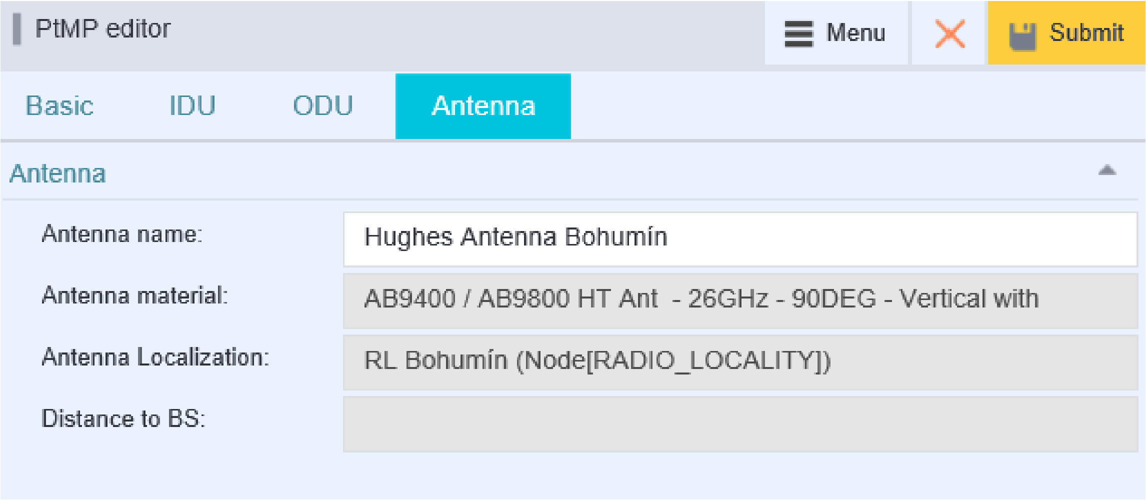

PtMP editor
Menu
Submit
Basic
IDU
ODU
Antenna
ODU

ODU name: Hughes TS ODU Bohumín

ODU material: AB9800 RT ODU - 26 GHz - B-Band

ODU Localization: RL Bohumín (Node[RADIO_LOCALITY])

Bookmark Antenna


PtMP editor
Menu
Submit
Basic
IDU
ODU
Antenna
Antenna

Antenna name: Hughes Antenna Bohumín

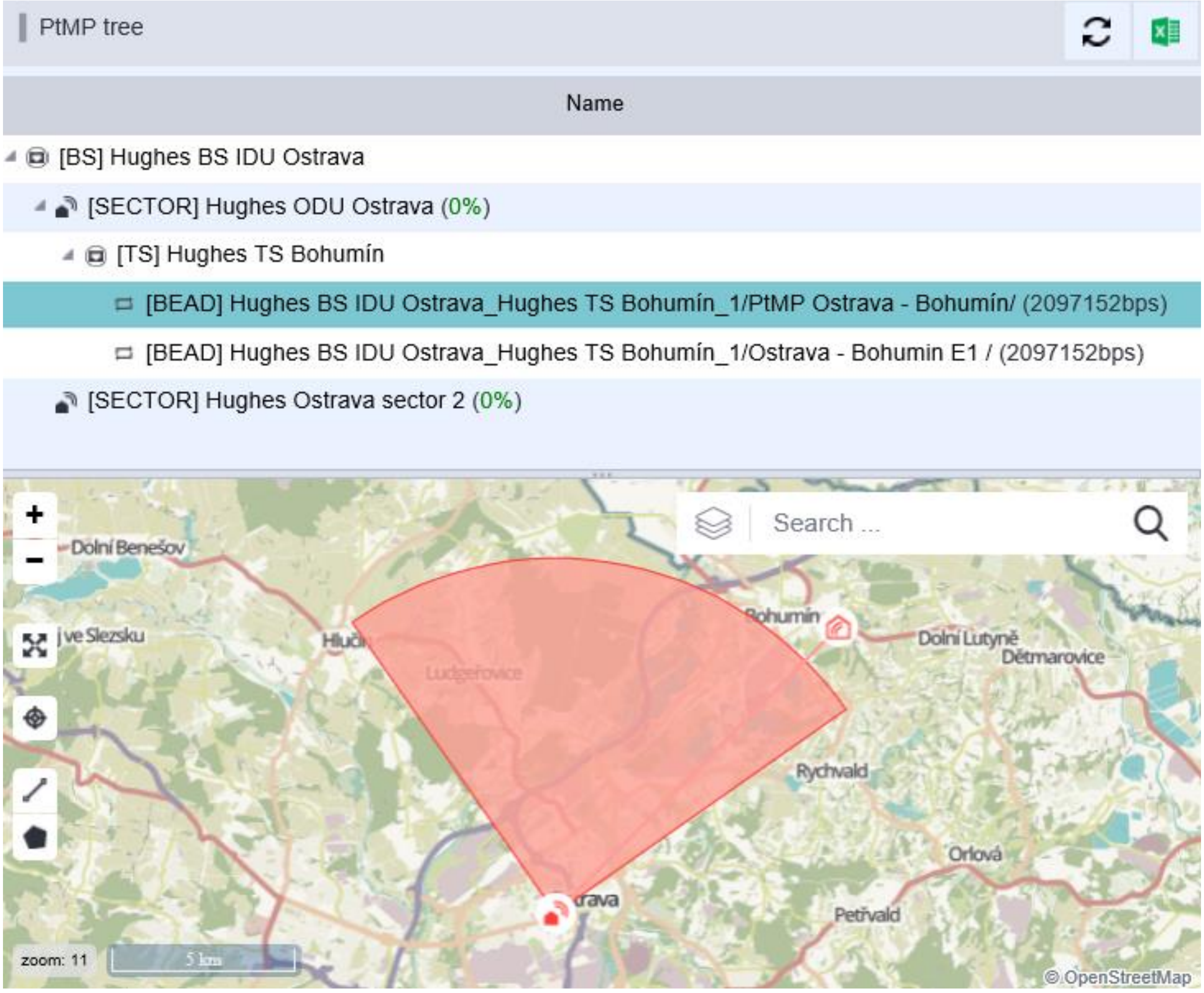
Antenna material: AB9400 / AB9800 HT Ant - 26GHz - 90DEG - Vertical with

Antenna Localization: RL Bohumín (Node[RADIO_LOCALITY])

Distance to BS:

4.6.4.3. P3 - Map

The object selected in the tree structure of P1 panel is geographically displayed in the P2 panel. If the radio locality is selected from the tree structure, all objects relevant to the given radio locality are visible on the map, meaning all BS, TS, sectors and services (beads). The selected object itself is marked by blue color in the map, e.g. displayed service between BS and TS is highlighted by a blue line (see below):



PtMP tree

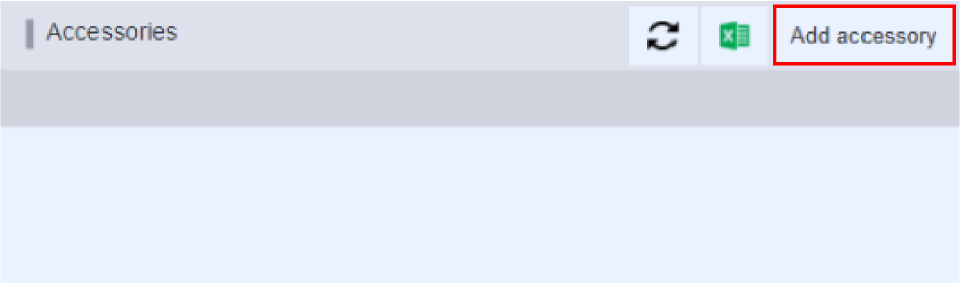
Name

- [BS] Hughes BS IDU Ostrava
  - [SECTOR] Hughes ODU Ostrava (0%)
    - [TS] Hughes TS Bohumín
      - [BEAD] Hughes BS IDU Ostrava_Hughes TS Bohumín_1/PtMP Ostrava - Bohumín/ (2097152bps)
      - [BEAD] Hughes BS IDU Ostrava_Hughes TS Bohumín_1/Ostrava - Bohumin E1 / (2097152bps)
  - [SECTOR] Hughes Ostrava sector 2 (0%)

Search ...
Dolní Benešov
ve Slezsku
Hluč
Ludgeřovice
Bohumín
Dolní Lutyně
Dětmarovice
Rychvald
Orlová
Petřvald
rava
zoom: 11
5 km
© OpenStreetMap

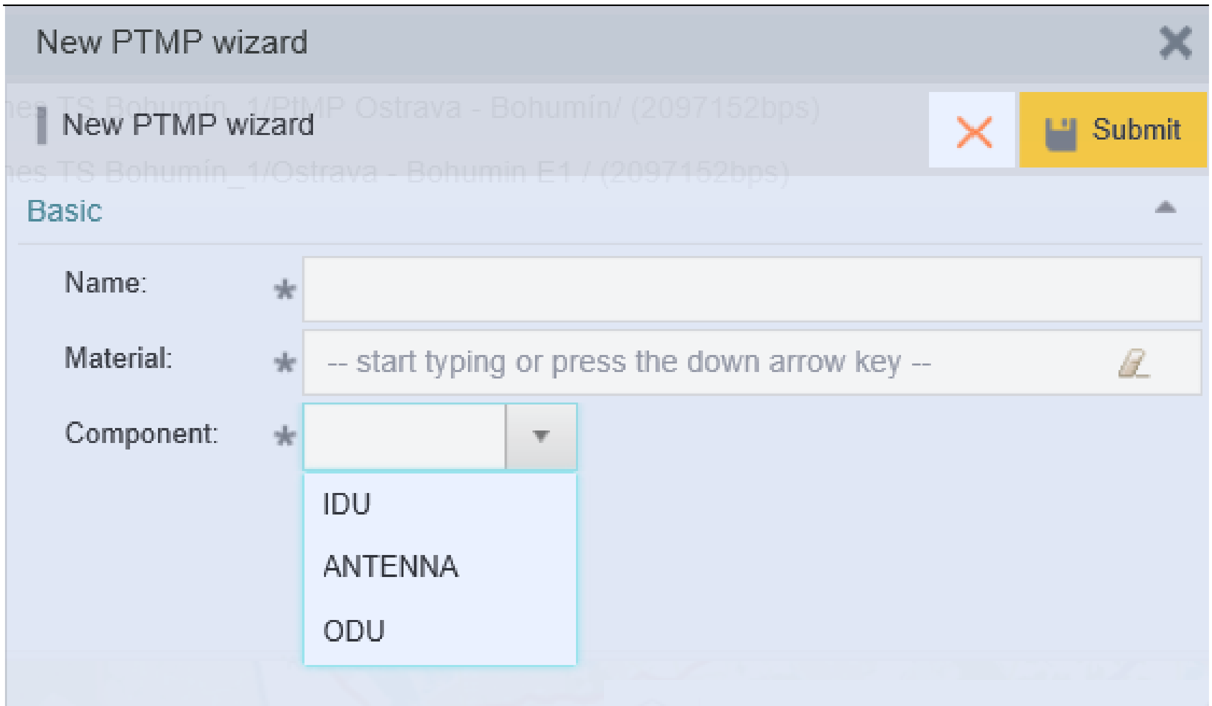
4.6.4.4. P4 - Accessories

Select Add accessory button in P4 panel.



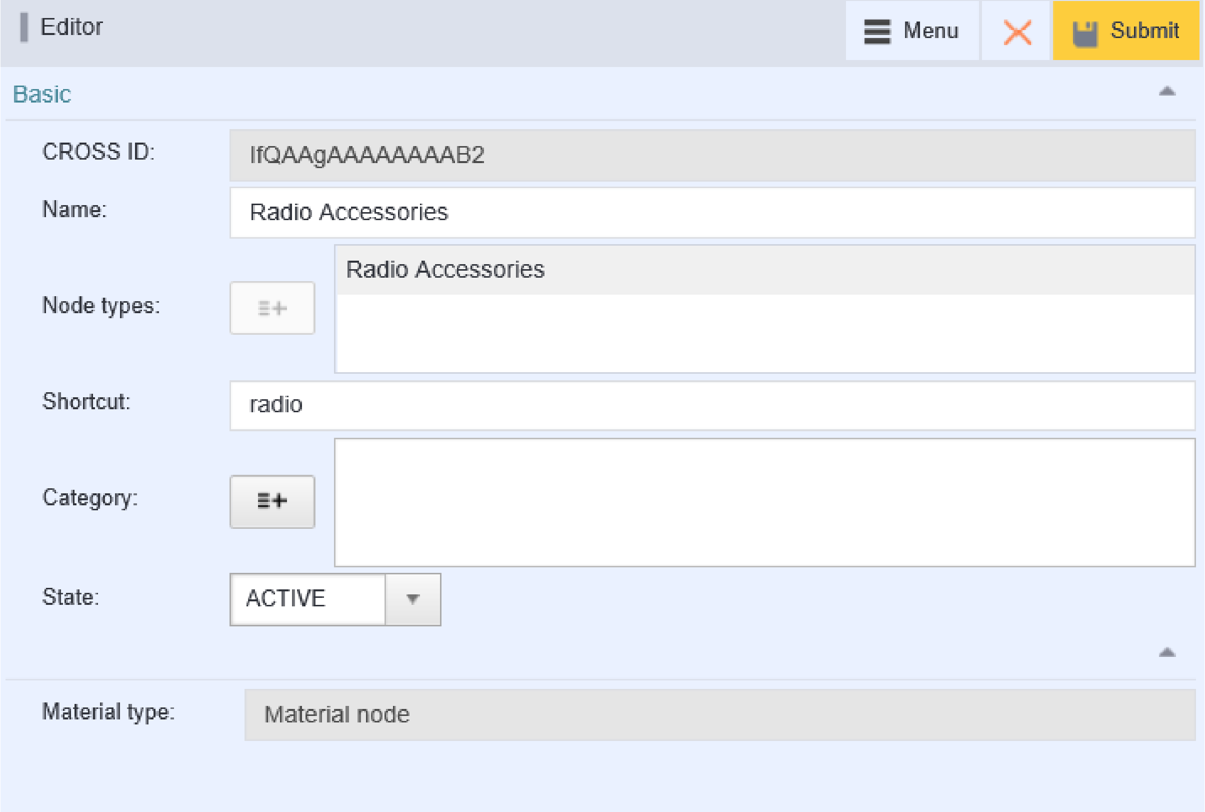
Accessories
Add accessory

New PTMP wizard window will be displayed.


New PTMP wizard
New PTMP wizard
Submit
Basic
Name:
Material:
-- start typing or press the down arrow key --
Component:
IDU
ANTENNA
ODU

Fill all mandatory items (Name and Material) and select the Component.

If there is no material available, it must be created in the Material module.


Editor
Menu
Submit
Basic

CROSS ID: IfQAAgAAAAAAAAB2

Name: Radio Accessories

Node types: Radio Accessories

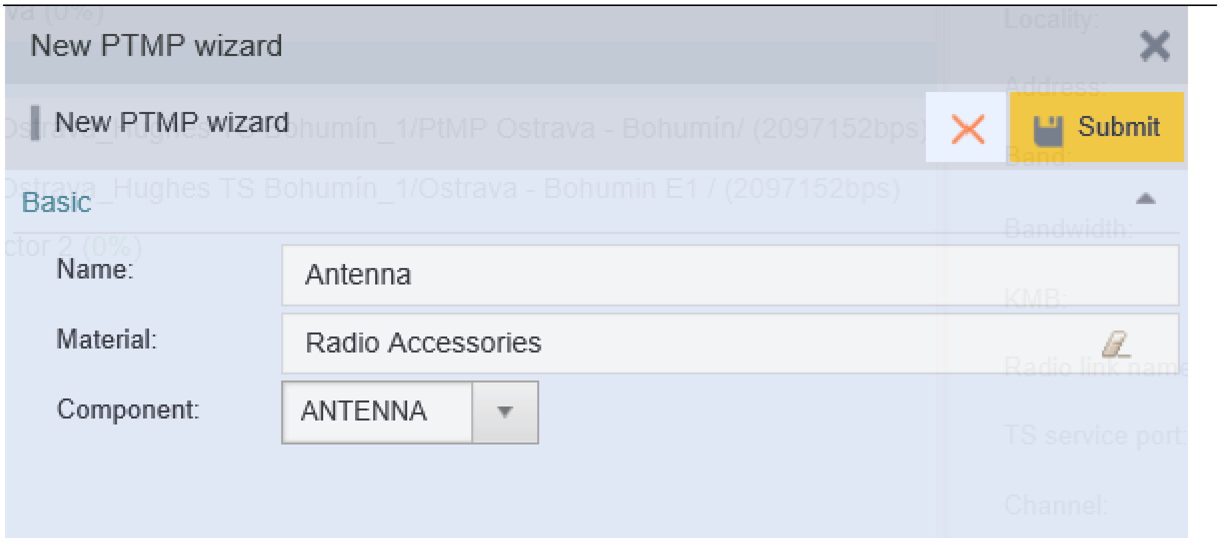
Shortcut: radio

Category:

State: ACTIVE

Material type: Material node

After creating a new material, continue in new PTMP wizard.

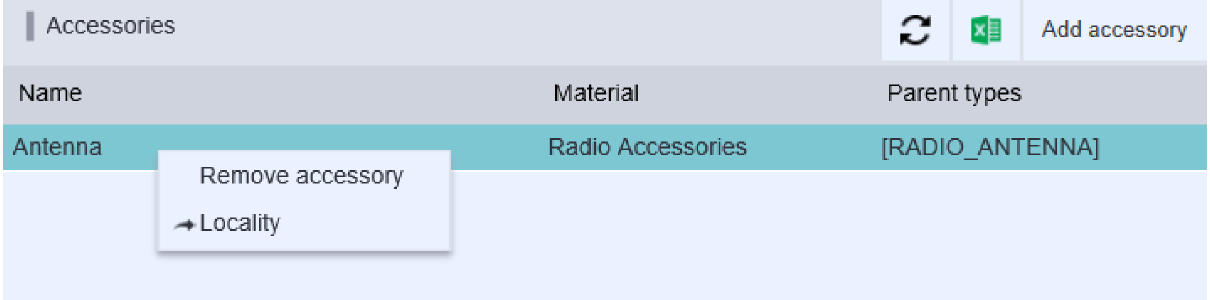


Name: Antenna

Material: Radio Accessories

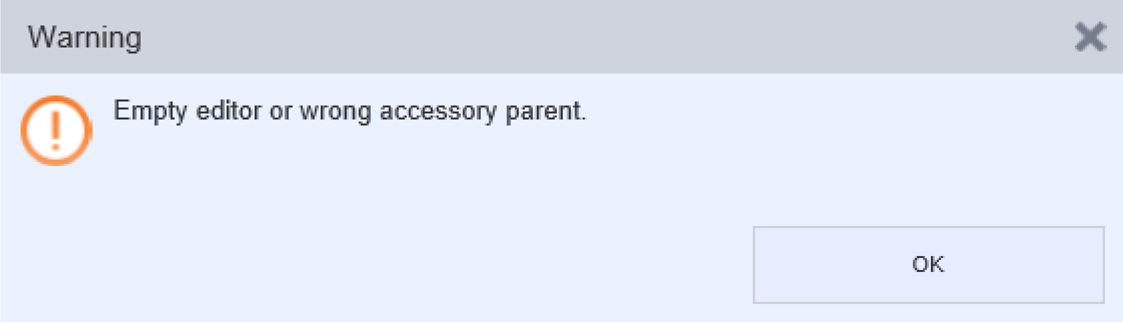
Component: ANTENNA

Press Submit button and created accessory will be displayed in the Accessories window.



Name	Material	Parent types
Antenna	Radio Accessories	[RADIO_ANTENNA]

Warning message will be displayed if accessory is saving in to wrong item. Some items can´t have an accessory.



Empty editor or wrong accessory parent.

4.6.5. Usage of user interface PtMP Radio

4.6.5.1. Construction of PtMP radio links

Construction of PtMP radio links can be performed in several steps:

- Preparation of material and material templates (Material module)
- Preparation of localities (Locality module)
- Foundation of base station and its sectors and adding one by one its terminal stations and services

Every PtMP radio link is defined between base station and terminal stations, specifically between their end IDUs (INDOOR UNIT BS and INDOOR UNIT TS). IDU is an indoor device located in given room of a building on a locality. A radio locality needs to be placed on the building in given locality and also there must be Radio ODU (OUTDOOR UNIT) and Radio antenna placed on this radio locality.

4.6.5.2. Preparation of materials and material templates

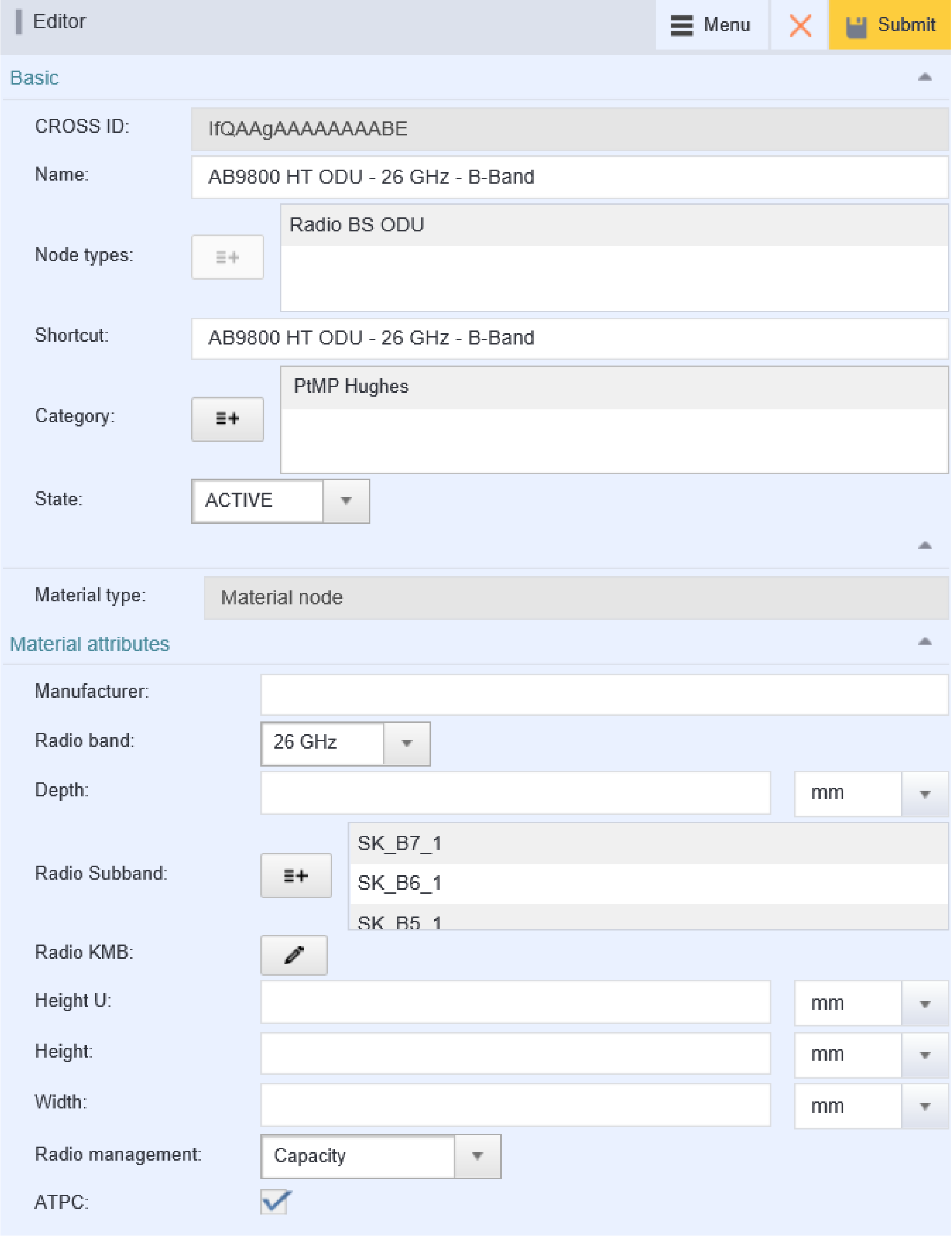
Preparation of ODU and antennas in the Material module

The Material module is described in more details in the individual chapter, so only some information on context of some data needed while constructing PtMP links is summarized below.

Following contexts relate to the object of TS ODU, BS ODU and Antenna types. The source of values of some attributes in the Material module can be found in the Radio module, enumerators view.

Material for the Radio BS ODU node type

It is crucial for those attributes to be set for Radio BS ODU - Radio Management, Radio KMB set, Channels, Radio band and ATPC**.**



CROSS ID: IfQAAgAAAAAAAABE

Name: AB9800 HT ODU - 26 GHz - B-Band

Node types: Radio BS ODU

Shortcut: AB9800 HT ODU - 26 GHz - B-Band

Category: PtMP Hughes

State: ACTIVE

Material type: Material node

Manufacturer:

Radio band: 26 GHz

Depth: mm

Radio Subband: SK_B7_1, SK_B6_1, SK_B5_1

Radio KMB:

Height U: mm

Height: mm

Width: mm

Radio management: Capacity

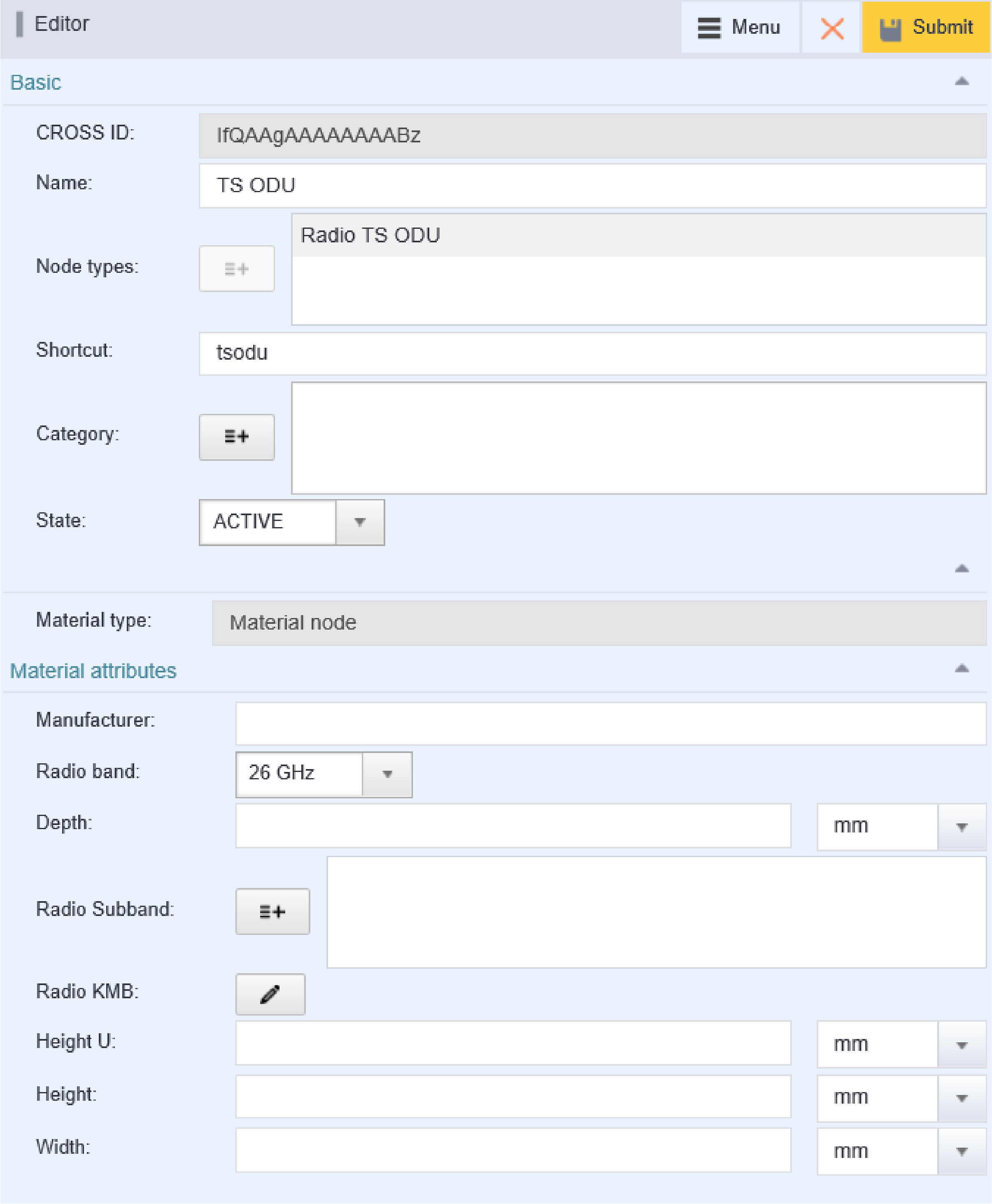
ATPC: ☑

Radio KMB can be selected by clicking the icon ✎ . The editor for KMB will be opened and it contains two bookmarks: KMB Editor and KMB List. If you wish to create a new KMB, stay on the first bookmark. In KMB Editor, enter values for Capacity, Modulation and Bandwidth, and save the record.

Values displayed in the drop-down lists (radio band, modulation depth, channel etc.) are saved in the Radio - ENUMERATORS module.

Material for the Radio TS ODU node type

Material setting for ODU by the terminal station is similar to base ODU, only Radio Management and ATPC attributes are missing.



CROSS ID: IfQAAgAAAAAAABz

Name: TS ODU

Node types: Radio TS ODU

Shortcut: tsodu

Category:

State: ACTIVE

Material type: Material node

Manufacturer:

Radio band: 26 GHz

Depth: mm

Radio Subband:

Radio KMB:

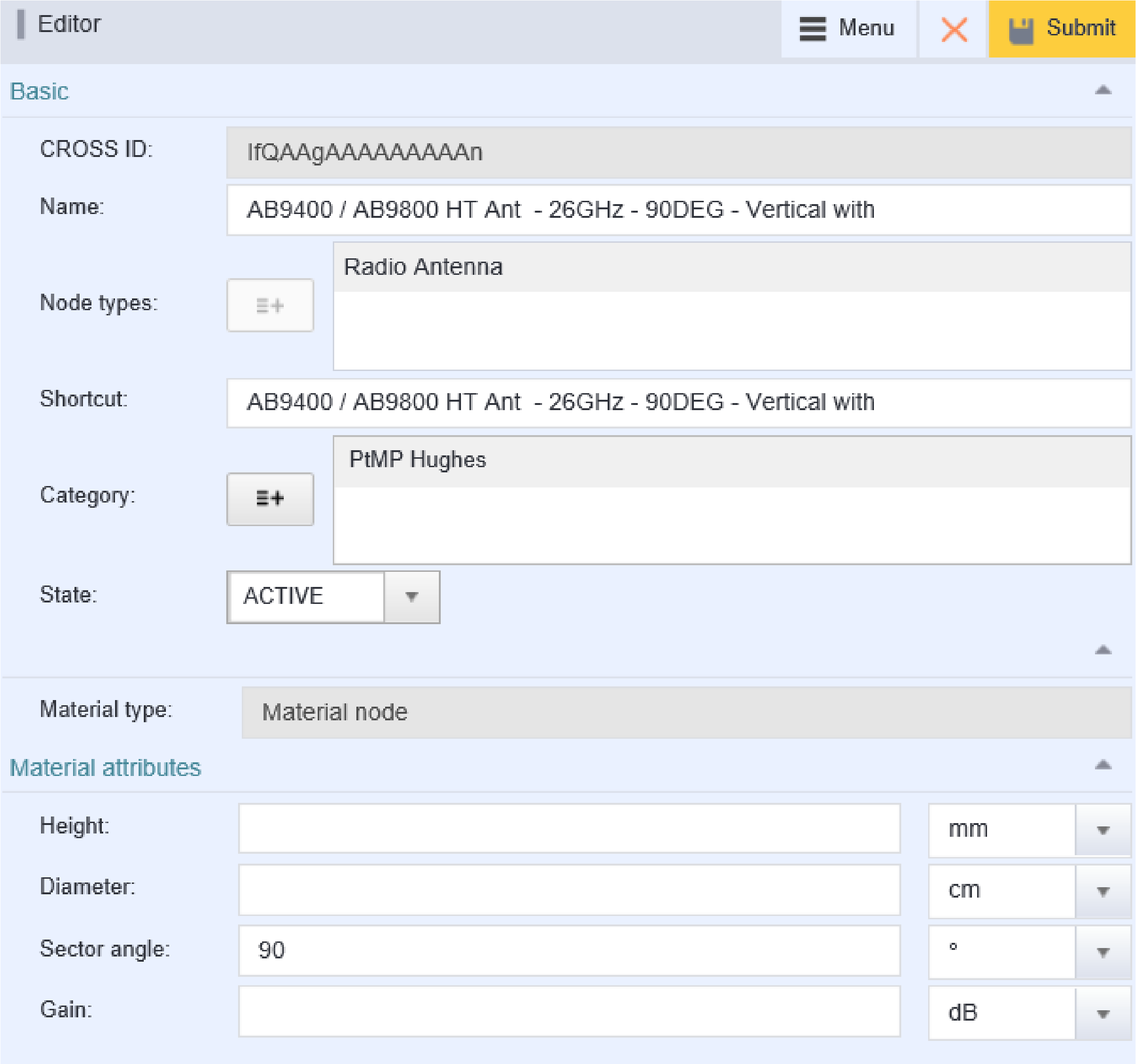
Height U: mm

Height: mm

Width: mm

Material for the RADIO ANTENNA node type

It is crucial to fill the Sector angle field. If it is not filled, the antenna will not be loaded into the list of antennas when defining sectors in the PtMP module. Some of the ODU materials already contain antennas, so there is no need to set it separately.



CROSS ID: IfQAAgAAAAAAAAAn

Name: AB9400 / AB9800 HT Ant - 26GHz - 90DEG - Vertical with

Node types: Radio Antenna

Shortcut: AB9400 / AB9800 HT Ant - 26GHz - 90DEG - Vertical with

Category: PtMP Hughes

State: ACTIVE

Material type: Material node

Height: mm

Diameter: cm

Sector angle: 90 °

Gain: dB

4.6.5.3. Preparation of radio locality (Locality module)

Two types of radio localities, base station and terminal station, can be created in the Locality module for this purpose. The process of creating them is similar. You just need to select the correct material (or material template) when creating them as some are used for base station and some are used for terminal station.

Creating radio locality - base station

Select Create node Locality from the menu in Locality module´s editor. Fill all mandatory items and pres Submit. Locality will be displayed in the locality tree structure.

Insert the BUILDING node from the context menu of the LOCALITY node

Insert node BUILDING

.

Insert the ROOM node from the context menu of the BUILDING node

Insert node ROOM

.

It is enough to enter just the name (if it is not added automatically by the Naming module) and state in the Editor.

Insert the BS_IDU radio node via material template from the ROOM context menu

Insert material template

.

Enter technology in the editor, then select material template relevant to selected technology, and if there is a naming rule, select it.

Selected material template must correspond to the BS_IDU type.

Create radio locality from the BUILDING context menu.

Insert node RADIO_LOCALITY

.

Enter name, state, technology and first of all geometry in the editor. Click on the button by the Geometry attribute

.

Tools for point marking are now displayed in the map window. Click on the Draw the marker icon and then click in the map to the location of a new radio locality. Point coordinates will be automatically filled into the Geometry field.

Insert BS_ODU object from the RADIO_LOCALITY context menu.

Insert node RADIO_BS_ODU

.

Enter name, state and technology in the editor. Save the record. After saving the editor, the Material field with the list of materials of the BS_ODU type relevant for selected technology will be added to the editor.

Insert RADIO ANTENNA object from the RADIO_LOCALITY context menu

Insert node RADIO_ANTENNA

.

