

Spatial Direct in the City of Richmond



GIS Inquiry Tool

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History



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Web based Solutions to Infrastructure and Asset Management

- In the early 1980s the City of Richmond incorporated the use of GIS. A Bellingham company named Geographic Technology Incorporated (GTI) developed the GIS package for Richmond which was based on Wang technology (GDMS or Geographic Data Management System).
 - Each user's request to extract/convert data to AutoCAD or to other format required a custom program to be written.

History



Web based Solutions to Infrastructure and Asset Management

- In 1996, Environmental Systems Research Institute (ESRI) bought GTI. The City of Richmond moved to the ESRI suite of tools which included ArcSDE.
 - Research was conducted to find software that would allow the City to implement this migration.
 - During the 1996 ESRI conference in San Diego, City staff discovered the Safe Software company.
 - Safe Software incorporated into their FME product a WANG reader that allowed the City of Richmond to migrate data from WANG to ArcSDE successfully.

ArcSDE and FME



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- Since that time, the City of Richmond uses FME to do data extract/conversion from ArcSDE to various data formats.
 - AutoCAD (most popular).
 - ESRI arc/info coverage.
 - ESRI arc/info export (E00).
 - ESRI arc/info Geodatabase (access).
 - ESRI arc/info shape.
 - MapInfo MID/MIF.
 - Microstation design.

ArcSDE and FME



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- There are approximately 3 to 4 requests a week from internal staff to do data extract/conversions.
 - In most cases FME is able to handle these requests without the need for custom programming.
 - Before the City of Richmond's GIS inquiry tool and SpatialDirect, only staff with FME software were able to perform these requests.

GIS Inquiry Tool



Web based Solutions to Infrastructure and Asset Management

- Phase One
 - The City of Richmond creates the GIS inquiry to supply staff members with GIS data. SpatialDirect was incorporated for staff members to download vector data.
- Phase Two
 - The City of Richmond launched the public GIS inquiry by removing sensitive information from the staff site and making it accessible through the city's main web page.

GIS Inquiry Tool



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- Phase Three
 - Will allow the public to purchase additional information and download vector data through the public web-mapping site.

FME



- The decision was made not to use ArcSDE data directly in the GIS Inquiry tool because of security reasons.
 - The City uses an overnight FME process to create shapefiles from the ArcSDE database onto an isolated web server.

Benefits



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- Consistent performance
 - If the ArcSDE or internal network goes down for any reason, or maintenance is required, the website can still be up 24 hours a day, 7 days a week.
- Security
 - The public has no possible access to the City's ArcSDE database.

Spatial Direct



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- SpatialDirect is part of FME software that is responsible for providing the download functionality.
 - SpatialDirect is responsible for automating the process between the internet user and FME. The user selects the parameters and SpatialDirect creates the requests command lines that FME understands.

GIS Inquiry Tool



City of Richmond GIS - Microsoft Internet Explorer

Address: http://map.city.richmond.bc.ca/website/gis_city/viewer.htm

City of Richmond GIS INQUIRY

Cursor will: Zoom In

Active Layer: Sanitary Main Lines

Services Layers Legend

Search by:

Select Services and Click on REFRESH MAP

- Property Features
 - 2002 Aerial Photography / Addresses / Legal Description / Property Dimensions / Government Owned Properties
- Recreation and Cultural Services
 - Parks / Community Centres / Skating Arenas / Swimming Pools / Golf Courses / Libraries / Play Houses / Public Art
- Community Safety Services
 - Police Stations / Fire Stations / Ambulance Stations / Hospitals
- Government Services
 - Elementary / Secondary / Post Secondary Schools / Voting Districts
- Planning Services
 - Planning Area Boundaries / Agricultural Land Reserve / Env. Sensitive Areas / Noise Exposure Forecast 2011 / Development Permit Areas / Heritage / Zoning
- Engineering Services
 - Street Trees
 - Water Works System
 - Sanitary Sewers
 - Street Lighting
 - Drainage
 - Rights of Way

