



Enrich the unified resource repository with GIS visualization

Provide access to location information for assets and resources from a map

Combine schematic views of the network infrastructure with GIS-based visualization

## FNT GeoMaps

Cable management enhanced with location-based visualization and analysis of network resource data

### THE BEST OF BOTH WORLDS

In today's digital economy we're seeing a dramatic rise in data volumes and network traffic. To accommodate, companies are upgrading networks, rolling out 5G and laying new fiber. The ability to operate a complex and expanding passive infrastructure – inside, outside, and between buildings – is increasingly important.

That's why FNT has joined forces with Esri to make ArcGIS available via FNT Command. FNT GeoMaps, a fully integrated GIS capability based on Esri ArcGIS, gives users expanded functionality to ensure cable networks are optimized end-to-end to handle the demands of the digital world.

The unique benefits of both solutions are integrated within FNT GeoMaps. It combines FNT's strong cable and outside plant management capability with Esri's market-leading ArcGIS functionalities to build a best of breed Cable and Infrastructure Management solution that delivers much-needed transparency across all resources and domains.

### FNT Cable and Outside Plant Management

FNT solutions provide full transparency across the network throughout all hierarchies and layers. Deep visibility into all network resources and connections improves documenting, planning and managing any cable network infrastructure. From a service assurance perspective, this is the best defense against service interruption. From a planning perspective, it ensures that changes are based on accurate as-built documentation and that all changes are reflected in a master data repository.

### Esri ArcGIS

Esri is a market leader in location-based mapping and analytics. Their capabilities and information can be used to create, share and manage maps, layers, and other geographic content within the FNT Cable and Outside Plant Management solution. Esri's framework is used in FNT GeoMaps to gather, manage, and analyze spatial location data and organize layers of information into visualizations using maps. This reveals deep insights into data relationships and infrastructure situations and status.



## COMPREHENSIVE CABLE MANAGEMENT

FNT GeoMaps is a geo-intelligent solution component within FNT's solutions for outside and inside Cable and Infrastructure Management. It combines management of cable, whether outside, inside, or between buildings, with geo-mapping and analytics. FNT's documentation, management and planning platform makes Esri's GIS functionality actionable within the cable network environment. Users can combine location intelligence with network infrastructure details and make smarter decisions about network capacity, resiliency and efficiency.

Applying location-based analytics to cable management processes increases efficiency and improves results.

**1. Planning and Rollout Management.** Network operators must lay more fiber to keep pace with the demand for network expansion. FNT GeoMaps supports the different use cases, from georeferenced rough planning of the network infrastructure to detailed planning of cable and outside plant resources. This infrastructure, which includes tray sections and nodes, can be further described with assigned assets and resources such as ducts, splice closures or any other passive or active components. Comprehensive auto-routing capabilities and validation rules ensure a high-quality result of the planning tasks.

- Provides schematic and geo-referenced representation of physical connections for all types of infrastructure: cable (fiber, copper, coax), including patch cables, patch panels, splice closures and splice cassettes, and passive outside plant, including ducts, micro-ducts, trenches, and manholes
- Supports planning and auto-routing of signal routes, including patches and splices required to realize connections and ensure the best path is established
- Redundancy checks protect service from interruption
- Create work orders for the field force team according to planned tasks
- Seamless navigation between georeferenced map views and resource assignment details provided via specific route cross-sectional views, splice cassette representations, graphical rack views, etc. supports various planning use cases
- Seamless navigation from the outdoor and campus level to inside buildings at the level of different floors and rooms

**2. Infrastructure Operations.** Mitigating service interruption is easier when information about where an outage occurred and what services are affected is readily available. FNT GeoMaps provides immediate answers in the form of georeferenced localization, for example the position of a cable break or the location of a maintenance activity. Location-based mapping and analytics capabilities also enable swift and informed response to customer requests and complaints.

- Act on new service requests promptly with detailed information about service availability and options in the different areas
- Impact analysis reports on services affected by an outage or a planned maintenance window
- Georeferenced fault localization using OTDR data mapped to cable length information speeds resolution
- Graphical visualization of cable and OSP/ISP network layout facilitates operational use cases in the NOC team and coordination of service teams in the field
- Enhance operational use cases with a wide range of data visualization capabilities, from graphical splice closure and cassette details to graphical rack views, schematic manhole representations and route cross-sectional views
- View services on 2D and 3D views inside buildings, rooms, floors and perform all relevant create, read, update and delete tasks

**3. Capacity Management.** FNT GeoMaps simplifies complex capacity management use cases by providing georeferenced visualization on maps. Displaying cable and infrastructure resources of inside and outside plant assets in the context of their spatial environment provides clarity to make decisions.