Enter name, state and technology in the editor. Save the record. After saving the editor, the Material field with the list of materials of the type antenna relevant for selected technology will be added to the editor. Be aware that selected antenna needs to have the Sector angle field filled in the editor, otherwise it is not displayed in the list of antennas when creating a new BS in the PtMP module.

Creating radio locality - terminal station

Select Create node Locality from the menu in Locality module´s editor. Fill all mandatory items and pres Submit. Locality will be displayed in the locality tree structure.

Insert the ROOM node from the context menu of the BUILDING node.

Insert node ROOM

.

It is enough to enter just the name (if it is not added automatically by the Naming module) and state in the Editor.

Insert the TS_IDU via material template from the ROOM context menu

Insert material template

.

Enter technology in the editor, then select material template relevant to selected technology, and if there is a naming rule, select it.

Selected material template must correspond to the TS_IDU type.

Create radio locality from the BUILDING context menu

Insert node RADIO_LOCALITY

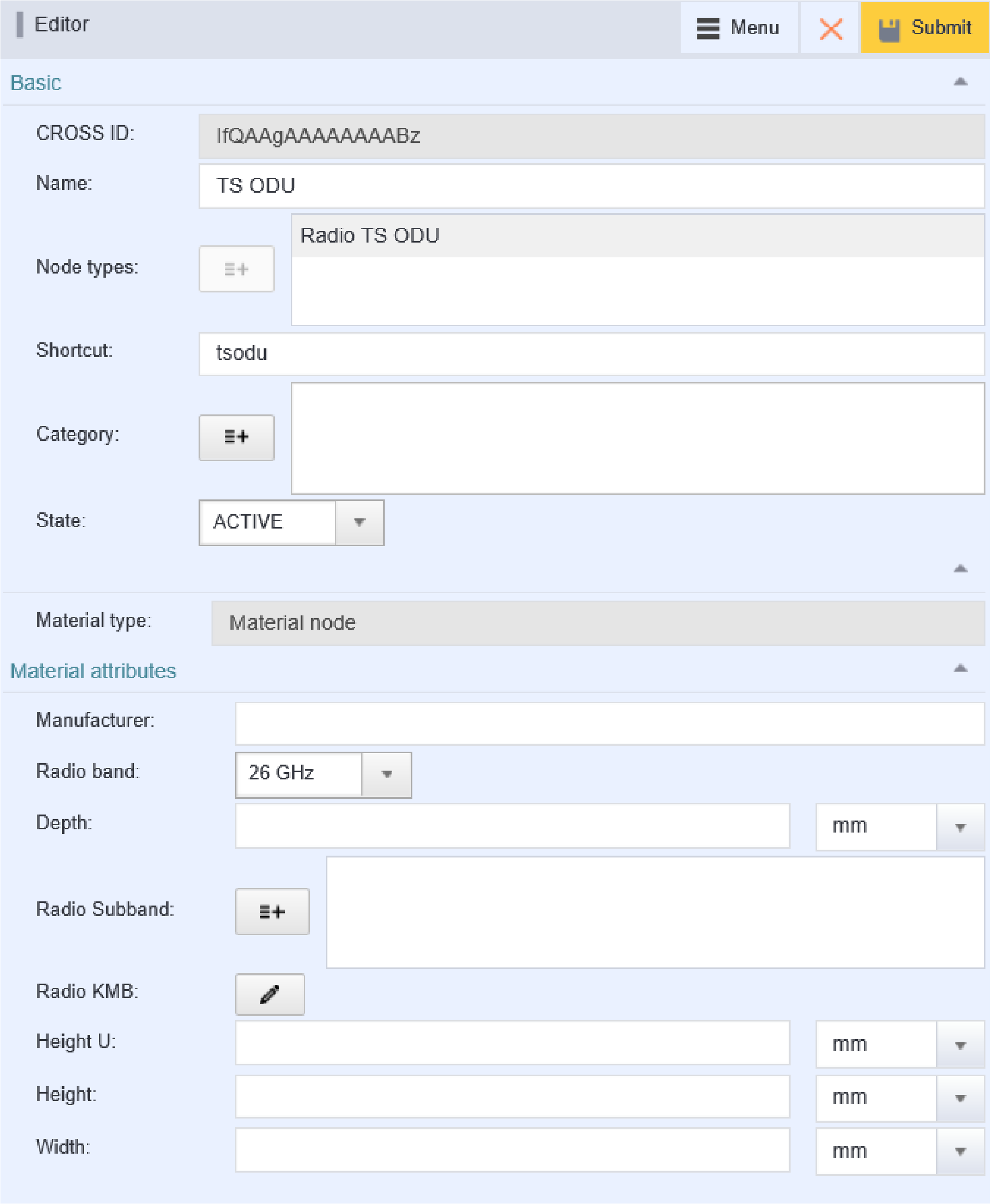
.

Enter name, state, technology and first of all geometry In the editor. Click on the button by the Geometry attribute .

Tools for point marking are now displayed in the map window. Click on the Draw the marker icon and then click in the map to the location of a new radio locality. Point coordinates will be automatically filled into the Geometry field.

Insert Radio TS_ODU object from the RADIO_LOCALITY context menu.

Enter name, state and technology in the editor. Save the record. After saving the editor, the Material field with the list of materials of the TS_ODU type relevant for selected technology will be added to the editor.



CROSS ID: IfQAAgAAAAAAAABz
Name: TS ODU
Node types: Radio TS ODU
Shortcut: tsodu
Category:
State: ACTIVE
Material type: Material node
Manufacturer:
Radio band: 26 GHz
Depth: mm
Radio Subband:
Radio KMB:
Height U: mm
Height: mm
Width: mm

Insert RADIO ANTENNA object from the RADIO_LOCALITY context menu .

Insert node RADIO_ANTENNA

Enter name, state and technology in the editor. Save the record. After saving the editor, the Material field with the list of materials of the type antenna relevant for selected technology will be added to the editor. Be aware that selected antenna needs to have the Sector angle field filled in the editor, otherwise it is not displayed in the list of antennas when creating a new TS in the PtMP module.

4.6.5.4. Creating a base station, sectors, and the gradual addition of terminal stations and services

Creating PtMP radio instances

Creating more sectors or stations within one radio locality

It is possible to record more base sectors and terminal stations recorded within one radio locality in the Locality module. BS_ODU or TS_ODU and relevant antennas are attached to them when they are created. BS_IDU and TS_IDU might be attached if needed.

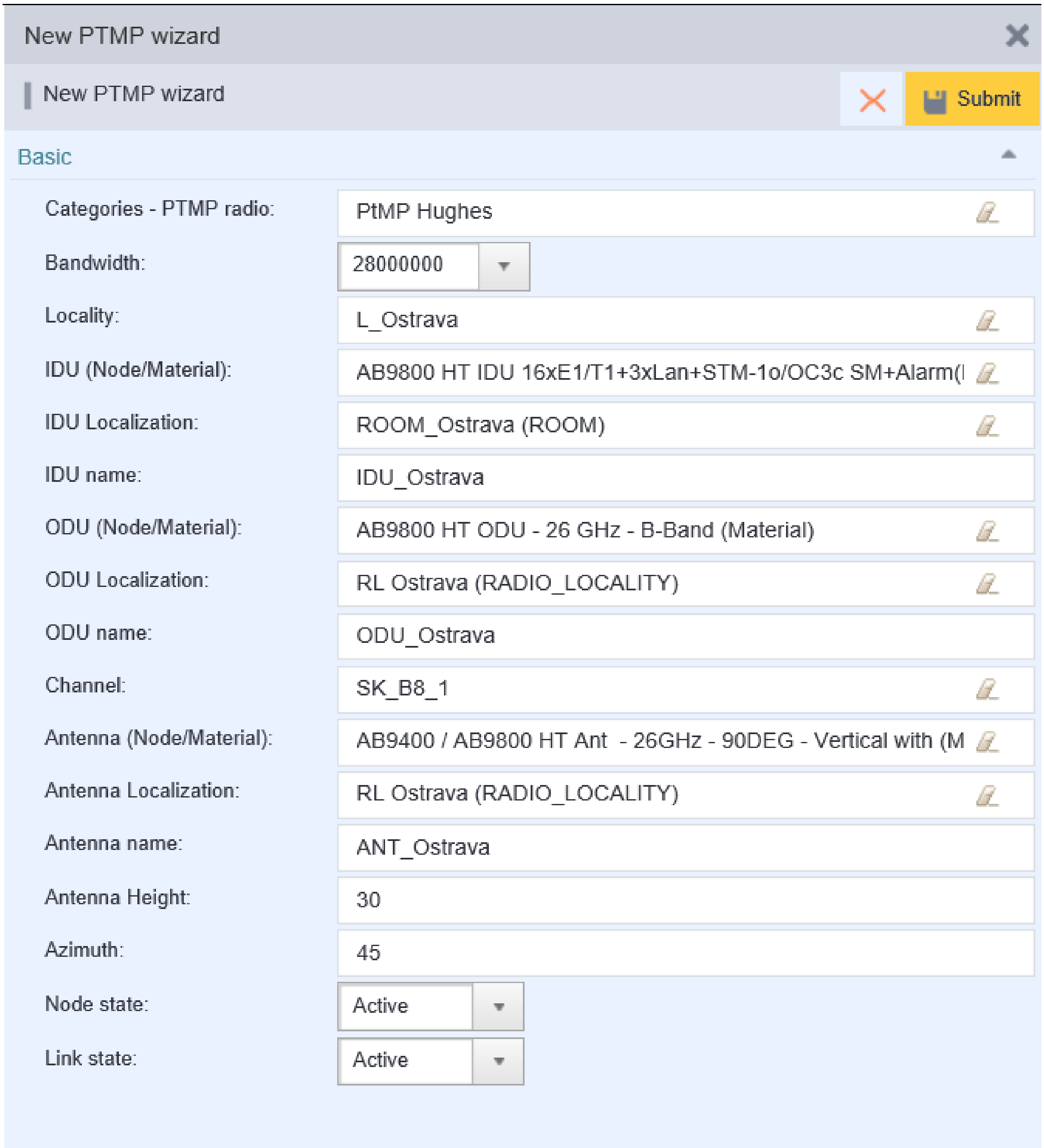
Construction of PtMP radio links

When creating PtMP radio links, it is necessary to prepare all required materials and material templates in advance in the Material module, and radio localities created in the Locality module as described above. Then you can start to create PtMP radio link. PtMP instances (BS and TS) can be created via wizard. In this editor you can enter needed attributes according to the type of instance being created, most of them can be selected from the drop-down menu. The values entered at individual attributes are loaded from other modules (Material, Locality etc.). Technology for PtMP is displayed in the list of values, if there is a material (or material template) for the BS ODU and BS IDU node types created in the Material module.

Creating a new base station in the PtMP module

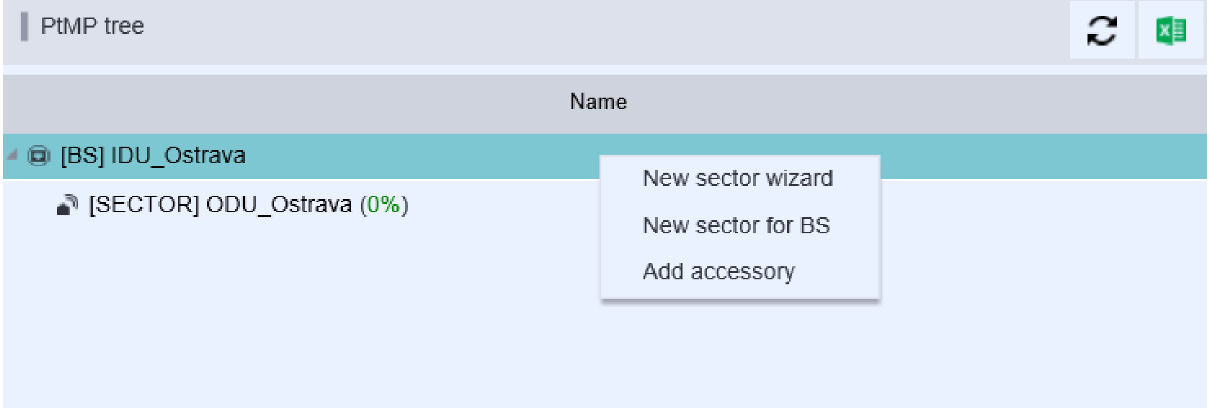
Right-click in the tree structure of PtMP instances and select New sector wizard option.

Editor for entering details on new BS will be opened. All attribute values can be searched and selected from the drop-down field of values. You need to click on the down arrow key and then select required value to do so. Fill all editor items to be able to save the new object.


New PTMP wizard
New PTMP wizard
Submit
Basic

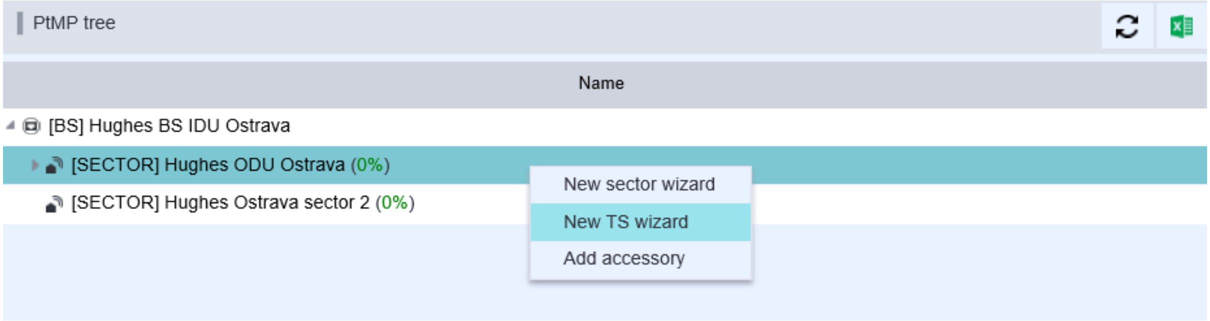
Categories - PTMP radio:	PtMP Hughes
Bandwidth:	28000000
Locality:	L_Ostrava
IDU (Node/Material):	AB9800 HT IDU 16xE1/T1+3xLan+STM-1o/OC3c SM+Alarm(I
IDU Localization:	ROOM_Ostrava (ROOM)
IDU name:	IDU_Ostrava
ODU (Node/Material):	AB9800 HT ODU - 26 GHz - B-Band (Material)
ODU Localization:	RL Ostrava (RADIO_LOCALITY)
ODU name:	ODU_Ostrava
Channel:	SK_B8_1
Antenna (Node/Material):	AB9400 / AB9800 HT Ant - 26GHz - 90DEG - Vertical with (M
Antenna Localization:	RL Ostrava (RADIO_LOCALITY)
Antenna name:	ANT_Ostrava
Antenna Height:	30
Azimuth:	45
Node state:	Active
Link state:	Active

Recently created BS will be displayed in the tree structure when saved.

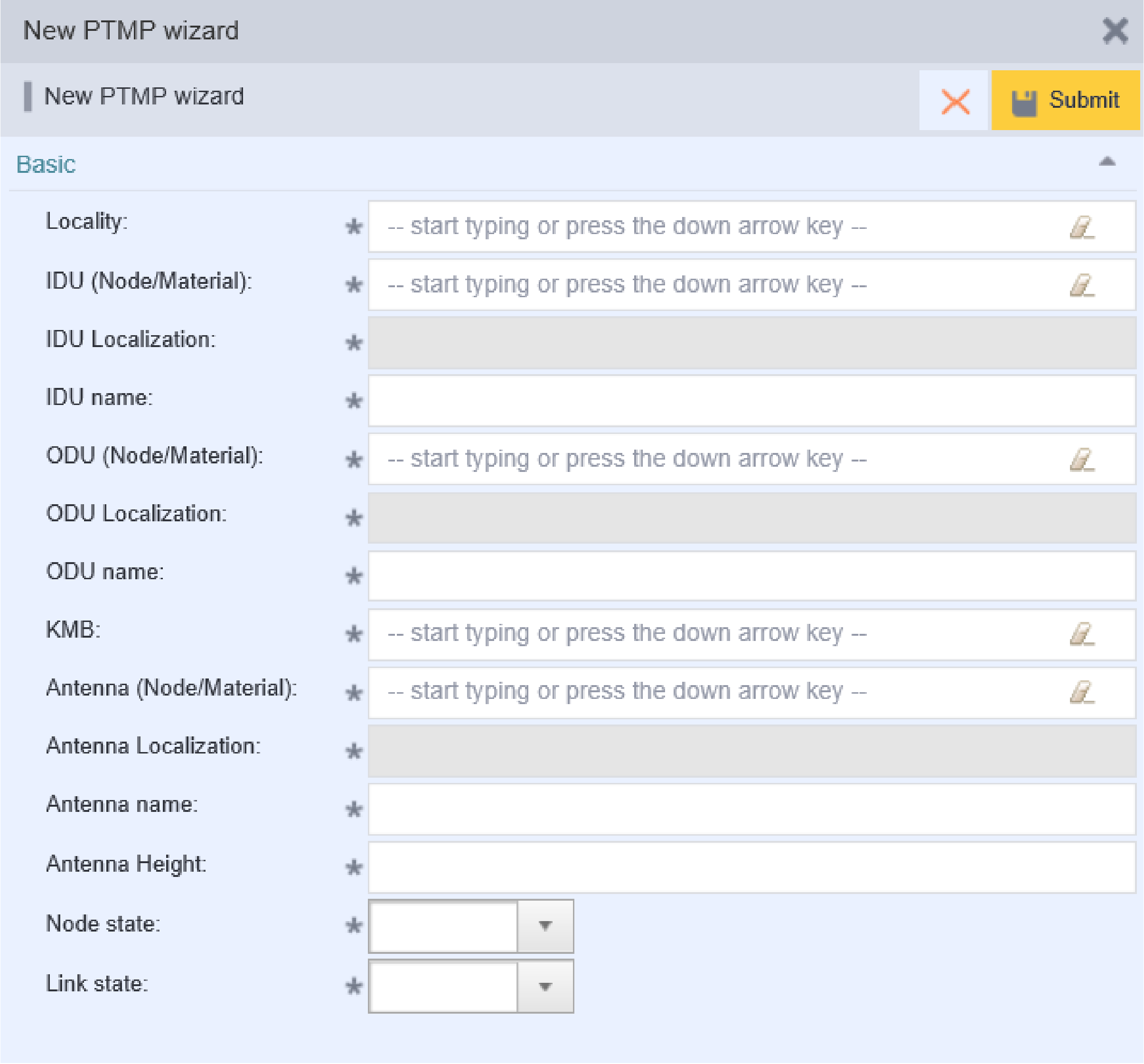

PtMP tree
Name
[BS] IDU_Ostrava
[SECTOR] ODU_Ostrava (0%)
New sector wizard
New sector for BS
Add accessory

Creating a terminal station

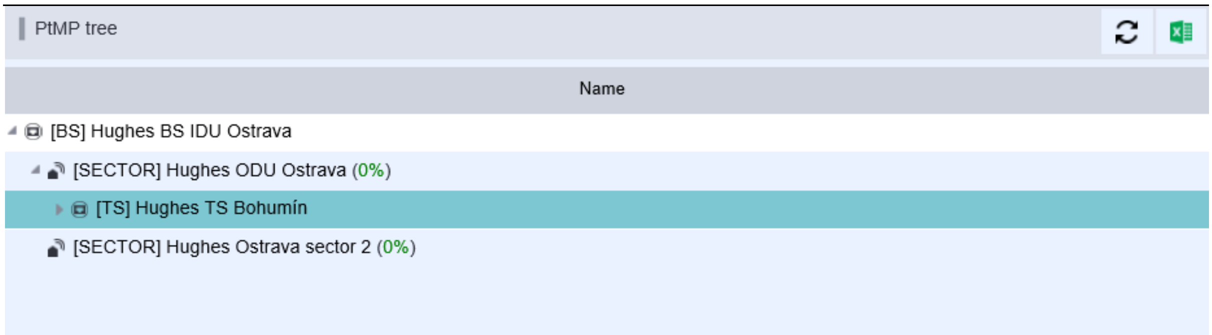
Select New TS wizard option from the context menu of base station sector.


PtMP tree
Name
[BS] Hughes BS IDU Ostrava
[SECTOR] Hughes ODU Ostrava (0%)
[SECTOR] Hughes Ostrava sector 2 (0%)
New sector wizard
New TS wizard
Add accessory

Editor for entering details on new TS will be opened. All attribute values can be searched and selected from the drop-down field of values. You need to click on the down arrow key and then select required value to do so. Fill all editor items in order to be able to save the new object.


New PTMP wizard
New PTMP wizard
Submit
Basic
Locality: * -- start typing or press the down arrow key --
IDU (Node/Material): * -- start typing or press the down arrow key --
IDU Localization: *
IDU name: *
ODU (Node/Material): * -- start typing or press the down arrow key --
ODU Localization: *
ODU name: *
KMB: * -- start typing or press the down arrow key --
Antenna (Node/Material): * -- start typing or press the down arrow key --
Antenna Localization: *
Antenna name: *
Antenna Height: *
Node state: *
Link state: *

Recently created TS will be added under relevant BS in the tree structure when saved.


PtMP tree
Name
[BS] Hughes BS IDU Ostrava
[SECTOR] Hughes ODU Ostrava (0%)
[TS] Hughes TS Bohumín
[SECTOR] Hughes Ostrava sector 2 (0%)

Adding more sectors for base stations from the Locality module

In order to add more sectors to an existing base station, it is necessary to define a proper material (ODU and antenna) in advance in the Material module.

Find the radio locality to which you want to add another sector in the Locality module.

Insert the BS_ODU node from the radio locality context menu.

Insert node RADIO_BS_ODU

.

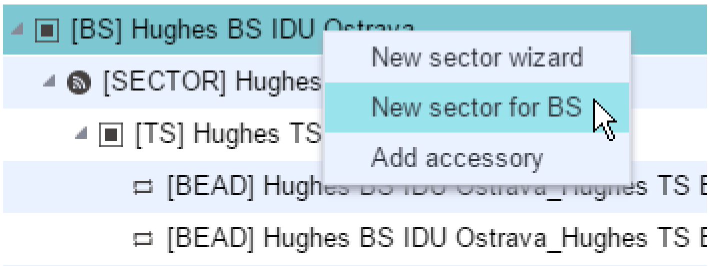
Then insert the antenna in the same way.

Insert node RADIO_ANTENNA

.

Find required radio locality via search field in the PtMP Radio mode of the Radio module and load it into the P1 panel (PtMP tree structure) by selecting it from the search result list.

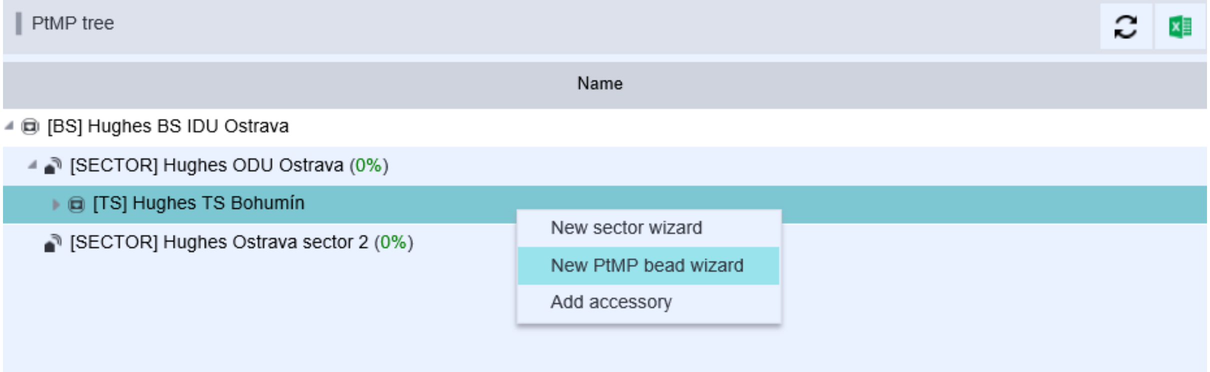
Select New sector for BS option from the context menu of the supreme tree structure instance.


[BS] Hughes BS IDU Ostrava
[SECTOR] Hughes
[TS] Hughes TS
[BEAD] Hughes BS IDU Ostrava_Hughes TS E
[BEAD] Hughes BS IDU Ostrava_Hughes TS E
New sector wizard
New sector for BS
Add accessory

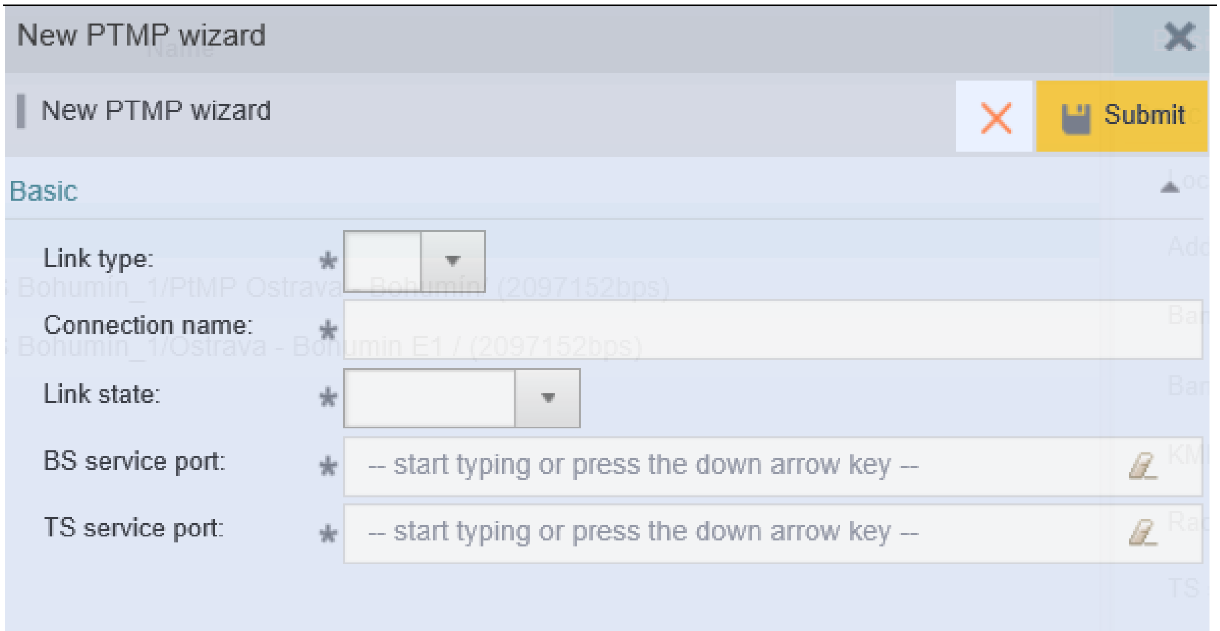
The Editor with pre-filled fields will be opened. The values in fields are inherited from the object you are adding a new sector to. In the Sector angle field, set antenna orientation to convenient direction if you need to edit this setting.

Creating a service on PtMP link

The service can be created from the Terminal station context menu via New PtMP bead wizard option.


PtMP tree
Name
[BS] Hughes BS IDU Ostrava
[SECTOR] Hughes ODU Ostrava (0%)
[TS] Hughes TS Bohumín
[SECTOR] Hughes Ostrava sector 2 (0%)
New sector wizard
New PtMP bead wizard
Add accessory

The editor for creating a new service will be opened. Fill all fields and save the editor.



New PTMP wizard

New PTMP wizard

Basic

Link type: *

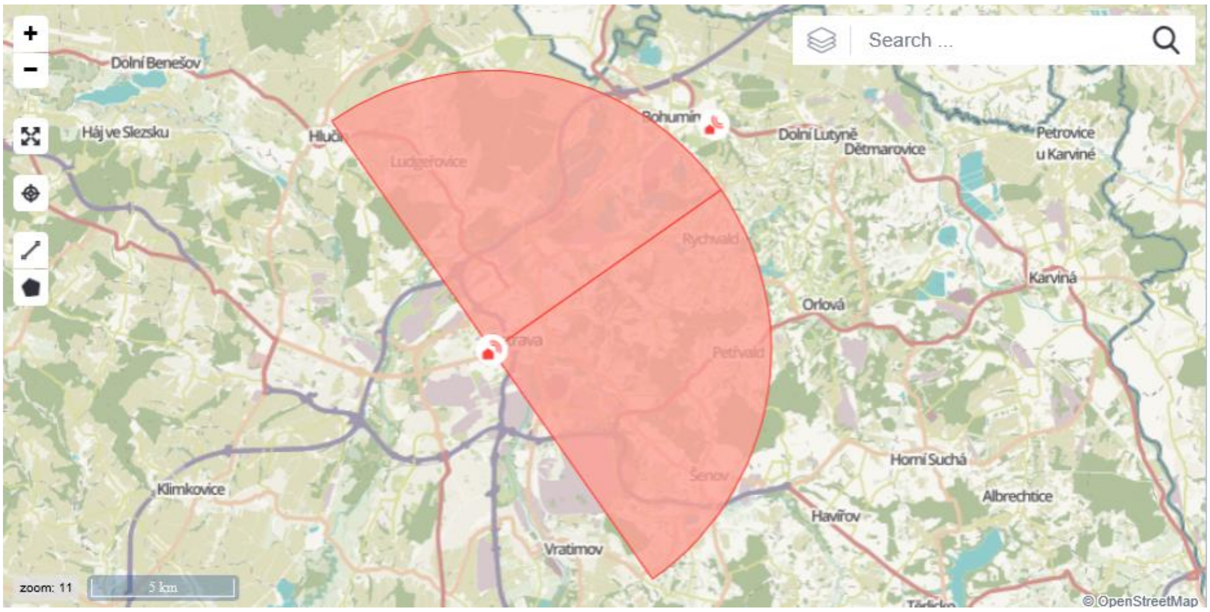
Connection name: *

Link state: *

BS service port: * -- start typing or press the down arrow key --

TS service port: * -- start typing or press the down arrow key --

New service will be displayed in the tree structure and on the map after it is saved.



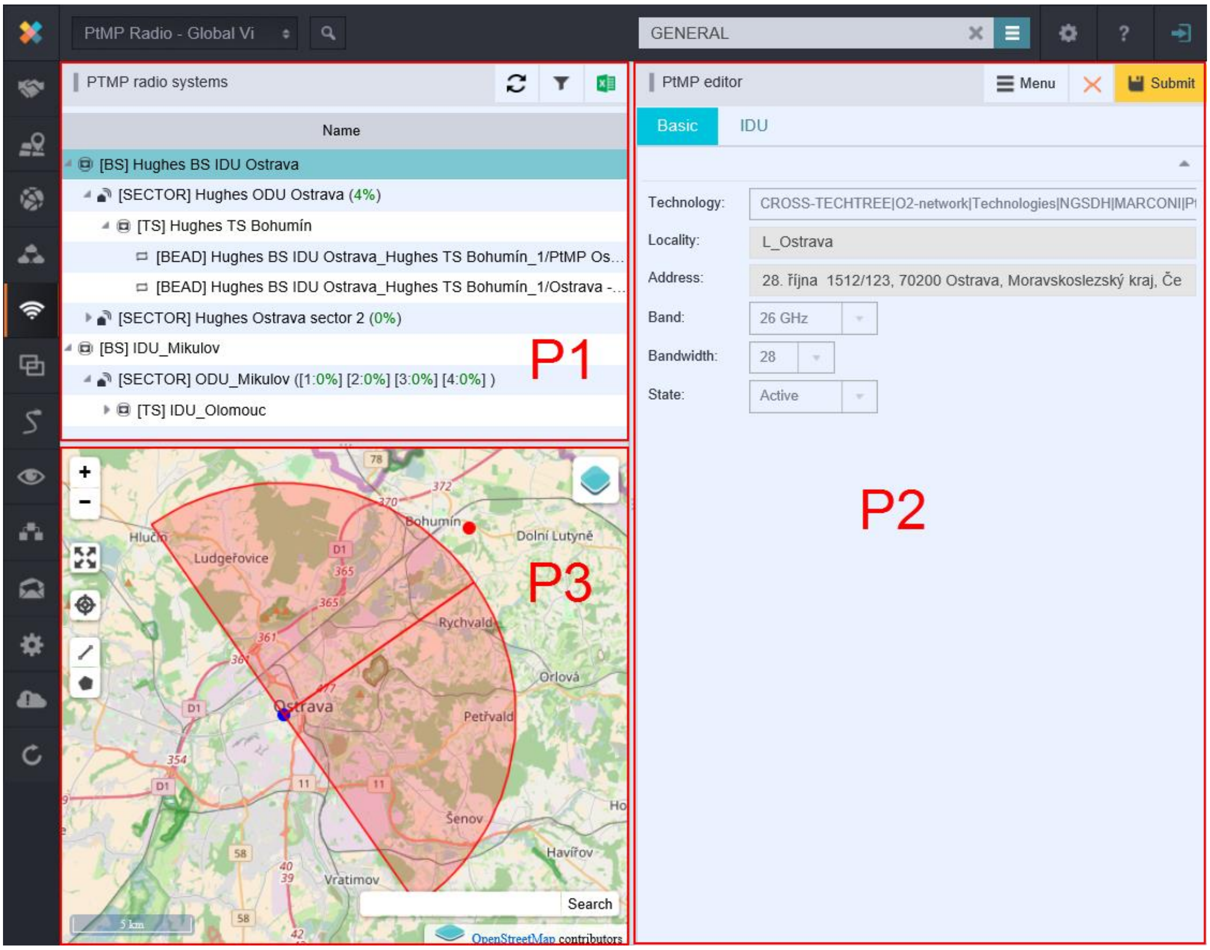
Search ...
Dolní Benešov
Háj ve Slezsku
Ludgeřovice
Bohumín
Dolní Lutyně
Dětmarovice
Petrovice u Karviné
Rychvald
Karviná
Orlová
Petřvald
Šenov
Horní Suchá
Albrechtice
Havířov
Klimkovice
Vratimov
zoom: 11
5 km
© OpenStreetMap

4.6.6. PtMP Radio - Global view

PtMP Radio - Global view is an overview of all BS and their sectors and relevant TS ordered in the tree structure. This window serves for viewing purposes only and it is not possible to edit the record in this mode. In order to edit a record, you can switch into the PtMP Radio mode and edit the record there.

