

**DUTY STATEMENT**

TECH 052 (REV. 02/2018)

RPA NUMBER (HR USE ONLY)

23-325

**ALERT: This form is mandatory for all Requests for Personnel Action (RPA).**

**INSTRUCTIONS:** Before completing this form, read the instructions located on last page.

**Section A: Position Profile**

A. DATE 4/9/24	B. APPOINTMENT EFFECTIVE DATE	C. INCUMBENT NAME Vacant
D. CIVIL SERVICE CLASSIFICATION Information Technology Specialist III		E. POSITION WORKING TITLE GIS Data Engineering Architect
F. CURRENT POSITION NUMBER 695-540-1415-001		G. PROPOSED POSITION NUMBER (Last three (3) digits assigned by HR)
H. OFFICE / SECTION / UNIT / PHYSICAL LOCATION OF POSITION Office of Digital Services/ Data and Geospatial Services/Rancho Cordova		I. SUPERVISOR NAME AND CLASSIFICATION Lothar Petrik, State Geographic Information Officer
J. WORK DAYS / WORK HOURS / WORK SHIFT (DAY, SWING, GRAVE) MONDAY – FRIDAY, 8:00 AM – 5:00 PM/ DAY		K. POSITION REQUIRES: FINGERPRINT BACKGROUND CHECK <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO DRIVING AN AUTOMOBILE <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO

**Section B: Position Functions and Duties**

Identify the major functions and associated duties, and the percentage of time spent annually on each (list higher percentages first).

	<p><b>Information Technology Domains</b> (Select all domains applicable to the incumbent's duties/tasks.)</p> <p><input type="checkbox"/> Business Technology Management      <input checked="" type="checkbox"/> IT Project Management      <input type="checkbox"/> Client Services</p> <p><input type="checkbox"/> Information Security Engineering      <input checked="" type="checkbox"/> Software Engineering      <input checked="" type="checkbox"/> System Engineering</p>
	<p><b>Organizational Setting and Major Functions</b></p> <p>The California Department of Technology (CDT) is focused on improving how state government develops and implements innovative solutions to meet the public's evolving needs, enrich customer experiences, and improve critical technological applications. The CDT's Office of Digital Services plays a critical role to enhance digital government and build a California that works for all Californians. We do this by providing foundational platforms and technology (such as GIS/Open Data, Web Portals, Software Engineering and Open-Source code curation) for organizations to provide innovative digital services.</p> <p>Under the administrative direction of the State Geographic Information Officer, the Information Technology Specialist III (IT Spec III) serves as the GIS Data Engineering Architect. This expert / highly skilled position serves as the lead consultant responsible for working with cross-functional teams and business programs to analyze their spatial business problems and leads the design and development of Data Warehouse reporting systems including Extract, Transform and Load (ETL) tools and processes, Data modeling, Reporting for end users, and data pipelines. The IT Spec III also provides data insights and recommendations on potential solutions involving complex technology, a subsystem of business applications or work on integration projects, and typically requires an unusual depth of understanding in a singular technology or a good understanding of multiple technologies. The IT Spec III also leads teams of other Information Technology (IT) professionals as needed. Additionally, the IT Spec III leads and facilitates various communities of practice which enable the state's greater technology community and business programs to share knowledge and best practices, ask questions of their colleagues, and directly engage on high priority topics.</p>
<p>% of time performing duties</p> <p>60%</p>	<p><b>Essential Functions</b> (Percentages shall be in increments of 5, and should be no less than 5%.)</p> <p><b>Data Engineering</b></p> <ul style="list-style-type: none"> <li>• Lead the design and development of optimal GIS architecture patterns and data pipelines.</li> <li>• Lead the design and development of end-to-end ELTs / ETLs based on business needs.</li> <li>• Lead and assemble large, complex data sets that meet business requirements.</li> <li>• Lead the identification, design, and implementation of internal process improvements by automating manual processes, optimizing data delivery, re-designing infrastructure for greater scalability, etc.</li> <li>• Lead the development of processes supporting data transformation, data structures, metadata, dependency, and workload management.</li> <li>• Frame and break down complex problems into key components, design solutions and data analysis tools to derive insights, and recommend practical solutions to achieve results.</li> </ul>

- Lead numerical analysis, data cleansing, energy data modeling, and data visualization.
- Lead the implementation of data transforms and organization for various data stores (data lakes, Databases, and data warehouses).

20%

**Client Services**

- Work with product owners and users to build and evaluate business cases to support product investment decisions.
- Develop, execute and maintain test plans, test scenarios, and test cases.
- Collaborate with the business and development teams to troubleshoot and resolve defects and other related issues.
- Facilitate the defect management and triage process for assigned projects.
- Assist in the planning, facilitation, scribing and distribution of minutes for meetings.

10%

**Data Systems Support / Maintenance**

- Proactively manage the quality and integrity of data and data solutions, including data lakes, databases, and data warehouses.
- Lead development of the automation of data intake, storage, and distribution solutions at scale.
- Monitor, maintain and provide support for data systems and environments.
- Perform data cleansing, data scrubbing and normalization.
- Perform audits of data use practices and solutions.
- Manage and maintain user access to data systems.

5%

**Training Services**

- Lead the development of knowledgebase, training outlines, user guides, and other training material for Data Engineering software tools and utilities.
- Organize and conduct user training, overseeing the delivery of training to clients, CDT staff, and Data and Geospatial Services staff.
- Evaluate outcomes to ensure that trained staff have sufficient knowledge and skill to properly use the software tools and utilities.

