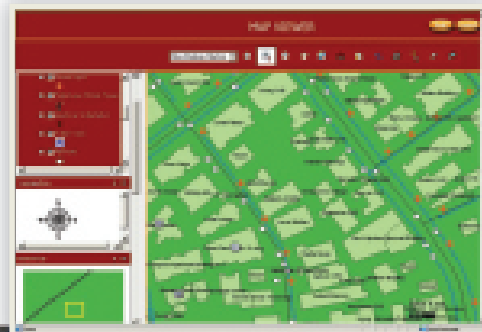
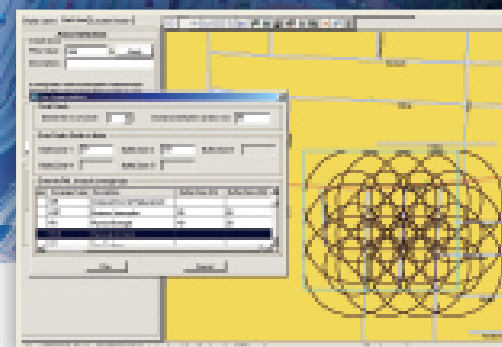
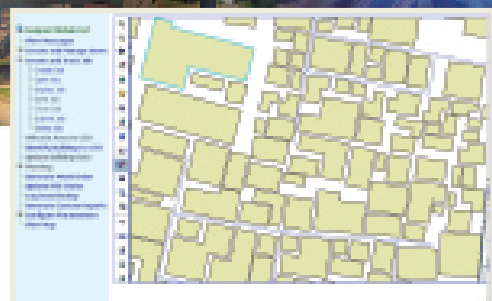


Providing end-to-end GIS services to global customers



This **Municipal Corporation** in India selected ESRI India for **complete GIS consulting** to implement its e-governance initiative. The project involves application level integration of property tax, water tax, and citizen services based on enterprise server architecture and creation of comprehensive spatial database from various sources including high-resolution images, field survey, and attribute information.



This **Telecom Company** in India entrusted ESRI India with development of online enterprise telecom GIS application, for work-order based workflow management, related to telecom network planning and management for OSP and ISP sub-systems. This system is being used by over 200 corporate & external users and is expanding.

ROOM Solutions UK selected ESRI India to redevelop and extend functionality of their **legacy insurance**. The application enabled users to view customers and assign risk factors to areas by providing probable maximum loss values. It provided facility to view risk exposures of locations by running aggregation risk exposure analysis based on prevalence of natural hazard catastrophes such as seismic, floods and other risks as well as the windstorm perils of hurricanes and typhoons.

End-to-End GIS Solution



ESRI India Consulting accelerates your GIS implementation by providing one stop solutions that blend pre-implementation studies, solution architecture, GIS database model design, database services, application customization, and integration of your SAP, SCADA and other IT & GIS systems and databases.



Detailed information for end-to-end GIS Consulting Services is just a phone call away.
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Event Coverage
2008 ESRI International User Conference (ESRI UC)

Technical Article
Enterprise GIS and the Smart Electric Grid

TAMILNADU

Remote sensing and GIS in water mapping



ICA Award for Jack Dangermond

The International Cartographic Association (ICA) presented ESRI President Jack Dangermond with the Carl Mannerfelt Medal this morning. The Mannerfelt Gold Medal is the ICA's highest honor, first awarded in 1980 to recognize extraordinary merits in cartography including the conception, production, dissemination, and study of maps. Dangermond is only the 11th recipient of the medal.

Jack Dangermond was conferred with the Mannerfelt Medal to recognize his development of new cartographic tools, the creation of digital atlases, and his promotion of cartography. Especially innovative is ESRI's use of maps and GIS to assist in many areas of human activities, ranging from crisis management in disasters, such as the recent cyclone in Myanmar, to issues of health and geography.

ESRI President thanked the delegation, commenting: "It is such a privilege to provide the software and tools giving our users the capability to create real change in our world. This award exemplifies the mission of ESRI. I can think of no better place to receive this



award than here at the ESRI International User Conference, where we are surrounded by thousands of people who use cartography in innovative ways every day

Map Gallery / User Software Applications Fair at ESRI UC

The 2008 ESRI UC was truly a place for GIS professionals to shine. Major attraction at the User Conference this year was the Map Gallery and User Software Applications Fair.

Map Gallery showcased more than 850 map products, posters and multimedia map projects were on display. This year's inspiring

collection illustrated the latest achievements of ESRI's creative and innovative users. The map gallery was visited by thousands of visitors. The most Popular and People's choice map display was of The Spatially Interactive Literature Analysis System (SILAS) by Stephen Benzek University of Redlands; followed by the Best Overall Map display by Qatar's Unique NationWide GIS Data Sharing by Mohamed Hamouda, The Center for GIS, UPDA State of Qatar.

Including digital maps for the first time ever, this year's ESRI UC Map Gallery also showcased GIS use in a captivating way. Multimedia Map Gallery entries illustrated the results of using ESRI technologies in a project or study but did not use ESRI software to run the presentation itself.

User Software Applications Fair, where conference attendees dropped by to view custom maps and see demonstrations of applications that use ESRI software to meet specific end-user requirements. The software applications displays included the Desktop GIS Applications, Web Based Applications and Embedded GIS category. The overall winner was Qatar GIS from The Centre for GIS, UPDA, State of Qatar.

International Support Council - ESRI Support Services

During ESRI User Conference 2008, ESRI Support Services had introduced a new program "International Support Council" where selected international support staff was involved with ESRI Support Services during User Conference.

This council was comprised of ESRI Support Services management and support professionals of the ESRI International Distributor community who have a common interest in improving the technical support experience of our customers. Involvement with the International Support Council provides a collaborative forum for expressing ideas and opinions to help guide the future of International Support.

ESRI India among all International distributors was one of 11 distributors who got this opportunity to work in association with ESRI Support Services to interact with their users World-wide.

This provided an opportunity to International distributors to see how ESRI Inc handles their Technical Support Island, interact with ESRI staff on a one-on-one basis and attend relevant technical sessions related to ESRI Support Services.

As a part of "International Support Council", members also got opportunity to

- Participate in Technical Support Island in supporting conference attendees
- Attend ESRI Support Services sessions on :
 - i. User Advocacy Group: Introduction and Overview
 - ii. ESRI Support Center: Improvements and Initiatives
 - iii. ESRI Support Services and International Distributor: Visibility and Transparency
 - iv. ESRI Support Services: Operations Roadmap Planning

ESRI Support Services under their ISC Program is now planning to conduct monthly meetings with representatives of the International Distributors' Support Units. This will continue on the idea of active involvement to improving Support Services and the distributor relationship with ESRI.

Enterprise GIS and the Smart Electric Grid

- Bill Meehan , Director Utility Solutions, ESRI

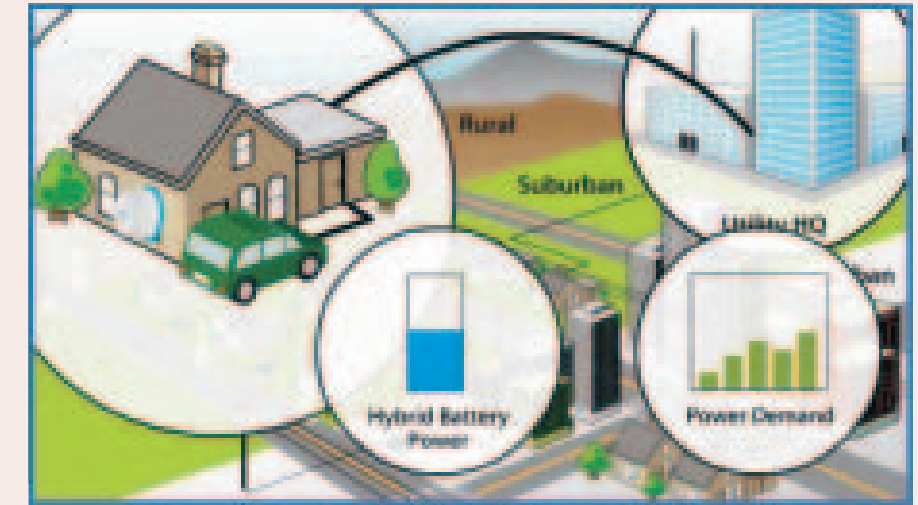
Introduction:

With continuous rise in consumer demand, the Electric utilities are facing serious challenges in managing their services efficiently and cost effectively. The odds are that, in a few short years, electricity is going to play a much more prominent role in other sectors like Transportation also. As per predictions of the CEO of a very large electric company in the United States, the electrification of the transportation industry would happen in his lifetime itself. This is noticeable from the increasing number of hybrid vehicles being introduced in the market and several major automakers would be offering plug in hybrid vehicles in less than two years. In India, for example, Reva, Tata and Chennai's Bavina Industries are quickly building electric cars for the consumer market. Should a significant rise in the use of electricity for transportation materializes, as it likely to happen, demands and electric energy usage are bound to soar. Meanwhile, the existing electric infrastructure continues to age, while countries like India are expanding electric usage to vast rural areas. Within a short period, a large percentage of skilled workers will reach retirement age. In all likelihood regulators outside of Europe will institute a new Carbon Cap and Trade system in 2009 causing electric utilities to rethink nearly every process they perform. Increasing 21st century customer demands, the need for additional facility physical security and the ever present need to keep costs under control will force utilities to operate differently and smarter.

In order to competently deal with these challenges, Smart Grid undeniably seems to be a smart choice for the utilities.

What exactly is a Smart Grid:

Smart Grid is a transformed electricity transmission and distribution network or "grid" that uses robust two-way communications, advanced sensors, and distributed computers to improve the efficiency, reliability and safety of power delivery and use. In December 2007, United States President George W. Bush signed into law the Energy Independence and Security Act (EISA). Title 13 of this law is called Smart Grid. So the United States Government officially recognized the term Smart Grid. Other terms for Smart Grid are



Intelligent Grid and Intelligent Utility Network etc.

The Smart Grid is not a piece of hardware or a computer system, but rather a concept. While there are many facets to the concept, it really is about three things:

1. More effectively managing load
2. Providing significantly more automation during restoration after an outage event
3. Providing more interaction between providers and consumers

How a Smart Grid helps in solving the challenges noted above

- **Interactive with consumers and markets:** A Smart Grid is interactive in nature this and thus can enable electric companies in understanding what individual consumers are doing at any given time relative to their consumption. It also means that utilities can provide consumers with price signals and information about the implications of their energy usage. For example, customers could find out the price (or cost) of turning on their air conditioners. A smart grid could also assist in detecting areas of theft of current and taking necessary measures to prevent it.
- **Adaptive to New Conditions:** A Smart Grid is adaptive to new conditions and can facilitate the electric system to respond to the change without human intervention. So if a circuit were nearing its loading limit, the "smart grid" could

take action to automatically reconfigure the network in an attempt to relieve the overloading condition. The grid can be "self healing" by switching around problem areas to minimize outages.

- **Optimized to make best use of resources:** Electric demands tend to spike during the hottest part of the day and of the year. This requires electric companies to maintain large reserves of capacity. By allowing the grid to smooth out the demands, utilities can better utilize existing facilities.
- **Predictive and not reactive to prevent emergencies:** A smart grid will have many thousands of sensors to help operators in having a better understanding of the way the system is running. Operators will have the tools to predict a failure before it happens and can take appropriate action. That action may be automatic, which even with today's sophisticated SCADA systems and Distribution Management Systems does not happen and operators do most of the switching based on their interpretation of the situation.

How the Smart Grid Concept be Implemented

In order to successfully implement the concept of Smart Grid, Utilities will need to add additional components such as:

- Smart Meters the key to the smart grid is the complete installation of smart meters that are designed to measure consumption on a very small interval of

time (seconds or less), saves that consumption in memory and is able to communicate that consumption and associated time interval back to the utility. In addition the smart meter can communicate energy use to the consumer as well. Some smart meters can automatically disconnect the load and lock out power from flowing. In effect the smart meter provides the linkage between consumer behavior and electric energy consumption.

- Energy Storage Systems these could be enhanced batteries, fly wheels or compressed air systems. The idea of energy storage is to flatten the peak, so as to allow utilities to better utilize the most efficient and environmentally sound generation options.
- Outage Management Systems (OMS) most OMS's use sophisticated prediction engines based on customer phone calls and network models to determine outage locations. OMS's linked to smart grid will not be based on a prediction engine using phone calls but on a sensor network and will be far quicker and more accurate.
- Distribution Management System (DMS) - a DMS provides the means to reconfigure and analyze the electric network. In a smart grid, the DMS and OMS will converge into more of an automated analytical engine that makes decisions based on the information from the sensor network and smart meters about loading, predictive equipment failures and of course outage and restoration.
- Sensors (fault, voltage, current) the smart grid will have sensors along the distribution network that communicate the condition of the distribution system to the central smart grid processors. Most electric systems around the world have very little communication of the state of the system beyond the main supply substations. In fact, in most electric utility systems today, the utility is virtually blind to problems in the field.
- Communications Networks the key to the smart grid is the ability to communicate the state of the system from the sensor network both to the utility and to the customers. The electric distribution system will grow from a single network to a dual network system; one network representing the power system and the other an advanced communication network. The two systems will be integrated.
- Data Management of Meters and Sensors - There needs to be a means of collecting all the data from the sensors

and smart meters in order to make decision about self healing the grid or load shifting or just creating proper bills. So there needs to be sophisticated data management systems in place to store historic and current real time data about the system.

- SCADA systems - Traditional SCADA systems are early smart grid technologies. However their reach is usually limited to substations and a few major distribution automation devices like remote controlled disconnect switches. However the data managed by SCADA plays an important part of any smart grid implementation.
- Real time analytic engines - Smart grid will need complex engines that analyze the network to determine the current state and condition of the system, predict what may happen to the system and to develop a plan of what to do with the system. These engines will need data from a variety of sources, both managed by the utility and by outside parties (like weather services).
- Enterprise GIS - A critical part of Smart Grid is the underlying electric and communications network. GIS provides the tools, applications, work flows and integration ability to support the smart grid.

The combination of smart meters, data management, communication network and applications specific to metering is advanced metering infrastructure or AMI. So AMI plays a key role in Smart Grid. Many utilities begin their smart grid implementation with AMI.

The Broader Role of Enterprise GIS in Smart Grid

It is widely recognized that GIS plays a strong role in managing traditional electrical transmission and distribution and traditional telecommunications networks today. So GIS will continue to play a strong role in managing the smart grid by creating an inventory of both networks. The GIS provides the most comprehensive inventory of the electrical distribution network components and their spatial location. With the addition of a sophisticated communication network superimposed on the electrical network, the management of the data of the system becomes twice as critical. Having two separate and not related inventory systems for power systems and communication systems would be ineffective.

GIS will help manage the data about the condition of utility assets. After parts of the system go in service, utilities must maintain the system. So they must collect and maintain asset condition data. Some of the condition data can come from automated

systems and other from inspection systems. The GIS and its mobile components allow utilities to gather condition data. Utilities are rapidly adopting GIS based mobile devices for inspection and maintenance.