PtMP Radio - Global view contains those panels:

- P1 - PtMP radio systems
- P2 - PtMP Editor
- P3 - Map


PtMP Radio - Global Vi
GENERAL
PTMP radio systems
PtMP editor
Menu
Submit
Basic
IDU
P1
P2
P3
Bohumín
Dolní Lutyně
Hlučín
Ludgeřovice
Rychvald
Orlová
Ostrava
Petřvald
Šenov
Havířov
Vratimov
Search
5 km
OpenStreetMap contributors

Name

- [BS] Hughes BS IDU Ostrava
  - [SECTOR] Hughes ODU Ostrava (4%)
    - [TS] Hughes TS Bohumín
      - [BEAD] Hughes BS IDU Ostrava_Hughes TS Bohumín_1/PtMP Os…
      - [BEAD] Hughes BS IDU Ostrava_Hughes TS Bohumín_1/Ostrava -…
  - [SECTOR] Hughes Ostrava sector 2 (0%)
- [BS] IDU_Mikulov
  - [SECTOR] ODU_Mikulov ([1:0%] [2:0%] [3:0%] [4:0%])
    - [TS] IDU_Olomouc

Technology: CROSS-TECHTREE|O2-network|Technologies|NGSDH|MARCONI|P

Locality: L_Ostrava

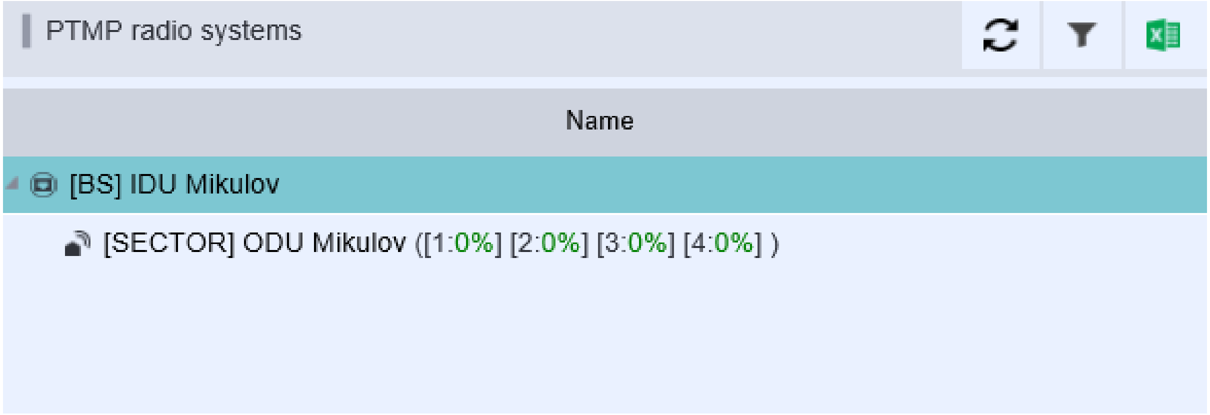
Address: 28. října 1512/123, 70200 Ostrava, Moravskoslezský kraj, Če

Band: 26 GHz

Bandwidth: 28

State: Active

4.6.6.1. P1 - PtMP radio systems



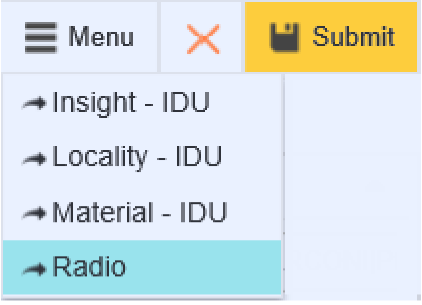
PTMP radio systems

Name

- [BS] IDU Mikulov
  - [SECTOR] ODU Mikulov ([1:0%] [2:0%] [3:0%] [4:0%])

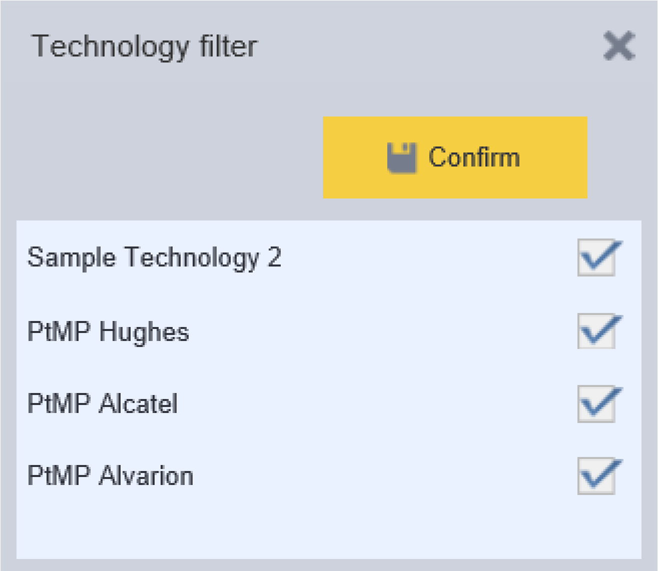
4.6.6.2. P2 - PtMP Editor

It is possible to switch into the PtMP Radio module via the option in the editor menu, see the picture.


Menu
Submit
Insight - IDU
Locality - IDU
Material - IDU
Radio

4.6.6.3. P3 - Map

Only selected subtree (BS and below) is displayed in the map window. The tree structure contains more items at the root level. It is also possible to choose from more BSs. The list of BSs can be filtered by the Family. After launching the filter, a window will appear to select the technology to filter by.


Technology filter
Confirm

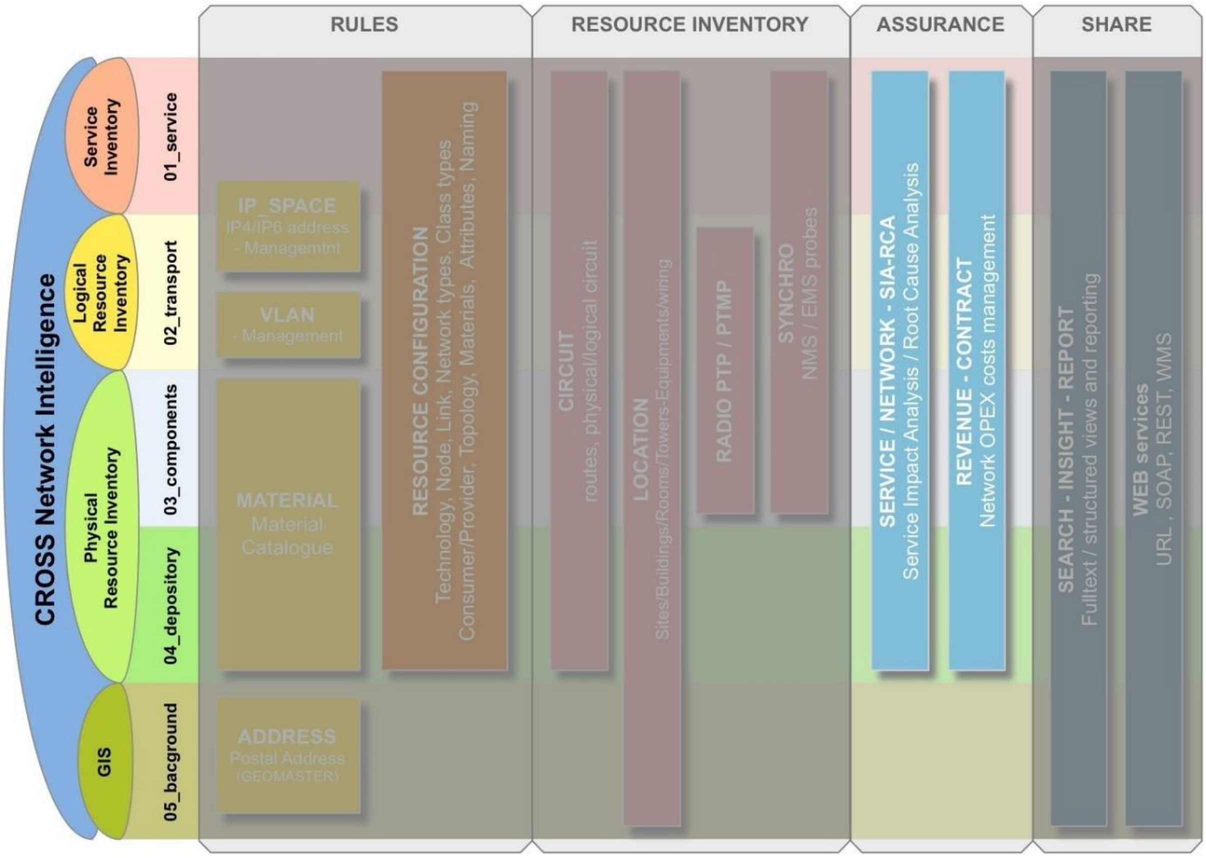
Sample Technology 2 ☑
PtMP Hughes ☑
PtMP Alcatel ☑
PtMP Alvarion ☑

There is an Update button by the Filter icon. This button updates the list of BSs in the tree structure.

If the record is deleted by another user during the work session, an error message will pop up.

5. Module group CROSS – ASSURANCE

Module group CROSS_ASSURANCE contains special tools for support and secure running network. Also, you there are some tools for recording and optimization of operating costs for network sources.


RULES
RESOURCE INVENTORY
ASSURANCE
SHARE
CROSS Network Intelligence
Service Inventory
Logical Resource Inventory
Physical Resource Inventory
GIS
01_service
02_transport
03_components
04_depository
05_bacground
IP_SPACE
IP4/IP6 address - Managemtnt
VLAN
- Management
MATERIAL
Material Catalogue
ADDRESS
Postal Address (GEOMASTER)
RESOURCE CONFIGURATION
Technology, Node, Link, Network types, Class types
Consumer/Provider, Topology, Materials, Attributes, Naming
CIRCUIT
routes, physical/logical circuit
LOCATION
Sites/Buildings/Rooms/Towers-Equipments/wiring
RADIO PTP / PTMP
SYNCHRO
NMS / EMS probes
SERVICE / NETWORK - SIA-RCA
Service Impact Analysis / Root Cause Analysis
REVENUE - CONTRACT
Network OPEX costs management
SEARCH - INSIGHT - REPORT
Fulltext / structured views and reporting
WEB services
URL , SOAP, REST, WMS

Detailed description for each module are in following chapters

SERVICE

SIA

5.1. SERVICE MODULE

Chapter overview:

5.1.1. Description of module environment

5.1.2. Service view

5.1.2.1. P1 – Panel containing Services and Schema bookmarks

5.1.2.2. P2 – Panel containing Editor and Workbook bookmarks

5.1.2.3. P3 – Map

5.1.3. Usage of user interface

5.1.3.1. Creating a new service

5.1.3.2. Inserting a component to the service

5.1.3.3. Inserting objects to the component

5.1.3.4. Services search

5.1.3.5. Connection, download and deleting of the attached file

5.1.1. Description of module environment

Service module serves for creating and management of services.

Management of services allows you to create and modify services. Those are representing in tree structure Service - Service components - Object components (see picture below). For creating services, it is mandatory to configure service types and component types first. This can be done in Configuration module.

Service module contains only one view. This view contains panels of tree structure type, editor and map field. The attributes of the item selected from the tree structure are displayed in the editor. The selected record differs from others by color. The list of options in the drop-down menu is active depending on the type of record selected in the editor.

You can start this module by clicking on the icon 🤝.

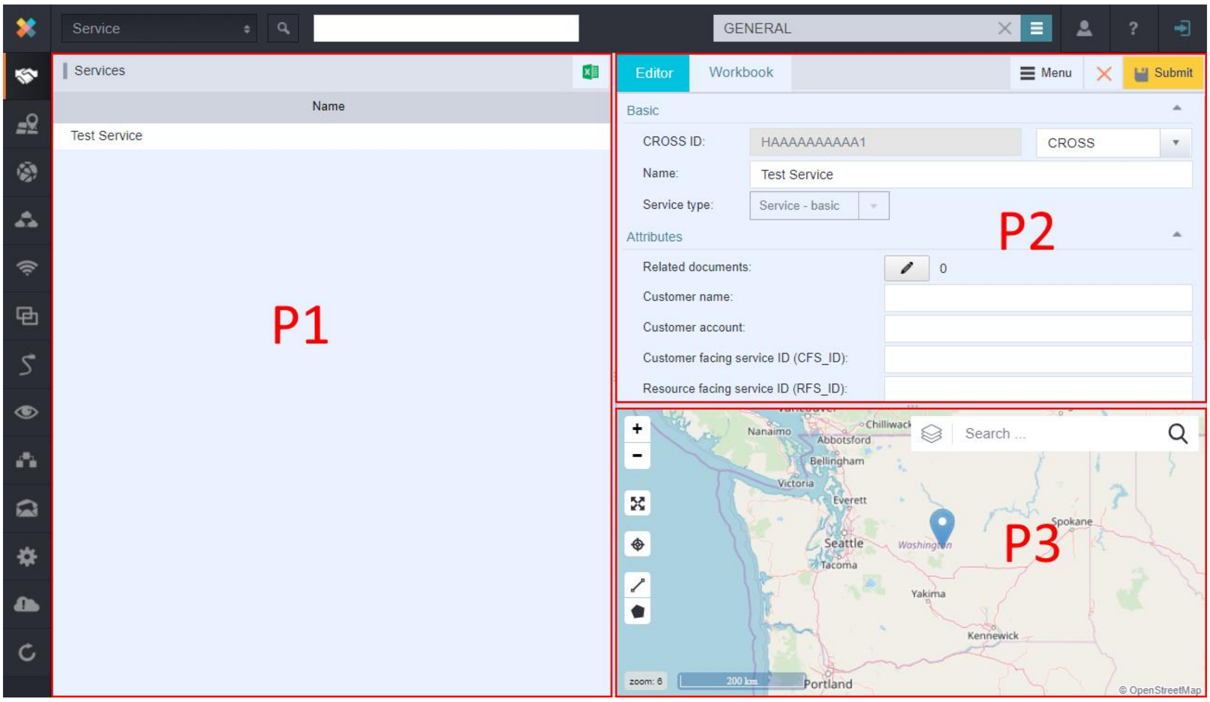
The module contains one view:

- Service view

5.1.2. Service view

The Service view contains three panels:

- P1 - Panel containing Services and Schema bookmarks
- P2 - Panel containing Editor and Workbook bookmarks
- P3 - Map



Name
Test Service

CROSS ID: HAAAAAAAAAA1 CROSS

Name: Test Service

Service type: Service - basic

Related documents: 0

Customer name:

Customer account:

Customer facing service ID (CFS_ID):

Resource facing service ID (RFS_ID):

Service
GENERAL
Services
Editor
Workbook
Menu
Submit
Basic
Attributes
P1
P2
P3
Search ...
Nanaimo
Chilliwack
Abbotsford
Bellingham
Victoria
Everett
Seattle
Tacoma
Washington
Spokane
Yakima
Kennewick
Portland
zoom: 6
200 km
© OpenStreetMap

5.1.2.1. P1 - Panel containing Services

In bookmark Service you can see the content of selected service.

5.1.2.2. P2 - Panel containing Editor and Workbook bookmarks

Serves for editing and creating new services.

Editor also contains a bookmark Workbook which serves for adding individual components to created service.

5.1.2.3. P3 - Map

Geometrical information about selected or all service objects are to be found in the Map window.

More information about Map window is to be found in chapter Map window in Locality module.

5.1.3. Usage of user interface

5.1.3.1. Creating a new service

In Service module, go to Service view.

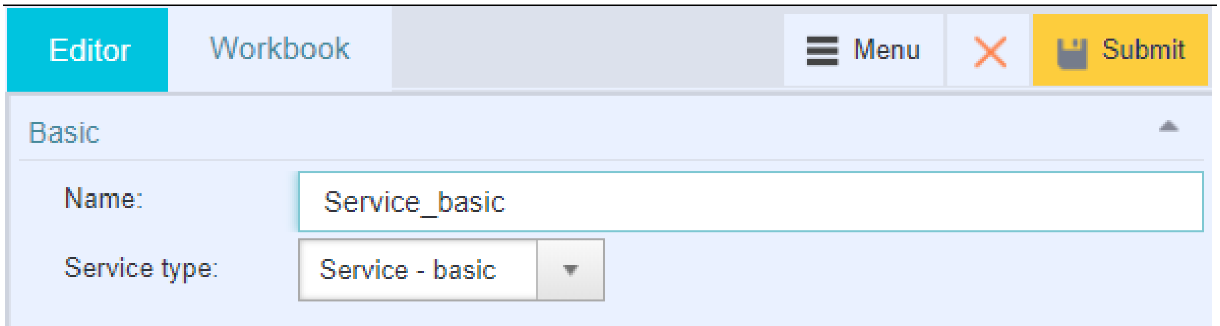
Select New Service in Service panel.

In editor fill the Name and select Service type.

If necessary, fill the attributes.

Confirm by clicking the Submit button.

Created Service is displayed in left Service panel.

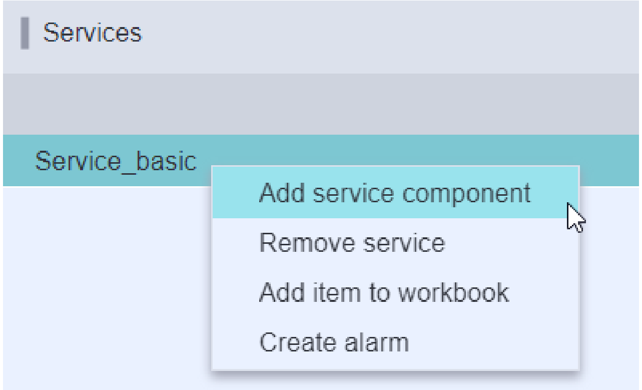

Editor
Workbook
Menu
Submit
Basic

Name: Service_basic

Service type: Service - basic

5.1.3.2. Inserting a component to the service

Choose Add service component from the context menu on selected service.

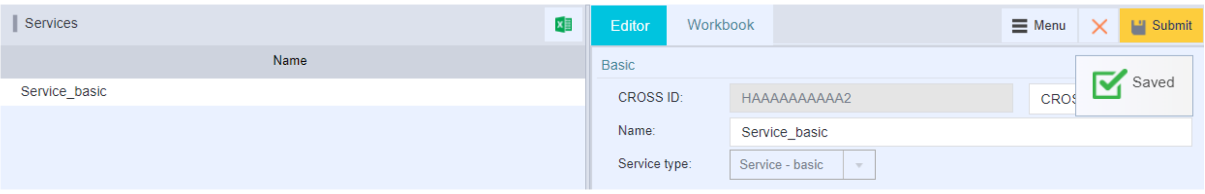

Services
Service_basic
Add service component
Remove service
Add item to workbook
Create alarm

Fill components attributes in the editor.

If necessary, fill the attributes.

Confirm by clicking the Submit button.

New service component is displayed under the service in panel Service.

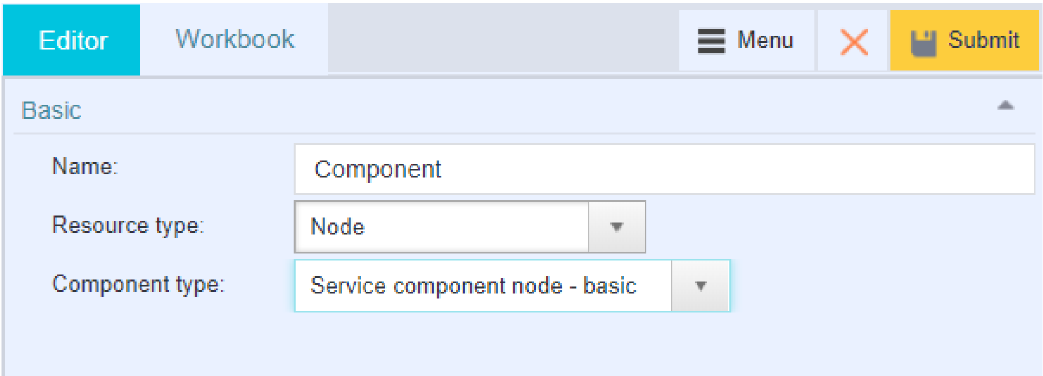

Services
Name
Service_basic
Editor
Workbook
Menu
Submit
Basic
Saved

CROSS ID: HAAAAAAAAAA2

Name: Service_basic

Service type: Service - basic

Creating new component in Editor.

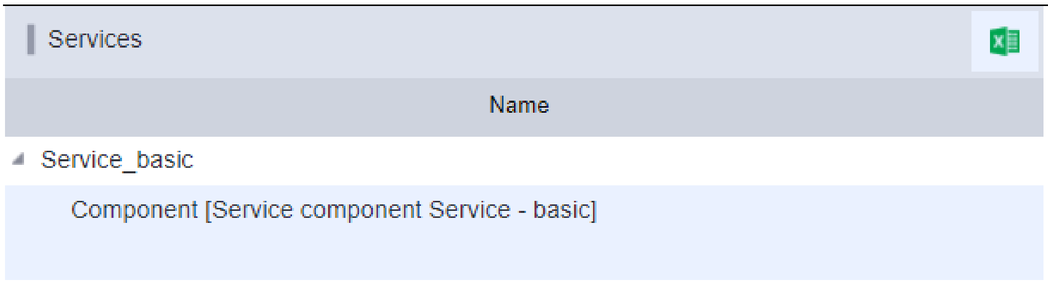

Editor
Workbook
Menu
Submit
Basic

Name: Component

Resource type: Node

Component type: Service component node - basic

Displaying a new component in the tree structure.



Services

Name

Service_basic

Component [Service component Service - basic]

5.1.3.3. Inserting objects to the component

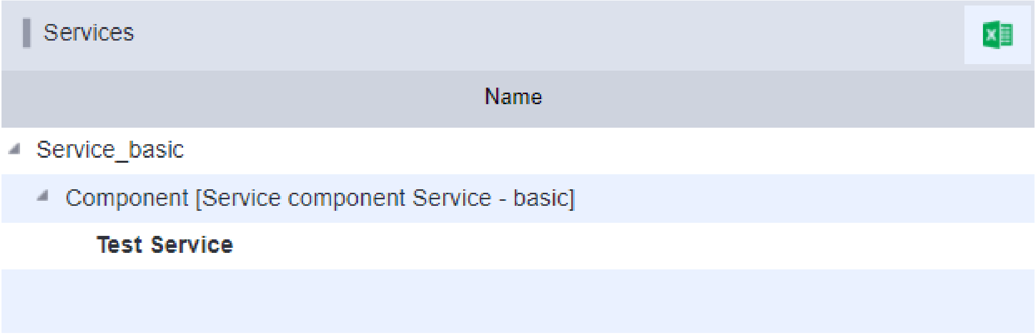
In Search module you can search and insert objects into Workbook. Those will be inserted to service components.

Select Service module, sub-module Service.

Switch to Workbook bookmark in the right window.

Drag object from Workbook to the selected component in the left panel.

If the type of object is like components type, it will be located under the component.



Services

Name

Service_basic

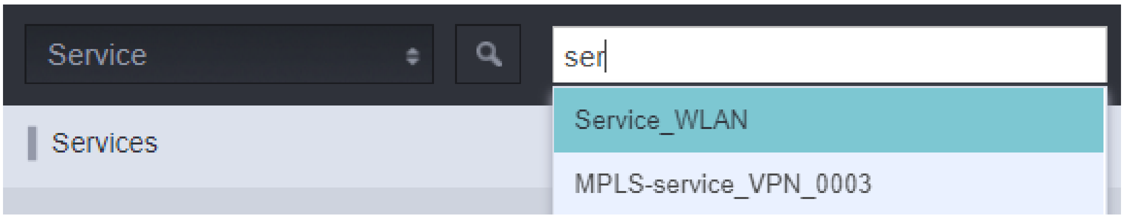
Component [Service component Service - basic]

Test Service

5.1.3.4. Services search

Services can be searched by several methods.

- Services can be searched by full-text search by service name.
- Services can be searched by full-text search via Cross ID.
- Services can be searched by Search module.



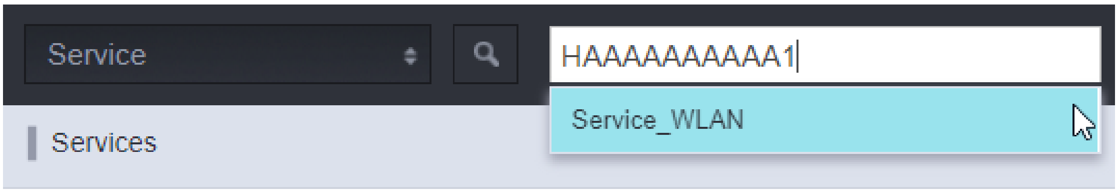
Service

ser

Service_WLAN

MPLS-service_VPN_0003

Services

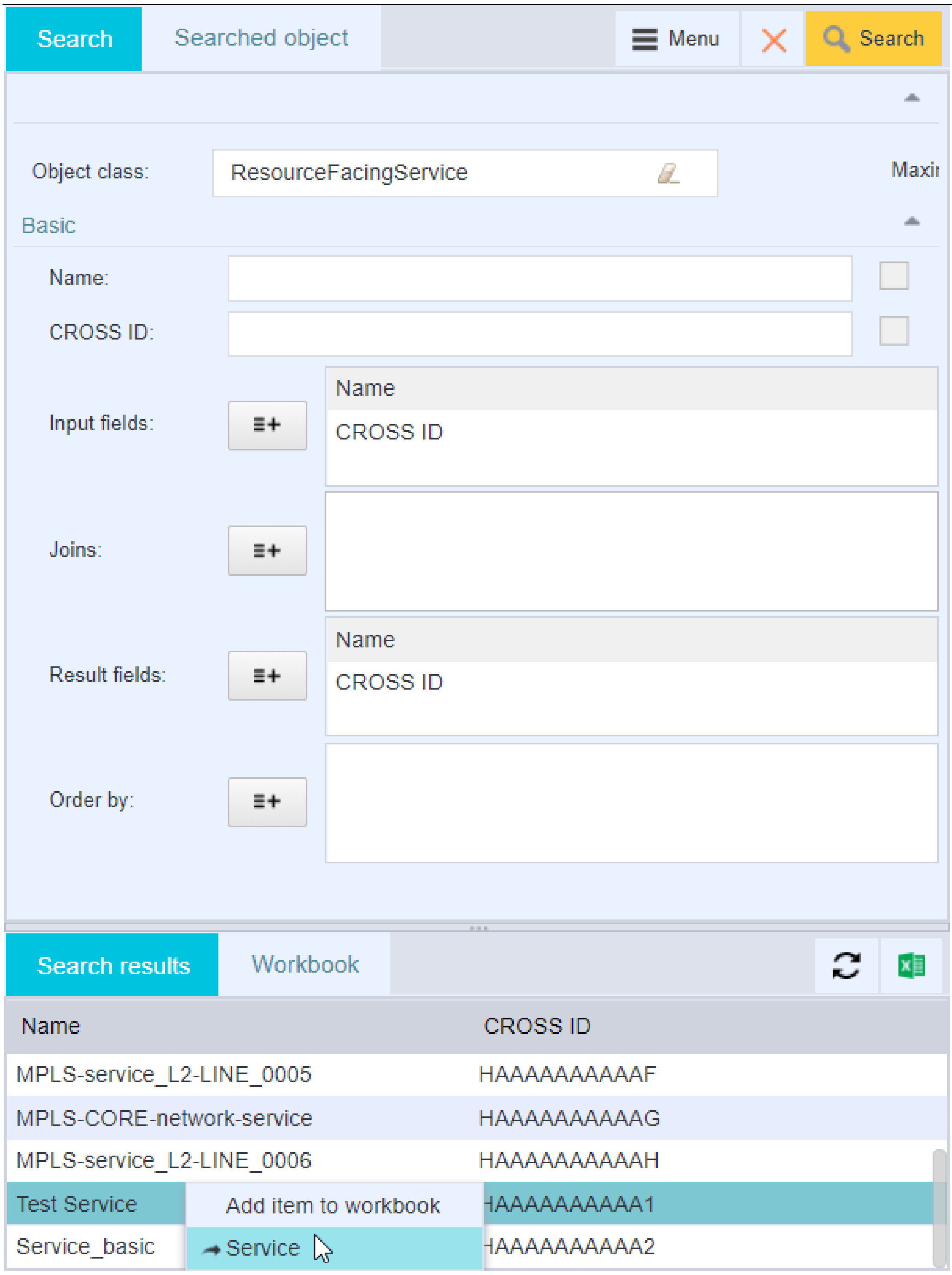


Service

HAAAAAAAAA1

Service_WLAN

Services


Search
Searched object
Menu
Search
Maxi
Basic
Input fields:
Joins:
Order by:
Search results
Workbook
Add item to workbook
Service

Object class: ResourceFacingService

Name:

CROSS ID:

Input fields: Name, CROSS ID

Result fields: Name, CROSS ID

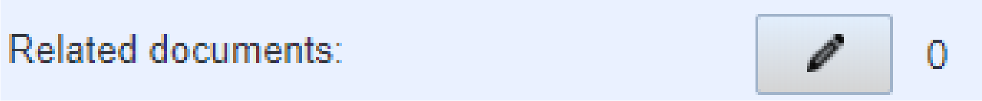
Name	CROSS ID
MPLS-service_L2-LINE_0005	HAAAAAAAAAAF
MPLS-CORE-network-service	HAAAAAAAAAAG
MPLS-service_L2-LINE_0006	HAAAAAAAAAAH
Test Service	HAAAAAAAAAA1
Service_basic	HAAAAAAAAAA2

5.1.3.5. Connection, download and deleting of the attached file

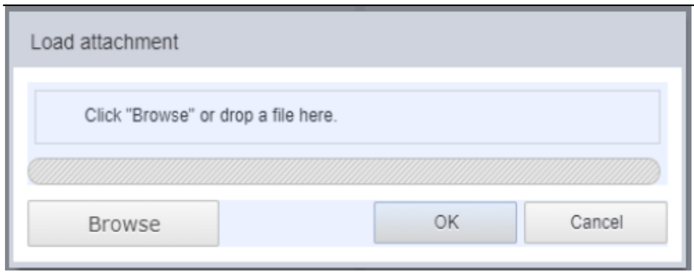
In Editor you can insert and download files.

Inserting attachments to objects is possible if it is allowed in home module. e.g. Node - Locality.

Click on the "Pencil" icon next to number of attachments. The upload window will be opened.

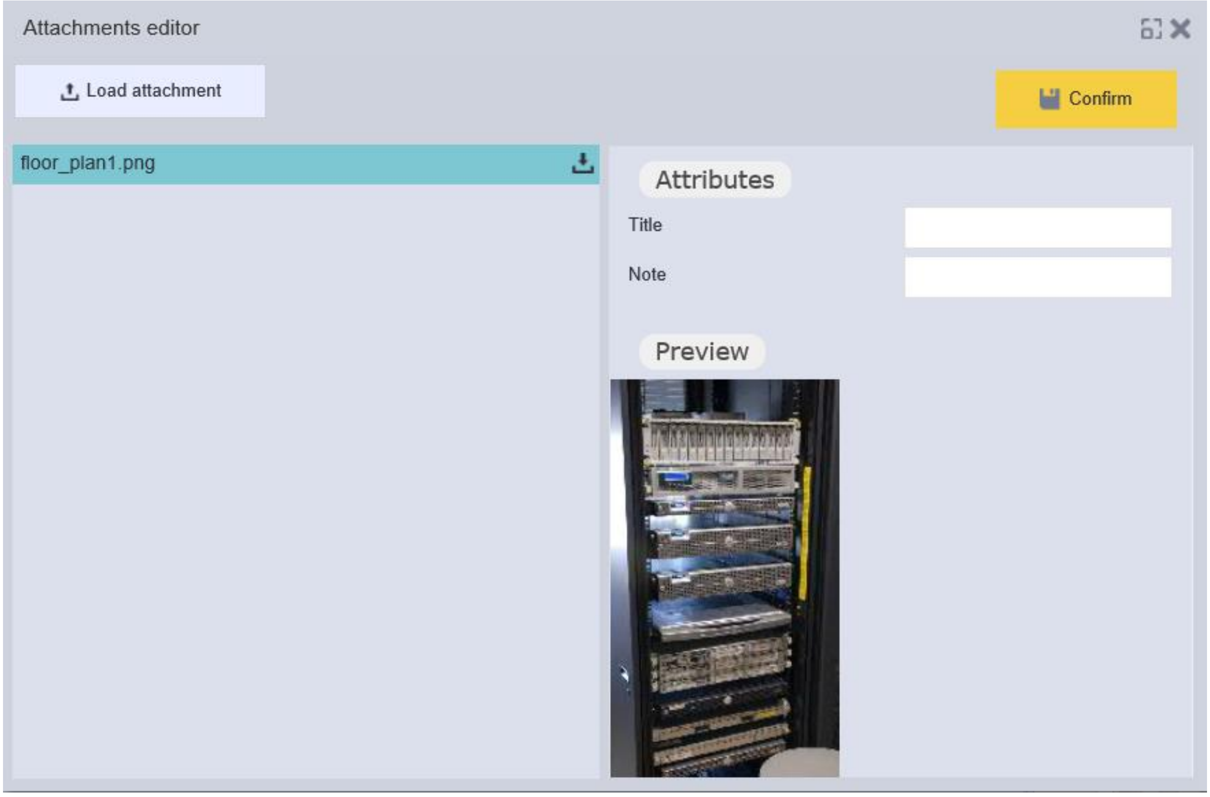


Related documents: 0


Load attachment
Click "Browse" or drop a file here.
Browse
OK
Cancel

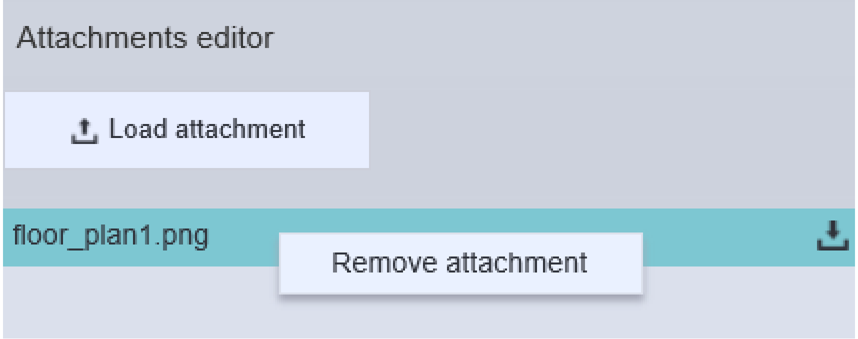
In the left corner select Upload attachment. Window with more option for uploading will be opened.

Select Browse and find the file you wish to upload. Confirm by clicking the OK button.


Attachments editor
Load attachment
Confirm
floor_plan1.png
Attributes
Title
Note
Preview

The download can be done by clicking on the download icon at the end of the attachment line.

Attachment can be deleted by an option from the attachment context menu.


Attachments editor
Load attachment
floor_plan1.png
Remove attachment

You can download the attachment by clicking on the icon ⤓ in the left panel.

The preview of the attachment can be performed only on the files of image type (e.g. JPG, PNG, GIF). It cannot be performed on other documents (e.g. PDF or DOC type).

5.2. SIA MODULE

Chapter overview:

5.2.1. Description of module environment

5.2.2. SIA

5.2.2.1. P1 - SIA

5.2.2.2. P2 – Root alarms

5.2.2.3. P3 – Impacted service/Sub-alarms

5.2.3. Usage of user interface

5.2.3.1. Create alarm

5.2.1. Description of module environment

SIA module allows you to support Network Operation Center:

- SIA (Service Impact Analysis)
- Searching and reporting of network services affected by network source blackout. System SIA works with Consumer provider principle and allows you to implement objects to node levels and link levels. SIA runs optimized search of all affected Consumers and in case of data integration from customer system, SIA will identify affected customer.
- RCA (Root Cause Analysis)
- Finding a result of blackout cause on alarm source mapping in CROSS Resource Inventory. RCA is optimized action of search action, which searches from Customer level all possible blackout causes on Provider level.
- RCA is very effective when working with UMS (Umbrella Management System)

When the alarm is created on the Node then all its consumers (nodes, links and services) are affected. The same is for Links and their consumers (other links and/or Services) and for Services and theirs consumers (other Services).

Content of the next chapter is alarm detecting in SIA module and alarm´s impact to other modules.

