CAREER PATHS

Information Technology: Systems Administrators

City and County of Denver | Career Service Authority

DISCLAIMER

The information contained in this guide and on the Career Path website is provided by the Career Service Authority (CSA) Classification and Compensation Team and is intended for general informational purposes only. Each Career Path on this website is intended to represent the way that an employee in a particular classification would normally progress in his or her career with the City. However, these Career Paths are not guarantees that an employee will progress, nor do they represent the only way available for an employee to progress. The CSA Classification and Compensation Team will update this information on an ongoing basis, but for more specific career planning information, please contact CSA’s Career Counselor.
INTRODUCTION TO CAREER PATHS

What are Career Paths?
Career paths are informational tools useful for both job seekers and employees in considering how to progress in their career, either by moving into a lateral position or into a position of more responsibility. Career paths also provide information on the education and experience requirements of classifications utilized throughout the City, which can be used by employees and supervisors to define career development opportunities. Career paths can also assist managers and HR professionals develop succession plans for key positions within a department or agency.

How are the Career Paths organized?
The Career Paths are organized by job families within an occupational group and by specific department and agency structures. A job family is a group of jobs involving work of the same nature but requiring different skill and responsibility levels. There are three components to career paths: Career Progression Charts, Work Group Examples, and Classification Summaries.

1. The Career Progression Charts visually depict the typical career progression of an employee through a job family using the following structure:

   • **Organization and Grouping.** Working from the bottom of the Career Progression Chart, classifications are organized from lowest to highest in responsibility.

   Classifications grouped together in one box are either a part of an established classification series (i.e. Staff, Associate, and Senior levels), or are classifications similar in the nature of work performed (i.e. Equipment Operators).

   Working from the bottom of each box, classifications grouped together in one box are organized from lowest to highest in responsibility. In addition, for classifications grouped together in one box, movement can occur from one classification to another (e.g. moving from a Staff to Associate level) with additional education and/or experience.

   Movement from one box to another indicates a progression into either a classification requiring more responsibility outside of an identified series or a classification performing substantially different work. Movement from one box to another also indicates moves that require additional education and/or experience.

   • **Lines.** The lines connecting the boxes on the Career Progression Chart indicate the path of movement, with arrows indicating the direction of movement.

   Dotted lines indicate movement that is possible, but may not be a natural progression through the job family. Solid lines indicate the typical progression between classifications.

   • **Boxes.** The boxes on the Career Progression Chart that are unshaded (or white) indicate the main career progression through the job family.

   The boxes on the Career Progression Charts that are shaded (or gray) indicate potential moves to specific classifications, classification series, or type of work that may require additional or different education and/or experience. The shaded (or gray) boxes also indicate how an employee may move into the job family from a different career path or out of the job family to a different career path.

2. The Work Group Examples describe the type of work typically performed by work groups who use the classifications, and which departments and agencies typically use the classifications.

3. The Classification Summaries provide a brief description of the work duties performed by each classification and the minimum requirements for entry into the classification, e.g. education, experience, and applicable licenses, and are based on the class specification.
MECHANISMS FOR CHANGING CLASSIFICATIONS

Philosophy
The City and County of Denver values its employees and recognizes them as a critical asset in serving Denver citizens and continually striving to make Denver a better place to work. The City uses fair and equitable compensation and management systems to attract and retain a highly qualified dedicated and accountable work force that is committed to a culture of excellent service.

Various approaches are available to an employee who wishes to advance in their careers with the city. The Career Path Model demonstrates movement within the CSA-Classification and Pay plan:

- **Re-allocations of an Existing Position:**
  The formal process of assigning an existing position to its proper classification on the basis of the duties performed and the responsibilities exercised.

- **Demotion:**
  An appointment of an employee to a position in a classification in which the entry rate of the pay grade of the new classification is lower than the entry rate of the classification previously held.

- **Promotion:**
  The appointment of an employee to a position in a classification in which the entry rate of the pay range for the new classification is higher than the entry rate of the pay range for the employee’s current classification. An employee receives a 6.9% increase when the employee is promoted.