The power of GIS helps utilities understanding the relationship of its assets to each other. Since the smart grid is two networks (power and communications) it is critical that utilities understand physical and spatial relationships among all the components. These relationships will form the basis for some of the advanced decision making the smart grid makes. Smart grid must have a solid understanding of the connectivity of both networks. GIS provides the tools and work flows for network modeling and advanced tracing.

GIS also helps in the understanding of the relationship of the various networks in to the surroundings. It also understands the relationship of the systems to the environment. This will be critical for restoration, storm tracking and security monitoring.

The GIS is an ideal tool to help to determine optimal location for smart grid components. During the roll out of smart grid, utilities will need significant analysis to determine the right location for sensors, communication marshalling cabinets and a host of other devices. They need to run fiber optics in conduit and on poles. GIS provides the proper means to perform these design services, since the optimal locations depend so heavily on the existing infrastructure.

Finally, GIS can provide a spatial context to the analytics and metrics of smart grid. It can help track the metrics over time and provide a convenient means of visualizing trends. Since the Smart Grid is supposed to be smart, it must have the ability to provide advanced analytics about how the grid is performing. It must track trends in the performance of equipment and customer behavior and keep track of key performance metrics.

Why GIS is so important to Smart Grid

Enterprise GIS is a framework or platform that underpins an electric utility information technology system. Other platforms that make up the utility IT system include SCADA, Customer Billing/Financial Systems, and Document Management Systems. Enterprise GIS authors or creates spatial information about the utility assets (poles, wires, transformers, duct banks, customers) and serves that information to the enterprise. The core business applications then mash up or combine the data served from the GIS, SCADA, customer systems, along with other information from outside the utility, like traffic or weather systems or imagery. Then

utilities use this combined information for a whole host of business applications, such as visualizing a common operating picture to inspection and maintenance to network analysis and planning.

From a smart grid perspective, the GIS can visualize the electric and communications systems and the relationships that exist between them. It goes well beyond the traditional "stare and compare" method commonly used by utilities to a more "see relationships" notion. The GIS provides a means to monitor and express the health of the system in an obvious way. "Show me all the sensors that have failed to report results in the last hour." The GIS can show the real time view of the grid and note where things are changing. In effect, the GIS (as compared to a SCADA system) can show the complete state of the grid represented in a realistic model of the grid in a way that people understand.

Moreover, the GIS can actually control parts of the grid. It can be the heart of a distribution management system or at least integrate with one. The technology can recommend ways to get the grid back to normal after an abnormal event. Or it can automatically have the grid do something different. The notion of smart grid as driven by the GIS would help the grid adapt to changing situations based on the information from the thousands of sensors. This would help prevent outages and equipment failure. For example, in the United States utilities do not monitor the vast majority of distribution transformers. So if the load on any of these transformers rises well beyond its capability, it can fail. With monitoring, the smart grid would be able to determine if the transformer has experienced past stresses and may have lost some life. Then as the transformer approaches a dangerous limit, the smart grid could take preventive measures to avoid the catastrophic failure of the transformer. The GIS would then perform a spatial analysis that determines the risk of failure and the customer impact. The smart grid algorithms in concert with the GIS could determine whether to reduce load at the customers' sites or reconfigure the network to relieve the load or actually do some preemptive switching.

The Challenges

It is hard to imagine implementing a smart grid without a detailed and comprehensive network model contained within the GIS. However, utilities must face a number of challenges to assure the effectiveness of their smart grid program. The first is that the data quality that exists in the GIS must be outstanding. It is one thing to have a few errors on a planning or asset management map. While not desirable, it is even somewhat tolerable to have some inaccuracies in the GIS data that feeds

outage management systems. However, it is not tolerable to have incorrect data in a system that automatically controls the electric distribution system. Errors could result in increased outages or worse, accidents. So utilities must carefully examine their data updating processes and quality assurance procedures. There are a number of excellent standards that exist throughout the world for the processing of critical infrastructure data. Those standards and processes should be tested and strictly adhered to. Historically utilities maintained a large backlog of documentation about completed work in the field (as-built sketches backlog work orders) that are to be posted to the GIS. So utilities must measure the time from when a change occurs in the field to when the change is reflected in the GIS. For example if the utility installs and energizes a sensor, the GIS (and the smart grid algorithm) must reflect the data about that sensor in a relatively short period time. As the time increases from seconds to minutes to days to weeks, so does the risk of something going wrong increases.

Some utilities have built their GIS on a less than accurate land base. Since GIS has been around for in excess of 20 years in utilities, GIS pre dates GPS. So utilities that continue to base their facility location on antiquated grid systems will not be able to successfully use the GIS until they correct the land base and the facility information to be spatially correct. There are some advanced tools available to help in this process but even with these tools, to correct a GIS to an accurate land base is highly labor intensive and time consuming. For utilities that have not yet built a comprehensive GIS of their infrastructure, they should build the most accurate and GPS compliant land base as possible.

Other utilities have built their GIS piecemeal, with some parts of their service territory converted to digital form while others still in CAD or even paper form. Many have only converted their primary data, but not their secondary networks. Others have converted rural overhead areas, but have not converted their urban networked areas. This piecemeal approach is not effective if the GIS is to be the heart of the electrical system (whether urban, overhead, underground, networked, radial or some combination) will limit the overall effectiveness of the smart grid. Installing smart meters in areas where the utility has not modeled the electrical network will inhibit much of the usefulness of the equipment. In this case the use of the smart meter will probably be limited to billing.

A very large problem, particularly for countries like India, is the lack of good customer addressing information. Even in countries such as the United States where

virtually every premise has a physical address, such as 125 Elm Street, utilities still struggle with keeping this data current. Some of these utilities don't have tight processes to make sure that as they add a new customer, they properly link the data directly to their GIS. If the GIS does not have an exact correlation of the customer premise and the electric system, any hope of automation and self healing will be lost. In regions where customer addresses don't exist, utilities will need to create some kind of coding system that uniquely identifies a customer location to a point in space and to the electric distribution system. Otherwise, it will be impossible to build a smart grid. Once the system is in place, it is critical that utilities have a full proof quality assurance process that guarantees that as they add new customers to the system, they reflect those customers as connections to the electrical network.

Summary

Enterprise GIS should be an integral part of Smart Grid. Since the idea of a smart grid is to add more monitoring and control to the electric system, it is imperative to have a solid model of all of the electric assets, their condition and their relationship to one another, to customers and to the telecommunications systems that will drive the smart grid. Utilities must have processes and procedures in place to assure accurate and timely GIS data. Otherwise, the smart grid will be making automated decisions based on false information. Today, utility dispatchers make the vast majority of switching decisions based on their own human interpretations. Lacking human intervention, the smart grid must rely on a near perfect GIS model of the electric system.

GIS is indeed a transformational technology. In concert with the smart grid technologies like advanced sensors, smart meters, energy storage devices, renewable energy systems, the GIS will certainly contribute the transformation of the grid from a largely passive and blind system to an interactive and intelligence system. It will communicate with consumers and consumer devices and will make decisions to help lower costs, improve equipment utilization and reduce carbon emissions. To do this, utilities should fully integrate their GIS into the overall IT framework of a utility.

Finally, the GIS is a wonderful tool to help in the deployment of smart grid itself. Utilities can monitor construction progress, route crews in the most efficient way and help with analysis for locating the best location for repeaters, sensors and new communication backbones.

So the smart grid can't really be smart without GIS.

ArcGIS 9.3 : Useful Functionalities & Handy Tips

ArcGIS Desktop

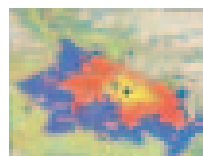
Add useful online content to your maps.

1. In ArcMap™, open one of your existing maps or choose File > New and choose one of the USA or world maps.
2. Choose File > Add Data from Resource Center. This launches the Online Layers page in the new ArcGIS Desktop Resource Center.
3. Click the layer you want to add to your map.

The layer will automatically be added to your map. Some of these layers, such as World Imagery and World Street Map, are services from ArcGIS Online. Others reference services being served by government and educational institutions.

Create new data layers from graphics you draw on your maps.

1. Use one of the drawing tools on the ArcMap Draw toolbar to draw



some graphics on your map. For example, use the Polygon tool to draw two polygons.

2. (Optional step) Give each polygon a name by double-clicking each one with the Select Elements (black pointer) tool, going to the Size and Position tab on the Properties dialog box that appears and entering a name such as Study Area 1 or Study Area 2 in the Element Name field.
3. Select both polygons by dragging over them with the Select Elements tool.
4. Choose the new Convert Graphics To Features command from the Drawing pull-down menu on the Draw toolbar. On the dialog box that appears, check the option to delete the graphics after conversion. Click OK, then click Yes when you are prompted to add the layer to the map.

You'll see a new polygon layer appear in your map containing two features. If you identify these features, turn labeling on, or open the attribute table for the layer, you'll see that the names you specified in step 2 are in the Name field for the polygons

Sort tables on multiple fields.

1. In your map, right-click any feature layer in the table of contents and choose Open Attribute Table.
2. In the table window that appears, right-click any field and choose Advanced Sorting.

This dialog box lets you sort your table using up to four fields. At 9.3, sorting is also persisted in the table window, so you can sort a table any way you choose and it will stay that way.

Access attributes via new HTML pop-ups.

1. In ArcMap, open one of your existing maps or choose File > New and choose one of the USA or world maps.
2. Double-click any layer and go to the new HTML Pop-up tab.
3. Check the box that says Show content for this layer using the HTML Pop-up tool, and click OK.
4. Click the new HTML Pop-up tool on the Tools toolbar.
5. Click one of the features in the layer.

Any HTML links or formatting stored in the attribute table for the layer will be reflected in the pop-ups that appear, enabling you to go beyond a simple table of attributes. HTML pop-ups support XSL templates to allow you to customize how data is displayed in the pop-up window. These pop-ups are also supported in ArcGlobe™. Tip: To prevent features with HTML pop-ups or hyperlinks from changing color when you select those tools, use the setting in the Tools > Options > General tab.

ArcGIS Server

Create a Web mapping application consuming an ArcGIS Server service.

1. Open a Web browser and navigate to www.esri.com/javascript.
2. Follow the Getting Started link and select the Adding a map help topic under the Getting Started concept in the TOC.
3. Click the Show Me link at the top of the help topic. A new browser window will open with a JavaScript™ API map.
4. Right-click anywhere on the new Web page (besides the actual map) and select View Source if you are using Internet Explorer® or View Page Source if you are using Firefox®.
5. A new window will open displaying the HTML code for this page.
6. Copy the HTML code into a text file on your computer.
7. Save the file as an HTML file and place it into a Web server. If you do not have a Web server, try uploading this file into any free hosting site such as <http://geocities.yahoo.com>. Simply navigate to your HTML file using a Web browser.

ArcGIS Explorer

Add a GeoRSS feed and text file.

1. Download and install ArcGIS Explorer from <http://resources.esri.com/arcgisexplorer>.
2. Launch the ArcGIS Explorer application.

To add a GeoRSS feed

- a. Go to File > Open > Servers > GeoRSS Feed.
- b. Add the following feed into the Server Content:
<http://earthquake.usgs.gov/eqcenter/shakemap/rss.xml>
- c. Click the USGS Earthquake ShakeMaps feed and follow the dialog box to add this feed to ArcGIS Explorer.

To add a text file

- a. Visit www.spc.ncep.noaa.gov/climo/reports and download a tornado, hail, or windstorm report in CSV format.
- b. To open the text file storm report in ArcGIS Explorer, do the following:
 - i. Go to Tools > Import File.
 - ii. Browse to the downloaded text file and click Open.
 - iii. Progress through the dialog boxes and select a symbol. Click Finish.

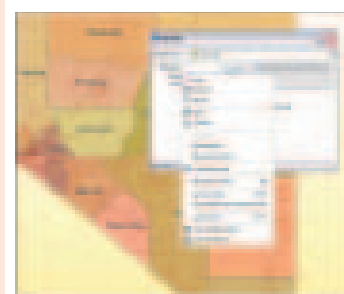
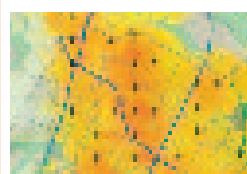
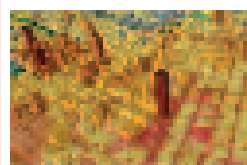
The storm events for the day you selected are now located in ArcGIS Explorer.

Handy Tips

Access Layer Properties and Attributes with Identify Tool

If your map contains many layers and you want to change a layer's properties or view its attribute table without hunting for it in the Table of Contents, use the Identify tool.

1. Choose the Identify tool from the Standard toolbar. Click a feature in the map.
2. In the left pane of the Identify window, right-click



the name of the feature.

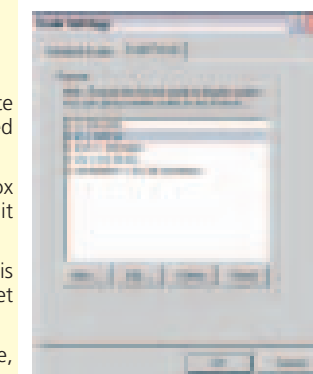
3. In the context menu, choose Layer Properties to open the Layer Properties dialog box for that layer or choose the Open Attribute Table to open the attribute table for that layer.

The Layer Properties and Open Attribute Table options are located at the bottom of the context menu.

Choose the Map Scale Format

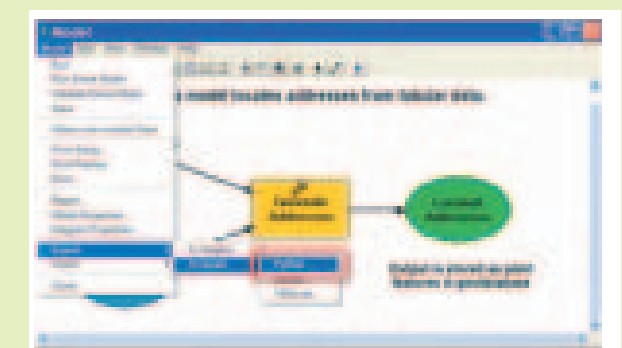
With ArcGIS 9.3, not only can you enter relative map scales (e.g., 1 inch = 100 miles) and have ArcMap™ translate them to absolute scales (1:6,336,000), but you can also report scales as relative or absolute using predefined formats in ArcMap or custom formats you define.

1. To specify a scale in relative units and have it translated into absolute scale, simply select the text in the Scale box in the ArcMap Standard toolbar and type the desired scale. The display will zoom to this scale. You can use unit abbreviations such as "in" for inch or "m" for meter.
2. To change the type of scale format, click the drop-down list next to the Scale box and choose the Customize This List option. On the Scale Settings dialog box, click the new Scale Format tab and use the New, Edit, Delete, or Reset buttons to create or modify the scale setting.
3. Choose the desired format. Relative formats can be easier to work with than absolute formats. For example,



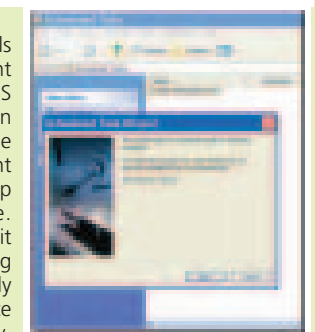
you'll see 1 in = 100 mi instead of 1:6,336,000. ArcGIS 9.3 adds support for the prime (') and double prime (") characters to indicate inches or feet, and those characters are supported in both straight and curly format so that text may be more easily copied and pasted from Microsoft® Word documents and Adobe® PDF files.