REFRESH MAP

Map: 490477.82, 5445677.22 -- Image: 839, 215 -- ScaleFactor: 0.6801784641726087

Download Button

GIS Inquiry Tool – Download Tool



The screenshot displays the City of Richmond GIS Inquiry tool interface. The main window shows a map of a residential area with streets like PARK RD, SWELL ST, COONEY RD, ECKERSLEY RD, ECKERSLEY A, ANDERSON RD, ST ALBANS RD, and BENNETT RD. A 'Download' dialog box is open in the foreground, providing options for downloading map data. The dialog includes a 'Download Format' dropdown set to 'AutoCAD DXF (R2000)', a 'Coordinates' dropdown set to 'UTM Zone 10 NAD83', and a 'Layers' list with 'PROPERTY', 'Street Names', 'City Hall', and 'Voting Districts'. The 'Email Notification Address' field is empty. A 'Translate Data' button is at the bottom of the dialog. The background interface includes a toolbar with 'Zoom In', 'Zoom Out', 'Pan', 'Last View', 'Max View', 'Overv. Map', 'Print', 'Identify', 'Property Info', 'Select', 'Query', 'Buffer', 'Clear', 'Measure', 'Set Units', and 'Download'. A sidebar on the right lists various services such as 'Property Features', 'Recreation and Cultural Services', 'Community Safety Services', 'Government Services', 'Planning Services', and 'Engineering Services'. The 'Active Layer' is set to 'Sanitary Main Lines'. The status bar at the bottom shows the map coordinates and scale.

City of Richmond GIS - Microsoft Internet Explorer
Address: http://map.city.richmond.bc.ca/website/gis_city/viewer.htm

City of Richmond
British Columbia, Canada
GIS INQUIRY

Zoom In Zoom Out Zoom In / Out to: Pan Last View Max View Overv. Map Print
Identify Property Info Select Query Buffer Clear Measure Set Units Download

Cursor will: Zoom In
Active Layer: Sanitary Main Lines

Services Layers Legend
Search by: []
Select Services and Click on REFRESH MAP

Download
Click [HERE](#) to get more information
This tool downloads the current contents of the Main Map.
Set the Download Format and other options as desired, when finished, click **Translate Data**.
Note: Download of 2002 Aerial Photography is unsupported.

Clip Data Export Selected Set

Download Format: AutoCAD DXF (R2000) Coordinates: UTM Zone 10 NAD83

Layers:
PROPERTY
Street Names
City Hall
Voting Districts

Email Notification Address:
[]

Translate Data

Map: 490487.34, 5445815.98 -- Image: 853, 11 -- ScaleFactor: 0.6801784641726087

Start Quarter Section Develop... D:\GIS_Related_Event... URISA_BC_MAY26.ppt City of Richmond GIS - Mi... FME Download - Microsoft...

2:44 PM

GIS Inquiry Tool – Results of Download



The screenshot displays the City of Richmond GIS Inquiry tool interface. The main window shows a map with various layers and a toolbar with options like Zoom In, Zoom Out, Pan, and Buffer. A secondary window titled "SpatialDirect: Query Results" is open, displaying the following text:

Your query successfully completed.
Results will be available until Fri-23-Apr-2004 03:55:13 PM Pacific Daylight Time (PDT)
[Click here to download your results in a zip file.](#)
[Click here to download the translation log.](#)

The interface also includes a sidebar with a search box and a list of services and layers, such as Property Features, Recreation and Cultural Services, Community Safety Services, Government Services, Planning Services, and Engineering Services. The "Engineering Services" section is expanded, showing options like Street Trees, Water Works System, Sanitary Sewers, Street Lighting, Drainage, and Rights of Way. The "Sanitary Sewers" option is checked.

