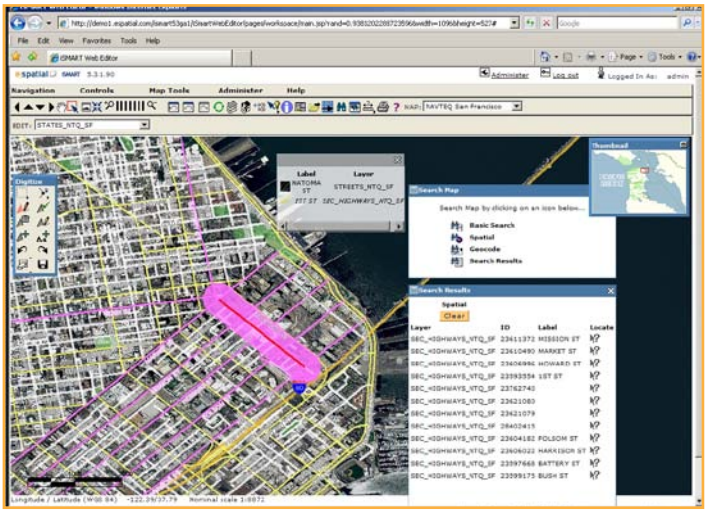
iSMART

iSMART® from eSpatial is a software product for web multi-user business applications incorporating GIS functionality and web services, in standard Enterprise IT environments, including Oracle Spatial.



Example iSMART Web Application

Components

The iSMART Enterprise Geospatial Suite includes the following components:

- ***iSMART Server:* A scalable, secure, transactional, multi-user server for spatial applications . This runs within standard enterprise java (j2ee) application servers, and uses Oracle spatial / locator databases. Functions provided include Map Viewing and querying, Pure Web Editing, Open Geospatial Consortium Web Services, and a Web based Administration Tool.**
- ***iSMART Developer:***
- ***iSMART Web Developer:* Rapid Development of spatially-enabled web applications: Custom tag libraries (JSP) and AJAX libraries for interactive web applications, including spatial editing; Documentation and Sample applications (including a pure *Web Editing sample application).***
- ***iSMART Java API:* A rich set of Java objects for custom application development.**
- ***iSMART Editor / iSMART Mobile:* for mobile use and very rich client-side functionality such as client-side topology and validation, iSMART also includes a Java applet for multi-user spatial editing - iSMART Editor.**

This may be embedded in applications, and may be customised or extended. It provides options to connect via iSMART Server or direct to database. iSMART Editor may be used off-line or occasionally connected, with later synchronisation of editing changes to Oracle.

Key Features

Some of the many functions provided by iSMART are:

- ***Pure Web:* All functions including editing are provided in a pure web environment (using AJAX) with no active-X control, plug-in, applet or download needed in the browser.**
- ***Viewing and Analysis:* including pan, zoom, attribute information, search, query, measurement, etc. Layer precedence may be set by administrators and overridden by users. Map layer *styling & symbolization* may be configured, and toggled on and off either manually or at pre-defined scales. Layers may be filtered or split by attribute. Also *Map Bookmarks* may be saved and viewed.**
- ***Labelling* options include label positioning, font, halo, box, anchor point, duplicate text suppression, partial object labelling, clash detection, and offset.**
- ***Web Editing:* iSMART includes robust pure-web editing capability with session management, undo & redo, locking, and a wide range of spatial editing functions such as attribute entry, draw, move, delete, vertex editing, and snapping. (See additional data sheet).**
- ***Web and Batch Printing:* iSMART provides map plotting from the web, client, and server, with a user interface to customise print layouts. This includes the ability to deliver vector data in PDF files to the web browser for plotting to scale.**
- ***OGC Web services* (WMS, WFS, GML): iSMART can expose all data via OGC WMS and WFS servers and can use data from remote WMS servers.**
- **Thematics: Users may define and display thematic queries, including by range, discrete values, database joins, and spatial and SQL functions.**
- **Export View to various formats; Export to Excel information for selected features.**
- **Role Based Access Control for data sets and for functions.**
- **Versioning: Options to use Oracle workspace manager or database-column based versioning.**
- **Metadata entry, viewing, and searching is provided to easily find useful spatial data sets. Administrators may define metadata profiles to support metadata standards such as ISO 19115 and ISO 15836 ("Dublin Core"), FGDC, eGMS / Gemini, and custom profiles.**
- **Web-based Administration provides easy-to-use web set-up of spatial data from Oracle and geospatial web services, including definition of Maps, Styling, Metadata, and Role-based access restriction.**

Data Sources

The native data store for iSMART is Oracle Spatial or Locator. iSMART supports very large, global scale Oracle databases. A single iSMART server can access multiple data sources in a ***distributed database environment.***

Spatial data sources supported by iSMART include:

Vector (SDO) – including lines, polygons, points (symbols), and multi-points/lines/polygons,

Oracle 10g Geocode,

Oracle 10g Georaster,

Geo-referenced imagery for Oracle Locator and for Oracle 9i,

RADIUS topology and **Oracle 10g Topology,**

Access to **OGC WMS** services,

Other Web Map Services: **Yahoo Maps,**

Live data feeds (such as GPS tracking data),

Temporal mark-up and analysis of spatial data.

Custom data sources– proprietary data formats, image servers, etc.

Tabular (alphanumeric) data integrated with spatial data.

iSMART includes a **Shapefile Import** utility.

Oracle MapViewer

iSMART optionally uses the MapViewer component provided with Oracle Application Server to render spatial data. This allows data rendered by Mapviewer to be combined with all other data managed by iSMART, and adds iSMART's tools for data management, Editing, and publishing to Mapviewer.

Technical Specifications (selected)

OGC: WMS 1.1.1, GML 2.1.2, WFS 1.1
Java, Java 1.4.2 & 1.5 ("Java 5"), J2EE 1.3 & 1.4, JSP
Image output: jpeg, png, tiff, bmp, gif svg

Software Requirements

User Interface

Web Browser - Microsoft Internet Explorer v6 or v7 or Mozilla FireFox 2.0
iSMART Editor and Mobile - Java J2SE 1.4.2 or 1.5

Database Server

Oracle 10g (R2) or 9i (R2)
May use Spatial option, or Locator.

Application Server

Supported Enterprise Java Application Servers:
Oracle 10g AS or OC4J (10.12) (with Java 1.4.2_06)
BEA Weblogic v8.1 sp6 (with Java 1.4.2_06)
BEA Weblogic v9.2 MP1 (with Java 1.5)

Supported Operating Systems:
Windows XP, Windows 2003 Server, RedHat Enterprise Linux AS 4, SUN Solaris 10.

Hardware Requirements

Hardware requirements depend on expected user numbers, data sizes, usage patterns etc. iSMART is typically deployed with separate application and database servers. It may be clustered for reliability and scalability. Separate web servers may also be deployed.

Development PC / Minimum Server Configuration

Pentium III 1GHz+, 1 CPU, 2GB+ RAM, 20GB+ Disk
The configurations below are recommended for typical larger scale deployments.

Application Server / Database Server

Xeon 2GHz+, 2+ CPUs, 6GB+ RAM, 20GB+ Disk
Or 2+ SUN UltraSPARC IIIi CPU …For database server: RAID 5+ disk array, >100Gb capacity (May cluster servers. Individual server specifications are typically reduced when clustered.)

User Workstations

Any device capable of running a web browser.
It is necessary to comply with any licensing and other restrictions imposed by Yahoo on the use of their mapping services.

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