Utilize Windows to Schedule and Execute Geo-processing Workflows

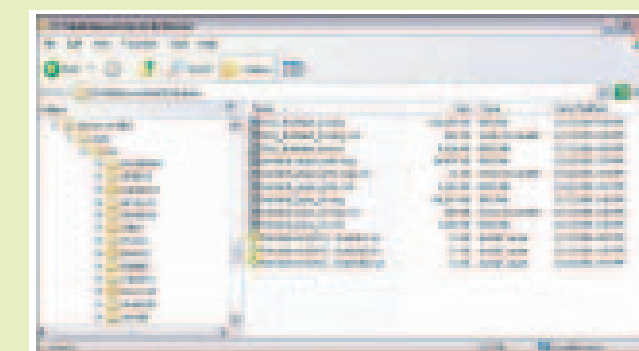


Building geoprocessing models is a fantastic way to document and preserve your GIS workflows. A common workflow or task may consume your computer for a significant portion of the day or tie up bandwidth in your office. Creating a model and running it as a scheduled event during nonworking hours can not only make your office a happier place but also increase your efficiency. Let's take a look at the steps involved in doing this.

1. Create a geoprocessing model using ArcGIS Desktop.
2. Once your model is created, you will need to export the model to a scripting language such as Python®. You can do so by selecting Model > Export > To Script as shown in the illustration below.
3. Once your model is exported to script, you will need to schedule your workflow to execute with Windows® Scheduler. The scheduler is part of the Windows operating system and can be found at Start > Programs > Accessories > System Tools > Scheduled Tasks.



4. Once you have set up your scheduled event, Windows will automatically execute your workflow at the time and date you scheduled. If you have scheduled your event to run during off-hours, your work will be done and waiting for you the next day. You can find more information from the ArcGIS Desktop Help at <http://webhelp.esri.com>. Search for "scheduling a geoprocessing script."



Share, Add, or Look at Data Quickly with Layer Files

Open Layer files from Windows Explorer, Microsoft Outlook®, Windows Desktop, or a link in a Web page. After double-clicking a layer file in Windows Explorer, if ArcMap is not currently open, it will be invoked. If ArcMap is open, the layer will be added to the current map. If the layer requires ArcGlobe™, ArcGlobe will open or will add the layer to the session.

Microsoft applications, such as Windows Explorer, now recognize ArcGIS layer files. Launch ArcMap or ArcGlobe by double-clicking a layer file or dragging a layer file referencing Web content in an e-mail to an open map document.

If the layer file references Web content, such as a layer from ArcGIS Online, you can e-mail the layer file, and the recipient can immediately drag layer files from Microsoft Outlook to ArcMap or ArcGlobe. Also, double-clicking a link to a layer file in a Web page will launch it. This makes the ArcGIS Online layers available at the ArcGIS Resource Center (resources.esri.com/arcgisdesktop) more convenient to use.

Restarting Services with One Click in ArcGIS Server

Stopping and starting services in ArcGIS Server Manager can now be accomplished in one step using the new Restart button on the Services tab. When using the Microsoft .NET Framework, the toolbar Start, Stop, and Restart buttons are also available for each service via a context menu.

Prasunn Dutta



Mr. Dutta, hearty congratulations to you and your team on winning the extremely prestigious ESRI SAG award this year. Our users would be very keen to learn of the unique things adopted by RINFRA in implementing the Enterprise-wide GIS.

Thank you for your appreciation. For a plan to work successfully, two things are required, sound vision and great leadership. It is due to this passionate approach to Reliance ADA Group which combines the two dimensions that we have created a world class Geographic Information system (GIS) technology for our company.

Please share with our users some of the best practices that evolved during the implementation of the project.

Best practices are normally dependent on business imperatives and context. For example if, in any process, speed is a crucial factor for business then the best practice is to avoid any unproductive steps, if control is the key, best practices are those which have in built checks and balances to ensure adherence to norms.

Considering our nature of business, the application of GIS to the entire distribution business of Reliance Infrastructure was a challenging task particularly because the distribution of electricity involves a large geographical spread. Our assets are spread out, our work sites are scattered, our offices are dispersed, our customers are everywhere and so are our employees. This dispersed nature of operation brings in its wake several complexities. Due to such a wide spread nature of business, the work is influenced by conditions at the site. The approach to the work, tools & tackles required, quantum of material required, volume of work, skills required, etc. all can be and are often different for various work sites.

The physical location and the concomitant complexities are major determinants of how the work will be carried out. For instance, if you need to extend the cable to accommodate a new connection, you need to know the nearest junction from where a connection can be extended, whether adequate capacity exists, what is the length of the cable, what are the physical obstructions in pulling the cable, how do we extend the cable to its destination, etc. A moment's reflection will reveal that the physical conditions will influence the choice of workmen including their numbers, material requirement tools & tackles etc.

GIS is probably the only application that has the potential to represent the reality along with complexities encountered in the conduct of such work which makes it an ideal I.T. system for the distribution business.

The 'best practices' in this case therefore are those which avail of GIS in planning & execution of field work. Some processes which have been augmented by GIS include locating faults in the network, network planning including extension of the network, operations & control of the network deriving from an integration of our SCADA & GIS, streetlight planning and maintenance.

What was Rlnfra's original vision of implementing GIS? And, now, as the System is already in place, how do you see your vision materializing?

The original vision of the GIS implementation was at best nebulous. I knew that the software was not merely colorful depiction of a map. I also knew that ultimately a significant set of transactions should be GIS based. But I did not, at that stage, have enough clarity to articulate how this would happen or what kind of integration (with other existing systems) this would call for. However, it was the far sightedness of our top management that sanctioned the resources for this project despite the fuzzy picture.

We have come a long way from the initial concept. Over time, the concept has concretized and we have taken steps to utilize the GIS for several field transactions. The software has been interwoven into these transactions so as to ensure full utilization of the same. Significant hurdles have been overcome and the direction clearly set. Interest has been aroused amongst end users, who are now asking for enhancements. Usage is increasing and we have now entered a self sustaining stage. So, yes we have achieved our original vision.

Having already accomplished so much, what is the GIS roadmap of Rlnfra from hereafter?

For the future, the plan is two-fold. While initial steps towards 'GIS as work space' have been taken, the entire application will grow richer with usage and continuous improvement. While earlier adoption was slow now the pace has grown and changes are being sought by end users. In fact, as we speak, several interesting changes are being made to existing processes to further use the capabilities of the GIS. I reckon this will continue well into 2009 as the earlier changes get institutionalized.

The other part of the plan relates to new businesses. As you are aware Rlnfra is on the threshold of a major expansion. We are entering several businesses and most of these do have a strong spatial component in their functioning. Extending the application currently implemented further we intend to carry this to our new businesses.

Please explain your exciting and unique concept of "GIS as workspace".

Because of the dispersed nature of our business, we found that GIS ideally addresses the task of modeling 'our' reality with its related complexities. The reality experienced by our field staff is best represented through the GIS. Hence as they work in field they should be able to work on the GIS based systems. In other words the GIS is where they carry out their day to day work or 'GIS' is now their 'Work Space'. This is, in essence, the concept of GIS as work space, which we have attempted to initiate at Rlnfra.

To realize the concept fully calls for several concrete steps. The GIS usage needs to be skillfully interwoven into the work processes so that the full utilization of the software is achieved. Secondly the update process is to be made an integral part of the work procedure and a necessary step for the subsequent processes. Interfacing with other application such as an ERP or a document management system is essential to address end to end processes. Last and probably the most difficult critical step is managing the consequent changes in work procedures. If we are able to do all of the above and it becomes easier for the person to use the software in this manner the concept of 'GIS as work space' would be achieved.

Based on your experience, what would you like to suggest the CIOs of other Utility companies in India?

I would urge CIO's of utilities to go in for a GIS based working, at least for the field personnel. While this would call for several fundamental changes in working, gains there from will be worth the efforts made.

If you were to list 5 key reasons "why GIS is a must for Utilities", what would those be?

GIS involves synchronization of different technology in to one system. It combines computer hardware, software and data to create a tool for capturing, managing, analyzing and displaying all forms of geographic information. Virtually any information can be linked to a geographic location, allowing users to see that information as part of a complete picture to be analyzed and applied to a problem of issue. With GIS, people can see first hand how things change, view and manage information about locations; analyze spatial relationships and visualize processes. It is all about making smarter decisions.

Also it is very useful tool because;

- i) It is the only I.T system which truly reflects the reality faced and encapsulates related complexities therein.
- ii) It renders several resources hungry activities easier resulting in higher productivity.
- iii) Time required for execution of a task is much less while supporting improved customer service
- iv) Visibility on an on-line, real time basis of the electrical network reduces time to get on board a new entrant.
- v) Realistic display of relevant parameters helps plan and analyse work in an efficient manner

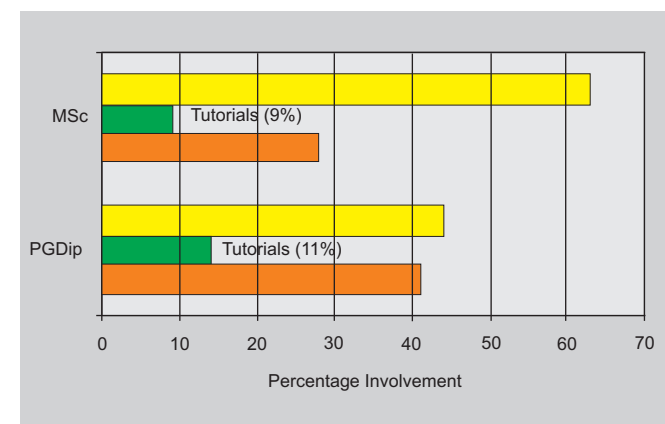
Geoinformatics in TERI University

TERI University (www.teriuniversity.ac.in) has been set up as an institution of higher learning and is recognized by the UGC as a deemed university. Its academic programmes have been structured around the research experience and skill sets gained in The Energy and Resources Institute (TERI) (www.teriin.org) over the last three decades. The university offers MSc programmes (Environmental Studies, Natural Resources Management, Water Resources Management, and Plant Biotechnology), MBA (Infrastrucutre), MA (Public Policy and Sustainable Development) and other short programmes.

The University has been offering two courses namely Principles of Geoinformatics (Core Course) and Geoinformatics for Natural Resources Management (Elective Course) to its Masters' students. The courses are designed to serve as a foundation to understand the fundamentals of RS/GIS/GPS and their applications in various disciplines and to develop skills of the student in field of RS/GIS/GPS respectively.

The university has announced a Master's in Geoinformatics and a Post Graduate Diploma in Geoinformatics in the academic session commencing July 2008. The programme structure and course contents have been prepared after a thorough needs assessment, survey for placement options and evaluation by experts in the field. The programme covers RS/GIS/GPS and geo-spatial modeling techniques with a wide range of application in areas such as environmental modeling, landscape ecology, integrated impact assessment, watershed management, climate change etc. Competing with the present requirements in this field, the programme has introduced course work on project management, law and policy.

Group and individual projects using diverse spatial-temporal datasets will be used to demonstrate specifics in the environmental and social sciences. Pedagogy will include formal classroom teaching, workshops, hands-on practice, field excursions etc. Interactive sessions will be arranged with players and stakeholders in data management and plan execution from the government, private sector, entrepreneurs and NGOs.



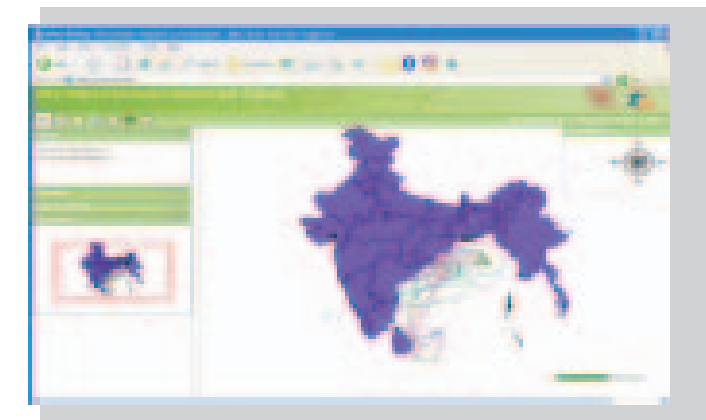
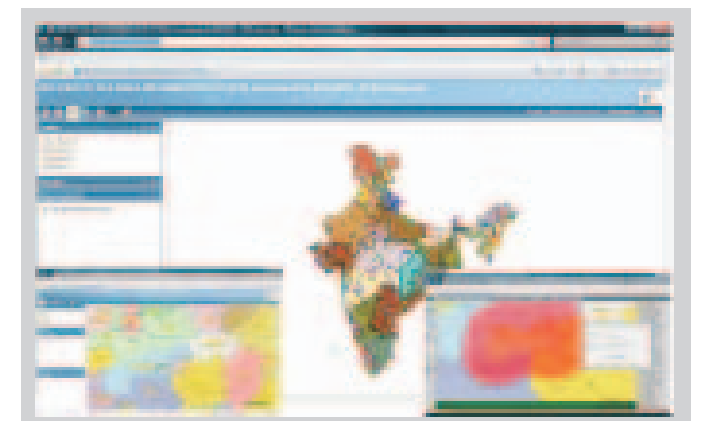
We have a well equipped Remote Sensing and GIS laboratory with ESRI products. At present ArcGIS 9 and Erdas Imagine 8.7 are being used for the education and research purpose. ESRI India, New Delhi has been of great help for regular updation and technical support towards this. The university also plans to expand its remote sensing and GIS facility in this coming session. Apart from the mainstream education activities, University is also engaged in funded research activities and consultancy. In the field of Geoinformatics, TERI University is participating in the National Resources Repository programme of NRS/DOS, Biodiversity characterization at landscape ecology programme of DOS-DBT and many other research activities of TERI. The students' projects have emphasized on habitat characterization, landscape analysis, protected area management, development of web enabled information system.

The last date for application for the academic year 2008-09 is April 14, 2008.

For more information, visit www.teriuniversity.ac.in

Contact: The Registrar, TERI University, Habitat Place, Lodhi Road, New Delhi - 03

Tel. +91-11-2468 2100/2111; Fax +91-11-2468 2144/2145 E-mail registrar@teri.res.in



ArcGIS JavaScript API

The ArcGIS JavaScript™ API is a browser based API for developing high performance, easy to use mapping applications. The API allows you to easily embed maps in your Web pages.

The JavaScript™ API is hosted by ESRI on ArcGIS Online and is available for free use.

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ArcGIS JavaScript API Overview

The ArcGIS JavaScript API is a lightweight way to embed your GIS maps and tasks in Web applications. It's free to use and deploy applications built with this API. All you need is an ArcGIS Server available whose maps and tools you can use in your application.

Why JavaScript?

JavaScript is a language you can use to increase the interactivity of your web pages. JavaScript runs inside your browser immediately when something happens on the page, such as when someone clicks a button or pans a map. You don't have to wait for something to happen on the server, and the whole page does not blink or refresh. For this reason, JavaScript is an excellent choice for embedding maps in your applications.

