

CRAIG BUCHANAN

EPIC-CERTIFIED, BUSINESS-INTELLIGENCE CONSULTANT

Mr. Buchanan is a seasoned software-professional who has a proven history of rapidly delivering solutions to variety of complex problems. Articulate. Creative. Focused.



[Github](#)



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EPIC COGITO CLARITY

- o **15+ years experience with Clarity in ambulatory, ED, and inpatient settings; 12+ modules; 10 engagements**
- o **EpiCare Inpatient (Spring 2005, 2012 NVT, 2014 NVT, 2015 NVT, 2017 NVT) and Willow (Spring 2005, 2012 NVT, 2014 NVT, 2015 NVT, 2017 NVT) certifications**
- o Extensive report-design experience, utilizing a variety of technologies, including universe and Web-Intelligence.
- o Reporting experience with numerous, clinical domains: case-management, ClinDoc, emergency department (ED), infection control, laboratory, obstetrics, occupation-therapy, physical-therapy, psychology, respiratory-therapy, surgery, transplants, and more.
- o Workflow automation with PowerShell and numerous SDKs

EpicCare Inpatient	●●●●●●
ASAP	●●●●●●
EpicCare Ambulatory	●●●●●●
OpTime	●●●●●●
ADT	●●●●●●
Beaker	●●●●●●
Cadence	●●●●●●
Phoenix	●●●●●●
Stork	●●●●●●
Willow	●●●●●●
Caboodle (Star)	●●●●●●
Radiant	●●●●●●
Resolute (PB)	●●●●●●
Resolute (HB)	●●●●●●

SAP BUSINESSOBJECTS

- o Master-level experience with Crystal Reports.
- o Senior-level experience with Universe and WebIntelligence development. Linked universe experience.
- o Solid history of BI Platform administration.
- o Extensive experience with the product helps maximize the client's investment.
- o Integration with the BI Platform and customization of InfoView using the Java,.Net, openDocument, RESTful, and WebServices SDKs.
- o Crystal Reports 9, 8.5, 8, 7, 6, 5, 4.5 certifications.
- o Crystal Enterprise 9, 8.5, 8 certifications.

Crystal Reports	●●●●●●
BI Platform	●●●●●●
BusinessViews	●●●●●●
.Net/Java/WS SDKs	●●●●●●
Universe (UNV/UNX)	●●●●●●
Web Intelligence	●●●●●●
Xcelsius	●●●●●●

DATABASE

- o Experience with extract, translate, and load (ETL) technologies, including SQL Server Integration Services (SSIS).
- o Experience building procedures and functions in Oracle and Microsoft's vernacular.
- o Experience using SQL Server's Geography data type to perform geospatial queries.
- o Experience creating database objects (e.g. tables, views, indices).

PL/SQL (Oracle)	●●●●●●
T-SQL (Microsoft)	●●●●●●
SSIS	●●●●●●

TIMELINE

[Lorenz Bus Service](#)

Minneapolis, MN; 11/2019-04/2020

Developing a multi-system integration to support the client's Intacct (cloud-based accounting) implementation, promises to standardize accounting practices and improve and automate reporting. The integration combines data from their operations-management (Coach Manager), fuel tracking (FuelCloud), and geo-tracking (Geotab) systems. It application-programming interfaces (APIs) and automated, data-transformation scripts to transmit data to Intacct.

- Created a PowerShell module ([PsFuelCloud](#)) to interact with FuelCloud's API.
- Created a PowerShell module ([PsGeotab](#)) to interact with Geotab's API.
- Created a PowerShell module ([PsIntacct](#)) to interact with Intacct's API.
- Developed Azure Logic Apps to perform ETL work.
- Developed a mechanism to assign revenue to individual, bus "movements".
- Developed a mechanism to compare the bus fleet's odometer readings between Geotab and Dossier (fleet management).
- Helped implement a Windows Virtual Desktop environment; shifted on-premise application to virtual-desktop environment, hosted in Microsoft's Azure.
- Developed a PowerShell script to assist with the employee-hire and termination processes.
- Created Microsoft SqlServer Reporting Services (SSRS) reports to support integration.

Tags: MSSQL, T-SQL, SSRS, Asp.Net Core, Git, PowerShell, Microsoft Azure, WVD

[SSM Health Care](#)

St. Louis, MO; 07/2019-10/2019

- Developed an SSIS package to automate the process of creating and transmitting files to the vendor ([Vizient](#)). Includes the development of database components (i.e. procedures, tables, indicies) to support the SSIS package.
- Developed an SSIS package to transmit patient-encounter information to support their usage of Stericycle's [PatientPrompt](#) application.