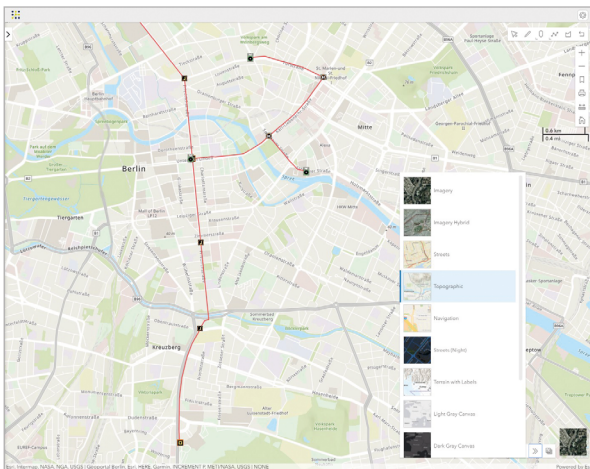
- Display route cross-sectional views showing ducts, cables and free capacity
- Identify available and used resources in cables, ducts, micro-ducts, splice closures, etc. based on the georeferenced localization of the inside and outside plant infrastructure

## BENEFITS

- Fully integrated into FNT's Cable and Outside Plant Management solution, so users can work in a single, fully equipped cable management system with high-end GIS functionality
- Graphical documentation of any type of cable network infrastructure, either by creating web-based digitization of nodes and trays on georeferenced maps, or by creating data without map interaction and visualizing it afterwards on maps according to the loaded geo-coordinates
- A wide range of common geo-formats facilitates integrating inventory data (document drawings, specific background data) and migrating existing material into the solution
- Visualize end-to-end signal paths with graphical replication of signal tracing across the network infrastructure
- Faster response times through better identification of where service is requested in relation to the next point of presence
- Achieve GIS visualization in combination with a unified resource repository across traditional active and passive telecommunication infrastructure, on both the physical and logical layers, as well as across the virtualized IT and data center resources
- Realize end-to-end management of cable and network infrastructure inside, outside, and between buildings

## FNT GeoMaps – AN ADVANCED FNT GIS APPLICATION POWERED BY Esri ArcGIS

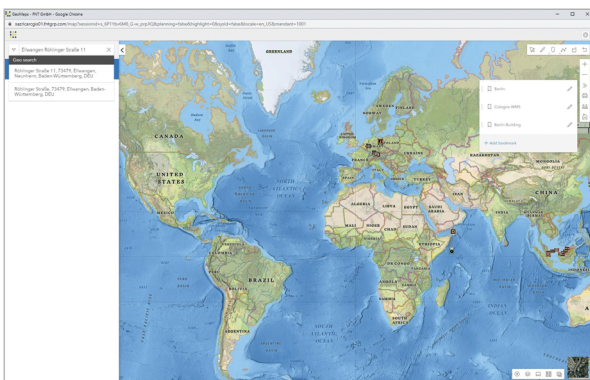
FNT GeoMaps provides all the geographic features needed to enhance planning, operating and managing passive inside and outside plant infrastructure with spatial intelligence. Esri basemaps are the standard background. These default background maps include aerial image, roads, aerial hybrid with roads, topography, terrain and streets. You can explore the contents of a map, change the basemap, perform measurements and edit data. FNT Cable and Outside Plant Management enables different types of analyses leveraging this data.



### Manage your Map

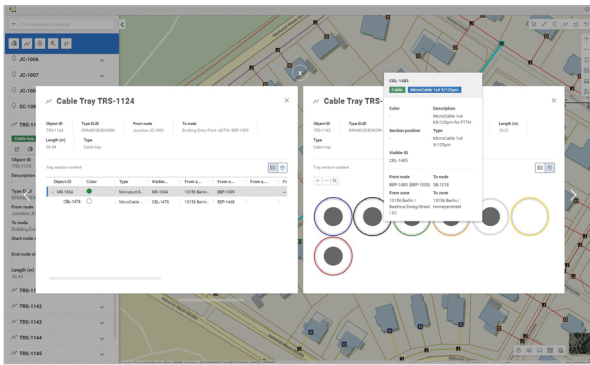
Create a new map or change existing tenant maps. Add additional basemaps from Esri's Living Atlas of the world or load your own georeferenced data as additional custom-background layer from common geo-formats and via WMS/WMTS.