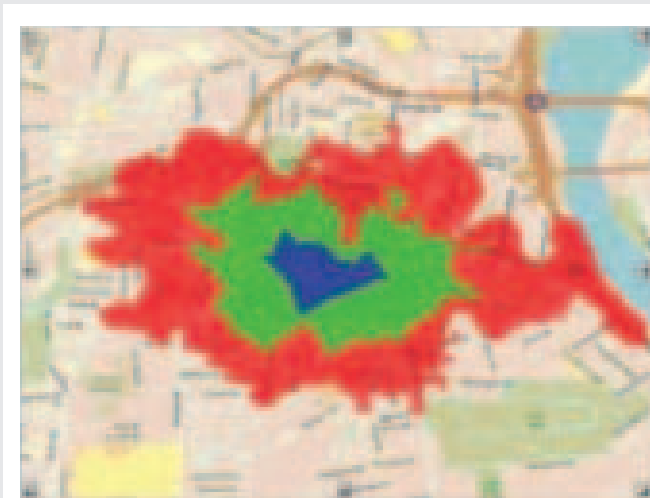
We don't have to download or install anything in order to program with JavaScript. All web browsers know how to interpret it. In many cases, the JavaScript code can be embedded directly into the HTML page.

JavaScript is accessible to beginning programmers. Even if you haven't programmed with JavaScript before, you can learn how to build JavaScript applications by cutting and pasting example code into your HTML pages. In many cases, the example may be just what you need with only minor adjustments.

What can you do with the ArcGIS JavaScript API?

We can use the ArcGIS JavaScript API to bring maps and tasks from ArcGIS Server into your web applications. For example, we can:

- Display an interactive map of our own data
- Execute a GIS model on the server and display the results
- Display our data on an ArcGIS Online base map



- Search for addresses and display the results

We can use the ArcGIS JavaScript API to access information from several different servers in one application. One common reason you might do this is to display some of our own information on top of a base map from ArcGIS Online or from other web sources. In another scenario, we might use a model on one server and display the results on a map from a different server. This combination of information from multiple web sources is sometimes called a "mashup".

Remember that we don't need to have ArcGIS Server installed on your machine in order to program with the ArcGIS JavaScript API. We just need to have an ArcGIS Server available that you can access through a URL. ESRI has provided several sample servers that you can use as you practice writing JavaScript applications. The samples in this help system use the sample servers.

What does the ArcGIS JavaScript API include?

The ArcGIS JavaScript API provides the following resources for you to use in your web applications

- **Maps** - The API supports display of both dynamic and cached (tiled) map services from ArcGIS Server. With the ArcGIS JavaScript API, you can display maps in any projection.

- **Graphics** - You can enhance your web applications by allowing users to draw graphics or by providing informational pop-up windows when the user clicks or hovers the mouse over a graphics feature on the map.

- **Tasks** - The API includes classes and methods for common GIS tasks:

- Querying
- Finding addresses
- Finding attributes
- Identifying features
- Geoprocessing

- Access to Dojo and other libraries - The ArcGIS JavaScript API is built on the Dojo JavaScript Toolkit, providing you access to diijts (Dojo widgets) and other JavaScript tools. You can also integrate other libraries in your applications, such as the Google Chart API.

Other JavaScript APIs

ESRI provides two other ways to embed ArcGIS Server functionality in your web pages with JavaScript:

- The ArcGIS JavaScript Extension for the Google Maps API gives you a way to work with your GIS services in the framework of Google Maps and other Google APIs.
- The ArcGIS JavaScript Extension for Virtual Earth lets you access your GIS resources from a Microsoft Virtual Earth control in 2D or 3D.

What's new in Version 1.2

The following are new features in the ArcGIS JavaScript API version 1.2:

Support for Image Services

We can add ArcGIS Server Image Services to the map using ArcGISImageServiceLayer. Image services represent file-based raster datasets or raster collections published with the ArcGIS Server Image extension. We can control the image type, compression type for JPG, image bands, and interpolation type.

Support for Dojo 1.2.

When you reference the ArcGIS JavaScript API in your code, you also get a reference to version 1.2 of the Dojo Toolkit. See the Dojo 1.2 Release Notes for migration information and a full list of improvements.

More flexibility with cached and dynamic layers

We can now define which tile levels of a cached service are exposed in the map. For example, we may want to use ArcGIS Online data for small scales only, then switch to our own cached data at large scales. Or we may want to make a cached service available at large scales only in order to focus the map on a certain geographic area.

We can also force dynamic maps to conform to the scale levels in a tiling scheme. This allows us to show a cached map at small scales, then easily switch to a dynamic map at large scales.

Refreshable map layers

Map service layers have a refresh() method. This is useful if back-end editors are modifying the data and you want to ensure the end user of the application sees the most recent data from the server.

Improved graphics performance

The performance of the graphics layer is improved when adding a large number of graphics to the map.

Projection of dynamic map services on the fly

Dynamic map services can be projected on the fly to match the spatial reference you set for the map. Previously, the spatial reference was defined by the base layer. Now the map can be defined using any spatial reference. Valid only with dynamic map layers.

New methods for the geometry service

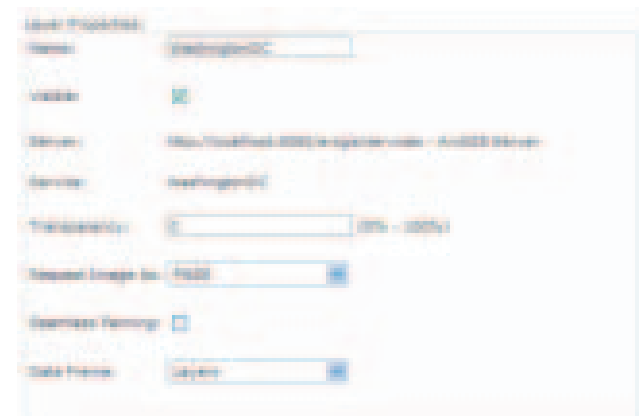
GeometryService has new methods that allow for creating points in polygons for labeling purposes, and determining spatial relations of geometries. These geometries do not have to come from a map service; they can be geometries returned from a task or a query to a non-ArcGIS Web service.

For further details, please refer <http://resources.esri.com/arcgisserver/index.cfm?fa=JSAPIs>

ArcGIS Server Manager for the Microsoft .Net Framework

Enable Seamless Panning for Layers in Web Mapping Applications

In ArcGIS Server Manager, for each layer added to your Web application, you can set whether seamless panning will be enabled. Seamless panning is the mode that allows you to see the map image as you are panning. When seamless panning is disabled, you can expect a faster map redraw. You may want to enable seamless panning for a cached map layer but leave it disabled for layers that are not cached.



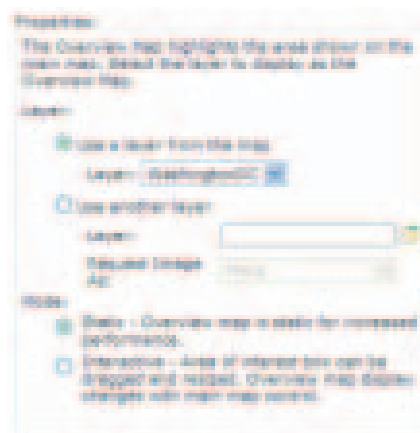
You can find the Seamless Panning checkbox in the Layer Properties dialog box. Open the Layer Properties dialog box by clicking the map service layer in the Add Layers tab of ArcGIS Server Manager.

For those working in Visual Studio®, the seamless panning option is set from the MapResourceItem Collection Editor dialog box, in the Display Setting Editor, by setting the Dynamic Tiling property.

Set Static or Interactive Mode for Overview Map in Web Applications

In ArcGIS Server Manager you can set either a static or interactive mode for the overview map in your Web application. By default, the mode is static, as this results in the best performance.

If your application requires that the overview map be closely in sync with the map, you can choose the interactive mode. With this setting, the overview map is set to update when the Web application user zooms in or re-



centers the map; the extent on the overview map updates automatically.

For those working in Visual Studio, you can change this setting using the StaticMode property on the Overview Map control.

ArcGIS Server for the Microsoft .Net Framework Web Mapping Application

Table of Contents Performance Improvements

Significant improvements were made to the table of contents control to improve memory usage and overall performance.

Java Web ADF

9.3 Service Pack 1 for the WebADF for the Java™ platform contains numerous quality and performance improvements.

The Java Server Faces (JSF) libraries have been upgraded from v1.1_01 to v1.1_02. This JSF version improves the ability of Web applications to handle concurrent Asynchronous JavaScript™ And XML (AJAX) requests.

The WebContext and GroupThreadPool classes now use the Java SE 5 Concurrent API and maintain a single thread pool for the entire Web application. This helps reduce the memory footprint of Web applications. Applications are also more scalable because the thread pool grows and shrinks automatically as required when load increases and decreases.

Web Geometry objects fully support two-step geotransformations and the overall Geometry package has been optimized for better performance while reprojecting geometries.

The WebMap allows zooming beyond the smallest and largest scales of cached services in the application if there is also at least one dynamic service. Users can take full advantage of dynamic services because they are no longer restricted to only the scales of cached base maps in their applications. This functionality can be enabled by setting the 'zoomBeyondCache' property of the WebMap object in faces-config.xml.

```
<managed-bean>
  <managed-bean-class>com.esri.sde.web.data.WebMap
  </managed-bean-class>
  <managed-bean-properties>
    <property>zoomBeyondCache</property>
  </managed-bean-properties>
</managed-bean>
```

The Scale Bar has been improved to be visible over black backgrounds.



Support has been extended for FireFox™ 3 browsers and 64-bit Java Virtual Machines (JVM); please see the System Requirements for further details.

ArcGIS Mobile

ArcGIS Mobile Application now supports Windows Mobile Smartphone's

At the 9.3 release, the ArcGIS Mobile application supported Windows Mobile 5.0 Pocket PC/Windows Mobile 6.0 and 6.1 Windows Mobile Professional (touch screen) devices. At the 9.3 SP1 release, the application is now fully functional on the Windows Mobile 5.0 Smartphone/Windows Mobile 6.0 and 6.1 Windows Mobile Standard (non-touch screen) devices. All menu items have full keyboard access, list items are presented as full screen menus, and map navigation is optimized for rocker and keypad use.

Blob capture on Windows Mobile devices

At the 9.3 SP1 release we have fixed a problem you may encounter when trying to capture and store pictures, voice or other information directly into a blob field.

Full support for PostGres SQL

At the 9.3 final release, ArcGIS Mobile did not support the editing of GIS data that was stored inside of a PostGres SQL database. This is now fully supported with service pack 1.

ArcGIS Extensions

Spatial Analyst extension: Now supports ObjectID field as a valid type for feature class inputs

This enhancement applies to tools that take a feature class as input for which a field can be specified. These tools include Feature to Raster conversion, Distance tools (Cost Allocation, Cost Path, Euclidean Allocation, and Path Distance Allocation), Hydrology tools with a pour point field (Snap Pour Point and Watershed), and Zonal tools (Tabulate Area, Zonal Geometry, and Zonal Statistics).

During analysis these tools internally convert the input feature class to a raster and use the field to define the values for the raster. Previously, only fields of type integer or string were accepted. We now support ObjectID as a valid field type for the input field parameter.

When specifying an input feature class, the field parameter will default to the first valid field of the input feature class (i.e., 'ID' or user-specified field). If no valid fields exist, it will default to the ObjectID field.

For details on bug fixes and quality improvements which was the main purpose of service packs, and for a full list of the quality issues that have been addressed in the ArcGIS® 9.3 SP1, please refer <http://gisupdates.esri.com/93sp1a/ArcGIS-93sp1-issues.htm>

ArcFM Server: Flexible Web Environment for ArcFM Solution

"Telvent Miner & Miner continues to build on its powerful ArcFM Solution suite. This latest release adds an out-of-the-box web application and interfaces to operational systems such as SCADA and DMS. This new release includes new tools and improved performance and scalability," says Rich Ruh, TM&M's Director of Product Development.

Today's utility information technology (IT) environment requires solutions that can support multi-disciplinary requests and be available in distributed locations. ArcFM Server provides the key components for addressing these IT requirements for electric, gas, and water/wastewater utilities in editing, modeling, maintaining, and managing facility information

ArcFM Server supplements the comprehensive ArcGIS Server toolkit, and includes a number of ArcFM-specific components that support editing and business rule enforcement, model names, and ArcFM properties. ArcFM Server is a valuable technology for organisations that need to implement transaction-based systems and ArcFM functions that are embedded into server-centric architectures. With a single licence, ArcFM Server may be deployed to a large number of users.

ArcFM Server now includes an out-of-the-box web browser application known as ArcFM Viewer for ArcGIS Server. This application provides the ability to trace and identify features and view ArcFM Attributes. ArcFM Server is built on ESRI's Web ADF and integrates directly with ArcGIS Server Manager. The customization API allows developers to extend the existing functionality within custom web applications. ArcFM Server web services can be consumed by third party applications and provide a key component for supporting SOA business solutions

Application Examples

- Within an outage management call entry browser-based application - e.g. upon selection of a customer address, you could zoom to the extent of the service location for the purpose of displaying incidents within the vicinity of the service location
- Design status browser-based application - e.g. when given a work request and design id, you could view the design
- Extending marketing applications such as using a spatial query to determine whether existing facilities are within a predefined distance
- Given a device, return a list of the upstream protective devices

Simple editing applications (e.g. managing pole attachments) that do not need a full-fledged editing environment



REST API: Representational State transfer (REST) Application Programming Interface (API)

REpresentational State Transfer (REST) is a style of software architecture for distributed hypermedia systems such as the World Wide Web. It is an inherently intuitive environment for creating map images with ArcWeb Services. The REST API permits you make requests to ArcWeb Services via a URL.

Use REST to create maps in raster and vector formats; add acetate lines, points, and polygons; add graticules, legends, north arrows, and scale bars; and take advantage of auto projections and best data source. Scalable Vector Graphics (SVG) Map Viewer is an interactive vector-mapping sample that uses REST mapping.

ArcWeb Services offers a fully customizable SVG Map Viewer with downloadable source code, as well as more powerful features for the REST API. The latest version of the REST API now provides built-in data layer switching as well as the ability to include tiled satellite imagery where, developers don't have to write the code from scratch.

