CAREER PATHWAY ENTERPRISE ARCHITECT (651)

Developed By:

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1 651-ENTERPRISE ARCHITECT

1.1 WORK ROLE OVERVIEW

The table below provides an overview of various role-specific elements related to 651-Enterprise Architect.

Table 1. 651- Enterprise Architect Work Role Overview

NICE Role Description	*Develops and maintains business, systems, and information processes to support enterprise mission needs; develops information technology (IT) rules and requirements that describe baseline and target architectures.*
OPM Occupational Series	Personnel performing the 651-Enterprise Architect work role are most commonly aligned to the following Occupational Series (Top 5 shown): - 2210-Information Technology – 72% - 855-Electronics Engineering – 7% - 1550-Computer Science – 5% - 0854-Computer Engineering – 5% - 0301-Miscellaneous Administration and Program – 2%
Work Role Pairings	Personnel performing the 651-Enterprise Architect work role are most commonly paired with the following complimentary Work Roles (Top 5 shown): - 651-Systems Requirements Planner – 15% - 632-Systems Developer – 15% - 661-Research & Development Specialist – 10% - 652-Security Architect – 9% - 621-Software Developer – 7%
Functional Titles	Personnel performing the 651-Enterprise Architect work role may unofficially or alternatively be called: - Chief Enterprise Architect - Cloud Solutions Architect - Data Architect - Enterprise Security Architect - Infrastructure Architect - Solutions Architect - System Architect
Distribution of GS-Levels	Personnel performing the 651-Enterprise Architect work role are most commonly found within the following grades on the General Schedule*. - ☐ GS-6 – redacted** - ☐ GS-7 – redacted**

	- ☐ GS-8 – redacted** - ☐ GS-9 – redacted** - ☐ GS-11 – redacted** - ☒ GS-12 – 7% - ☒ GS-13 – 23% - ☒ GS-14 – 34% - ☒ GS-15 – 11% *22% of all 651s are in non-GS pay plans and excluded from this section **Percentages below 3% are redacted.
On Ramps	The following work roles are examples of possible roles an individual may perform prior to transitioning into the 651-Enterprise Architect work role: Technical Roles - 621- Software Developer - 632-Systems Developer - 631-Information Systems Security Developer - 652-Security Architect - 661-Research and Development Specialist
Off Ramps	The following work roles are examples of common transitions an individual may pursue after having performed the 651-Enterprise Architect work role. This is not an exhaustive list, nor does it consider learning and development opportunities an individual may pursue to prepare themselves for performing alternate work roles: - 652-Security Architect *Note: Leveraging the knowledge, skills, abilities, and tasks of the 651-Enterprise Architect work role, individuals may prepare themselves to transition into one or more of the following cross-functional work roles: - *711- Cyber Instructional Curriculum Developer* - *712-Cyber Instructor* - *751-Cyber Workforce Developer and Manager* - *752-Cyber Policy and Strategy Planner* - *801-Program Manager* - *901-Executive Cyber Leadership*

1.2 CORE TASKS

The table below provides a list of tasks that represent the Core, or baseline, expectations for performance in the 651-Enterprise Architect work role, as well as additional tasks that those in this role may be expected to perform.