Tags: EpicCare Inpatient, MSSQL, T-SQL, SSIS, Git, PowerShell

[Lorenz Bus Service](#)

Minneapolis, MN; 05/2019-06/2019

- Developing multiple enhancements to their route-listing application.
- Migrated application to .Net Core 2.2 and Bootstrap 4.
- Refactored application to use [Language Integrate Queries \(LINQ\)](#).
- Developed Power BI reports.

Tags: MSSQL, T-SQL, Asp.Net Core, LINQ, Azure, Git, Power BI

[Cedars-Sinai](#)

Los Angeles, CA; 11/2018-05/2019

- Created Crystal Reports for the ADT, Cadence, EpicCare Inpatient, Phoenix modules, including flowsheets, HNO notes, and orders (medications, procedures, and test results) models.
- Created a report catalog, based on [GB & Smith's 360Eyes](#) product, which include search functionality, report-distribution analysis, and usage dashboards.

Tags: ADT, Cadence, EpicCare, Beaker, Oracle, Crystal Reports, Web Intelligence, Universe

[Lorenz Bus Service](#)

Minneapolis, MN; 10/2018-10/2018

- o Developed an enhancement to their route-listing application. The enhancement interfaces with a vendor's fleet-management system.

Tags: MSSQL, Asp.Net Core, Azure, Git

[Health Data Movers](#)

Nashville, TN; 09/2018-09/2018

- o Developed a Ruby Gem to 'wrap' [Epic's App Orchard API](#), for use with their Argus application.

Tags: Ruby, Rails, App Orchard, Bitbucket, Git, Jura

[Stanford Health Care](#)

Palo Alto, CA; 07/2016-04/2018

- o Created universes (UNV, UNX) for the Access Logging, EpicCare Inpatient, OpTime, Professional Billing, Stork modules, including flowsheets, HNO notes, and orders models; creating Web-Intelligence (Webi) reports bases on these universes.
- o Championed the use of SAP BI linked-universe architecture to simplify universe development and maintenance. The architecture enables a child universe (e.g. Patient, Orders) to be used by multiple parent universes (e.g. Surgery, Inpatient); a change the the child universe is propogate to all parent universes. Moreover, a parent universe may be composes of many child universe.
- o Mentored staff in SQL, Webi, and universe design.
- o Created Webi reports, based on [GB & Smith's 360Eyes](#) product, to provide a holistic view of report and universe dependencies.
- o Used PowerShell to extract metadata from Crystal Reports and the BusinessObjects repository, using the .Net and RESTful SDKs.

Tags: EpicCare, OpTime, PB, Stork, Oracle, PowerShell, Web Intelligence, Universe

[Lorenz Bus Service](#)

Minneapolis, MN; 01/2018-03/2018 (after hours)

- o Developed a route-listing application (similar to flight-departure listings at airports) using Asp.Net Core 2 MVC framework; it's been deployed on Azure. The application interfaces with a vendor's operations-management system.

Tags: MSSQL, T-SQL, Asp.Net Core, Git, Azure

[Connecticut Children's Medical Center](#)

Hartford, CT; 04/2016 – 05/2016

- o Created Clarity data extracts to support CCMC's [clincial-pathways](#) initiatives.
- o Created extracts that combined data from Caboodle (AKA Star) and CCMC's EDW.
- o **Completed a 3-month assignment in 1 month.**

Tags: ClinDoc, EpicCare Inpatient, Caboodle, Star, MSSQL, T-SQL

[Stanford Health Care](#)

Palo Alto, CA; 10/2015-03/2016

- o Created Webi dashboards to support their Phoenix (transplant) implementation. The dashboards address the compliance-reporting requirements of CMS's Quality Assurance Performance Improvement and the Joint Commission.
- o Modified the Epic-supplied universe (UNV format) to support the client's reporting needs; prepared and tested the universe for Epic 2015 upgrade.
- o Mentored staff in SQL, Webi, and universe design.
- o Developed novel SQL techniques that simplified organ-transplant reporting (using base-2 arithmetic) and cohort generation (using the DATE_DIMENSION table).