ARC GIS Server 9.3 REST API

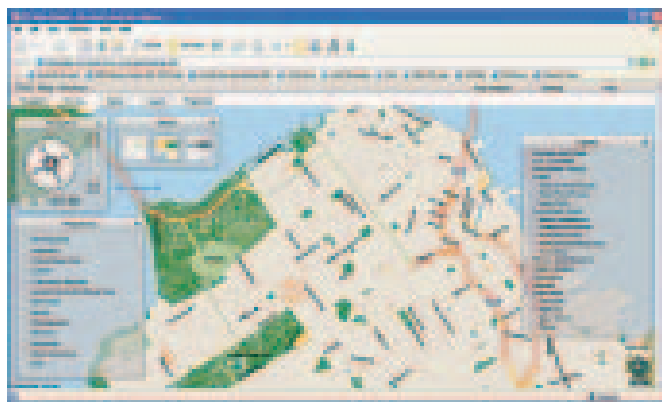
Resources and Operations:

- Map Services: Export, Find, Identify
- Map Service layers: Query
- Geocode Service: Find address candidates, Reverse Geocode
- GeoProcessing: Execute, Submit job
- Geometry Service: Project, Simplify, Buffer, Length and Area, Relation

Image Services: Export

Resources and Operations result can be returned as:

- HTML (Services Explorer - Default)
 - IMAGE (Direct Streamed Image)
 - KML (Google Earth, Google Maps and Virtual Earth)
- JavaScript Object Notation



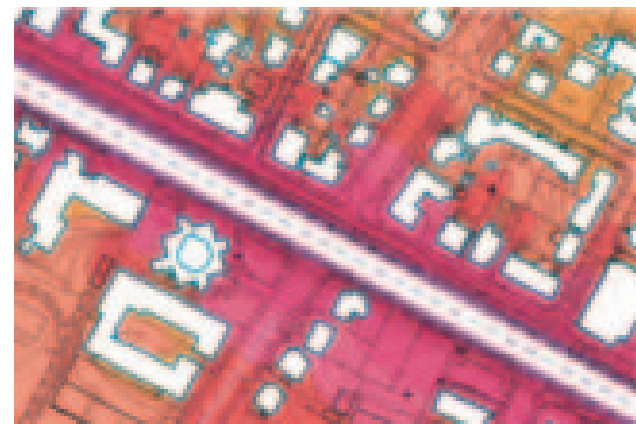
Mashups as Enterprise Applications: A New Concept in Web Application Programming

A new trend in Web application development "Mashup" is a lightweight web application that combines data from more than one source into an integrated and new, useful experience. Initially, Mashups laid focus on mixing different data sources together, offering a quick and simple way to create situational business applications. In Mashup, features Widgets and feeds that are mashed together often come from independent sources and do not change when mashed. This is built on a web-oriented architecture (REST, HTTP) and leveraging lightweight, simple integration techniques.

ArcGIS Server 9.3 includes a series of JavaScript APIs for mashup-style development. These new APIs allow JavaScript developers to easily embed ArcGIS Server Web mapping applications into any Web site.

Where do Mashups Make Sense?

- Ideal for tactical and opportunistic applications
- Implementation speed and flexibility are paramount
- Construction is a LOB assembly
- Addresses specific business product
- Often combines external and internal content



New caching tools allow users to optimize data resources for high-performance Web services, making application tasks run fast and efficiently

Key Benefits:

- Empower knowledge workers and web developers to rapidly create new web applications, unleashing productivity and reducing IT backlog
- Speed development and reduce costs through lightweight integration, reuse, and sharing
- Quickly uncover new business insights by easily assembling information from multiple sources on the glass
- Better align IT and business through rapid prototyping
- Make SOA more business-relevant and visible, increasing reuse of services and widgets.
- Foster innovation, while applying the appropriate levels of IT control

WBFIS

Introduction

The new for real-time information on forest resources is growing at both national and international level. Demands for new types of information are now frequently being raised (regarding e.g. biological diversity, non-wood forest products, forest quality). Globally there is an increasing demand for more and new types of information about the forest resources. Forests are being impacted by both natural and anthropogenic factors. These lead to the reduction or loss of multiple benefits of forests.

The Directorate of Forest, Government of West Bengal is fully aware of the importance of Forest Information System and has planned to develop a portal, West Bengal Forest Information System (WBFIS), to monitor and distribute the information of Forest and Forestry activities of the West Bengal State efficiently and effectively for all the forest officers.

The state of West Bengal extends from Himalayas in the north to the Bay of Bengal in the South. The geographical area of the state is 88752 sq km. five states and three countries surround West Bengal. The recorded Forest land in the state is 11879 sq km of which 7054 sq km is reserved forest, 3772 sq km is protected forest and 1053 sq km is unclassified forest, thus consisting 13.38% of the geographical area of the state. However, through sustained effort of Joint Forest Management, through people's participation, the state has increased its forest area to 15.68% as in 2006.

Technology

The Internet is in a phase of spectacular expansion and has found its way to most of us in some form, whether we like it or not. It opens completely new possibilities of spreading and accessing information in large quantities. Exchange of information and dialogue can become very efficient through networking with cooperating partners. However, we have certainly only seen the beginning of this and need yet learn using this tool wisely.

The introduction of Geographic Information Systems (GIS) in forestry applications opens new possibilities of analyzing data. Analysis of multi-source information is a particular strength. This is of importance at all levels from local to global.

ArcIMS has a multiservice architecture designed to support access to ArcIMS and ArcMap image services, as well as services from ArcGIS Server, ArcWeb Services, and Web mapping services. This means that maps from multiple services can be integrated into a single Web application. The Web application's GIS functionality can be easily configured as well.

Approach

After identifying the problem and with the advent of technology, the solution was to develop a Web-based GIS West Bengal Forest Information System application for the forest officers of West Bengal state. The application was an Internet based system built to serve the users spread over the Internet. The server-side hosts ArcIMS and Web Server for serving spatial data stored in Shape files and attribute data stored in MS-Access database in the backend.

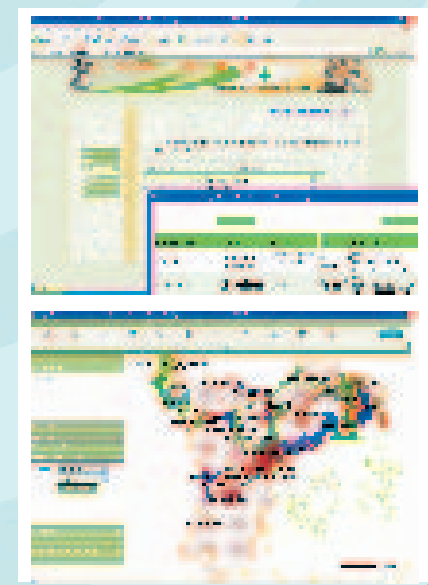
The application provides key web publishing capabilities such as map display, legend creation and layer management. The working plan section deals with the classification of forest covers last from decades and help in preparing stock maps. Also it gives information about various developmental and plantation schemes implemented at particular circles and divisions..

Conclusion

The WBFIS application had proved to be advantageous for efficient and effective monitoring in the following ways:

- The application will cut down the overhead time involved in updating the data locally at all the forest departments in West Bengal.
- The application will adds flexibility to access the necessary data at any time and at any place.
- Forest coverage areas were clearly distinguishable and can be downloaded up to minor level i.e., Block / Compartment or Mouza/JLno. area.
- District-wise details for all the layers can be rendered / displayed.
- Buffer Zone can be drawn around a feature of interest which gives various solutions like fire-prone zone, restricted areas etc.
- The Stock maps for division level can be viewed and the classification of forest covers can be known.
- The Fire-Alerts between a specific duration can be seen, and the necessary planning and observation can be done.
- Plantation Monitoring Reports plays a significant role in assessing the future plantations and estimating of productivity.
- All the Protected areas and Rest Houses connecting through Rail and Road network can be identified.
- The Query-builder provided facilitates to build a valid syntax on all the layer information to draw conclusions using resultant attributes.

The web portal of West Bengal Forest Information System for the Forest officers spread over the West Bengal state can access the website through their login credentials and take appropriate actions as and when needed. The screen-shots of website are as follows.



“Favourable potential zone map using Remote sensing and GIS” for all the 385 blocks of Tamilnadu.

TWAD Board is shouldering the responsibility of providing potable and adequate drinking water facility to all the settlement of the state except Chennai Corporation. Scientific source finding is the practice is followed in TWAD with a well planned and well-equipped Hydro geological unit provided with remotely sensed data products to advanced scientific instruments to narrow down the failure rate in source creation. Over the years a voluminous database have been pooled from the state allover with respect to population to groundwater potential. All the technological advancements have been evaluated and updated for better performance of the of drinking water delivery.



Hona'ble Minister for Local administration Mr.Mu.Ka.Stalin releases the report on 19.1.2008 and Prof.Naganathan. Vice Chairman State Planning commission receives it. Mr.K.Deenabandhu .IAS. Principal secretary MAWS, Govt of Tamilnadu, Mrs.Girija Vaidyanathan. IAS .Member secretary, Planning commission, Mr.Swaransingh.IAS. Managing Director, TWAD and Mr.Satyabrata saho. IAS, District Collector, Thiruvannamalai are also in the picture.

An R&D and GIS cell and a remote sensing unit is functioning in Head office TWAD board with personals having enough expertise. Data products such as survey of India Toposheets, Aerial photographs and satellite imagery both hard copy and digital copy for the whole state is available. ERDAS imagine professional and Arc Gis software used for Raster and Vector analysis are available with the GIS cell. Enough number of advanced computers along with its peripherals is available with this unit. Data on census hydrological and hydro geological informations are available as softcopy, which could be used as such with minimum formatting.

The GIS cell has brought out a “Digital water resource Atlas” which accommodates at least 14 layers based on Administration, Geology, Hydrogeology, Geochemistry and other hydrological details. The basic spatial unit is Panchayat/Revenue village and the information unit is the habitation with the display unit of Panchayat union.

The state land use board (SLUB) of planning commission Tamilnadu has accorded approval for the Preparation of “Favourable potential zone map using remote sensing and GIS” for all the 385 blocks of Tamilnadu.

The present project aimed

- To update ground water potential zonation map for individual blocks of the state.
- To update maps showing ground water quality with respect to potability and suitability
- To update maps showing geomorphologic units and its use based on its natural resource potential.

- To generate action plan map for individual blocks of the state to create new drinking water source and conservation facility for sustainable drinking water development.

Accordingly a Draft copy maps for KARUR District has been completed with the following themes for individual blocks and presented before the officials of PWD,IRS and other line departments of the state A completed block theme for Aravakurichi in karur distrcit was presented and the suggestion offered at the meeting for refining the themes have been incorporated in the block themes of other districts.

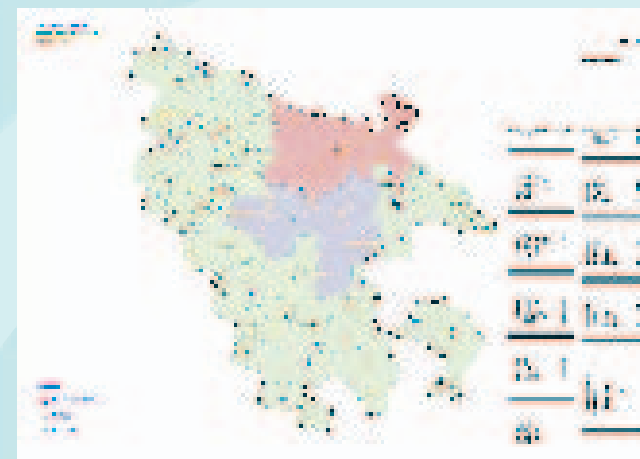
On 19.1.2008 the Honb'le minister for Local administration in the presence of officials of SPC and MAWS released the CD containing the completed themes for the Districts and the Honb'le Vice Chairman State planning commission received the Report and the Member secretary received the CD containing the details for Thiruvannamalai District in the presence of the District Collector.

The CD released contain the following maps as Jpeg and as wells as in GIS format for individual blocks of the Districts.

1.Administartive setup:

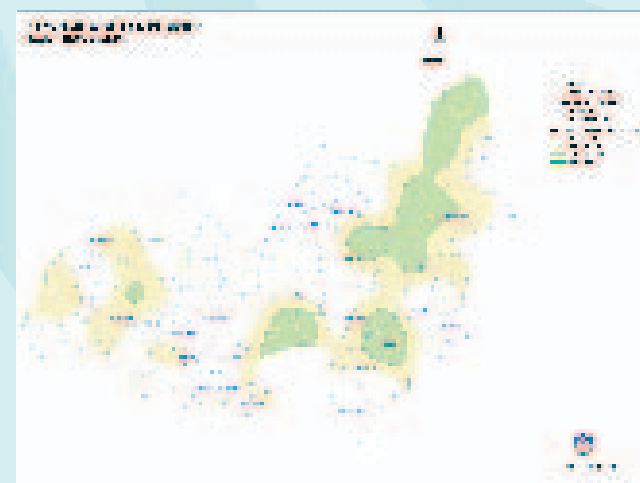
Prepared using survey and land records Taluk maps and Block maps showing Panchayat village /Revenue village boundary with labels. Urban areas have been differently identified. Different types of roads have been suitably displayed. The names of the

villages have labeled and the settlements of the villages have been located. The whole exercise has been accomplished using GIS.



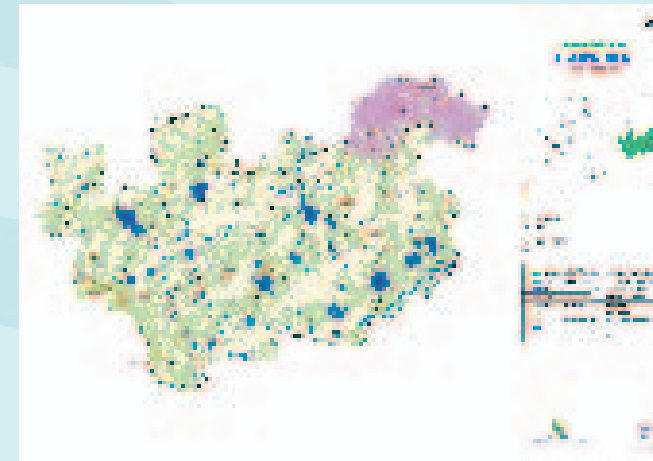
2. Water resource map:

This map indicates the potable ground water potential in the block where in the settlements of the villages have been marked so that decision can be made where a source could be identified with respect to quality and potential and demand. Themes prepared based on potential and water quality for the district water resources Atlas has been utilized. Categorization of potential zones representing < 50lpm, 50-100 lpm, 100-200lpm and >200lpm has been prepared and the quality map showing potable and non-potable zones ha been overlaid on the potential Map.



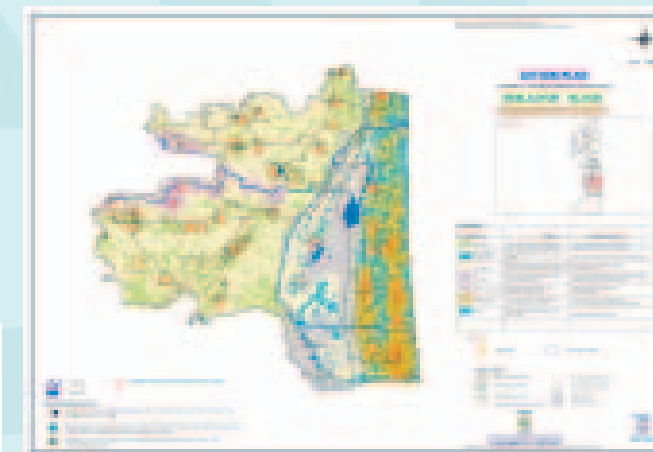
3.Geormpolgy and lineament:

IRS digital data has been processed using image-processing (Remote sensing) software. Different geomorphic units have been classified based on interpretation criteria with respect to groundwater potential. Filtered linear fracture system considered being zones for exploring groundwater and for storing the surface runoff during monsoon to make the groundwater enriched for future use.



