FUNCTIONAL AREA 12

Network Administration (NET)

Incumbents in this functional area address interoperability issues related to hardware, software, and connectivity of communications such as cable, fiber optics and/or wireless communications. They may be responsible to manage information technology networks such as local area networks (LAN), Wide area networks (WAN), Metropolitan Area Networks (MAN), Intranets, Internets, and Extranets. In addition, incumbents may specialize in areas such as Network Administration, and Systems Network Architecture (SNA), Internal Network Infrastructure, Network Performance, Network Operational and Disaster Recovery, Multi-protocol wide-area networking, Network Security, Firewalls, Network Management, and Virtual Private Networking (VPN). At the more advanced levels (IST III and above), incumbents develop and administer policies and procedures (including network services) that ensure the department take full advantage of network technologies to enhance the delivery of services in support of mission requirements. They may also lead feasibility studies of new network technology teams, participate in strategic planning activities, contribute to network architecture and topology development, and act as consultants to other information technology personnel in leading an enterprise-level network project, such as establishing connectivity for new mission requirements, new customer organizations, or accommodating changes in legislation.

NETWORK ADMINISTRATION	Assistant Information Technology Specialist	Information Technology Specialist I	Information Technology Specialist II	Information Technology Specialist III
Knowledge of:				
Basic networking and operating environments	X	X	X	X
Basic network standards, protocols, and procedures, including network systems security	X	X	X	X
Basic capabilities and applications of network equipment including hubs, routers, switches, bridges, servers, transmission media, and related hardware	X	X	X	X
Familiar with network standards, protocols, and procedures, including network systems security		X	X	X
The organizations network architecture and infrastructure		X	X	X
Network compatibility issues and resolution procedures		X	X	X
Network test plan procedures and network testing tools		X	X	X
Local area and wide area networking principles and concepts including bandwidth management		X	X	X

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Network systems design, development, testing, installation, operations, management, and maintenance concepts and methods			X	X
Network design review procedures and processes			X	X
Network performance management/measurement methods, tools, and techniques			X	X
Network architecture and topology			X	X
New and emerging network technologies and/or industry trends			X	X
Advanced network security principles and methods			X	X
Network compatibility issues and resolution procedures			X	X
Network systems management methods including end-to-end systems performance monitoring				X
Advanced network architecture, topology, and protocols, including transmission protocols, broadcasting, switching, control, and management				X
Multiple network compatibility/interface issues and resolution procedures				X
Ability to:				
Provide technical assistance in testing, identifying, resolving, and repairing basic network operational problems and report unresolved problems to the appropriate personnel	X	X	X	X
Follow basic system operation and maintenance procedures	X	X	X	X
Monitor telecommunication, network, and/or client server hardware to ensure it is operational, including teleprocessing networks and computer hardware to prevent, eliminate or minimize customer service disruption	X	X	X	X
Assist to perform routine network configuration management functions	X	X	X	X
Assist senior staff in implementation of system-wide audits	X	X	X	X
Assist senior personnel in system installations and upgrades	X	X	X	X
Document network system configuration	X	X	X	X
Assist to configure and optimize network servers, hubs, routers, and switches	X	X	X	X
Participate in the development, configuration, installation, and maintenance of complex networked systems including local area networks (LANs) and wide area networks (WANs)		X	X	X
Perform routine network configuration management functions		X	X	X

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Use network, telecommunication, and client server monitoring tools, procedures and techniques.		X	X	X
Follow procedures for a network system-wide audit		X	X	X
Understand user applications and related user needs to configuration		X	X	X
Analyze information to resolve problems in the network environment		X	X	X
Establish and maintain network software parameters (security authorization tables, network definitions and file access tables)		X	X	X
Establish and maintain network software parameters (security authorization tables, network definitions and file access tables); Set up and maintain user accounts on network systems		X	X	X
Assist in the evaluation of proposals for the acquisition of network products or services		X	X	X
Follow test plan and use test tools		X	X	X
Participate in network design reviews		X	X	X
Perform network software backups and recoveries		X	X	X
Provide network services that support business requirements		X	X	X
Provide/coordinate user support and training in the use of software and hardware		X	X	X
Support, track and document change implementation for the network hardware, software, interconnectivity and operating system			X	X
Identify and define business or technical requirements applied to the design, development, implementation, management, and support of systems and networks			X	X
Define and document network test specifications, write test plan and procedures and perform network testing			X	X
Plan, design, develop, and integrate network systems consistent with existing or planned network infrastructures			X	X
Install network systems and upgrades to the network/client server hardware, software, and operating systems			X	X
Ensure the rigorous application of information security/information assurance policies, principles, and practices in the delivery of network services			X	X
Optimize network hubs, routers, and switches, analyzing network workload			X	X
Plan, design, develop, manage, and enhance highly efficient network systems that respond to the organization's business requirements			X	X
Resolve compatibility issues			X	X

