

AFSC 3D074, Craftsman  
 AFSC 3D054, Journeyman  
 AFSC 3D034, Apprentice  
 AFSC 3D014, Helper

**★COMPUTER SYSTEMS PROGRAMMING**  
**(Changed 30 Apr 19)**

**1. Specialty Summary.** Supervises and performs as computer analyst, coder, tester and manager in the design, development, maintenance, testing, configuration management, and documentation of application software systems, client-server, and web-enabled software and relational database systems critical to warfighting capabilities. Related DoD Occupational Subgroup: 153200.

**2. Duties and Responsibilities:**

2.1. Develops standardized tools and interfaces in accordance with Air Force Network Operations guidance to transform raw data into actionable C2 information. Develops and implements policy to enable effective information discovery, indexing, storage, life-cycle management, retrieval, and sharing in a collaborative enterprise information environment. Harnesses capabilities of systems designed to collect, store, retrieve, process, and display data to ensure information dominance.

2.2. Ensures compliance with DoD directives and standards for security and interoperability. Protects operating systems, application software, files, and databases from unauthorized access to sensitive information, or misuse of communication-computer resources.

2.3. Determines, analyzes, and develops requirements for software systems through interpreting standards, specifications, and user needs as a system analyst. Determines, designs, and develops data requirements, database structure, process flow, systematic procedures, algorithms, and file structures to implement and maintain software systems using software engineering techniques. Works with systems using software methodologies such as distributed processing, systems networking, advanced information storage and retrieval, and management techniques. Determines and recommends the most reasonable approach in designing new systems or modifying existing systems. Develops and maintains system specifications. Conducts and participates in system reviews and technical interchanges. Selects appropriate software development tools. Explores commercial off-the-shelf options to satisfy user requirements.

2.4. Translates system specifications and requirements into program code and database structures, implements designed functionality as software coders. Analyzes output products and debugs source code to isolate and correct errors in program logic, syntax, and data entry, and to ensure accuracy and efficiency. Conducts code reviews and unit-level testing. Develops and maintains unit-level test plans. Arranges test data and routines. Modifies existing programs to correct program errors or modifies existing functionality or interface. Prepares system graphical descriptions, standard language statements, workload data, and presents and proposes cost. Develops and maintains documentation such as program maintenance manuals and operational guides.

2.5. Designs, develops, maintains, and executes test plans for formal qualification testing, system integration testing, regression testing and verification, validation, and acceptance testing as software testers. Conducts test events. Analyzes software system requirement documents. Develops and maintains test data. Performs analysis of test data, determines test results and develops test reports. Makes recommendations to release authorities concerning verifiability, validity, conformance, and interoperability of software systems.

2.6. Designs, develops, maintains, and executes processes to manage software or database components, specifications, test plans, procedures and results, and revision history applicable to a software system to ensure systems in use meet user requirements as software configuration managers. Controls software components at all times to ensure availability and stability of documented baselines. Prepares and manages processes for reporting deficiencies and requesting changes to software components or systems. Manages change packages through analysis and development efforts ensuring testing is performed and documentation is created or updated as required. Conducts reviews of proposed change packages by the user community and control authorities. Prioritizes deficiency reports and change requests using guidance from the user community and control authorities. Prepares and maintains software system baseline documentation and procedures. Prepares, packages, and documents deliverable products.

2.7. As software project manager, interacts with and provides oversight for software system developers and maintainers. Develops and prepares system requirements and proposals. Analyzes requests for information. Prepares documentation of proposal specifications and programs. Organizes system study teams and conducts briefings. Conducts and participates in design reviews and technical interchanges between developers and user representatives. Plans, conducts and reports on the results of system acceptance tests. Manages or participates in the contract management, software quality assurance, or quality assurance evaluation process.

2.8. As part of the Cyberspace Support career field family, manages, supervises, and performs planning and implementation activities. Manages implementation and project installation and ensures architecture, configuration, and integration conformity. Develops, plans, and integrates base communications systems. Serves as advisor at meetings for facility design, military construction programs, and minor construction planning. Evaluates base comprehensive plan and civil engineering projects. Monitors status cyber or communications-related base civil engineer work requests. Performs mission review with customers. Controls, manages, and monitors project milestones and funding from inception to completion. Determines adequacy and correctness of project packages and amendments. Monitors project status and completion actions. Manages and maintains system installation records, files, and indexes. Evaluates contracts, wartime, support, contingency and exercise plans to determine impact on manpower, equipment, and systems.

2.9. Conducts defense cyber operations (DCO) and associated support activities to defend DoD and other friendly cyberspace. DCO includes passive and active cyberspace defense operations to preserve the ability to utilize friendly cyberspace capabilities and protect data, networks, net-centric capabilities and other designated systems as well as passive defense measures intended to maintain and operate the DODIN and other networks such as configuration control, patching and firewall operations. Support activities includes but not limited to maintenance of cyber weapons systems, functional mission analysis, mission mapping, tool development, stan-eval, mission planning and data analysis.

### 3. ★Specialty Qualifications:

3.1. Knowledge. Knowledge is mandatory of system capabilities, limitations, and programming logic; techniques and procedures of systems analysis and design; related information processing devices and systems; C-CS; software methodologies; methods of editing input and output data; configuration management techniques; security practices; customer relations; application of mathematical and analytical concepts to process problems within a C-CS; and computer program editing and testing techniques.

3.2. Education. For entry into this specialty, completion of high school or general educational development equivalency is mandatory. Additional courses in algebra, geometry, computer science and computer programming is desirable. Any network or computing commercial certification is desirable.

3.3. Training. For award of AFSC 3D034, completion of a Computer Systems Programming initial skills course is mandatory.

3.4. Experience. The following experience is mandatory for award of the AFSC indicated:

3.4.1. 3D054. Qualification in and possession of AFSC 3D034. Experience performing programming functions such as designing, coding, testing, or documenting software.

3.4.2. 3D074. Qualification in and possession of AFSC 3D054. Experience performing or supervising one of the functions of programming, such as preparing system requirements, developing high-level or detailed designs, translating designs into code, testing, configuration management, or project management.

3.5. Other. The following are mandatory as indicated:

3.5.1. For entry into this specialty

3.5.1.1. See attachment 4 for additional entry requirements.

3.5.2. For award and retention of this AFSC:

3.5.2.1. Must maintain local network access IAW AFI 17-130, *Cybersecurity Program Management* and AFMAN 17-1301, *Computer Security*.

3.5.2.2. Specialty requires routine access to Top Secret material or similar environment.

3.5.2.3. Completion of a current Single Scope Background Investigation (SSBI) according to AFI 31-501, *Personnel Security Program Management*, is mandatory.

3.5.2.4. ★Must maintain a Top Secret clearance for retention of this AFSC.

**NOTE:** Award of the 3-skill level without a completed SSBI is authorized provided an interim Top Secret security clearance has been granted according to AFI 31-501.