

## Brian K. Johnston

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## Summary

I am a Senior Geographic Information System (GIS) Programmer with a bachelor's degree in Business Computer Systems from the University of New Mexico and over 21 years of experience developing leading edge information systems. I specialize at process improvement through effective systems analysis, design, and automation. Though I am constantly adopting new methods and technologies, I stick with my approach of thoroughly analyzing the existing operations and computer systems before moving forward to propose solutions purposely designed to reduce costs and / or increase revenues and productivity.

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## Computer Skills

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### Languages

- Proficient in: C#, Actionscript, Javascript
- Familiar with: XAML, Visual Basic, C, C++, Java, Python, Borne Shell, C-Shell, COBOL

### Software

- GIS: ESRI ArcGIS Server, ArcGIS Desktop, Image Server, ArcSDE, Google Maps, Bing Maps
- Databases: SQL Server, Oracle, DB2, Spatial Extensions, Access, CouchDB, PouchDB
- Web: SharePoint, DNN
- Development: Visual Studio, Flash Builder, Eclipse, Subversion, GitHub, Mercurial, Assembla

### Mobile SDKs

- iOS, Android, Windows Phone, Adobe Air, PhoneGap

### Web SDKs

- ASP.NET, Razor, AngularJS, jQuery, Dojo, HTML5, CSS3, Bootstrap

### GIS SDKs

- ESRI Flex, Silverlight, JavaScript and Web ADF APIs for ArcGIS Server, ESRI ArcObjects, Python, Google Maps, Bing Maps

### Operating Systems

- Windows 7, Windows 8, Windows Server 2008, 2012, UNIX, Mac, AS400, MVS

### Cloud

- Amazon EC2, Amazon S3, VMWare, Softlayer, Arvixe, 3 Essentials, MacInCloud, Google Sites, Cloudant, IrisCouch
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## Experience

Senior GIS Software Developer

October 2013 – Present (8 months)

#### **DATA-EASY, Cedar Crest, NM**

- In November 2013 I began developing the *DATA-EASY Field Data Collector*, a Mobile GIS App designed for business process improvement. The idea of the **DATA-EASY Field Data Collector App** was formed from years of personally struggling to train engineers in the U.S. and Afghanistan to effectively collect accurate field data with GPS coordinates and digital photos using the existing field data equipment and software available at the time. It became clear the equipment and software we had was too complicated and expensive to provide to large teams of field engineers. To resolve that issue, I developed two versions of a Mobile App for the **NATO Training Mission Afghanistan (NTMA)** which were easy to use and ran on inexpensive smartphones and tablets. To accomplish this, I led a widely distributed team of developers and field engineers which developed and tested that App, and the associated ArcGIS Server Web applications, for over two years in the fields of Afghanistan. After returning from Afghanistan in July 2013, I decided to re-develop and improve upon the App myself using the latest cross-platform mobile technologies of the day. The **DATA-EASY Field Data Collector App** is now commercially available from the Google Play, Apple Apps and Windows Phone Stores here:

Google Android App: <https://play.google.com/store/apps/details?id=com.alpinetechsolutions.fdc>

Apple iOS App: <https://itunes.apple.com/us/app/data-easy-field-data-collector/id866091405?mt=8>

Windows Phone App: <http://www.windowsphone.com/en-us/store/app/fielddatacollector/2d64baa5-da6f-4191-a0a4-caae4a1db79d>

- Developed an ASP.NET website, with the DNN Content Management System, to provide information about the *DATA-EASY Field Data Collector Mobile App* I developed ( <http://www.data-easy.com> ).