- **Transfers:**
  The appointment of an employee to one classification from another, if the entry rate of the pay range for the new classification is the same as the entry rate of the pay range for the classification previously held.
MINIMUM EDUCATION AND EXPERIENCE REQUIREMENTS AND EQUIVALENCIES

Applicants must meet the city’s minimum education and experience requirements when applying for a job. Education and experience requirements are directly related to the competencies, knowledge, skills, and the essential duties of the job class.

Professional classes generally require a 4 year degree, technical or paraprofessional classes may require an Associate’s degree, and many trades classes require completion of an apprenticeship program. Appropriate related experience is also required to qualify for most positions in the city.

In most cases, the city has equivalencies for education and experience requirements. Typically, appropriate experience may be substituted for the educational requirement on a year for year basis.

Depending on the competencies, knowledge, and skills that needed for a particular job, education beyond what is minimally required may be substituted for at least part of the required experience. For example, 30 semester hours of college credit may be substituted for one year of experience, 60 semester hours may be substituted for two years of experience and so on.

Applicants need to check the specific education and experience requirements and equivalency statements for each job that is posted for recruitment.

LICENSURE AND CERTIFICATION

Some classifications in the City and County of Denver classification plan require a license or a certificate to perform the job. If this is a requirement, the specific license or certification needed is listed following the Education and Experience requirements. For example, professions such as attorneys, engineers, architects, or trades workers are required to possess a license/certification to practice their profession. Additionally, many classifications require a possession of a valid driver’s license.
OCCUPATIONAL GROUP DEFINITIONS

A-Professional occupational group definition:
This group includes classifications which advise on, research, administer, supervise, and/or perform work that is analytical, evaluative or technical in nature which may be used to formulate, establish and execute broad policies and related work. Decisions require the creative and conceptual application of theory and principles of a professional occupational field. A professional field is one in which knowledge is gained by completion of an advanced course or study resulting in a college degree or equivalent specialized experience.

C-Clerical occupational group definition:
Classifications in this group supervise and/or perform general office and/or public contact work relating to providing, preparing, transcribing, systematizing, and preserving written or oral communications, records and computations; collecting accounts; performing arithmetic computations; gathering and distributing information; coordinating office activities; operating office machines and electronic data processing equipment; operating telephone switchboards, distributing mail and delivering messages; and providing other administrative and clerical support.

D-Doctors occupational group definition:
This group includes classifications that are licensed to practice medicine and perform professional work concerned with the diagnosis, prevention, and treatment of disease or injury in the various branches of medical or behavioral science.

E-Engineering & Science occupational group definition:
This group includes classifications that advise on, administer, supervise and/or perform professional, scientific, research, technical or related work. The work includes engineering or architectural and related project work with facilities, structures, transportation and traffic, systems, processes, equipment, devices, materials and/or methods. Jobs in this group require knowledge of the science or art, or both, by which materials and natural resources are made useful.

G-Art, Design, Media, Recreation & Entertainment occupational group definition:
This group includes classifications which advise on, administer, supervise, and/or perform work involving professional, artistic, and/or technical duties and responsibilities and related work in 1) the communication of information and ideas through verbal, written, visual, and/or pictorial means including graphics, printing, film and video; 2) the collection, custody, presentation, display, and interpretation of art works, cultural objects, and other artifacts; or 3) the coordination and management of entertainment, amusement and recreation programs, patrons and facilities.

H-Health Technical & Related Support occupational group definition:
This group includes health and behavior-related classifications and their supervisors with the principle duties requiring a combination of basic health-related scientific, medical, behavioral and/or technical knowledge and skill that can be obtained through specialized post-secondary school education or equivalent on-the-job training.

I-Information Technology occupational group definition:
Classifications in this group advise on, administer, supervise and/or perform professional and technical information technology and/or telecommunications work including programming, developing, modifying, analyzing, designing, testing and implementing information technology applications, programs and systems.

J-Labor occupational group definition:
Classifications in this group supervise and/or perform unskilled and semi-skilled primarily manual labor work in areas such as equipment operation, collection and delivery of materials and supplies, maintenance, janitorial, minor repair and servicing work, drivers, gardening, cultivation and care of plants, and grounds keeping.
L-Legal occupational group definition:
This group includes classifications that provide legal work; administer or supervise legal work; or perform work of a legal or related nature in the line of supervision of an attorney or judge. This includes professional legal work, research and investigation, technical support and assistant work for attorneys or judges in the District Attorney’s Office, Department of Law and municipal/county court system.

