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FSN-1800 COMPUTER GROUP

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1. Occupational Group Definition

This group includes all series and classes of positions the duties and responsibilities of which are to administer, supervise and/or perform work relating to computers and computer systems.

2. Occupational Group Coverage

The following Occupational Series are included in the Computer Group.

General Computer Series	FSN-1801
Computer Management Series	FSN-1805
Computer Systems Analysis and Programming Series	FSN-1810
Computer Operations Series	FSN-1815
Data Input Series	FSN-1820
Computer Support Series	FSN-1825

3. Occupational Group Exclusions

The following types of positions are excluded from classification in the FSN-1800 Computer Group Series:

Positions the primary duties of which are to operate a keyboard either to transcribe, verify or input alphanumeric data into a data base, or to enter, retrieve, manipulate, and process textual information are classified in the Information Processing Series, FSN-140.

Positions assigned duties and responsibilities requiring specialized knowledge of anon-computer field, but which require some knowledge in the use of a computer; e.g., engineer, budget analyst, supply clerk, secretary, etc. Such positions are classified in the series appropriate for the paramount knowledge requirement.

4. Occupational Series Information

The FSN-1800 Computer Group includes the following occupational series:

A. General Computer Series, FSN-1801

This series includes positions assigned work of a computer nature not otherwise covered in existing interagency approved position classification standards, or a mixture of work covered by two or more occupational series in the FSN-1800 Computer Group, with no one series predominating as to grade level or qualifications requirements.

B. Computer Management Series, FSN-1805

This series includes positions responsible for planning, developing, implementing, administering, and evaluating an organizations computer system and automation program. Incumbents of these types of positions either are in charge of a post's or an associated agency's computer systems program or serve as the de facto deputy or senior assistant to a U.S. official who is in charge of an organization's computer system.

At a minimum, positions in this series must be responsible for a computer system and automation program consisting of the following functions:

— The management and administration of the computer organization's physical, financial, and human resources;

— Providing serviced organizations and personnel with computer and automation management advisory services;

— Systems analysis, programming, and maintenance of program applications;

— Maintenance, evaluation, and testing of operating systems; and

— Operation of computer hardware and peripherals.

At some overseas AID organizations, positions in this series are also responsible for providing advice and assistance to program managers and project personnel concerning computer and automation aspects of host country development plans.

C. Computer Systems Analysis and Programming Series, FSN-1810

This series includes positions responsible for the analysis of work operations and processes, development of system architecture and specifications, and the programming/coding of program applications. Such work is performed in connection with the development and the maintenance of program applications.

Other functions in this series involve the analysis, evaluation, testing, and maintenance of computer operating systems.

D. Computer Operations Series, FSN-1815

This series includes positions responsible for the following functions:

— Operating the controls of the computer hardware, i.e., the central processing unit(s), disk drives, and peripheral equipment;

— Developing and keeping current the instructions for staging and sequencing production, including processing work, scheduling use of computer time, maintaining program and system documentation, and receiving, maintaining, and issuing data storage media, etc.; and

— Providing support to users of personal computers (PCs).

E. Data Input Series, FSN-1820

This series includes positions responsible for the following functions:

— Supervising or performing work entering data into computers;

— Verifying , the accuracy of the recorded data, and correcting source information as appropriate; and

— Operating various pieces of equipment used to prepare and enter data.

F. Computer Support Series, FSN-1825

This series includes positions responsible for the following functions:

— Computer production scheduling and quality control tasks;

— Computer data media handling, processing, and storage;

— Maintaining systems and programs documentation;

— Maintaining tape library and similar support work;

— Logistical support for computers;

— Non-technical assistance to computer specialists, systems analysts, programmers and operators; and

— Other non-technical support functions.

5. Grade Limitation

Posts are not authorized to classify positions in the FSN-1800 Group above the grade levels indicated in each series. If the duties and responsibilities of a position properly allocable to any series clearly appear to warrant classification to a grade level higher than permitted by the series, then post must submit the following information to PER/FSN/PCM and a copy to the appropriate agency headquarter's office for classification action:

— A current, accurate position description;

— A memorandum clearly setting forth the problem, and describing the unusual or unique circumstances not covered by the existing standards;

— An Analysis and Evaluation Worksheet justifying any proposed grade level;

— A staffing pattern and an organizational chart for all US and FSN direct-hire and contract positions within the organization; and

— Any other relevant information.

INTERAGENCY POSITION CLASSIFICATION STANDARDS GLOSSARY OF COMMONLY USED COMPUTER TERMS

APPLICATION PROGRAM—Computer programs which are developed and utilized to meet the needs of user - as opposed to utility or system software which is to improve the operation of a computer. Also frequently referred to as "Application Software."

BATCH PROCESSING—A mode of computer operations in which the items to be processed are collected into groups prior to processing. Contrast with interactive processing or mode.

BOOTING OR BOOT UP—Starting up a computer and getting it running.

BUG—A problem with a computer program that causes it to malfunction.

BYTE—A standard unit of measure of memory - be it in RAM, on disk, or on tape. A byte is large enough to store one written character as a letter or a single digit number. Computer memory is normally referred to in terms of kilobytes or "K" (one thousand bytes) or megabytes "M or MEG" (one million bytes).

COBOL—A higher level programming language designed for a variety of business data processing needs.

CODING—The ordered listing of programming language statements required to instruct the computer in the successive steps to take in solving a problem.

COMPILER–A computer program that translates programs written in higher level languages (e.g., FORTRAN, COBOL, BASIC, CLIST, PASCAL, etc.) into assembly language and/or machine language.

COMPUTER, CORE or MAIN MEMORY—The internal data storage capacity of a computer.

CPU—Central Processing Unit - The part of the computer which does the computing.

DATABASE—A set of data, or part of the whole of another set of data consisting of at least one file, that is sufficient for a given purpose or a given data processing system.

DATABASE PROGRAM—Applications software used to store, retrieve, and sort the database information into the form desired by the user.

DEBUG—To detect, trace, and eliminate mistakes in computer programs.

DEDICATED—Assigned a single purpose for processing one kind of information or application, e.g., some computers are dedicated word processors and cannot perform any other function.

DEPENDENCY—A series of processing programs in which the finished product of one is the starting point for another.

DESIGN—The process of taking a class of problems and a set of criteria for their satisfactory solution, and devising a computer based procedure to solve them.

DISK—A storage device on which information is recorded on the magnetizable surface of a rotating disk. Disks are used to store data from the main memory or from other sources. The amount of disk storage space used is one indication of the size and volume or work taking place on a computer.

DISTRIBUTED PROCESS—A means of providing direct computer access to users located outside the data processing center, normally through a remote terminal communications link.

DOCUMENTATION—The information needed to understand how particular computer programs and systems were designed, how they are to be used, and the reasons for changes that have been made in them. For example, flowcharts, code listings, logic tables, functional specifications, user guides, etc.

DOWNLOAD—A method of transferring work and data from a central computer to a remote computer.

EMULATION—Making a computer run and act as if it were a different type of computer, e.g., a Wang computer may be required to emulate an IBM computer in order to run applications written for IBM computers.

FILE—A set of related records which are stored in a computer as a single unit. For example, in disbursing, a file could consist of the records of all the vouchers processed.

FLOPPY DISK—A removable disk used for storage of relatively small amounts of data.

HARD DISK—A removable or a fixed disk used for storage of relatively large amounts of data.

HARDWARE—The physical equipment consisting of the computer itself and all the devices attached to it.

INPUT/OUTPUT—The process of moving data in and out of a computer to peripheral equipment or other computers, e.g., data output could be to paper, disk, tape, over telephone lines to another CPU, etc. Abbreviated as I/O.

INTERACTIVE MODE—A mode of data processing in which a sequence of alternating entries and responses between a user and the system takes place in a manner similar to a dialogue between two persons. Contrast with batch mode.

LAN—Local Area Network - a system of computers networked to communicate with each other. The area the system may cover may be an office, a building, a country, a geographic region, etc.

MAINTENANCE—With respect to software, activities intended to ensure that the system functions the way it was originally designed, eliminate faults (bugs) in software after the use of the program has begun, and update software to reflect changes. With respect to hardware, it involves preventive, repair, and modification activities.