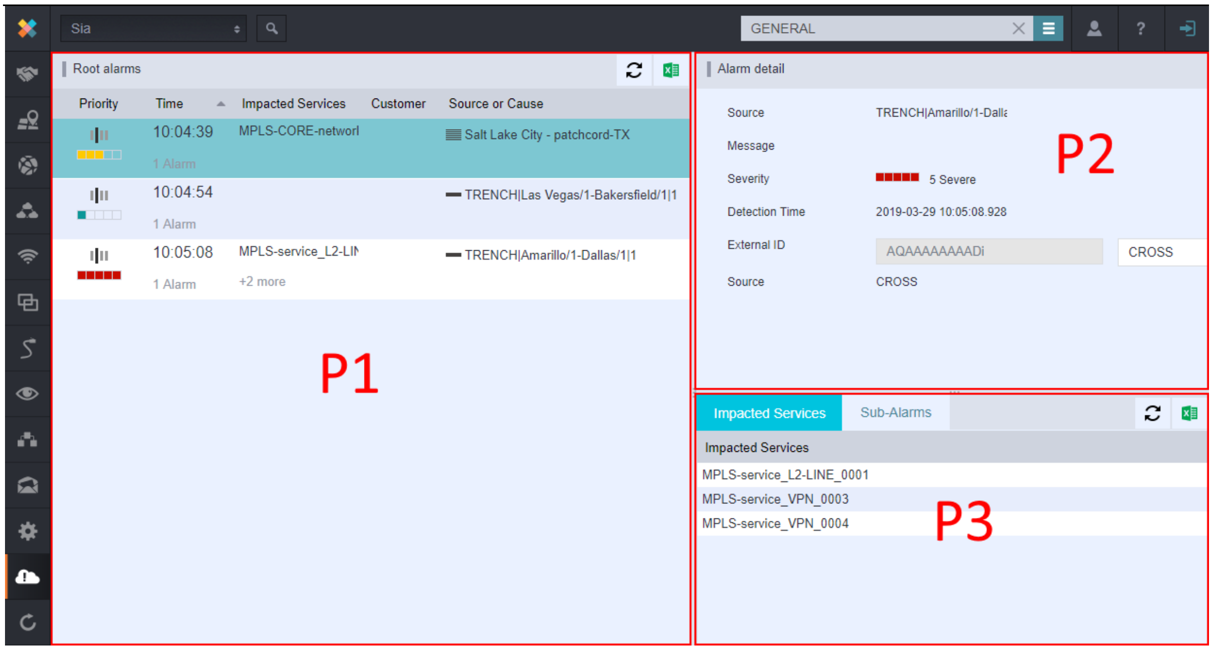
Module contains one window:

- SIA

5.2.2. SIA

SIA view contains three panels:

- P1 – Root alarms
- P2 – Alarm detail
- P3 – Impacted services/Sub-Alarms



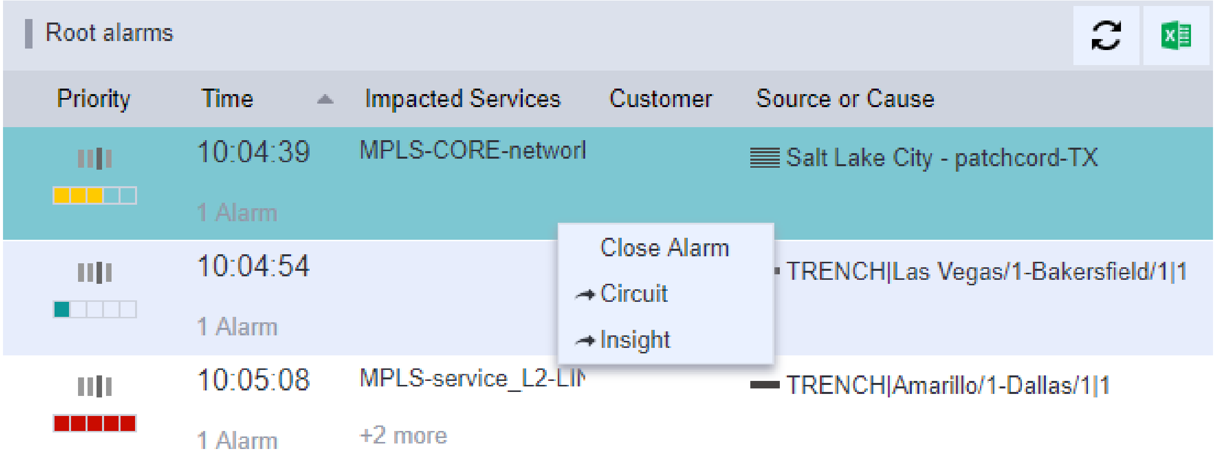
Priority	Time	Impacted Services	Customer	Source or Cause
🟨🟨🟨□□	10:04:39 1 Alarm	MPLS-CORE-networl		Salt Lake City - patchcord-TX
🟦□□□□	10:04:54 1 Alarm			TRENCH|Las Vegas/1-Bakersfield/1|1
🟥🟥🟥🟥🟥	10:05:08 1 Alarm	MPLS-service_L2-LIN +2 more		TRENCH|Amarillo/1-Dallas/1|1

Source TRENCH|Amarillo/1-Dalla
Message
Severity 🟥🟥🟥🟥🟥 5 Severe
Detection Time 2019-03-29 10:05:08.928
External ID AQAAAAAAAADi CROSS
Source CROSS

Impacted Services
MPLS-service_L2-LINE_0001
MPLS-service_VPN_0003
MPLS-service_VPN_0004

SIA module is empty, when no alarms are detected.

5.2.2.1. P1 – Root alarms



Priority	Time	Impacted Services	Customer	Source or Cause
🟨🟨🟨□□	10:04:39 1 Alarm	MPLS-CORE-networl		Salt Lake City - patchcord-TX
🟦□□□□	10:04:54 1 Alarm			TRENCH|Las Vegas/1-Bakersfield/1|1
🟥🟥🟥🟥🟥	10:05:08 1 Alarm	MPLS-service_L2-LIN +2 more		TRENCH|Amarillo/1-Dallas/1|1

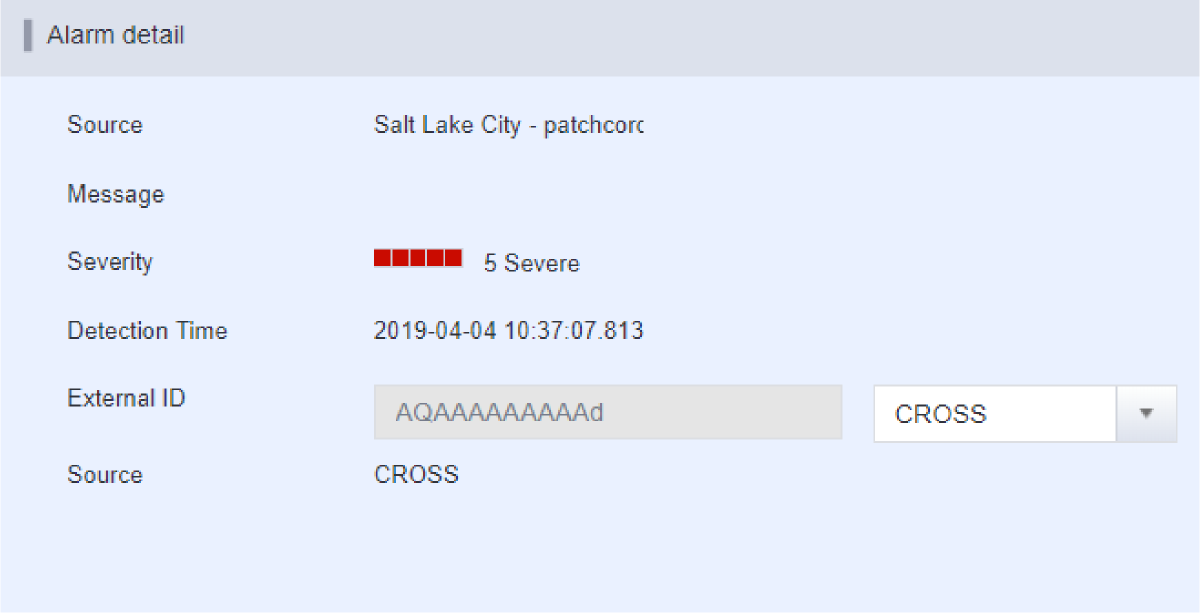
Alarms are listed here. User needs to refresh the view using an icon ⟳ after adding an alarm. The list can be exported to Excel file by using an Export to Excel icon. There are several columns:

- Severity – calculation of severity can be defined on a project level
    - Animated icon shows during first 10 minutes after alarm creation as a default
    - Colored bar shows a level of severity: 5 – red, 4, orange, 3 - yellow, 2 – blue, 1 - green
- Time – this shows the time of last detection time (or alarm creation)
- Impacted services - contains a list of services which are impacted by an incident raising an alarm
    - Detailed list is in panel P3.
- Customer – shows Customer attribute of the first service in the list
    - This can be set by a Probe.
- Network Element / Cause – shows the root cause element which is causing the alarm

Note: Severity is by the default specified by a predefined demo formula so module can be easily used during presentations. This behavior can be changed using bean *SiaConst.DATASOURCE_ROOT_ALARMS_TABLE* on the project level.

Default demo formula for Severity: row number is defined based on the number of services (and sequence in which data are sent from database when there are no services) where first one has row number 0. This row number is enlarged by 1 and then divided by total number of rows. This common fraction is rounded down to a single digit number and then multiplied by 5. Result is the Severity and this value changes when more services are added to alarms or when more alarms are created.

5.2.2.2. P2 – Alarm detail



Alarm detail

Source Salt Lake City - patchcorc

Message

Severity 🟥🟥🟥🟥🟥 5 Severe

Detection Time 2019-04-04 10:37:07.813

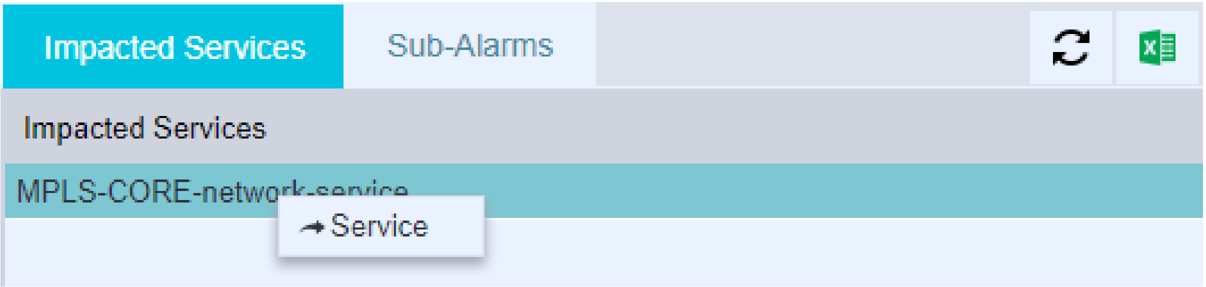
External ID AQAAAAAAAAAd CROSS

Source CROSS

Details contains following information:

- Network Element - shows the root cause element which is causing the alarm
- Message – provides a message from external source (if provided)
    - Can be added by a Probe
- Severity – calculation of severity can be defined on a project level
    - Bean SiaConst.DATASOURCE_ROOT_ALARMS_TABLE
- Detection Time – this shows the time of detection time (includes time of alarm creation)
- External ID – lists IDs of the Network Element and can be switched by drop down menu
- Source – show the source of the alarm (CROSS, Probe)

5.2.2.3. P3 - Impacted services/Sub-Alarms

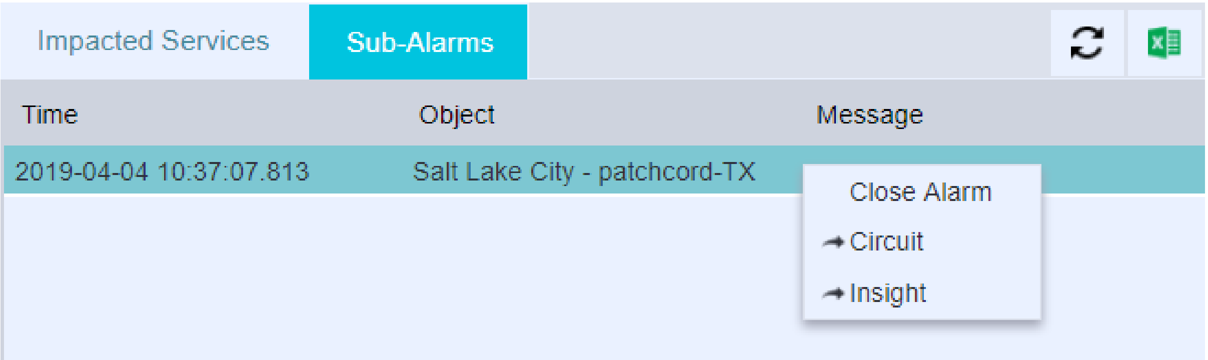


List of Impacted services contains affected services by the alarm. All parents, all dependent or related services.

System shows impacted services:

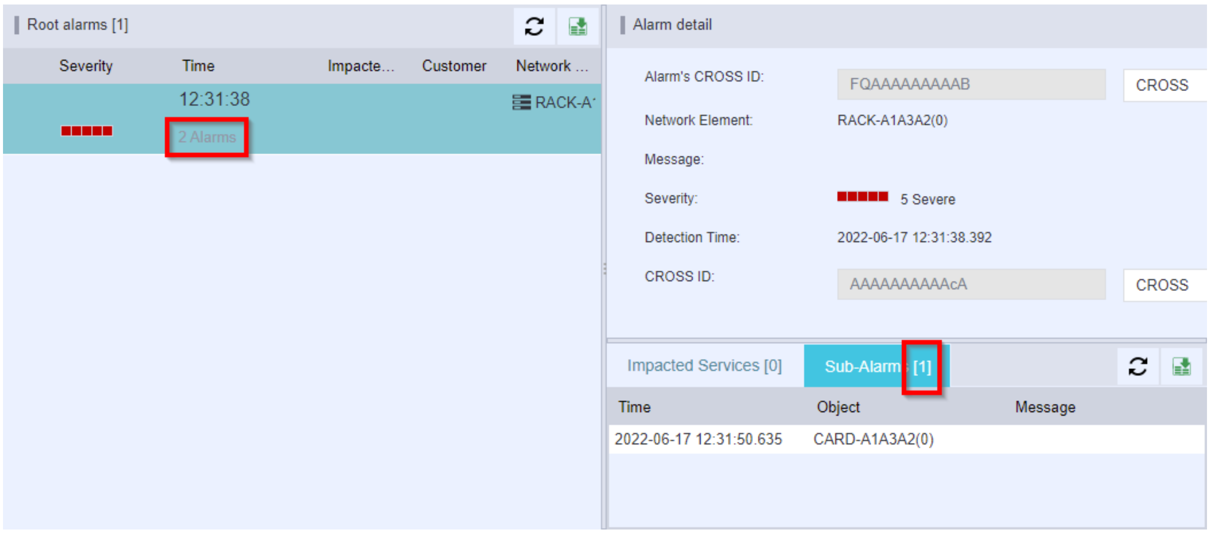
- For alarm created on an impacted node (a node on which an alarm was created) system will show list of impacted services, which is a service with one of following components:
    - Impacted node
    - Child node of some Impacted node

  - Link terminated on an impacted node
  - Link terminated on a child node subordinated to impacted node
- For alarm created on an impacted link (a link on which an alarm was created) system will show list of impacted services, which is a service with one of following components:
  - Impacted link
  - Link consuming impacted link



Time	Object	Message
2019-04-04 10:37:07.813	Salt Lake City - patchcord-TX	

- Sub-Alarms (grouped alarms)
  - If an alarm was created in a node, which has some parent or a child with an alarm, then those alarms are grouped together into Sub-Alarms. As a carrier of an alarm is always shown a node with the highest level.
  - If an alarm was created on a link which has a consumer or a provider with an alarm, then those alarms are grouped together into Sub-Alarms. As a carrier of an alarm is always shown a link with the highest level.
  - Grouped Alarm is shown in a form of a counter of grouped alarms the P1 below Time (so the number is always bigger than 1). Sub-alarms are shown in P3 and the number of sub-alarms on selected Alarm is always the number of grouped alarms minus 1 (the main showed in P1).



Severity	Time	Impacte...	Customer	Network ...
■■■■■	12:31:38 2 Alarms			RACK-A'

Alarm's CROSS ID: FQAAAAAAAAAB

Network Element: RACK-A1A3A2(0)

Message:

Severity: ■■■■■ 5 Severe

Detection Time: 2022-06-17 12:31:38.392

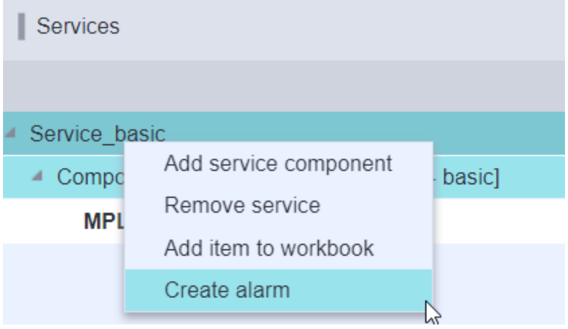
CROSS ID: AAAAAAAAAAcA

Time	Object	Message
2022-06-17 12:31:50.635	CARD-A1A3A2(0)	

5.2.3. Usage of user interface

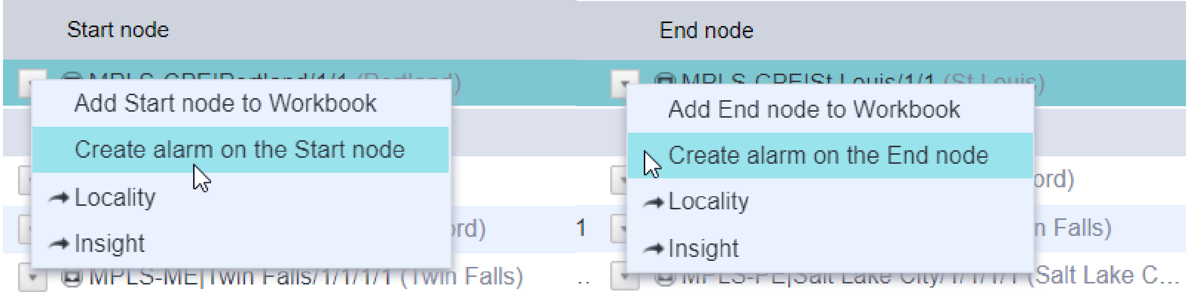
5.2.3.1. Create alarm in Service

Choose Create alarm from the context menu on selected service.


Services
Service_basic
Compo
basic]
MPL
Add service component
Remove service
Add item to workbook
Create alarm

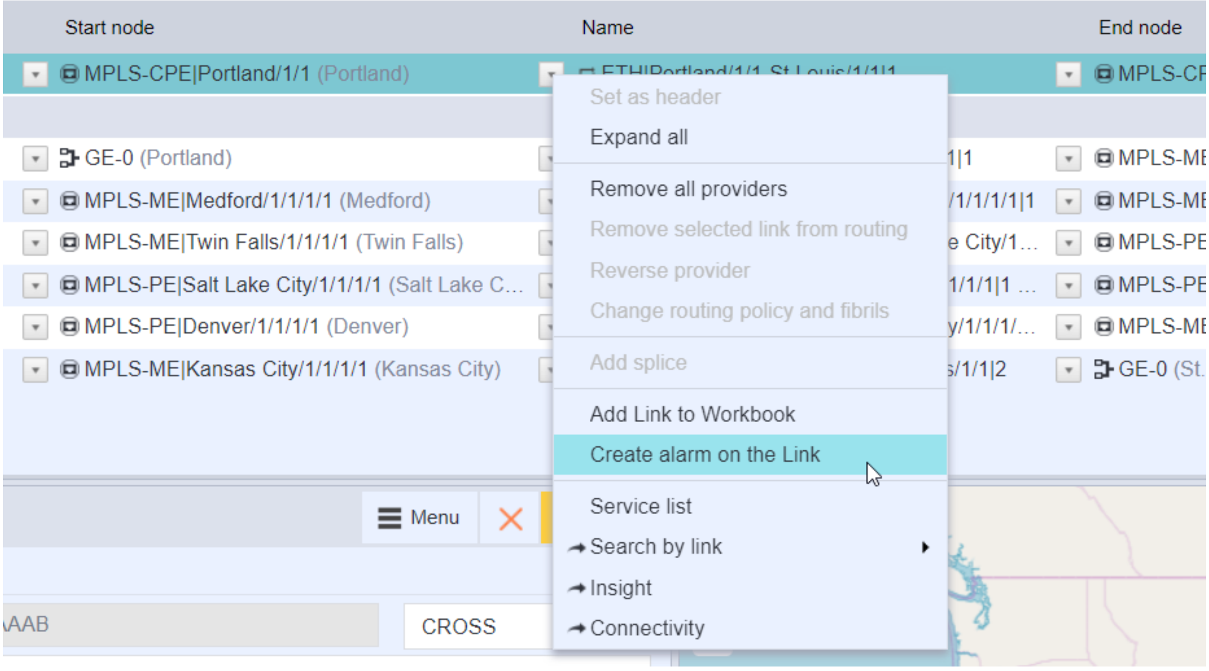
Info box “Alarm was successfully created” appears after this action.

5.2.3.2. Create alarm in Circuit – Routing tab


Start node
End node
Add Start node to Workbook
Create alarm on the Start node
Locality
Insight
MPLS-ME|Twin Falls/1/1/1/1 (Twin Falls)
Add End node to Workbook
Create alarm on the End node
Locality
Insight
Salt Lake C…

Each node has a button in front of its name. Clicking this button will open specific menu for each type.

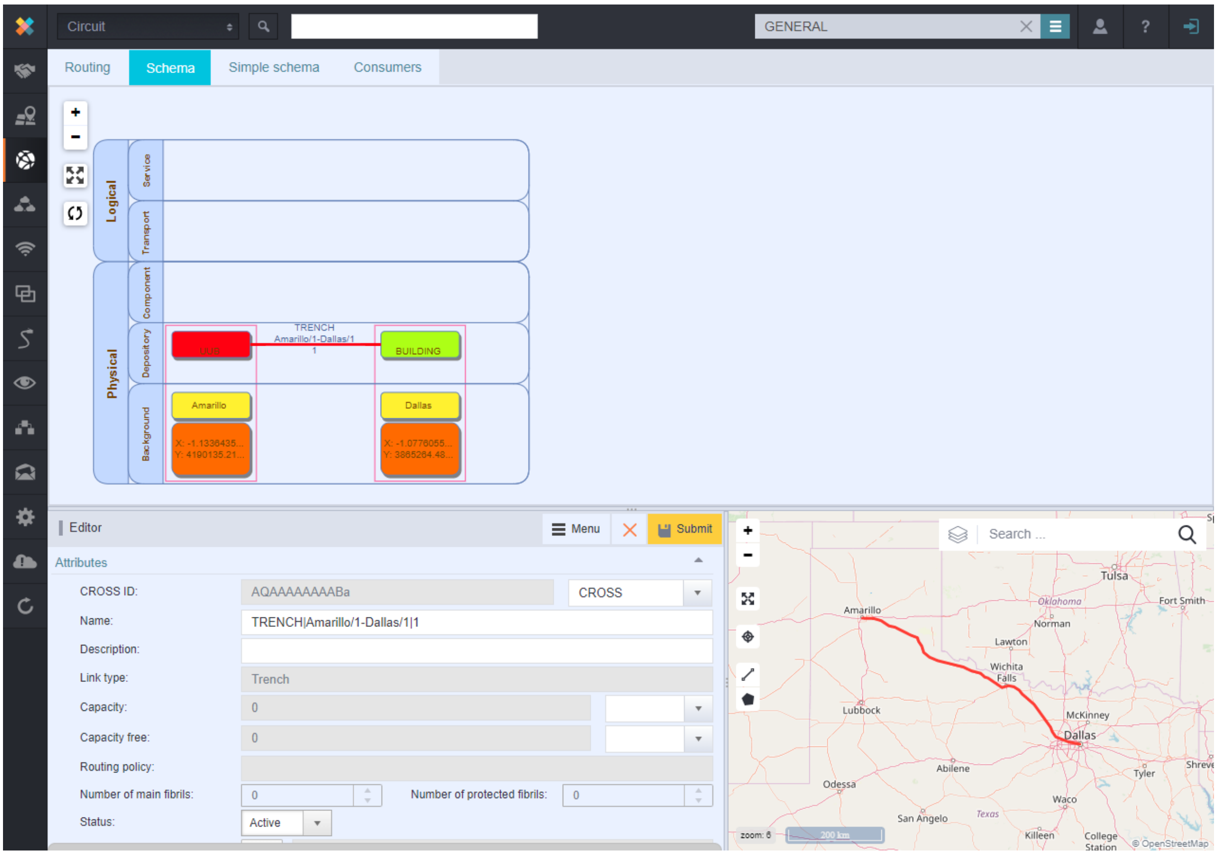
Link has also a button with a menu, but this is the same as context menu on the whole line of the table.


Start node
Name
End node
MPLS-CPE|Portland/1/1 (Portland)
GE-0 (Portland)
MPLS-ME|Medford/1/1/1/1 (Medford)
MPLS-ME|Twin Falls/1/1/1/1 (Twin Falls)
MPLS-PE|Salt Lake City/1/1/1/1 (Salt Lake C…
MPLS-PE|Denver/1/1/1/1 (Denver)
MPLS-ME|Kansas City/1/1/1/1 (Kansas City)
Set as header
Expand all
Remove all providers
Remove selected link from routing
Reverse provider
Change routing policy and fibrils
Add splice
Add Link to Workbook
Create alarm on the Link
Service list
Search by link
Insight
Connectivity
Menu
CROSS

5.2.3.3. Create alarm in Circuit – Schema tab

For demonstration of alarm we selected random circuit, which is displayed in Circuit module. Graphic schema of circuit is displayed in Schema bookmark.

As you can see on schema, no blackout is detected.


Circuit
GENERAL
Routing
Schema
Simple schema
Consumers
Logical
Physical
Service
Transport
Component
Depository
Background
TRENCH
Amarillo/1-Dallas/1
1
UUB
BUILDING
Amarillo
Dallas
Editor
Menu
Submit
Attributes
Search ...
Tulsa
Amarillo
Oklahoma
Norman
Fort Smith
Lawton
Wichita Falls
Lubbock
McKinney
Dallas
Abilene
Tyler
Odessa
Waco
San Angelo
Texas
Killeen
College Station
zoom: 6
200 km
© OpenStreetMap

CROSS ID: AQAAAAAAAABa CROSS

Name: TRENCH|Amarillo/1-Dallas/1|1

Description:

Link type: Trench

Capacity: 0

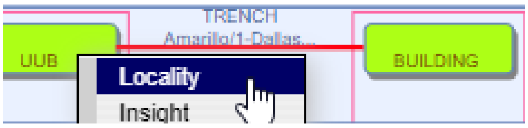
Capacity free: 0

Routing policy:

Number of main fibrils: 0 Number of protected fibrils: 0

Status: Active

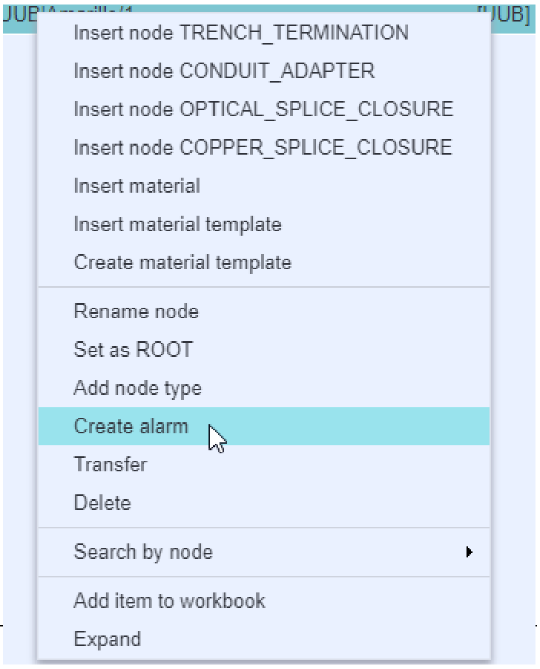
Alarm are detected automatically, but we will create alarm manually for this simulation. Right-click on port in circuit and display it on Locality module.


TRENCH
Amarillo/1-Dallas...
UUB
BUILDING
Locality
Insight

5.2.3.4. Create alarm in Locality

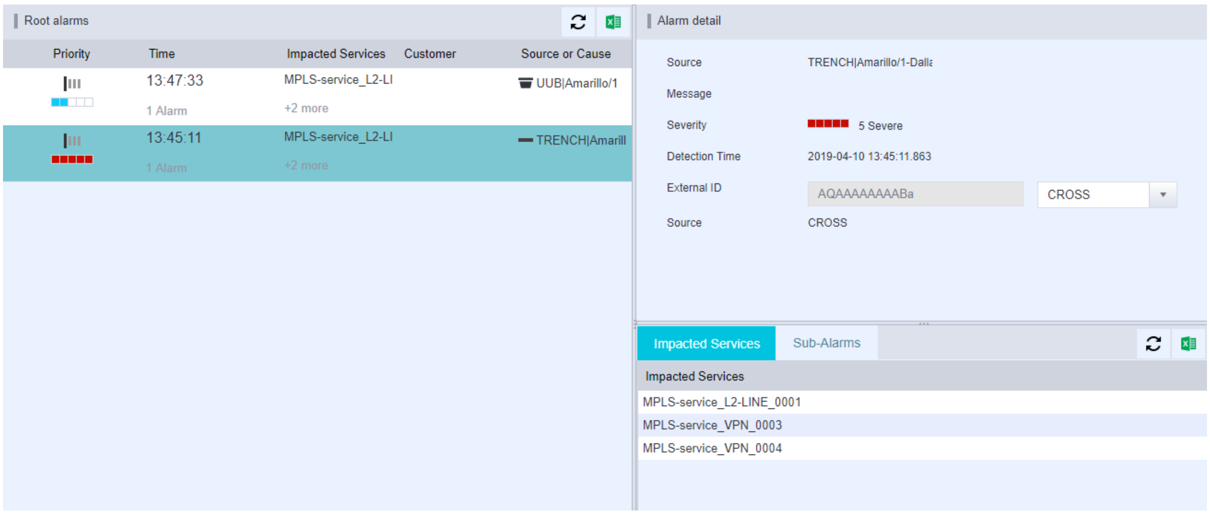
Now create an alarm from context menu by selecting Create alarm.

Info box “Alarm was successfully created” appears after this action.


Insert node TRENCH_TERMINATION
Insert node CONDUIT_ADAPTER
Insert node OPTICAL_SPLICE_CLOSURE
Insert node COPPER_SPLICE_CLOSURE
Insert material
Insert material template
Create material template
Rename node
Set as ROOT
Add node type
Create alarm
Transfer
Delete
Search by node
Add item to workbook
Expand

5.2.3.5. Alarm in SIA module

Switch to SIA module, here you can see created alarm (press refresh button if not).



Root alarms

Priority	Time	Impacted Services	Customer	Source or Cause
	13:47:33 1 Alarm	MPLS-service_L2-LI +2 more		UUB|Amarillo/1
🟥🟥🟥🟥🟥	13:45:11 1 Alarm	MPLS-service_L2-LI +2 more		TRENCH|Amarill

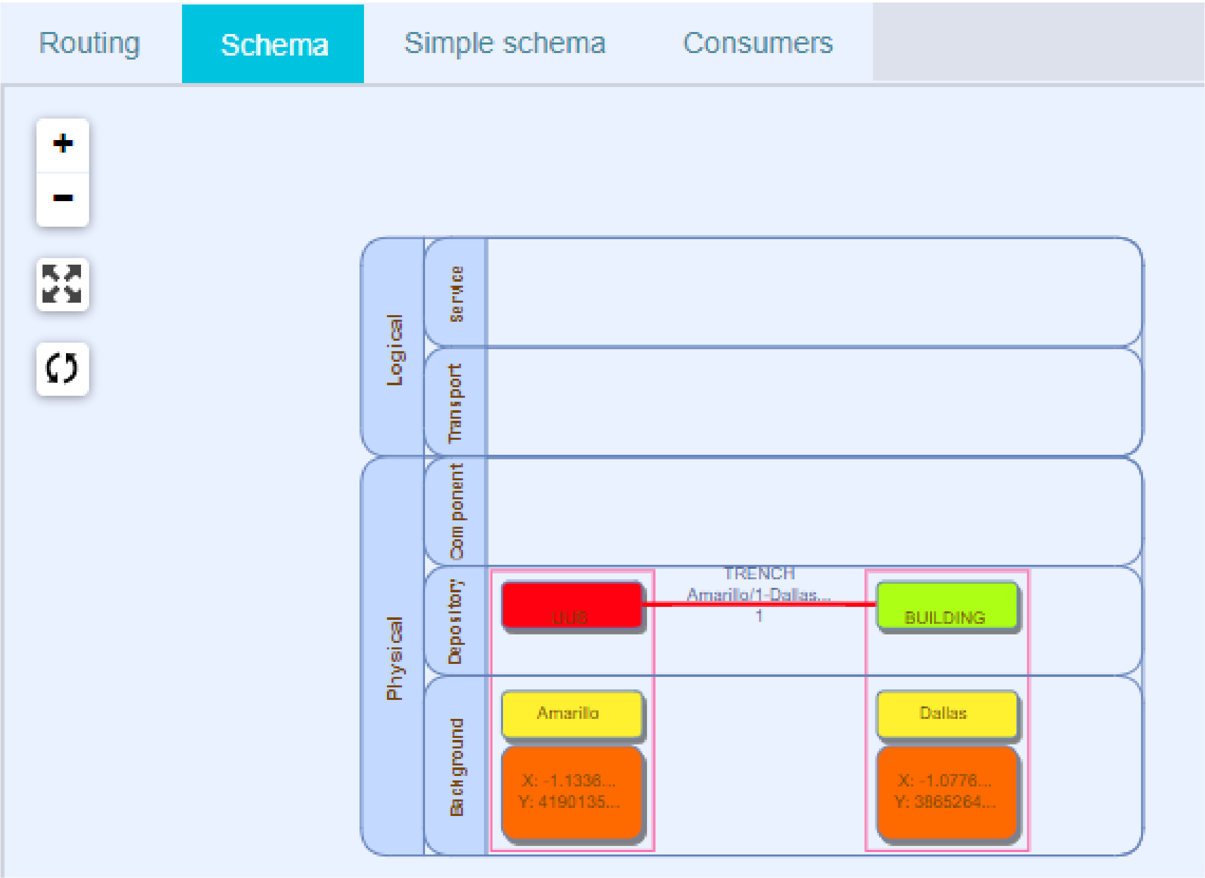
Alarm detail

Source	TRENCH|Amarillo/1-Dalla
Message	
Severity	🟥🟥🟥🟥🟥 5 Severe
Detection Time	2019-04-10 13:45:11.863
External ID	AQAAAAAAAABa CROSS
Source	CROSS

Impacted Services | Sub-Alarms

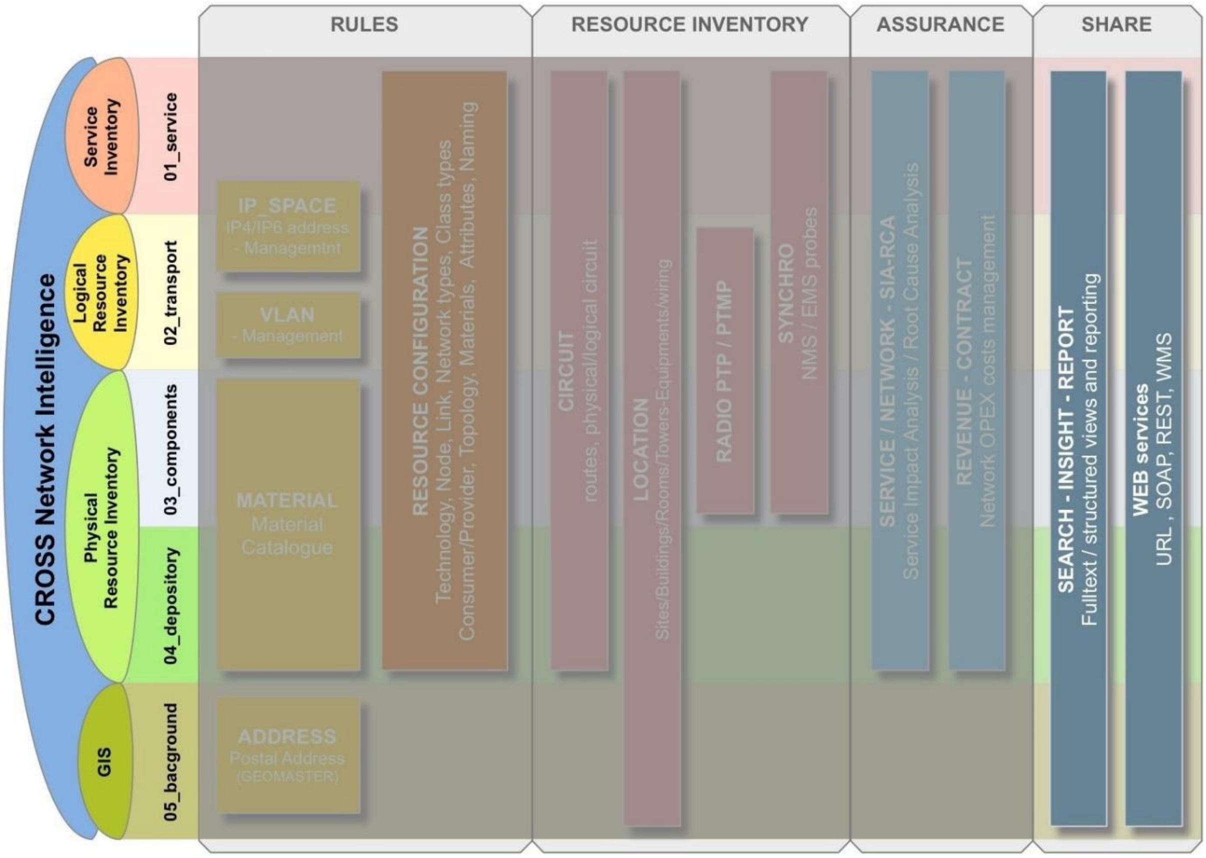
Impacted Services
MPLS-service_L2-LINE_0001
MPLS-service_VPN_0003
MPLS-service_VPN_0004

Also, in Circuit module you can see the change - alarm in circuit schema and affected nodes are marked by red color.


