NaviGate
Spatial Data Fusion
A Brief Introduction

Delivering Data to the People Who Need It

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NaviGate
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Delivering Data to the People Who Need It

A Brief Introduction to NaviGate

The NaviGate system is an application framework for delivering a unified, web-based, map-based view of utility enterprise data to the people who need that information, anytime, anywhere. NaviGate acts as a portal to your existing systems, powerfully integrating and displaying data from customer information, outage management, mapping, work management, SCADA, and other internal systems. NaviGate will also use data from external sources such as “Call Before You Dig”, utility vehicle locations, weather, lightning, and many others. And NaviGate is built to effectively provide the same capabilities in the office and in the field, using modern commodity cellular technologies for connected and hybrid disconnected mobile information.

The NaviGate system is installed at utilities and municipalities around the United States, both large and small. The largest NaviGate site supports thousands of end users for a utility with 6.4 million customers. The smallest NaviGate site supports a municipality with less than 100,000 customers. NaviGate users access the system using a self-installing web-browser interface that is easy to use yet extremely powerful. NaviGate runs on inexpensive servers at your site. The system can be expanded easily by adding additional data sources or by adding additional software modules for utility-specific business functions such as field data access, redlining and map markup, network trace, and many others.

The fact that NaviGate is available as an off-the-shelf solution is a key reason for our success. Because NaviGate is a Commercial Off-The-Shelf (COTS) software product, it can be configured to connect to your existing data sources and get your users in production in just a matter of weeks. NaviGate is easily upgraded and extended as well. New software versions are released about twice per year, and you can add additional modules just as easily, often in just a few days. And, because NaviGate is a turn-key COTS solution, there are no complex, open-ended consulting engagements to negotiate.

NaviGate customers are uniformly enthusiastic about the success of the system. Our customers tell us that NaviGate greatly improves the utilization of critical enterprise data, dramatically streamlines data access, and provides easy to use features that far exceed those possible by any other approach. We hope that you will contact our customers to learn more about how NaviGate has helped their enterprise become more effective and more efficient.
About Gatekeeper Systems

Gatekeeper Systems is a successful software company with a long track record in delivering powerful off-the-shelf solutions for utilities and municipalities. Gatekeeper Systems is located in Pasadena, California, but we are a true “Internet Company”, with staff located in Massachusetts, Ottawa, Louisiana, and elsewhere in Southern California. We are a highly specialized company: off-the-shelf software solutions for utilities and municipalities are our only product. The success of our approach is demonstrated by the satisfaction, longevity, and loyalty of our existing customers, and we encourage you to contact them for an unbiased opinion of Gatekeeper Systems.

NaviGate Customers

NaviGate customers cover the entire span of utility businesses:

- Private and public sector
- Electric, water, gas, telecommunications, sewer, and combined utilities
- Ranging in size from fifty thousand utility meters to more than four million, from a single small city to a six-state utility

A few of our reference customers include:

- Georgia Power (2.2 million electric meters throughout the state of Georgia)
- The City of Los Angeles (one million sewer connections)
- Clark County Public Utilities (179,000 electric and water meters in Washington)
- WEC Energy Group (over 1.6 million gas meters and 500,000 electric meters in the Great Lakes region)
- Las Vegas Valley Water District (340,000 meters in a rapidly growing metropolitan area)
- First Energy (a six state utility with over 6.4 million meters)

Our customers speak enthusiastically about our products. We hope you will contact them soon to learn how they use NaviGate to the great benefit of their organizations.

Who Uses NaviGate?

NaviGate is used by utility workers and managers who function in a wide variety of capacities. Some of our installations have literally thousands of individual users of NaviGate, with as many as 1000 different users visiting the NaviGate site in any single day. Depending on the application and customer, NaviGate might be used by:

- Electric operations managers to visualize real time electrical outage status and response
• Maintenance supervisors to assign work orders to crews and manage crew utilization via Automatic Vehicle Location technologies

• Engineering office staff to plan system expansion or review the addition of updated facilities data in the GIS

• Field crews to collect critical asset inspection and repair information and transmit that data back to central servers

• Utility customer service staff to assist customers with new facilities planning
• Senior company management to monitor utility activities during emergency response

• System reliability engineers to investigate historical outages and network vulnerabilities

• Customer service representatives and account managers working with large customers trying to understand which specific services are available at the location of a new development

• Call Before You Dig (Underground Locate) field crews to mark underground facilities in the field

NaviGate is an ideal tool for these users, and many others, because it can easily integrate data from many different information sources throughout the enterprise. NaviGate combines data from customer information systems, outage management systems, SCADA systems, trouble call systems, work management systems, historical data warehouses, and many other sources into a single, integrated user interface.

How is NaviGate Used?

To understand why NaviGate is so powerful, consider the following typical usage scenario for NaviGate at an electric utility:

• During an electrical outage on a slightly windy, blue-sky day, a customer (we’ll call her Mary) called her friend John, who happened to be a senior company officer at the electric company. Mary complained that her power had been out repeatedly, as had the service for her neighbor across the back yard fence.

• Using NaviGate, John searched the customer information using Mary’s name and the system instantly displayed the area around Mary’s house. John noticed that Mary was listed as a Critical Customer in the company’s systems because she is elderly.

• John turned on the outage current status map and checked the current outage status. The map showed a local outage on Mary’s transformer. By simply clicking on the
icon on the map, John determined that Mary’s outage was reported about 15 minutes earlier and a crew had been dispatched almost immediately.

- Turning on the map layer showing current vehicle locations, John was able to see the current position of the crew was just around the corner from Mary’s house, having arrived just seconds before.

- John then checked into Mary’s complaint about previous outages. Using NaviGate, he was able to view a thematic map showing the number of minutes of outage for every meter in the area surrounding Mary’s house. He noted that most of the meters in the surrounding areas had no outage minutes in the last two years, but that several customers on Mary’s block had experienced nearly four hours of outage in a number of separate outages in that period. Using NaviGate’s capabilities for viewing detailed facility data, he could also see that Mary’s neighbor was on a different circuit than Mary, and had indeed experienced 90 minutes of outage just a week ago.

- John noticed that the outage the month before was caused by a tree contacting the service line. He checked the status of Mary’s outage again; the crew around the corner from Mary’s house had already reported that a tree contacted a secondary conductor, causing the current outage.

- John wondered if perhaps there was a pattern developing. He used NaviGate to access the utility’s forestry GIS data. That system indicated that Mary’s area had a preponderance of fast-growing species planted when the subdivision was built 15 years ago. The area has been scheduled for tree trimming once every five years, but John wondered if perhaps that schedule was inadequate.

- He used NaviGate to access the work order system, and quickly saw that tree trimming had been done in the area three years ago but that since that time several additional work orders had also been issued for specific tree-on-line problems reported by customers.

- In about five minutes, John was able to determine a probable source of Mary’s difficulties and assure her that he would have the root cause, insufficient tree trimming, addressed. In that short time, John was able not only to positively impact internal processes, but his investigation yielded results that would prevent additional outages within the balance of Mary’s community.

- Using Windows cut-and-paste functions, John quickly pasted the NaviGate reports and maps he viewed into an email message, and sent it to the forestry operations manager who was able to create an electronic work ticket and transmit it wirelessly to field crews using NaviGate mobile Vegetation Management module. He also used NaviGate’s printing functionality to print a D-size hardcopy map showing the current outage, historical outages, work orders, tree trimming areas, and the outage minutes-themed services for the surrounding area. He took this to his next operations meeting.
as a handout. He wanted to his entire operations team to learn more about how his forestry team is using GIS and incident data to better plan tree trimming cycles.

What is remarkable about the above situation, which is quite typical of NaviGate usage, is the ease with which John was able to access and visualize data from a wide variety of existing information systems. Remember that John is a senior manager at the utility, not a front line operations person. Without any special training or access, and using a single tool, he was able to easily access the following systems:

- The Customer Information System (to look up Mary’s service location by name and locate her on a map).
- A separate Critical Customers database maintained outside of the legacy customer information system.
- The GIS (to use the connectivity model and view a map of the utility facilities around Mary’s house)
- The NaviGate Automatic Vehicle Location System (to view the current location of the crew responding to Mary’s complaint)
- The outage history database (to see historical outage locations)
- An outage data warehouse (to view the summarized outage minutes at every meter in the region around Mary’s house)
- The Forestry GIS (to see information about tree species, tree trimming and recommended trimming frequencies)
- The Work Management System (to view individual maintenance activities associated with the fast-growing trees)

Because NaviGate is easy to use, map-oriented, and connected to many different live and historical data sources, the power of each data source is multiplied by the connectivity to the others.

This situation would have been quite different with the information systems found at John’s utility before NaviGate was installed. In that circumstance, John would have had to visit each system separately. Most of the systems had no graphical, map-based user interface, so he would have had to search for work orders and similar activities by address or similar data. The tabular summary data describing outages at a circuit level would have missed the root cause, because the outages were few, localized to a specific geographic region (a subdivision), and split across two circuits. Most people at John’s company would not know how to access so many different and varied systems. And, most importantly, even an IT expert would not have been able to easily move between the many data sources required to piece together the true picture of what happened in Mary’s neighborhood.
NaviGate System Samples and Features

The NaviGate system leverages widely accepted Internet tools and powerful desktop tools such as Microsoft Excel. NaviGate can also integrate easily with Oracle Locator and Oracle Spatial to provide online access to corporate spatial data stored in Oracle. Some of the key features of NaviGate application are:

- Map-based user interface
- Control panels to manage the user's view of the data
- A rich set of navigational features
- Extensive reporting capabilities
- Security & user management features
- Advanced features, such as online data editing

The NaviGate user interface is delivered through Microsoft Internet Explorer. The user interacts with a set of windows that contain maps, reports and the controls to manage the information displayed. The NaviGate user interface is designed to be easy to use for people with a variety of skill levels and requires minimal training and skill to operate.
Helping the user find their way around is a powerful, central feature of the NaviGate framework. Navigation options are provided to the user in a navigational control panel, as shown in this figure. The interface shown here is very simple and intuitive, even for users with only a basic grasp of Windows and modern graphical user interfaces.

Navigational data input is accepted in almost any format. The input data is parsed by a server-side engine that accesses the database behind the map to assist in performing intelligent searches. In the example here, the user entered a partial address, and the system returned a list of possible results. This feature greatly simplifies the task of finding objects when the object's name is lengthy or the correct spelling is not known.

These features point to the following important capabilities of the Navigate application framework:

- Information used in NaviGate can be drawn from multiple data sources. These are combined and delivered in a common GIS viewer inside your Web browser.

- NaviGate can handle dynamic as well as static data. Trouble calls displayed in NaviGate change rapidly over time in comparison to other data. Trouble calls are always being added and cleared, and they can also come in very large numbers during a major outage.

- NaviGate applications offer the ability for users to enter information. The application shown above includes data entered by the user. Service notes and comments can be entered using NaviGate and associated with a particular trouble call, device, or customer.

- NaviGate users have complete control over data layers displayed in the map window. The NaviGate interface features access to selected views which contain specific layers of interest. In addition, individual layers can be selectively turned on or off in the map display window.

**NaviGate Modules**

The basic functions of NaviGate are provided by something we call the NaviGate Core. This part of the system supports map viewing, reporting, system configuration, connection to data
sources, queries and searches, and many other commonly used features. We extend the Core by adding independent modules. You can purchase only those modules you need, thus achieving substantial savings in software license cost, installation and configuration complexity, and support. Additionally, NaviGate licensing is for unlimited numbers of users.

The following pages briefly describe some of our most popular NaviGate Modules.

**Automatic Vehicle Location**

The *NaviGate AVL* (Automatic Vehicle Location) Module provides for the display and management of wireless-connected GPS units in vehicles such as utility maintenance trucks, customer service vehicles, emergency vehicles, and field personnel with GPS equipped MDT’s. *NaviGate AVL* displays the current and historical location of vehicles in the *NaviGate* software environment, and allows you to communicate with the vehicle wirelessly when two-way communication is supported by the AVL field unit. Real time vehicle positions can be viewed in the context of, and together with, all other NaviGate data layers including assets, outages, work orders, weather, etc.
Maps of complex infrastructure such as electrical or water networks can be complex, involving many overlapping and intersecting objects. The NaviGate Advanced Viewing Module can dramatically improve the readability of the maps for a particular purpose by filtering the data based on the data in the NaviGate database. Users can limit which objects are displayed based on any of the data columns associated with the data object in the NaviGate data warehouse; for example, users might filter by facility installation date, electrical phasing, capacity, outage date, transformer size, or valve type. Filters applied in AVM can carry over to other modules, such as the NaviGate Printing Module.
The NaviGate Trace Module provides an interface for tracing network models of either electrical networks (above) or pipes-based networks (below). It assumes that a logical network model already exists in the GIS, OMS or an engineering application. The network model can be “as-designed” or “as-operated”.