MERGE—Combining items from two or more sequenced data files without changing the order of the items.

MODEM—A device which permits a computer to exchange data over telephone lines or dedicated data circuits.

MODIFICATION—Changes made in redesigning a portion of a system or program to produce results or products in addition to or different than originally intended.

MULTI-PROGRAMMING—The capability of a CPU to run more than one program at the same time. Also called "Multitasking."

MULTIPLE USER—A computer system which allows simultaneous use by more than one person or organization.

MULTI-PROCESSING—A computer system employing two or more CPUs under a single control.

MULTI-TASKING—See Multi-Programming.

NETWORK—Linking together two or more computers in order that they share data or workload. See LAN.

PERIPHERAL—Any computer equipment other than the computer itself, e.g., EQUIPMENT printers, tape drives, work stations, etc.

PROGRAM—1.Any form of written commands which provides a sequenced set of instructions to be followed by a computer to use and manipulate data to solve a problem.

2. The designing, writing, and testing of computer programs.

PROGRAMMING SPECIFICATIONS—The design requirements for development of a computer program determined by an analysis of a process or function to be automated. This typically includes flow charts, decision criteria, interrelationships with other programs, and the equipment to be used.

PROTOCOL—The rules and procedures which computers use to communicate with each other.

RAM—Random Access Memory - The portion of a computer in which data and programs are processed.

REAL TIME—A computer operation which can be depended on to provide constantly up-to-date information even though the information might be constantly changing.

ROUTINE—A set of instructions which is frequently used within another program or procedure.

SOFTWARE—Computer programs, procedures, rules, and associated documentation.

SYSTEM SOFTWARE—The computer programs, usually provided by the computer manufacturer, that are necessary for processing applications programs, and for the operation of the computer and its peripheral devices. Included are, for example, assemblers, compilers, operating systems, and utility routines. System software keeps the computer running, whereas applications software makes the computer perform a function desired by the user.

TELECOMMUNICATIONS—The connection of computers over a distance by telephone lines, dedicated circuits, microwaves, or any other telephonic means. This does not include connection of computers by hard wire.

TIME SHARING—The interleaved use of time on a computing system that enables two or more users to execute computer programs concurrently. See multi-programming and multi-tasking.

UPLOAD—A method of transferring work and data from a remote computer to a central computer.

UTILITY PROGRAM—A computer program in general support of the processes of a computer (e.g., a diagnostic program, trace program, sort program, etc.).

FSN-1801 GENERAL COMPUTER SERIES

1. Series Definition

This series includes positions the duties and responsibilities of which are to supervise or perform either work of a computer nature not otherwise covered in existing interagency approved position classification standards or a mixture of work covered by two or more occupational series in the FSN-1800 Computer Group with no one series predominating as to grade level or qualifications requirements.

2. Series Coverage

This is the "catch all" series for positions performing a mixture of work covered by the various series within the FSN-1800 Occupational Group, including the performing of computer work not yet covered by any published series in the group, where no one series is predominant. Accordingly, there are no standards specifically written for this series.

3. Series Exclusions

This series does not include positions the duties and responsibilities of which:

— Primarily consist of work properly classifiable in any one specialized series such as Computer Management, FSN-1805; Computer Systems Analysis and Programming, FSN-1810; Computer Operations, FSN-1815; Computer Support, FSN-1825; and Information Processing, FSN-140. Such positions should be classified in whichever specialized series is appropriate.

— Primarily consist of work requiring specialized knowledge of a non-computer field, but which require some knowledge in the use of a computer, e.g., engineer, budget analyst, supply clerk, etc. Such positions are classified in the series appropriate for the paramount knowledge requirement.

4. Classification Guidance

A. Unusual/Unique Computer Positions

Posts do not have authority to classify positions assigned computer work or functions of a unique or unusual nature which are not covered by the standards in the FSN-1800 Computer Group. These types of computer positions must be submitted to PER/FSN/PCM for final classification action (see section V above in the introduction to the FSN-1800 Computer Group for instructions).

NOTE: Personnel Officers and specialists should be particularly sensitive to the possibility of positions being assigned computer functions which either are not covered by standards or are inadequately covered. Given the rapid changes that have taken and continue to take place in the computer and automation field, it is unlikely that the standards in the FSN-1800 Computer Group will cover all of the work situations or functions assigned to FSN positions. If posts' personnel staff have any questions about the coverage of the computer standards or how they apply to a certain job, they should contact PER/FSN/PCM for guidance.

B. Mixed Positions

1. Series Determination

Positions are classified to the FSN-1801 General Computer Series when they are assigned work covered by two or more FSN-1800 Computer Group series; each of the functions comprises at least twenty-five percent of the job; and no one series predominates as to grade level.

In those cases where a position is assigned either a mixture of work classifiable to a series in the FSN-1800 Computer Group and work classifiable to another occupational group (e.g., the FSN-400 Financial Administration Group), or work covered by two or more FSN-1800 Group series and the work of one series is predominant as to grade level and the associated skills form the essential recruitment requirement, then the position is classified to the series covering the predominant responsibility.

In determining a position's proper series, standards users are cautioned not to confuse positions classifiable to the FSN-1805 Computer System Manager series with positions assigned a mix of computer functions which are classifiable to the FSN-1801 General Computer series.

FSN-1805 positions are assigned a mixture of computer functions as part of their total responsibility for managing an agency's computer systems program as defined in section 4 above in the introduction to the FSN-1800 Computer Group. While FSN-1801 positions are also assigned a mixture of computer functions, they are not responsible for managing a computer systems program.

2. Grade Level Determination and Limitations

Grade levels for mixed computer positions are determined on the basis of the guidance for classifying mixed positions found in the introduction to the Foreign Service National Position Classification Plan (Section 3 FAH-2 H-454.1 A). That is, positions are normally graded on the basis of the highest level duties/responsibilities performed for a majority of the time. In some cases it is appropriate to grade a position on the basis of duties/responsibilities performed for less than a majority of time if the associated knowledge, skills, and abilities are those that form the essential

recruitment requirements. No position, however, will be graded on the basis of duties/responsibilities performed for less than twenty-five percent of the time.

In this series mixed positions' grade levels typically do not exceed the FSN-9 level. Positions proposed for grades above the FSN-9 level in this series must be submitted toPER/FSN/PCM for final classification action (see section 5 above in the introduction to the FSN-1800 Computer Group for instructions).

3. Titling

Positions assigned a mixture of functions from three or more series in the FSN-1800 Occupational Group will be titled Computer Technician at grade levels FSN-5 and FSN-6, and Computer Assistant at grade levels FSN-7 through FSN-9.

Positions assigned a mixture of computer functions from only two series with no one series predominating will be titled jointly in accordance with the official titles established in the applicable standards.

In either of the above cases, titles must not include the word "Generalist."

FSN-1805 COMPUTER MANAGEMENT SERIES

This series is composed of five parts. All parts should be read carefully before any attempt is made to use the information and classification criteria contained herein.

PART 1 - SERIES INTRODUCTION

This part consists of the Series Definition, Series Coverage and Official Titles, and Series Exclusions.

PART 2 - OCCUPATIONAL INFORMATION

This part describes the nature of work properly included in this series. It also provides a discussion of management positions versus supervisory positions and guidance on the design of positions included in this series.

PART 3 - QUALIFICATION REQUIREMENTS

This part sets forth the qualifications, i.e., education, experience, knowledge, skill, and abilities, incumbents need to perform computer management work successfully.

PART 4 - CLASSIFICATION CRITERIA

This part sets forth the criteria for determining the grade level of Computer Management positions, and a specialized A & E Worksheet for use in determining and documenting a position's classification.

PART 5 - LOCAL AREA NETWORK (LAN) SYSTEMS ADMINISTRATION CLASSIFICATION CRITERIA

This part sets forth the criteria for determining the grade levels of Computer Management positions responsible for Local Area Network (LAN) systems; a specialized A & E Worksheet for use in determining and documenting an appropriate classification; and a glossary of terms commonly used in reference to LANs. **Do not use this part to classify positions responsible for non-LAN systems**

NOTE: Part 5 is an addition to the FSN-1805 Computer Management Series standards.