Table 2. 651- Enterprise Architect *Core Tasks*

Task ID	Task	Core or Additional
T0084	Employ secure configuration management processes.	Core
T0090	Ensure that acquired or developed system(s) and architecture(s) are consistent with organization's cybersecurity architecture guidelines.	Core
T0108	Identify and prioritize critical business functions in collaboration with organizational stakeholders.	Core
T0427	Analyze user needs and requirements to plan architecture.	Core
T0448	Develop enterprise architecture or system components required to meet user needs.	Core
T0473	Document and update as necessary all definition and architecture activities.	Core
T0521	Plan implementation strategy to ensure that enterprise components can be integrated and aligned.	Core
T0196	Provide advice on project costs, design concepts, or design changes.	Additional
T0205	Provide input to the Risk Management Framework process activities and related documentation (e.g., system life-cycle support plans, concept of operations, operational procedures, and maintenance training materials).	Additional
T0307	Analyze candidate architectures, allocate security services, and select security mechanisms.	Additional
T0314	Develop a system security context, a preliminary system security Concept of Operations (CONOPS) and define baseline system security requirements in accordance with applicable cybersecurity requirements.	Additional
T0328	Evaluate security architectures and designs to determine the adequacy of security design and architecture proposed or provided in response to requirements contained in acquisition documents.	Additional
T0338	Write detailed functional specifications that document the architecture development process.	Additional
T0440	Capture and integrate essential system capabilities or business functions required for partial or full system restoration after a catastrophic failure event.	Additional
T0517	Integrate results regarding the identification of gaps in security architecture.	Additional
T0542	Translate proposed capabilities into technical requirements.	Additional
T0555	Document how the implementation of a new system or new interface between systems impacts the current and target environment including but not limited to security posture.	Additional
T0557	Integrate key management functions as related to cyberspace.	Additional

Task ID	Task	Core or Additional
T0051	Define appropriate levels of system availability based on critical system functions and ensure that system requirements identify appropriate disaster recovery and continuity of operations requirements to include any appropriate fail-over/alternate site requirements, backup requirements, and material supportability requirements for system recover/restoration.	Additional

1.3 CORE KNOWLEDGE, SKILLS, AND ABILITIES

The table below provides a ranking of KSAs that represent the Core, or baseline, expectations for performance in the 651-Enterprise Architect work role, as well as additional KSAs that those in this role may be expected to demonstrate.

Table 3. 651- Enterprise Architect Core Knowledge, Skills, and Abilities

KSA ID	Description	Competency	Importance to Work Role
K0004	Knowledge of cybersecurity and privacy principles.	Information Systems/Network Security	Foundational to All Work Roles
K0001	Knowledge of computer networking concepts and protocols, and network security methodologies.	Infrastructure Design	Foundational to All Work Roles
K0003	Knowledge of laws, regulations, policies, and ethics as they relate to cybersecurity and privacy.	Legal, Government, and Jurisprudence	Foundational to All Work Roles
K0002	Knowledge of risk management processes (e.g., methods for assessing and mitigating risk).	Risk Management	Foundational to All Work Roles
K0005	Knowledge of cyber threats and vulnerabilities.	Vulnerabilities Assessment	Foundational to All Work Roles
K0006	Knowledge of specific operational impacts of cybersecurity lapses.	Vulnerabilities Assessment	Foundational to All Work Roles
K0291	Knowledge of the enterprise information technology (IT) architectural concepts and patterns (e.g., baseline, validated design, and target architectures.)	Enterprise Architecture	Core
K0293	Knowledge of integrating the organization's goals and objectives into the architecture.	Enterprise Architecture	Core
A0060	Ability to build architectures and frameworks.	Enterprise Architecture	Core
K0056	Knowledge of network access, identity, and access management (e.g., public key infrastructure, Oauth, OpenID, SAML, SPML).	Identity Management	Core
K0027	Knowledge of organization's enterprise information security architecture.	Information Assurance	Core
K0179	Knowledge of network security architecture concepts including topology, protocols, components, and principles (e.g., application of defense-in-depth).	Information Systems/Network Security	Core
K0333	Knowledge of network design processes, to include understanding of security objectives, operational objectives, and trade-offs.	Infrastructure Design	Core
K0102	Knowledge of the systems engineering process.	Systems Integration	Core
S0060	Skill in writing code in a currently supported programming language (e.g., Java, C++).	Computer Languages	Additional