4 Action plan Map

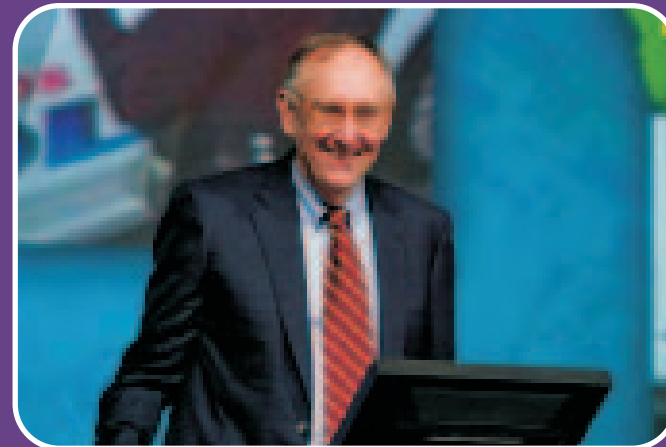
This is an integrated out put based on the thematic maps like Administrative setup, drainage, lineament, geomorphology, water quality and ground water potential. This maps indicates the probable location for creating new water sources and the location for constructing recharge structures with specific type of structures.



A training program has been organized at Chennai to the district officials where in they have been exposed to the two type of delivery made to the districts such as the products in JPEG format and GIS format. It was explained to them that the jpeg format could be used by any one by taking a print out (whole or part) so as to implement water related activities such as new source creation and construction of Recharge structures. For using the Jpeg format the district unit doesn't require complete computer setup with GIS software. Printing can be out sources and the portion of the villages could be printed out and made available at the village level itself so as to use it whenever necessary.

The themes with GIS format could be used at the district level provided if there is a full-fledged GIS setup with computers and software. The procedure for Editing, updating and generating new themes for the use of line departments of the district have been imparted during the training program. The entire operations on the usage of the themes generated made simple and easy to use hands on tutorials were given in the training and the trainees drawn from the districts interacted during the training and afterwards also.

2008 ESRI International User Conference (ESRI UC)



"Amazing" was a popular descriptor uttered by wide-eyed attendees of the ESRI User Conference this year. The 28th ESRI International User Conference (ESRI UC) was held on 4-8 August 2008 at San Diego Convention Centre, California. The user conference was attended by 14,000 GIS professionals from 110 countries belonging to various industries across the globe. The largest congregation of GIS witnessed the presence of the GIS professionals from various streams sharing knowledge, experience and technical know how in GIS, updating themselves with latest technology developments and sharing their experience. The works of GIS users around the world were highlighted by ESRI President Jack Dangermond. Illustrating the conference theme "GIS: Geography in Action," Jack Dangermond talked about the importance of GIS as part of the solution to the challenge of living in a sustainable world. The company has a clear vision of developing strategies, software, and support to look at our world to help make informed decisions.

Looking Ahead

During the Plenary session ESRI President Jack Dangermond envisioned his thoughts for the future of GIS that geography and humankind have come far ahead building a strong foundation with numerous and variety of GIS applications to cater in every day to day life.

"I believe that GIS work is driving change and is creating a digital foundation by abstracting data, models, and workflows," said Dangermond. "Our thinking is becoming spatially integrated, changing how we reason, defining patterns of our actions, evolving collaborative structures. Moreover, GIS is changing our work to adopt a science-based approach. We are introducing systems for measuring, accounting, and analyzing geography, then visualizing it to make decisions. GIS is helping people plan for a more sustainable world. GIS is raising awareness."

Dangermond described how GIS is enacting change within IT user communities. "Today's GIS implementations follow three patterns, the Desktop for creating and editing data, the Sever for sharing information to a wider audience, and

Federated systems, which join together server technologies for collaborating and sharing information across organizations."

Dangermond continued, "These three patterns provide a foundation for a fourth pattern Web GIS. This pattern provides new opportunities for leveraging your work through Web applications. It is about harnessing the power of the Web with all the power of what you do in GIS going far beyond simple mapping or visualization and ultimately becoming a part of society's infrastructure. GIS professionals will be implementing this infrastructure by authoring and serving knowledge, maps, and visualizations as well as analytic interpretations and authoritative applications. These will be consumed by casual users leveraging our collective knowledge."

GIS for Sustainable World

Delivering the Keynote address Dr. Peter H. Raven, president of the Missouri Botanical Garden, where he described the environmental diversity of the planet and the challenges for humans to live in a sustainable world. He illustrated the many problems we face with growing populations, altered landscapes, over-consumption, and climate change. These are rapidly altering the face of our environment.

The Garden's research scientist Dr. Trish Consiglio explained how the research lab uses GIS to put its enormous database to work by combining grid analysis, verifiable identification, and regression computation within GIS. From this, she presented a model for predicting species relationships within areas where little is known.

Raven concluded, "Technological tools, such as GIS, bring to bear a proper understanding of these problems and a proper solution. It helps us in our endeavors to develop love and concern for other people. These tools equip us to turn from passivity toward active engagement in developing much needed solutions."

ESRI Technology Update

New updates on the functionality and capability

enhancements in the recently released ArcGIS 9.3 were showcased in contexts of developing GIS integration, applications and technological solutions, and infrastructure that supports communal exchange. To do so, ESRI presenters demonstrated software advancements.

ArcGIS Desktop Enhancements

ArcGIS Desktop improvements were described including functionality that simplified users' tasks from keyboard shortcuts, to reverse geocoding, to converting graphics to features. Capabilities for sharing by connecting the desktop project to the GeoWeb showed the ease of consuming ArcGIS Online content, exporting KML, and using GIS-enabled PDFs.

Prediction of growth was modeled using the new Geographically Weighted Regression tool for statistical analysis. Michael Parkin of MIT demonstrated 3D visualization improvements through an impressive campus facility management application. An ESRI technician explained values rendered from an ArcLogistics analysis, which modeled how organizations could save hundreds of thousands of dollars using intelligent fleet management strategies.

ArcGIS Server Drives WebGIS

ArcGIS Server improvements were dramatized via working



scenarios. A federated pattern of shared applications and data was applied within a situational setting in Louisville, Kentucky, that described how new-generation Web 2.0 principles and practices engender Web-based communities of hosted services. This, in turn, gives rise to the capabilities to use content from multiple map services and create mashups for ad hoc, federated, and enterprise applications.

Integrated GIS and image server technology was demonstrated using German applications from the Bavarian Forest Service and the Hamburg Fire Department. The integration allows GIS users to perform dynamic processing in the server, serve it up to an image service, and deliver it into a standard GIS for display, analysis, and visualization.

GIS Awards

Special Achievement Awards

The most important component of a successful GIS is not the software but rather the people who use it. "In 2008," said Dangermond, "one-quarter million organizations used ArcGIS in their work, which has been a spectacular endeavor. From this

group, ESRI expressly acknowledges 150 outstanding users by conferring its Special Achievement in GIS award. "At ESRI, we are always deeply impressed by the innovation of our users," says Jack Dangermond, ESRI president. "We want to recognize the efforts of these individuals with our Special Achievement in GIS Award. This recognition is well deserved for how they've applied geospatial technology to address the needs of their industries and communities. They are defining GIS best practices."

Reliance Energy, Ltd., in Maharashtra, India, has demonstrated its vision and leadership, using ESRI's geographic information system (GIS) technology to better serve the world. To recognize this passionate approach to applying GIS solutions, ESRI Inc presented the organization with the Special Achievement in GIS (SAG) Award.

Reliance Energy is India's largest integrated private sector power utility company that manages the generation, transmission, distribution, and trade of power. To improve efficiency for its four million customers, the utility chose to implement Miner & Miner's ArcFM solution, based on ESRI's ArcGIS software, for their Mumbai and Delhi Electric Distribution System. Today, more than 1,500 Reliance users access utility network data through ArcIMS technology from any place at any time.

ESRI Awards

In addition, Dangermond presented specific awards during the Plenary. The Enterprise Application Award was presented to the State of Qatar, Centre for GIS for its holistic integration of GIS across the country. This was accepted by Mohamed Abd Elwahab Hamoud.

President Awards

The President's Award was given to the City of Philadelphia for multiple uses of resources and data. It was accepted by Jim Querry, director of enterprise GIS.



Making Difference Award

The Making a Difference Award honored two recipients. The first were Rósaio C. Grustide Pérez and Ramón A. Pérez for research about urban poverty in the barrios of Caracas.

The second was awarded to the U.S. Department of the Interior Secretary Dirk Kempthorne who announced the USGS' latest action to make 35 years of Landsat information freely available for worldwide consumption.



ESRI Honors GIS Innovators in Health and Human Services

Individuals and organizations that promote the use of geographic information system (GIS) technology in health and human services recently received recognition from ESRI, the world leader in GIS technology, for their contributions. The awards were announced during the 2008 ESRI Health GIS Conference held in Washington, D.C., September 28-October 1. "These exemplary people and organizations set the bar and inspire all of us to do better in our daily work," said Bill Davenhall, global manager for health and human services, ESRI. Receiving awards were the Alabama Department of Children's Affairs (ADCA); Pat Libbey, executive director of the National Association of County and City Health Officials (NACCHO); Bruce Ripley, Planning Systems Support Group, Veterans Health Administration (VHA) received the award posthumously; and the Sault Ste. Marie Innovation Centre, Canada for Communication Service.

ADCA received the Vision Award, who demonstrated foresight in the implementation of GIS to enhance communication, collaboration, and data sharing through development of its Alabama Resource Management System. The system uses GIS to integrate data from more than 20 health and human service agencies and make it available over the Web. As a result, it connects decision makers in agencies, programs, and communities with the information they need to evaluate community needs and plan and implement solutions that improve the lives of children in the state.

The Service Award recognizes individuals who do an outstanding job of advocating GIS technology and helping others understand its value and purpose in their everyday work. In his role as NACCHO executive director, Pat Libbey has provided leadership for more than 3,000 local health departments across the United States. "In tracking, mapping, and identifying the social determinants of health, I think we all recognize that the practice of public health has as its core the spatial distribution of elements that contribute to our health as well as take away from it," commented Libbey. "Thank you, ESRI, for the support that you give to improving public health in this country and throughout the world."

For more information on GIS in health and human services visit www.esri.com/health.

Keynote from DHL Express Europe to Kick Off 2009 ESRI Business GIS Summit

Henrik Dahlin of DHL Express Europe will keynote the ESRI Business GIS Summit being held May 4-6, 2009, at the Westin Tabor Center in Denver, Colorado. Dahlin will discuss how geographic information system (GIS) technology has helped the international company improve its bottom-line results, boost customer service ratings, and reduce its impact on the environment. A Presentation to Detail How Geographic Business Intelligence Increases Profits, Improves Customer Service, and Creates Environmentally Responsible Organizations

With approximately 285,000 employees doing business in more than 220 countries, DHL International is the largest logistics provider in the world. "GIS is used at DHL every day, and it makes a real difference to our business," says Dahlin. "By using this technology, we've optimized our transportation network and given our customers reliable delivery timetables. This gives us improved margins and allows us to respond to changes in our marketplace quickly."

The ESRI Business GIS Summit, now in its sixth year, attracts business GIS professionals from more than 30 industries and market sectors. It is recognized as the leading conference for collaboration and networking regarding the application of GIS to retail, real estate, insurance, manufacturing, media, logistics, and general commercial business processes. The summit combines best practice sessions and roundtable discussions with user presentations, technical workshops, and an education program sponsored by the University of Redlands, California. For more information about the summit and to register, please visit www.esri.com/bizsummit.



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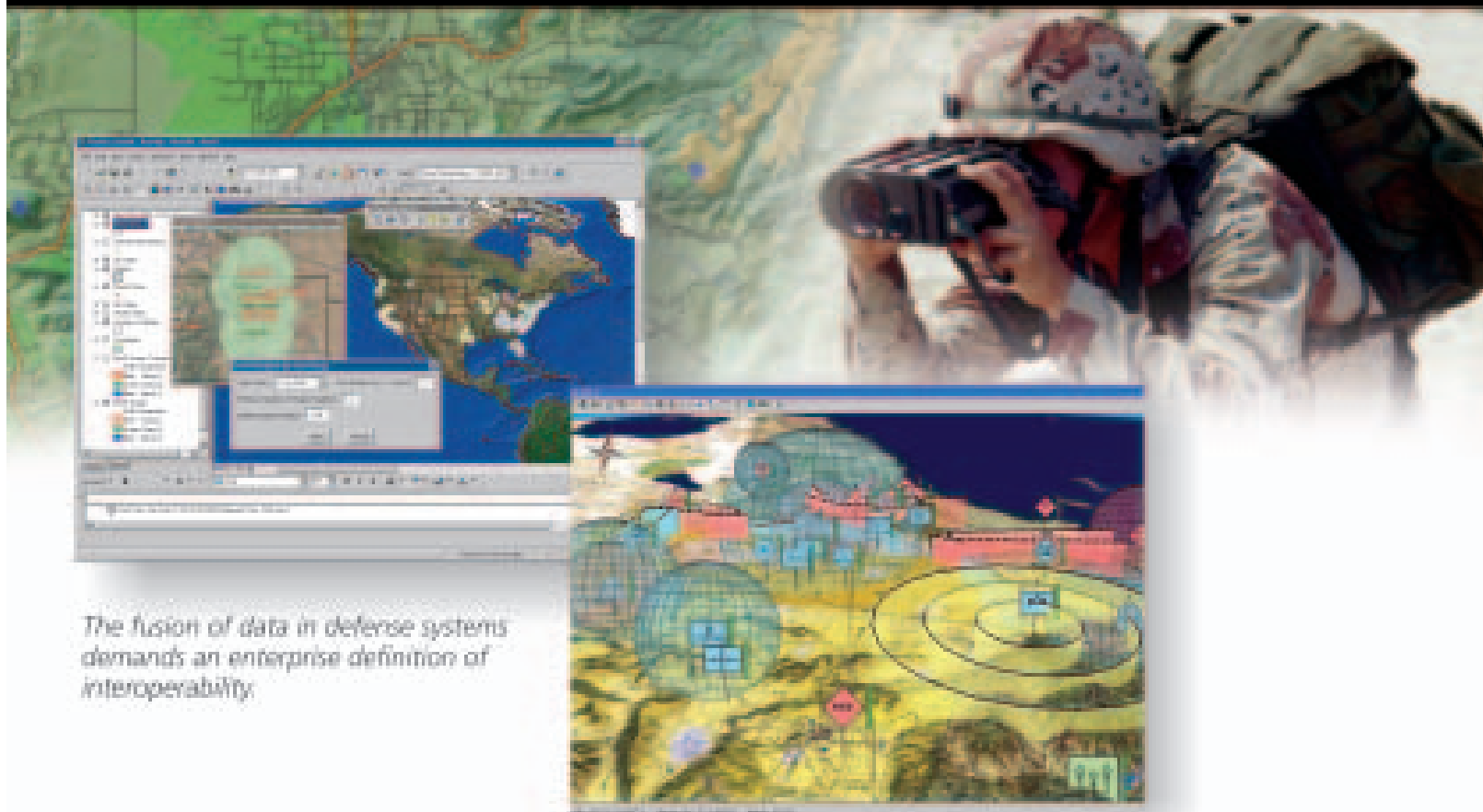
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GIS—Supporting Capability, Enabling Interoperability



The fusion of data in defense systems demands an enterprise definition of interoperability.