Once a network section has been traced, it can be visualized in highlight on the map as well as manipulated and queried in the tabular output containing customer lists and all devices included in the trace. The NaviGate Trace module is available in the field as well as the office version.
The NaviGate Point Feature Management Module allows end users to “cookie-cut” a portion of a Navigate map, make notes, markup the map section and store it in the NaviGate database. Notes and sketches are immediately available to other users other NaviGate users in general. Markup can be edited again later, printed, or deleted by a drafter who has later incorporated the data into the base GIS data set. Like images and pictures, sketches and notes can also be associated with inspection and/or work tickets being uploaded from the field.
Construction and maintenance personnel need field access to current electronic drawings. Most utilities still satisfy this need by printing out “map books” and taking paper maps into the field. The NaviGate Document Manager Module is a NaviGate extension that maintains a complete and current set of engineering drawings and related documents on mobile laptop or tablet computers, utilizing the Web-based NaviGate platform to distribute the files. These documents can be as-builts, vault details, legal records, schematics or any other relevant document associated with an asset or feature.
The standard *NaviGate* system is designed around office use, and presumes a modestly fast Internet connection and large display screen. The *NaviGate* Mobile Options (Field Option, Mobile Desktop, and Field Data Entry) collectively provide a platform and framework optimized for use on hybrid disconnected or wireless-connected mobile computing devices. The mobile user interface is “field-optimized” and supports pen-based, touch, as well as mouse-based interfaces. Mobile applications include simple View/Query, Work Orders, Inspections, Call-Before-You-Dig, Damage Assessment, Vegetation Management and others.

**The NaviGate Product Roadmap**

You may wonder how we have arrived at this particular set of NaviGate modules. The suite of modules currently offered evolved as our response to the real-world needs of our existing customers. New modules are being created all the time, and we often have several new modules under development simultaneously. If you a business need that is missing from the
NaviGate family of products, contact us – we’re interested in building a module to meet your needs!

Gatekeeper Systems is constantly evolving the core NaviGate functions. Most of our product is already built upon Open Source software and technologies. We use Java, JavaScript, JDBC, ODBC, and Perl, all of which are open source. Some components of NaviGate that are not based on open source technologies are currently being migrated to open source technologies.

Our mapping and display components are based on standards-based Open Source technology. (For more information about open source mapping solutions, please see http://www.osgeo.org/).

And, most importantly, our NaviGate application is itself open. We provide a number of access points for our technology:

- NaviGate has a documented Remote Control Interface that lets applications running on the user’s PC, or even on another system, control the NaviGate client application. You can cause NaviGate to run specific reports, zoom to a particular map location, or do a specific query. For example, another application can provide NaviGate with a customer account number and tell NaviGate to show that customer on the map and produce a customer report.

- The NaviGate Data Warehouse is open and available for use by your applications. The Data Warehouse provides a most convenient and current spatial database containing a wide variety of spatial and non-spatial datasets. The NaviGate data load tools also provide linkages between the disparate data sources, and keep the data up to date.

- Perhaps most importantly, NaviGate customers all have a license for the NaviGate application source code. Your application developers can view and even modify the source code of your application. Most of our customers never take advantage of the fact that they have access to the NaviGate source code, but they feel it is nice insurance to have.

**The NaviGate Architectural Advantage**

One reason NaviGate has been so successful is our carefully constructed application architecture. The following diagram illustrates the relationship between your enterprise applications, the NaviGate Spatial Data Warehouse, and the NaviGate application and modules.
NaviGate is designed from the ground up using the following architectural principles:

- NaviGate is independent of data sources. NaviGate accesses information using database views that integrate information both natively from source systems via JDBC and ODBC or in aggregated form in the NaviGate Data Warehouse. Information from various enterprise systems is integrated using standard tools including SQL and XML. Gatekeeper customers have used these techniques to access information from SAP, DB2, SQL Server and Oracle databases.

- The NaviGate Data Warehouse provides numerous opportunities for improving application richness, performance, and availability. For example, information from Operations Management Systems (OMS), Customer Relationship Management (CRM) and Work Management Systems can be aggregated to provide views of current task orders for critical customers who have experienced recent outages (see scenario above). Linear circuit geometry is typically aggregated into a single geometric object so that summary statistics for a circuit can be visualized with a simple tooltip on the NaviGate map. By providing an off-the-shelf Data Warehouse, critical information from legacy systems that have poor query performance or have poor uptime characteristics can be accessed for query purposes from the NaviGate Data Warehouse in summary form. The NaviGate back end architecture provides tools to synchronize information from various sources on a real-time or scheduled periodic basis.
• Business-specific add-on modules (such as network trace or field data entry) have full access to the NaviGate core functions and tools. For example, any NaviGate module can use the NaviGate Grid Applet for viewing data in a customizable data grid (like a spreadsheet) with powerful tools for selecting and sorting data.

• The NaviGate system has been designed, from the ground up, to be highly available. For most of our customers, NaviGate has become one of the five or ten most critical systems in the company, and they depend upon the high availability features of NaviGate. Our customers tell us that NaviGate is one of the most reliable systems they have ever installed.

• Many systems in the modern utility enterprise are designed to provide very specific services for a small portion of the entire community of users. For example, GIS is generally used directly by just a handful of people in a large utility, and real-time OMS data is usually limited to the dispatchers. NaviGate is designed for “the other 99%” of the company, people who need access to a wide variety of data to help them get their job done more effectively and efficiently.

Are There Alternatives to NaviGate?

Some potential NaviGate customers ask about alternative approaches to acquiring a system that does some of what NaviGate does. The three most likely answers to this question illustrate the key strengths of the NaviGate approach and architecture.

Build Your Own NaviGate

The most obvious solution would be to try and build a system with the same architecture and tools as NaviGate. You might consider the following difficulties with this approach:

• **Build versus Buy.** NaviGate has been fine-tuned well over ten years of development, resulting in a very robust, high performance, and easy to use system. Building a system would also take many times longer than it takes to install NaviGate, resulting a much-delayed implementation. And you would not benefit from the years of experience our company has gained through installing this software at utilities much like yours.

• **Spread Development Costs.** Our development and maintenance efforts are spread over our many customers, allowing us to add features that would be cost-prohibitive to develop yourself, even if you could find and allocate the development resources with the necessary skills. NaviGate is very cost-effective to maintain.

• **Changing Internet Landscape.** The internet technologies used in NaviGate are under constant flux. Do you want to devote valued development resources to maintaining a system that could instead be purchased off-the-shelf?
• **Consider System Transitions.** Your current system may have some of the capabilities you need, but you will want to upgrade your system in the future. Will you still have the necessary development resources available when this transition happens?

• **Transitions and Changes Across the IT Landscape of the Utility Back-Office.** Mergers, acquisitions and frequent system upgrades of key applications will introduce new systems and dramatically impact any application linking data from business sources. NaviGate is designed to accommodate these changes and our support contract provides for appropriate adjustments to keep NaviGate running smoothly.

**Use Point Solutions**

NaviGate uses data from many systems that already have some elements of the NaviGate system as part of their core functionality. Some utilities try to use these systems instead of the integrated approach offered by the NaviGate architecture. For example:

- An outage management system might be able to map facilities and outages, or even locate outage crews.
- A GIS viewer can let web users view facilities data.
- A customer information system might have a web query interface.
- A work management system might allow web queries or even produce maps based on commercial street networks.
- Your data warehouse may have a custom reporting capability.

Consider these challenges to this approach:

- **Existing Systems are Point Solutions.** Each system has knowledge and functions to support only its core business. For example, an outage management system might have mapping capability for facilities and outages, but generally cannot display historical outage data, tree trimming, work orders, customer locations, and many other kinds of relevant information. And the software is likely to be designed for dispatchers, not for the general user population.

- **Multiplicity of Tools.** Even if you can provide mapping from every one of your enterprise systems (which is quite unlikely), you will end up using many different mapping and reporting technologies on the desk.

- **Balkanization of Data.** Data is often stored in “islands of information” or “information silos”. The use of separate point solutions makes it impossible to use data from one system to enhance the usability of another system. For example, can you:
  - Navigate to transformers in your GIS using customer information?
  - Connect from an outage to the a map of the substation service territory?
  - Produce a report on a circuit that shows information about outstanding work orders, current outage status, call-before-you-dig tickets, winter and summer
circuit loading, critical customer count, line miles, and number of transformers, all from a single report?
  * Theme a circuit service territory by outage status, work order backlog, or any of a dozen other useful parameters?

- **Multiplicity of Systems.** Because of acquisitions or the diversity of service territory, many utilities have multiple systems performing the same task. While one system may be capable of delivering reports and maps on its territory, you would have to visit multiple systems to get a consolidated view of the entire utility.

**Purchase a Large Integrated System**

It is conceivable that some utilities may wish to replace all or most of their existing information systems with a single, monolithic information system from a large systems vendor like SAP or Oracle. Such an approach has a certain attractiveness because it promises that the end-point system will be tightly integrated, cohesive, and with a single point of responsibility resting on a single large software vendor.

In comparison to the NaviGate architecture, such an approach does have some potential risks and shortcomings:

- It almost goes without saying that large, big-bang software projects are quite prone to significant delays and cost overruns. Inevitably, these overruns are only detected after substantial investment has already been made and the path back involves abandoning the sunk costs, a not very attractive option. In comparison, NaviGate is delivered as a COTS solution with no consulting services required for implementation, and if you don’t find the software suitable you can simply return it.

- One must also consider the “opportunity cost” of a long implementation process – the cost of delaying benefit for several years as a large new system is specified, negotiated, implemented, and started up. In comparison, NaviGate can be implemented rapidly, and deliver value in just a few weeks.

- A single-vendor solution can lock your enterprise into a very long-term relationship with a vendor who may never be able to provide all of the functions and features available from “best of breed” vendors. In contrast, NaviGate easily adapts to new applications as you change and upgrade your CIS, OMS, WMS, GIS, ERP, and other systems, and many of our existing customers have taken advantage of this convenience to swap out existing systems.

- Currently, no single-vendor solution has even a small fraction of the features for viewing, reporting and analysis that are currently available from NaviGate and the NaviGate add-on modules.
Licensing and Pricing

Like all of Gatekeeper Systems’ business practices, NaviGate licensing and pricing is as simple and easy to understand as our software.

NaviGate is licensed for company-wide use, with no per-user charges or limitations. The base NaviGate system license fee is based on the size of the utility (number of meters) and complexity of your enterprise information landscape (number of disparate information systems). Our add-on modules are priced at a flat rate, irrespective of the number of users or size of your organization.

Our prices are extremely competitive with those of other, less full-featured applications. Please refer to our price list on the Web for our current prices. We also offer substantial discounts when you purchase multiple modules at the same time.

Support Services

Because NaviGate is an off-the-shelf product, our support works like the support you get for other off-the-shelf applications like Oracle. We offer full support for the Core NaviGate system plus all of the NaviGate modules under a single annual support agreement. Our support services agreement covers everything you need to keep your NaviGate system running at peak performance:

- Upgrades to new software. New versions are available about twice per year, but most of our customers upgrade only when they are also adding new modules or data sources. With other software products, this is often a separately priced item called ‘subscription’; however, because of Gatekeeper Systems’ commitment to our customers, software upgrades are bundled with standard NaviGate support.

- New data sources. Our training for your System Administrator covers configuration changes for NaviGate, including adding new data sources, new reports, and additional search capabilities. But the Gatekeeper Support Staff is also available to assist you, including doing the entire configuration change if you desire.

- Bug fixes and patches to address changes in associated software. If Microsoft introduces an incompatibility in Internet Explorer, or if we need to upgrade your Oracle drivers, we will work with your systems support staff to make the changes necessary to NaviGate to keep your system running smoothly.

- Of course, our support and development staff is available for unlimited consultation via email and phone.

Please contact some of our existing customers and learn first-hand about the prompt and extremely high quality service our NaviGate support team provides.
References

Our customers are your best source of unbiased, detailed information about how NaviGate performs in real-world situations. Please feel free to contact the customers below and discuss their application of NaviGate to their enterprise data management challenges.

<table>
<thead>
<tr>
<th>Client</th>
<th>Contact Name</th>
<th>Contact Information</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>

Getting More Information

Learning more about NaviGate is easy – we can show you how it works via an easy-to-use web conferencing system. Our software demonstrations are a little different than other demonstrations you may have seen from other vendors in the past; we don’t have a “demo” system. Instead, our demonstrations make direct connections to live, production systems at customer sites. These are full-scale systems that show the power and performance of NaviGate as it is used by thousands of end users around the world.