5%

**Marginal Functions** (Percentages shall be in increments of 5, and should be no more than 5%.)

Other related duties as required.

**Work Environment Requirements**

- During state emergencies or activation by the California Office of Emergency Services, incumbents may be asked to work extended hours, 12-hour shifts, and/or off site and occasionally out of town.
- May be required to carry and use a cell phone or mobile device.
- May occasionally be required to work some weekends.
- May occasionally be required to work outside of normal business hours.
- May occasionally be required to travel between Rancho Cordova and Sacramento.
- Must pass a fingerprint background criminal record check completed by the Department of Justice (DOJ) and the Federal Bureau of Investigation (FBI).

**Allocation Factors** (Complete each of the following factors.)

**Supervision Received:**

The IT Spec III receives broad administrative supervision from the State Geographic Information Officer.

**Actions and Consequences:**

The IT Spec III should have a thorough understanding of the responsibilities and duties of this position and a broad understanding of the mission and goals of the ODS. Poor decisions, judgments, and recommendations in the areas above could result in dissatisfaction of partners and the inability for products to function.

**Personal Contacts:**

The IT Spec III has regular contact with various California departments, agencies and their executive leadership and project staff, the California Government Operations Agency, CDT executives, leadership and project staff, and consultants.

**Administrative and Supervisory Responsibilities** (Indicate "None" if this is a non-supervisory position.)

None

**Supervision Exercised:**

This level does not supervise but may lead. The IT Spec III has defined responsibility and authority for decision making related to projects or in an advisory function.

**Other Information**

The IT Spec III should have knowledge of Data Warehouse reporting systems including Extract, Transform and Load (ETL) tools and processes, Data modeling, Reporting for end users, and data pipelines. Additionally, the incumbent should possess the following knowledge, skills, and/or abilities:

Knowledge of:

- Information technology systems (software) programming, equipment; capabilities and interfaces between hardware and software.
- Requirements for the installation and implementation of complex information technology software systems.
- Principles of public administration, organization, analytical techniques and technical report writing, methods to conduct research, analyze and evaluate information, develop studies and prepare reports.
- State and CDT rules, regulations, policies, practices, and reporting criteria.

Ability to:

- Conceive and portray the big picture; creatively think outside the box with the ability to power through challenges in pursuit of a solution.
- Apply creative thinking in the design and development of methods of processing information with information technology systems.
- Conceptualize database optimization.
- Conceptualize data presentation.
- Analyze information and situations, data, and complex business systems, identify problems, reason logically and creatively, draw valid conclusions, and develop effective solutions.
- To learn emerging technologies that may become necessary to support the organization's business and long-term strategic plan, e.g., customer relationship management and project portfolio management.
- Pay attention to detail, achieve thoroughness and accuracy when accomplishing a task.
- Manage workload of multiple assignments at a time.

**Desirable Qualifications:** (List in order of importance.)

- Bachelor's degree in Computer Science, Information Technology, or closely related field is desired.
- Expert knowledge/experience with data engineering principles and either ESRI technology stack or open source spatial software.
- Expert level experience or education in one or more of the following technologies: ArcGIS Online, ArcSDE, ArcGIS Enterprise, Mapserver, Geoserver, PostGIS, Snowflake, Amazon Redshift, Microsoft MSSQL, PostgreSQL, Oracle, other SQL based RDBMs, NoSQL, Hadoop, ETL / ELT, Data Lakes, Data Warehouses and Enterprise Metadata Management Systems.
- In-depth hands-on experience with Azure Data Factory, Azure Functions, Azure Logic Apps, Amazon Glue, Amazon Lambda, S3, Azure Blob, FME, 5TRAN and Matillion.
- Expert knowledge and experience with Data Warehouse concept and architectures, Online Analytical Processing (OLAP) technologies, Star-schema, Snowflake schema and Aggregation etc.
- Expert level experience building end-to-end data solutions using Data models, Data pipelines and BI products.

- Expert level programming experience in one or more of the following languages: .NET, C#, Java, SQL, R, Python and associated packages such as GDAL, Rasterio and Pandas.
- Expert level experience producing requirements documents, systems architecture and interfaces, data model diagrams, configuration management documents etc.
- Experience in processing large raster data sets and designing efficient raster storage and delivery systems in cloud hosted solutions.
- Ability to conceive and portray the big picture; creatively think outside the box with the ability to power through challenges in pursuit of a solution.
- Excellent communication and customer service skills, including the ability to present ideas and information effectively, both orally and in writing.
- Knowledge of project management best practices.
- Ability to critically think and approach problems with creativity while using a variety of analytical techniques to resolve said problems.
- Knowledge of principles of public administration, organization, analytical techniques and technical report writing, methods to conduct research, analyze and evaluate information, develop studies and prepare reports.
- Knowledge of state and CDT rules, regulations, policies, practices, and reporting criteria.
- Ability to apply creative thinking in the design and development of methods of processing information with IT systems.
- Ability to analyze information, situations, data, and complex business systems, identify problems, reason logically and creatively, draw valid conclusions, and develop effective solutions.
- Ability to learn emerging technologies that may become necessary to support the organization's business and long-term strategic plan.

**INCUMBENT STATEMENT: I have discussed the duties of this position with my supervisor and have received a copy of the duty statement.**

INCUMBENT NAME (PRINT)	INCUMBENT SIGNATURE	DATE
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**SUPERVISOR STATEMENT: I have discussed the duties of this position with the incumbent.**

SUPERVISOR NAME (PRINT)	SUPERVISOR SIGNATURE	DATE
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