### Senior Applications Developer

October 2009 – October 2013 (4 years)

#### **AMEC Environment and Infrastructure, Albuquerque, NM and Kabul, Afghanistan**

- Wrote proposals and delivered presentations which built new business for AMEC
- Managed the **Afghanistan Infrastructure Data Integration System (AIDIS)** project for FY 2012, 2013 and 2014 with budgets that grew from over \$600,000 for FY 2012 to over \$1,063,000 for FY 2014. AIDIS is a national **facilities management information system** which features an **ESRI ArcGIS Server 10.1 GIS Flex Viewer, iOS and Android Mobile Apps** tied together by a **web-based DNN Geo-Portal** serving over 400 Gig of GIS Vector Data, Aerial and Satellite Imagery and engineering documents. In addition, AIDIS is asynchronously symmetrically replicated over satellite and by DVDs to data centers at **Camp Eggers** in Kabul, Afghanistan and another data center in Georgia, USA. AIDIS provides high-performance seamless workflows which begin with collecting digital data with the mobile apps in the fields of Afghanistan, uploading and consolidating data to servers located in the AMEC Compound in Kabul, and finally replicating to other data centers close to users performing quality assurance, editing, and search / print workflows throughout Afghanistan and the United States.
- Managed a project team of more than ten software developers, testers, GIS Analysts, and system administrators which were distributed across the globe in Afghanistan, Britain, Canada, and the U.S.
- Lived and worked for six months in Kabul, Afghanistan, gathering requirements, developing software, deploying mobile apps and geographic information systems, and training engineering personnel of AMEC and military personnel of the **NATO Training Mission Afghanistan (NTMA)**
- Led the development of the **AMEC GIS Cloud (IMCloud)** which provides a platform for AMEC to share virtual Windows Servers, internal and external facing websites, *ArcGIS Server* licenses, and *SQL Server* licenses.
- Developed several ESRI Enterprise GIS applications featuring GIS Viewers developed with **ESRI ArcGIS Server 9.2- 10.1** and the **Flex, Silverlight, and Javascript ArcGIS Server Web Viewer APIS** for multiple Flood Control Agencies, County Agencies and Departments of Transportation. One of the ESRI Flex GIS Viewers I worked on received an [ESRI Special Achievement Award in 2011](#).
- Authored GIS Needs Assessment Reports for the Middle Rio Grande Council of Governments and the Southern Sandoval County Flood Control Agency.

### Lead GIS Software Developer at the Bureau of Indian Affairs, Southwest Regional Headquarters

2007 – 2009 (2 years)

**Lockheed Martin Information Technology, Albuquerque New Mexico**

- Worked closely with personnel from the BIA, BLM, and other agencies within the DOI on the **TAAMS-Spatial Pilot Project** to design, propose, and partially prototype a new 19 million dollar Indian Lands Cadastral GIS, using *ESRI ArcGIS Desktop and Server 9.2* with *Citrix*.
- Responsible for the maintenance, development, and administration of the **BIA Land Title Mapper (LTM)**, a Certified Federal System used to manage BIA official land title information within a web-based interactive GIS Viewer built with *ArcGIS Server 9.1, ArcSDE, Oracle* and *DotNet*.
- Developed a Windows desktop / *ESRI ArcEngine 9.2* GIS Application named the **BIA Auto Parcel Generator** which automatically generated over 40 thousand land parcel polygons from textual land title descriptions taken from the official BIA land title system. This application cross referenced the text legal descriptions with the *Public Land Survey System (PLSS)* geometry to build the geometry for land parcels.
- Developed the **BIA Indians Lands Map**, an enterprise wide Federal GIS featuring an *ESRI ArcGIS 9.2 Web ADF Viewer*, nationwide BIA specific cached maps, imagery, routing, geocoding, searching, printing and more.
- Developed the **PROGIS** and **AKGIS Regional Cadastral Web Map Viewers**, with *ArcGIS Server 9.2*, featuring cached maps, imagery, custom toolbars, tasks and export of print layouts to PDF.