Individualize the tenant-specific map by adding additional content from your uploaded background layers and basemaps. Define colors, styles and labeling of objects on the map. Define the start view and the layers that should be displayed in the map application. Provide all basic details in the map view you need to understand the “where” and “what” of your infrastructure.



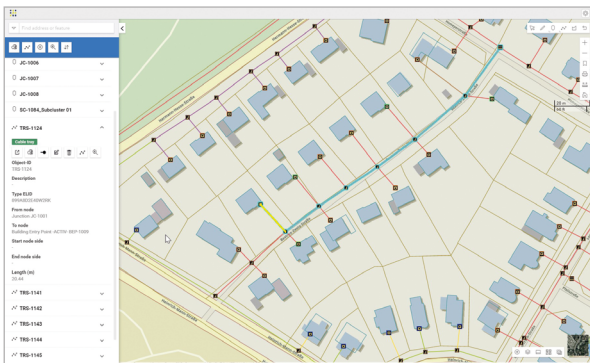
### Worldwide Address Search

Esri's worldwide addresses are available to search. Easily navigate your map view to any postal address in the world. If you don't know where you are on the map, reverse geocoding allows you to research the address.



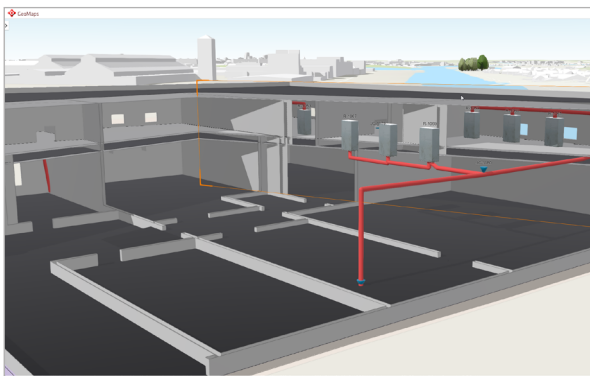
## Working with FNT GeoMaps

FNT's network asset and infrastructure data can be overlaid on top of background maps to visualize the network. Nodes and tray section data can be visually georeferenced on the map. This operational layer of network data is interactive, allowing users to drill down for more details about assets and resources and edit the data. The content of nodes and tray sections can be viewed. For tray sections, an additional graphical route cross-sectional view showing ducts and cables with their capacity is available. Through different symbolization and coloring, information such as node or tray section types or planning status is visible immediately.



## Use External Sources and Sync with FNT GeoMaps

New objects with and without geo-coordinates can be imported and modified via FNT ETL capabilities. Graphical preview is available for geo-referenced objects. These objects are automatically synchronized into FNT GeoMaps for geo-referenced visualization on the map.



## Navigate from Outdoors to Inside Buildings

Drill down to floor and rooms, where infrastructure objects are displayed and can be edited on floor plans. Filter data by building or floor layer to get the best overview. Work with height relative to reference objects, including riser objects that connect floors.

## TOOLS IN FNT GeoMaps

Various tools allow easy and efficient planning and documentation of the infrastructure:

- **Create node or tray sections:** Create a single node or tray section by clicking on the map and defining the type. Option to add a description or function or adapt the coordinate values during creation.
- **Bulk creation:** Create many objects of the same type by choosing the type and clicking on the map.
- **Edit data:** Change attributes of nodes or tray sections, their geo-referencing or the tray section route.
- **Measure distances:** Evaluate distances on the map, whether single or polylines.
- **Loop in nodes:** Split tray sections and their content by looping in a new node.
- **Create a cable route:** Select multiple tray sections on the map along a route, start the auto routing wizard and assign a cable.
- **Show content of nodes and tray sections:** Select objects on the map and display details via various schematic applications and templates provided.
- **View inhouse 2D floors and 3D building:** Expand traditional POP to the entire building. Visualize precisely where cables and other passive infrastructure are located within the building by importing building into GeoMaps and applying the network infrastructures.
- **Create polygons on the map:** Visualize areas on the map, for example where connectivity can be provided or services are available.
- **Export data:** Print data with configurable layout or export nodes and tray sections to common geofomats (SHP, DXF, KMZ, GeoJSON).