Routing
Schema
Simple schema
Consumers
Logical
Service
Transport
Physical
Component
Depository
Background
TRENCH
Amarillo/1-Dallas...
1
UUB
BUILDING
Amarillo
Dallas
X: -1.1336...
Y: 4190135...
X: -1.0776...
Y: 3865264...

6. Module group CROSS – SHARE

Module group CROSS_SHARE contains specialized tools for end users. These tools are designed for effective searching and presenting data from the system. Complete integration interface for other IT systems is part of this group.


RULES
RESOURCE INVENTORY
ASSURANCE
SHARE
CROSS Network Intelligence
Service Inventory
Logical Resource Inventory
Physical Resource Inventory
GIS
01_service
02_transport
03_components
04_depository
05_bacground
IP_SPACE
IP4/IP6 address - Managemtnt
VLAN
- Management
MATERIAL
Material Catalogue
ADDRESS
Postal Address (GEOMASTER)
RESOURCE CONFIGURATION
Technology, Node, Link, Network types, Class types
Consumer/Provider, Topology, Materials, Attributes, Naming
CIRCUIT
routes, physical/logical circuit
LOCATION
Sites/Buildings/Rooms/Towers-Equipments/wiring
RADIO PTP / PTMP
SYNCHRO
NMS / EMS probes
SERVICE / NETWORK - SIA-RCA
Service Impact Analysis / Root Cause Analysis
REVENUE - CONTRACT
Network OPEX costs management
SEARCH - INSIGHT - REPORT
Fulltext / structured views and reporting
WEB services
URL , SOAP, REST, WMS

CROSS-RULES is made from following modules:

SEARCH - searching and data presentation

INSIGHT – data navigator

6.1. SEARCH MODULE - searching and data presentation

Chapter overview:

6.1.1. Description of module environment

6.1.2. Search view

6.1.2.1. P1 - Panel with following bookmarks: Search / Searched object

6.1.2.2. P2 - Panel with following bookmarks: Search results / Workbook

6.1.2.3. P3 - Map

6.1.3. Usage of user interface

6.1.3.1. Address search

6.1.3.2. Node search

6.1.3.3. Material template search

6.1.3.4. Searching by Joints

6.1.3.5. Searching by Geometry

6.1.3.6. Advanced search

6.1.1. Description of module environment

Search module is a universal searching tool for all instances of the CROSS application – from addresses and localities through links and materials to the IP addresses. Searching is performed based on the criteria entered in the searching form. Every instance has its "own" form - searching criteria for localities and nodes will be different from the searching criteria of circuits and links etc. While searching you may enter and combine more criteria at once - searching is then more effective. In these cases, you may save once defined searching form and repeatedly use it as needed. You can export the searched records to Excel for further work with this data. You can display searched records one by one in the editor and on the map - these panels are also part of the module and you can find them under the list of searched records in the search results. From the table of results or from the editor menu you can display selected record in the module, to which it belongs - nodes in the modules Locality and Insight, links in the module Circuits etc.

There are now maximum of 50,000 results when searching addresses to improve performance.

Another working utility in the Search module is the Workbook.

Notepad - Workbook serves as repository for preserving objects that are somehow obtained, for example while searching, and with which you want to work later in other modules. For example you can search links that you will need for work, insert them into the workbook and then you can work with them later in different module like Group and you can drag them into relevant group. Objects can be inserted into the workbook and also removed from it. Object can be added to the Workbook for example in the Search module by selecting the option "Add item to workbook" from the object context menu in the search results.

Search module is run by clicking on this icon 🔍.

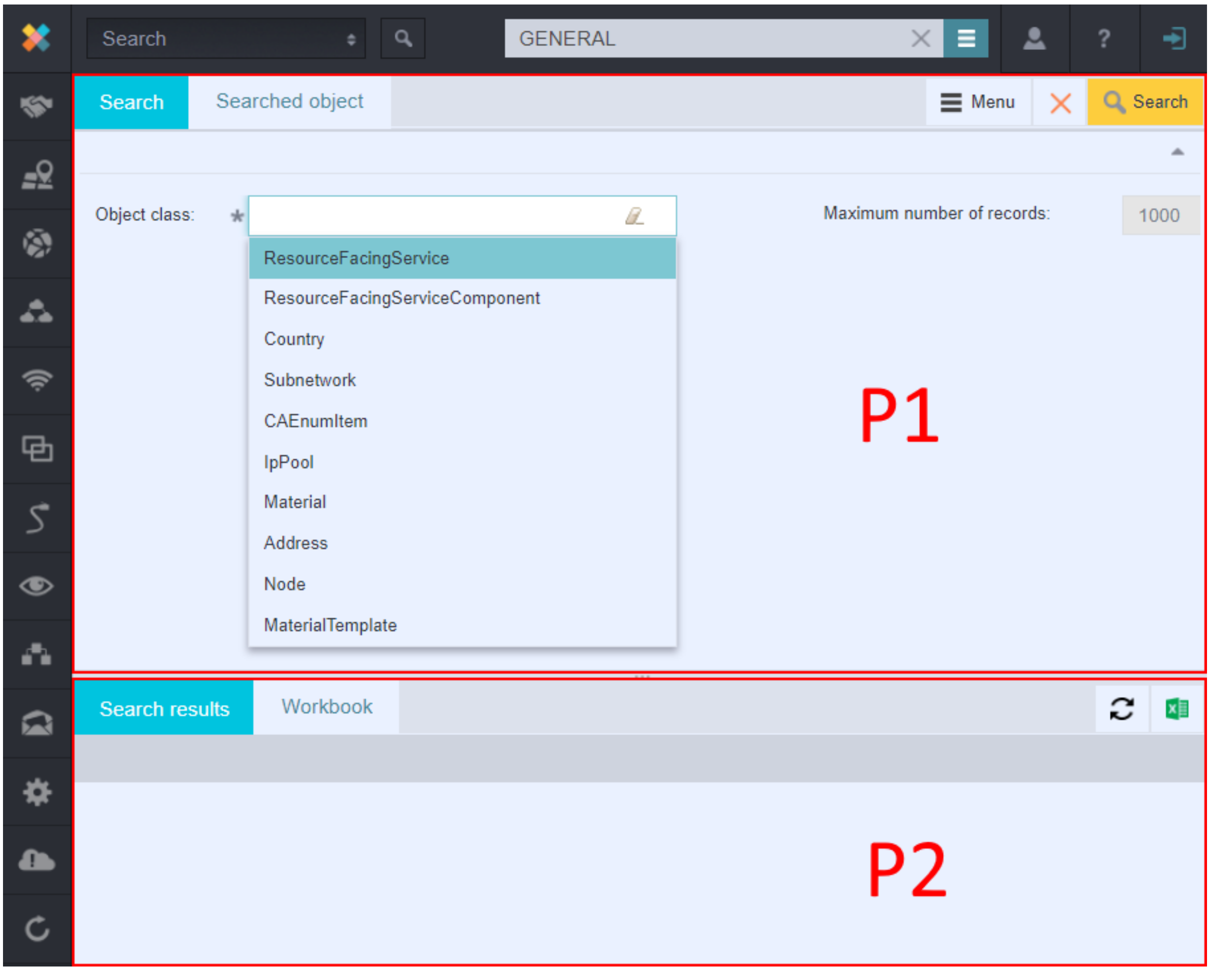
Module contains one window:

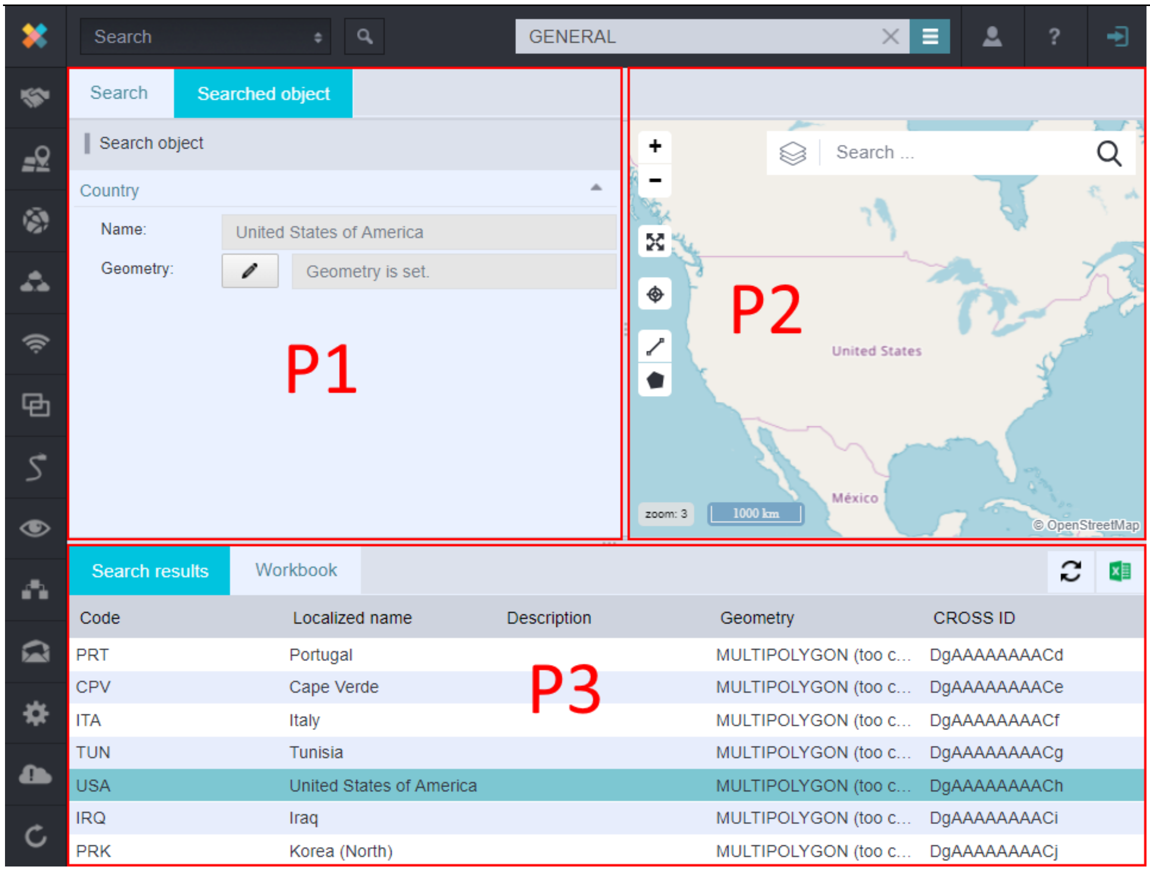
- Search

6.1.2. Search view

The module window consists of three panels:

- P1 - Panel with following bookmarks: Search / Searched object
- P2 - Panel with following bookmarks: Search results / Workbook
- P3 - Map


Search
GENERAL
Search
Searched object
Menu
Search
Object class:
Maximum number of records:
1000
ResourceFacingService
ResourceFacingServiceComponent
Country
Subnetwork
CAEnumItem
IpPool
Material
Address
Node
MaterialTemplate
P1
Search results
Workbook
P2



Name: United States of America

Geometry: Geometry is set.

Code	Localized name	Description	Geometry	CROSS ID
PRT	Portugal		MULTIPOLYGON (too c...	DgAAAAAAAACd
CPV	Cape Verde		MULTIPOLYGON (too c...	DgAAAAAAAACe
ITA	Italy		MULTIPOLYGON (too c...	DgAAAAAAAACf
TUN	Tunisia		MULTIPOLYGON (too c...	DgAAAAAAAACg
USA	United States of America		MULTIPOLYGON (too c...	DgAAAAAAAACh
IRQ	Iraq		MULTIPOLYGON (too c...	DgAAAAAAAACi
PRK	Korea (North)		MULTIPOLYGON (too c...	DgAAAAAAAACj

6.1.2.1. P1 - Working panel with following bookmarks: Search / Searched object

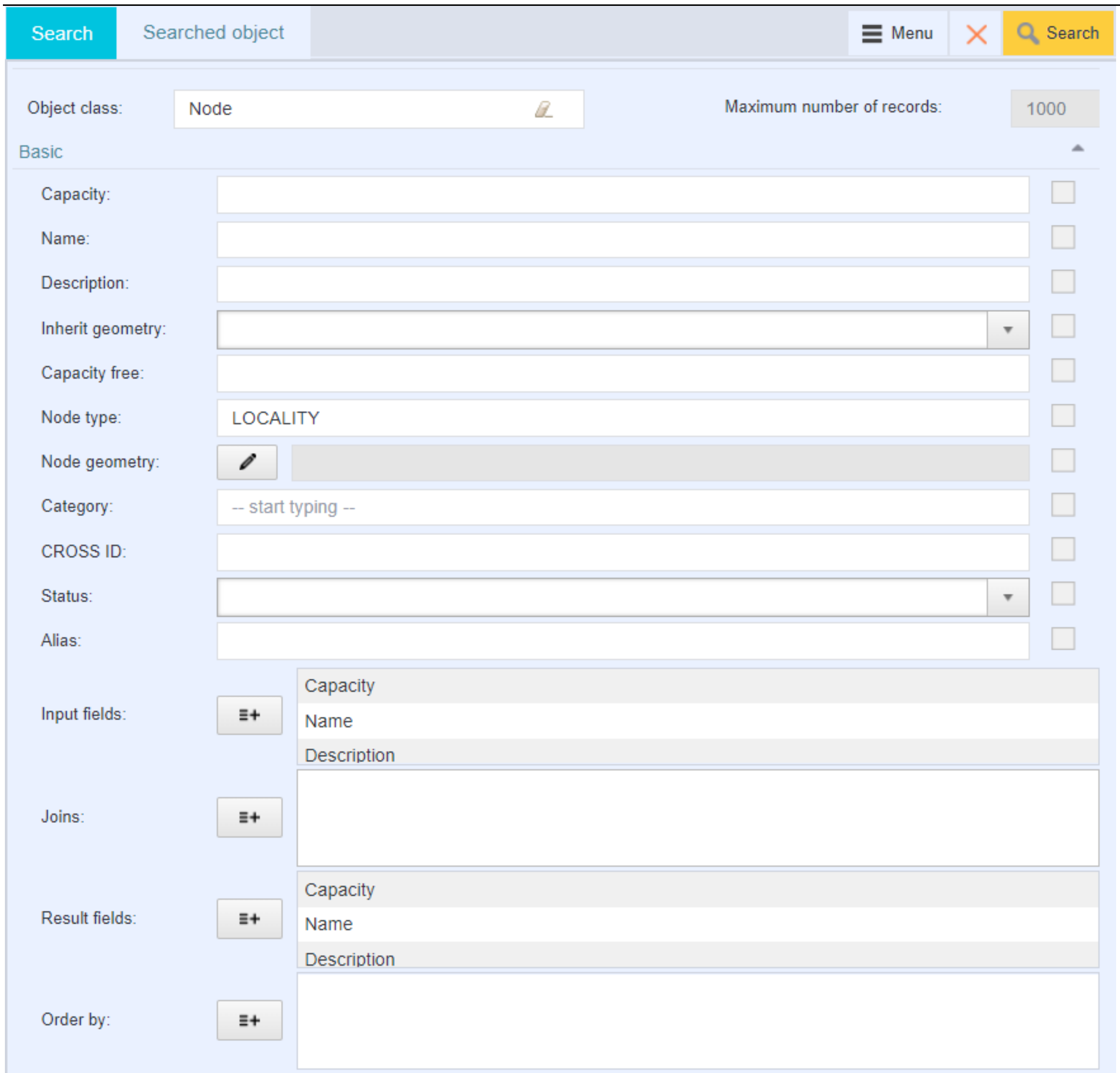
Panel P1 serves for specification of attributes and type of the searched object and for displaying the list of search results. This panel contains three bookmarks - Search and Searched object.

Bookmark Search

Bookmark Search serves for entering the search parameters. Relevant editor for entering object criteria is displayed according to the type (class) of the searched object - its content and structure depends on selected object type. Some parameters can be selected only from the drop-down list of values, some can be written directly into the field. You can use asterisks as place holders at written values.

Advanced searching is performed according to criteria (parameters) entered in the editor. The group of search parameters differs according to the object type as different group is for circuits and different for radio-localities etc.

On the picture below, you can see the editor for entering search criteria for Node object class. All node objects belong into this group (that means all objects that can be found in the Locality module).


Search
Searched object
Menu
Search
Basic
Capacity:
Name:
Description:
Inherit geometry:
Capacity free:
Node geometry:
Category:
-- start typing --
CROSS ID:
Status:
Alias:
Joins:
Order by:

Object class: Node

Maximum number of records: 1000

Node type: LOCALITY

Input fields:
- Capacity
- Name
- Description

Result fields:
- Capacity
- Name
- Description

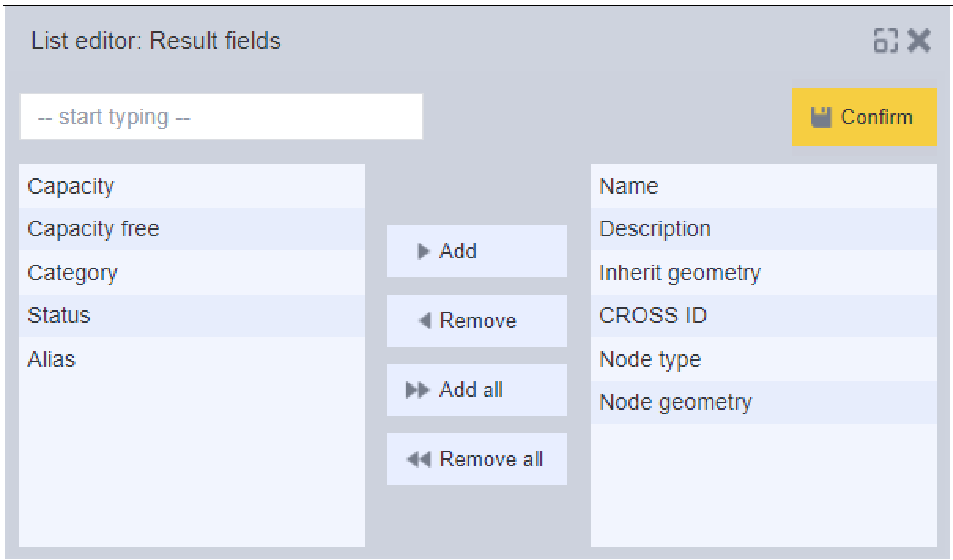
Searching in the fields, to which you can enter a value (name, description, alias etc.), does not function in the full-text mode as you must enter an exact value, exact name etc. If the exact value is unknown, you can use a placeholder - asterisk *. The asterisk can be placed at the beginning or at the end of the searched string.

For example, " element* " at attribute Name will search all objects that begin with the word "element".

If you type " *****element* ", search will find all records that include the element word in their names.

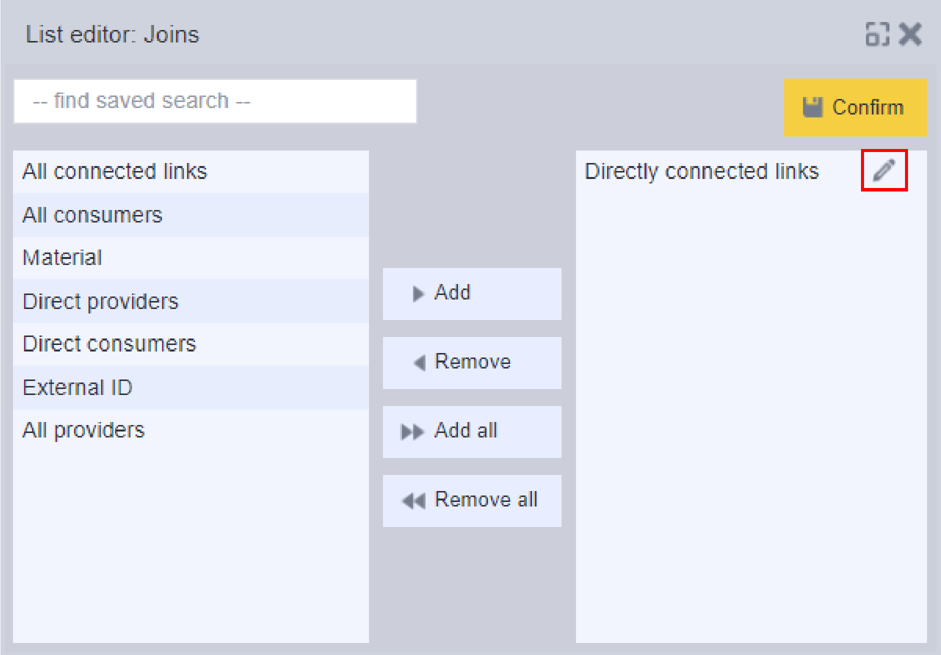
Searching does not distinguish uppercase and lowercase letters.

In the Result fields you can select what results (values) you want to see at found objects. These selected table columns will be displayed at found records on the bookmark Search results. Columns of optional attributes are not visible as default. Therefore, if you want to see these attributes in the Search results, you must add them to a Result fields.

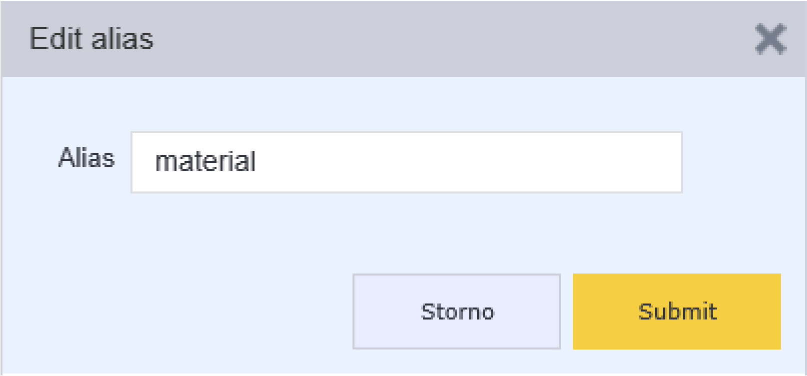

List editor: Result fields
-- start typing --
Confirm
Capacity
Capacity free
Category
Status
Alias
Add
Remove
Add all
Remove all
Name
Description
Inherit geometry
CROSS ID
Node type
Node geometry

Joins field allows us to define the division of objects.

Joins acts like a filter for objects which do not contain the selected item in the Join. E.g. if an object does not contain a material, then adding the Material into Joins will filter such object out of results.


List editor: Joins
-- find saved search --
Confirm
All connected links
All consumers
Material
Direct providers
Direct consumers
External ID
All providers
Add
Remove
Add all
Remove all
Directly connected links

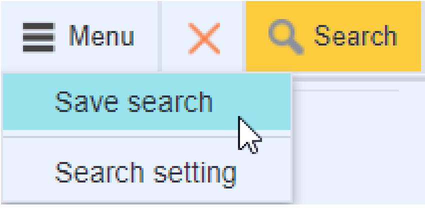
The item can be edited by clicking on pencil icon.


Edit alias

Alias: material

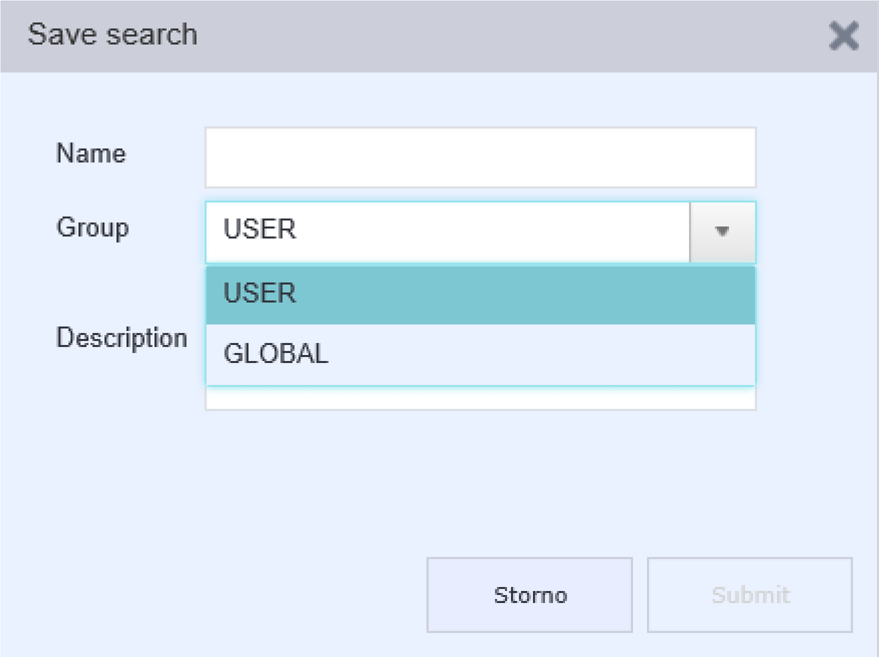
Storno
Submit

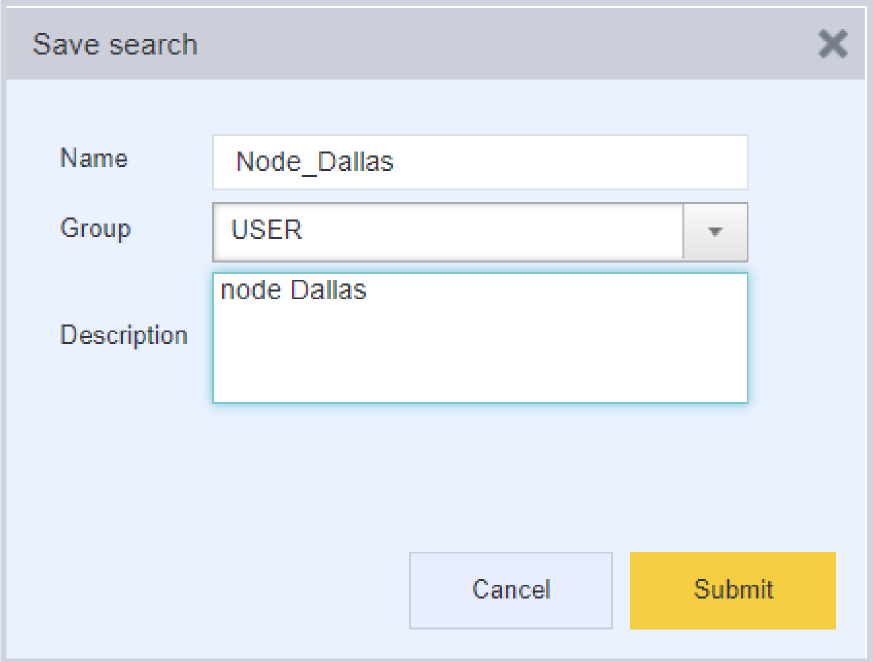
The column settings in the search results can be (along with other search form settings) saved for later use by clicking the button Save search. Saved searching form can be loaded by choosing the option Save search from the Menu.


Menu
Search
Save search
Search setting

Group USER - saved search results are visible only for users.

Group GLOBAL - saved search results are visible also for other users.


Save search
Name
Group
USER
USER
GLOBAL
Description
Storno
Submit

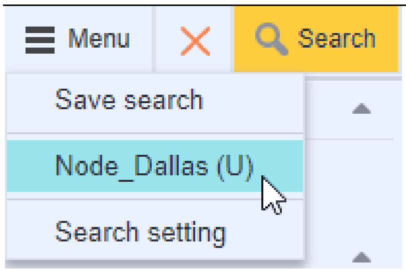

Save search
Cancel
Submit

Name: Node_Dallas

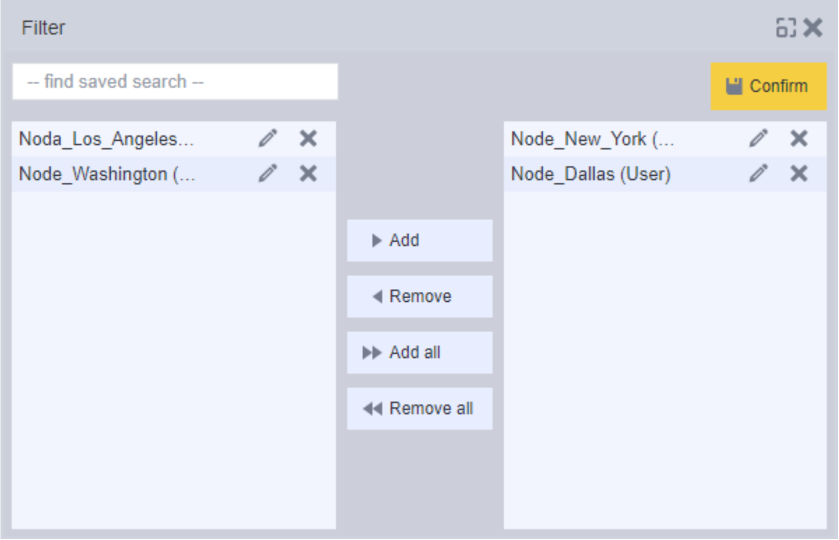
Group: USER

Description: node Dallas

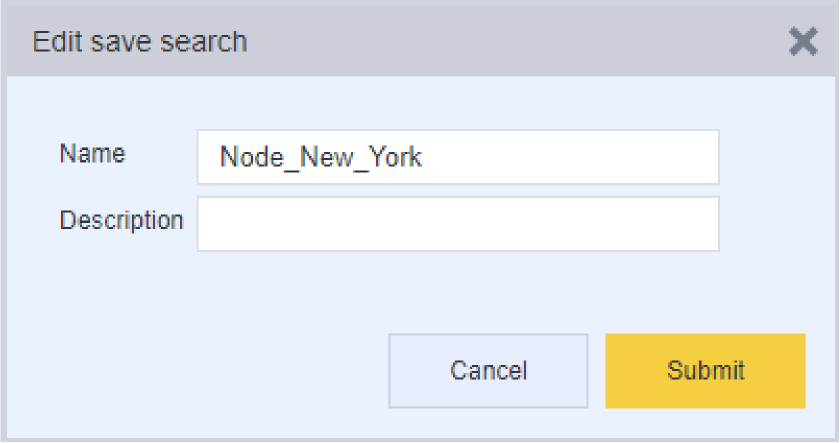
Saved search results are displayed in Menu under the Search bookmark.


Menu
Search
Save search
Node_Dallas (U)
Search setting

Selecting Search option from Menu allows us to edit or to delete saved search results.


Filter
-- find saved search --
Confirm
Noda_Los_Angeles…
Node_Washington (…
Node_New_York (…
Node_Dallas (User)
Add
Remove
Add all
Remove all

A window for editing saved search results will be displayed after clicking on the pencil icon.

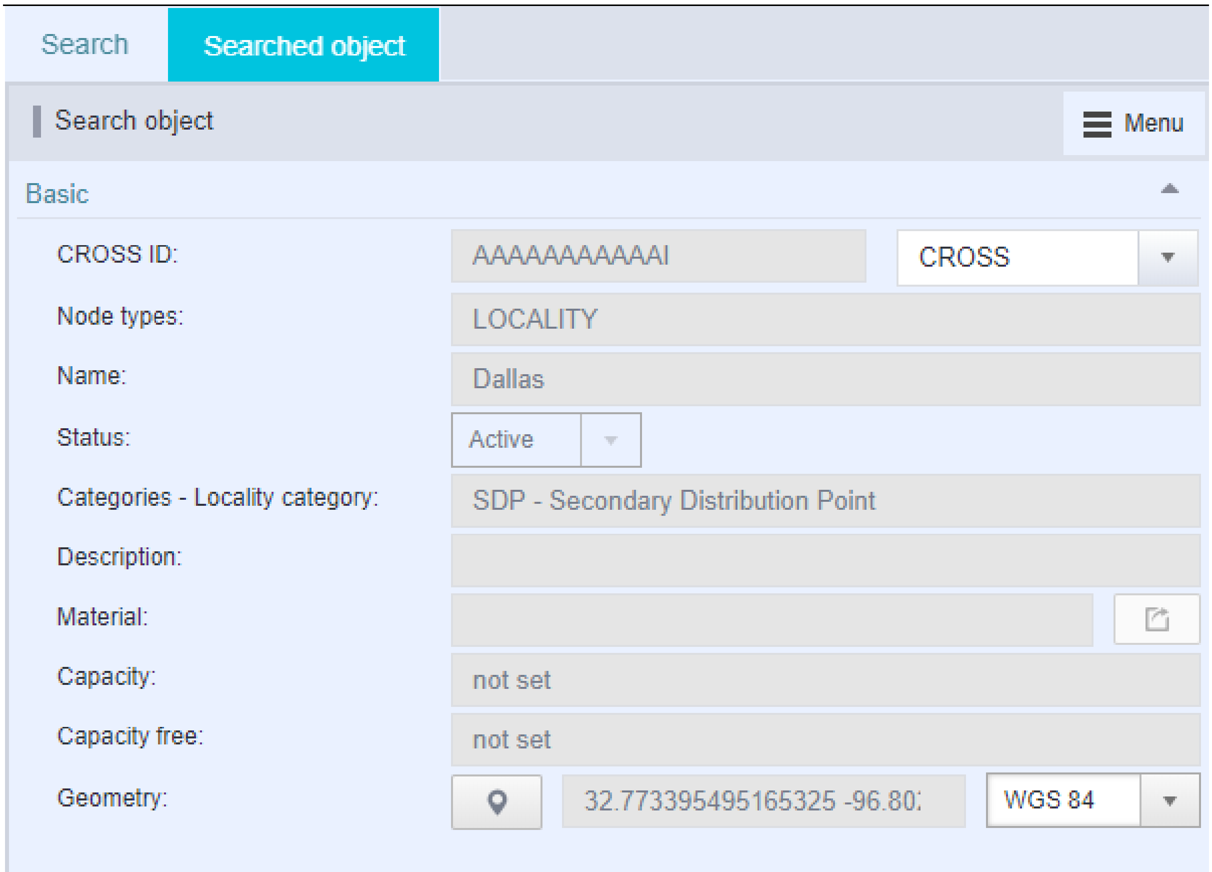

Edit save search
Cancel
Submit

Name: Node_New_York

Description:

Bookmark Searched object

Bookmark Searched object is empty when using the preview, information are displayed just after clicking on record in Searched results bookmark. P3 - map panel is also displayed for some node types.