GIS Inquiry Tool – Download Complete

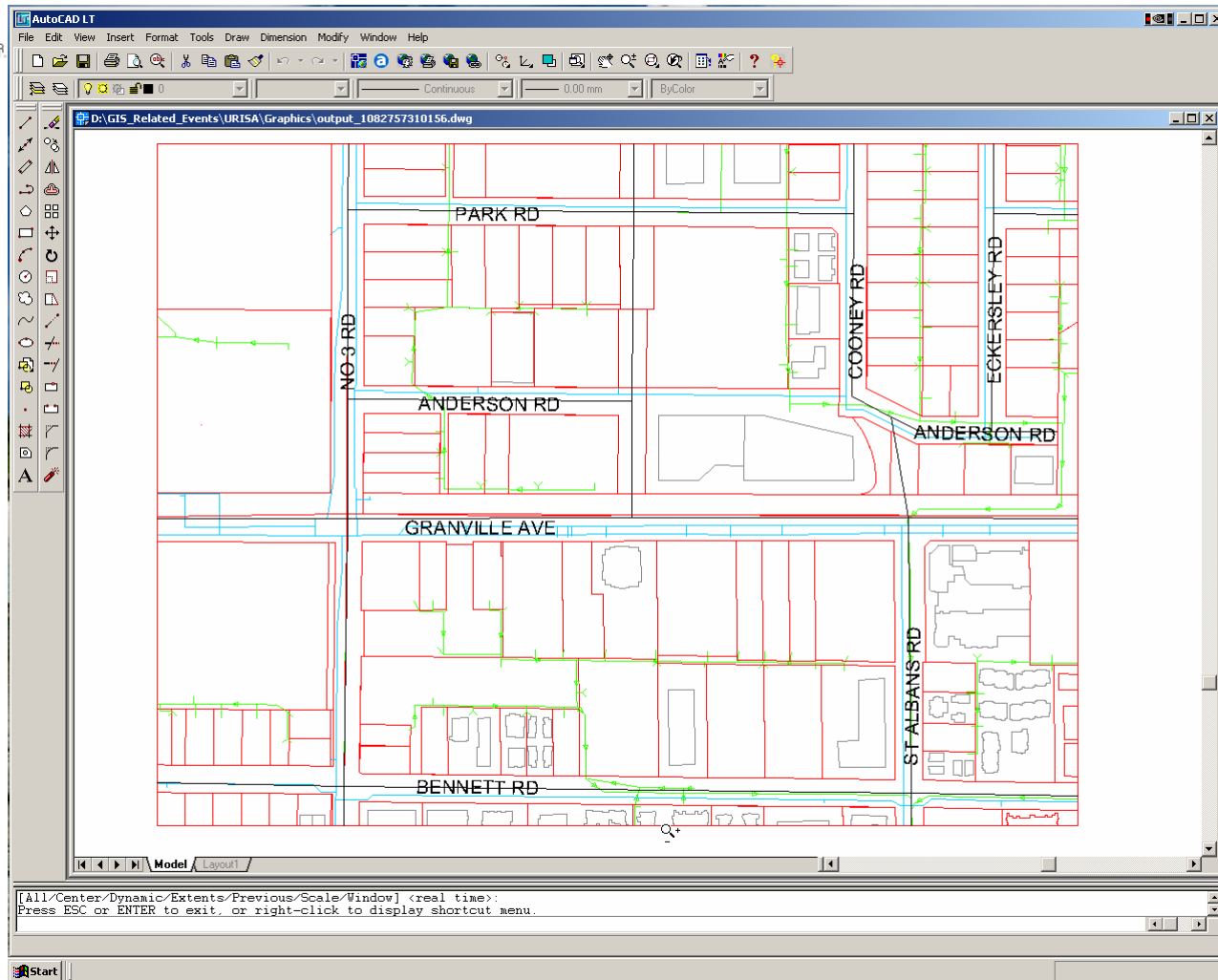


The screenshot displays the City of Richmond GIS Inquiry tool interface. The main window shows a map with various layers and a sidebar with service categories. A dialog box titled "Download complete" is open, indicating that the download of the query results is finished. The dialog box provides the following information:

- Download Complete
- Saved: FME_b016361034757183.zip from map
- Downloaded: 220 KB in 1 sec
- Download to: D:\GIS...\FME_b016361034757183.zip
- Transfer rate: 220 KB/Sec
- Close this dialog box when download completes

The background interface includes a toolbar with options like Zoom In, Zoom Out, Pan, and Identify. The sidebar on the right lists various services such as Property Features, Recreation and Cultural Services, and Engineering Services. The status bar at the bottom shows the map coordinates and scale.

GIS Inquiry Tool – Conversion to CAD



BENEFITS



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- SpatialDirect allows staff members to complete data extract/conversion requests on their own.
- Staff from different departments use this download function.
 - Engineering
 - Parks
 - Planning

GIS Inquiry Tool Technology



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Web based Solutions to Infrastructure and Asset Management

- City of Richmond configuration
 - Windows 2000 server
 - Tomcat web server
 - Serves the web site, ArcIMS & FTP site
 - ArcIMS web mapping GIS Inquiry Tool
 - SHAPE source data
 - derived from the corporate ArcSDE database
 - SpatialDirect data download technology