N-Enforcement, Compliance & Protective Service occupational group definition:
This group includes classifications which advise on, administer, supervise, and/or perform investigation, inspection, permitting, compliance or enforcement work primarily concerned with alleged or suspected offenses against the laws, codes or other regulations and related work. Includes investigators, security officers, and non trades-related inspectors.

O-Health Professional occupational group definition:
This group includes classifications that advise on, administer, supervise, manage, and/or perform research or other professional medical or related work in the several branches of medicine, surgery, dentistry, behavioral science or in related patient or client care services such as dietetics, nursing, occupational therapy, physical therapy, pharmacy, counseling and others in the various branches of medical or behavioral sciences.

S-General Support Services occupational group definition:
This group includes classifications which supervise and/or perform general support service functions by facilitating communication in various forms including liaison work, providing materials management including the receipt and distribution of supplies and equipment, preparing and serving food and drinks, and performing laundry services.

T-Trades occupational group definition:
This group includes classifications that supervise and/or perform skilled and semi-skilled licensed and unlicensed trades (and related work) that is typically acquired through on-the-job training and experience or through apprenticeship or other formal training programs. Also includes trades inspectors; electronic technicians; machinists; and mechanics involved in the maintenance, repair and major overhaul of a wide variety of diesel, gasoline, electric and alternative fuel powered equipment.

V-Fiscal occupational group definition:
This group includes classifications which advise on, research, administer, supervise and/or perform work in any phases or systems of fiscal administration when such work also requires technical, theoretical and/or practical aspects in the application of related laws, regulations, policies, precedence, methods and techniques in the areas of accounting, appraising, auditing, finance, budget, investment, revenue and taxation.
WORK GROUP EXAMPLES:

TECHNOLOGY OPERATIONS: Technology Operations is responsible for setting the Technology Strategy on acquisition, configuration, deployment, and maintenance of technology platforms, storage solutions, and technology operating environments. This team is also responsible for licensing and asset management services across the agencies supported by Technology Services.

SYSTEMS ADMINISTRATION: The Systems Administration team is responsible for project design, implementation, operations, maintenance, storage solutions, and backup/recovery systems across the Technology Services data center systems environment. This team is responsible for provisioning resources in accordance with project and customer needs, performance management, availability, system recovery, and capacity planning across all server and storage domains.

NETWORK & DATA CENTER SERVICES: The Network and Data Center Services team is responsible for data center infrastructure, network design engineering, cable plan design and implementation, network security, voice services, and voice/data maintenance. This team also provides support to the 911 communications center. This team is responsible for provisioning resources in accordance with project and customer needs, performance management, availability, system recovery, and capacity planning for converged network assets.

DATABASE ADMINISTRATION: The DBA team ensures the availability, performance, and integrity of production and non-production database environments via adherence to policies, procedures, and standards related to industry best practices. This team ensures Technology Services objectives are met in support of delivering products and projects in accordance to planned schedules. This team will optimize physical and virtual database assets in order to optimize quality, recoverability, maintenance, and capacity planning.
STAFF INFORMATION TECHNOLOGY (IT) SYSTEMS ADMINISTRATOR (621-I): Performs entry level information technology (IT) work installing and configuring operating system hardware and software and user application software; assists with the maintenance and repair of routine problems with system hardware and software.  
Education: Bachelor’s degree in Computer Science, Information Systems, Business Administration, or Mathematics.  
Experience: None.

ASSOCIATE INFORMATION TECHNOLOGY (IT) SYSTEMS ADMINISTRATOR (811-I): Performs standard level information technology work installing and configuring operating system hardware and software and user application software; maintains and repairs routine to complex problems with system hardware and software.  
Education: Bachelor’s degree in Computer Science, Information Systems, Business Administration, or Mathematics.  
Experience: Two years of professional Information Technology experience maintaining, implementing, and modifying information technology systems or work processing operations including system hardware and software.