KSA ID	Description	Competency	Importance to Work Role
K0030	Knowledge of electrical engineering as applied to computer architecture (e.g., circuit boards, processors, chips, and computer hardware).	Computers and Electronics	Additional
K0043	Knowledge of industry-standard and organizationally accepted analysis principles and methods.	Data Analysis	Additional
S0374	Skill to identify cybersecurity and privacy issues that stem from connections with internal and external customers and partner organizations.	Data Privacy and Protection	Additional
K0024	Knowledge of database systems.	Database Management Systems	Additional
K0063	Knowledge of parallel and distributed computing concepts.	Enterprise Architecture	Additional
K0200	Knowledge of service management concepts for networks and related standards (e.g., Information Technology Infrastructure Library, current version [ITIL]).	Enterprise Architecture	Additional
S0005	Skill in applying and incorporating information technologies into proposed solutions.	Enterprise Architecture	Additional
S0122	Skill in the use of design methods.	Enterprise Architecture	Additional
A0008	Ability to apply the methods, standards, and approaches for describing, analyzing, and documenting an organization's enterprise information technology (IT) architecture (e.g., Open Group Architecture Framework [TOGAF], Department of Defense Architecture Framework [DoDAF], Federal Enterprise Architecture Framework [FEAF]).	Enterprise Architecture	Additional
A0027	Ability to apply an organization's goals and objectives to develop and maintain architecture.	Enterprise Architecture	Additional
K0037	Knowledge of Security Assessment and Authorization process.	Information Assurance	Additional
K0044	Knowledge of cybersecurity and privacy principles and organizational requirements (relevant to confidentiality, integrity, availability, authentication, non-repudiation).	Information Assurance	Additional
K0074	Knowledge of key concepts in security management (e.g., Release Management, Patch Management).	Information Assurance	Additional
K0203	Knowledge of security models (e.g., Bell-LaPadula model, Biba integrity model, Clark-Wilson integrity model).	Information Assurance	Additional
K0211	Knowledge of confidentiality, integrity, and availability requirements.	Information Assurance	Additional
K0240	Knowledge of multi-level security systems and cross domain solutions.	Information Assurance	Additional
S0367	Skill to apply cybersecurity and privacy principles to organizational requirements (relevant to confidentiality, integrity, availability, authentication, non-repudiation).	Information Assurance	Additional

KSA ID	Description	Competency	Importance to Work Role
A0123	Ability to apply cybersecurity and privacy principles to organizational requirements (relevant to confidentiality, integrity, availability, authentication, non-repudiation).	Information Assurance	Additional
K0287	Knowledge of an organization's information classification program and procedures for information compromise.	Information Management	Additional
K0075	Knowledge of security system design tools, methods, and techniques.	Information Systems/Network Security	Additional
K0326	Knowledge of demilitarized zones.	Information Systems/Network Security	Additional
K0487	Knowledge of network security (e.g., encryption, firewalls, authentication, honey pots, perimeter protection).	Information Systems/Network Security	Additional
A0172	Ability to set up a physical or logical sub-networks that separates an internal local area network (LAN) from other untrusted networks.	Information Systems/Network Security	Additional
S0027	Skill in determining how a security system should work (including its resilience and dependability capabilities) and how changes in conditions, operations, or the environment will affect these outcomes.	Information Technology Assessment	Additional
A0038	Ability to optimize systems to meet enterprise performance requirements.	Information Technology Assessment	Additional
A0170	Ability to identify critical infrastructure systems with information communication technology that were designed without system security considerations.	Information Technology Assessment	Additional
K0061	Knowledge of how traffic flows across the network (e.g., Transmission Control Protocol [TCP] and Internet Protocol [IP], Open System Interconnection Model [OSI], Information Technology Infrastructure Library, current version [ITIL]).	Infrastructure Design	Additional
K0170	Knowledge of critical infrastructure systems with information communication technology that were designed without system security considerations.	Infrastructure Design	Additional
K0322	Knowledge of embedded systems.	Infrastructure Design	Additional
K0332	Knowledge of network protocols such as TCP/IP, Dynamic Host Configuration, Domain Name System (DNS), and directory services.	Infrastructure Design	Additional
K0516	Knowledge of physical and logical network devices and infrastructure to include hubs, switches, routers, firewalls, etc.	Infrastructure Design	Additional
K0052	Knowledge of mathematics (e.g. logarithms, trigonometry, linear algebra, calculus, statistics, and operational analysis).	Mathematical Reasoning	Additional
K0325	Knowledge of Information Theory (e.g., source coding, channel coding, algorithm complexity theory, and data compression).	Mathematical Reasoning	Additional
S0050	Skill in design modeling and building use cases (e.g., unified modeling language).	Modeling and Simulation	Additional