PART 6 - GLOSSARY OF COMMONLY USED COMPUTER TERMS IN LOCAL AREA NETWORKS (LAN)

FSN-1805 PART 1 - SERIES INTRODUCTION

A. Series Definition

This series includes positions responsible for the management of the computer systems and automation program* of an embassy, post, or associated agency.

At some USAID missions Computer Management positions may, in addition to managing the computer systems and automation program supporting the organization, be responsible for providing advice, assistance, management support, etc., relating to computer systems and automation aspects of a country development project or automation function outside of the mission.

*The term "computer systems and automation program" includes all functions set forth in Part 2. A of this series.

B. Series Coverage and Official Titles

The classification standards and guidelines in this series provide for the following official titles and grade levels.

Computer Management Specialist	—FSN-1805-12
Computer Management Specialist	—FSN-1805-11
Computer Management Specialist	—FSN-1805-10
Computer Management Assistant	—FSN-1805-9
Computer Management Assistant	—FSN-1805-8
Computer Management Assistant (LAN)	—FSN-1805-9
Computer Management Assistant (LAN)	—FSN-1805-8

NOTE: Users of this series should be particularly sensitive to the possibility of positions assigned computer management functions which either are not covered, or are inadequately covered by this series' guidance and standards. Given the rapid changes that have taken and continue to take place in the computer and automation field, it is unlikely that the information in this series will cover all of the work situations or functions assigned to Computer Management positions.

Contact PER/FSN/PCM and, if appropriate, other agencies' headquarters office for guidance on the application of FSN-1805 Computer Management standards.

C. Series Exclusions

The following types of positions are excluded from classification to the FSN-1805 Computer Management series:

1. Positions responsible for managing a computer system when there is either:

No analysis of functions and processes to develop specifications and system architecture and no programming in one or more computer languages to develop and maintain applications software; or

No analysis of applications software developed by others to determine their effect on total computer operations at an embassy, post, or associated agency.

In such instances the computer systems are used only for text processing or for running data processing program applications developed by others (e.g., headquarters), or standard off-the-shelf data processing applications which do not require the nature and level of analysis and programming envisioned in these standards. Such positions are classified in the FSN-1801 General Computer Series or other more appropriate FSN-1800 Computer Group series.

2. Positions responsible only for performing or supervising the performance of analysis of work processes for automation, analysis of existing computer applications, analysis of computer equipment and system software needs and availability, development of program applications, development of recommendations regarding computer systems including costs and benefits of alternative ADP approaches, etc. Such positions are classified in the FSN-1810 Computer Systems Analysis and Programming Series.

3. Positions responsible only for operating or supervising the operating of control console(s) of a computer system, including such other peripheral equipment as tape and disk drives, high speed printers, etc. Such positions are classified in the FSN-1815 Computer Operations Series.

4. Positions responsible for operating remote access computer terminals to enter or retrieve stored subject matter data (e.g., financial accounting, supply, etc.) or performing text storage and editing. Such positions are classified to the FSN-140 Information Processing Series or in some other appropriate subject matter series.

FSN-1805 PART 2 - OCCUPATIONAL INFORMATION

A. Definition of Computer Management

Positions in this series are responsible for the management of, or assisting in the management of computer systems and automation programs. This includes all of the following functions:

1. Being in charge of a computer system hardware facility;

2. Planning, organizing, directing, and evaluating the financial, material,program, organization, and human resources that are associated with an organization's computer systems and automation program;

3. Analyzing functions, procedures, processes, etc., to determine whether they are appropriate for automation, and the developing of specifications and system architecture;

4. Analyzing program applications developed by others to determine impact on overall workload, compatibility with other program applications being run, and with computer operating systems being used;

5. Programming applications in one or more computer languages on the basis of specifications and system architecture (this function is sometimes referred to as programming applications or just programming);

6. Analyzing, testing, and evaluating computer operating systems and utilities to determine their effectiveness relative to computer systems in use and their support capability and compatibility with program applications being run;

7. Operating computer hardware system(s) and peripheral equipment;

8. Providing computer and automation related management advisory services to user organizations and post management; and

9. Ensuring computer hardware system(s) and peripheral equipment are operated in accordance with Department of State and/or agency computer security policies, standards, and guidelines.

B. Distinction between Computer Management Positions and Supervisory Positions

FSN-1805 Computer Management positions are distinguished from supervisory type positions in that the latter's strength is drawn from supervising subordinates. Computer Management positions on the other hand draw their strength from being in charge of a computer system and automation program with responsibility for such management functions as planning, programming, controlling, administering, and evaluating an organization's computer system and requirements.

In most cases such management positions, particularly those at the higher levels, also have supervisory responsibilities. The criteria which determines whether a position falls in this series, however, is not responsibility for supervising others per se, but responsibility for managerial functions as described above.

To illustrate this point further, there are instances where the Computer Management position is the only position responsible for an organization's automation function. Although it may not be responsible for supervising subordinate employees, such positions should never the less be classified to this series in view of being "in charge" or responsible for managing the total automation program. Assuming all other requirements of the standards are met, grades for such positions will likely be at the lower levels provided for in this series. Conversely, positions classified to the higher levels will typically have supervisory responsibilities for a subordinate workforce.

C. Design of Most Computer Management Positions

Use of computers has affected organizational configuration and the design of individual positions. These differences in position design are evident within and among agencies. Both USAID and USIA have pursued a policy of filling Computer Management positions with FSNs. The Department of State, on the other hand, employs U.S. citizens to serve as Systems Managers, although in some instances FSNs share managerial responsibilities on an equal and alter ego basis with the U.S. System Manager in charge of the management of the automation organization.

Despite these differences among agencies, there are certain consistencies such as support of agency-wide management functions, e.g., financial management, personnel management, information management, etc. There is also a demand for support of local functions, e.g., the collection, recording, and reporting of local data and processes; and posts are developing program applications that are "spin offs" from agency-wide systems or that are unique to the post. Within a country or a geographic region, some computer organizations provide support to constituent posts and/or other embassies or missions.

FSN-1805 PART 3 - QUALIFICATION REQUIREMENTS

The following are the desired qualification requirements for all grade levels of Computer Management positions covered by this series.

A. Education

FOR ALL LEVELS—Completion of education or training resulting in a baccalaureate degree, or the host country academic equivalent, in the fields of computer science, information systems management, or equivalent. Related work experience may be substituted for a baccalaureate degree on a case by case basis. Where substitutions are made, the U.S. official responsible for the computer function and the post's personnel officer must concur that the experience to be substituted for academic experience is relevant. No specific formula is prescribed as individuals' related work experience varies widely.

B. Experience

FSN-8   At least two years performing progressively more responsible work of a program, technical, or administrative nature where emphasis is placed on analytical, judgmental, and expository abilities with respect to the operation, management, and utilization of computer systems. At least one of the two years must have been work experience in operating computers, providing PC support, and performing entry level programming work that approximates the FSN-7 level found in other series in the FSN-1800 Computer Group.

FSN-9   At least three years performing progressively more responsible work as described above. At least one year of which must have been equivalent to the FSN-8 level.

FSN-10   At least four years performing progressively more responsible work as described above. At least one year of which must have been equivalent to the FSN-9 level.

FSN-11   At least five years performing progressively more responsible work as described above. At least one year of which must have been equivalent to the FSN-10 level.

FSN-12   At least six years performing progressively more responsible work as described above. At least one year of which must have been equivalent to the FSN-11 level.

C. Language

FSN-10, FSN-11, and FSN-12   Level 4 English (fluent) required.

FSN-8, AND FSN-9 Level 3 English (good working knowledge) required; however, a higher level is desirable in view of the analysis and advisory requirements of these positions. Level 4 is required if the position is established as part of a career ladder leading to full performance level above FSN-9.

D. Knowledge

FSN-8   Good knowledge of the capabilities and limitations of the computer equipment and software installed at post; automation policies of the post, mission or agency; elementary fact-finding techniques; programming languages utilized by equipment on hand; basic systems analysis and design techniques; systems and programming documentation techniques;and standard business practices and management principles.

FSN-9   In addition to the knowledge required at the FSN-8 level, FSN-9 positions require knowledge of computer systems management sufficient to assure the continued effective operation of a computer installation designed to provide automation support to a post,mission, or agency or to provide for transmission of text and data files by telecommunications. Knowledge of statistical and spreadsheet packages may be required at this level.