CROSS ID: AAAAAAAAAAAI CROSS

Node types: LOCALITY

Name: Dallas

Status: Active

Categories - Locality category: SDP - Secondary Distribution Point

Description:

Material:

Capacity: not set

Capacity free: not set

Geometry: 32.773395495165325 -96.80 WGS 84

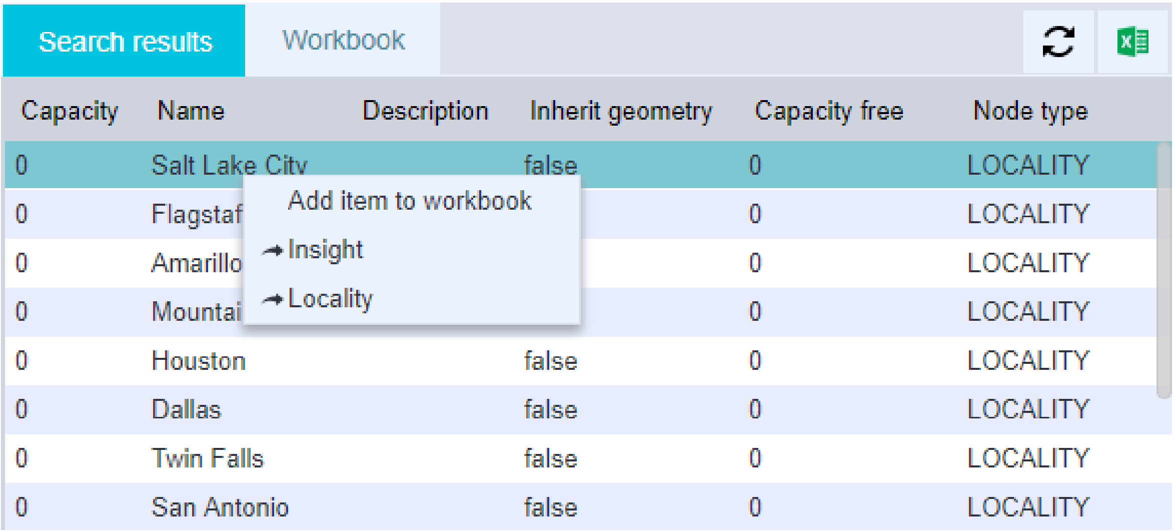
6.1.2.2. P2 - Working panel with following bookmarks: Search results, Workbook

Panel P2 contains two bookmarks; Search results and Workbook.

Bookmark Search results

Search results bookmark only displays a list of found objects (which meet the specified parameters) in the table form. The visibility of individual columns and selecting them could be set in the search parameters. Records can be sorted in ascending and descending order by clicking on the column header. When a line (found object) is selected, data of this object are displayed in the panel Search object**,** and if it has a geometry, also in the Map panel. You can also switch to relevant "home" module or applicable module from the object editor or from its context menu in the table.

The search results are displayed in the table.

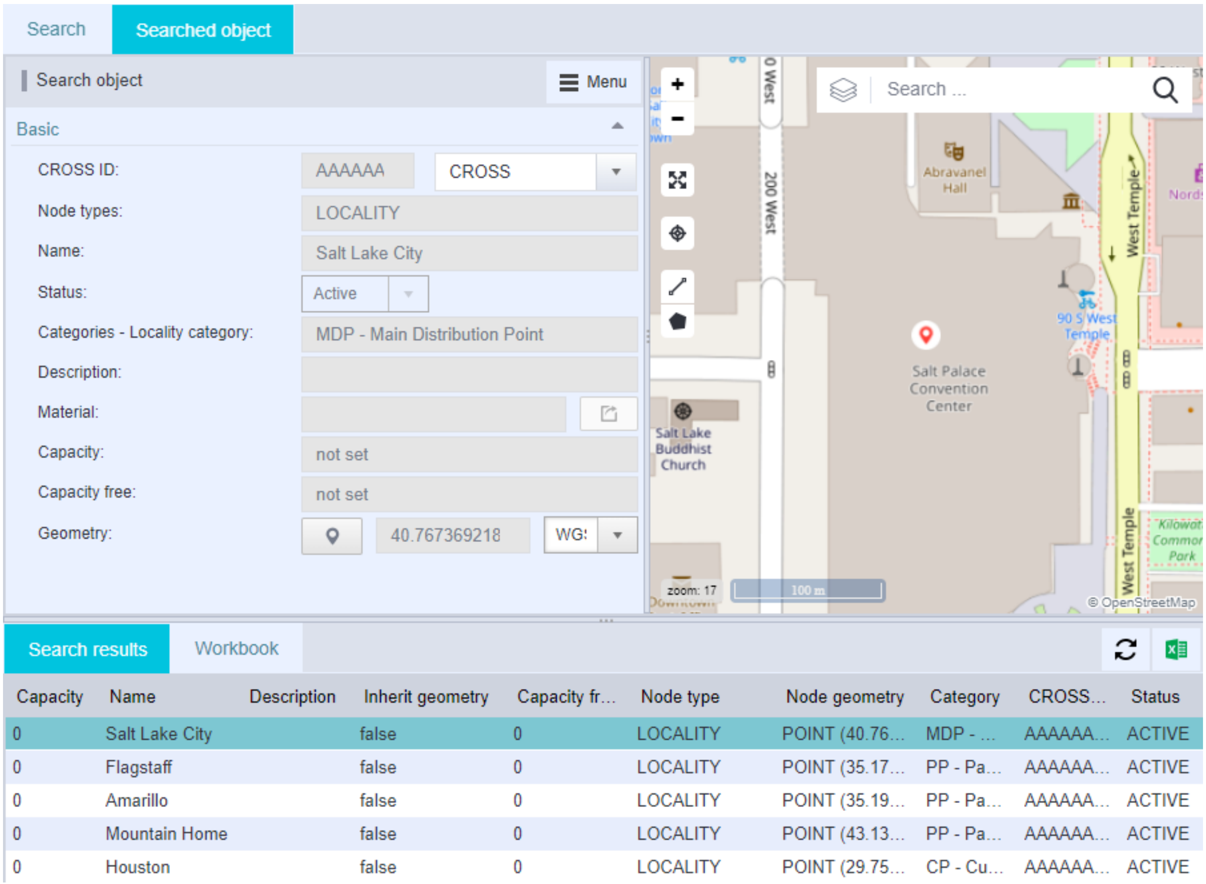


Capacity	Name	Description	Inherit geometry	Capacity free	Node type
0	Salt Lake City		false	0	LOCALITY
0	Flagstaf			0	LOCALITY
0	Amarillo			0	LOCALITY
0	Mountai			0	LOCALITY
0	Houston		false	0	LOCALITY
0	Dallas		false	0	LOCALITY
0	Twin Falls		false	0	LOCALITY
0	San Antonio		false	0	LOCALITY

The list of search results are in a table form. The columns could be moved to left or to the right by clicking on the header and dragging them to that direction. Records can be sorted in ascending and descending order by clicking on the table header/column name. When a line (found object) is selected, data of this object are displayed in the panel Search object**,** and if it has a geometry, also in the Map panel.

You can add the selected record from the context menu into the Workbook or you can display it in the module relevant to the object type. The PtMP submodule will not be available to invalid PtMP objects (e.g. the ones with material not set).

When clicking on the record in P2 on the Search results bookmark the P1 will switch to Searched object bookmark and P3 - Map will be displayed for some type of nodes.



CROSS ID: AAAAAA CROSS
Node types: LOCALITY
Name: Salt Lake City
Status: Active
Categories - Locality category: MDP - Main Distribution Point
Description:
Material:
Capacity: not set
Capacity free: not set
Geometry: 40.767369218 WG!

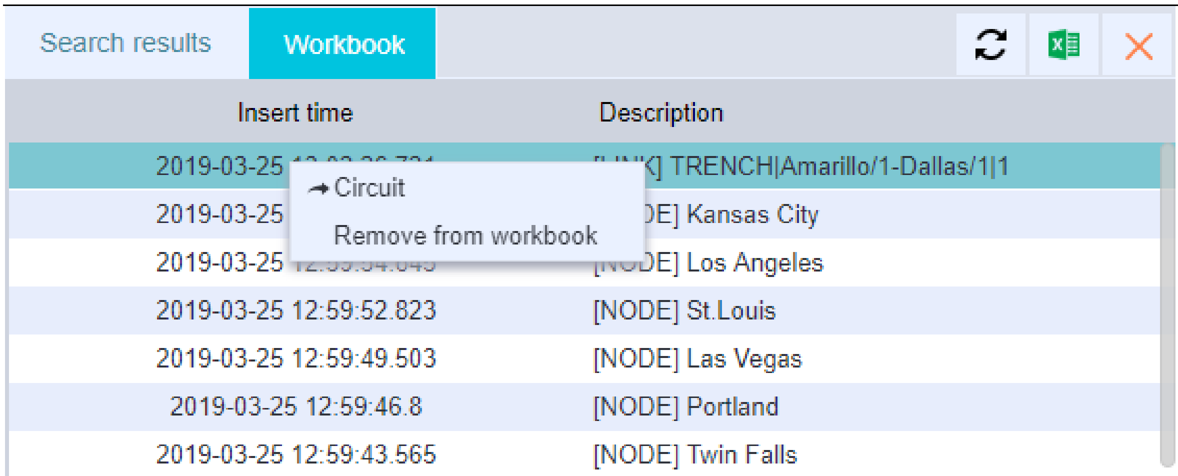
Capacity	Name	Description	Inherit geometry	Capacity fr...	Node type	Node geometry	Category	CROSS...	Status
0	Salt Lake City		false	0	LOCALITY	POINT (40.76...	MDP - ...	AAAAAA...	ACTIVE
0	Flagstaff		false	0	LOCALITY	POINT (35.17...	PP - Pa...	AAAAAA...	ACTIVE
0	Amarillo		false	0	LOCALITY	POINT (35.19...	PP - Pa...	AAAAAA...	ACTIVE
0	Mountain Home		false	0	LOCALITY	POINT (43.13...	PP - Pa...	AAAAAA...	ACTIVE
0	Houston		false	0	LOCALITY	POINT (29.75...	CP - Cu...	AAAAAA...	ACTIVE

Bookmark Workbook

Workbook bookmark contains all objects which were inserted into the Workbook within the whole CROSS application. That means they were inserted into the temporary object storage for later use in different modules or for creating new groups.

Workbook serves as a repository for preserving objects with which you want to work in other modules. The list of objects is in the table form. It includes columns such as Insert time and Description. All objects that are added to Workbook anywhere in the CROSS application are displayed here. Objects can be added to the Workbook from the Search results - from a record context menu.

Individual Workbook items have in their context menu option Remove from workbook and direct link to their modules, addresses into the module Address etc. To remove all items from the Workbook, click the CLEAR button at the top right. Icon for exporting all records to Excel is placed next to it.

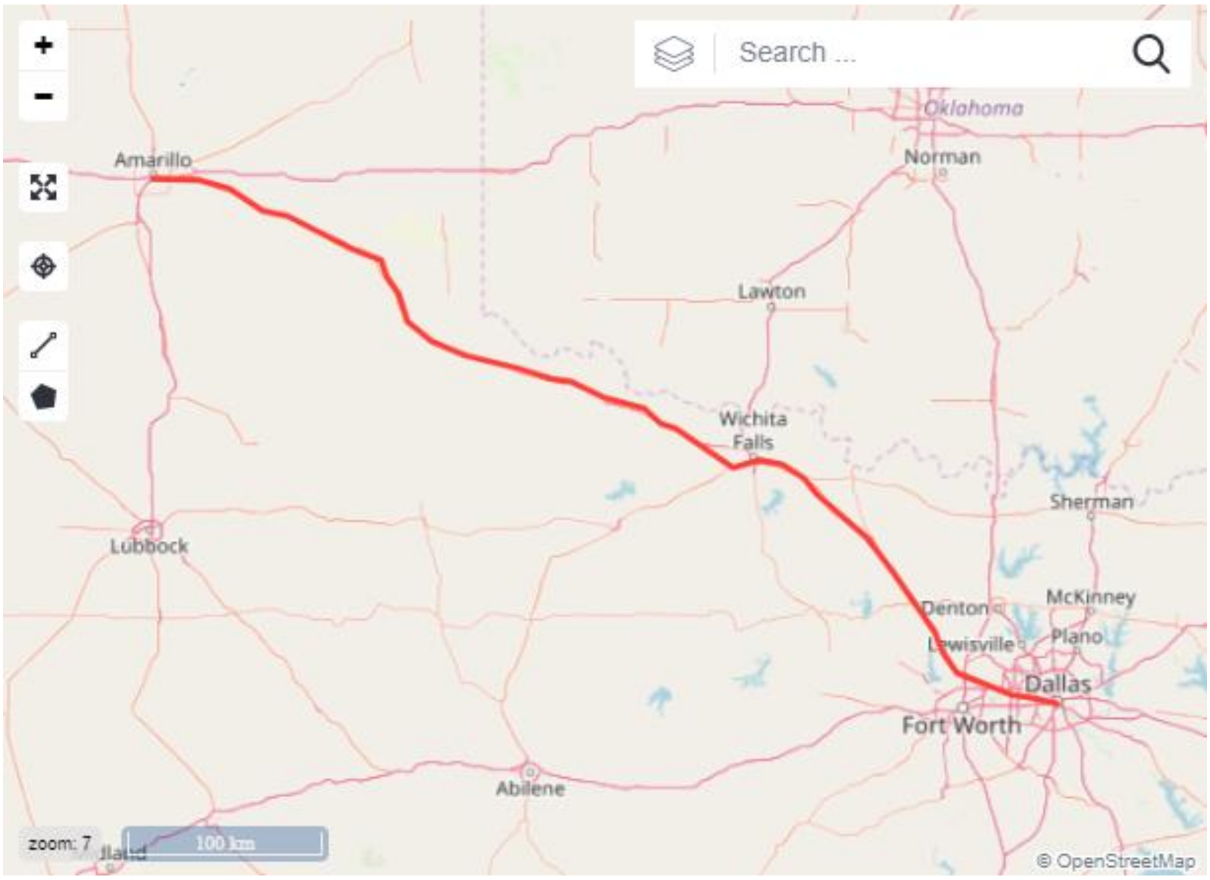

Search results
Workbook
Circuit
Remove from workbook

Insert time	Description
2019-03-25	K] TRENCH|Amarillo/1-Dallas/1|1
2019-03-25	DE] Kansas City
2019-03-25	DE] Los Angeles
2019-03-25 12:59:52.823	[NODE] St.Louis
2019-03-25 12:59:49.503	[NODE] Las Vegas
2019-03-25 12:59:46.8	[NODE] Portland
2019-03-25 12:59:43.565	[NODE] Twin Falls

6.1.2.3. P3 - Map

This panel displays geometry of the object selected from the Search object panel (only if it is the object type that has a geometry - for example projects or materials do not have assigned geometry).

The picture shows found link:


Search ...
Oklahoma
Norman
Amarillo
Lawton
Wichita Falls
Sherman
Lubbock
Denton
McKinney
Lewisville
Plano
Dallas
Fort Worth
Abilene
zoom: 7
100 km
© OpenStreetMap

- This panel allows you to search objects with geometry.

In order to search objects with a geometry in the area you need to enter (search) the area on the map - e.g. Pardubice town. Write Pardubice to the searching field in the bottom right of the map and click Search. The Map will be located to the searched area. Then, click on the top right menu with the map layers. Check the layer

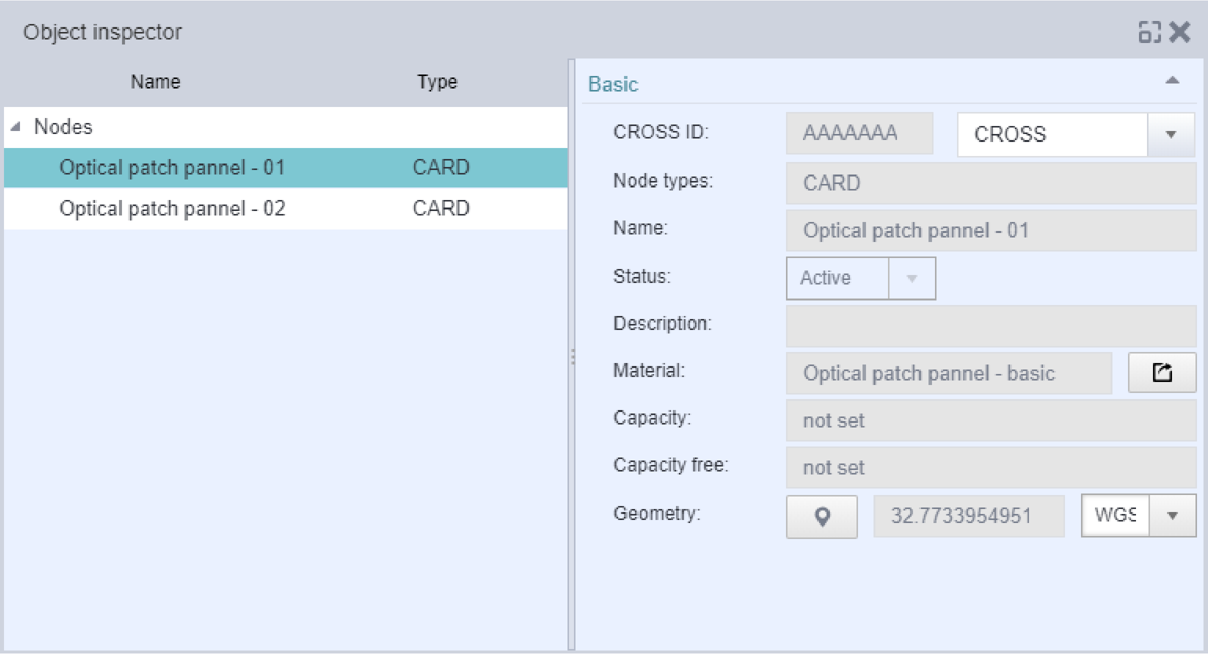
Cross Layer and click on the Edit icon next to the layer name .
Layers setting

The editor opens Map configuration, where you can check boxes of objects that you want to see on the map. Confirm the selection by clicking **Confirm**. Some objects - their geometry - will be drawn when zooming in (e.g. point objects).

- This panel allows you to select a searched object with geometry by direct selection from the map.

If the Cross Layer is enabled and geometry objects are selected in the map configuration, these objects can be searched and explored directly in the map window. Press CTRL key (the cursor will change to a cross shape) and click into the map. A window Object Inspector will be opened - here you can see all objects that have a geometry (addresses) up to 50m distance from the click point, and link and point objects up to distance corresponding to this formula: `4*Math.pow(2, (20-zoom))` - here the count of selected objects depends on the specific zoom level of the map.

By clicking on an object from the list, the window splits on two halves - left half displays a list of all found objects and right half displays the editor of selected object, that serves only for reading. However, you can display the object in module relevant for the object type (Nodes in the module Locality, Links in the module Circuits etc.) from the context menu of selected object.



Name	Type
Nodes	
Optical patch pannel - 01	CARD
Optical patch pannel - 02	CARD

CROSS ID: AAAAAAA CROSS
Node types: CARD
Name: Optical patch pannel - 01
Status: Active
Description:
Material: Optical patch pannel - basic
Capacity: not set
Capacity free: not set
Geometry: 32.7733954951 WGS

6.1.3. Usage of user interface

Methods of search by the object class type

As described in the introduction, the Search module supports the parametric search of various objects - from addresses to the subnetworks, while each object has its own searching parameters, editor items. Some specifics of parametric search are described in sub-chapters below.

6.1.3.1. Address search

The application allows you to record addresses of all countries and states. For these purposes there is so-called address model, that is adjustable through the optional attributes that are inserted into the address model in the Configuration module. Specific address models corresponding to the typology of the state or country can be created by this method. Therefore, it is necessary to enter the country first while searching addresses**,** the box with a full-text auto-complete allows quick search, just type in few first letters. The editor with appropriate parameters is displayed when you select a country. For example, when the country Czech Republic is selected, the editor with Region, Town, Town part, Street, Descriptive number, Orientation number and Zip fields is displayed. When you fill the field Town, the field Region will be filled automatically. The Street and the Town part are not linked together, because some streets are so long that they pass through more parts of a town (city).

All streets and all town parts of selected town are always listed in the drop-down lists in Street and Town part fields.

If there are optional attributes in the address model, you can also search by those. If you wish to see these values also in the table Search results, set these columns as visible in the Result fields**.**

6.1.3.2. Node search

Node search allows you to search all types of node objects recorded in the Locality module - from buildings and rooms through network elements to the port level. When the NODE object class is selected, the editor with general character parameters is displayed (such as technology, name, description, status etc.). When specifying the Node type, the Editor can be "enhanced" with other optional attributes of the object type. For example, when you select the Network element type node, the editor expands with attributes such as IP mask, IP gateway, IP address, Service group and others. If you wish to see these values also in the table Search results, set these columns visible in the Result fields**.**

6.1.3.3. Material template search

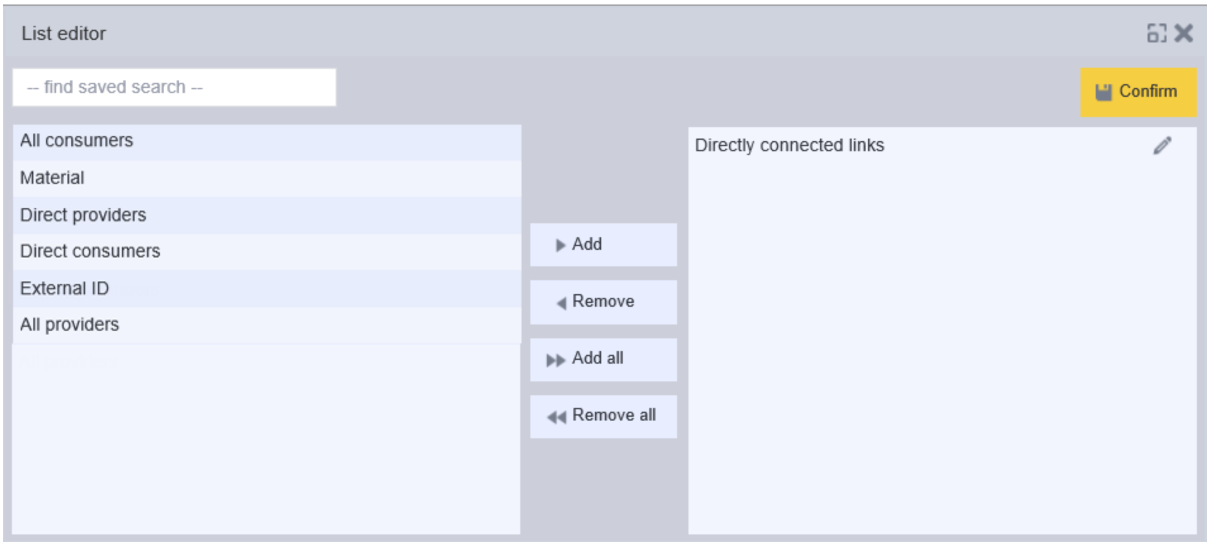
Material template search allows you to search templates for each node object. In the drop-down box of a Node type you can find all node types - from localities and buildings to ports. By doing this you can search for example material templates of the Card type etc. You can also search templates by the technology used (selection from the list) or by the material used (asterisk convention).

6.1.3.4. Searching by Joints

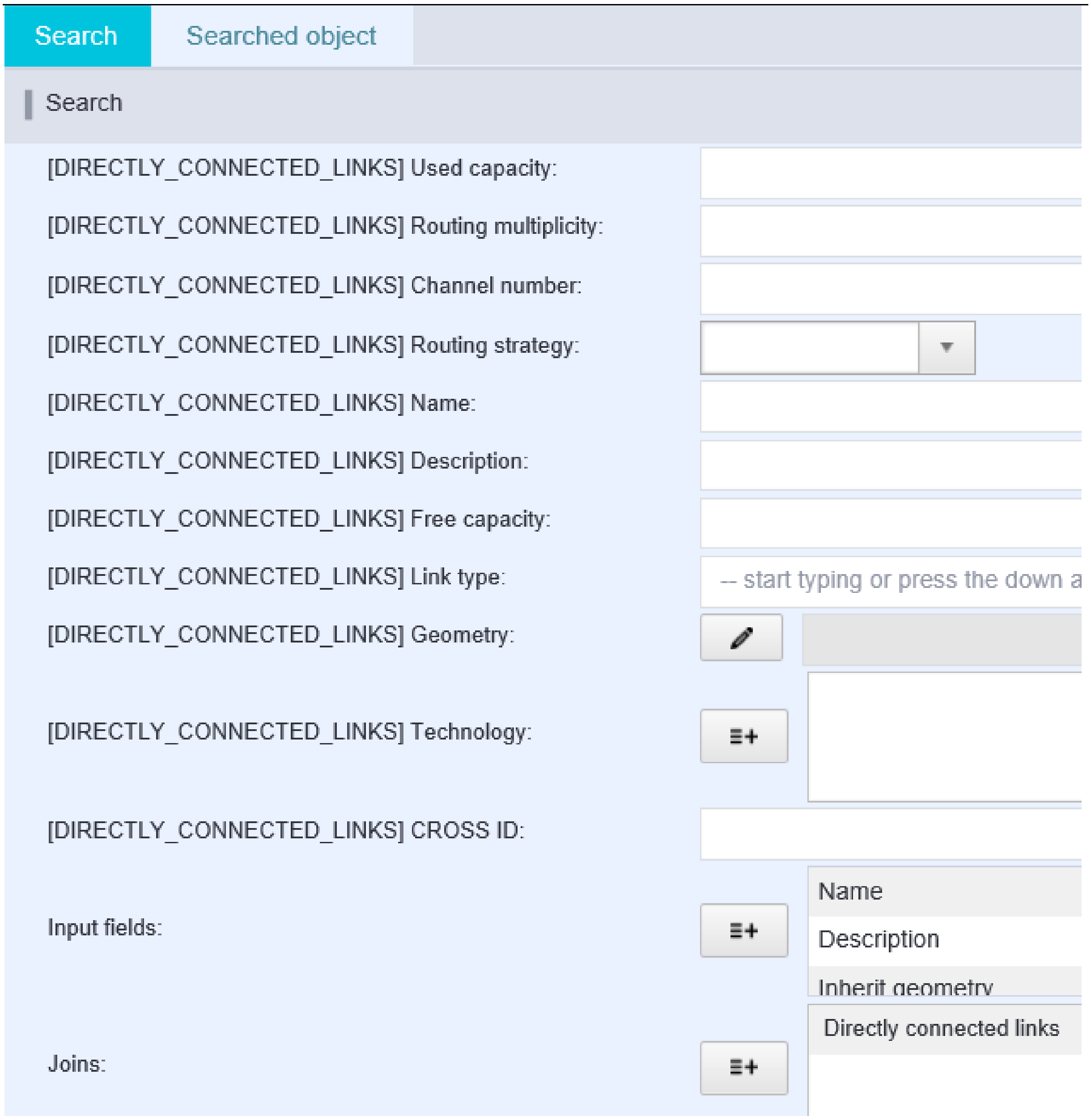
Using Joints (combining queries) allows us to search nodes and connected links on it. Multiple connection of this type can be created.

Search by object type NODE and node type BUILDING.

Select e.g. Directly connected links from List editor from Joins field.



New items in square brackets will be added to the search form.



Search

[DIRECTLY_CONNECTED_LINKS] Used capacity:

[DIRECTLY_CONNECTED_LINKS] Routing multiplicity:

[DIRECTLY_CONNECTED_LINKS] Channel number:

[DIRECTLY_CONNECTED_LINKS] Routing strategy:

[DIRECTLY_CONNECTED_LINKS] Name:

[DIRECTLY_CONNECTED_LINKS] Description:

[DIRECTLY_CONNECTED_LINKS] Free capacity:

[DIRECTLY_CONNECTED_LINKS] Link type: -- start typing or press the down a

[DIRECTLY_CONNECTED_LINKS] Geometry:

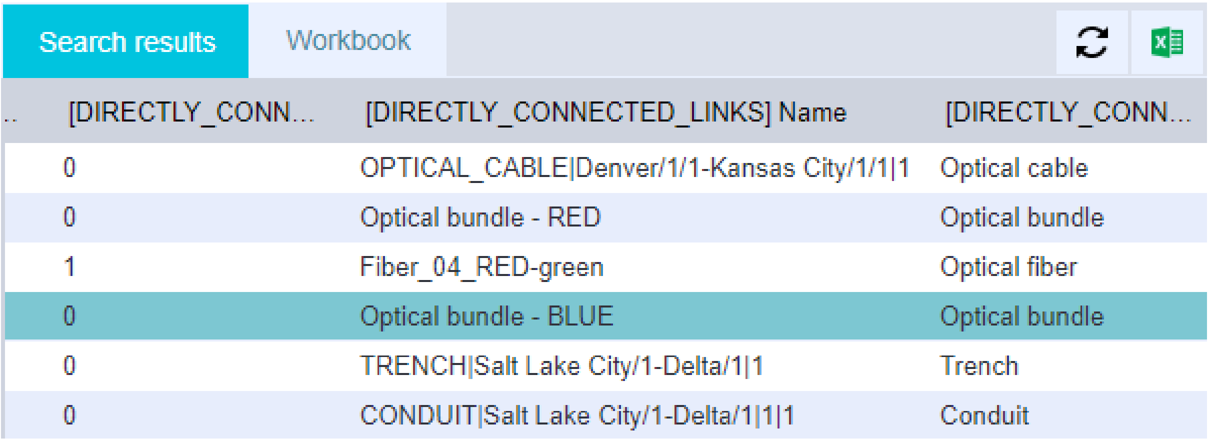
[DIRECTLY_CONNECTED_LINKS] Technology:

[DIRECTLY_CONNECTED_LINKS] CROSS ID:

Input fields: Name, Description, Inherit geometry

Joins: Directly connected links

After submitting by pressing the Search button, searched links will be displayed in Search Results bookmark, marked by square brackets.

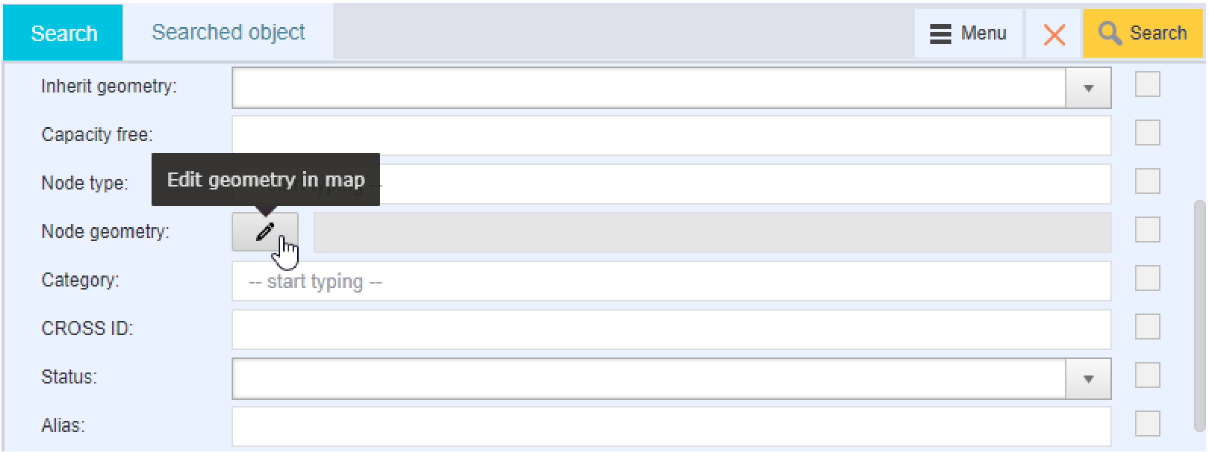


..	[DIRECTLY_CONN...	[DIRECTLY_CONNECTED_LINKS] Name	[DIRECTLY_CONN...
	0	OPTICAL_CABLE|Denver/1/1-Kansas City/1/1|1	Optical cable
	0	Optical bundle - RED	Optical bundle
	1	Fiber_04_RED-green	Optical fiber
	0	Optical bundle - BLUE	Optical bundle
	0	TRENCH|Salt Lake City/1-Delta/1|1	Trench
	0	CONDUIT|Salt Lake City/1-Delta/1|1|1	Conduit

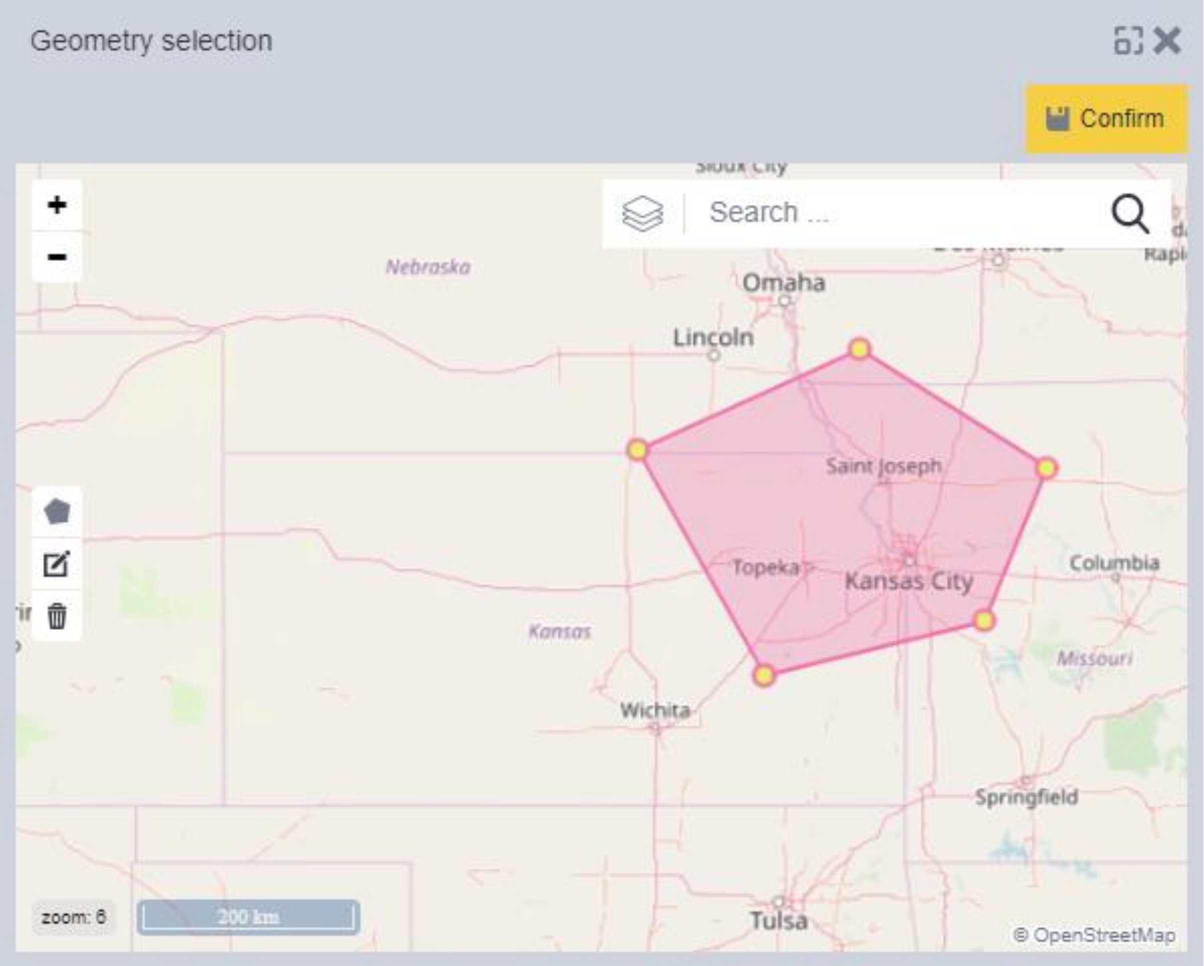
6.1.3.5. Searching by Geometry

Searching by geometry can be used for object type: Node, Link, Project, Country, Address

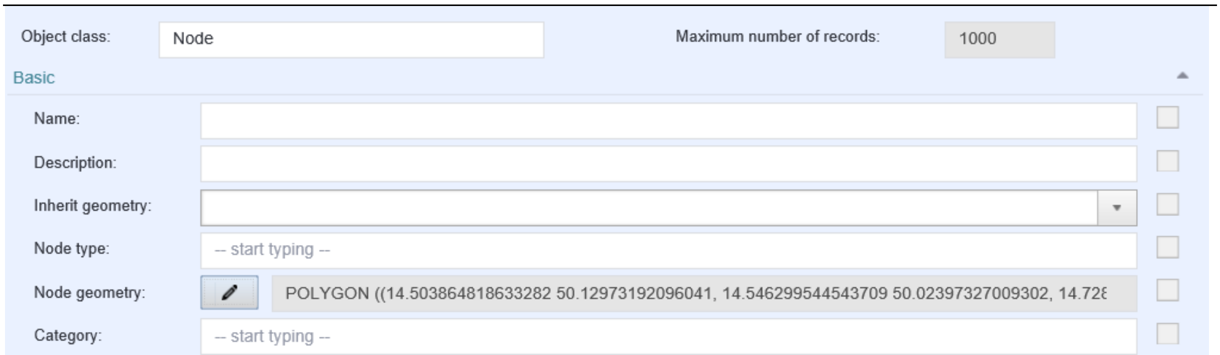
Map window will be opened after clicking on the button with pen on it.