KSA ID	Description	Competency	Importance to Work Role
K0180	Knowledge of network systems management principles, models, methods (e.g., end-to-end systems performance monitoring), and tools.	Network Management	Additional
K0207	Knowledge of circuit analysis.	Network Management	Additional
K0060	Knowledge of operating systems.	Operating Systems	Additional
K0198	Knowledge of organizational process improvement concepts and process maturity models (e.g., Capability Maturity Model Integration (CMMI) for Development, CMMI for Services, and CMMI for Acquisitions).	Process Control	Additional
K0214	Knowledge of the Risk Management Framework Assessment Methodology.	Risk Management	Additional
K0264	Knowledge of program protection planning (e.g. information technology (IT) supply chain security/risk management policies, anti-tampering techniques, and requirements).	Risk Management	Additional
K0082	Knowledge of software engineering.	Software Development	Additional
K0286	Knowledge of N-tiered typologies (e.g. including server and client operating systems).	Software Development	Additional
K0227	Knowledge of various types of computer architectures.	System Administration	Additional
K0275	Knowledge of configuration management techniques.	System Administration	Additional
K0299	Knowledge in determining how a security system should work (including its resilience and dependability capabilities) and how changes in conditions, operations, or the environment will affect these outcomes.	System Administration	Additional
K0323	Knowledge of system fault tolerance methodologies.	System Administration	Additional
K0035	Knowledge of installation, integration, and optimization of system components.	Systems Integration	Additional
S0024	Skill in designing the integration of hardware and software solutions.	Systems Integration	Additional
A0051	Ability to execute technology integration processes.	Systems Integration	Additional
K0028	Knowledge of organization's evaluation and validation requirements.	Systems Testing and Evaluation	Additional
K0091	Knowledge of systems testing and evaluation methods.	Systems Testing and Evaluation	Additional
K0212	Knowledge of cybersecurity-enabled software products.	Technology Awareness	Additional
K0093	Knowledge of telecommunications concepts (e.g., Communications channel, Systems Link Budgeting, Spectral efficiency, Multiplexing).	Telecommunications	Additional

KSA ID	Description	Competency	Importance to Work Role
A0015	Ability to conduct vulnerability scans and recognize vulnerabilities in security systems.	Vulnerabilities Assessment	Additional

1.4 CORE COMPETENCIES

The table below is a compilation of competencies aligned to the 651-Enterprise Architect work role, and their associated importance. Listed competencies are collections of three or more similar Knowledge, Skills, or Abilities aligned to the Work Role. *These competencies originate from the [NICE Framework Competency Pivot Tool](#).*

Table 4. 651- Enterprise Architect Core Competencies

Technical Competency	Comp ID	Definition	Work Role Related KSAs	Importance
Enterprise Architecture	C018	Principles, concepts, and methods of enterprise architecture to align information technology (IT) strategy, plans, and systems with the mission, goals, structure, and processes of the organization.	- Knowledge of parallel and distributed computing concepts. - Knowledge of service management concepts for networks and related standards (e.g., Information Technology Infrastructure Library, current version [ITIL]). - Skill in applying and incorporating information technologies into proposed solutions. - Skill in the use of design methods. - Ability to apply the methods, standards, and approaches for describing, analyzing, and documenting an organization's enterprise information technology (IT) architecture (e.g., Open Group Architecture Framework [TOGAF], Department of Defense Architecture Framework [DoDAF], Federal Enterprise Architecture Framework [FEAF]). - Ability to apply an organization's goals and objectives to develop and maintain architecture.	Core
Information Assurance	C022	Methods and procedures that protect information systems and data by ensuring their availability, authentication, confidentiality, and integrity.	- Knowledge of Security Assessment and Authorization process. - Knowledge of cybersecurity and privacy principles and organizational requirements (relevant to confidentiality, integrity, availability, authentication, non-repudiation). - Knowledge of key concepts in security management (e.g., Release Management, Patch Management). - Knowledge of security models (e.g., Bell-LaPadula model, Biba integrity model, Clark-Wilson integrity model). - Knowledge of confidentiality, integrity, and availability requirements. - Knowledge of multi-level security systems and cross domain solutions. - Skill to apply cybersecurity and privacy principles to organizational requirements (relevant to confidentiality, integrity, availability, authentication, non-repudiation). - Ability to apply cybersecurity and privacy principles to organizational requirements (relevant to confidentiality, integrity, availability, authentication, non-repudiation).	Core