Please contact us for a personal demonstration of the NaviGate system. Send email to info@gatekeeper.com and we’ll promptly contact you to pick a date for a demonstration.

We also have some brochures available for download, or we can mail hardcopies to you. Check our web site at http://www.gatekeeper.com/ for more information.
NaviGate™ Advanced Viewing Module

Software Product Description

Product Summary
Maps of complex infrastructure such as electrical or water networks can be quite complex, involving many overlapping and intersecting objects. The Core NaviGate system allows users to turn on and off entire layers to simplify maps, but that addresses only one dimension to the problem. The NaviGate Advanced Viewing Module can dramatically improve the readability of the maps for a particular purpose by filtering the data based on the data in the NaviGate database.

The NaviGate Advanced Viewing Module (AVM) allows relatively unsophisticated end users to “filter” which graphical objects are shown on a Navigate map, thereby dramatically improving the usability and clarity of the spatial data. Users can limit which objects are displayed based on any of the data columns associated with the data object in the NaviGate data warehouse; for example, users might filter by facility installation date, electrical phasing, capacity, outage date, transformer size, or valve type. Filters applied in AVM can carry over to other modules, such as the NaviGate Printing Module.

Description
The AVM is a NaviGate “plug-in” module, and can be added to any NaviGate system. It provides the following capabilities.

- The AVM can be configured to provide any number of filters. Each filter can apply to any number of layers in the NaviGate map. Multiple filters can apply to the same layer, so users can build complex predicates that control which data is shown based on a variety of filtering criteria. For example, if you filter by Circuit, you can restrict the viewing of conductors, transformers, switches, and outages to only those that match the selected circuits.
- There are many different “widgets” or tools available to build filters. Filters can be radio buttons or checkboxes based on lists, Boolean predicates (such as “number of customers > 100” or “percent load < 50”), dates, date ranges, and so on.
- Users can select objects on the map, and then use those objects as “examples” to populate the filter. For example, if you select five circuit objects on the map, you can then click a single button to copy all of those circuit IDs into the Filter by Circuit dialog.
- The features of the AVM can be made available to all NaviGate users, or restricted to just certain users or user groups.
- Filter settings are “sticky” through a NaviGate session, so you can build up filters and then apply or remove them as a group. You can also easily remove and replace a particular filter (say, a filter based on the loading of transformers) without losing the filter values you have input.

Data Requirements
The NaviGate Advanced Viewing Module prints the same data that is visible in your NaviGate application, but with different rendering and scale visibility rules appropriate for hardcopy output. No additional input data is required.

Installation and Configuration
The purchase price of the NaviGate Advanced Viewing Module includes professional installation of the software by a Gatekeeper Systems technician, and integration of the module into your existing NaviGate application. Contact Gatekeeper Systems for more information.

Software Prerequisites
The NaviGate Advanced Viewing Module uses the functions and features of the standard NaviGate application framework. You may add this module to any current version of NaviGate.

Support Options
Standard Support is available for this module. Standard Support provides support via email, the Internet and telephone during normal Gatekeeper Systems business hours. Standard Support also provides product updates as new versions of this module are released.

Pricing
Refer to the NaviGate Price List for current pricing. Volume and package discounts are also available. Contact a Gatekeeper Systems representative for more information.

Licensing
This module is licensed using the standard Gatekeeper Systems license agreement. The license agreement grants access to the software source code for the licensed module. A copy of the standard agreement is available upon request.

Ordering
The NaviGate Advanced Viewing Module may be ordered by contacting Gatekeeper Systems. Please specify the NaviGate version with which you will be using this module.

Delivery
In most cases, the NaviGate Advanced Viewing Module can be installed immediately. Configuration and installation takes approximately one day on site. Contact Gatekeeper Systems for currently available delivery times.

GKS Part Number: 5318-PR1-1
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Maps of complex infrastructure such as electrical or water networks can be quite complex. Users of the Advanced Viewing Module can dramatically improve the readability of the maps for a particular purpose by filtering the data.

In the example shown at right, the network in the area of interest is quite complex, with multiple circuits overlapping.

Using the AVM, users can remove unwanted map elements from view, focusing attention on the important.

Using the Advanced Viewing Module, the user selected two circuits of interest then clicked the Apply Button, and the AVM automatically filters the data to show only the selected circuits.
Filter on Multiple Dimensions

In the example at right, the map shows a complex combination of overhead and underground conductors.

Using the Advanced Viewing Module, the user can choose to view just the overhead lines or just the underground lines, resulting in a much more readable map for a particular purpose.

Using the Advanced Viewing Module, the user can choose to view just the overhead lines or just the underground lines, resulting in a much more readable map for a particular purpose.

Filtering can be based on any of the data in the database. In this case, only underground electric circuits are shown.
Express Complex Filters Easily

Filters for any group of layers can be quite rich and full-featured. Filter widgets are available for checkboxes, radio boxes, dates and date ranges, and values (equal, greater than, less than, etc.)

System Administrators Can Configure the Filters

Using a series of simple database forms, your system administrator can configure the filters for your application. As new data elements are available in your database for filtering, your administrator can configure these into the Advanced Viewing Module.

Each filter element in the Advanced Viewing Module is configured by your System Administrator.
Product Summary
The NaviGate AVL (Automatic Vehicle Location) Module provides for the display and management of wireless-connected GPS units in vehicles such as utility maintenance trucks, customer service vehicles, and emergency vehicles. NaviGate AVL displays the current and historical location of vehicles in the NaviGate software environment, and allows you to communicate with the vehicle wirelessly when two-way communication is supported by the AVL field unit.

Description
NaviGate AVL will collect data about the location of vehicles by communicating directly with AVL hardware via wireless connections over the Internet. NaviGate AVL will collect, store, and display information such as:
- Vehicle location
- Stop time and stop location (intersection or street)
- Current speed and heading
- Data from devices connected to the AVL hardware

The specific data collected depends on your choice of AVL hardware.

The NaviGate AVL module provides complete facilities for displaying AVL data in your existing NaviGate environment:
- Current location and thematic views of vehicle status (stopped, moving, on-station, etc.)
- Vehicle paths over a specified period of time for one or more vehicles
- Tooltips with more complete information about a vehicle, such as the currently-assigned work order number or driver name, including data that may be accessed from other databases in your network
- Filter your display to show just one vehicle, all vehicles of a particular type, or your entire fleet.
- Reports on vehicles, vehicle locations, and activity
- Access to maps showing historical vehicle positions.

Choose any date in the past and NaviGate AVL will display a map showing all vehicle locations recorded on that date. You may choose to display just a single vehicle, several, or your entire fleet.

Where supported by the AVL hardware, NaviGate AVL can also send text messages from a NaviGate user to the AVL device for display in the vehicle cab. Alternately, NaviGate AVL will send a message to a pager or cell phone associated with the driver of that vehicle.

Data Requirements
The NaviGate AVL Module displays all of your existing NaviGate application data together with dynamic information about the location of vehicles obtained from AVL hardware installed in your vehicles. NaviGate AVL can interface with information from a variety of AVL hardware products. Contact Gatekeeper Systems for information on support for the specific AVL hardware you are using.

Installation and Configuration
The purchase price of the NaviGate AVL Module includes professional installation of the software by a Gatekeeper Systems technician, integration of the module into your existing NaviGate. Contact Gatekeeper Systems for more information.

Software Prerequisites
The NaviGate AVL Module uses the functions and features of the standard NaviGate application framework. You may add this module to any current version of NaviGate.

Support Options
Standard Support is available for this module. Standard Support provides support via email, the Internet and telephone during normal Gatekeeper Systems business hours. Standard Support also provides product updates as new versions of this module are released.

Pricing
Refer to the NaviGate Price List for current pricing. Volume and package discounts are also available. Contact a Gatekeeper Systems representative for more information.

Licensing
This module is licensed under the standard Gatekeeper Systems license agreement. This license agreement grants access to the software source code for the licensed module. A copy of the standard agreement is available upon request.

Ordering
The NaviGate AVL Module may be ordered by contacting Gatekeeper Systems. Please specify the NaviGate version with which you will be using this module.

Delivery
In most cases, the NaviGate AVL Module can be installed immediately. Configuration and installation takes approximately one day on site. Contact Gatekeeper Systems for currently available delivery times.

GKS Part Number: 5318-AV1-1
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Display Vehicles on a Map

The map display includes the current position of all vehicles in the fleet. You can also display a “cookie crumb” trail of past positions and the duration and location of all vehicle stops.

You can configure NaviGate AVL to refresh the display automatically, or to “follow” a particular vehicle.

Simultaneous Display of Vehicles and Facilities

Show the position of vehicles together with your own facilities data. Your map can also include parcel data or other landbase information. You can customize the kinds of map data displayed.
Manage Your Fleet

The AVL application allows dispatchers and others to use a simple web browser to manage large fleets and display their position on a map.

Historical Display

Configure the application to show current data, or to display the locations of vehicles for a previous date.

Send Messages

Select one or more vehicles from the map and send a text message to their cell phone or pager.
Reports Summarize Vehicle Activity

Reports are available as HTML pages or as Excel spreadsheets.

Reports provide a quick summary of vehicle activity as a snapshot across the entire fleet or for a single vehicle for an entire day. The reports summarize current status or the history of vehicle stops for the day, including the stop duration and a reverse-geocoded vehicle location showing the nearest intersection or street address.

Application Scales to Regional or Statewide View

Manage hundreds or even thousands of vehicles over an entire state or region. Icons differentiate between moving, stopped, and parked vehicles.
Use Satellite and Aerial Photography

Available satellite and aerial photography can be used to as an aid when communicating with the vehicles on the ground.

Integrate With Other NaviGate Modules

You can use NaviGate AVL together with other NaviGate modules for functions such as Buffering, Underground Locate, or Outage and Trouble Call Visualization.
Product Summary
Buffering is the process of spatially identifying one set of objects that are near to another, such as parcels near a new shopping center or fire hydrants near a school. The NaviGate Buffering Module allows users to create, edit, and manage lists of buffered objects from within NaviGate. Lists of buffered objects can be used to generate mail-merged documents such as parcel owner notification letters.

Description
The standard NaviGate application emphasizes display of existing data sources over data creation or editing. The NaviGate Buffering Module provides lightweight data creation and editing capability for lists of objects that are identified by their proximity to one or more other objects. The NaviGate Buffering Module provides the following specific features:

- Buffers can be created around any object on the map. Objects within the buffer (e.g., parcels) can be assigned to a project as the result of one or more buffering operations. Objects can also be added by using the mouse to select them on the NaviGate map. Users can add or delete objects from the project. Only one type of data can be the target of the buffering operation (e.g., parcels or services, but not both).
- Users can create their own “projects” to contain lists of associated buffers and selected buffered objects. Projects include project information (typically, project manager or contact person), dates, standard buffer dimensions (e.g., “300 feet”) and other project-specific information. A Project Organizer lets users conveniently identify and categorize projects.
- Objects associated with a project are thematically displayed in the NaviGate application’s map window. For example, all of the parcels associated with a notification project may be shown in yellow.
- Reports on objects can either be standard NaviGate reports (including Excel spreadsheets) or mail-merged documents. Typical uses of mail-merged documents include notification letters, door hangers for utility shutoffs or public notification activities, and facility worksheets. The NaviGate System Administrator can add new mail-merge document templates to the system.
- Use the Buffering Module together with aerial photos to prepare maps with buffers layered on top of photography.
- The NaviGate Buffering Module can be combined with other NaviGate modules such as NaviGate USA (Underground Service Alerts) and the NaviGate Printing Module.

Installation and Configuration
The purchase price of the NaviGate Buffering Module includes professional installation of the software by a Gatekeeper Systems technician, and integration of the module into your existing NaviGate application. Contact Gatekeeper Systems for more information.

Software Prerequisites
The NaviGate Buffering Module uses the functions and features of the standard NaviGate application framework. You may add this module to any current version of NaviGate.

Support Options
Standard Support is available for this module, providing support via email, the Internet and telephone during normal Gatekeeper Systems business hours. Standard Support also provides product updates as new versions of this module are released.

Pricing
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Licensing
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Ordering
The NaviGate Buffering Module may be ordered by contacting Gatekeeper Systems. Please specify the NaviGate version with which you will be using this module.

Delivery
In most cases, the NaviGate Buffering Module can be installed immediately. Contact Gatekeeper Systems for currently available delivery times.

GKS Part Number: 5318-BF1-1
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Build Buffers Graphically

Select any object on the map and graphically build a buffer around it. The application will then display the parcels or other objects that are within the buffer, and add those to a list (on the left). The list of buffers and objects is maintained in the database on the server, and can be recalled by any NaviGate user.