Enterprise GIS Architect

2004 – 2007 (3 years)

**Werner Enterprises, Cedar Crest New Mexico and Omaha Nebraska**

- Led the development of **Werner iMap**, which is a mission critical web-based GIS application (*ESRI ArcIMS, ArcSDE, DB2* and *DotNet*) which tracks more than 9,000 trucks, 24,000 trailers and 11,000 employees in near real time, detailing the status of trucks, trailers, drivers, and loads. This includes their routes, heading direction, origin, destination and delivery stops.
- Developed an *ArcGIS Server 9.2* GIS Business Intelligence Web Application which displays mobile asset inventories across the nation symbolized on maps by attractive pie chart, stacked bar chart and graduated symbol styles.
- Developed maps with *ESRI ArcMap* which helped executives to make multi-million dollar decisions. Examples include truck traffic flow analysis maps from which commercial real estate purchasing decisions were made, fuel surplus charges were calculated and nationwide transportation networks were optimized. Other examples include traffic flow funnel maps from which marketing regions were defined.
- Spatially enabled an enterprise DB2 data warehouse with Spatial Extensions by developing an *ArcObjects* automated spatial data transformation system, with routing and geocoding, that keeps spatial data up to the minute.

Entrepreneur / Software Developer /  
Consultant

June 1997 – June 2004 (7 years 1 month)

**JTech Software Albuquerque, New Mexico**

- Beginning in 1997, I developed and distributed **Wireless Secretary Pro for Outlook** telecommunications software commercially to consumers worldwide via e-commerce. *WSPro* provided several methods to forward real-time appointment reminders and email from *Microsoft Outlook* to text pagers in the days before wide availability of *Blackberry* and Cell Phones. This software gained public notoriety and earned a prominent position on the *Microsoft Outlook Add-Ins* webpage which provided most of the sales leads.
- Sold multiple site licenses to major tech companies including Intel, Motorola and Compaq. It also became widely used by emergency responders and medical doctors
- In 1999, JTech Software secured a lucrative U.S. government sub-contract to provide software development services to the **U.S Air Force Safety Center Headquarters at Kirtland Air Force Base, New Mexico**. Under this sub-contract, I led the development of the **US Air Force Safety Automated System (SAS)**, with over 2000 military personnel active users worldwide in the year 2000. SAS revolutionized the way the USAF Safety Community works by providing secure worldwide access to the USAF Safety Mishap Database through a dynamic website. SAS utilized advanced Internet technologies of the time including *Oracle Web Application Server 4.07.1, Oracle 8i Database, Microsoft Exchange Server 5.5, IBM AIX* and *Microsoft NT*.
- Designed a powerful Application Programming Interface (API) written entirely in PL/SQL database packages. The API enabled application programmers to easily create powerful web forms and asynchronously execute web reports. In addition, the API enables programmers to include *Microsoft Exchange* based workflow messaging functions within the web forms and reports.

- Managed three computer programmers on the SAS project.
- Administrated Oracle Web Application Servers and Oracle Databases.
- Developed a computer based training course and instructed ninety-six students in a computer-equipped classroom.
- Created a *Visual Basic 6.0* application that integrates an Oracle database with *Microsoft Exchange Server*. The VB application uses *Microsoft Collaboration Data Objects* and *Microsoft Remote Data Objects* to deliver workflow functionality from the SAS Internet interface to users via Internet email.
- Authored system analysis and design documents including the *SAS Feasibility Assessment*, *Legacy System Data Flow Diagrams*, *Legacy System Data Dictionary*, *SAS Problem Statement*, *SAS Functional Requirements Spec*, *SAS System Proposal*, *SAS Hardware and Software Requirement Spec*, *System Architecture Diagrams*, *SAS Testing and Configuration Management Policies and Procedures*.
- In April 2003, **JTech Software sub-contracted to Unisys** to provide Database Administrator / Software Developer services at the **US Air Force Laboratories** for the **G2 Financial System Development Project**.
- Developed and administrated Oracle Enterprise 9i databases and Apache application servers (Sun OS) for the G2 Financial System. The G2 Financial System was used by the Air Force to manage the budgets for projects at the US Air Force Research Laboratories.
- Developed C#, .NET web services to integrate a legacy database (Microsoft SQL Server) application with new database (Oracle 9i) applications.
- Worked with other developers and managers to design the data model for the USAF Research Laboratory Human Resources Database.
- Wrote and monitored UNIX c-shell scripts to startup, shutdown, backup, and perform daily data loads into *Oracle9i* database instances.