FSN-10   In addition to the knowledge required at FSN-9, FSN-10 positions require a thorough knowledge of systems analysis and design techniques; computer equipment operations management; hardware and software technology; post, mission, or agency objectives, relationships, and management practices; technical aspects of analysis, computer application programming, telecommunications, and management advisory services; and acquisition policies and procedures relative to computer hardware and software.

FSN-11   In addition to the knowledge required at FSN-10, FSN-11 positions require expert knowledge of systems analysis and design techniques; post/mission/agency automation policies, procedures, and standards; and relevant computer languages.

FSN-12   In addition to the knowledge required at FSN-11, FSN-12 positions require an expert knowledge of computer hardware, computer systems operations and their application, and the policies and procedures relative to equipment requirements planning, acquisition, funding, and justification. Must possess comprehensive knowledge of programs, projects, and organizations supported by the computer and automation support function to ensure adequacy of support, to discern opportunities for increased support, and to resolve operational problems of such supported organizations. Must possess extensive knowledge of the principles, techniques, and methodologies involving computer system analysis, programming, operations, and related aspects of telecommunications. Must possess knowledge of the principles of personnel, financial, and equipment resource management.

E. Skills

FSN-8   Skills required at this level are similar to those required at the FSN-9 level.

FSN-9   Skills required at this level are focused on maintaining operational capability and readiness of computer systems. Good technical skills to trouble-shoot, diagnose, and resolve hardware and software problems and to maximize the capabilities of the organization's computer resources. Good interpersonal skills to develop and maintain two-way communications and promote computer and automation services. If appropriate, supervisory skills.

FSN-10   In addition to the skills required at FSN-9, FSN-10 positions require a good understanding of the priorities of key managers to ensure that the computer and automation organization is responsive to those needs. Good interpersonal skills are required to resolve priority issues, system limitations, down-time, etc., with key officials. If appropriate,supervisory skills.

FSN-11   In addition to the skills required at FSN-10, FSN-11 positions require skill in the use of technical and administrative reference material in support of management responsibilities including system design, equipment procurement, personnel, and financial management, etc.

FSN-12   In addition to the skills required at FSN-11, FSN-12 positions require exceptional interpersonal skills in order to gain acceptance of findings, recommendations, and decisions relative to computer system operation and support. Must be skilled in supervising a subordinate workforce and/or coordinating support services of vendor representatives and contractors. Must be skilled in using administrative and technical reference material, and relating information therein to technical aspects of management, e.g., systems analysis, design of system architecture, development of standards for tests and evaluation, etc. Must be skilled in applying rules concerning systems acquisition to insure acceptance by of proposals headquarters.

F. Abilities

FSN-8   Abilities at this level are similar to those for FSN-9.

FSN-9   Ability to relate proposed projects and priorities to the capabilities and limitations of the computer system and components to determine capability to meet support requirements. Ability to articulate system requirements to managers in order to secure support of computer and automation program and to maximize opportunities for automation. Ability to balance workload demands between the central system and individual user requirements.

FSN-10   In addition to the abilities set forth for the FSN-9 level, the FSN-10 level requires the ability to relate post organization, functions, and mission to computer system's terms of reference, e.g., priorities for automation, inter-relationship of different applications programs to post operations, etc. Ability to articulate significance of management decisions with computer systems to obtain support for actions that will enhance automation and/or effective management of computer resources.

FSN-11   In addition to the abilities required at FSN-10, the FSN-11 level requires the ability to address computer and automation issues from conceptualization and planning through implementation, operational, and continuing management stages. Ability to explain complex computer and automation concepts and issues to management and personnel outside the computer function on such issues as funding/personnel support, prioritization of post ADP workload, conflicting demands, system capabilities and limitations, etc.

FSN-12   In addition to the abilities required at the FSN-11 level, FSN-12 positions require the ability to discuss complex concepts with line managers, users, vendors, and other personnel and to relate requirements to computer system capabilities; ability to effectively deal with competing user requirements and to negotiate acceptable solutions; ability to conceptualize objectives of assignments and to translate objectives into concrete plans; ability to present issues persuasively before top management relative to system requirements to obtain needed funding and program support; and ability to advise prospective users diplomatically of system limitations or other priorities and to work out alternatives.

FSN-1805 PART 4 - CLASSIFICATION CRITERIA

This part provides for four interdependent determinations that are the basis for deciding if a position is classifiable to this series and, if so, the appropriate grade level. Classifiers are required to document their determinations and final classification decisions on the specialized Analysis and Evaluation Worksheet provided in the Exhibit following this part of the series.

The first determination is whether the position meets the criteria for inclusion in this series. Guidance is provided below under Section A. Inclusion Criteria.

The second determination is how the position is designated, see Section B. Designation Criteria.

The third determination is the degree of complexity found in the three factors of system, function, and management. Guidance is provided below under Section C. Complexity Criteria.

The fourth determination involves the conversion of complexity degrees under each factor to classification grade levels. This is covered in Section D. Grade Level Criteria.

A. Inclusion Criteria

In order for a position to be included for classification in this series both of the following conditions must exist.

Condition #1 - The position must meet one of the following three situations.

1. The position is in charge of the automation organization under the direction of a U.S. official who has other substantive functions, e.g., the Administrative Officer, Executive Officer, Controller, PAO, etc. or

2. The position is established as the de facto deputy to a U.S. official who is the Systems Manager in charge of the automation organization. The term "de facto deputy" means that the FSN position has been delegated authority and responsibility to share with the U.S. Systems Manager on an alter ego basis in the management of the organization. In those cases where the U.S. Systems Manager is absent from the job, the incumbent of the de facto deputy position acts in place of that official and, where policy or substantive decisions need to be taken, formulates recommendations for consideration by higher authority, who almost always accepts such recommendations. In those cases where the U.S. Systems Manager is

present on the job, the de facto deputy takes action on substantive issues with the knowledge of the Systems Manager. The following are typical (but not all inclusive) examples of management functions in which both share responsibility.

— Formulates the budget, manages the financial resources allotted to the automation organization and initiates automation-related acquisitions.

— Determines, recommends, and implements personnel and position requirements. This includes interviewing and selecting FSN applicants; training and developing personnel; initiating actions for promoting, rewarding, and disciplining personnel; and determining individual position design on the basis of organizational needs.

— Determines systems requirements of the organization (hardware, operating system software, and program applications) in the light of post mission and functions.

— Plans and executes the operation of the organization to meet post requirements. This includes establishing priorities within the system, negotiating and arranging computer time and availability with users, responding to requirements established by headquarters, etc.

— Consults with appropriate authorities at post and at headquarters relative to functions and programs of the automation organization and recommending and executing decisions relative to the operations of the organization.

It must be shown that not only are the foregoing authorities and responsibilities formally assigned to an FSN deputy as a conscious management act, but there must also be clear evidence that the FSN is in fact performing such functions; in effect, a de jure arrangement is insufficient, there must also exist a de facto arrangement. or

3. The FSN assistant to a U.S. Systems Manager who is in charge of the automation organization. Assistant positions differ from de facto deputy positions as follows:

— Assistants do not share responsibility for the management of the organization on an alter ego basis with the U.S. Systems Manager.

— Assistants make recommendations to the U.S. Systems Manager on such matters as budget and financial resource management, system setup and operations, priorities, relationships with post authorities and users, etc.

— Assistants represent the U.S. Systems Manager at staff conferences and meetings and discuss issues on which policy decisions have already been made, or where specific guidance has been provided by the U.S. Systems Manager.

— Assistants supervise the subordinate FSN staff in the automation organization and are responsible for providing day to day guidance, establishing standards of performance, scheduling and granting leave, and evaluating performance. Assistants may recommend but are not authorized to take action on selection, promotion, reassignment, and disciplinary issues involving FSN personnel.

— Assistants act in the absence of the U.S. System Manager when specifically designated and under prescribed conditions which limit the scope of their authority and responsibility.