ArcGIS software's open architecture enables defense developers, such as Concurrent Technologies Corporation, to embed powerful GIS capabilities into C4ISR applications.

Spatial capabilities need to be embedded into defense systems in every domain and at every level of command, demanding a robust definition of openness. The ESRI® ArcGIS® platform is engineered to participate in an enterprise information system environment. Interoperability is built into the heart of the ArcGIS scalable family of software products. This ensures the sharing of spatial data and applications throughout defense enterprises.



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From The
President's Desk

From The President's Desk



Rajesh C Mathur
President, ESRI India

Optimizing Resource Utilisation using GIS

Back in 1982 the World Bank said the global economy will enter into recession and the international trade will also decline by 2007. The subprime crisis that emanated from US has slowly spread its wings across the world. Indian economy has also been affected by the global developments and our capital markets have taken a big hit in the last few months. Some of the sectors that have been severely affected include textile, real estate, retail, financial services, among others. Indian corporate houses are under pressure to reduce costs and increase employee productivity in order to maintain their profitability.

While we all know that economic recession is upon us and a lot of media hype every so often compels us to press the panic button, the need of the hour is to take advantage of suitable technology for optimizing our resources and be more prolific, thereby gearing up for times ahead which might be even more difficult. There are several areas where GIS can help organizations in optimizing resource utilization and enhancing staff productivity.

GIS can help the industry in optimizing transportation and logistics costs by using it in vehicle routing leading to a more effective fleet utilization and also reducing fuel costs. Apart from reducing transportation costs organizations will also contribute in improving the environment by reducing the number of vehicles on the road.

Business houses can also apply GIS to demographically profile their customers using geography as the key parameter leading to more focused marketing and retailing. The industry can use GIS to identify the site for their next retail outlet keeping in mind their target market and geographic spread of the customers. They can also use GIS to decide which stores to close during challenging times.

Utilities can apply GIS to improve planning and management of their network. It helps power utilities in reducing Aggregate Technical and Commercial (ATC) losses. Utilities use GIS to enhance revenue realization by interfacing GIS with the automated meter reading systems. They are also applying GIS based outage management systems like Responder from Miner & Miner to better manage power outages thereby enhancing network utilization leading to improved revenues.

GIS can help agriculturists in enhancing farm yield by planning the next crop based on soil, water availability, and agro-climatic conditions among others. It can also help in identifying wastelands which can be recovered and developed. Thus, GIS has the potential to not only increase agriculture capacity but also improve yield.

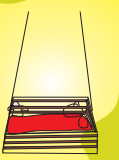
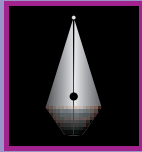
GIS also plays an important role in planning and management of infrastructure projects like Transportation, Law Enforcement, Urban Development among others. Municipal Corporations are deploying GIS to build and manage database of property owners which would lead to significantly enhanced property tax realization. City administrators can apply GIS in development and management multimodal transportation networks leading to optimal utilisation of the transportation system thereby reducing transportation time and costs for the citizens.

These are just a few examples of how Geographic Information Systems have the potential to help corporate houses, government departments, utilities, local governments et al in better management of their costs as well as improved resource utilisation thereby containing the adverse effect of the slowdown on their organisations. ESRI has the required technology to support institutions in building enterprise GIS solutions for this purpose.

The future can be very positive if we can take the appropriate actions.

I wish all of you a very prosperous new year and success in your endeavours during these challenging times.

We can all succeed!



I would like to congratulate ESRI-INDIA for bringing out ArIndia News. Apart from a very great look, it provides a lot of new ESRI technologies. The magazine is a great literature providing an overview of the development in geospatial technology & its application. I especially liked the idea of Tips and Tricks and the technical articles. Apart from this, it also provides a platform for people to learn about how various ESRI solutions are being implemented across organizations in India and abroad. The magazine covers a good mix of case studies, accomplishments, product information and technology inputs, all of which are very essential in the emerging Indian GIS market scenario, where the user community is constantly confronted with the challenge of deriving business process improvement through effective implementation of GIS technologies.

Satyajit Dash
GIS Specialist CAIRN INDIA

"I really appreciate ESRI India for publishing ArIndia News which is extremely thoughtful publication and provide in-depth insight about ESRI technologies.

More sector specific Case studies, their GIS implementations and articles on Real Estate, Urban Planning etc. can be included to make it more effective."

Rajnish Mago
Project Manager,
GIS, DLF



ArIndia News is a long awaited medium for Indian GIS users and is a very good initiative which focuses on latest technology trends in GIS and provides extensive depths for Indian articles. I am specially impressed by the section which covers insight into how ESRI GIS Technologies has been implemented by different organizations and shared their experiences. I congratulate ESRI India for this great effort. I would recommend inclusion of some more advanced technical articles & Case Studies for providing more indepth knowledge.

In all, I found all the articles interesting and quite a focus on Indian examples.

Keep it up !!!

IC Matieda
Manager, CFB/MOG
Space Application Centre

Reliance Energy Limited wins ESRI SAG Award

San Diego, California Reliance Energy, Ltd., in Maharashtra, India, has demonstrated vision and leadership, using ESRI's geographic information system (GIS) technology to better serve the world. To recognize this passionate approach to applying GIS solutions, ESRI presented the organization with the Special Achievement in GIS (SAG) Award on August 6, 2008, at the 28th Annual ESRI International User Conference (ESRI UC) in San Diego, California. The award was received by Mr. Uday Kale and Mr. Harsh Sharma of Reliance Energy.

Reliance Energy is India's largest integrated private sector power utility company that manages the generation, transmission, distribution, and trade of power. To improve efficiency for its four million customers, the utility chose to implement Miner & Miner's ArcFM solution, based on ESRI's ArcGIS software, for their Mumbai and Delhi Electric Distribution System. Today, more than 1,500 Reliance users access utility network data through ArcIMS

technology from any place at any time. The hallmark of Reliance Energy's enterprise-wide GIS implementation is the integrated approach. Reliance's IT department has successfully made their GIS a workspace for all field processes, from operations and maintenance to planning. The interface of GIS with other key systems helps utility managers and executives find new ways to optimize operations, increase work efficiency, and improve business processes.

"At ESRI, we are always deeply impressed by the innovation of our users," said Jack Dangermond, ESRI president. "We want to recognize the efforts of these individuals with our Special Achievement in GIS Award. This recognition is well deserved for how they've applied geospatial technology to address the needs of their industries and communities. They are defining GIS best practices."

Rajendra S Pawar receives Geospatial Entrepreneur of the Year Award Geospatial Today concluded its Annual



Special Event of Indian Geospatial Awards, Survey 2008 release and round table discussion on 25th April, 2008 held at Hotel Le Meridian, New Delhi. Mr. Rajender Singh Pawar, Chairman, NIIT, was conferred with "The Geospatial Entrepreneur of the Year Award" in this event. This Award is presented to an entrepreneur of Indian Geospatial company in recognition of his/her achievements, excellence and innovation. This Award is based on the success and efforts of the individual towards increasing employment, developing innovative business methods and economic growth.

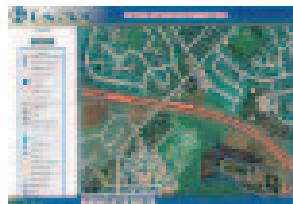
The editorial board members would like to get feedback from ESRI user community about *ArIndia News*. Kindly send your feedback to fb_ain@esriindia.com

Production Line Tool Sets (PLTS) An Efficient GIS Database and Map Production Tool

The Production Line Tool Sets (PLTS) are powerful, easy-to-use collection of software applications that provide efficient production and maintenance of digital cartographic databases. These streamlined processes allow users to create, manage and exploit multiple map product databases with increased quality at a lower cost. PLTS operate on top of standard ESRI software, providing tools designed to facilitate high-quality database production and cartographic output.

While being developed to produce standard National Imagery and Mapping Agency (NIMA) products, including digital data, PLTS leverages object-oriented ArcGIS Desktop technology to provide a "next generation," functionality rich software suite that streamlines the management and semantics of production. The fundamental architecture of PLTS for ArcGIS provides users the ability to implement their own business rules in data modeling, attribution, validation, and output with PLTS Foundation.

The PLTS product line consists of several components representing major functionality groups and several "Solutions" representing the major vertical markets. Collectively, the three PLTS components are packaged and sold together under the product name "PLTS Foundation for ArcGIS". Currently, there are three main PLTS components (Foundation Tools, GIS Data Reviewer, and MPS-Atlas) and five "Solutions" (Defense, Nautical, Mapping Agency, Intel Agency, and Aeronautical). The tools have evolved into simple, easy-to-use, menu-driven components that form a highly integrated system that enables geospatial data production.



Industry specific business rules and data models have been built on top of PLTS Foundation to make up each of the PLTS solutions. These commercial off-the-shelf solutions enable organizations to efficiently produce geospatial data while adhering to industry specific production requirements. In addition, quality control, cartographic product generation, and work flow management components are included within PLTS Foundation and are also available separately.

Key Features

PLTS were developed within the ESRI Services Production group on actual production projects. The database-centric approach enables the creation, maintenance and output of reliable, cost-effective digital data and cartographic products with following features:

- COM-compliant technology
- Customizable objects and user interface
- Robust cartographic capabilities
- In-process QC validation of attributes during editing
- WYSIWYG cartographic editing
- Custom renderer and on-the-fly symbology
- Integrated quality control tools

Project and Map Sheet Database

Sources, production areas and output products are organized and managed spatially in a geodatabase. This database houses source information in the form of hardcopy, vector and imagery data. It provides a catalog, repository and server for assigning production work orders. Finally, it is used to leverage digital data products and hardcopy maps from the geodatabase for publishing.

Geodatabase Editing Environment

PLTS streamline ArcGIS with single-click editing tools and extensions of geodatabase domains. Highly accurate geospatial data is created and maintained using menu-driven attribution tools. These attribution tools utilize user-defined integrity rules and behaviors, on-the-fly attribute validation and in-process database Quality Control (QC).

Database-Driven Cartography

Data produced can be used for high-quality cartographic output through the use of the Map Production System (MPS). MPS is a customizable, database-driven cartographic production environment within PLTS. A single production database can be used for multiple cartographic products by employing different symbology schemas. Symbology is driven by attribute tables and map series definitions. This database-centric approach simplifies and facilitates product generation and maintenance, ensures data consistency and enables map series production

System Requirements

PLTS for ArcGIS operate on top of ArcGIS software. The hardware configuration requirements for PLTS for ArcGIS are the same as those for the core ESRI software packages.

Supported hardware operating environments:

Hardware Platform: PC Intel

Operating System: Microsoft Windows 2000 or Windows XP (Home Edition and Professional)

Production Line Tool Sets (PLTS)Who will use?

PLTS extends ArcGIS for National and defense mapping organizations by turning their standard, static products into a single enterprise-wide database, giving them flexibility to serve any number of digital and hardcopy cartographic products. PLTS enable organizations to perform:

- Aeronautical Charting
- Cadastral/Parcel Mapping
- Census Mapping
- Defense Mapping
- Forestry/Natural Resources Mapping
- National Spatial Data Infrastructure Development
- Nautical Charting
- Topographic Mapping

ArcLogistics Save money and Improve your fleet efficiency

Introduction

Logistics in GIS technology meet a specific business need, bringing information to life in a way that is both visually impressive and analytically sophisticated.

ESRI's ArcLogistics a proven product built on the ArcGIS platform, will help users to improve their daily fleet operations to achieve an optimum level of performance in concern of businesses and local governments as they seek to optimize the performance of vehicle operations to save fuel, reduce labor and maintenance costs, and operate in a more sustainable manner.

ArcLogistics is used for building efficient routes and schedules in a multistep / multivehicle environment using variables that reflect user's operational workflows with following application.

- Determine which vehicle should serve each customer location in the best stop sequence
- Accommodate time windows while minimizing travel times
- Find accurate customer locations and calculate efficient routes
- Optimize resources by accounting for individual vehicle attributes (storage capacity, restrictions, special equipment, etc.).

System Requirements

ArcLogistics integrates easily with other ESRI products. Free plug-ins to the application are available to export routing results as a network analysis layer for use in ArcGIS and ArcGIS Network Analyst product. The hardware configuration requirements for ArcLogistics for ArcGIS are the same as those for the core ESRI software packages.

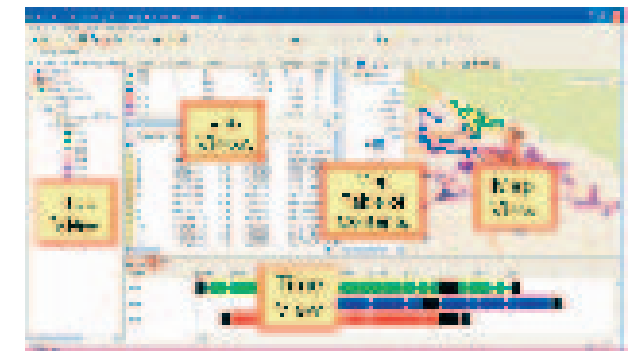
Key Features

ArcLogistics manage the fleet efficiently and reduce delivery routing costs from a small fleet operation to a large multiuser environment with following features:

- Includes high-quality data
- Prompts you to set vehicle speeds over your street network
- Builds optimized delivery routes based on actual network drive times, not straight-line distances
- Takes into account specialty of vehicles and drivers
- Imports customer orders from any Open Database Connectivity-Compliant database
- Geocodes customer addresses
- Outputs route summary reports, detailed and overview maps,

street-level directions, driver manifests, and more

- Export routes to other ESRI applications
- Integrates with Automatic Vehicle Location (AVL), accounting, Enterprise Resource Planning (ERP), and other enterprise technologies
- Offers specific solutions for territory planning, route balancing, and more from ESRI business partners



ArcLogistics Solution, who will use?

ArcLogistics solution gives the power and flexibility for fleet management and delivery routing from your desktop in less time while considering your business rules and processes in following important application fields and many more.

Courier and Messenger Industry

- Model Bids, Analyze Actual Operating Costs.
- Schedule Routes for Optimized Results.
- Preserve Matched Pairs in Efficient Routing.

Food and Beverage Industry

- Strict business rules or matched pairs, scheduling routes.
- Optimize Vehicle and Staff Usage.
- Plan and Maintain Geographical Sales Territories.

Furniture and Business to consumer

- Handle Customer Needs and Delivery Time
- Make same-day changes to schedules

Utilities and Telecommunication

- Maximize the number of service calls your technicians make each day.
- Assign calls based on skill codes
- Improve customer service through accurate scheduling.

ArcGIS Business Analyst: Map Your Way to Better Business Decisions

Introduction

All geographic information systems are built using formal models that store spatial and non spatial data in a hybrid integrated system. While the volume and complexity of the data increases every day in corporate world, the organizations need to enhance operational efficiency and delivery cost saving using a Business Analyst geospatial software. It is a valuable asset for business decision making and a complete solution for site evaluation, selective customer profiling and trade area market analysis. The Business Analyst makes it possible to analyze data from your own client database along with external public data in a whole new way to understand their clientele in relationship to specific regions and develop more focused marketing campaigns for its products.