Manage a Database of Buffering Projects

Use the NaviGate Project Organizer to maintain lists of projects. Each project has its own set of project attributes, including the default buffer offset to use when building buffers around selected objects.
**Buffer Multiple Objects**

Select multiple objects of the same type or different types, and build buffers around all of them simultaneously. Here, buffers are being constructed around fire hydrants.

Buffer 100’ around each fire hydrant.

**Automatically Maintain Lists of Affected Parcels**

When the buffer is built, the list of affected parcels on the left is automatically populated.

Parcels within buffers are selected (in yellow) and added to the list at left.
Reports on Selected Objects

Reports are available as HTML pages or as Excel spreadsheets.

The Buffering Module can also automatically create mail-merged documents, so you can easily generate standardized form letters from buffering projects.

Use Satellite and Aerial Photography

Available satellite and aerial photography can be used to as an aid when showing buffer areas, especially when communicating with members of the public.

Generate an Excel spreadsheet directly from the list of parcels within the buffer.
NaviGate: Delivering Spatial Data to the People Who Need It

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The NaviGate Dispatch Module

General Dispatch Module Functions and Windows

The NaviGate Dispatch Module provides a flexible but simple interface for viewing and managing the workload of field personnel. The Module focuses on two lists: the list of field personnel currently available and the list of work orders for a single day. Both lists are managed together, and also viewed in a map user interface.

The following figure shows the basic layout of the NaviGate Dispatch Module.

- The map works like the rest of NaviGate and displays both work order icons and crew (vehicle) icons
- Crew Window lists all currently available crews

Overall Mobile Work Orders Dispatch Window Layout and Functions

- The map works like the rest of NaviGate and displays both work order icons and crew (vehicle) icons
- Crew Window lists all currently available crews
- Toolbar specific to the Crew Window
- Work Order Window lists all work orders scheduled for today
- Toolbar specific to the Work Order Window
- The objects in the three windows are linked. Selecting a crew or work order icon in the map will also select that object in the list. Selecting a crew will allow you to filter the Work Orders Window to match that crew.
- The position of a crew is obtained from the position of the vehicle assigned to the crew. The NaviGate AVL Module provides vehicle position information.
- Work orders are automatically assigned to a crew when the work order is created. A Dispatch Daemon operates as a Windows 2000 Service to assign the crew based on a variety of criteria, including a spatial area of responsibility for each work order.

**Work Order Detail Window**

The Work Order Detail Window displays pertinent information about a single work order. Some of the data about the work order can also be changed in this window.

**Work Order Detail Window Behavior**

- Displays the details of a selected work order.
- Allows changes to some elements of a work order, including:
  - Scheduled Time
  - Duration
  - Firm Time Flag
  - Priority
  - Comments
- Buttons provide:
  - Save changes
  - Reset (discard changes)
  - Zoom to this work order in the map
  - Print Reports
- Detail
- Access to transaction history in underlying work management system.

Work Order Detail Window Use Cases
- Select a work order in the map. The Work Order Detail Window displays the details about that work order.
- Select a work order in the Work Order Window. The Work Order Detail Window displays the details about that work order.
- Select a work order. Change the work order comments. Press Apply to save the comments to the database.
- Select a work order. Change the work order duration. Press Apply to save the new duration to the database.
- Select a work order. Change the starting time. Cancel from the change by closing the window.

Crews Window

Behavior for Crew Window
- Selected crew(s) in list are highlighted in map. Crew(s) selected on map are highlighted in list.
- List shows all crews who are marked in the work order system as being “available” today.
- Crew list columns:
- Crew name (usually crew lead, or individual)
- Status (on-site, en route, unavailable, etc.)
- Last heard from (last synch)
- Scheduled Load (time and count)
- Assigned Load (time and count)
- List of crews can be used to filtered to a selected list, much like in NaviGate AVL Module.
- If one or more crews are highlighted, a Show Work Orders toolbar button provides a way to highlight just that crews work orders. You could accomplish something similar just by sorting the work orders list by crew.
- List is sortable by clicking on the column heading
- Crew toolbar functions:
  - Zoom to crew on the map
  - Print
  - Filter
  - Details
  - Show Work orders (highlight this crew’s work orders in the Work Orders Window)
  - Adjust (adjust work orders between multiple crews by opening the Adjust Work Orders Window)
  - Refresh
- Print various crew activity reports:
  - Current day activity
  - Current day activity summary
- To open the Adjust Work Orders Window for a single crew, click on a single crew and then click on the Adjust Button on the toolbar.
- To open the Adjust Work Orders Window for multiple crews, click on multiple crews and then click on the Adjust toolbar button:

  ![](image)

  Click and drag a work order from one time slot to another. Or drag the top or bottom of a work order to change the time allocated.
Crew Window Use Cases

- Click on a crew. Click “Select Work orders” to select that crew’s work orders in the Work Orders Window.
- Click on a crew. Click on a work order not belonging to this crew. Click on the “Assign to This Crew Button” to move this work order to the selected work order.
- Click on a crew. Click the Zoom button to display this crew’s current location on the map.
- Click on one crew. Click on the Adjust Button. The Adjust Crews Window opens with the calendar for this one crew.
- Click on three crews. Click on the Adjust Button. The Adjust Work Orders Window opens with the three crews shown in separate columns.
- Click on the Status column to sort by crew status. Scroll to display the crews that are In Route. Select them with click-shift-click. The crew icons are highlighted in the map. Click the Zoom button to zoom to the extent of those selected crews.
- In the map, drag a box around a group of crews to select them in the Crew Window. Click the Filter Button to filter the list to just those selected crews. Click the Select Work orders Button to select just those crews’ work orders. Click Work Order Summary Button to display a summary of those selected work orders.
- Click on a crew. Click on Reports then select the Work Order Summary Report this crew. Print the report.
Work Order Window

- Selected work order(s) in list are highlighted in map. Work order(s) selected on map are highlighted in list.
- List shows all work orders scheduled for today and work not yet scheduled.
- Click on an inspector, then click on the Auto-Schedule button to automatically generate a proposed schedule for all of the work assigned to that inspector.
- Work order list columns (not all shown above):
  - Work Order Scheduled Time
  - Assigned Crew (if any)
  - Work order Type
  - Work order Location (text string)
  - Status (on-site, en route, completed, open, etc.)
  - Project
- To move a work order from one crew to another, select the new crew in the Crew Window, select the work order to move in the Work Order Window, and Click the Add to Crew [+ ] button to add the work order to the crew’s list.
- List of crews can be filtered, much like in the NaviGate AVL Module.
- List is sortable by clicking on the column heading
- Double-click a work order to open the work order’s detail window
• Work order toolbar functions:
  • Zoom to work order on the map
  • Print
  • Filter (by type)
  • Open Work Order Details
  • Open this crew’s schedule for today
• Print various Work Order Reports:
  • Current day activity for selected work orders or all work orders
  • Current day activity summary for selected work orders or all work orders
• Double-click on a work order to open the Work Order Detail Window
  • View details about a work order
  • Change data in the Detail Window and save to the database.

**Work Order Window Use Cases**

- Click on a work order in the Work Order Window. The work order highlights in the map.
- Click on a work order in the map. The work order is selected in the Work Order Window.
- Click on the Scheduled Time column heading to sort work orders in order of scheduled time.
- Click on the Work Order Type column heading to sort work orders in order of Work Order Type.
- Click on the Crew column heading to sort work orders in order of crew’s name.
- Click on a work order in the Work Order Window. Click on Details Button to display a popup window with work order details. Change some attributes of the work order in the Details Window.
- Select several work orders in the Work Order Window. Click on the Summary Button to display the Work order Summary Window.
- Select a work order. Click on “Zoom to Work order on Map” to display that work order location on the map.
• Select a work order. Click on “Select this Crew” to select this work order’s crew in the Crew Window. Click on Summary in the Crew Window to get a summary of all this crew’s work orders.
• Select a work order. Click on Report, and select a Detail Report for this work order.
• Select a work order. Click on Report and select a Summary Report for this work order.
• Select a work order. Click on Report and select a Project Report for the project that this work order is part of.
• Click on Filter. Limit the work orders shown to certain types.
• Click on a crew. Click on a work order not belonging to this crew. Click on the “Move to This Crew Button” to move this work order to the selected crew.

Work Schedule Adjustment Windows

The Schedule Adjustment Windows are web-based applications available to all crews and dispatchers. These windows may be opened from a URL on the web via a work order Schedule Gateway page, and may also be opened from the Dispatch Module.

Work Schedule Gateway Page

The Schedule Gateway Page provides an easy way to launch the other web-based interfaces for modifying schedules.

Schedule Gateway Page Behavior

• Choose several settings before launching a Work Order Adjustment Window.
  o Time increment
  o Font size
  o Starting date
  o Single crew for the single day and multi-day Work order Adjustment Window
  o Multiple crews for the multi-crew Work order Adjustment Window
  o Check box to cause each new Adjustment Window to open in a different window. If the checkbox is unchecked, you will open a single window of each type (single day, multi-day, and multi-crew).

Schedule Gateway Page Use Cases

• Select a time increment, font size, starting date, and crew. Click the Single Day button to view that crew’s schedule for that day.
• Click the Multi Day Button to view that crew’s schedule for the selected day and the five subsequent days.
• Click Add to add that crew the Multi Crew list. Select three other crews from the Crew dropdown, clicking Add after each. Click Multi-Crew to see the work orders of all four crews for the date given.
• Click Delete to remove a crew from the Multi Crew List. Select a different crew and click Add. Click Open Schedule in New Window checkbox. Click Multi Crew to view the new group of crews in a separate window.

Crew Schedule Adjustment Window

The Crew Schedule Adjustment Window is available either as a web page or as a window launched from the Dispatch Module. The window allows visually adjusting the schedule for work orders for a single crew for a single day. It also provides a way to make basic changes to a single work order.

Crew Schedule Adjustment Window Behavior

• Window elements
  o Single-day calendar
  o Schedule summary
  o Work order Types summary
  o Work order details for a single work order
• Click-and-drag to adjust the scheduled start and end times for a work order
• Add work order comments
• View a summary of the day’s work orders, summarized by type
• View a summary of the day’s work orders, summarized by AM/PM and Firm Time Flag (Hard/Soft Time).

Crew Schedule Adjustment Window Use Cases

• Select a work order in the calendar. The work order details are displayed in the Work order Details window. Change the work order duration in the Work order Details window. Click Apply to save the new information to the database.
• Hover the mouse over a work order to view more information about it.
The NaviGate Dispatch Module

- Click-and-drag to move a work order to a different starting time. If the work order starting time moves across the AM/PM boundary (noon), the Schedule Summary on the right will change.
- Click-and-drag the beginning time or ending time of the work order to change the work order duration.

Multi-Crew Schedule Adjustment Window

The Multi-Crew Schedule Adjustment Window may be used to move work orders between crews and to simultaneously adjust the work order start times and durations.

Multi-Crew Schedule Adjustment Windows Behavior

- Choose a date from the calendar control.
- Choose one or more crews by selecting a crew from the Crew Dropdown list and then clicking Add to add the crew to the list shown in the calendar.
- Select a crew from the Crew List and click Delete to remove the crew from the calendar.
- Hover the cursor over a work order to view a pop-up window with work order details.
- Click-and-drag to move a work order from one crew to another, or to a different time slot.
- Click-and-drag the starting or ending time to change the duration of a work order.
- Change the time increment shown (the visible borders in the calendar) by selecting a time increment in the range of five to sixty minutes.
- Adjust the size of the font used to display the schedule entries to improve the window format for your particular computer monitor and use.

Multi-Crew Schedule Adjustment Window Use Cases

- Select four crews from the Crew Dropdown and add them to the Crews List. Click Find to refresh the display.
- Adjust the date to view the work orders for the same four crews, but a different date. Click Find to refresh the display.
- Change the font size and time increment to make the display more suitable for your particular purpose.
- Click and drag a work order from one crew to another.
- Drag the ending time of a work order to change the duration.
- Click and drag a work order from one time to another to make room for more work orders.

**Multi-Day Schedule Adjustment Window**

The Multi-Day Schedule Adjustment Window may be used to move work orders from one day to another and to simultaneously adjust the work order start times and durations.

**Multi-Day Schedule Adjustment Windows Behavior**

- Choose a starting date from the calendar control.
- Choose a crew’s schedule to be displayed by selecting a crew from the Crew Dropdown list.
- Hover the cursor over a work order to view a pop-up window with work order details.
- Click-and-drag to move a work order from one day to another, or to a different time slot in the same day.
- Click-and-drag the starting or ending time to change the duration of a work order.
- Change the time increment shown (the visible borders in the calendar) by selecting a time increment in the range of five to sixty minutes.
- Adjust the size of the font used to display the schedule entries to improve the window format for your particular computer monitor and use.