Search
Searched object
Menu
Search
Inherit geometry:
Capacity free:
Node type:
Edit geometry in map
Node geometry:
Category:
-- start typing --
CROSS ID:
Status:
Alias:

Draw a polygon to map window.


Geometry selection
Confirm
Search ...
Nebraska
Omaha
Lincoln
Saint Joseph
Topeka
Kansas City
Columbia
Kansas
Missouri
Wichita
Springfield
Tulsa
zoom: 6
200 km
© OpenStreetMap

Press confirm button and coordinates of drew polygon will be filled in to search form.



Object class: Node
Maximum number of records: 1000

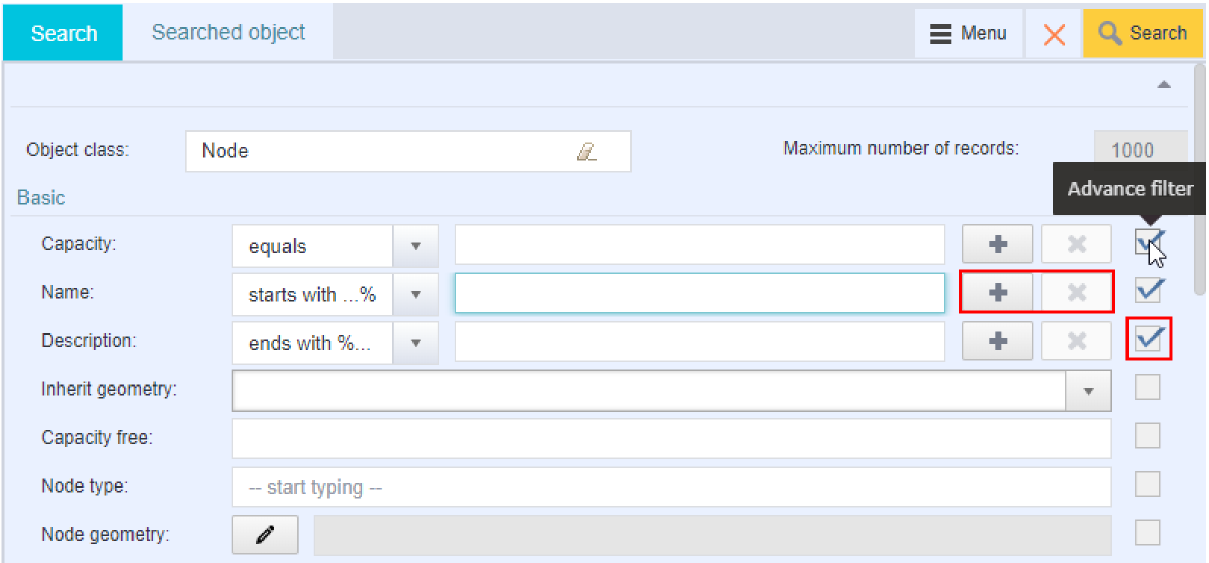
Basic

Name:		☐
Description:		☐
Inherit geometry:		☐
Node type:	-- start typing --	☐
Node geometry:	POLYGON ((14.503864818633282 50.12973192096041, 14.546299544543709 50.02397327009302, 14.72	☐
Category:	-- start typing --	☐

After pressing Search button, result will be displayed in the Searched objects bookmark. Result depends on what object type was selected.

6.1.3.6. Advanced search

Advanced search options are available in Search module.



Object class: Node
Maximum number of records: 1000

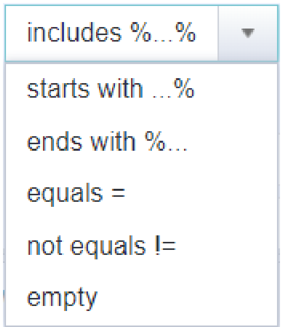
Basic

Capacity:	equals		☑
Name:	starts with ...%		☑
Description:	ends with %...		☑
Inherit geometry:			☐
Capacity free:			☐
Node type:	-- start typing --		☐
Node geometry:			☐

After marking the checkbox, you will see two buttons, one with the plus sign to add additional queries, and the other button with a cross sign to remove the query.

In the search form, we can encounter search terms and characters.

These terms and characters may be different for a particular object class.



includes %...% - finds all terms that have the value you have chosen.

start with ...% - searches for items that starts with the value you choose.

end with %... - searches for items that ends with the value you choose.

equals = - equals, displays only values that exactly match the value we have selected are displayed.

not equals != - does not equal, displays only items that do not contain the value you specify.

empty – search for items that do not have this value

Example

Write Cassette into the name and press the button Search.

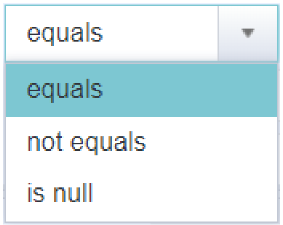
All result with Cassette in the Name will be displayed. We want to sort the results by name. So we can continue by marking the Advanced filter for Name.

We choose from the menu includes %...% and write UUB2 in the field, press Search. All items that contain UUB2 will be displayed.

When using a character starting with ...% all items that begins with an expression UUB2 will be displayed.

When using a character ending with %..., all items that ends with an expression UUB2 will be displayed.

Inherit geometry has following characters:



When using a character = (equals) and true option, search results will show items with false value.

When using a character ! (exclamation mark) and true option, search results will show items with true value.

When using a character is null (not set) search results will show items with both true and false values.

Geometry

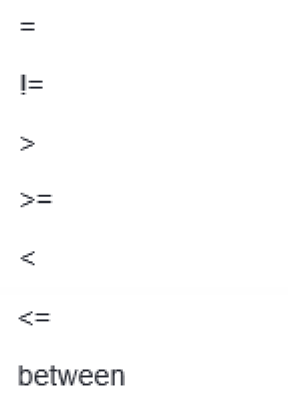
The geometry entry contains two items - INTERSECTS and DWITHIN.

Category

equals - search only for the category you have entered.

tree - finds all the categories that are contained in the tree.

Characters for comparison



Equals (=)

Not equals (!=)

Greater (>) - Bigger then

Greater or equals (>=) – Bigger or equal

Lower (<) - Smaller then

Lower or equals (<=) – Smaller or equals

Between (between)

When using between the input field is divided into two parts for inserting two values. The values in the interval we define, including the start and end values, are searched.

6.2. MODULE INSIGHT – data navigator

Chapter overview:

6.2.1. Description of the module environment

6.2.2. Link report

6.2.2.1. P1 - Consumers

6.2.2.2. P2 - Start node

6.2.2.3. P3 - Current link

6.2.2.4. P4 - End node

6.2.2.5. P5 - Providers

6.2.3. Node report

6.2.3.1. P1 - Routed links

6.2.3.2. P2 - Parent

6.2.3.3. P3 - Current node

6.2.3.4. P4 - Children

6.2.3.5. P4 - Terminated links

6.2.1. Description of the module environment

Module INSIGHT is fully integrated with all CROSS system modules. It works with a query definition in its structure.

- Input parameters
- Query definition
- Output parameters

Result reports are available in the WEB environment with a possibility to export it into the Excel format.

User interface is intuitive, and it works on a principle "step-by-step" in gathering information on a base of two basic rule types of network recording in the CROSS.

- Topology – topology of nodes and connections of network
- Consumer-provider – mutual consumption of nodes and links

You cannot edit objects in this module, you can only browse them.

It works in two modes according to the type of selected object

- Link mode
- Node mode

Module contains three windows:

- Link report
- Node report
- Report utilization view

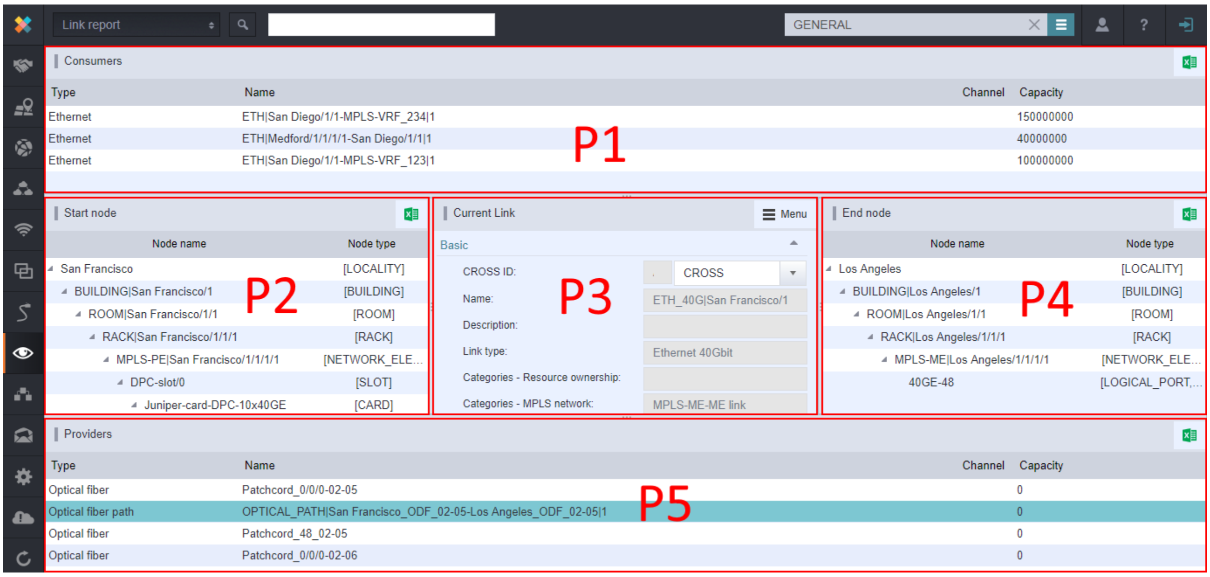
6.2.2. Link report

The application works in this mode when the currently selected object is a link.

Application window contains five panels and search panel.

- P1 - Consumers
- P2 - Start node

- P3 - Current link
- P4 - End node
- P5 - Providers



Consumers

Type	Name	Channel	Capacity
Ethernet	ETH|San Diego/1/1-MPLS-VRF_234|1		150000000
Ethernet	ETH|Medford/1/1/1/1-San Diego/1/1|1		40000000
Ethernet	ETH|San Diego/1/1-MPLS-VRF_123|1		100000000

Start node

Node name	Node type
San Francisco	[LOCALITY]
BUILDING|San Francisco/1	[BUILDING]
ROOM|San Francisco/1/1	[ROOM]
RACK|San Francisco/1/1/1	[RACK]
MPLS-PE|San Francisco/1/1/1/1	[NETWORK_ELE...
DPC-slot/0	[SLOT]
Juniper-card-DPC-10x40GE	[CARD]

Current Link

CROSS ID: CROSS
Name: ETH_40G|San Francisco/1
Description:
Link type: Ethernet 40Gbit
Categories - Resource ownership:
Categories - MPLS network: MPLS-ME-ME link

End node

Node name	Node type
Los Angeles	[LOCALITY]
BUILDING|Los Angeles/1	[BUILDING]
ROOM|Los Angeles/1/1	[ROOM]
RACK|Los Angeles/1/1/1	[RACK]
MPLS-ME|Los Angeles/1/1/1/1	[NETWORK_ELE...
40GE-48	[LOGICAL_PORT,...

Providers

Type	Name	Channel	Capacity
Optical fiber	Patchcord_0/0/0-02-05		0
Optical fiber path	OPTICAL_PATH|San Francisco_ODF_02-05-Los Angeles_ODF_02-05|1		0
Optical fiber	Patchcord_48_02-05		0
Optical fiber	Patchcord_0/0/0-02-06		0

Searching

Link can be searched using the search box (marked with letter V on the picture above). After entering a letter or text, the autocomplete will display a list of links that contain entered letter or text in their names. Selection is confirmed by pressing Enter. You can use the character * - the autocomplete will display all links.

Export to Excel

Contents of all panels (except the current link) can be exported to the Excel. Export starts when you click the Excel icon and after you confirm whether you want to open or save the file.

6.2.2.1. P1 - Consumers

This panel displays a list of the current link consumers. If you click on any link from this list, this link will be set as the current link in the panel P3 and information in all panels will be updated at the same time.

6.2.2.2. P2 - Start node

This panel contains start node tree structure of the current link. The application switches into the Node mode by clicking any node structure object - selected object will be set as a current node in the panel P3 and information in all panels will be updated.

6.2.2.3. P3 - Current link

This panel contains attributes of selected link. All other panels always show relevant information about this link. The panel is read-only. Link can be opened and edited in the Circuit module by selecting the action Switch to Circuit from the drop-down menu.

6.2.2.4. P4 - End node

This panel contains end node tree structure of the currently selected link. The application switches into the Node mode by clicking any node structure object - selected object will be set as a current node in the panel P3 and information in all panels will be updated.

6.2.2.5. P5 - Providers

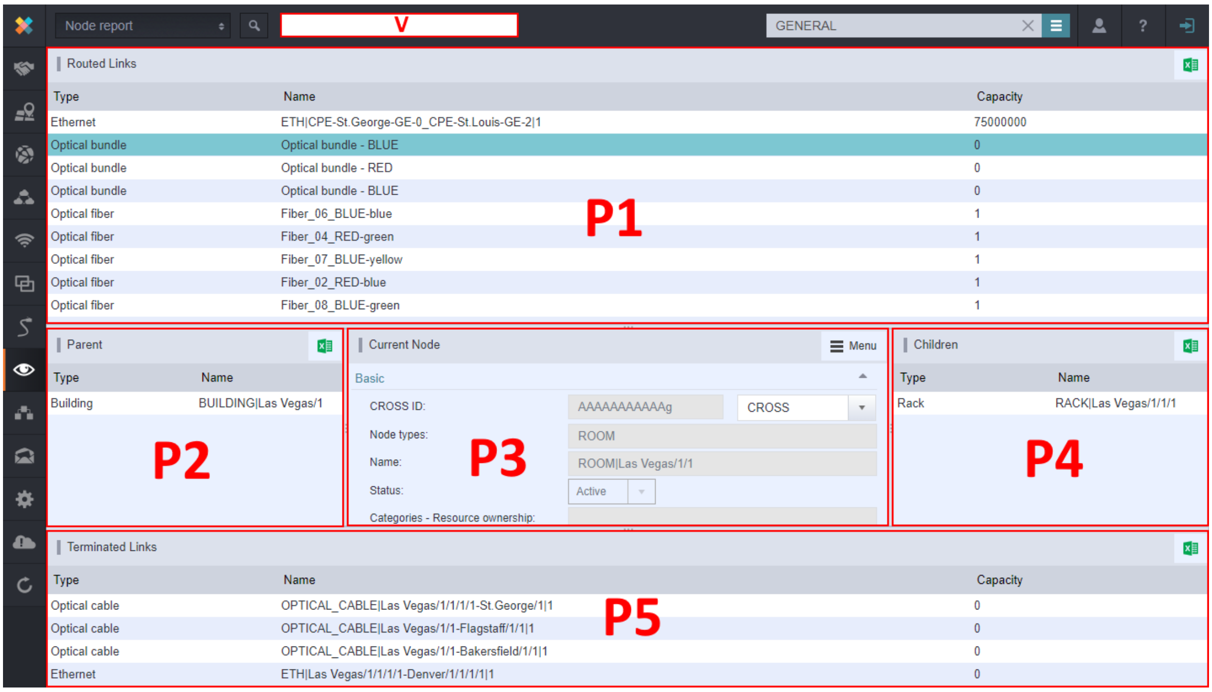
This panel displays a list of the current link providers. If you click on any link from this list, this link will be set as the current link in the panel P3 and information in all panels will be updated at the same time.

6.2.3. Node report

The application works in this mode when the currently selected object is a node.

Application window contains five panels and search panel.

- P1 - Routed links
- P2 - Parents
- P3 - Current node
- P4 - Children
- P5 - Terminated links



Routed Links

Type	Name	Capacity
Ethernet	ETH|CPE-St.George-GE-0_CPE-St.Louis-GE-2|1	75000000
Optical bundle	Optical bundle - BLUE	0
Optical bundle	Optical bundle - RED	0
Optical bundle	Optical bundle - BLUE	0
Optical fiber	Fiber_06_BLUE-blue	1
Optical fiber	Fiber_04_RED-green	1
Optical fiber	Fiber_07_BLUE-yellow	1
Optical fiber	Fiber_02_RED-blue	1
Optical fiber	Fiber_08_BLUE-green	1

Parent

Type	Name
Building	BUILDING|Las Vegas/1

Current Node

CROSS ID: AAAAAAAAAAAg CROSS
Node types: ROOM
Name: ROOM|Las Vegas/1/1
Status: Active
Categories - Resource ownership:

Children

Type	Name
Rack	RACK|Las Vegas/1/1/1

Terminated Links

Type	Name	Capacity
Optical cable	OPTICAL_CABLE|Las Vegas/1/1/1/1-St.George/1|1	0
Optical cable	OPTICAL_CABLE|Las Vegas/1/1-Flagstaff/1/1|1	0
Optical cable	OPTICAL_CABLE|Las Vegas/1/1-Bakersfield/1/1|1	0
Ethernet	ETH|Las Vegas/1/1/1/1-Denver/1/1/1/1|1	0

Searching

Node can be searched using the search box (marked with letter V on the picture above). After entering a letter or text, the autocomplete will display a list of nodes that contain entered letter or text in their names. Selection is confirmed by pressing Enter. You can use the character * - the autocomplete will display all nodes.

Export to Excel

Contents of all panels (except the current node) can be exported to the Excel. Export starts when you click the Excel icon and after you confirm whether you want to open or save the file.

6.2.3.1. P1 - Routed links

This panel displays links (top providers) that end on the current node and its children.

6.2.3.2. P2 - Parent

This panel displays hierarchically superior objects of the current node. For example, at the current node of the type building it is a node of the type locality. If you click on any node provider, this provider will be set as the current node and information in all panels will be updated.

6.2.3.3. P3 - Current node

This panel contains attributes of selected node. Relevant information for this node is displayed in other panels. Panel is read-only. Node can be opened and edited in Locality module by selecting action from the drop-down menu.

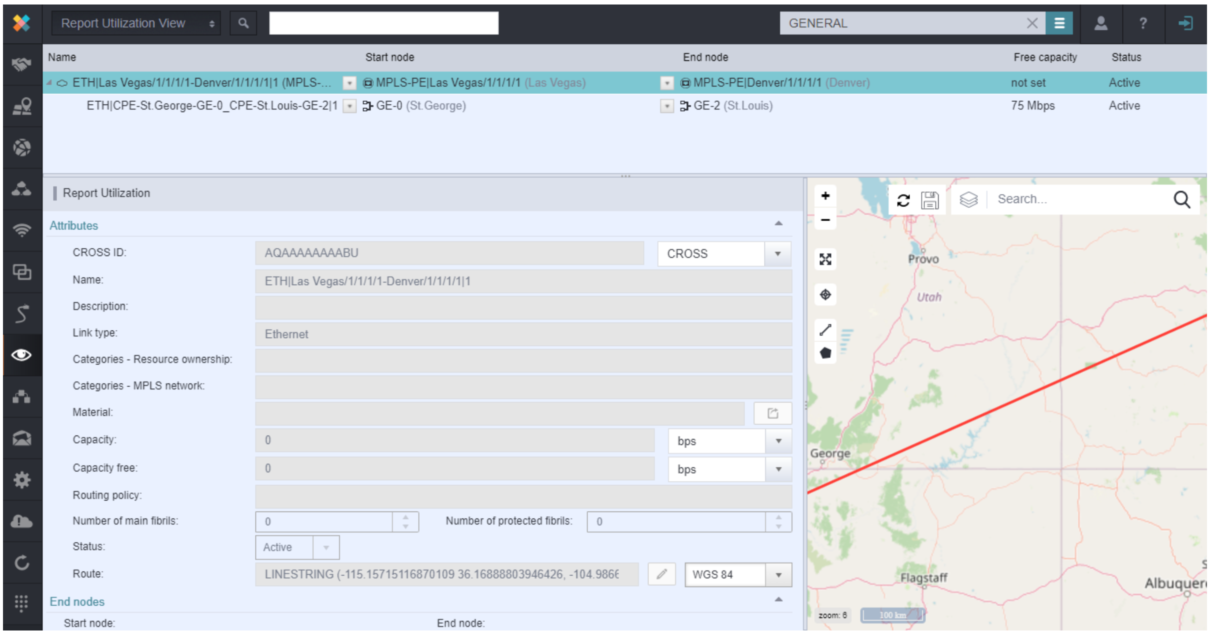
6.2.3.4. P4 - Children

This panel displays hierarchically inferior objects of the current node. For example, at the current node of the type building it is a node of the type room. If you click on any node provider, this provider will be set as the current node and information in all panels will be updated.

6.2.3.5. P5 - Terminated links

This panel displays links that end on the current node.

6.2.4. Report Utilization view



Name	Start node	End node	Free capacity	Status
ETH|Las Vegas/1/1/1/1-Denver/1/1/1/1|1 (MPLS-...	MPLS-PE|Las Vegas/1/1/1/1 (Las Vegas)	MPLS-PE|Denver/1/1/1/1 (Denver)	not set	Active
ETH|CPE-St.George-GE-0_CPE-St.Louis-GE-2|1	GE-0 (St.George)	GE-2 (St.Louis)	75 Mbps	Active

Report Utilization

Attributes

CROSS ID: AQAAAAAAAABU CROSS
Name: ETH|Las Vegas/1/1/1/1-Denver/1/1/1/1|1
Description:
Link type: Ethernet
Categories - Resource ownership:
Categories - MPLS network:
Material:
Capacity: 0 bps
Capacity free: 0 bps
Routing policy:
Number of main fibrils: 0 Number of protected fibrils: 0
Status: Active
Route: LINESTRING (-115.15715116870109 36.16888803946426, -104.986 WGS 84

End nodes

Start node: End node:

This view serves as a overview for a tracing of consumers over all opened nodes.

Expand All – expands the tree only until it reaches Network element/Shelf (same as in Locality).

Tree shows all nodes and links which nodes are Start or an End node of a selected link.

If a node has some terminated links of a type Channel, then they are shown. If are these Channels terminated on the same Node as an owner, then they are NOT shown.

Unconnected localities are connected using a dotted line.

Map shows both Nodes and Links with labels. Holes are represented by a dashed line with a label.

Due to performance issues, not all links are shown immediately and needs to be loaded during expanding tree.

If a link is a secant, then an icon is shown next to it.

6.2.4.1. Algorithm

Selected node:

Shows selected node and it’s direct offspring (children). For all shown Nodes there will be shown all links of a type Channel terminated on those nodes.

1. Searching highest link providers terminated on the Node

2. If provider has a routing policy (it’s a channel) and starts or ends on the Node, then channeling is not executed.
3. Channeling
    - Searching for direct consumers
    - If a consumer has routing policy and is a Channel, more Channeling is applied

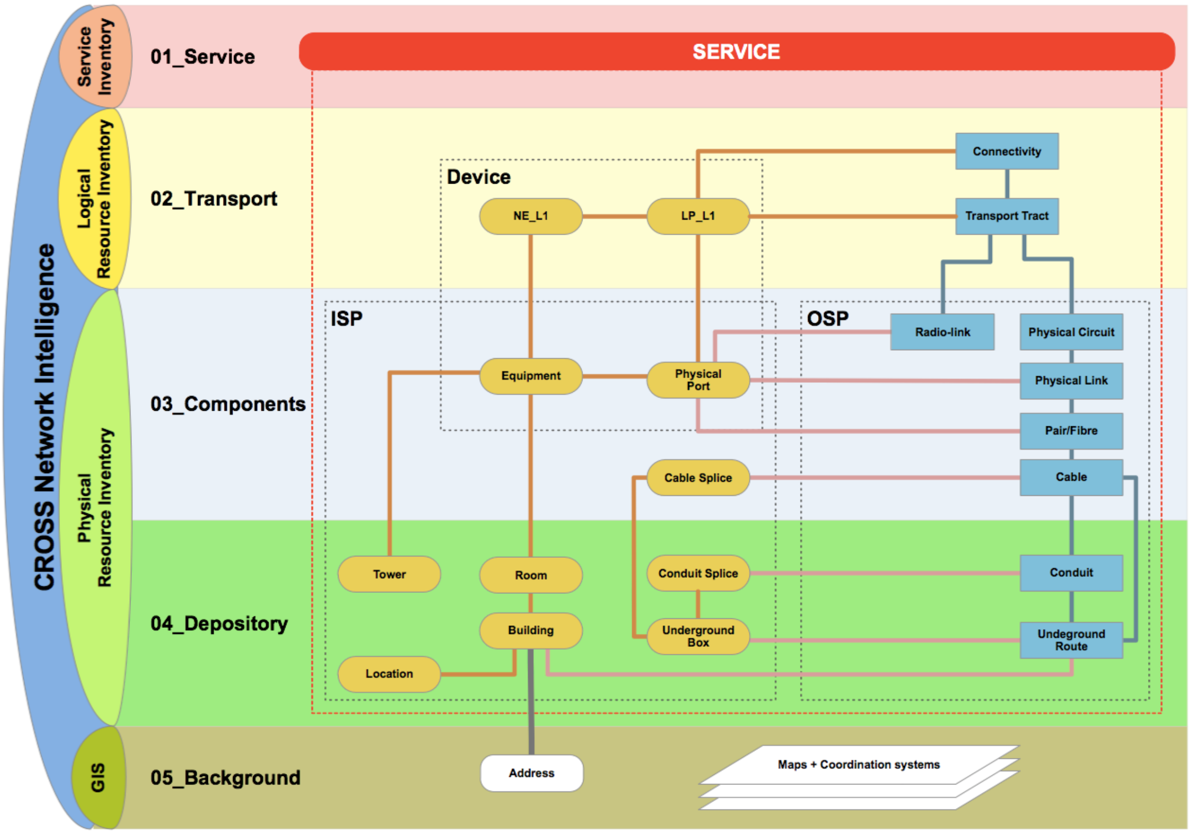
Selected link:

Links are expanded to consumers of type Channel.

1. Searching for a direct consumer
2. If a consumer has routing policy and is a Channel, then Parent is set as an Owner and it’s child is Channel.
3. Expanding repeats point 1

7. CROSS - Data model

CROSS data model is built on a flexible and configurable solution. It is fully adjustable by user through the RESOURCE CONFIGURATION module. The following diagram reflects the standard settings of the data model:


CROSS Network Intelligence
Service Inventory
Logical Resource Inventory
Physical Resource Inventory
GIS
01_Service
02_Transport
03_Components
04_Depository
05_Background
SERVICE
Device
NE_L1
LP_L1
Connectivity
Transport Tract
ISP
OSP
Radio-link
Physical Circuit
Equipment
Physical Port
Physical Link
Pair/Fibre
Cable Splice
Cable
Tower
Room
Conduit Splice
Conduit
Building
Underground Box
Undeground Route
Location
Address
Maps + Coordination systems

The data model presents a simplified virtual data model through which there are described all decisive sections and Network Inventory objects. NI5 is split into five elementary topologies. Following diagram clarifies basic topologies and objects of the data model.

7.1. Service

Service is a presentation of service in the Resource Inventory environment, and it is constituted by a set of network resources that are provided for the operation service needs. The service can contain (in its definition) arbitrary types of objects in the Resource Inventory records. The service is usually clearly identified by BSS systems, for example CRM.

7.2. Transport

Topology 02_Transport determines a logical records of network resources on the level of the following OSI model classes

- L3 – Network - IP
- L2 - Link - Ethernet
- L1 – Physical - SDH, PDH, ATM, FR, DWDM ...

Basic objects for recording network resources on this level are Network elements, Service Ports, Virtual ports and logical relations or subnetworks. Oversight and control systems (EM-Element manager, NM-Network Manager) of individual technologies are used as external data resources for this topology.

7.3. Components

Topology 03_Components determines physical records of network on levels of internal devices (active, passive) and transmission media (optics, copper, coax, radio). Following objects are the basic objects for records on this level

- ISP – Inside Plant – internal device
- Equipment
- Records of all internal physical devices from the hierarchy "rack-shelf-slot-card-port" - it serves for detailed physical recording of these devices.
- Telecommunication, IT and auxiliary devices are subjects of records.
- OSP – Outside Plant – external devices
- records of all external physical devices that serve to connect internal physical devices to the medium. This topology contains all records of the cable (copper, optics, coax) and radio (PtP, PtMP) networks.
- Sub topology represents records of "functional" layer of physical network records and it serves for recording physical components that transfer data between two specific nodes in one medium. Physical Circuits can be mapped to objects from the topology 02_Transport.

7.4. Depository

Topology 04_Depository represents records of objects for storing all physical network components from the topology 03_Components. It includes objects for storing internal (ISP) and external (OSP) physical network components.

- Locations
- Objects of the type Location are designated for recording all construction and assembly spaces that are used for storing internal physical devices and their internal connections. These are records of objects of the type POP (Point Of Presence) in the usual hierarchy "locality-building-room".-
- Routes
- Sub topology 04_2_ISP_Routes is designed to record all underground construction routes and areas designed for storing external physical cable network and its connections. These are records of objects of the type underground route and underground shaft.
- Conduits
- Sub topology 04_1_Conduits serves for detailed recording of the physical elements of the "pipe" network formed by pipes, micro-pipes and their connectors. This network is designated to store the cable network.

7.5. Background

It serves as a "working pad" that gives Network Inventory the geo-space dimension and an identification of topology 04_depository through address points in the map underlay.

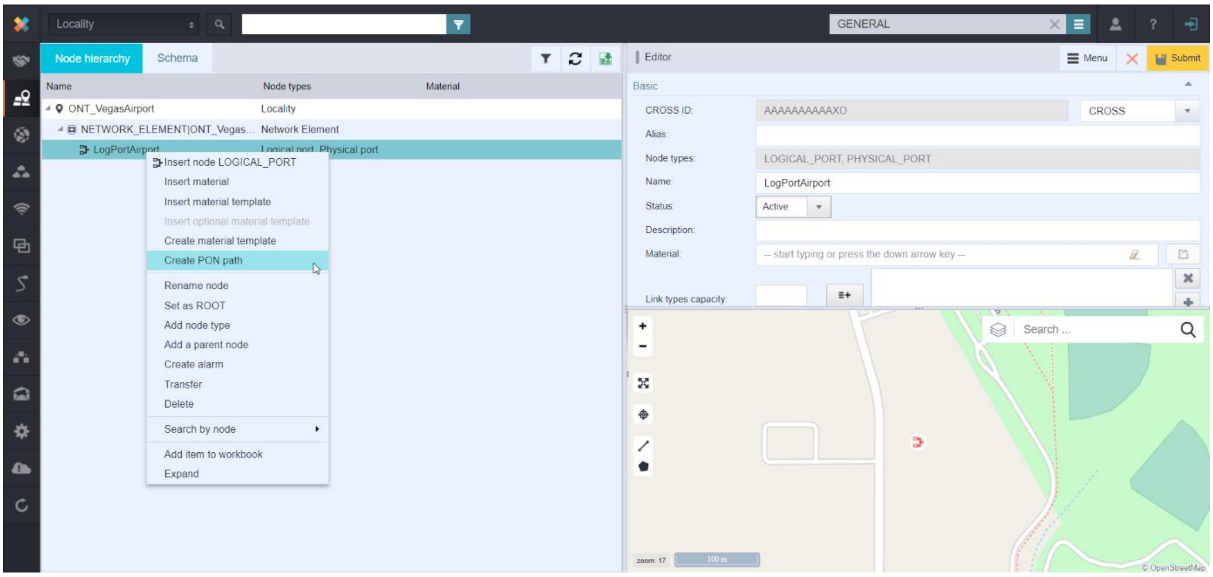
- Addresses – post addresses
- Address point management does not serve only for identification of "deliverable" place in a space, but it also determines its position in the geo-space through the geo-coordinates. Basic address types for operator requirements in the Czech Republic are
- Validated – UIR-ADR source
- Not validated - addresses on the Czech Republic are that are not in the database UIR-ADR
- Abroad
- Maps – map data
- Map data serves for geo-orientation of recorded network. Various formats and data sources are available:
- Open Street Map
- Google maps
- Bing maps
- WMS and WFS data resources (ČÚZK, etc.)

8. Appendixes

8.1. PON demo scenario

PON is a type of tracing which traces a path from ONT (optical network terminal) to the nearest OLT (optical line termination).

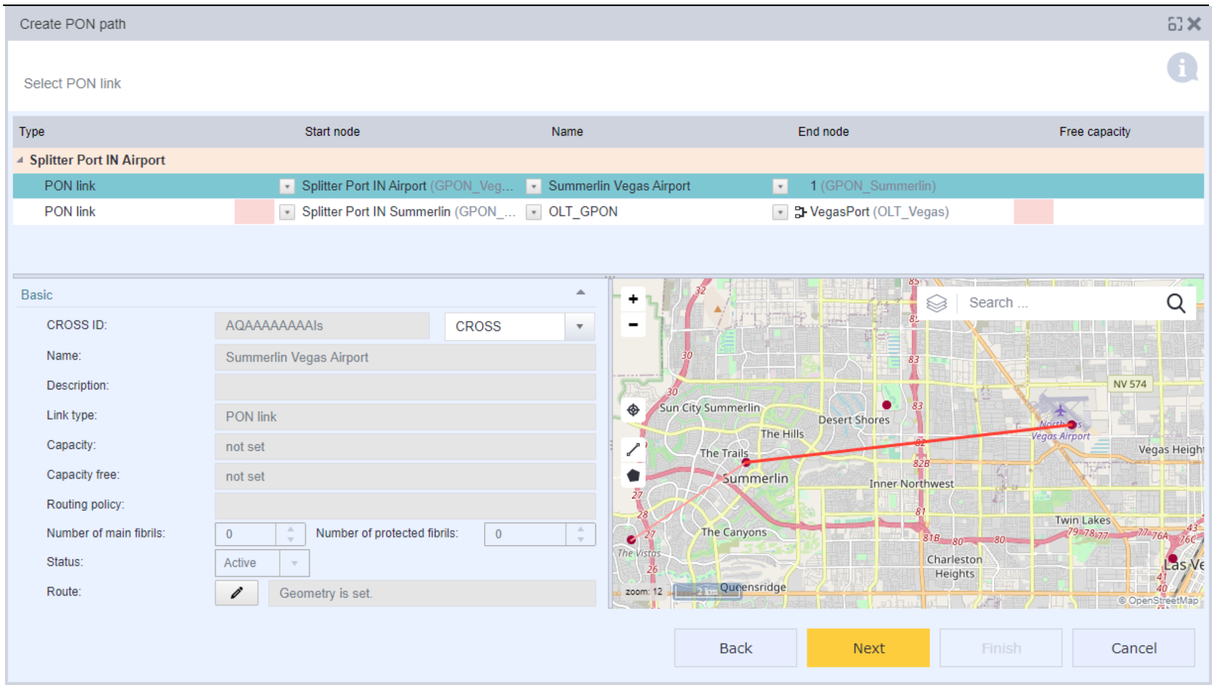
Because of easier use, the tracing of PON Path from ONT to OLT was implemented into the Locality module.