Tags: Phoenix, Oracle, PL/SQL, Web Intelligence, Universe

[Lorenz Bus Service](#)

Minneapolis, MN; 10/2015-12/2015 (after hours)

- o Developed an automated SSIS package (and supporting database architecture) that extracts and integrates data from a vendor's RESTful XML webservice. This information was used to create a fleet, fuel-economy dashboard.

Tags: MSSQL, SSIS, REST, Git

[Children's Healthcare of Atlanta \(CHoA\)](#)

Atlanta, GA; 09/2014-10/2015

- o Created Clarity data extracts to support CHoA's research initiatives (~70 to date).
- o Developed T-SQL functions and procedures to support extracts.
- o Used SQL Server's Geography data type to perform geospatial queries; For example, find the closest clinic for each patient based on their respective postal codes. Made architectural recommendations to DBAs to add fine-grained (i.e. street address) geospatial-query support to Clarity.
- o Managed multiple [Git](#) (distributed version control) repositories.
- o Created a common-language runtime (CLR) function that added regular-expression support to SQL Server. Used to extract text snippets from HNO notes.
- o Built workflow-automation components using [PowerShell](#). Examples: [PsSharePoint](#), [PsCsv](#)
- o Generated HTML documentation using [Asciidoc](#).
- o Wrote [Sql Server Management Studio user guide](#).
- o Prototyped a wiki-based documentation system using [Gollum](#).
- o Prototyped a Clarity data-dictionary replacement using [Ruby](#) and [Sinatra](#).

Tags: Beaker, ClinDoc, EpicCare Inpatient, OpTime, Willow, MSSQL, T-SQL, Git

[University of Maryland Medical System \(UMMS\)](#)

Baltimore, MD; 02/2011 - 08/2013

- o Developed dozens of reports for case-management, ClinDoc, ED, laboratory, radiant, psychology, and therapy departments.
- o Developed a parameterized ED "dashboard" and the Oracle "derived table" that supports it.
- o Developed Oracle components to support and simplify reports.
- o Assisted in BusinessObjects Enterprise administration.
- o Prototyped dashboards with Xcelsius and QAAWS.
- o Managed the semantic layer (BusinessViews) that supported the reports' dynamic/cascading parameters.
- o Implemented a report-documentation system using [MediaWiki](#).
- o Managed team's report-inventory system.

Tags: ASAP, Beaker, ClinDoc, EpicCare Inpatient, OpTime, Radiant, Resolute (HB), Willow, Oracle, PL/SQL, Quickbase, Xcelsius

[Fairview Health Services](#)

Minneapolis, MN; 02/2010-01/2011

- Supported the Accountable-Care-Organization (ACO) initiatives.
- Developed Cadence and Resolute (PB) reports.
- Designed executive-level dashboards.
- Developed BusinessObjects Universe, Web Intelligence, and Oracle-based ETL components to support dashboards.
- Prototyped dashboards with [QlikView](#).

Tags: Crystal Reports, Cadence, Resolute (PB), Oracle, QlikView, Web Intelligence

[SSM Health Care](#)

St. Louis, MO; 08/2009 - 12/2009

- Developed EpicCare Inpatient and Stork reports.
- Developed a "derived table" that provides a unified view of the departmental transfers, including time in the ED.
- Developed database components to simplify the Clarity data model for deliveries and flowsheets.

Tags: ADT, ClinDoc, EpicCare Inpatient, Stork, MSSQL, T-SQL

[Dexma](#)

Minneapolis, MN; 10/2009 – 01/2010

- Developed a Java utility to simplify the deployment of Universes and Web-Intelligence (WebI) templates.

Tags: BusinessObjects SDK, Java, Universe SDK, Web-Intelligence SDK

[Minnesota Department of Commerce](#)

St. Paul, MN; 01/2009 - 10/2009

- Developed reports for their permit-management system.
- Designed an enhancement to the system that allowed them to have more accurate reporting.

Tags: Crystal Reports, Oracle

[Wells Fargo Home Mortgage](#)

Minneapolis, MN; 10/2007 - 12/2008

- Integrated enterprise-class reporting with a proprietary, system of record (SR); the solution was based on BusinessObjects' service-oriented architecture (SOA). The result was a visually-compelling, cross-functional set of analytics that helped increase the SR's visibility and led to its adoption by other Wells Fargo divisions.
- Identified, designed, and developed many valuable enhancements to the SR, including a unified, portfolio-messaging system. The portfolio-messaging feature, similar to email-merge, allowed the administrator to communicate with a configurable group of projects en masse.
- Implemented a report-documentation system using SharePoint.