**Multi-Day Schedule Adjustment Window Use Cases**

- Select a crew and a starting date. View the next five days of work.
- Change the crew to view another crew’s work for the same five days.
- Change the font size and time increment to make the display more suitable for your particular purpose.
- Click and drag a work order from one day to another.
- Drag the ending time of a work order to change the duration.
- Click and drag a work order from one time to another to make room for more work orders.

**Dispatch Assignment Daemon**

The Dispatch Assignment Daemon automatically assigns crews to new work order records, based on information in the Dispatch Database. If a default crew is defined for a project, that crew will be assigned. If a default crew is not defined for a project, a table of spatial areas will be checked to find the default crew for that spatial area, and the crew found will be assigned.

**Dispatch Daemon Functions**

- Operates as a Windows 2000 Service
- Uses project location attributes stored in the enterprise database
  - Spatial boundaries for work order area form a default boundary for each crew.
  - Each project is assigned a Project Location (outside of the Dispatch Module).
  - A project may also be assigned a default crew
  - Tables of scheduled availability times for crews.
- Scans for new work orders without an assigned crew and assigns them to the default crew based on the information in the database.
  - First check for the default crew for the project. If that crew is scheduled to be available for the scheduled time stated in the work order record, assign that crew to the work order.
  - If no default crew is available, use the spatial information for the project to assign the project to a crew. If the spatial location of a work order is covered by a crew and that crew is available at the scheduled time stated in the work order record, assign that crew to the work order.
  - If the location can not be assigned to a crew who is available at the scheduled work order time, the crew assigned is left null and must be manually assigned.

**Crew Calendar Management**

The Calendar Management function allows users to maintain a database of availability about individual crews.

**Behavior of Crew Calendar Management Window**

- Implemented as a password-protected web page
- Edit the default work days and default work hours for a crew
- Assign specific days off
- Assign specific time off
- Assignments may be made by:
  - Crews for themselves. (The log-on username must match the username column of the Employee table.)
  - Defined “administrators” (dispatchers) for anyone

**Use Cases for Crew Calendar Management Window**

- A crew may connect to the Calendar Management web page. Click on a day in the calendar to make change your availability for that day.
- A dispatcher can select multiple crews and make them all unavailable for a particular date.
• A crew is out of service because one crew member goes home sick. A dispatcher makes the crew unavailable for the remainder of the day and for the next day. The dispatcher can then move the current day’s work orders from the disabled crew to other crews, using the functions previously described.

• A crew has a doctor’s appointment on Friday at 10:30. Using the Calendar Management Interface, the crew can set his status to Unavailable for the hours 10:00 to 12:00.
**Product Summary**

Construction and maintenance personnel need field access to current electronic drawings. Most utilities still satisfy this need by printing out "map books" and taking paper maps into the field. The NaviGate Document Manager Module is a NaviGate extension that maintains a complete and current set of engineering drawings and related documents on mobile laptop or tablet computers, utilizing the Web-based NaviGate platform to distribute the files.

**Description**

The NaviGate Document Manager Module manages catalogs of electronic maps and drawings. The drawings, organized by region or district, are downloaded to a laptop or other field computer. The Document Manager keeps the laptop’s catalog current, while still allowing the user to make notes and other changes and upload those changes to the central database. The module provides the following specific features:

- Document catalogs are automatically synchronized between the central repository and any number of field computers. Field computers are updated with new data and new files from the server with a single mouse click.
- Documents can be "located" on the map, either automatically (in the case of documents containing an electronically-readable spatial location) or manually (by manually drawing a bounding box in the NaviGate map).
- Uploads and downloads of changed data can be performed from a wired desktop or even in the field over slow wireless links. The Document Manager efficiently synchronizes only the data that changes, and tolerates unreliable network links.
- Uploads of large volumes of data (for example, when a new mobile computer is first initialized) can be either completed over a high-speed network or by taking a CD to the field computer. The data from the CD is efficiently and easily copied from the CD to the local machine, and the local cache is updated. Internal controls prevent older files (for example, on an out-of-date CD) from accidentally over-writing newer cached local files. Administrators can use the Document Manager’s Export function to easily produce a CD.
- Users in the office can also access the catalogs of drawings via the standard NaviGate application, and receive reports on field update of drawings and drawing data.
- Local documents can be accessed by the NaviGate Field Module to integrate locally-cached drawings and other documents with the maps in NaviGate.

**Data Requirements**

The Document Manager Module supports documents in any Windows-supported file format. The Module displays and manages the spatial location of the document in the same coordinate system (projection and datum) as the remainder of your NaviGate data. The document catalog is stored in any standard relational data source supported by NaviGate.

**Installation and Configuration**

The purchase price of the NaviGate Document Manager Module includes professional installation of the software by a Gatekeeper Systems technician, and integration of the module into your existing NaviGate application. Contact Gatekeeper Systems for more information.

**Software Prerequisites**

The NaviGate Document Manager Module uses the functions and features of the standard NaviGate application framework. You may add this module to any current version of NaviGate.

**Support Options**

Standard Support is available for this module, providing support via email, the Internet and telephone during normal Gatekeeper Systems business hours. Standard Support also provides product updates as new versions of this module are released.

**Pricing**

Refer to the NaviGate Price List for current pricing. Volume and package discounts are also available. Contact a Gatekeeper Systems representative for more information.

**Licensing**

This module is licensed under the standard Gatekeeper Systems license agreement. The license agreement grants access to the software source code for the licensed module. A copy of the standard agreement is available upon request.

**Ordering**

The NaviGate Document Manager Module may be ordered by contacting Gatekeeper Systems. Please specify the NaviGate version with which you will be using this module.

**Delivery**

In most cases, the NaviGate Right-of-Way Module can be installed immediately. Contact Gatekeeper Systems for currently available delivery times.

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**Visualize Documents on the Map**

The NaviGate Document Manager maintains a list of current documents on each laptop while also keeping all changes to those documents synchronized back to the central server.

The document catalog is shown on the left. The location of documents in the document catalog is shown in the map. Selecting a document in the list also selects it in the map, and vice versa.

**View and Edit Documents**

Double-clicking on a document in the catalog opens it directly from the local cache. If the document in the local cache is not already up-to-date with the central server, the Document Manager notifies the user who can opt to download the latest version now, or defer that operation to a later time (for example, when the laptop is connected to a faster Internet connection back at the office).

Users can change either the document itself or the document’s catalog data (for example, the name of the project the document is associated with). Changes will automatically synchronize with the central server when the laptop is connected again, either wirelessly or via a wired connection.
Maintain Catalogs by District

Users keep their laptop/field computer up-to-date on a district-by-district basis. All of the documents for a district can be downloaded to the laptop over the Web, and once downloaded the Document Manager will keep the documents up-to-date. Documents for a district may also be imported from a CD or a network-connected filesystem (when docked).

Integrate With Other NaviGate Modules

You can use the NaviGate Document Manager together with other NaviGate modules for functions such as Buffering, Underground Locate, or Outage and Trouble Call Visualization.
# NaviGate™ Field Data Entry Module

## Software Product Description

### Product Summary

The standard NaviGate system provides a primarily read-only interface for viewing Enterprise data. The NaviGate Field Data Entry Module (FDE) extends and enhances NaviGate by providing a mechanism for updating transactional data (work orders, inspection orders, service requests, etc.) or facility attribute data (pole inspection, transformer inspection, valve surveys) in the field. The Field Data Entry Module uses the NaviGate Field Option to display maps in the field. FDE provides a Supervisor interface to allow suitably-authorized users to assign work orders or other tasks to field personnel using a graphical, spatial user interface. FDE also allows you to produce paper copies of your inspections or work orders, either in the office or in the field.

### Product Description

The NaviGate Field Data Entry Module allows you to add view-and-update of transactional information to an existing NaviGate system. The Module provides the following specific functions:

- **FDE data can be taken into the field using either commodity wireless technology or in a load-and-go disconnected model.** The FDE uses the same technologies as the NaviGate Field Option to transmit data wirelessly to the field very efficiently.
- **Data captured in the field is saved locally on the field computer and will automatically synchronize when communication is re-established.** Communication with the server uses HTTP, and tolerates unreliable wireless connections.
- **When used together with the NaviGate Field Option, mobile users can visualize FED data together with facilities maps while in the field, allowing them to pick up new work and view the data on the map while still in the field.** Supervisors can graphically assign transactional data (work orders, service orders, inspection requests, etc.) to a crew or field worker. Field crews and supervisors alike can view and manage those assignment lists via the standard NaviGate user interface.
- **Supervisors can sequence work graphically by clicking on icons in the map.** This allows supervisors to easily communicate the desired work sequence to the field workers.
- **The FDE user interface is tightly integrated with the standard NaviGate user interface and provides access to all of the same NaviGate reports and features.** Configuration of the FDE is integrated with configuration of standard NaviGate.
- **Field users can use the FDE Sketch capability to sketch field data directly on top of NaviGate maps.** These sketches can then be saved to the server as images.
- **FDE data is read from and written to your enterprise systems using database exchange tables.**

### Data Requirements

The NaviGate Field Data Entry Module can be configured as part of any standard NaviGate application and shares data with the standard application. The NaviGate Field Data Entry Module requires that the data to be displayed in the Field Data Entry Module has already been configured in your standard NaviGate system.

### Installation and Configuration

The purchase price of the NaviGate Field Data Entry Module includes professional installation of the software by a Gatekeeper Systems technician, integration of the Module into your existing NaviGate application, and assistance with configuration of your field computers and wireless network. Contact Gatekeeper Systems for more information.

### Software Prerequisites

The NaviGate Field Data Entry Module uses the functions and features of the standard NaviGate application framework. To take Field Data Entry into the field with maps, you also need to purchase the NaviGate Field Option.

### Support Options

Standard Support is available for this module, providing support via email, the Internet and telephone during normal Gatekeeper Systems business hours. Standard Support also provides product updates as new versions of this module are released.

### Pricing

Refer to the NaviGate Price List for current pricing. Volume and package discounts are also available. Contact a Gatekeeper Systems representative for more information.

### Licensing

This option is licensed using the standard Gatekeeper Systems license agreement. The license agreement grants access to the software source code for the licensed option. A copy of the standard agreement is available upon request.

### Ordering

The NaviGate Field Data Entry Module may be ordered by contacting Gatekeeper Systems. Please specify the NaviGate version with which you will be using this module.

### Delivery

In most cases, the NaviGate Field Data Entry Module can be installed in one to four weeks. Contact Gatekeeper Systems for currently available delivery times.

GKS Part Number: 5318-FD1-1

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Mobile Data Management

You can use the Field Data Entry Module to take operational data into the field and keep that data tightly coupled with the NaviGate database. The Field Data Entry Module includes powerful tools for efficiently synchronizing from the central database into mobile computers, providing for update in the field, and then moving the updated data back to the central database.

The Field Data Entry Module functions in a wireless network configuration (with slow-speed and unreliable network connections) or it can be used in a “load and go” manner with synchronization at the beginning and end of a trip into the field.

Work Orders and similar data are downloadable from the NaviGate server either in the office or in the field via a wireless connection. Work Order data entered in the field is captured and uploaded to the NaviGate server, which stores the data in your existing Work Management System.

Work Orders shown in the assignment list are visible on the map, together with facilities data and a landbase.
Supervisors Can Assign Work Graphically

Using a simple and easy-to-use interface, work planners or supervisors can graphically assign work by building up “work lists” that correspond to tasks in your enterprise systems. The work lists link the tasks to objects on the map, and assign them to a field worker or crew for completion.

Field Data Capture

Each assigned work order or transaction is viewable in a form specifically designed for your field data. Users can view detailed data about the assignment in an uneditable portion of the form, and then input their work order results and other related data such as time spent and work order completion status.

All captured data is uploaded directly to the transaction database via a wireless connection. Once on the NaviGate Server, the data is written back to your work management system via system interface tables in your relational database.
Sequence Work Assignments Graphically

A supervisor or work planner can view multiple assigned tasks on the map and click on them to sequence the work. This allows the planner to provide guidance to the field crews regarding priority, routing, or traffic planning.

As tasks are selected on the map, they are automatically re-sequenced in the tabular list to aid in visualization. The sequenced list can also be “Played Back” by the planner as a preview of the assigned sequence.

Field crews can re-sequence the work while in the office, or after they move the data to their field computer.

Manage Assignment Lists

Via the Field Data Entry Module, field operations supervisors can use the map to spatially create work lists (assignment lists) and store those in your work management system. Using customizable Filters in the WOM, the supervisor can create a filtered list of Field Data Entry they wish to view on the map and in the tabular list of assignable tasks.