Condition #2 - The position is responsible for technically and administratively supervising or performing all of the four functions listed below. (Some positions may also be responsible for management of a text processing function; however, the presence of such function is not essential for meeting this condition). The four functions, all of which must be met, are:

1. Analysis.

This includes supervising the performance of, or personally performing one or more of the following:

— Analyzes work processes and functions for possible automation;

— Analyzes hardware and software capabilities to meet current and prospective workload, and determination of alternative computer capabilities to meet demands;

— Analyzes, tests, and evaluates operating system software and utilities with respect to hardware in use, program applications to be run, and production and scheduling requirements; and

— Analyzes host country computer requirements and capabilities in connection with development assistance projects.

2. Programming.

This includes supervising the performance of, or personally writing applications programs in one or more computer languages based on specifications and system architecture developed during analysis of functions and processes. This function also includes the modification of program applications developed by other sources, including agency headquarters and vendors; the documentation of applications; and the training of users relative to applications and vendor software. This includes the development of application programs for use by PC's.

3. Operations.

This includes supervising the performance of, or personally performing the operation of the control console(s) of a computer system, including such other peripheral equipment as tape and disk drives, high speed printers, etc., and for maintaining responsibility for all computer security concerns, including the following:

— Controlling computer system passwords;

— Controlling user access to computer hardware (e.g., CPU, disk drives, printers, work stations, magnetic media, and telecommunications devices);

— Managing user access to system volumes, libraries, files, and software applications;

— Managing network access controls;

— Controlling disposition of sensitive media, output, and equipment;

— Monitoring systems use (e.g., documentation of unusual events, unauthorized system activities, and after-hours use through system audit trails and/or log books);

— Accomplishing backup and contingency planning; and

— Coordinating computer security activities with the information systems security officer.

4. Management Advisory Services.

This includes supervising the performance of, or personally performing the following:

— Advising appropriate levels of post management on the computer systems' capabilities and limitations with respect to operational management needs and priorities;

— Working with management officials in planning for automation in terms of scheduling, staff training, and other steps necessary prior to or during automation processes; and

— Advising on such issues as alternative means to organize, process, or perform work to maximize automation.

If any one or more of the four functions discussed above is not assigned and is not performed, this condition is not met, and the position may not be classified to this series. It should be classified to some other appropriate series.

B. Designation Criteria

If the inclusion criteria is met, it must then be determined how the position is designated. Such designation must be in accordance with the criteria discussed in Section A, above. The term designation is meant to describe how the post officially views the position in terms of whether such position is the:

— Computer Systems Manager, or the

— De Facto Deputy to the U.S. Systems Manager, or the

— Assistant to the U.S. Systems Manager.

The designation must be made in writing by the embassy's or post's senior administrative officer or, in the case of an associated agency, the head of the agency or designated official. This designation must be made part of the classification documentation in the Analysis and Evaluation Worksheet.

If the position has not been officially designated in writing as functioning in any one of the above three capacities, then the position is not classifiable to this series and should be classified in some other appropriate series.

C. Complexity Criteria

After it is determined that the position being evaluated meets the Inclusion Criteria, Section A, and post has designated the position per instructions in Section B, it must then be determined how complex its duties and responsibilities are. This criteria is designed to measure the level of complexity found in three factors that are common to Computer Management positions. The three factors are as follows:

— Factor 1   System Complexity

— Factor 2   Functional Complexity

— Factor 3   Management Complexity

Under each of these factors, four degrees of complexity are described. Each degree lists a number of characteristics typical of that degree. It is understood that all positions may not contain each characteristic stated for a particular degree and that some positions may contain characteristics not listed which are, in fact, equivalent to those stated. The important point is that classifiers must ensure that a position's assigned responsibilities and work situation meet the full intent of a degree level before making a complexity determination. The basis for a degree level determination must be documented on a copy of the specialized Analysis and Evaluation Worksheet provided in the Exhibit following this part of the series.

NOTE: As noted previously in this series, given the rapid changes that have and continue to take place in the computer and automation field, it is unlikely that the classification guidelines and standards contained in this series will adequately cover all Computer Management positions. In those cases where the descriptions for the various degree levels of the complexity factors are inadequate or do not cover a position's assigned work and/or an automation support organization's work situation, the post should request classification assistance from PER/FSN/PCM and agency headquarters. We are particularly interested in positions where the work situation and assigned responsibilities appear to exceed the Degree B levels of complexity but which are not covered by the Degree A descriptions. All requests should include: 1) a current, accurate position description; 2) a memorandum clearly setting forth the problem and describing the unusual or unique circumstances not covered by the existing standards; 3) an Analysis and Evaluation Worksheet justifying any proposed grade level; 4) a staffing pattern and an organizational chart for all US and FSN direct-hire and contract positions within the organization; and 5) any other relevant information.

Factor 1 - System Complexity

This factor measures the complexity of the computer systems and automation program in terms of its hardware and software configuration and the conditions under which work is performed. The hardware and software system may be made of a mainframe and/or a minicomputer and/or a local area network (LAN) and peripherals including work stations and personal computers.

Degree A

— The computer hardware system and operating system software are characterized by presence of computing application systems that operate in both batch and interactive modes. Batch mode operations involve extensive calculations, the use of large database and file structures, maintenance of numerous data elements for use by multiple applications programs, posting of a large number of transactions, etc. Interactive mode operations involve multiple users concurrently operating a number of different data and text program applications. In addition, there may be many personal computers (PCs) throughout the organization that require support. The PCs may operate in either a stand alone mode and/or in a local area network linked to each other or to the CPUs and also serve as work stations.

— Telecommunications involve one or more of the following: multiple computer processing sites; multiple posts; Washington; and institutions in the private sector.

— Operational failures are difficult to resolve due to the complexity of hardware used and the multiple interconnections within the automation organization; the need for coordination with the communication center, other offices at post, and/or with other posts and their computer systems; and/or with Washington. There is a continuing demand for a high degree of telecommunications analysis capability, which may include the use of utilities programs.

— Transactions processed and data transmitted include major business type records and transactions such as payroll information, cash management and financial reports, etc.

— Processing of data is characterized by the requirement to accept and process many jobs at the same time. The jobs are a mixture of:

   — Those entered by the computer system operator(s) at the control console;

   — Those entered through remote terminals by others;

   — Those involving interactive processing; and/or

   — Those involving batch processing.

   — Production schedules for the batch system are rigid (e.g., pay rolling), and the job processes, although discrete, are interrelated and interdependent.

— The computer facility/systems hardware and software complexity is also characterized by the implementation of additional or replacement hardware and software with minimal outside support or guidance without significant interruption to scheduled, continuing operations.

— Complexities are evident by the need for hardware and software configuration management which is essential to assuring systems capabilities are in keeping with design capacities, changing workload in terms of quantity of applications and data to be stored and processed, types of processing in terms of non-routine batch and on-line submissions which require evaluation of workload and data distribution for the purpose of reconfiguring hard ware and software, and evaluating system capabilities with system capacity to store and process data within established requirements.

Degree B

— The computer system is characterized by the presence of one or more CPUs operating primarily in an interactive mode, processing both data and text. In addition, there may be personal computers (PC's) throughout the post that require support. Some of the PCs are in a stand-alone mode while others may be in a LAN mode linked to each other or to the CPUs and also serve as work stations.

— Telecommunications use is frequent and involves computer links between/among posts and/or Washington. Data processed includes financial reports, consular information, project management, and other general administrative matters.

— Processing of data is characterized by the requirement to accept and process many applications/jobs at the same time on an interactive basis. These may be a mixture of those entered by the computer systems operator at the central console and those entered by others via remote terminals

— Production schedules are relatively rigid due to such requirements as month-end reporting and similar actions. The computer system processes numerous applications/jobs for a wide variety of organizations (e.g., Controller, Counselor, GSO, FBO, USIS, Project Managers,etc.) who are in competition for computer time and operational support. The applications/jobs being processed are normally discrete, e.g., financial management system, foreign buildings management system, non-immigrant visa program, etc.

Degree C

— The computer system is characterized by the presence of at least one data CPU that operates in an interactive mode. Both data and text processing are performed. In addition, there are PC's operating in a stand-alone mode or linked to the CPU and emulating a work terminal.

— At some posts or agencies the computer system is characterized as a LAN consisting of one or more computers used as "file servers" containing data, operating system software, and application software; personal computers connected to the LAN for application system development, data manipulation, report generation, data entry, text processing, E-Mail, etc.; "dumb" terminals used for many of the same purposes as personal computers; and one or more printers of the same or different type (laser, dot matrix, etc.). The LAN serves the processing needs of a group of individuals within a single building as would a central computer, and may also be connected to other LANs in the same or different buildings and/or a larger "central" computer.

