

NetEngine™

A Programmer's Library for Network Analysis



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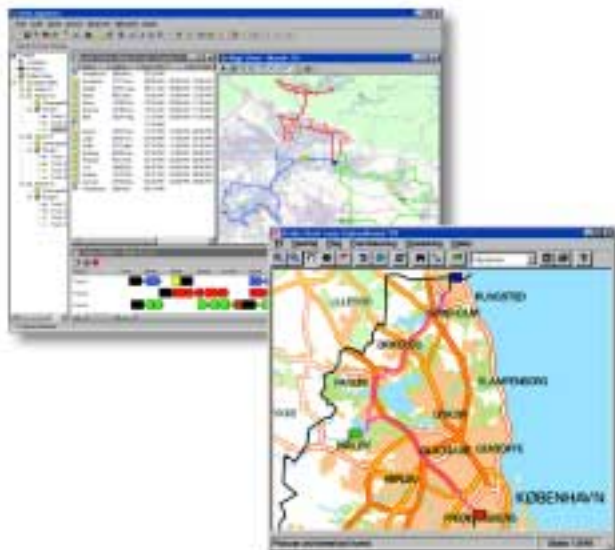
NetEngine™ software is a programmer's library designed for geographic network analysis. NetEngine gives programmers the capability to define, store, traverse, and analyze many kinds of networks through either a C application program interface (API) or Visual Basic® via a type library.

Key Functions and Capabilities

NetEngine is versatile and has been designed to facilitate advanced network analysis in several ways.

NetEngine provides

- Data structures and methods that are optimized for fast retrieval of network connectivity
- A way to efficiently store network topology to a permanent disk file
- Ready-to-use algorithms such as the shortest path algorithm
- Support for some advanced modeling concepts that facilitate modeling hierarchical and multimodal transportation networks
- A specialized memory management module that makes efficient use of computer memory necessary for very large networks
- Support for databases from commercial suppliers such as Etak, GDT, and Navigation Technologies, as well as an organization's internal network data sets
- A well-defined interface to MapObjects® software, an ESRI® software development technology that combines an ActiveX control (OCX) and more than 45 programmable ActiveX automation objects
- Deployment license options for both stand-alone client and network server-based systems



Solvers Available in NetEngine

NetEngine is delivered with algorithms for determining

- The shortest path between two or more points*
- The solution to the traveling salesman problem (TSP)*
- The identification of the closest facility
- The computation of origin–destination distance matrices
- The allocation of service areas to a location

* NetEngine has the capability to use hierarchical networks. This gives developers the flexibility to choose a close to optimal but better performing solution for their users, which is extremely useful when dealing with real-world street networks and other very large data sets.

NetEngine also allows developers to embed their own solvers in custom solutions.

Developing Custom Solutions Using NetEngine

Developers use NetEngine to deliver powerful software solutions to customers or end users who need functions such as pathfinding, site analysis, facility connections, and tracing of network topology. Developers can use algorithms included in NetEngine, such as ESRI's solver for the TSP, or special algorithms of their own design. With NetEngine, users can efficiently model complex situations such as identifying the least-cost/on-time alternative for routing an intermodal container through transfer points between truck, rail, and shipping networks. Transit providers can identify effective alternative routes using bus routes, subways, rail, and even city sidewalks to travel between two nonconnected bus routes.



Some Geographic Networks Used with NetEngine

- Streets and Highways
- Railways
- Bus Routes
- Street Sidewalks
- Bike Paths
- Shipping or Air Connections
- Warehouse and Store Aisles
- Campus and Hospital Corridors
- Electric Distribution
- Telecommunications
- Cable or Wiring Systems
- Gas, Water, and Sewer Pipelines
- Canals, Rivers, and Streams

Supported Platforms

- NetEngine supports
- Windows® 95 and 98
 - Windows NT® 3.5.1 and 4.0
 - HP-UX®
 - IBM® (AIX®)
 - Silicon Graphics® (IRIX™)
 - Sun™ Solaris2™

Case Study

NetEngine Helps Support Alternative Transportation Solutions for the Elderly and Disabled

As our population ages and the need for mobility increases, innovative solutions must be developed in order to accommodate this need. ESRI's NetEngine, in combination with MapObjects, allows systems integrators and application developers to create spatial technology solutions to assist in providing viable, alternative transportation solutions.