SpatialDirect Components



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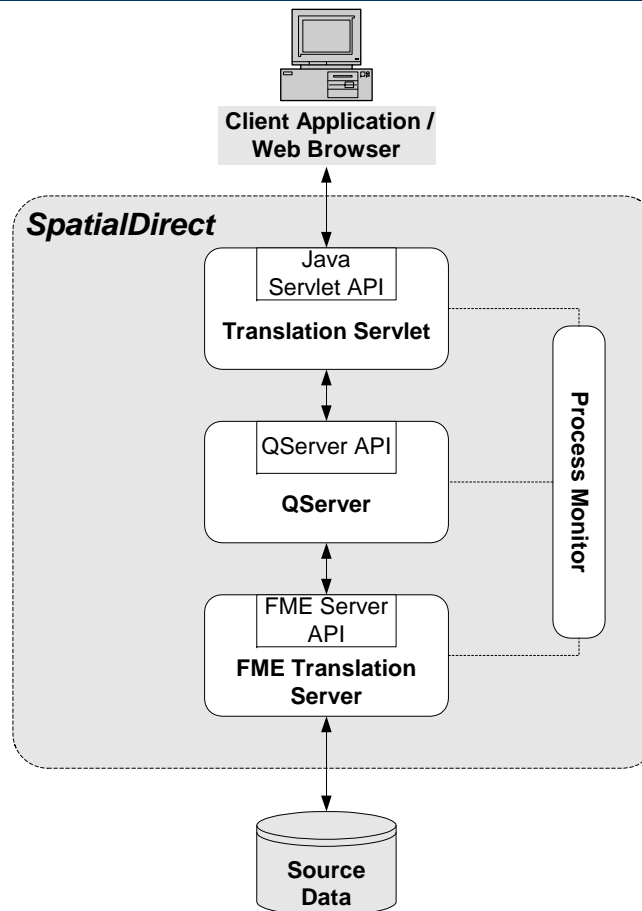
Web based Solutions to Infrastructure and Asset Management

- Four components to a standard configuration:
 - FME Server
 - FME running continuously in server mode
 - QServer
 - Translation queuing, load balancing, fault tolerance
 - Translation Servlet
 - Converts web browser translation requests and passes them to the QServer as FME commands
 - Process Monitor
 - Monitors status of other SpatialDirect components