Technical Competency	Comp ID	Definition	Work Role Related KSAs	Importance
			-	
Information Systems / Network Security	C024	Methods, tools, and procedures, including development of information security plans to prevent information systems vulnerabilities and to provide or restore security of information systems and network services.	- Knowledge of security system design tools, methods, and techniques. - Knowledge of demilitarized zones. - Knowledge of network security (e.g., encryption, firewalls, authentication, honey pots, perimeter protection). - Ability to set up a physical or logical sub-networks that separates an internal local area network (LAN) from other untrusted networks.	Core
Infrastructure Design	C026	Architecture and typology of software, hardware, and networks, including LANS, WANS, and telecommunications systems, their components and associated protocols and standards, and how they operate and integrate with one another and with associated controlling software.	- Knowledge of computer networking concepts and protocols, and network security methodologies. - Knowledge of network design processes, to include understanding of security objectives, operational objectives, and trade-offs. - Knowledge of how traffic flows across the network (e.g., Transmission Control Protocol [TCP] and Internet Protocol [IP], Open System Interconnection Model [OSI], Information Technology Infrastructure Library, current version [ITIL]). - Knowledge of critical infrastructure systems with information communication technology that were designed without system security considerations. - Knowledge of embedded systems. - Knowledge of network protocols such as TCP/IP, Dynamic Host Configuration, Domain Name System (DNS), and directory services. - Knowledge of physical and logical network devices and infrastructure to include hubs, switches, routers, firewalls, etc.	Core
System Administration	C048	Upkeep, configuration, and reliable operation of computer systems.	- Knowledge of various types of computer architectures. - Knowledge of configuration management techniques. - Knowledge in determining how a security system should work (including its resilience and dependability capabilities) and how changes in conditions, operations, or the environment will affect these outcomes. - Knowledge of system fault tolerance methodologies.	Core
Systems Integration	C049	Principles, methods, and procedures for installing, integrating, and optimizing information systems components.	- Knowledge of installation, integration, and optimization of system components. - Skill in designing the integration of hardware and software solutions. - Ability to execute technology integration processes.	Core

Technical Competency	Comp ID	Definition	Work Role Related KSAs	Importance
Information Technology Assessment	C025	Principles, methods, and tools (for example, surveys, system performance measures) to assess the effectiveness and practicality of information technology systems.	- Skill in determining how a security system should work (including its resilience and dependability capabilities) and how changes in conditions, operations, or the environment will affect these outcomes. - Ability to optimize systems to meet enterprise performance requirements. - Ability to identify critical infrastructure systems with information communication technology that were designed without system security considerations.	Additional
Vulnerabilities Assessment	C057	Principles, methods, and tools for assessing vulnerabilities and developing or recommending appropriate mitigation countermeasures.	- Knowledge of cyber threats and vulnerabilities. - Knowledge of specific operational impacts of cybersecurity lapses. - Ability to conduct vulnerability scans and recognize vulnerabilities in security systems.	Additional

1.5 SUGGESTED QUALIFICATIONS / CAPABILITY INDICATORS

Table 5. 651-Enterprise Architect Suggested Qualifications / Capability Indicators

For indicators of capability for the 651- Enterprise Architect work role, please see Draft NISTR 8193 - National Initiative for Cybersecurity Education (NICE) Framework Work Role Capability Indicators.

Section to be populated with updated DoD-8140 Qualification Matrix for 651- Enterprise Architect.