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Provide advice and guidance on a wide range and variety of complex network issues			X	X
Test and optimize the functionality of systems, networks, and data			X	X
Interpret network policies, standards, and guidelines			X	X
Develop network strategy and policy across the organization and statewide				X
Analyze, define, develop, and implement complex network and network management systems				X
Research and make recommendations regarding network architecture, topology, interdependencies and constraints				X
Act as network architect on development of complex statewide network systems involving multiple LANs, WANs, or MANs with departmental host system interfaces requiring the use of network and systems management tools				X
Evaluate and prioritize the organization's network needs and options and incorporate them into the department's strategic plan				X
Develop and maintain complex network security and firewall requirements based on standards and organization requirements				X
Provide technical leadership on group projects related to directing the development of complex network technology architecture and topology for the organization				X
Develop new theories, concepts, standards and methodologies in network architecture and topology				X
Serve as technical expert and consultant to management and/or executive staff in the area of network administration and engineering in setting policies, strategic planning, network fiscal considerations, and network architectural issues				X

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Assistant Information Technology Specialist,* (*Network Administration)

Incumbents at this level work under close technical supervision applying a basic understanding of information technology expertise contribute to the sustained delivery of vital network services. Incumbents assist in the development, configuration, installation, and maintenance of networked systems. Specifically they may be responsible to provide basic technical assistance in identifying, resolving, and repairing network and/or client server operational problems and report unresolved issues; monitor telecommunication, network and/or client server hardware to ensure it is operational; follow system operation and maintenance procedures; support senior staff in implementation of system-wide audits; support senior personnel in system installation and upgrades; and document network system configuration.

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Information Technology Specialist I,* (*Network Administration)

Incumbents apply an understanding of network standards and equipment, network architecture principles, and local area network, wide area network, and metropolitan area network (LAN, WAN, and MAN) principles. This level is responsible for the development, configuration, installation, monitoring and maintenance of network systems. Network administration tasks include establishing and maintaining network parameters (managing user accounts); maintaining network system documentation and inventory; monitoring service levels; and troubleshooting and resolving LAN/WAN/MAN connectivity problems and system hardware conflicts.

Information Technology Specialist II,* (*Network Administration)

Incumbents demonstrate proficiency of business and technical IT competencies, with a specialization in network systems design, development, testing, installation, operations, management, and maintenance concepts and methods. Responsibility is taken for substantial decision making related to applying knowledge of capabilities and applications of networked equipment including hubs, routers, switches, bridges, transmission media and related hardware. Incumbents apply knowledge of the organization‘s network architecture, topology, and protocols to perform network administration on multiple local area, wide area and/or metropolitan area networks. Tasks may include responsibility to:

- Plan, design, develop, and integrate network systems consistent with existing or planned network infrastructures.
- Install network systems and upgrades to the network hardware, software and operating systems.
- Plan and document network system configuration to meet connectivity requirements and reduce duplication.
- Develop network backup and recovery procedures and perform network software backups and restores on a regular basis.
- Maintain network security and firewalls.

Information Technology Specialist III,* (*Network Administration) RANGE A

Incumbents at Range A serve in a lead capacity and direct the work of assigned staff and/or serve as expert specialist who work independently and deal with the most complex multiple local area networks and/or wide area networks with multiple departmental host interfaces. They apply advanced knowledge of network services to the business perspective of the organization by providing consultation on facilities and interconnectivity related to these network systems; during the planning phase incumbents perform a key role in strategy and design. They are responsible to research network technical alternatives and analyze technical options, make recommendations on selection of architecture, topology, hardware and software. Incumbents also apply in-depth

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knowledge of network, voice, data, and/or video architecture to manage network services within the department. Specifically, they plan for, identify, and carry out the following advanced network maintenance activities:

- Develop network architectures, topologies, interfaces and constraints.
- Develop and maintain network system security and firewall requirements based on standards and departmental needs.
- Monitor system performance, using system management tools; make adjustments to accomplish proper performance objectives.

Information Technology Specialist III,* (*Network Administration) RANGE B

Specialists III, at Range B function at the principal level and have responsibility to make decisions or recommendations to establish organization-wide policies and standards for network technology and services. They lead and direct the development of extremely complex network technology architecture/systems for the department (s). These systems involve multiple networks with departmental host systems interfaces requiring the use of network and systems management tools. Network systems employing this type of technology are typically supported by either large department or data center environments.

Incumbents also serve as the highest-level technical consultants to management and/or executive staff in the areas of network administration and engineering management in setting policies, strategic planning, network fiscal considerations and architectural issues. They play a major role in the development and interpretation of guidelines that are often used to formulate network technology and administration strategy across the organization and state. Incumbents also direct activities that result in long-range plans and ensure that related efforts required to develop strategies are in concert with and support the business requirements and mission of the organization and state.

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