## ESRI ArcIMS / ArcSDE Administrator

**February 2002 – April 2003 (1 year 3 months)**

### **PetroWEB Inc. Durango Colorado and Denver Colorado**

- GIS architect and administrator for a dot-com enterprise providing Internet mapping applications, data hosting services, system administration, and application development to five major oil companies.
- Continually tuned *ArcSDE*, *ArcIMS*, *SQL Server 2000* and *Oracle 9i* for optimal mapping application performance.
- Implemented the procedures and software programs to migrate hundreds of spatial and non-spatial datasets from *AutoDesk MapGuide* and *Microsoft SQL Server 2000* to *ESRI ArcSDE /ArcIMS*.  
-Automated the repetitive daily and weekly loads of *ArcSDE* feature classes from multiple data formats by implementing an *ESRI ArcObjects for .NET* console application, wrapping it in scripts and executing them with task scheduler.
- Developed an *ESRI ArcSDE* data loader / conversion program with the *ArcSDE Developers Kit for Java* to produce feature classes from latitude-longitude coordinates and attributes stored in SQL tables.
- Frequently enhanced *ESRI ArcIMS* HTML and Java viewers to enable them to perform custom functions and integrate with Internet applications.
- Often assisted web development teams with design, development, and testing of custom *ArcIMS* HTML and Java Viewers.
- Developed *.NET* applications to update critical *SQL Server* tables with data from XML files.
- Developed an XML based web service that served *ArcSDE* metadata across the Internet to GIS applications.
- Created *ArcIMS* middle tier applications with *.NET* to proxy *ArcIMS* AXL requests and log meaningful performance and debugging information to SQL tables.
- Developed intuitive *.NET* web pages to enable instant locating and viewing of individual layers within an *ArcIMS* system hosting hundreds of *ArcIMS* layers.
- Developed a *.NET* console application to test hundreds of *ArcIMS* layers nightly and log alerts of broken layers and individual layer performance statistics to SQL tables.

- Developed interactive .NET web pages to view and analyze the information created by the ArcIMS batch layer tester mentioned above.

## Oracle / ArcSDE Database Manager / Software Developer

September 2000 to February 2002 (1.5 Years)

### Penwell MapSearch Durango Colorado

- Pioneered the development of an Internet client application for editing Oracle / ArcSDE geodatabase datasets via an Internet browser. This technology was the first to enable multiple ESRI ArcGIS clients and Internet web browser clients to simultaneously maintain attributes of GIS spatial datasets. This innovative software infrastructure leveraged the power of Microsoft, ESRI, Oracle and the World Wide Web by blending together Active Server Pages, Active Data Objects, PL/SQL stored packages, ArcObjects, HTML, Javascript, Java Applets, Dynamic HTML, Visual Basic Script and Visual Basic.
- Administered Oracle 8i database instances running on Microsoft Windows 2000 and HP UNIX.
- Provided database support and software development to a team of seven GIS specialists and five researchers. This team produced high quality digital data used to create comprehensive nationwide maps of Oil and Gas Pipelines, Electrical Transmission lines and Facilities.
- Developed data conversion programs with Visual Basic, ESRI ArcObjects and ADO object libraries which merged GIS spatial data (shapefiles and coverages) with Microsoft Access relational data into an ESRI ArcSDE / Oracle 8i Geodatabase.
- Created a PL/SQL stored package data conversion API for a team of developers. The developers and I used the API on a project to organize historical Oil and Gas Well production data from twenty-seven states into a single data structure.
- Enhanced an ESRI ArcIMS 3.0 Internet application that served interactive maps via the Internet.