SENIOR INFORMATION TECHNOLOGY (IT) SYSTEMS ADMINISTRATOR (813-I): Performs full performance information technology work planning and coordinating the installation and configuration of operating system hardware and software and user application software; maintaining and repairing complex problems with system hardware and software; and modifying operating system hardware and software to increase performance and meet technical design requirements.  
Education: Bachelor’s degree in Computer Science, Information Systems, Business Administration, or Mathematics.  
Experience: Three years of professional Information Technology experience installing, maintaining, and/or modifying application software, operating system and/or network operating system software and associated hardware.

DATABASE ADMINISTRATOR (813-I): Analyzes information requirements, coordinates data collection, organizes data into usable databases, stores data for efficient access by systems analysts and programmers, keeps databases up-to-date, and establishes rules relating to the database security.  
Education: Bachelor’s degree in Computer Science, Information Systems, Business Administration, or Mathematics.  
Experience: Three years of professional data processing experience, including two years as a team leader on a major database application development project.

ERP APPLICATIONS ADMINISTRATOR I (812-I): Performs standard level professional information technology work installing, configuring, and maintaining Enterprise Resource Planning (ERP) systems and applications.  
Education: Bachelor’s Degree in Computer Science, Information Systems, Business Administration, or Mathematics.  
Experience: Two years of professional level experience implementing and maintaining ERP applications, databases, and servers.

ERP APPLICATIONS ADMINISTRATOR II (814-I): Performs full performance level professional information technology work planning, developing, installing, configuring, and maintaining Enterprise Resource Planning (ERP) systems and applications; serves as a technical lead on projects involving implementation and maintenance of ERP applications, databases, and servers.  
Education: Bachelor’s Degree in Computer Science, Information Systems, Business Administration, or Mathematics.  
Experience: Three years of professional level experience implementing and maintaining ERP applications, databases, and servers.
INFORMATION TECHNOLOGY (IT) SYSTEMS ARCHITECT (815-I): Performs full performance information technology work in the planning, designing, developing, and monitoring of information systems (specializing in Windows, UNIX, Security, Telecommunications, Data Network, and/or Storage Area Network systems) utilized within an agency or throughout the city.

**Education:** Bachelor's degree in Computer Science, Computer Information Systems, Business Administration, or Mathematics.

**Experience:** Three years of professional information technology experience installing, maintaining, and/or modifying operating system and/or network operating system software and associated hardware. Two of these years must include experience in designing and implementing enterprise level systems and scalable solutions.

ADMINISTRATOR I (815-I): Performs a variety of specific administrative activities/projects of limited scope in a specialized, functional area which requires a thorough foundation in the principles and practices of the functional area in order to maintain and improve the efficiency and effectiveness of the function and provide supportive, interpretive, and advisory information to higher level administrators, managers, and/or other stakeholders.

**Education:** Bachelor's degree in Computer Science, Information Systems, Business Administration, or Mathematics.

**Experience:** Three years of technical or administrative experience performing research and evaluation OR three years of experience performing technical and administrative duties within the related functional area.

INFORMATION TECHNOLOGY (IT) SUPERVISOR (816-I): Supervises either professional information technology staff supporting multiple environments, applications and/or operating systems through software development and/or network/system administration or manages the entire information technology function in an Agency or independent division.

**Education:** Bachelor's degree in Computer Science, Computer Information Systems, Business Administration, Public Administration, or Mathematics.

**Experience:** Three years of professional information technology experience including at least one year at the senior level.

MANAGER 1 (818-I): Manages an operational and/or functional area(s) and performs some elements of supervision by recommending and implementing plans, procedures, policies, programs, and projects.

**Education:** Bachelor's degree in Computer Science, Information Systems, Business Administration, or Mathematics.

**Experience:** Three years of experience in a professional level supervisory or at the type and level of a Senior IT Professional.

MANAGER 2 (820-I): Directs and manages an operational and/or functional area by developing objectives while implementing strategies and managing plans, programs, and projects.

**Education:** Bachelor's degree in Computer Science, Information Systems, Business Administration, or Mathematics.

**Experience:** Three years of management level work in an administrative or operating capacity in Information Technology, of which one year must have included budget and fiscal oversight responsibilities and one year of establishing objectives and strategies for functional and/or operational area(s) programs and/or projects.