



Office of Human Resources
IT Data Engineer Specialist – CI3564
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General Statement of Duties

Performs specialized professional-level information technology work designing and building complex and specialized infrastructure, platforms, and processing pipelines, to include developing scalable solutions to enhancing data flows, and ensuring compliance with data governance and security requirements.

Distinguishing Characteristics

The Staff IT Data Engineer performs entry-level professional information technology work assisting with infrastructure and platforms to enhance data processing pipelines and data flows.

The Associate IT Data Engineer performs standard professional level information technology work maintaining infrastructure and platforms and building data processing pipelines to enhance data flows.

The Senior IT Data Engineer performs full-performance professional level information technology work building complex infrastructure and platforms to enhance data flows.

The IT Data Engineer Specialist performs specialized and complex professional level information technology work designing and building complex infrastructure and platforms to include developing scalable solutions to enhancing data flows.

Essential Duties

Implements data engineering tools and platforms for the extraction, transformation, and loading of data, and designs and build processing pipelines to include developing scalable solutions to enhancing data flows and ensuring compliance with data governance and security requirements.

Leads and collaborate with information technology professionals such as engineers, developers, architects, and product development and implementation teams to translate business requirements and technical specifications for the scaling or platforms and data pipelines.

Develops robust and scalable solutions that transform data into useful formats for analysis and enhance data flows to enable end-users to consume and analyze data faster and easier.

Configures data engineering tools required for optimal extraction, transformation, and loading of data from a wide variety of data sources, to include writing complex SQL queries and coding, and using cloud-based technologies to support analytic needs.

Creates and works with structured and unstructured datasets from a variety of data stores, such as data lakes, relational database management systems, and data warehouses to maintain optimal data pipelines.

Research and identifies innovative technologies to update and apply to existing applications and platform systems.

Writes reports to document and maintain process files for data engineering systems and platform installations, enhancements, and upgrades.

Coordinate with vendors and support team on problem resolution, design issues and upgrades.

Runs systems report to identify technical issues to include troubleshooting technical issues, responding to crises incidents, and implementing patches in a timely manner to improve applications, performance, and functionality.

Develops and implements strategies and processes for installations, data migrations, maintenance, enhancements, and upgrades of applications and platform systems components.

Evaluates middleware applications and platform systems architecture and make recommendations as required.

Trains information technology staff on data engineering platform updates and new installations.

By position, may perform lead work over other information technology professionals or perform project management duties.

Performs other related duties as assigned.

Employees may be re-deployed to work in other capacities in their own agencies or in other City agencies to support core functions of the City during a City-wide emergency declared by the Mayor.

Any one position may not include all of the duties listed. However, the allocation of positions will be determined by the amount of time spent in performing the essential duties listed above.

Competencies

Attention to Detail – Is thorough when performing work and conscientious about attending to detail.

Customer Service - Interacts with customers in a friendly and professional manner, works to resolve issues quickly and effectively, and is knowledgeable about products and services.

Technical Competence – Uses knowledge that is acquired through formal training or extensive on the job experience to perform one's job; works with, understands, and evaluates technical information related to the job; advises others on technical issues.

Technical Problem Solving - Troubleshoots, diagnoses, analyzes, and identifies system malfunctions to determine the source and cause of the problem.

Technology Application – Uses machines, tools, or equipment effectively; uses computers and computer applications to analyze and communicate information in the appropriate format.

Technology Management - Keeps up to date on technological developments. Makes effective use of technology to achieve results. Ensures access to and security of technology systems.

Knowledge & Skills

Knowledge of system development methodologies used to plan, develop, implement, operate, and maintain middleware systems.

Knowledge of the principles and methods of web technologies, tools and delivery systems.

Knowledge of building and optimizing large-scale data pipelines, architectures and analytic skills related to working with unstructured datasets.

Knowledge of processes supporting data transformation, data structures, metadata, dependency and workload management.

Working knowledge of message queuing, stream processing, and highly scalable data stores.

Knowledge of data engineering and data architecture principles, methods, and techniques used in the design and development of data systems

Knowledge of the principles, methods, and tools for designing, developing, and testing software and evaluation procedures.

Knowledge of information technology systems analysis, including systems design, sufficient to be able to maintain current systems and implement new systems.

Level of Supervision Exercised

By position, may perform lead work.

Education Requirement

Bachelor's Degree in Computer Science, Information Systems, Business Administration, Mathematics or a related field.

Experience Requirement

Five (5) years of professional level information technology experience developing, implementing, and maintaining middleware systems and data pipelines.

Education & Experience Equivalency

One (1) year of the appropriate type and level of experience may be substituted for each required year of post- high school education.

Additional appropriate education may be substituted for the minimum experience requirements.

Licensure & Certification

By position requires a valid driver's license at the time of application.

By position, must obtain Criminal Justice Information Services (CJIS) clearance within the probationary period.

Working Environment

Work is performed in an office setting and at other locations for meetings.

Handles absentee replacement on short notice.

Subject to long and irregular hours.

Subject to pressure from multiple calls, inquiries, and interruptions.

Level of Physical Demand

1-Sedentary (0-10 lbs.)

Physical Demands

(Physical Demands are a general guide and specific positions will vary based on working conditions, locations, and agency/department needs.):

Agility: Ability to move quickly and easily.

Balancing: Maintaining equilibrium.

Carrying: Transporting or moving an object.

Color vision: Ability to distinguish and identify different colors.

Crawling: Moving about in a low or crouched position.

Crouching: Positioning body downward and forward.

Depth Perception: Ability to judge distances and space relationships.

Eye/Hand/Foot Coordination: Performing work through using two or more body parts or other devices.

Feeling: Perceiving attributes of objects by means of skin receptors, communication, or otherwise.

Field of Vision: Ability to sharply detect or perceive objects peripherally.

Fine Dexterity: Sufficient coordination to operate a vehicle and manipulate objects.

Fingering: Picking and pinching, through use of fingers or otherwise.

Handling: Seizing, holding, grasping, through use of hands, fingers, or other means.

Hearing/Talking: Perceiving and comprehending nature and direction of sounds/ability to communicate ideas.

Hearing: Perceiving and comprehending the nature and direction of sounds.

Kneeling: Assuming a lowered position.

Lifting: Moving objects weighing no more than 10 pounds from one level to another.

Neck Flexion: Perceiving objects located above or below.

Oral Comprehension: Ability to discern the meaning of oral speech.

Pulling: Exerting force upon an object so that it is moving to the person.

Pushing: Exerting force upon an object so that it moves away from the person.

Reaching: Extending the hands and arms or other device in any direction.

Repetitive motions: Making frequent or continuous movements.

Sitting: Remaining in a stationary position.

Standing: Remaining in a stationary position.

Stooping: Positioning oneself low to the ground.

Talking: Communicating ideas or exchanging information.

Vision Far Acuity: Ability to perceive or detect objects clearly at 20 feet or more.

Vision Near Acuity: Ability to perceive or detect objects at 20 inches or less.

Vision: Ability to perceive animal behavior, comprehend signs, and detect color.

Walking: Ability to move or traverse from one location to another.

Written Comprehension: Ability to discern the meaning of written words.

Background Check Requirement

Criminal Check

Education Check

Employment Verification

By position, Motor Vehicle Record

By position, must obtain Criminal Justice Information Services (CJIS) clearance within the probationary period.

Assessment Requirement

None

Probation Period

Six (6) months.

Class Detail

Pay Grade: EX-16

FLSA Code: Y

Established Date: 03/01/2026

Established By: JFH

Revised Date:

Revised By:

Class History: New classification.