2 APPENDIX: 651- ENTERPRISE ARCHITECT TASK ANALYSIS AND KSA MAPPING

2.1 KEY TO READING THE TASK ANALYSIS AND KSA MAPPING

Table 6. Key to Reading the Task Analysis and KSA Mapping

Proficiency	Task Statement	Importance
As Written	Task as written within the NICE Cybersecurity Workforce Framework (NICE Framework).	Overall Importance to Work Role
Entry	*Example behavioral indicator / task permutation for performing this task at an Entry skills proficiency level.*	
Intermediate	*Example behavioral indicator / task permutation for performing this task at an Intermediate skills proficiency level.*	
Advanced	*Example behavioral indicator / task permutation for performing this task at an Advanced skills proficiency level.*	

Table 7. Primary Knowledge, Skills, and Abilities Required to Perform the above Task

KSA ID	Description	Competency
ID of K, S, or A	Knowledge, Skill or Ability needed to perform the task as written within the NICE Framework	Competency mapped to the individual K, S, or A.

2.2 651-ENTERPRISE ARCHITECT TASK ANALYSIS AND KSA MAPPING

Table 8. T0108 Task Analysis

Proficiency	Task Statement	Importance
As Written within Framework	Identify and prioritize critical business functions in collaboration with organizational stakeholders.	Core
Entry	*Assist with defining and analyzing critical business functions in collaboration with stakeholders.*	
Intermediate	*Define and analyze critical business functions in collaboration with stakeholders.*	
Advanced	*Advise stakeholders on recommended improvements to business processes, services, and capabilities that align to critical business functions.*	

Table 9. Primary Knowledge, Skills, and Abilities Required to Perform the above Task

KSA ID	Description	Competency
K0043	Knowledge of industry-standard and organizationally accepted analysis principles and methods.	Data Analysis
K0200	Knowledge of service management concepts for networks and related standards (e.g., Information Technology Infrastructure Library, current version [ITIL]).	Enterprise Architecture
K0291	Knowledge of the enterprise information technology (IT) architectural concepts and patterns (e.g., baseline, validated design, and target architectures.)	Enterprise Architecture
K0293	Knowledge of integrating the organization's goals and objectives into the architecture.	Enterprise Architecture
A0008	Ability to apply the methods, standards, and approaches for describing, analyzing, and documenting an organization's enterprise information technology (IT) architecture (e.g., Open Group Architecture Framework [TOGAF], Department of Defense Architecture Framework [DoDAF], Federal Enterprise Architecture Framework [FEAF]).	Enterprise Architecture
A0027	Ability to apply an organization's goals and objectives to develop and maintain architecture.	Enterprise Architecture
A0060	Ability to build architectures and frameworks.	Enterprise Architecture
K0027	Knowledge of organization's enterprise information security architecture.	Information Assurance
K0004	Knowledge of cybersecurity and privacy principles.	Information Systems/Network Security

Table 10. T0084 Task Analysis

Proficiency	Task Statement	Importance
As Written within Framework	Employ secure configuration management processes.	Core
Entry	*Employ applicable secure configuration management processes in your area of responsibility.*	
Intermediate	*Review and provide feedback on secure configuration management processes.*	
Advanced	*Govern development and conformance with secure configuration management processes.*	

Table 11. Primary Knowledge, Skills, and Abilities Required to Perform the above Task

KSA ID	Description	Competency
K0200	Knowledge of service management concepts for networks and related standards (e.g., Information Technology Infrastructure Library, current version [ITIL]).	Enterprise Architecture
A0027	Ability to apply an organization's goals and objectives to develop and maintain architecture.	Enterprise Architecture
K0074	Knowledge of key concepts in security management (e.g., Release Management, Patch Management).	Information Assurance
K0060	Knowledge of operating systems.	Operating Systems
K0082	Knowledge of software engineering.	Software Development
K0275	Knowledge of configuration management techniques.	System Administration
K0028	Knowledge of organization's evaluation and validation requirements.	Systems Testing and Evaluation