SpatialDirect Components



Web based Solutions to Infrastructure and Asset Management

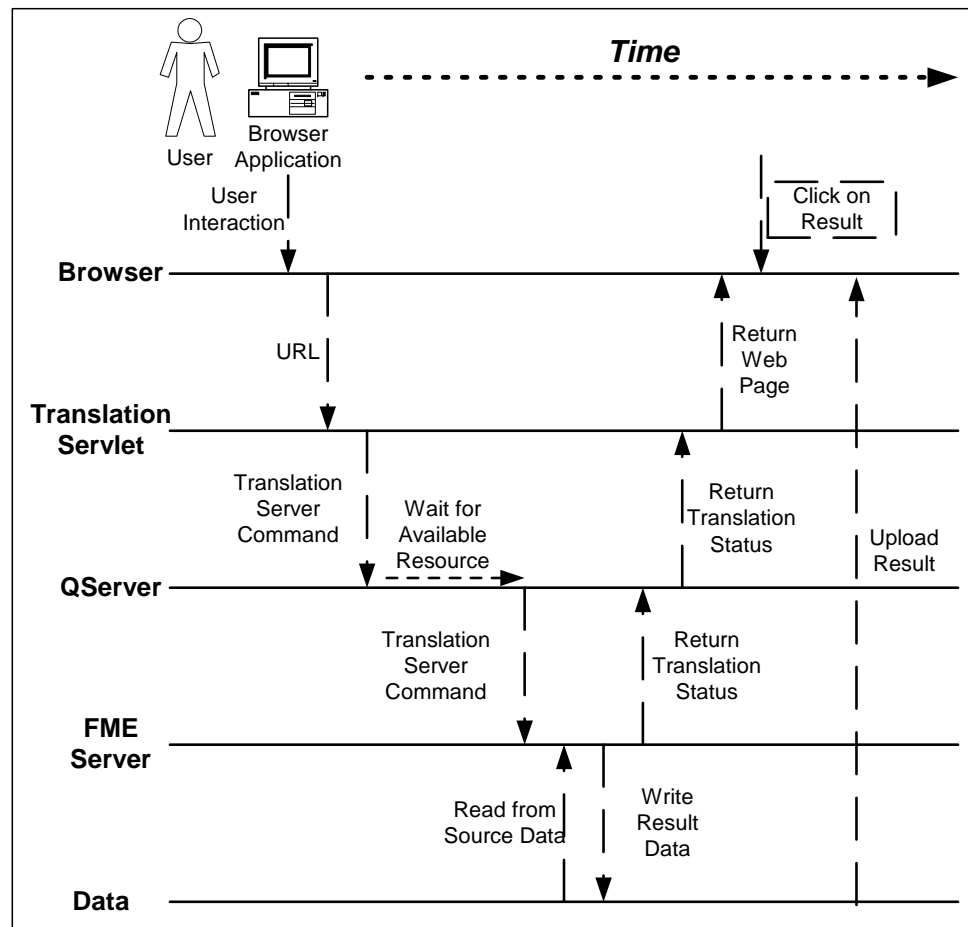


Sequence of Operation



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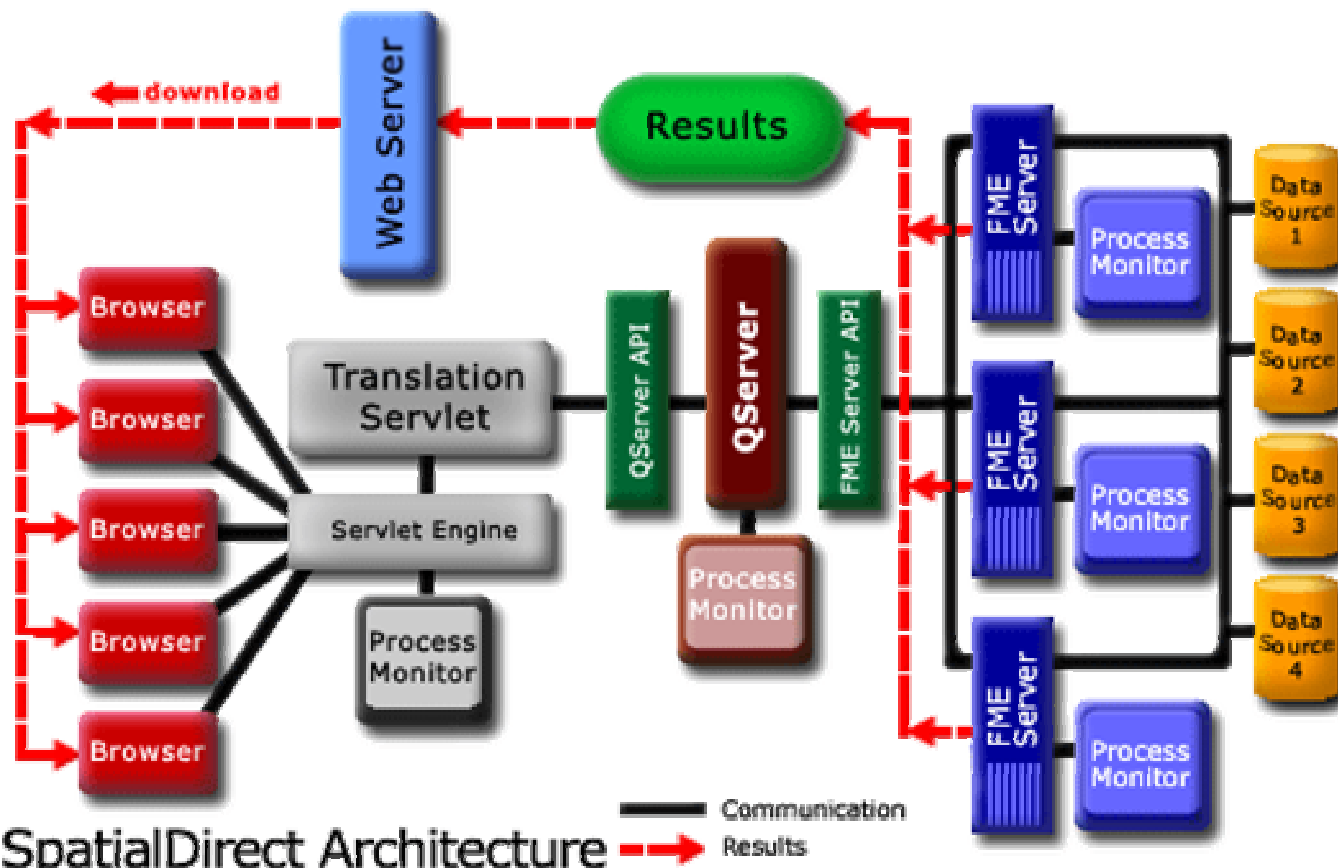
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Flexible Configuration...



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Questions?



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