

Network Server Software Specification

Specification Description

- Manipulation interface in Chinese and English.

User Interface and Environment

- Support general vector file format such as GEO and Shapefile.
- Provide RD staff NRT Data Converter to convert Network data in vector format into Network analyzed format file (*.nrt) and Network Weight format file (*.wgt).
- Provide easy-using wizard guide to assist web site construction and design.
- Users of HTML can browse layers without any additional plug-in program.
- Client only needs to use simple HTML Viewer to perform the analysis functions on web provided from server.
- Server RD staff can customize web.
- Provide preview tool-Network Server Viewer can test if Network Server is built completely at server.
- Provide the source code of Network Server Viewer to be a sample for users to conform the customizing demand.

System Management Function

- Provide Network Server management interface.
- Support Manager to construct various route planning services to offer analysis in Multi Services framework.
- Support assigning IP and Port to connect Network Server Service ◦
- Enable Multi-User to browse Network Analysis Web.
- With Time Windows limits enable to set time conditions in various Network analysis applications.
- Present the Network analysis results in text and graph attribute pattern on the web.
- Independent Monitor built-in can auto detect route planning service connection status. Enable to set up sending e-mail to server staff when irregular Network Service detected.
- With server resident executive mechanism, enable to set up auto read and start service with system opened.

- With on-line setting up service, enable users to set up server route planning attributes from remote site.

Eight Network Analyses

- Provide Shortest Path analysis.
- Provide Superior Route Planning analysis.
- Provide Closest Facilities analysis.
- Provide Service Area analysis.
- Provide Minimum Spanning Tree analysis.
- Provide Center Problem analysis.
- Provide Median Problem analysis.
- Provide Vehicle Routing Problem analysis.

Customization Ability

- Provide API components for RD staff to customize based on individual request.
- Support tools of Macromedia Cold Fusion 、 Microsoft Active Server Pages 、 Microsoft ASP.NET 、 HTML/DHTML 、 JavaScript 、 XML 、 Java and Java Server Pages.

Shortest Path

- Support One-to-One, One-to-All, and All-to-All.
- Support assigned order, return or not.
- Support users to solve in cost type of travel time or distance.
- Support flag Time Windows setting and determine to consider Time Windows or not in calculation.
- Support input different Weight settings.
- Support to set up connection of two linked segments which can set up turn type at the intersection.
- Support Client users to straightly set barriers on the map.
- Support setting up different Weight files in management interface, and barriers on map, to consider more possible conditions for the best route planning.

Closest Facilities

- Support users to search based on travel time or distance.

Service Area

- Support users to set up searching range.
- Demonstrate results in arborescence road.
- Support to solve in cost type of travel time or distance.

Superior Route Planning

- Support users to assign terminal or not.
- Support users to set up return or not.
- Support with Nearest Neighbor, Farther Insertion, Sweep, Simulated Annealing and Genetic Algorithm for flags best order arrange.
- Support Weight settings of length, travel time, advance arrival and delay.

Minimum Spanning Tree

- Support Client users to mark with cursor the Flags and Barriers on the map.
- Support to represent results in tabulation.

Center Problem

- Support users to analyze locations of markets and emergency facilitates with Center Problem.
- Support users to set up calculate cost of one-way or two way .

Median Problem

- Support users to analyze public facilitate locations with Median Problem such as locations of markets and gas stations.
- Provide users to set up calculate cost of one-way or two way.

Vehicle Routing Problem

- Support assigned flags Time Windows, stay service time and cargo weight.

- Support assigned vehicle Time Windows and maximum loading.
- Support Simulated Annealing and Genetic Algorithm for optimized planning.
- Support users to search based on travel time or distance.
- Support to represent results in tabulation with contents of road name, segment cost, direction, total length and total travel time of each vehicle driving.

System Requirement

- CPU: Pentium II 266 or above
- RAM: 256 MB or above
- Operation Systems: Windows 2000/Windows XP/Windows 2003
Windows Vista
- Software requirement:
 - ❖ IIS : 5.0 above
 - ❖ Internet Explorer : 5.0 above
 - ❖ .Net Framework 2.0