— As is the case with a central computer, the LAN hardware and software complexity is also characterized by the implementation of additional or replacement hardware and software with minimal outside support or guidance and without significant disruption to scheduled, continuing operational support. At this level positions are also concerned with maintaining optimal system performance, security rights of users, creating and updating user access profiles, installing and updating multiuser software or applications, and keeping network addresses current and in synchronization with other LANs.

— A LAN may be interconnected to other LANs through telecommunications lines leased from local telephone companies or international communications enterprises. In such instances monitoring and resolving telecommunications problems becomes difficult, requiring the diagnosis and resolution of problems by voice communications. Processing of data is characterized by the requirement to accept and process many jobs at the same time on an interactive basis.

— While there are requirements to meet specific deadlines, such as periodic reporting periods, most of the work processed is on the basis of computer time availability. The job processes are discrete and are sponsored by multiple users, each of whom is competing for computer time and operational support.

Degree D

— At this degree level the work meets the criteria for inclusion in the FSN-1805 Computer Management series, but does not meet the Degree C level of complexity for this factor.

Factor 2 - Functional Complexity

This factor measures the complexity of the functions performed by the automation support organization.

Degree A

— The automation support organization is responsible for developing and maintaining application programs involving major, complex business-type systems. Data bases and file structures of these systems are extensive and may be interfaced and interdependent with each other. Examples of major, complex business-type systems include time and attendance and multiple country payroll and fringe benefits plans; project management systems; financial accounting and disbursing systems in U.S. and multiple foreign currencies; and multiple currency purchasing and cash management systems.

— Processing is in batch and interactive modes and may include extensive data transfer. The processing workload and data storage requires continuing evaluation through the use of capacity and configuration management techniques to maximize processing performance of the hardware and software system in relation to its capabilities. Capacity and configuration management techniques typically include monitoring of telecommunications lines, utilization of disk storage and data transfer paths, and use of processor memory by software and applications; making modifications to hardware configurations or software configurations, or both. Modifications are also made to the hardware and software configurations based on evaluation of new software requirements such as Data Base Management System implementation, manufacturer provided changes to operating system software, and different capabilities or requirements of additional or replacement hardware to be included in the computer system configuration.

Degree B

— Substantive program applications are developed by agency headquarters, e.g., State's Financial Management System (FMS), Non-Immigrant Visa Computer-Assisted Processing Systems (NIVCAPS), and Real Estate Management System (REMS); AID's Mission Accounting Control System (MACS), Participant Training Management System (PTMS), and Nonexpendable Property Management System (NXP); and USIA's Distribution and Record System (DRS), etc.

— While post/agency computer and automation organizations are not authorized to modify such headquarters-developed applications programs, they have overall responsibility for local implementation of such programs by analyzing changes and by performing such tasks as:

— Determining how to maintain effective balance of work within the system;

— Determining and setting up recovery, restore, and backup procedures;

—Maintaining application program documentation;

—Managing files, e.g., reorganization of files, space allocation, establishment and maintenance of file control tables;

—Analyzing operations to identify potential problems in applications programs before they occur; and

—Analyzing deficiencies and developing backup data for referral to headquarters.

— Automation organizations in this environment also have major responsibility for developing local program applications. This includes conducting analysis of work operations being considered for automation, analysis of computer equipment and system software needs and availability, developing recommendations with analysis of costs and benefits of alternative ADP approaches, etc.

— At this degree of complexity the application programs developed are in support of organizational components of the post and/or associated agencies. They may involve such functions as local telegram and correspondence tracking, spin-offs in support of headquarters controlled applications programs, cost of living information, supply surplus sales, protocol office systems, project/program management, payroll for U.S. and FSN PSC personnel (single country only), etc.

— Automation organizations also analyze and evaluate requirements concerning acquisition and utilization of ADP equipment at the post. They develop information for local input to feasibility studies on possible equipment changes and gather and analyze data concerning various issues such as possible conflicts with existing systems, current utilization rates, etc. They review pertinent literature, conduct tests and evaluate equipment tests, and develop recommendations for funding and/or acquisition.

— All automation organizations at this degree level have extensive and continuing contacts with organizational users (e.g., financial sections, Consular, GSO, project officials, etc.) to diagnosis and resolve problems regarding computer support relative to centrally controlled program applications, the development of new local applications, the general allocation and management of computer resources, the promotion of computer services, and the training of computer users.

Degree C

— The majority of substantive applications programs are developed by agency headquarters but do not include those that are generally more operationally demanding, e.g., State's Financial Management System (FMS), or AID's Mission Accounting and Control System (MACS). Further, the workload of complex applications programs that are in use, such as NIVCAPS, REMS, PTMS, NXP, DRS, WCS, etc., are less demanding than those found at the next higher degree level.

— As is true of the next higher degree level, automation organizations are not authorized to modify headquarters developed applications programs. They are responsible for local application of such programs by analyzing changes to be implemented by performing those tasks discussed in Degree B above.

— While there is development of application programs for local use, the preponderance of such applications involve relatively standard processes involving non-complex operations, e.g., an application for the accumulation of cost data from several easily identifiable sources requiring relatively simple computations for development of a single financial report.

— In a LAN environment automation support organizations are responsible for providing support to components of the LAN. Support includes providing functional leadership in setting LAN priorities; providing technical input in system configuration regarding hardware, telecommunications, and software design and use; resolving operational problems; coordinating short- and long-term plans with headquarters; etc.

Degree D

— At this degree level the work meets the criteria for inclusion in the FSN-1805 Computer Management series, but does not meet the Degree C level of complexity for this factor.

Factor 3 - Management Complexity

This factor describes and differentiates the typical levels of management complexity in terms of scope and effect of work, managerial responsibilities and authorities, and responsibility for supervision over others.

As discussed in PART 2 of this series, Computer Management positions need not have supervisory responsibility if subordinate staff is not warranted by workload and scope of work. Positions will be classified to this series as long as their assigned responsibilities meet the Inclusion Criteria set forth in Section A of Part 4, above.

In some cases a post's automation support organization may use non-personal services contract (NPSC) staff in lieu of subordinate direct-hire or personal services contract staff. If NPSC personnel are used on a continuing basis, they may be counted toward the subordinate staff supervised criteria set forth in the following degree levels.

Degree A

— The automation organization provides support to multiple organizations including other USG agencies, private/voluntary organizations and/or foreign government organizations.

— The automation support organization typically is composed of eight or more positions (including full time U.S. personnel and contractors, if assigned). Organizationally, it consists of two or more sub-organizations (e.g., divisions, sections, units, branches, etc.) covering major ADP functional areas, e.g., computer operations branch, system analysis/programming branch, etc. There may also be further subdivisions within each major functional area.

— Computer Management positions at this degree level are responsible for the following personnel management functions: initiating recruitment action with the servicing personnel office; making selections of employees with supervisory concurrence; determining duties and responsibilities of positions; and initiating action on such matters as promotion, awards, discipline, and separation by adverse action.

— Management functions include responsibility for the following:

—Developing comprehensive short- and long-range strategies;

—Determining changes to hardware and software to meet changing requirements;

—Participating with agency headquarters automation specialists to establish plans and projects; and

—Developing multiple-year budget estimates for acquisition of new equipment, site preparation, investment in software (application and operating system) procurement, and/or development.

The views and recommendations of employees in positions at this degree level are given considerable credence and have considerable weight and authority in determining fiscal and personnel resource levels to be established for the computer system at post, configuration of the automation organization, and in determining and aligning functions within the organization.

Degree B

— The automation organization provides support to multiple organizations, including other USG agencies, private/voluntary organizations, and/or foreign government organizations.

— The automation support organization is typically composed of three or more positions (including full time U.S. personnel and contractors, if assigned). Organizationally, it may consist of two or more sub-organizations (e.g., divisions, sections, units, branches, etc.) covering major ADP functional areas, e.g., computer operations branch, system analysis/programming branch, etc.

— Computer Management positions at this degree level have the same personnel management authorities as those described for Degree A, immediately above.