Locality
Node hierarchy
Schema
Name
Node types
Material
Insert node LOGICAL_PORT
Insert material
Insert material template
Insert optional material template
Create material template
Create PON path
Rename node
Set as ROOT
Add node type
Add a parent node
Create alarm
Transfer
Delete
Search by node
Add item to workbook
Expand
GENERAL
Editor
Menu
Submit
Basic
Search ...
zoom: 17
100 m
© OpenStreetMap

Name	Node types	Material
ONT_VegasAirport	Locality	
NETWORK_ELEMENT|ONT_Vegas...	Network Element	
LogPortAirport	Logical port, Physical port	

CROSS ID: AAAAAAAAAAXO CROSS
Alias:
Node types: LOGICAL_PORT, PHYSICAL_PORT
Name: LogPortAirport
Status: Active
Description:
Material: -- start typing or press the down arrow key --
Link types capacity:

For creating PON path between ONT and the nearest OLT there must be already pre-created OLT node, nodes with splitters and PON links between those. Nodes must be created in Locality module, links in Circuit module. A map in a wizard with show traced path from ONT to the OLT.



Create PON path

Select PON link

Type	Start node	Name	End node	Free capacity
Splitter Port IN Airport				
PON link	Splitter Port IN Airport (GPON_Veg...	Summerlin Vegas Airport	1 (GPON_Summerlin)	
PON link	Splitter Port IN Summerlin (GPON_...	OLT_GPON	VegasPort (OLT_Vegas)	

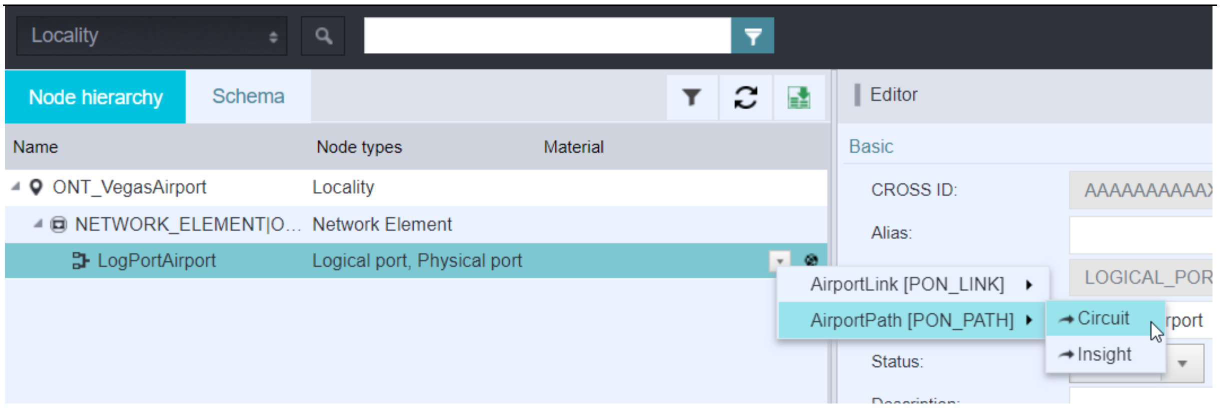
Basic

CROSS ID: AQAAAAAAAAIs CROSS
Name: Summerlin Vegas Airport
Description:
Link type: PON link
Capacity: not set
Capacity free: not set
Routing policy:
Number of main fibrils: 0 Number of protected fibrils: 0
Status: Active
Route: Geometry is set.

8.1.1. Demo scenario

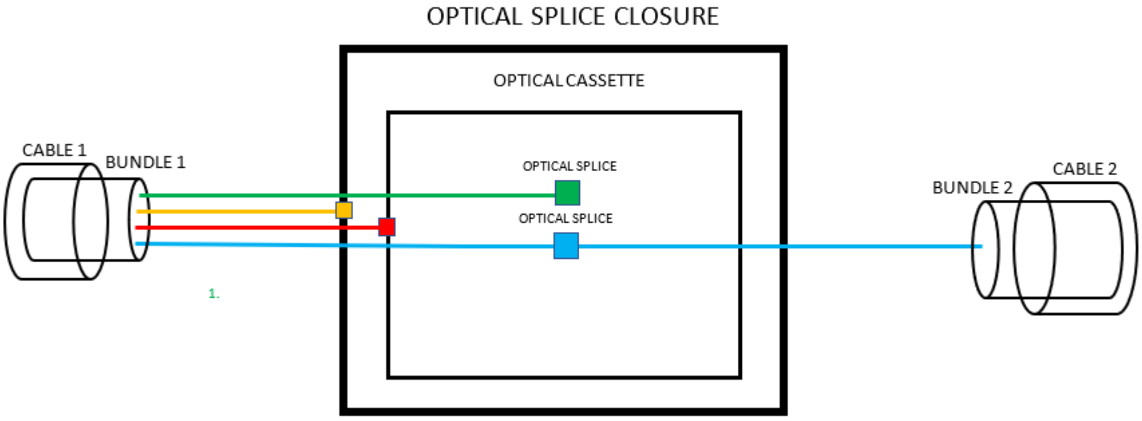
Requirements: A configuration file needs to be imported into CROSS Core Test Project. User must logout and login again after import so the new authorities will load properly.

1. Go to the Materials module and Create material template node named Splitter with one Splitter Port IN and several SPLITTER_PORT_OUT nodes inside. Select Port In and using Menu option Show material set Link types capacity to 1 PON Link. The same for one of OUT ports (the rest will inherit this setting).
2. Go to the Locality module and create a locality named OLT_city (where “city” should be replaced with the name of the city). Then create a Building, Room, Network element and Logical port inside. Add another node type Physical port to the Logical port.
3. Create a couple of localities named GPON_city with Building, Room, Shelf, and previously prepared material template Splitter (name it Splitter_port_city) inside.
4. Create another locality ONT_city with Network element and Logical port with another type Physical port.
5. Go to Circuit module and create a PON link between logical port in OLT_city and the Splitter Port IN from the first GPON_city
6. Create a PON link between first OUT port in the first GPON_city and the Splitter Port IN from the second GPON_city
7. Go to Locality, find ONT_city, select created port and use “Create PON path” from the context menu
8. Select a splitter on the wizard window. Multiple splitters can be selected for further use. On the next screen user can trace path between ONT and OLT using different splitters.
9. After selecting a splitter and pressing button Next, the next screen will offer selecting a splitter port and entering names for PON link and PON path. Both will be created after using button Finish.
10. Press refresh button on the ONT Locality and a new icon will show with a button which contains a list of all connected links to this node. It will contain both new PON link and PON path which can be shown in the Circuit module.


Locality
Node hierarchy
Schema
Editor
Name
Node types
Material
Basic
ONT_VegasAirport
Locality
CROSS ID:
AAAAAAAAAA
NETWORK_ELEMENT|O…
Network Element
Alias:
LogPortAirport
Logical port, Physical port
AirportLink [PON_LINK]
LOGICAL_POR
AirportPath [PON_PATH]
Circuit
rport
Insight
Status:
Description:

8.2. Fiber termination report

8.2.1. Cassette report

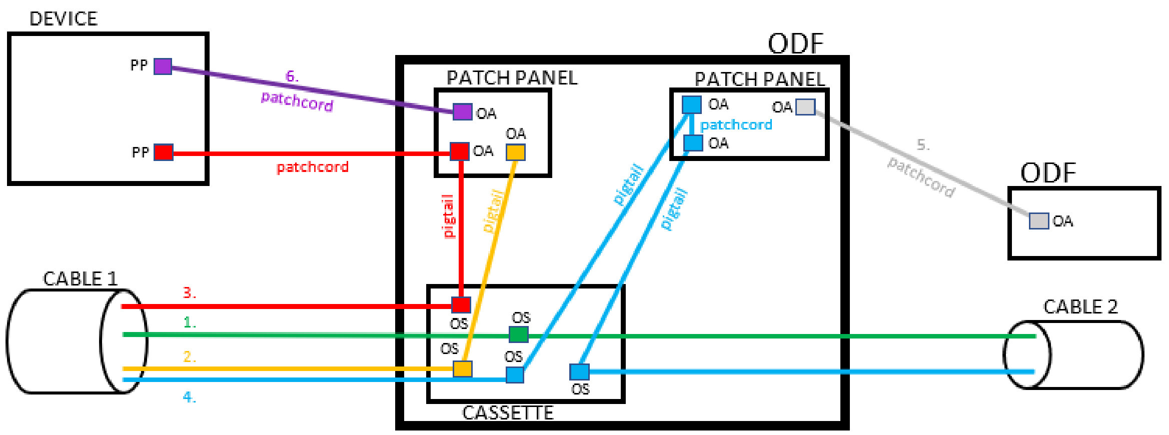

OPTICAL SPLICE CLOSURE
OPTICAL CASSETTE
CABLE 1
BUNDLE 1
OPTICAL SPLICE
OPTICAL SPLICE
BUNDLE 2
CABLE 2
1.

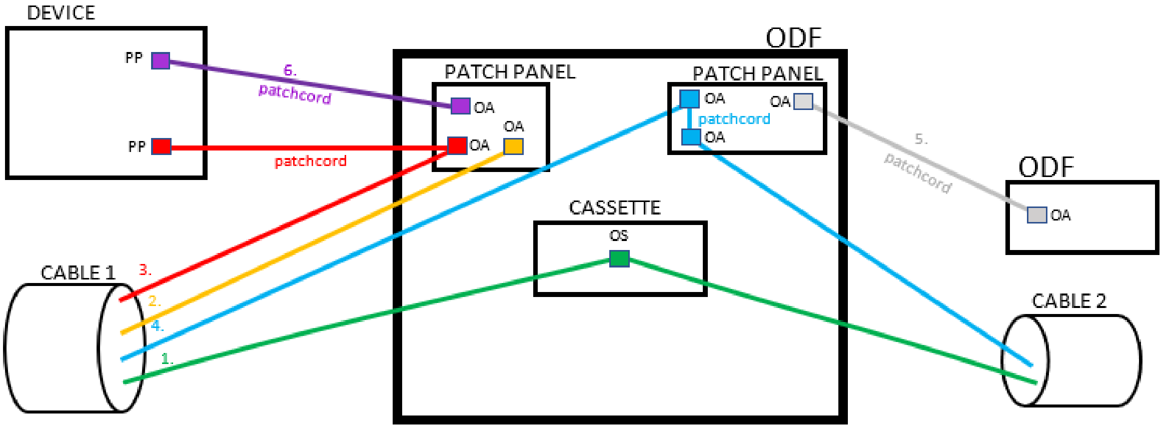
	CABLE 1	CASSETTE	CABLE 2
1.	X	X	
2.	X		
3.	X	X	
4.	X	X	X

All shown paths are optical fibers:

1. Path from a cable to a cassette where it’s terminated on an Optical splice
2. Path from a cable is terminated on an Optical splice closure
3. Path from a cable is terminated on an Optical cassette
4. Path from Cable 1 into Cassette, where it’s connected on an Optical splice and then leads to Cable 2

8.2.2. Patch panel report


DEVICE
PP
PP
6. patchcord
patchcord
ODF
PATCH PANEL
OA
OA
OA
PATCH PANEL
OA
OA
patchcord
OA
pigtail
pigtail
pigtail
pigtail
5. patchcord
ODF
OA
CABLE 1
3.
1.
2.
4.
OS
OS
OS
OS
OS
CASSETTE
CABLE 2


DEVICE
PP
PP
6. patchcord
patchcord
ODF
PATCH PANEL
OA
OA
OA
PATCH PANEL
OA
OA
patchcord
OA
5. patchcord
ODF
OA
CASSETTE
OS
CABLE 1
3.
2.
4.
1.
CABLE 2

LEGEND	
patch cord	Optical fibre with an Optical patch cord as a provider
pigtail	Optical fibre without a provider (optional)
OA	Optical adapter
PP	Physical port
OS	Optical splice

	CABLE 1	CASSETTE 1	CASSETTE 2	ODF OA 1	ODF OA 2	PP	CABLE 2
1.	X	X					X
2.	X	X		X			
3.	X	X		X		X	
4.	X	X	X	X	X		X
5.				X	X		
6.				X		X	

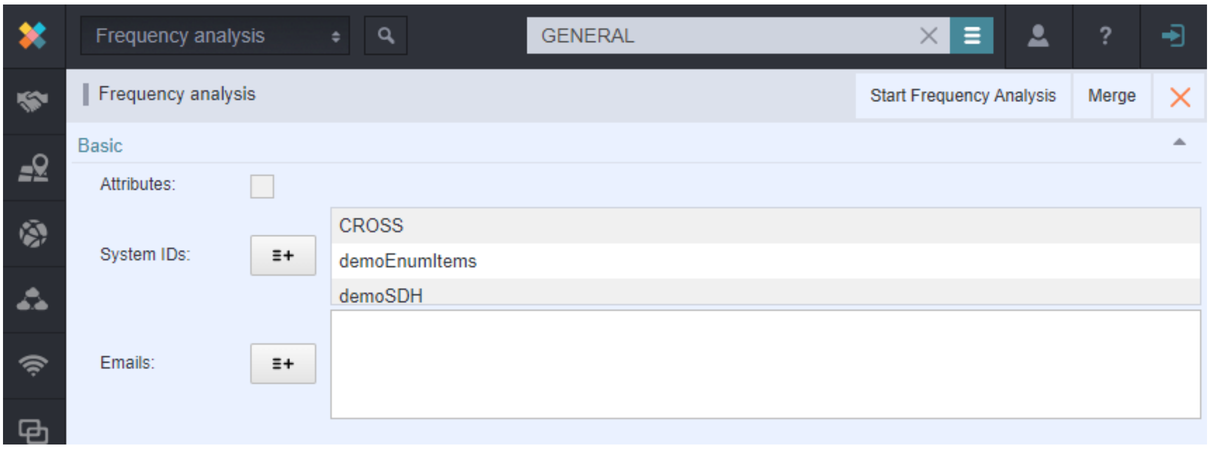
All shown paths are optical fibers:

1. Path to Cassette 1 where is connected by Optical splice and leads outside using a Cable 2
2. Path from Cable 1 into Cassette 1 to an Optical splice. A pigtail leads from Cassette 1 into a Patch panel or cards to Optical adapter 1.
3. Path from Cable 1 into Cassette 1 to an Optical splice. A pigtail leads from Cassette 1 into a Patch panel or cards to Optical adapter 1. From Patch panel (card) leads patch cord into a device on a Physical port

4. Path from Cable 1 into Cassette 1 to an Optical splice. A pigtail leads from Cassette 1 into a Patch panel or card. Optical adapter is connected using a patch cord. Pigtail leads from a Patch panel (Card) into Cassette 2 (could be the same Cassette) and then outside on Cable 2.
5. Path between Optical adapter in ODF1 and an Optical adapter 2 in ODF 2 connected using a Patch cord
6. Path between Optical adapter in ODF1 and a Physical port in a device connected using a Patch cord

8.3. Frequency Analysis

A new submodule added into Configuration, a Frequency Analysis, includes a service `FrequencyAnalysisService`for a frequency analysis of Core database.



☐ Attributes:

System IDs: CROSS, demoEnumItems, demoSDH

Authority CONFIGURATION_FREQUENCY_ANALYSIS_VIEW needs to be assigned to users to access it.

It allows to create a frequency analysis report generated from CROSS data into the CSV flat and wide format.

Report can be used as a control report after migrations, as a statistical output for analytic meetings, monitoring of number of database records, etc.

It’s possible to restrict some items from the report based on the system IDs

Merge functionality allows to compare two such CVS exports.

Supported entities:

- `Node`
- `Link`
- `Subnetwork`
- `ResourceFacingService`
- `EntityGroup`
- `Project`

8.3.1. Analysis types

There are various analysis types, which are performed. Results of these analysis types can be then exported under a specific key (e.g. ADDRESS_TYPE or NODE_CUSTOM_ATTRIBUTE).

All analysis types are hardcoded by com.cross_ni.cross.db.frequency_analysis.AnalysisType enum.

8.3.1.1 Custom addresses

Analyses related to com.cross_ni.cross.db.pojo.address entities.

8.3.1.2 ADDRESS_TYPE

Counts number of database records of CustomAddresses for every country.

For example:

- France: 301
- Poland: 100

8.3.1.3 TOWN_TYPE

Counts number of database records of CustomTowns for every country.

For example:

- Thailand: 521
- Yemen: 1310
- Slovakia: 2

8.3.1.4 STREET_TYPE

Counts number of database records of CustomStreets for every country.

For example:

- Chile: 10

8.3.1.5 ADDRESS_CORE_ATTRIBUTE

Counts number of distinct values for CustomAddress for every country:

- valid,
- valid to

attributes.

For example:

- France, valid: 1
- France, valid to: 0
- Slovakia, valid: 1
- Slovakia, valid to: 10

8.3.1.6 ADDRESS_CUSTOM_ATTRIBUTE

Counts number of distinct values for all custom attributes associated with CustomAddress for every country.

For example:

- France, CA_1: 10
- France, CA_2: 0
- Slovakia, CA_1 12
- Slovakia, CA_2: 303

8.3.2 Entity group types

GROUP_TYPE

Counts number of database records of EntityGroups for entity group type.

For example:

- GroupType_X: 1
- GroupType_Y: 3

GROUP_ITEMS

Counts number of database records of EntityGroupItems for entity group type.

For example:

- GroupType_X: 10
- GroupType_Y: 33

GROUP_CORE_ATTRIBUTES

Counts number of **distinct values** for **name** attribute for **EntityGroup** for every entity group type.

For example:

- GroupType_X, name: 1
- GroupType_Y, name: 3

GROUP_CUSTOM_ATTRIBUTES

Counts number of **distinct values** for all custom attributes associated with **EntityGroup** for every entity group type.

For example:

- GroupType_X, CA_1: 10
- GroupType_Y, CA_2: 0
- GroupType_X, CA_1 12
- GroupType_Y, CA_2: 303

Global CA

Counts number of **distinct values** for all defined global custom attributes.

8.3.3 Links

LINK_TYPE

Counts number of database records of Links for every link type.

LINK_CONSUMERS

Counts number of Links’ direct consumers for every link type.

LINK_PROVIDERS

Counts number of Links’ direct providers for every link type.

LINK_LINK_ENDS

Counts number of link-ends for every link type.

LINK_CORE_ATTRIBUTE

Counts number of **distinct values** for:

- name,
- description,
- material,
- routringPolicy,
- capacityFull,
- capacityFree,
- subnetworkProvider,
- channelNumber,
- mainFibrilCount,
- protectedFibrilCount

attributes for **Link** for every link type.

For example:

- EHT, name: 2124
- EHT, description: 2100
- EHT, material: 21
- EHT, ...
- …
- ETH_1G, name: 123,
- ETH_1G, description: 43
- ...

LINK_CUSTOM_ATTRIBUTE

Counts number of **distinct values** for all custom attributes associated with **Link** for every link type.

LINK_TECHNOLOGY_CUSTOM_ATTRIBUTE

8.3.4 Nodes

NODE_TYPE

Counts number of database **records** of **Node**s for every node type.

NODE_CHILDREN

Counts number of **Node**'s direct children for every node type.

NODE_PARENT

Counts number of **Node**'s direct parents for every node type.

NODE_LINK_ENDS

Counts number of **Node**'s link-ends for every node type.

NODE_CORE_ATTRIBUTE

Counts number of **distinct values** for:

- name,
- description,
- material,
- inheritedGeometry

attributes for **Node** entity for every node type.

8.3.5 Projects

PROJECT_TYPE

Counts number of database **records** of **Project**s for every project type.

PROJECT_CORE_ATTRIBUTE

Counts number of **distinct values** for:

- creator,
- insertDate,
- lastModifier,
- name
- status,
- updateDate

attributes for **Project** entity for every project type.

8.3.6 Subnetworks

SN_TYPE

Counts number of database **records** of **Subnetwork**s for every subnetwork type.

SN_CONSUMERS

Counts number of database **records** of **Subnetwork consumers** for every subnetwork type.

SN_PROVIDERS

Counts number of database **records** of **Subnetwork providers** for every subnetwork type.

SN_LINK_ENDS

Counts number of database **records** of **Subnetwork link-ends** (nodes) for every subnetwork type.

8.3.7 Result Units

Every analysis type has associated a **result unit**, which denotes what has been subject of the analysis and what's the resulting number.

All **result unit**s are defined by com.cross_ni.cross.db.frequency_analysis.db.ResultUnit enum.

DISTINCT_VALUES

This result unit denotes that subject of performed analysis have been only distinct values.

Mostly used when analyzing custom attributes or entity attributes counts.

RECORDS

This result unit denotes that subject of performed analysis have been database records/rows.

UNKNOWN

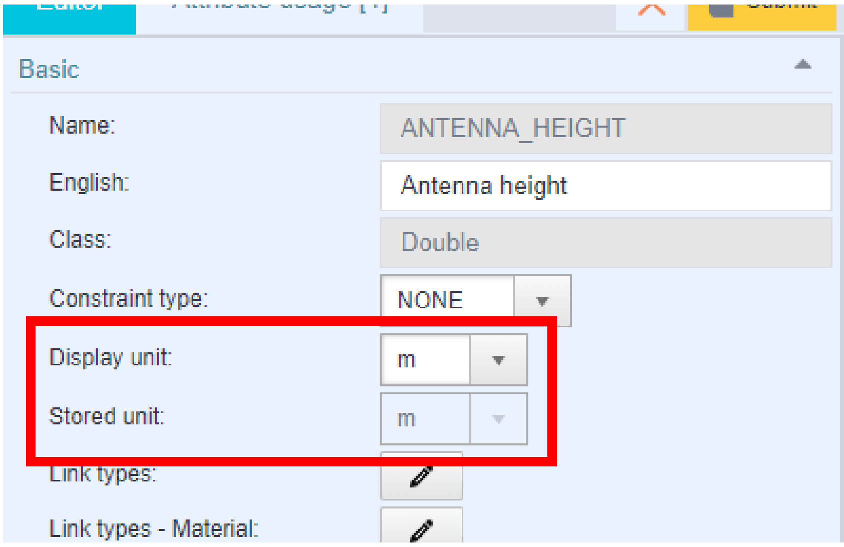
This result unit denotes that the result could not be retrieved or computed.

8.4. New features introduced in Bug Fix Releases

8.4.1 Search by Custom attribute is now showing which unit is used during search

Definition of Custom attribute unit

Numerical custom attributes in CROSS can optionally define measurement units in the form of two definitions: **Stored unit** and **Display unit**.



Basic

Name: ANTENNA_HEIGHT

English: Antenna height

Class: Double

Constraint type: NONE

Display unit: m

Stored unit: m

Link types:

Link types - Material:

Example from the CROSS GUI showing “Antenna height” custom attribute with a defined unit

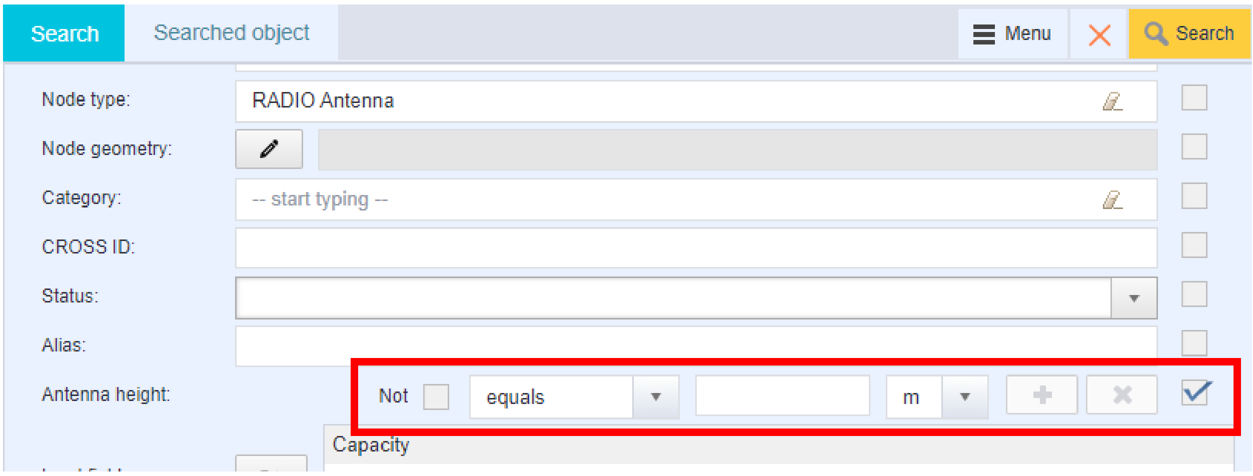
Stored unit represents the unit in which the actual value of a custom attribute will be converted during persistence.

Display unit represents the unit in which the value will be displayed to the user - persisted value will be converted from stored unit to display unit. Only Display units can be changed in the Configuration/Custom attributes submodule.

Only numerical classes *Double*, *Integer*, *Long* and *Short* are supported.

Searching of a Custom attribute

Possibility to search for numerical values in a specified unit was added to all supported classes.



Node type: RADIO Antenna

Node geometry:

Category: -- start typing --

CROSS ID:

Status:

Alias:

Antenna height: Not ☐ equals m

Capacity

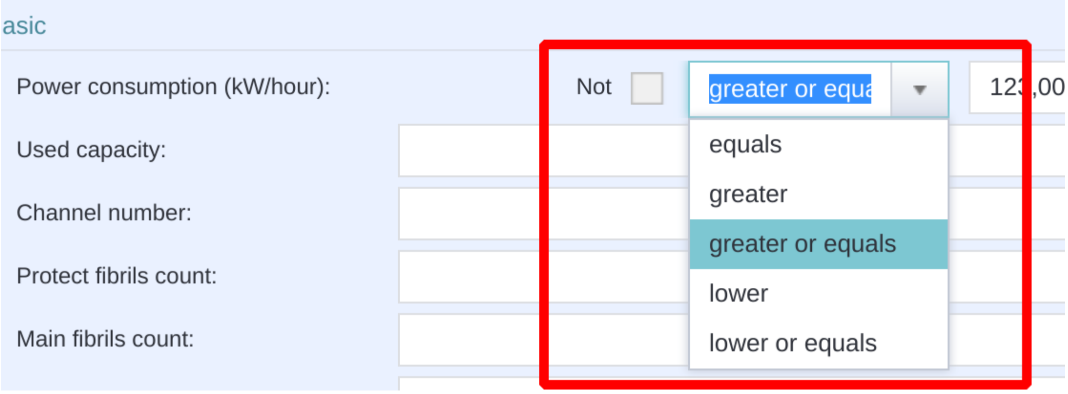
Example from the CROSS GUI showing “Antenna height” in the search

A new type of input was introduced. For custom attributes, that are defined with some measurement unit (e.g. meters, kW/h, …), not only the **input box for search value** is displayed, but also in which **unit the searched value** should be.

Search with Advanced filter

Advanced search provides the same functionality as ordinary numerical inputs with the same operators with the possible option of negation "Not":

- Equals (by default)
- Greater
- Greater or equals
- Lower
- Lower or equals
- Between (search between two values; lower needs to be on the left side)



Power consumption (kW/hour): Not ☐ greater or equa 12 ,00

Used capacity:

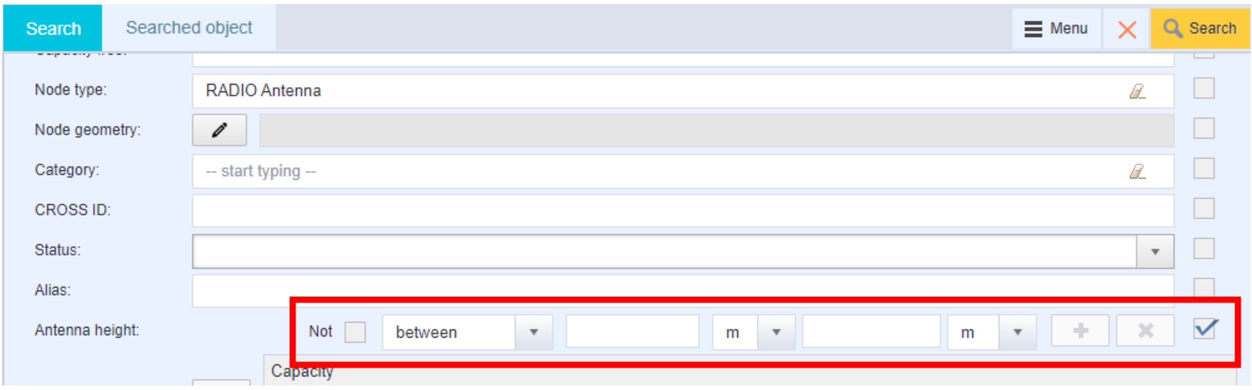
Channel number:

Protect fibrils count:

Main fibrils count:

Example from the CROSS GUI showing advanced search operators

Operators can be combined as usual. Note, that operator between offers selection of units for both sides of the "*between*" range.



Node type: RADIO Antenna

Node geometry:

Category: -- start typing --

CROSS ID:

Status:

Alias:

Antenna height: Not ☐ between m m ☑

Example from the CROSS GUI showing combination of advanced search operators

Backward compatibility

Saved searches

All saved searches that have been saved prior to this feature - without knowledge of the search measurement unit, will work as previously will work exactly as before this feature.

As there was no information at the time of search saving, when such "old" search is loaded into the GUI it won't display a select box for "units" and work like an ordinary numerical input box.

Adding units to existing saved searches

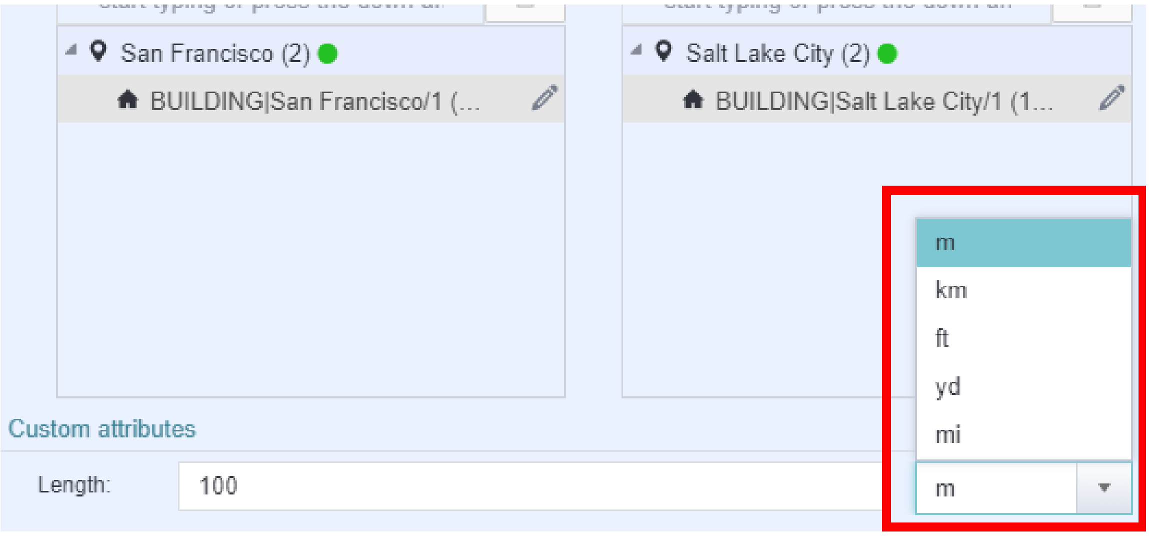
All such searches, that are working with custom attributes with units must be either:

- Re-created, removed, and saved again, or

- The affected custom attribute must be removed from “Input fields” and then added again, now correctly with units and saved search must be saved again

Units in other modules

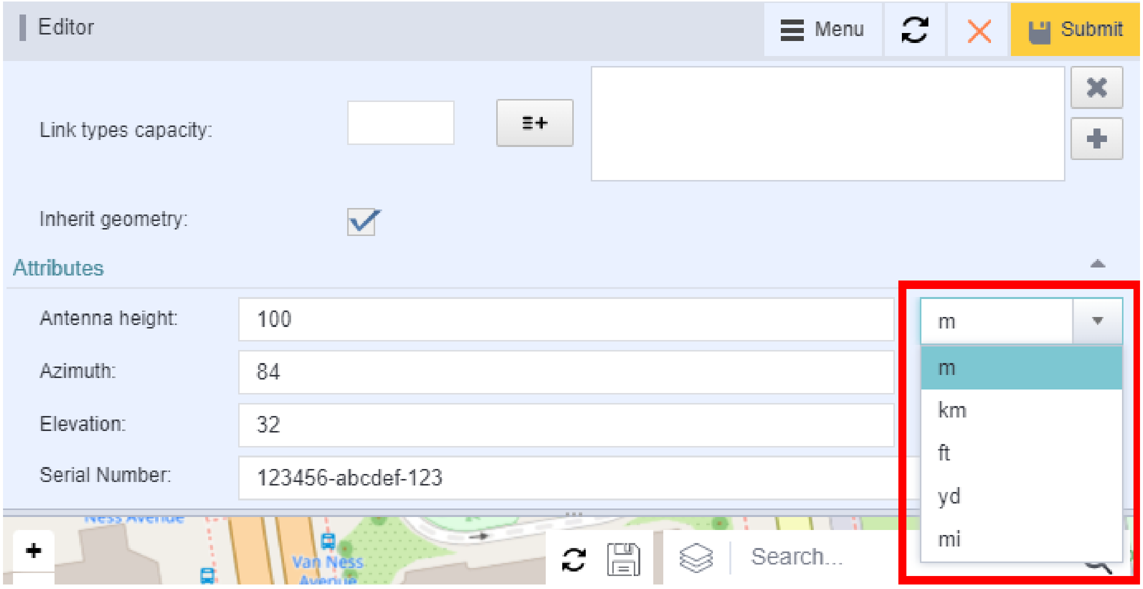
The input box with unit select box works the same as in any CROSS module, when displaying or editing custom attributes.


San Francisco (2)
BUILDING|San Francisco/1 (...
Salt Lake City (2)
BUILDING|Salt Lake City/1 (1...
m
km
ft
yd
mi

Custom attributes

Length: 100 m

Example from the CROSS GUI same input box with units in Circuit module editor


Editor
Menu
Submit
m
km
ft
yd
mi
Search...

Link types capacity:

Inherit geometry: ☑

Attributes

Antenna height: 100 m

Azimuth: 84

Elevation: 32

Serial Number: 123456-abcdef-123

Example from the CROSS GUI same input box with units in Locality module editor

Current implementation automatically recalculates the input value when the units are changed.

This behavior is preserved in the search module as well.