Tags: Crystal Reports, BusinessObjects SDK, MSSQL, VB .Net, ETL, SharePoint

[Ecolab](#)

St. Paul, MN; 02/2006 - 09/2007

- Developed a high-level, long-term migration plan to move from an internally-developed Business Intelligence portal to Business Objects Enterprise XI. In the short run, he created a transparent, simplified interface between the portal and BOE XI.

- o Designed and developed an application to collect and analyze product usage for their textile division. This architecture reduced the complexity of data collection, increased quality and simplified the business process.
- o Developed a row-level-security prototype using Crystal Reports XI and the BusinessObjects Universe. This prototype includes both data security and parameter security. This was especially challenging as the Universe's integration with Crystal Reports XI was limited.
- o Prototyped a report-localization architecture for their international reports. This strategy used a less-known feature of Crystal Reports to dynamically alter labels depending on a workstation's localization settings. This architecture works for both scheduled and 'on-demand' reports.
- o Created numerous Crystal Reports based on SAP's BW.
- o Created prototype reports using Business Objects' OLAP Intelligence (OLAPi) based on SAP's BW Analytical Services.
- o Improved Ecolab's SAP BW integration with Business Objects Enterprise XI using OLAP Intelligence.
- o Developed a reusable, JavaScript application to simplify the coding necessary to generate a Business Objects logon token that is created by an internally-developed, and wholly undocumented, BOE XI authentication webservice.
- o Developed solutions to address the limitation of Crystal Reports' integration with Business Objects' Universe, specifically with dynamic-cascading-parameters.

Tags: BusinessObjects, Crystal Reports, SAPBW

[M.A. Mortenson](#)

Minneapolis, MN; 12/2005 - 01/2006

- o Designed and developed reporting database and SQL Server components necessary to meet the client's OSHA reporting needs.

Tags: Crystal Reports, MSSQL

[Affinity Federal Credit Union](#)

St. Paul, MN; Multiple engagements

- o Developed reports for the client's Cisco IPCC Express telephone system.
- o Optimized the client's Crystal Enterprise 10 implementation.
- o Provided remote, Crystal Enterprise administration duties.

Tags: Cisco, Crystal Enterprise, Crystal Reports, MSSQL, T-SQL

[Allina Hospital & Clinics](#)

Minneapolis, MN; 12/2004 – 11/2005

- o Rapidly became a technical expert on Clarity's CliniDoc, ADT, Rx and Optime modules without any formalized training.
- o Used his new-found expertise to assist [Epic Systems](#)' effort to improve the usability of Clarity's data model.
- o Developed Oracle components to simplify reporting on Clarity's data.
- o Authored Oracle components to simplify reporting on Admissions, Discharges and Transfers (ADT). Simplification included removing bed transfers and adding hospital-outpatient visits.
- o Authored Oracle components to simplify reporting on flowsheet data, which included converting selected flowsheet rows into columns.
- o Developed a customization for Crystal Enterprise 10 and XI's ePortfolio to allow a report to be scheduled once with a large data set, but filtered by its parameters when viewed. This customization is called View-Time Parameters.
- o Authored a Microsoft Access-based application to track reporting projects. Created a component to extract a report's metadata.
- o Authored knowledge-base files for Crystal Reports, Epic Care, and Oracle.
- o Mentored staff in the use of Crystal Reports, Crystal Enterprise, and Oracle.

Tags: ADT, ClinDoc, EpicCare Inpatient, OpTime, Willow, Oracle, PL/SQL

[Dairyland Healthcare Solutions](#)

08/2005 - 09/2005

- o Created a reporting architecture for their health-care application. The architecture is constructed on Crystal Reports XI's Java and COM SDK.

Tags: Crystal Reports, Java

[Carlson Companies](#)

Minnetonka, MN; Multiple engagements

- o Made recommendations for the client's business-intelligence architecture.
- o Configured the client's Crystal Enterprise 10 implementation
- o Implemented BusinessViews to meet the client's security needs.
- o Developed reports for the client's Peregrine system; the reports complete in 5 minutes what it used to take the HR department to do in days.

Tags: Crystal Reports, Crystal Enterprise

[HealthPartners](#)

Bloomington, MN; 10/2004 - 11/2004

- o Made recommendations for the client's business-intelligence architecture.
- o Created reports for the client's credentialing system (VisualCactus from CACTUS Software).
- o Mentored the client on how to best use Crystal Reports 10 with VisualCactus' datastore.
- o Completed the project in half of the estimated time (4 weeks instead of 8).