The assignment lists are then organized by type, geographical region, crew, and other categories.

Click-to-sequence allows the work planner to assign work to an Assignment List and simultaneously provide the field worker with the sequence in which the work is to be performed.
Field Worker
Sign-In and Crew Makeup

Crews can "sign in" to the Field Data Entry Module. A crew lead can record information about other crew members associated with the completed tasks, and this information is available to your work management system.

If desired, the Crew Makeup Module also records the vehicle in use so that the crew position can be recorded and displayed via the NaviGate AVL Module.

Pick Up Assignment Lists From the Field

Once identified to the Field Data Entry Module via the login process, field crews can browse their assignment lists and choose a list to work from. Lists can be assigned by crew, region, type of work, priority, due date, and many other configurable criteria.

Work Lists can be saved while partially complete, allowing field users to complete work over a number of days. Individual tasks can also be completed during multiple visits.
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**Field Data Entry Are Mapped Thematically**

As work is completed, the work order icon changes dynamically on the map, both in the field and in the office. The Field Data Entry Module can be configured to show different colors for various task status values, such as “Assigned”, “Unassigned”, “Completed”, “In Process”, and “Approved”.

**Print Field Data Entry in the Office or Field**

Field tasks can be selected and printed in user-selectable batches, one per page. Supervisors can give paper copies to field workers without a laptop, or workers can print their own copies at their desk and use the paper in the field. The hardcopy image can include different data than is shown in the on-screen version.

Field workers without wireless access to NaviGate can also print copies of maps to take with them, using the NaviGate Print Module, or using Windows cut-and-paste.
Sketch on top of NaviGate Map and Save Sketches to the Server

Users can make rich sketches using the built-in graphical editor. The resulting images can be saved on the server, and can be sent down with subsequent work orders.

Sketched objects are saved as PNG or GIF file, and the sketch background and foreground are saved on the server separately, and also saved as a merged image.

Sketches Can Integrate with FDE Data Capture

Sketched objects can be integrated with data input. For example, in the sample at right the numbers on the sketch correspond to the test points in the upper left data entry panel. Both the data and the sketch are sent to the NaviGate server where they may be viewed by other users, or used by other applications.
Use the Field Data Entry Module With Other NaviGate Modules

You can use the Field Data Entry Module together with other NaviGate options for managing data in the field, including the NaviGate AVL Module, the NaviGate USA Module, and the NaviGate Document Manager Module.

AVL Vehicle Positions are shown in real time.
# NaviGate™ Field Option
## Software Product Description

### Product Summary
The standard NaviGate system is designed around office use, and presumes a modestly fast Internet connection and large display screen. The NaviGate Field Option provides a new customized user interface optimized for use on generally slower wireless-connected mobile computing devices where the user interface is smaller and likely to be pen-based rather than mouse-based.

### Product Description
The NaviGate Field Option addresses the needs of a wireless-connected mobile interface to a NaviGate system. The Option provides the following specific functionality:

- A field-optimized user interface is provided. The new interface uses fewer, larger UI elements, simpler report output, and bolder iconography in the map display.
- The Field Option user interface is tightly integrated with the standard NaviGate user interface and provides access to a subset of the same NaviGate reports and features. Reports can be either identical to the reports available in the NaviGate office application, or customized from that base to make them more usable in the field.
- The Field Option provides special tools for limiting the amount of data transmitted over the slower wireless link.
- Unused features and reports can easily be edited out of the Field system, avoiding clutter and unnecessary communications overhead.
- The Field Option can use either the same user authorization database or a separate database for field users. Separate usage reports are also available.
- NaviGate applications are often configured to display large document libraries, scanned maps, and other images and “softcopy” output. The NaviGate Field Option can be configured together with the NaviGate Document Manager Module to manage a cache of documents that is synchronized from a central server but maintained in the field.
- The Field Option can be configured together with the NaviGate Work Order Module to allow your Field Option to take transactional data (work orders, inspection requests, etc.) into the field and display the transactions together with the mapping data and other reports in the Field Option.

### Data Requirements
The Field Option can be configured as part of any standard NaviGate application and shares data with the standard application. The NaviGate Field Option requires that the data to be displayed in the Field system have already been configured in your standard NaviGate system.

### Installation and Configuration
The purchase price of the NaviGate Field Option includes professional installation of the software by a Gatekeeper Systems technician, and integration of the Option into your existing NaviGate application, and assistance with configuration of your field computers and wireless network. Contact Gatekeeper Systems for more information.

### Software Prerequisites
The NaviGate Field Option uses the functions and features of the standard NaviGate application framework. You may add this option to any current version of NaviGate.

### Support Options
Standard Support is available for this module, providing support via email, the Internet and telephone during normal Gatekeeper Systems business hours. Standard Support also provides product updates as new versions of this module are released.

### Pricing
Refer to the NaviGate Price List for current pricing. Volume and package discounts are also available. Contact a Gatekeeper Systems representative for more information.

### Licensing
This option is licensed using the standard Gatekeeper Systems license agreement. The license agreement grants access to the software source code for the licensed option. A copy of the standard agreement is available upon request.

### Ordering
The NaviGate Field Option may be ordered by contacting Gatekeeper Systems. Please specify the NaviGate version with which you will be using this module.

### Delivery
In most cases, the NaviGate Field Option can be installed in one to seven days. Contact Gatekeeper Systems for currently available delivery times.

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**Field Interface**

Optimized for Laptops and Tablets

The NaviGate Field Option provides a separate, customizable user interface for field computers using the NaviGate system wirelessly.

NaviGate users in the field have access to the same data, queries, and reports. The simplified user interface removes less frequently used options, report elements, and map objects. Buttons are bigger and easier to use, and menus are distilled down to the essential reports used frequently in the field.

“Big Button” user interface is easy to use in the field with touchscreens or pen-based computers.

Simplified reports that retrieve only the data most often required in the field.

Plainly visible addresses.

**Configuration Interface**

For Report Engine

Builds Report Subsets

The NaviGate Report Engine is an integral part of the NaviGate system. For the Field Option, NaviGate reports for the field can be based on the office reports but then modified or reduced in complexity for use in the field.

The NaviGate report configuration interface lets the system administrator make a “local copy” of a NaviGate report and modify that local copy for the field application. In this way, the field application can take advantage of all of the reports used in the office, but modify those reports that are most often used in the field so that they return less data, are simpler to read, and are easier to use.

Make a copy of the report for the Field Version of NaviGate. The Field Version will continue to see the other, unmodified reports shown in the office version of NaviGate.
Separate Configuration Interface

The Field Application Configuration uses the same data as the Standard Application Configuration, but extends it with local modifications.

The Field Application has different configuration data for the Advanced Options and Maps In Use. These differences allow the Gatekeeper System Administrator to make the Field Application much simpler, without duplicating the entire application.

Configuration in these options is different in the field version and the standard version, but the rest of the configuration data is shared between the two applications.

The Field Application can “clone” reports from the Standard Application and modify the cloned report, while still sharing most of the application configuration data.
Use the Field Option together with the NaviGate Work Orders Module to take transational data (work orders, inspection requests, etc.) into the field. You can use the Field Option to view the transational data on maps while in the field.

Field workers can pick up and process work orders wirelessly in the field (or at home) and use the wireless capabilities of the Field Option to view associated facilities maps and produce the reports on objects in the map necessary to efficiently perform the job.
Use the Field Option Together With Other NaviGate Modules

You can use the Field Option together with other NaviGate options for managing data in the field, including the NaviGate AVL Module, the NaviGate USA Module, and the NaviGate Work Order Module.
Product Summary
The NaviGate Outage Management Module (OMS) is designed to help storm management personnel prioritize, and manage the restoration process when outages occur. NaviGate OMS is linked to your call center applications to alert key personnel of outages. Within NaviGate OMS, users can then determine probable outage causes and trace the “as-operated” network either upstream or downstream to determine key switchable devices and generate lists of affected customers and components along the traced network leading to improvements in key performance metrics like CAIDI, SAIFI, etc.

Product Description
The NaviGate OMS typically brings data from an organization’s trouble call system(s) into the NaviGate Core where trouble and outage calls can be visualized on a map in the context of asset and customer data. Additionally, it utilizes NaviGate Trace of the as-operated network so that outage extents and affected customers can be determined. Once an outage is detected or reported, mobile storm personnel can be dispatched to investigate an outage and determine cause. Restoration/response supervisors working closely with field teams can examine the as-operated network, run network trace and determine impacted customers and establish optimized and efficient restoration plans. In addition to providing the basis for restoration plans and dispatch, accurate lists of affected customers can be linked with the Customer Information System (CIS) to empower call center personnel with appropriate outage and restoration information.

Similar to other advanced NaviGate modules, NaviGate OMS full functionality is dependent on type and data profile available in your back-office business systems.

The OMS Module provides the following specific functions:
- Link to call-center and trouble-call systems for outage alerts.
- Automatically display outage and trouble icons on map in near real time.
- Perform network trace up and down-stream to determine affected customers and relevant switchable devices.
- Trace electric conductors by phase if that data is available.
- Easily integrated with NaviGate Dispatch or third-party dispatch solutions.
- Outage reports can be sorted, summarized and filtered for further analysis and sent to any Customer System.
- Reports can be output in Excel or XML formats.
- NaviGate OMS Module is accessible from the standard NaviGate pulldown menu.

Data Requirements
The NaviGate OMS Module can be configured as part of any standard NaviGate Core application and shares data with the standard application. The NaviGate OMS Module requires that the facilities data to be displayed in the OMS Module has already been configured in your standard NaviGate system.

Installation and Configuration
The OMS Module includes professional installation of the software by a Gatekeeper Systems technician, integration of the Module into your existing NaviGate application, and assistance with configuration of your field computers and wireless network. Contact Gatekeeper Systems for more information.

Software Prerequisites
The NaviGate OMS Module uses the functions and features of the standard NaviGate application framework. If NaviGate Trace is currently licensed prior to acquiring NaviGate OMS, discounts may be available. Please contact Gatekeeper Systems.

Support Options
Standard Support is available for this module, providing support via email, the Internet and telephone during normal Gatekeeper Systems business hours. Standard Support also provides product updates as new versions of this module are released.

Pricing
Refer to the NaviGate Price List for current pricing. Volume and package discounts are also available. Contact a Gatekeeper Systems representative for more information.

Licensing
This option is licensed using the standard Gatekeeper Systems unlimited-user license agreement. The license agreement grants access to the software source code for the licensed option. A copy of the standard agreement is available upon request.

Ordering
The NaviGate OMS Module may be ordered by contacting Gatekeeper Systems. Please specify the NaviGate version with which you will be using this module.

Delivery
In most cases, the NaviGate OMS Module can be installed in one to four weeks. Contact Gatekeeper Systems for currently available delivery times.

GKS Part Number: 5318-OM1-1
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Outage Creation

Outage calls are received and recorded, and subsequently appear on the calls list (lower left-hand window). Field personnel then respond as additional calls may be received.

In this case, two calls have been recorded and both trouble symbols (light bulb) appear on the map as well as tabular entries into the calls list.

Field personnel report that a tree has fallen on a single phase primary (see outage detail form).

Outage personnel establish an outage using the form. Time stamps and affected customers are recorded. Once established, the outage symbol appears on the map and an entry in the outage list window (upper left) appears.

Restoration plans are set and carried out to operate appropriate switchable devices so repairs can then be made while minimizing customer impact. Once repairs are complete, power can be restored by closing the same device.

Outage details, assigned crews and affected customer information is captured and maintained both as a restoration tool and digital record of the actions associated with the event.
Managing Device Operation

Field personnel coordinate with supervisors and operate switchable devices to enable repairs.

In this case a 3-phase fuse is the device. All three phases can be toggled, or individual phases depending on situational requirements.

Note that the affected network and customers becomes shaded when the fuse is open.

Similar to the example above, the operation window shows a 3-phase fuse.

Depending on the circumstances, engineers may only need to isolate the A phase.

In this case, the A phase is shaded grey and the partially-affected traced network is yellow. Customer counts on that network portion can be easily displayed.

Reporting Affected Customers

Reports can be produced listing affected customers. This information can be sent to the customer service personnel and IVR systems.

Affected customers are listed with names and contact information (removed for illustration).
Product Summary
The NaviGate Operations Visualization System (OVS) shows utility operations information via a Web-based and map-based user interface. Utilities can use OVS to display maps and reports on real-time operating activity such as trouble calls, maintenance work, construction activity, and so on.