The Independent Transportation Network (ITN) in Portland, Maine, is a nonprofit transportation provider to the elderly and disabled. ITN hired GeoFields, Inc., of Atlanta, Georgia, to assist them in building a GIS technology that integrates advanced logistics into their day-to-day scheduling and dispatching duties.

By using NetEngine and MapObjects, ITN and GeoFields built an advanced computer-aided dispatching and scheduling application. The ITN Trip Planning software now allows dispatchers to automate schedules, optimally assign vehicles to trip requests, route vehicles, and produce manifests and reports. It also ties to the accounting system.

ITN is providing an extremely valuable service to the community. Customers of ITN have more mobility choices and freedom to travel independently. By using technology from ESRI, such as NetEngine and MapObjects, we can develop solutions that improve quality of life, more effectively use scarce resources, and employ alternative transportation in our communities.



For more than 30 years ESRI has been helping people manage and analyze geographic information. ESRI offers a framework for implementing GIS in any organization with a seamless link from personal GIS on the desktop to enterprisewide GIS client/server and data management systems. ESRI GIS solutions are flexible and can be customized to meet the needs of our users. ESRI is a full-service GIS company, ready to help you begin, grow, and build success with GIS.

Corporate

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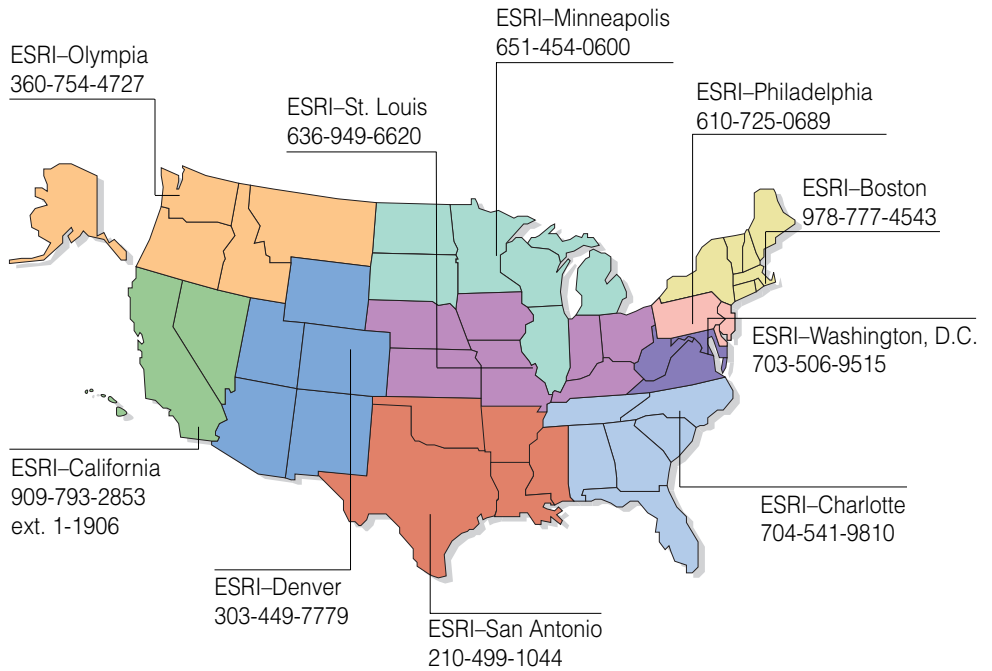
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