Tags: Crystal Reports

[Telemedia Solutions](#)

10/2004 - 11/2004

- o Developed Crystal Reports for their client's patient-management system (Documed).
- o Developed a report-bursting solution.

Tags: Crystal Reports, MSSQL

[BCE Emergis](#)

Montréal, QC, CA; 2004

- o Delivered customized training for Crystal Reports 10, Crystal Enterprise 10 (including a focus on Business Views) and Crystal Analysis 10.
- o Made recommendations for the client's Business Intelligence architecture, including configuring Business Views.
- o Developed a SQL Server 2000 Analysis cube and a Crystal Analysis report to analyze their proprietary Help Desk system.

Tags: Crystal Enterprise, Crystal Reports, MSSQL, OLAP

[Jones Lange LaSalle](#)

Atlanta, GA; 2004

- o Customized Crystal Enterprise 9's ePortfolio.

- o Implemented components that added row-level security and dynamic parameters to Crystal Enterprise.
Implemented the aggressive goals in one week.

Tags: Crystal Enterprise

[Kraft](#)

Chicago, IL; Multiple engagements

- o Developed reports using Crystal Reports 10 for their project-management system ([Pacific Edge's](#) Project Office).
- o Integrated Crystal Enterprise with Project Office.
- o Made recommendations for the client's business-intelligence architecture.

Tags: Crystal Enterprise, Crystal Reports

[CBSA](#)

Golden Valley, MN; Multiple engagements

- o Implemented Crystal Enterprise 9 and integrated it with their ASP-based system.
- o Implemented components that added row-level security and dynamic parameters to Crystal Enterprise.
- o Made recommendations for the client's business-intelligence architecture.

Tags: Crystal Enterprise

[Boston Scientific](#)

Maple Grove, MN; 2003

- o Implemented Crystal Enterprise 9.
- o Developed Crystal Reports for their project-management system ([Pacific Edge's](#) Project Office).
- o Designed a report development and deployment process and customized Crystal Enterprise's user interface using ASP.Net.
- o Developed a utility to bulk-load Windows NT users into Crystal Enterprise using ADSI.
- o Made recommendations for the client's business-intelligence architecture.

Tags: Crystal Enterprise, Crystal Reports

[Pillsbury](#)

Minneapolis, MN; 01/2001 – 03/2003

- o Designed and implemented an executive reporting system using Seagate Info 7. The system allowed business managers to monitor strategic (BPM, KPI), tactical and operational aspects of their Remedy-based IT Systems Management system ([Viadyne's](#) viaTIL).
- o Designed a Total Cost of Ownership and ROI prototype using SQL Server 2000 Analysis Services, Crystal Analysis 8.5 and Crystal Enterprise 8.5.
- o Designed a user-function library ([UFLTimeZone](#)) that enables Crystal Reports work effectively with multiple timezones.

Tags: Crystal Analysis, Crystal Enterprise, Crystal Reports, Seagate Info, MSSQL, SSAS

[University of Minnesota](#)

Minneapolis, MN; Multiple engagements

- o Responsible for assessing the effects that an upgrade of the client's facility management system would have on their enterprise reporting. Project was estimated to take three weeks to complete; project completed in three days.
- o Developing a component that extracted key properties of each report, then storing this information in a database.

Tags: Crystal Reports

[Baxter](#)

Waukegan, IL; Multiple engagements

- Implemented Seagate Info 7.
- Developed management reports for their ERP system (HSD's DIAMOND).
- Developed numerous Oracle functions and procedures to supply the report with data.

Tags: Crystal Reports, Seagate Info, Oracle

EDUCATION

- **MBA** - University of Minnesota - Curtis L. Carlson School of Management, Management Information Systems
- **BBA** - University of Wisconsin - Madison, Finance

CERTIFICATIONS

- **Clarity Data Model - EpicCare Inpatient** (Spring 2005, 2012 NVT, 2014 NVT, 2015 NVT, 2017 NVT)
- **Clarity Data Model - Willow** (Spring 2005, 2012 NVT, 2014 NVT, 2015 NVT, 2017 NVT)
- **Crystal Reports** (9, 8.5, 8, 7, 6, 5, 4.5)
- **Crystal Enterprise** (9, 8.5, 8)
- **Microsoft Access – Application Development** (02/13/1996)