— Management functions include responsibility for recommending short- and long-range computer strategies and hardware/software needs; participating with agency headquarters automation specialists to establish plans and projects; developing multi-year budget estimates for acquisition of new equipment; providing management advisory services regarding computer use and potentials, including coordinating installation and management of new computer requirements; etc.

Degree C

— Management functions are primarily oriented to individual post issues, and involve supporting the needs of a single agency at post. While the automation organization typically supports a single agency, it may in some instances provide support to a small number of associated agencies.

— The automation support organization is typically composed of two or more positions (including full time U.S. personnel and contractors, if assigned). The organization is not divided into sub-organizations, although subordinate positions may take the lead in specific areas. In the main, however, the Computer Management position is responsible for the more difficult tasks.

— Computer Management positions at this degree level have the same personnel management authorities as those described for Degrees A and B.

— In addition, Computer Management positions are responsible for making recommendations regarding personnel management, organization, and functional distribution. Final action on such matters are taken by higher level personnel.

— Management functions include recommending changes to hardware and software to meet changing needs, developing cost estimates, and recommending actions regarding new areas in which to provide computer support. Management advisory services include what functions to automate, priority of automation, use of locally developed program applications, and use of off-the-shelf material.

Degree D

— At this degree level the work meets the criteria for inclusion in the FSN-1805 Computer Management series, but does not meet the Degree C level of complexity for this factor.

D. Grade Level Criteria

All grade-level determinations for positions classified in the FSN-1805 series must be documented on a locally reproduced copy of the specialized Analysis and Evaluation Worksheet provided in the following Exhibit.

A position that meets the Inclusion and the Designation Criteria, and has been measured against the above Complexity Criteria, must now have the degree levels determined appropriate for each factor converted to a grade level.

Record the degree level determination for each of the Complexity Criteria factors in Section 2. E of the A and E Worksheet. The following two steps are then taken to arrive at the correct grade level for the position.

STEP #1 - DETERMINATION OF INTERIM GRADE

TO GET THIS INTERIM GRADE   YOU NEED A
MINIMUM OF

TO GET THIS INTERIM GRADE	YOU NEED A MINIMUM OF
FSN-1805-11	2 As + 1 B
FSN-1805-10	2 Bs + 1 C
FSN-1805-9	2 Cs + 1 D
FSN-1805-8	3 Ds

STEP #2 - ADJUSTMENTS FOR FINAL GRADE

A. Determine how the position is designated (see Section B, Designation Criteria, above). The position's designation should be documented in Section 2.B. of the A & E Worksheet.

B. If the position is designated as the "Systems Manager" or is designated as the "de facto deputy to the Systems Manager" the interim grade is increased by one grade, and that increased grade becomes the final grade.

In instances of "de facto deputy to a U.S. Systems Manager", ensure that the criteria in Condition #l of Section A of PART 4, above are met.

C. If the position is designated as an "Assistant" to a U.S. Systems Manager the interim grade becomes the final grade.

In instances of "Assistant" type positions, ensure that the criteria in Condition #1 of Section A PART 4, above, are met.

ANALYSIS AND EVALUATION WORKSHEET
for
FSN-1805 COMPUTER MANAGEMENT POSITIONS

ANALYSIS AND EVALUATION WORKSHEET
for
FSN - 1805 COMPUTER MANAGMENT POSITIONS

DATE: _____   POST: _____

POSITION NO.: _____

AGENCY: _____   ORGANIZATIONAL SEGMENT: _____

CURRENT CLASSIFICATION: _____

CLASSIFICATION RECOMMENDED BY SUPERVISOR: _____

CLASSIFICATION DECISION OF AUTHORIZING OFFICIAL: _____

1.   SUMMARYOF DUTIES AND RESPONSIBILITIES

2.   ANALYSIS AND EVALUATION AS TO TITLE, SERIES, AND GRADE

A.   INCLUSION CRITERIA DETERMINATION

Compare the position's assigned duties and responsibilities with the criteria in Section A of PART 4, of text of this series. State the basis for this position's inclusion in the Computer Management series.

B.   DESIGNATION CRITERIA DETERMINATION

Compare the designation of the position with the criteria in Section B of PART 4 of text of this series and state the designation of the position and the basis for your determination:

ANALYSIS AND EVALUATION WORKSHEET
for
FSN-1805 COMPUTER MANAGEMENT POSITIONS
(Continued)

C. FACTOR COMPLEXITY DETERMINATION

Determine the degree of complexity for each of the three factors discussed in Section C of PART 4 of the text of this series. Classifiers must ensure that a position's assigned responsibilities and work situation meet the full intent of a dregree level before making a complexity determination.

FACTOR 1 - System Complexity:

Indicate the degree applicable to the position's duties and the basis for this determination.

   Degree _____ is applicable because of the following justification:

FACTOR 2 - Functional Complexity

Indicate the degree applicable to the position's duties and the basis for this determination.

   Degree _____ is applicable because of the following justification:

FACTOR 3 - Managerial Complexity

Indicate the degree applicable to the position's duties and the basis for this determination.

   Degree _____ is applicable because of the following justification:

D. GRADE LEVEL DETERMINATION

See Section D of PART 4 of the text of this series and complete the following steps.

Step 1: Indicate number of each degree.

      Degree A _____   Degree B _____   Degree C _____   Degree D _____

Step 2: Use PART 4D and determine the Interim Grade (FSN-8, 9, 10, or 11): FSN-

Step 3: Use "Designation Criteria", to determine the final grade (see 2B of this Worksheet).

If designation is "System Manager"or "de facto deputy", the interim grade is increased by one grade and the increased grade becomes the final grade. FSN-____

If designation is "Assistant to U.S. System Manager", the interim grade is the final grade. FSN-____

ANALYSIS AND EVALUATION WORKSHEET
for
FSN-1805 COMPUTER MANAGEMENT POSITIONS
(Continued)

E.   TITLE DETERMINATION

For position with a final grade of FSN-10 or above the official title is Computer Management Specialist. For position with a final grade of FSN-8 or 9 the official title in Computer Management Assistant.

3.   CLASSIFICATION ACTION

Based on the above analysis and evaluation, the position is properly classified as follows: (provide official title, series code, and grade)

4.   CLASSIFICATION CERTIFICATION

This classification is based on (check all that apply):

A) DESK AUDIT_____   B) SUPERVISORY AUDIT_____   C) PAPER REVIEW_____

CLASSIFIER:_____   DATE:_____

APPROVED BY:_____   DATE:_____

FSN-1805 COMPUTER MANAGEMENT SERIES PART 5 - LOCAL AREA NETWORK (LAN) SYSTEMS ADMINISTRATION

A. Introduction

This part of the FSN-1805 Computer Management Series covers positions responsible for Local Area Network (LAN) computer systems. A LAN provides for communications between computers and peripherals, and permits sharing of hardware and software (off-the-shelf and locally developed applications), information and data, text processing and distribution, records management, etc. In some cases, particularly in AID organizations, they may be integrated with UNIX machines. LAN components are connected by cables and/or telecommunications lines. The standards and guidelines provided in this part of the FSN-1805 Series cover the following two typical work situations:

(1) Position(s) responsible for administering a local area network computer system under the direction of the ADP organization's senior FSN Computer Management Specialist/Assistant, or

(2) A sole position in an agency's local area network computer operation, under the non-technical direction of an American official who is responsible for other functions.

Positions are responsible for analysis and development of work functions and the LAN system, management advisory services, system performance, applications programming, user support and training, network system protection, and direction of day-to-day operations.

B. Inclusion Criteria

All of the major functions described in the LAN standards (FSN-1805-8 and 9, below) must be assigned before a position may be classified using this part of the FSN-1805 Series.

C. Exclusion Criteria

Positions responsible for Computer Management functions involving a combination of LAN and other types of computer systems (e.g., VS minicomputers and WANG OIS) are classified by the criteria contained in Part 4 of the FSN-1805 Series.

Positions responsible for day-to-day local area network operations, installation, modification, maintenance, user assistance, and/or system administrator backup under the direction of a FSN-1805 Computer Management Assistant/Specialist are classified using the FSN-1815 Computer Operator Series (see Computer Operator (LAN) standard below.

Positions responsible only for operating and/or supervising the operating of computers (either PC's or minicomputers) and related peripheral equipment directly supporting LAN computer operations are classified using the FSN-1815 Computer Operator Series standards.