Table 12. T0090 Task Analysis

Proficiency	Task Statement	Importance
As Written within Framework	Ensure that acquired or developed system(s) and architecture(s) are consistent with organization's cybersecurity architecture guidelines.	Core
Entry	*Following Standard Operating Procedures (SOPs), ensure architectures are conforming with security architecture guidelines*	
Intermediate	*Ensure that acquired or developed system(s) and architecture(s) are consistent with organization's security architecture guidelines.*	
Advanced	*Leading and overseeing development of security architecture guidelines and ensuring systems architectures are consistent with the applicable guidelines.*	

Table 13. Primary Knowledge, Skills, and Abilities Required to Perform the above Task

KSA ID	Description	Competency
K0291	Knowledge of the enterprise information technology (IT) architectural concepts and patterns (e.g., baseline, validated design, and target architectures.)	Enterprise Architecture
K0027	Knowledge of organization's enterprise information security architecture.	Information Assurance
K0211	Knowledge of confidentiality, integrity, and availability requirements.	Information Assurance
K0240	Knowledge of multi-level security systems and cross domain solutions.	Information Assurance
K0004	Knowledge of cybersecurity and privacy principles.	Information Systems/Network Security
K0179	Knowledge of network security architecture concepts including topology, protocols, components, and principles (e.g., application of defense-in-depth).	Information Systems/Network Security
K0487	Knowledge of network security (e.g., encryption, firewalls, authentication, honey pots, perimeter protection).	Information Systems/Network Security
K0002	Knowledge of risk management processes (e.g., methods for assessing and mitigating risk).	Risk Management
K0264	Knowledge of program protection planning (e.g. information technology (IT) supply chain security/risk management policies, anti-tampering techniques, and requirements).	Risk Management

Table 14. T0427 Task Analysis

Proficiency	Task Statement	Importance
As Written within Framework	Analyze user needs and requirements to plan architecture.	Core
Entry	*Assisting with the analysis and documentation of user needs and requirements to plan architecture.*	
Intermediate	*Analyze user needs and requirements to plan architecture.*	
Advanced	*Oversee the analysis of user needs and requirements to plan architecture.*	

Table 15. Primary Knowledge, Skills, and Abilities Required to Perform the above Task

KSA ID	Description	Competency
K0043	Knowledge of industry-standard and organizationally accepted analysis principles and methods.	Data Analysis
K0291	Knowledge of the enterprise information technology (IT) architectural concepts and patterns (e.g., baseline, validated design, and target architectures.)	Enterprise Architecture
K0293	Knowledge of integrating the organization's goals and objectives into the architecture.	Enterprise Architecture
A0008	Ability to apply the methods, standards, and approaches for describing, analyzing, and documenting an organization's enterprise information technology (IT) architecture (e.g., Open Group Architecture Framework [TOGAF], Department of Defense Architecture Framework [DoDAF], Federal Enterprise Architecture Framework [FEAF]).	Enterprise Architecture
A0027	Ability to apply an organization's goals and objectives to develop and maintain architecture.	Enterprise Architecture
A0060	Ability to build architectures and frameworks.	Enterprise Architecture
K0082	Knowledge of software engineering.	Software Development
K0227	Knowledge of various types of computer architectures.	System Administration
S0024	Skill in designing the integration of hardware and software solutions.	Systems Integration

Table 16. T0448 Task Analysis

Proficiency	Task Statement	Importance
As Written within Framework	Develop enterprise architecture or system components required to meet user needs.	Core
Entry	*Assist with developing enterprise architecture required to meet user needs.*	
Intermediate	*Develop enterprise architecture required to meet user needs.*	
Advanced	*Oversee, review, and approve the development of enterprise architecture required to meet user needs.*	

Table 17. Primary Knowledge, Skills, and Abilities Required to Perform the above Task

