

# STATE OF MONTANA

## JOB DESCRIPTION

*Montana state government is an equal opportunity employer. The State shall, upon request, provide reasonable accommodation for otherwise qualified individuals with disabilities.*

**Job Title:** Data Warehouse Architect

**Position Number:** 81030

**Location:** Helena

**Department:** Transportation

**Division and Bureau:** Information Services Division, Software and Data Bureau

**Section and Unit:**

### **Job Overview:**

The Data Warehouse Architect's role is to strategically design and implement MDT's data warehouse, data marts, and data stores while ensuring high levels of data availability. The position will primarily be responsible, and work alongside DBA's and other ISD technical staff, to architect/structure data such that the data is organized into a scalable architecture providing a means to model data, support analyses and reporting, all while ensuring data quality and data integrity. This position will lead and/or support activities such as data analysis, data profiling, and data validation. The incumbent may also have a role in supporting integration of data from various sources. The data architect position is a critical contributor that will participate in defining data standards and appropriate models for data warehouse needs. This position will work closely with ISD DBA's, developers, but will also work agency business users, data consumer and other key business and MDT leadership stakeholders. The data architect will be a participant in reviewing and/or assessing existing processes, assist in developing automated processes to support data flows from source into the target data warehouse models, or data marts.

### **Essential Functions (Major Duties or Responsibilities):**

#### **Data Warehouse Architecture – 80%**

- Work with stakeholders and business analysts to gather requirements through interviews, facilitated sessions, and review of current data structures and processes.
- The incumbent will also work with ISD developers and DBA's regularly to capture information related to in-house application transactional schemas, COTS schemas, and secondary (non-transactional) databases, spreadsheets, and so forth.
- Perform as expert collaborator with the agency DBA's and developers such that the agency's current database and solution environment has an optimized data architecture in support

MDT's business needs.

- Transform business requirements into functional requirements for data warehouse design, including the data warehouse data models.
- Promote, to the greatest extent practicable, a common architectural framework across different subject areas and conformance with data warehousing best practices.
- Consult with data stakeholders regarding the use and application of business intelligence and data warehousing architectural standards.
- Implement or support data quality and data governance processes within the data warehouse environment.
- Keep current with data warehousing trends and issues and provide recommendations for evolving agency business process and technologies to support data quality, interoperability, and analytical requirements.
- Ensure data assets in the agency's data warehouse are governed in a secure manner, adhering to security and privacy requirements so that sensitive or confidential data is protected.
- Monitor the data warehouse for design efficiency and support warehouse improvement and growth projects.
- Diagnose and resolve data warehouse configuration and performance issues.
- Provide insight and leadership on security risks associated with data sharing and mitigate those risks.
- Coordinate with others – be a leader on the agency's data team. Collaborate regularly with all data stakeholders.

#### **Data Warehouse Strategy & Planning – 15%**

- Assess and cultivate long-term strategic goals for data warehousing in conjunction with agency managers, data users, and other agency stakeholders.
- Coordinate and work with technical staff to identify data quality assurance policies and procedures.
- Plan and implement capacity and resource expansion to ensure data warehouse scalability.
- Collaborate with ISD DBA's on strategies for disaster recovery and/or data archiving for all agency data assets.
- Conduct research and make recommendations on data warehouse products, services, and operational protocols.
- Evaluate and recommend data warehouse components, including database management systems, ELT (extract, load, transform) software, data mining tools, and metadata management tools.

#### **Other Duties – 5%**

Performs any additional duties identified by the Supervisor in support of the Department mission and objectives. Participates in on-going training and educational opportunities as applicable.

**Commented [JD1]:** I am not comfortable with this sentence as it was, as I feel it interferes with Shaun's role. I tried to alter the sentence so that the data architect isn't the DB technical lead, and doesn't stray into technical (physical) architecture. The DA is clearly driving the data warehouse effort though.

### **Supervision**

The number of employees supervised is: 0

The position number for each supervised employee is: n/a

### **Physical and Environmental Demands:**

This position functions in a typical office environment.

### **Knowledge, Skills, and Abilities (Behaviors):**

- Strong knowledge and hands on experience developing data warehouse architecture, including relational and dimensional database structures.
- Knowledge of and experience working with Scaled Agile development.
- Hands on experience with business intelligence tools.
- Detail oriented with excellent organization and analytical skills.
- Ability to prioritize work and meet deadlines.
- Ability to establish and maintain effective working relationships with the business, project team members, supervisors, and employees from other departments.
- Proven experience and competency in programming languages, including SQL, PL/SQL, and Python.
- Experience with modeling tools such as Toad, and ETL products.
- Knowledge of/or experience with information models, XML, SOAP, and NIEM.
- Knowledge of/or experience with JSON objects, OAS, and REST API's.
- Experience with Spatial data types.
- Experience with business and technical requirements analysis, data processing flowcharting, and data mapping.
- Proven experience with data integration architectures supporting data analytics.
- Proven experience with database platforms, including Oracle, SQL Server, and Snowflake.
- Proven experience with designing, building, installing, configuring, and supporting multi-terabyte data warehouses.

### **Other Skills and Abilities**

The required skills and abilities for this position include strong interpersonal and communication skills; active listening; analytical and problem-solving abilities; critical thinking; creativity; deductive and inductive reasoning; research and data analysis; relationship building; reading comprehension; time management; attention to detail; communicating ideas to both technical and non-technical audiences; document business, functional, and technical requirements; and ability to work in a team-oriented, collaborative environment.

**Minimum Qualifications (Education and Experience):**

The required knowledge and skills are typically acquired through a combination of education and experience equivalent to a bachelor’s degree in computer science or information systems.

This position requires a minimum of 5 years of related experience in database administration, data warehouse operations and/support, data modeling experience, and SQL.

Alternative Qualifications: AS degree in computer science or information systems or BA/BS in a non-related field plus 7 years database administration, data warehouse operations and/support, data modeling experience, and SQL or AS degree in non-related field plus 8 years of database administration, data warehouse operations and/support, data modeling experience, and SQL or 10 years of experience in database administration, data warehouse operations and/support, data modeling experience, and SQL.

Certification, licensure, or other credential such as ICCP’s Certified Data Professional (CDP) or DAMA’s Certified Data Management Professional (CDMP) is preferred, but not required.

**Special Requirements:**

- Fingerprint check
- Background check
- Union Code 035
- Valid driver’s license
- Other; Describe
- Safety Responsibilities

The specific statements shown in each section of this description are not intended to be all inclusive. They represent typical elements and criteria considered necessary to perform the job successfully.

**Signatures**

My signature below indicates the statements in the job description are accurate and complete.

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<b>Immediate Supervisor</b>	<b>Title</b>	<b>Date</b>
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<b>Administrative Review</b>	<b>Title</b>	<b>Date</b>
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My signature below indicates that I have read this job description.

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<b>Employee</b>	<b>Title</b>	<b>Date</b>
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**Human Resources Review**

**Job Code Title: Database Administrator 2.3    Job Code Number: C1E022**

My signature below indicates that Human Resources has reviewed this job description for completeness and has made the following determinations:

- |  |  |
|--|--|
| <input type="checkbox"/> FLSA Exempt                   | <input checked="" type="checkbox"/> FLSA Non-Exempt    |
| <input checked="" type="checkbox"/> Telework Available | <input type="checkbox"/> Telework Not Available        |
| <input type="checkbox"/> Classification Complete       | <input type="checkbox"/> Organizational Chart attached |

**Human Resources:**

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<b>Signature</b>	<b>Title</b>	<b>Date</b>
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