Description
The standard NaviGate application displays data created in external data sources. NaviGate OVS enhances the data created in those external sources by analyzing the data, combining it with other data sources, and summarizing the data spatially and temporally. OVS also includes additional features in the NaviGate user interface to allow users to easily interact with the kind of dynamic data these applications involve.

OVS provides the following specific features:
- OVS provides facilities to connect to, import from, and summarize the data in transactional systems such as trouble-call reporting systems, work order systems, and outage management systems. Data from these systems is connected to facility and customer data to create integrated maps and reports.
- The locations of transactions will be shown on the map (e.g., showing a utility vehicle at the location of a customer service or facility). Icons on the maps can be linked back to reports about the transactional data, so that users can click on icons on the map and get reports about those activities.
- OVS will thematically map the transactional data. OVS can summarize transaction activity by coloring service areas, counties, electric substation boundaries, water pressure zones, parcels, and the like.
- OVS provides “drill down” and “roll up” reporting about transactional activity. For example, users can look at a summary of all work orders currently active, then “drill down” into the region with the greatest backlog, and then continue to drill down through the service hierarchy, all the way to the individual transactions or outages.
- Data from multiple different operational systems can be shown and summarized simultaneously in OVS. For example, OVS can simultaneously show trouble calls from your Customer Information System, electric outages from your Outage Management System, work orders from your Work Management System, real time weather, and “call before you dig” tickets from the NaviGate Underground Service Alert Module.

Data Requirements
NaviGate OVS displays and manages data in the same spatial coordinate system (projection and datum) as the remainder of your NaviGate data. The system can also use reference (geographic) coordinates for the managed data. The data is stored in any standard relational data source supported by NaviGate (typically Oracle).

Installation and Configuration
The purchase price of NaviGate OVS includes professional installation of the software by a Gatekeeper Systems technician, and integration of the module into your existing NaviGate application. New data types are added by a properly trained system administrator or by Gatekeeper Systems under a support agreement. Contact Gatekeeper Systems for more information.

Software Prerequisites
NaviGate OVS uses the functions and features of the standard NaviGate application framework. You may add this module to any current version of NaviGate.

Support Options
Standard Support is available for this module, providing support via email, the Internet and telephone during normal Gatekeeper Systems business hours. Standard Support also provides product updates as new versions of this module are released.

Pricing
Refer to the NaviGate Price List for current pricing. Volume and package discounts are also available. Contact a Gatekeeper Systems representative for more information.

Licensing
This module is licensed under the standard Gatekeeper Systems license agreement. The license agreement grants access to the software source code for the licensed module. A copy of the standard agreement is available upon request.

Ordering
NaviGate OVS may be ordered by contacting Gatekeeper Systems. Please specify the NaviGate version with which you will be using this module.

Delivery
In most cases, the NaviGate OVS can be installed immediately. Contact Gatekeeper Systems for currently available delivery times.

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Operational Data Shown on Your Maps

OVS can simultaneously display data from your company's multiple internal operational systems as well as from external sources. OVS combines operational data such as trouble calls, outages, vehicle locations, storm locations, and work orders with maps of your service territory and facilities.

Maps can be shown at a national, regional, state, or local level.

A simple map toolbar and powerful navigational elements provide users with an easy-to-use environment for locating and displaying the information they need.

Report Directly from the Map Interface

Data in the map is instantly available in a variety of ways.

Users can see ".tooltips" under their cursor just by pointing at an object on the map. The tooltips can be customized with data from your corporate databases.

You can get a report on any object on the map simply by double-clicking on it. Reports can contain links to other objects on the map, to other reports, to Excel spreadsheets of detailed data, or even to photographs or other websites.
**Thematic Mapping**

OVS provides pre-formatted thematic mapping of your operational data.

The OVS system automatically builds and maintains thematic summaries of your operational data such as trouble calls, outages, work orders, customer counts, or other data. These summaries are available via thematic maps, which can also show the operational details.

**Combine Facilities Maps and Operations Data**

Use data from operational systems to enhance the display of your utility basemaps.

OVS can combine the data from your mapping systems with data from an operational system such as a SCADA system, Outage Management System, Work Order System, or Maintenance Management System. The resulting maps contain much more information than is available from either system alone.

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Include External Information Systems

Data from systems outside your company can be displayed in your facilities maps.

Use data from external weather and lightning systems, vehicle location systems, or underground locate call centers ("Call Before You Dig") and show these information sources on a single map, together with your utilities service territories and

Show vehicle locations from an Automatic Vehicle Location System together with your facilities and service territories.

Tooltip shows information from both internal systems (in this case, trouble calls and outages) and external systems (in this case, weather reports).

Powerful Tabular Area Browser

Many utilities are organized into a hierarchy of service territories, such as regions, districts, substations, and circuits. OVS includes a powerful Area Browser that can "drill down" through that hierarchy and report summarized and detail data on multiple dimensions of data.

For example, you can show summaries of trouble calls, outages, vehicle activity, work orders, and lightning strikes all in a single, powerful browser. Each object in the browser is associated with a service area and linked to its location on the map.

The Area Browser can be set to automatically refresh the display every few minutes. You can also generate both detailed and summary reports directly from the browser.

Display transactional data from multiple operational systems in a tree structure that matches your service area or operational hierarchy.

Data in the Browser comes directly from your internal corporate systems. Summary data is maintained automatically by OVS.

Click on a column header to sort the column, or click-and-drag to re-order the columns to suit your needs.

Area Browser toolbar lets you automatically refresh the display on a timed basis, zoom directly to an object on the map, or generate a report or Excel spreadsheet.

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Drill Down Into Operational Data

The Area Browser also lets you drill down into operational data. Use the tree control on the left to move up or down through your service territory hierarchy, the link from those objects back to the OVS maps and reports.

Summary Reports

OVS contains many summary reports built from the operational data in your corporate transactional systems.

OVS can summarize transactional information by service territory and display those summaries in easy-to-use web pages. Each summary report also links to more detailed reports and to the maps, so that users can move from a summary report to the map view with a single mouse click.
Use Detailed Parcel Maps

If your utility has detailed parcel data available (usually available from County agencies) you can display this data together with your facilities.

Data from your internal databases (such as your customer database) can be combined with data from the external parcel data sources to produce maps and reports that show your facilities together with parcel ownership details.

Time History Report

OVS also maintains time histories of transactional activity. You can use OVS to examine the history of activity at some time in the past, and study the data in time increments of an hour to a year.

Numbers in the reports can be linked to detail reports, or back to objects on the map.
**Product Summary**

The NaviGate Point Feature Management Module allows users to create, edit, and manage notes and redlines within NaviGate (both office and field users).

**Description**

The standard NaviGate application emphasizes display of existing data sources over data creation or editing. The NaviGate Point Feature Management Module provides a tool for adding edits and transient notations to maps for other business groups to benefit from. Both notes and redline sketches can be created such as mapping error notes, abnormal device setting and other important information field personnel need to communicate to office and headquarters groups. For redlines, users can “cookie-cut” a map portion draft redline sketch information and send that markup as a document to others in the organization.

The NaviGate Point Feature Management Module (PFM) provides the following specific features:

- Users can add, delete, or move the location of any point notation.
- The system provides standard Web-based forms for adding notes of any type. Users can add notations such as a change, new position or deletion of any asset map feature and/or comments about that device or feature.
- The standard reporting features of NaviGate can be used on the added notes, providing powerful linking and navigational features for managed features.
- Features and notes in the PFM can be viewed in the standard NaviGate application. When there are many notes and note types, they can be summarized and viewed within the NaviGate Area Browser.
- Map markup panels can be created through a simple cut-out process and redlines and notes added. Markups can then be sent and/or linked to work tickets for other business groups.
- Notes managed by the PFM can optionally be linked to another feature on the map. For example, an electric delivery service point can be linked to the associated transformer, a citizen complaint point can be linked to an associated parcel or facility, or a water sampling location can be linked to a nearby pipeline.
- Notes can be categorized into different classes, for example, mapping errors/fixes, current device status, abnormal or inoperable devices, historical maintenance notes, or any other category important to your field business operations. Various note categories can be symbolized differently.

**Data Requirements**

All notational data from PFM is stored in the standard NaviGate Core relational database. When notations are entered using the NaviGate Point Feature Management Module, information is then viewable by all users. Additionally, it displays and manages data in the same spatial coordinate system (projection and datum) as the remainder of your NaviGate data.

**Installation and Configuration**

The purchase price of the NaviGate Point Feature Management Module includes professional installation of the software by a Gatekeeper Systems technician, and integration of the module into your existing NaviGate application. New data types are added by a properly trained system administrator or by Gatekeeper Systems under a support agreement. Contact Gatekeeper Systems for more information.

**Software Prerequisites**

The NaviGate Point Feature Management Module uses the functions and features of the standard NaviGate application framework. You may add this module to any current version of NaviGate.

**Support Options**

Standard Support is available for this module, providing support via email, the Internet and telephone during normal Gatekeeper Systems business hours. Standard Support also provides product updates as new versions of this module are released.

**Pricing**

Refer to the NaviGate Price List for current pricing. Volume and package discounts are also available. Contact a Gatekeeper Systems representative for more information.

**Licensing**

This module is licensed under the standard Gatekeeper Systems license agreement. The license agreement grants access to the software source code for the licensed module. A copy of the standard agreement is available upon request.

**Ordering**

The NaviGate Point Feature Management may be ordered by contacting Gatekeeper Systems. Please specify the NaviGate version with which you will be using this module.

**Delivery**

In most cases, the NaviGate Point Feature Management Module can be installed immediately. Contact Gatekeeper Systems for currently available delivery times.

GKS Part Number: 5318-PO1-2

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Using the Sketch and Redline Option

The Point Feature Manager lets you cookie-cut a copied portion of the map that becomes a new document. Users can sketch, add text and redline the document using a palette of light-weight sketch tools.

Once created, the sketch document can be attached or linked to a note or transactional processes like completed work orders or inspections.

Creating Mapping Error Notes

An automatic or manual process in NaviGate can also send the document to a mapping department or other group depending on your business process.
Manage Multiple Kinds of Notes from a Single Tool

Use the same Point Feature Manager to work with many different kinds of notes in the same map. Information such as inoperable devices, device status and simple map fixes can be managed together or separately.

Once created, notes can be viewed by others in the organization.

Edit Attribute Data Easily

In this case a mapping fix note form gets a sketch attached through an easy edit window. Multiple sketches and even pictures can be linked to the note.

Notes appear on the map associated with map features and devices. Symbols and colors can depict different note types.

NaviGate Area Browser lists notes in an intuitive tabular hierarchical format.

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**Product Summary**

The *NaviGate* Printing Module provides enhanced printing and plotting capability for *NaviGate* applications. It produces a PDF file that can be sent to the intended plotter, emailed, and/or stored for future access.

**Description**

The basic printing capabilities in *NaviGate* applications can print only what is shown on the main *NaviGate* map. While easy to use, this approach limits your ability to print to large-format plotters, plot to specific map scales (e.g., “1000, 1200, 5000 scale, etc.”), or to manage and control the labeling of objects in the hardcopy output. The *NaviGate* Printing Module overcomes these limitations with the following enhanced output features:

- Users can select specific engineering scales for printing.
- Users can define and choose from a variety of output devices, each with a specific aspect ratio and print resolution. There is no limit to the number of distinct types of output devices, orientations, or printers/plotters.
- The visibility of various elements (annotation, labels, and object visibility) is automatically adjusted for printer device capabilities and output size. The *NaviGate* system administrator can further adjust the printed map configuration to change labels, visibility scales, or other characteristics for the printed output.
- A PDF Preview window shows your printed map just as it will appear in the output.
- The printed output matches the layers turned on in the main *NaviGate* map window. Users adjust the layers in the main window and the printed output PDF is set to match those layers.
- You can control the layout elements present in the final output (including title, legend, and scale). The Printing Module refines the aspect ratio of the Print Preview PDF depending on the aspect ratio of the intended plot.
- Users can save their PDF plot files, send to others electronically or archive for future reference.

**Data Requirements**

The *NaviGate* Printing Module prints the same data that is visible in your *NaviGate* application, but with different rendering and scale visibility rules appropriate for hardcopy output. No additional input data is required.

**Installation and Configuration**

The purchase price of the *NaviGate* Printing Module includes professional installation of the software by a Gatekeeper Systems technician, and integration of the module into your existing *NaviGate* application. Contact Gatekeeper Systems for more information.

**Software Prerequisites**

The *NaviGate* Printing Module uses the functions and features of the standard *NaviGate* application framework. You may add this module to any current version of *NaviGate*.

**Support Options**

Standard Support is available for this module. Standard Support provides support via email, the Internet and telephone during normal Gatekeeper Systems business hours. Standard Support also provides product updates as new versions of this module are released.