Business Analyst Product Suite

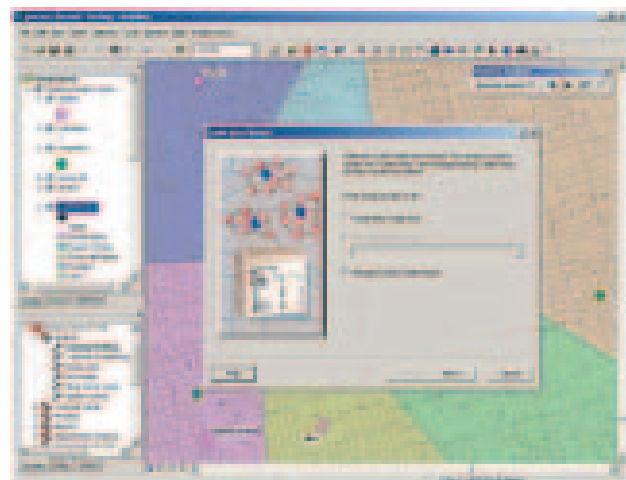
Business Analyst is an affordable and scalable extension product of server, desktop, and Web-based applications that can easily be deployed throughout corporate world for improved customer acceptance levels through mapping, analysis and managing work. The product suits are:

- ArcGIS Business Analyst Server
- ArcGIS Business Analyst desktop software
- Business Analyst Online

Key Features:

ArcGIS Business Analyst is an extension based on the world's leading ESRI GIS. It allows the company to reduce its' marketing costs and helps user to better understand the market, their customers and competition with following Applications:

- Choosing the ideal location



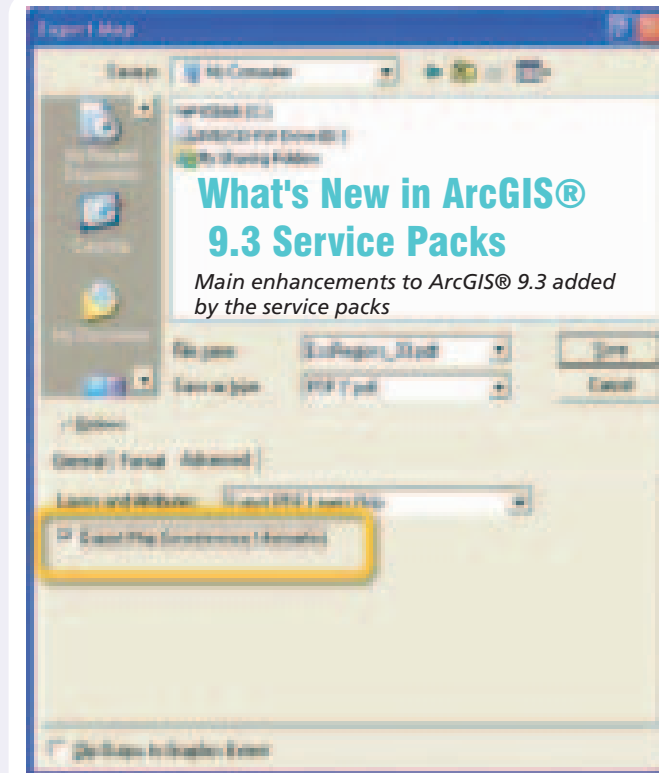
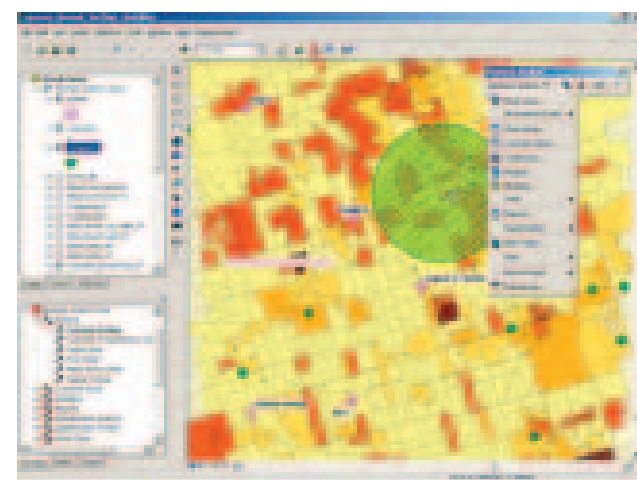
- Identifying the customers and their buying habits
- Customize and automate frequently used analyses
- Evaluate existing stores and their product mix
- Create sales territories
- Targeting underserved markets
- Select future business site

Perform site, competitive, and trade area analysis

- Build interactive sales forecast and market share models
- Create, edit, and manage sales accounts and service.
- Develop and share reports with demographic, consumer, and business data.
- Discover up-sell and cross-sell opportunities.
- Analyze the marketing strategies more quickly and accurately.

Benefits:

- Saves time and money
- Promotes internal organizational efficiencies
- Make better business decisions
- Sales success by product, site, and sales representative.
- Site locations of stores, factories, and warehouses.
- Asset location (e.g., utility poles, pipes, and cables).
- Resource locations of staff, products, and equipment.



General

Adds ability to export to Adobe Acrobat 9 PDF from ArcGIS Desktop, Engine, and Server

Adobe® Acrobat® and Adobe Reader® version 9 support a new version of PDF that allows for encoding of map coordinate system and georeference information inside the PDF file.

Service Pack 1 for ArcGIS® 9.3 enables ArcGIS Desktop, Engine, and Server applications to export georeferenced PDF files. When a georeferenced PDF is opened in a compatible viewer, such as Adobe Reader 9, the user can access geospatial functions such as coordinate readout and find XY.

After installing the service pack, the new PDF export functionality can be controlled in ArcGIS Desktop via a new checkbox in the Export Map dialog box's PDF format Advanced options panel. Installing the service pack on ArcGIS Server or ArcGIS Engine will enable map georeference output by default. Export of georeference info during Server or Engine export can be suppressed via ArcObjects™ by setting the IExportPdf2: ExportMeasureInfo property to false. Export Map dialog and the new 'Export Map Georeference Information' checkbox:

Note: This functionality was first released in a patch for ArcGIS 9.3 entitled 'ArcGIS (Desktop, Engine, Server) 9.3 Map Export Patch to support Adobe Acrobat 9 PDF'.

ArcGIS Desktop

ArcMap Tip

One of the fixes in 9.3 SP1 corrects an issue with using cached ArcGIS Server map services (such as any of the ArcGIS Online

services) in ArcMap™. When you use these services they get cached locally on your machine in your system's TEMP folder as you use them so that ArcMap doesn't have to request map tiles from the server that you've already viewed. The issue in 9.3 causes multiple local caches to sometimes be saved for the same map service. 9.3 SP1 fixes this so that only one local cache is ever saved for a particular map service you access. If you have used cached ArcGIS Server map services, such as ArcGIS Online services, in your map documents, you may be able to free up a lot of disk space in your TEMP folder by clearing all the local caches.

To do this, start ArcCatalog™ and select the Tools > Options > GIS Servers tab. Press the 'Clear Local Cache Now' button. You can do this before or after installing 9.3 SP1. This can take a few minutes to complete if the current size of your local cache is large. You don't need to do this since your map documents will continue to function correctly whether you do this or not. In addition to reclaiming disk space, clearing the local cache for all the cached map services you have used has the advantage of ensuring that the next time you open a map that uses one of these services, you'll be seeing the latest content for those services. There have been a number of improvements to several of the ArcGIS Online services since we released 9.3.

Export to CAD now at the ArcView License level

In 9.3 Service Pack 1, the geoprocessing tool Export to CAD has been moved to the ArcView® license level. The other CAD helper geoprocessing tools in the To CAD toolbox (Add CAD Fields, Set CAD Alias, and Create CAD XData) have also been moved to ArcView license levels, since they work with the Export to CAD tool.

ArcGIS Server

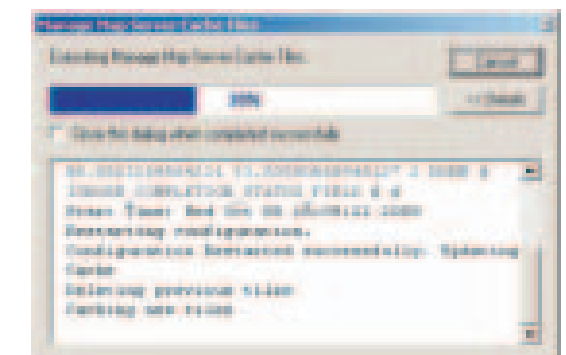
Web Services

WFS 1.0 Support

In addition to the support for WFS 1.1 offered with ArcGIS Server 9.3, the ArcGIS Server 9.3 Service Pack 1 supports the WFS 1.0 to assist with interoperability. The WFS 1.0 support is read-only and does not support transactions.

Progress indicator for map and globe caching

Map and Globe caching tools have a progress bar to help estimate the approximate time it takes to complete a caching job.



ESRI India Technology Services

Software Technical Support and Educational Services

ESRI India Technology Service maintains two distinct implementation programs to support our clients: **Technical Support and Educational Services.**

ESRI India Technology Services offers a number of technical support and educational services, to help Geographic Information System (GIS) users maximise their investment in ESRI software. These programs address a range of user needs—from individual users requiring occasional answers for their software questions to organisations needing assistance in planning and implementing an enterprise GIS solution.

All ESRI India Technology Services are designed to meet the needs of our diverse user community and to assist customers in successfully achieving their GIS goals. ESRI India's service teams have a broad range of experience to offer you the most efficient technical support, implementation solution or educational services.

ESRI India Technical Support help users every step of the way in using ESRI software, while ESRI India Educational Services provides training solutions to fit all budgets and schedules.

Software Technical Support Services

ESRI India offers support services to individual users, developers, and organisations with highly specialised needs. Providing quick answers to software-related questions and expert support for users of custom and enterprise GIS applications is the mission of ESRI India's support staff.

<http://www.esriindia.com/Support/Support.htm>

ESRI India Support Centre

The ESRI India Support Centre offers extensive online self-help support services designed to help users be successful with their ESRI software. At the ESRI India Support Centre, users can quickly find information and communicate their questions, comments, and requests to ESRI.

Online Technical Support Services

Online Technical Support Service (OTSS) is now available to ESRI GIS users in India. This Internet based service provides quality and prompt technical support facilitating the users to effectively work with ESRI software.

Please visit the following link for Online support. You can use the online user guide to know how to use OTSS.

<http://www.esriindia.com/support/otss.htm>

ESRI Inc. also offers following Services to its users

Knowledge Base

A comprehensive, searchable collection of technical articles, white papers, and system requirements for ESRI products.

<http://support.esri.com/index.cfm?fa=knowledgeBase.gateway>

Downloads

The latest software patches and service packs are provided to help users keep their ESRI software up to date. Scripts and sample code are also available.

<http://support.esri.com/index.cfm?fa=downloads.gateway>

User Forums

ESRI hosts forums for GIS professionals to browse and posts focused questions or actively help others by sharing ideas and resources.

<http://support.esri.com/index.cfm?fa=forums.gateway>

Project Centre

The Project Centre provides ESRI customers with an enterprise GIS framework and a portal to a wide range of GIS information, resources, and ESRI services. The Project Centre helps users effectively plan, design, develop, implement, and maintain GIS solutions within their organisation.

<http://support.esri.com/index.cfm?fa=projectCenter.gateway>

Benefits of Annual Service Contract

We hope that your organisation has derived rich benefits from its experience of using ESRI GIS Software and our Software Support Program that offers several benefits to ESRI software users

- Software Updates
- Online Technical Support
- Onsite Technical Support
- Phone/e-mail/Fax Support
- Training on ESRI GIS Software
- ArcNews and ArcIndia News Subscription
- ESRI India User Conference
- ESRI International User Conference

Educational Services

ESRI India knows that education and training are vital to every successful GIS implementation and understands the challenges of keeping GIS skills and knowledge up to date.

Instructor-Led Training

ESRI India offers a wide variety of instructor-led courses that explain GIS concepts, explore GIS applications, and teach how to use ESRI GIS software and related technologies. Instructor-led training combines personal delivery, hands-on experience, and class participation to create a rich learning environment. Attendees have ample time to practice their skills and apply what they learn, and instructors have the expertise to answer specific technical and application questions. Classes are held in small groups at ESRI India's state-of-the-art training facilities and at client sites and are always led by experienced, knowledgeable staff.

Virtual Campus

ESRI also offers Free and Paid online courses through virtual campus.

<http://training.esri.com/gateway/index.cfm>

Careers at ESRI India

1. Role: Asst Project Manager / Project Manager

Experience: Should have 7+ years of experience in project planning and execution within planned time, cost and quality norms by ensuring effective utilization of the allocated resource.

Skill Sets:

- Knowledge of .Net, Java & J2EE
- Should have sound knowledge of GIS Domain with specifically ESRI technology i.e ArcGIS Server, ArcGIS, ArcSDE, ArcIMS
- Should be hands on with full GIS project life cycle experience
- Experience of team handling, task management and process management
- Solution Architecting and developing project plans.
- Scoping - determining scope, write scope documents and SOWs

Soft Skills:

- Should have good communication skills with experience in managing teams & handling customer requirements

2. Role: GIS Engineer / Sr. GIS Engineer

Experience: Should have 2-7 years experience in GIS

Skill Sets:

- Knowledge of .Net, Java & J2EE
- Working level experience on different OS/Hardware Platforms viz. Windows/Intel,
- Should have sound knowledge of Database / RDBMS like Oracle, MS SQL Server
- Should have sound knowledge of GIS Domain with specifically ESRI technology i.e ArcGIS Desktop
- Should have awareness of various WebServers like IIS, Apache tomcat, etc.
- Sound fundamental knowledge of Network Communications(TCP/IP, http, https, etc.), Client Server Architecture
- Should have good communication skills with experience in managing customer interactions & handling customer requirements
- Should have inclination towards customer technical support services.

Responsibilities:

- Technical Support
- To ensure that the technical support calls from the clients in the entire region are handled by the technical services team in the region as per the QMS goals/ SLA's defined.
- To attend to technical support calls and resolve them as per the QMS goals / SLA's defined.
- To provide onsite technical support
- To install products in a heterogeneous environment
- To set up testing environment.
- Trainings
- Pre Sales
- To demonstrate software functionalities to customers

3. Role: Business Executive / Sr. Business Executive

Experience: 2 to 6 years of experience in selling IT services and solutions/ Telecom.

Skill Sets:

- Should have handled Large Corporate and Govt. Accounts.
- Establishing and developing large government accounts, new account development and channel development.
- 2 years experience in managing large accounts. Exposure to IT / Telecom- software product sales, Systems Integration is a must.
- GIS market understanding shall be preferred.
- Should have high target Orientation & result orientation
- Excellent communication skills and interpersonal relationship

e-mail your resume to gistalent@esriindia.com or send it through post to:

Head, Human Resource, ESRI India
8, Balaji Estate, Sudarshan Munjal Marg, Kalkaji, New Delhi - 110 019, INDIA.

Kindly mention the position applied for and your current location in the subject line.



ESRI India
GIS and Mapping Solutions