## Oracle Database Administrator

April 1997 – June 1998 (1 year 3 months)

### GE IT Consulting US Air Force Philips Research Laboratory, Kirtland Air Force Base, NM

- Developed and administrated Oracle Enterprise 7.3 databases (Sun OS) and Oracle Web Application Server 2.1 (NT Server 4.0) for the Phoenix System Financial System development project. The Phoenix system was used by the Air Force to manage the US Air Force Research Laboratories project budgets.
- Created UNIX c-shell and awk scripts to create, startup, shutdown, perform cold backups, report tablespace usage and clone entire database instances.
- Used Oracle Enterprise Manager to create users, tablespaces, rollback segments, monitor space usage etc.
- Developed Oracle Intranet applications for a new financial and personnel system using Oracle Enterprise Server 7.3.2.1.0, Oracle Application Server 3.0, Oracle Designer 2000 1.3.2 and Oracle Developer 2.0.
- Enhanced F.A.S.T. production system reports using the C programming language with the Oracle Pro\*C pre-compiler.
- Enhanced the F.A.S.T. production system labor data transfers by replacing the import and export processes with Oracle database snapshots.
- Wrote the Phoenix Financial System Development Project Database Management Standards document, Configuration Management document, Security and Control Strategy document, Software Build Standards document and Distribution Architecture document.

## Software Engineer

October 1992 to April 1997 (4.5 years)

### Correa Enterprises, Albuquerque, NM

- Developed a C++ client-server class library and binary executable (middle-ware) for the SkyTel Nationwide 2-Way Paging System which used Oracle PRO C/C++, DEC C++ and Visual C++ to bring the powers of the Oracle7 Server to Windows 95, NT and DEC UNIX clients across TCP/IP networks.
- Developed a ZINC C++ (Master Terminal) cross-platform GUI for Windows 95 and MOTIF, which controlled UNIX processes that are parts of the SkyTel Nationwide 2-Way Paging System .

- Participated in the development of a the *SkyTel Nationwide 2-Way Paging System IVR Telephony* application for UNIX written in C++.
- Administrated *Oracle 7.2 Server* on DEC Alpha computers running DEC UNIX. The databases served data to the developers and staff the *SkyTel Nationwide 2-Way Paging System*. Used *SQLDBA* to perform database administration functions.
- Administrated *Oracle 7.3 Workgroup Server* on *NT 3.51*. The database was used to manage data for the Software Engineering department's *Integrated Project Management System*. Used *SVRMGR23* and *Enterprise Manager* to perform database administrative functions.
- Performed systems analysis and design for a project aimed at migrating a *Fox Pro 2.5 MIS* to *Oracle 7 Workgroup Server for NT*. Used the System Development Life Cycle approach to produce Data Flow Diagrams, Process Specifications and Data Dictionary.
- Developed an internal *Project Management System* with *OLE*, *MAPI* and *ODBC* to integrate *Visual Basic 4.0*, *Microsoft Access 7.0*, *Microsoft Excel 5.0*, *Microsoft Project 4.0*, *Oracle Workgroup Server 7.3*, and *Microsoft Exchange*. The Software Engineering Division of Correa Enterprises Inc. used the system daily. It automated the timesheet, project management and billing functions of the division and greatly reduced the time and resources required to accomplish those functions. As a result, managers had up to the day project metrics at their fingertips since every employee's timesheet was based upon tasks in *Microsoft Project* and the timesheets were automatically emailed and then inserted into the *Oracle* database every night.

## COBOL Programmer / Analyst

October 1991 – October 1992 (1 year 1 month)

### *Furrs Supermarkets Albuquerque, New Mexico Area*

- Performed maintenance programming on **COBOL** and **JCL** programs running on an **IBM 3090** in an **MVS** environment.
- Assisted with developing COBOL programs that printed barcode and price labels for grocery items from printer machine language on large, industrial XEROX printers.

## Education and Training

- **Bachelor of Business Administration, Business Computer Systems**, July 26, 1991, University of New Mexico, Albuquerque, NM
- Oracle Web Application Server Administration
- Developing applications with Oracle Web Application Server
- Oracle Developer 2000 Foundation
- Oracle Forms 1
- Oracle7 Database Advanced Replication
- Oracle7 Database Distribution
- Administer the Oracle7 Database
- Introduction to Oracle
- ESRI Introduction to ArcIMS
- ESRI ArcSDE Administration for Oracle
- ESRI Working with Spatial Analyst Extension
- ESRI GIS Portal Workshop
- UNM Continuing Education Novell LAN Administration 1
- UNM Continuing Education Programming in Turbo C++