**Pricing**

Refer to the *NaviGate* Price List for current pricing. Volume and package discounts are also available. Contact a Gatekeeper Systems representative for more information.

**Licensing**

This module is licensed using the standard Gatekeeper Systems license agreement. The license agreement grants access to the software source code for the licensed module. A copy of the standard agreement is available upon request.

**Ordering**

The *NaviGate* Printing Module may be ordered by contacting Gatekeeper Systems. Please specify the *NaviGate* version with which you will be using this module.

**Delivery**

In most cases, the *NaviGate* Printing Module can be installed immediately. Configuration and installation takes approximately one day on site. Contact Gatekeeper Systems for currently available delivery times.

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GKS Part Number: 5318-PR1-2

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Plot Setup: Customize Map Legend, Title and Scale

Pick a scale and output plot size.

Users can customize the map layers that they want to appear and if the legend is needed. You can also change the title, and control the display of the title, scale bar, and legend.

Supports Any Windows-Connected Hardcopy Device

Users can print the NaviGate map to any Windows-connected hardcopy device, including high-end engineering plotters and low-cost color inkjet printers. The NaviGate Printing Module asks for input of scale and standard output size of the intended plot. The plot shadow is shown on the map once scale and output size have been entered. The plot, when completed will be viewable in a PDF file.

Output Plot File and Preview

The NaviGate Print module produces a PDF file that is displayed on the screen. It can then be sent to a printer for hardcopy output, forwarded electronically to someone, or stored for future reference as a standard PDF.

Aspect ratio of the shaded plot size preview is set to match that of the intended plot size.

Users can choose from a list of common map scales (e.g., 1200, 2000, 5000 scale etc.)

Output plots to any Windows-connected hardcopy device, including large-format engineering plotters and low-cost desktop inkjet printers.
**NaviGate™ Trace Module**

**Software Product Description**

### Product Summary

The NaviGate Trace Module is based on the concept of the connectivity of associated assets that make up a distribution network. Within NaviGate, users can trace any network either upstream or downstream, highlight the traced network and generate lists of segments and components along the traced network.

Connectivity networks can be in the form of pipes or wires that deliver a product (electricity, gas, water, etc.) from a source or “pick-up point” to customers (usually homes or businesses). Gas, liquid or electrical networks must be continuous and allow the flow to complete the delivery to the end-user or customer. A logical computer model of the network must be maintained.

### Product Description

Connectivity information is typically maintained digitally in an organization’s GIS, OMS, or engineering analysis program(s). NaviGate usually utilizes those and/or other sources to obtain the “virtual network model” for the necessary connectivity data to make the Trace Module function. Once NaviGate captures the network model and the Trace Module is available, users can select segments of a network and trace “upstream” or “downstream” to the source or customer, or stop at any specified device along the way. Once a trace has been performed, it will highlight on the map and all connected segments and devices will be listed in the output window.

When tracing downstream, you can usually obtain a list of customers on the downstream segments of that network. Note that total functionality of the NaviGate Trace Module is dependent on the data your specific organization maintains.

The Trace Module provides the following specific functions:
- Trace electric conductors by phase if that data is available.
- Trace gas lines within pressure zones.
- Start or end trace on any device(s) maintained within the network.
- Perform network trace both in the office and in the field (assuming NaviGate Mobile platforms are available).
- NaviGate Trace module is accessible from the standard NaviGate pulldown menu.
- Elements in the trace output lists and reports maintain association to their counterparts in the map window to enhance user understanding.
- Trace reports can be sorted, summarized and filtered for further analysis.
- Reports can be output in Excel or XML formats.

### Data Requirements

The NaviGate Trace Module can be configured as part of any standard NaviGate application and shares data with the standard application. The NaviGate Trace Module requires that the facilities data to be displayed in the Trace Module has already been configured in your standard NaviGate system. Please contact Gatekeeper Systems to discuss specific data environments.

### Installation and Configuration

The Trace Module includes professional installation of the software by a Gatekeeper Systems technician, integration of the Module into your existing NaviGate application, and assistance with configuration of your field computers and wireless network. Contact Gatekeeper Systems for more information.

### Software Prerequisites

The NaviGate Trace Module uses the functions and features of the standard NaviGate application framework.

### Support Options

Standard Support is available for this module, providing support via email, the Internet and telephone during normal Gatekeeper Systems business hours. Standard Support also provides product updates as new versions of this module are released.

### Pricing

Refer to the NaviGate Price List for current pricing. Volume and package discounts are also available. Contact a Gatekeeper Systems representative for more information.

### Licensing

This option is licensed using the standard Gatekeeper Systems unlimited-user license agreement. The license agreement grants access to the software source code for the licensed option. A copy of the standard agreement is available upon request.

### Ordering

The NaviGate Trace Module may be ordered by contacting Gatekeeper Systems. Please specify the NaviGate version with which you will be using this module.

### Delivery

In most cases, the NaviGate Trace Module can be installed in one to four weeks. Contact Gatekeeper Systems for currently available delivery times.

GKS Part Number: 5318-TR1-1

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Initiating an Electric Trace

You can use the Trace Module to determine network connectivity downstream from any device.

When a start device is selected, you can optionally select an end device type (open or closed valve, etc).

When the Trace Button is selected, the trace will complete and list connected components as well as highlight the specified network on the map.

Reports and Association

When traced conductors or devices are selected either on the map or report, each instance will highlight in the map and report.

In addition to devices, downstream trace can produce connected customer lists.

To initiate an electric downstream trace, select a start point such as a switchable device or conductor.

An electric trace has been performed downstream, returning the highlighted network and lists of connected devices and conductors in the report window.

If no stop device is entered, trace will continue to ends of the electric network by clicking the "Begin Trace" button.
**Reporting Tools**

Reports can easily be produced in XML or Excel format.

Note that like most NaviGate reports, there are links to device locations on the map and additional reports with more detail about devices.

**Tracing Pipe Networks**

Similar to electric trace, performing a gas network trace required the selection of a start device, and optionally a stop device type or criteria (such as a closed valve).

The Begin Trace button is selected to perform the trace.

**Trace Output and Results**

A traced network is highlighted on the map in red. The list of devices in the trace appears on the report window and can be further refined.

In this case the report has been filtered to show only the valves in the list. Once selected on the list, valves highlight in yellow on the map.
Product Summary
The NaviGate USA (Underground Service Alert) Module provides interfaces to Call-Before-You-Dig call centers so that USA tickets can be displayed and managed in NaviGate, both in the office and in the field via a wireless connection.

Product Description
USA-specific map layers and an Options tab allow NaviGate users to view USA tickets themed in various ways, including:
- Themed by ticket status (open, active, pending, etc.)
- Themed by priority
- Themed by status (unassigned, scheduled today, completed today, deferred)

New tickets arrive from the USA call center and are stored in the NaviGate database (usually in Oracle). The NaviGate USA Module automatically assigns the tickets to the appropriate underground location personnel based on their areas of responsibility and the calculated location of the ticket.

NaviGate USA users can manage the list of their tickets directly in the NaviGate environment. They can visualize ticket locations on the map and move tickets through a standard workflow from acceptance to marking. Users can “share” tickets. Tickets with bounding boxes (when preferred) are displayed on the map as both point features and rectangles showing the ticket’s area of work. Users can edit the ticket’s area of work as an aid to marking efforts. Once completed, positive response notifications can be sent back to the One-Call Center when required.

Managers can use the map to visualize the spatial distribution of outstanding ticket activity, look at the backlog of tickets, and examine all of the data about any ticket simply by clicking on the ticket icon on the map. All of the management features are available from any Web browser.

Field users can connect to the NaviGate USA server from their office, via a home Internet connection, or via a wireless (cellular wireless data) connection. The USA module operates wirelessly at the point of work, and can also run in a disconnected mode in areas where wireless connections are poor. Tickets and all ticket activity are stored permanently in the local application before they are uploaded wirelessly to the central database.

When using the Desktop Mobile option, Field Users can also view maps when the wireless connection to the server is not available. This provides locally stored NaviGate maps just as though a live connection to the NaviGate server exists.

Data Requirements
The NaviGate USA Module displays all of your existing NaviGate application data. In addition, the NaviGate USA Module provides the flexibility to interface with a variety of USA call center ticket sources, including tickets delivered via modem and tickets delivered as email. You must also provide NaviGate USA with the boundaries of the response areas for your underground location personnel.

Installation and Configuration
The purchase price of the NaviGate USA Module includes professional installation of the software by a Gatekeeper Systems technician, and integration of the module into your existing NaviGate application and into your current USA call center. Contact Gatekeeper Systems for more information.

Software Prerequisites
The NaviGate USA Module uses the functions and features of the standard NaviGate application framework (Core). You may add this module to any current version of NaviGate.

Support Options
Standard Support is available for this module. Standard Support provides support via email, the Internet and telephone during normal Gatekeeper Systems business hours. Standard Support also provides product updates as new versions of this module are released.

Pricing
Refer to the NaviGate Price List for current pricing. Volume and package discounts are also available. Contact a Gatekeeper Systems representative for more information.

Licensing
This module is licensed using the standard Gatekeeper Systems license agreement. The license agreement grants access to the software source code for the licensed module. A copy of the standard agreement is available upon request.

Ordering
The NaviGate USA Module may be ordered by contacting Gatekeeper Systems.

Delivery
In most cases, the NaviGate USA Module can be installed immediately. Configuration and installation takes place either remotely or on site. Contact Gatekeeper Systems for currently available delivery times.

GKS Part Number: 5318-US1-2
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Integrated Maps and USA Ticket Manager

The NaviGate USA Module integrates directly into your NaviGate application. Tickets can be visualized on the map and managed from the USA Ticket Manager from within your Web Browser.

Visualize Locate Areas and Facilities

Tickets are retrieved from the appropriate call center. In this case they include bounding locate areas. These areas are enhanced by the NaviGate USA Server using ticket data such as address together with landbase information such as parcels, intersections, and streets.

Facilities are shown on the map together with locate request information.

Ticket Management

Underground locate requests (tickets) can be displayed and managed in the field application. The locator can add ticket transaction information such as number of facility locates (markings) performed, actions taken, and comments.

Tickets can also be transferred to another field crew, printed, or have the spatial information (affected area) edited.

Ticket icons show positions of underground locates

USA Ticket Manager works wirelessly, connected, or disconnected.

Area of underground locate request is shown on map and can be edited by the user.

Detailed facility information from your AM/FM/GIS systems is shown on the map.

Ticket editing toolbar includes tools for measuring map distances and for editing the locate ticket’s affected area.

Field personnel can record the actions taken on this locate request.
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Reports Provide Analysis Tools

Reports integrated into the NaviGate USA system assist in understanding locate request activity and managing outstanding tickets. Reports can be displayed in MS Office tools such as Excel and Word. Summary reports are available to track locator workloads and backlogs. Map images, drawings, and other documents can be pasted directly into the Office document.

Image of Printed Ticket

Underground locate request tickets are available in the system in the same format as the printed tickets your locators are already familiar with. These ticket images were captured directly from the USA Call Center and are preserved as a permanent record of the information sent by the Center.

Ticket Modification History

Ticket image is identical to existing paper tickets.

Ticket image is identical to existing paper tickets.

Ticket modification history shows all of the transactions against this locate request.
Use Satellite and Aerial Photog- 
raphy

Available satellite and aerial photography can be used to aid in finding and understanding underground locate requests, improving locate efficiency. When available or required, locate area boundaries drawn in NaviGate USA are shown directly on top of orthophotography and AM/FM/GIS facilities data.

Record Drawing Display

Drawings from a variety of external sources can be displayed within the NaviGate environment. Scanned drawings can be shown as a backdrop on the facility map used to display locate requests. Scanned drawings, CAD documents, or details can be accessed from the NaviGate field application and displayed on the locator's PC.

Integrate With Other NaviGate Modules

You can use NaviGate USA together with other NaviGate modules for functions such as Automatic Vehicle Location, or Outage and Trouble Call Visualization.
**Thematic Maps Provide Visualization of Underground Locate Activity Levels**

NaviGate includes a number of thematic maps to aid in the analysis of ticket activity, including maps showing recent locate request activity, currently outstanding requests, and request complexity (average number of locates per ticket).

**Field Users Can Access Locally-Stored Atlas Sheets or Other Documents and Images**

Field Users can even view maps when the wireless connection to the server is not available. Using the NaviGate Desktop Mobile module, users can continue viewing locally-stored maps while disconnected to the server. All standard functions of NaviGate are available to disconnected field users using the NaviGate Desktop Mobile features with USA.

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Red areas have more underground locate tickets than blue areas, and are thus “hot” areas of activity.

Click on the selected ticket to open inspection details. Sketches or documents optionally linked could also be viewed.