KSA ID	Description	Competency
K0291	Knowledge of the enterprise information technology (IT) architectural concepts and patterns (e.g., baseline, validated design, and target architectures.)	Enterprise Architecture
K0293	Knowledge of integrating the organization's goals and objectives into the architecture.	Enterprise Architecture
S0005	Skill in applying and incorporating information technologies into proposed solutions.	Enterprise Architecture
S0122	Skill in the use of design methods.	Enterprise Architecture
A0008	Ability to apply the methods, standards, and approaches for describing, analyzing, and documenting an organization's enterprise information technology (IT) architecture (e.g., Open Group Architecture Framework [TOGAF], Department of Defense Architecture Framework [DoDAF], Federal Enterprise Architecture Framework [FEAF]).	Enterprise Architecture
A0060	Ability to build architectures and frameworks.	Enterprise Architecture
K0027	Knowledge of organization's enterprise information security architecture.	Information Assurance
K0240	Knowledge of multi-level security systems and cross domain solutions.	Information Assurance
K0487	Knowledge of network security (e.g., encryption, firewalls, authentication, honey pots, perimeter protection).	Information Systems/Network Security
K0170	Knowledge of critical infrastructure systems with information communication technology that were designed without system security considerations.	Infrastructure Design
K0003	Knowledge of laws, regulations, policies, and ethics as they relate to cybersecurity and privacy.	Legal, Government, and Jurisprudence

Table 18. T0473 Task Analysis

Proficiency	Task Statement	Importance
As Written within Framework	Document and update as necessary all definition and architecture activities.	Core
Entry	*Identify and document architecture activities within an assigned area.*	
Intermediate	*Identify and align all required activities within an assigned area, while guiding others.*	
Advanced	*Identify and align all required activities, while leading others in the documenting and updating of all definitions and architectures.*	

Table 19. Primary Knowledge, Skills, and Abilities Required to Perform the above Task

KSA ID	Description	Competency
K0200	Knowledge of service management concepts for networks and related standards (e.g., Information Technology Infrastructure Library, current version [ITIL]).	Enterprise Architecture
K0291	Knowledge of the enterprise information technology (IT) architectural concepts and patterns (e.g., baseline, validated design, and target architectures.)	Enterprise Architecture
K0293	Knowledge of integrating the organization's goals and objectives into the architecture.	Enterprise Architecture
K0027	Knowledge of organization's enterprise information security architecture.	Information Assurance
K0004	Knowledge of cybersecurity and privacy principles.	Information Systems/Network Security
K0075	Knowledge of security system design tools, methods, and techniques.	Information Systems/Network Security
K0487	Knowledge of network security (e.g., encryption, firewalls, authentication, honey pots, perimeter protection).	Information Systems/Network Security
K0198	Knowledge of organizational process improvement concepts and process maturity models (e.g., Capability Maturity Model Integration (CMMI) for Development, CMMI for Services, and CMMI for Acquisitions).	Process Control
K0082	Knowledge of software engineering.	Software Development
K0323	Knowledge of system fault tolerance methodologies.	System Administration
K0102	Knowledge of the systems engineering process.	Systems Integration

Table 20. T0521 Task Analysis

Proficiency	Task Statement	Importance
As Written within Framework	Plan implementation strategy to ensure that enterprise components can be integrated and aligned.	Core
Entry	*Assist in the execution of implementation strategies within an assigned area.*	
Intermediate	*Plan implementation strategy to ensure that enterprise components can be integrated and aligned.*	
Advanced	*Lead and oversee the planning of implementation strategy to ensure that enterprise components can be integrated and aligned.*	

Table 21. Primary Knowledge, Skills, and Abilities Required to Perform the above Task

KSA ID	Description	Competency
K0024	Knowledge of database systems.	Database Management Systems
K0291	Knowledge of the enterprise information technology (IT) architectural concepts and patterns (e.g., baseline, validated design, and target architectures.)	Enterprise Architecture
K0180	Knowledge of network systems management principles, models, methods (e.g., end-to-end systems performance monitoring), and tools.	Network Management
K0060	Knowledge of operating systems.	Operating Systems
K0082	Knowledge of software engineering.	Software Development
K0323	Knowledge of system fault tolerance methodologies.	System Administration
K0102	Knowledge of the systems engineering process.	Systems Integration
A0051	Ability to execute technology integration processes.	Systems Integration