D. Qualification Requirements

The qualification requirements set forth in Part 3 of this Series (see above) also apply to LAN positions.

E. Classification Criteria

The grade level criteria for FSN-1805 Computer Management Assistant (LAN) positions are set forth in the "Distinguishing Features and Classification Criteria" and "Supplementary Notes" sections of the standards below. Computer Management (LAN) positions proposed for grades above the FSN-9 level must be submitted to PER/FSN/PCM and, if appropriate, the employing agency's headquarters office for final classification action. For instructions, see Section 5 of the Introduction to the FSN-1800 Computer Group.

A mixed position with responsibility for LAN system administration, as well as work classifiable to one or more other occupational groups shall be classified to the series covering the predominant responsibility in accordance with the mixed position principles set forth in 3 FAH-2 H-454.1 A.

FSN-1805-8 and 9 INTERAGENCY POSITION CLASSIFICATION STANDARDS

GROUP: Computer Group   **SERIES:** Computer Management
TITLE: Computer Management Assistant (LAN)   **CLASS:** FSN-1805-8 and 9

A. Basic Function

Under the general direction of a more senior FSN Computer Management Specialist/Assistant or the non-technical direction of an American who is responsible for other program or management functions, administers a significant portion, or all, of an agency's ADP system by providing optimal use of existing and new computer technology resources through a local area network (LAN) system. The work involves comparing the organization's work processes to LAN system capabilities and developing methods to improve both; operating or supervising day-to-day network and maximizing system performance; developing local programming applications; providing management advisory services, user support, and training; developing, implementing, and monitoring LAN network protection systems; and other related duties.

B. Major Duties and Responsibilities

1. Functional Analysis and System Development - Develops and maintains familiarity with agency programs, goals and work processes, and compares them to LAN capabilities and potential. For example, studies financial management systems, DRS, administrative correspondence tracking, library resources/usage, procurement and supply systems, etc., and looks for new work the LAN can do, and better ways to do old jobs. Keeps abreast of new technology, new off-the-shelf applications and systems software, and revisions to equipment/software in use to improve networking services and agency work processes.

2. System Performance - Maximizes network systems performance. Monitors hardware and software usage patterns and modifies the network configuration accordingly. Aims for a user-friendly system to maximize system usage, and to improve work processes by designing unit or function-specific macros and templates, e.g., telegrams, travel orders, memos, spreadsheets for financial planning, and desk top publishing. In some AID organizations may administer and monitor performance of machines running other operating systems such as UNIX.

Develops and maintains a systematic, preventive-oriented approach to routine network maintenance tasks. Develops and maintains log-on procedures for users; develops and maintains data access lists; reviews traffic patterns; develops systematic backup and file server hard disk cleanup procedures; and anticipates problem areas and drafts solution scenarios. Reviews off-the-shelf network applications usage to determine need for additional software copies, and ensures compliance with software registry and usage restrictions.

Develops and maintains print queue priorities and logical group use of shared peripherals, e.g., laser printers. Determines sufficiency of hardware and its appropriate placement for maximum performance. Ensures compatibility of office forms and format with printers. Monitors file server and user memory requirements and disk usage to increase memory and/or disk space as needed. Cleans file servers of all but shared files. Develops and/or administers a network protection system. Establishes and maintains fail-safe security systems and backup routines, with minimal disruption to users, to minimize damage from acts of nature, fire, malice, accidental damage by users, theft, and other threats to the system. Implements agency computer security procedures and requirements and monitors for compliance.

Documents procedures specific to the network to ensure smooth operations in his/her absence, e.g., how to update log-on scripts, broadcast messages, add and modify users, install applications, create project-oriented directories, backups and restorations, questions and answers (Q&A's), standardized data base reports, etc.

Develops and maintains historical system records, e.g., hardware inventory, including serial numbers and workstation configurations; cabling inventory and diagrams; system configuration and network map; software documentation, configuration, tracking and registration; users and groups; directories and files; reference books and manuals and training materials; supplies and spare parts inventory and tracking; usage records; activities log for systems errors; etc.

Responsible for timely and systematic purchase of printer upgrades and fontware. Serves as a point of contact for maintenance contractors to install and/or expand network system or correct deficiencies.

3. Management Advisory Service - Recommends short and long-term network procurement requirements. Recommends whether replacement, repair on failure, or repair under a maintenance contract is more cost effective for owned equipment. Reports on network performance and productivity. Analyzes organization's work processes and LAN system to determine if improvements can be made and recommends appropriate changes.

4. Applications Programming - Designs and/or secures from other posts or headquarters customized software (spin-offs of off-the-shelf software for agency applications). Determines whether locally developed/purchased applications might be shared with headquarters or others. Develops and maintains inventory database of all locally procured and developed applications or systems.

5. Operations, Installation, Modification, and Maintenance - Performs or directs day-to-day operations to keep network running. Performs and/or directs installation, modification, and maintenance of LAN components including hardware, cables, disk operating software, netware, applications and utilities software, various interface cards, hard disks, and user PC's. Performs and/or directs resolution of conflicts in addresses between installed cards by ensuring that each card has a unique address inside the file server. Performs and/or directs operations to connect existing automation equipment to new equipment; to test and debug hardware and systems and applications software; and installs and guarantees sufficiency of UPS (uninterruptable power supply). Performs and/or directs minor cable and hardware repair. May perform and/or direct record keeping for receipt and verification against purchase orders of new hardware, software, and documentation, and enter into agency automated ADP inventory system.

6. User Support and Training - Identifies training needs and develops and/or provides appropriate training to individual or groups of users at all organizational levels. Identifies need for and expands upon existing computer-based training and written instructions on systems/software. Writes and disseminates agency-specific local application instructions and system maintenance documentation. Maintains LAN system library which includes documentation, training materials, software, hardware manuals, user training records, training tapes, etc.

C. Desired Qualifications

The "QUALIFICATION REQUIREMENTS" set forth in Part 3 of this series, above, apply to LAN positions.

D. Distinguishing Features and Classification Criteria

Computer Management Assistant (LAN) positions are responsible for an agency's local area network computer system. Typically, they are found in one of two organizational situations.

1. SITUATION A —Responsible for one or more LAN computer systems under the supervision of a more senior FSN Computer Management Assistant/Specialist position which has overall responsibility for an agency's ADP operation.

2. SITUATION B —In charge of an agency's ADP operation, which is composed of LANs, under the non-technical direction of an American official who has responsibility for other program or management functions.

The major duties and responsibilities are essentially the same for each grade level described below. The grade level differences are determined by the LAN system, functional, and organizational complexity.

Do not determine a position's grade simply on the number of work stations/users.

E. FSN-8 Computer Management Assistant (LAN)

FSN-8 Computer Management Assistant (LAN) positions operate in a smaller, less complex LAN working environment. There may be only a single site file server. There may also only be stand-alone PC's connected to each other to share software without a file server. Telecommunications may be limited to E-Mail and data or document transfer (e.g., USIS wireless file distribution). Hardware integration is uncomplicated -- either OIS to LAN or a new ADP system (LAN) installed with single vendor hardware. Integration is limited to two operating systems, i.e., the hardware disk operating system and the netware operating system. Typically, there are less than 35 work stations/users. The limited size of the network and services provided places emphasis on systems performance and operations. Programming is primarily limited to developing macros and templates for off-the-shelf standard program applications. Some documentation may be done by others. Typically, these are non-supervisory positions. Work might be performed part-time. Guidance is received from supervisor, or from regional or headquarters offices.

F. FSN-9 Computer Management Assistant (LAN)

FSN-9 Computer Management Assistant (LAN) positions are responsible for more complex LAN networks. At this level LAN systems characteristically have more than two disk operating systems and many program applications in use; various and numerous peripherals used for telecommunications and other functions (fax/modems, CD ROM, audio, etc.), print, and file servers; and integration of hardware and software from different vendors, e.g., integration of Wang OIS and VS systems and/or Macintosh and DOS systems with the LAN. Typically there are 35 or more work stations/users at multiple sites. The work requires frequent installation of additional or replacement hardware and software with minimal outside support or guidance to meet organizational requirements. System documentation and programming requirements are more extensive than at the FSN-8 level. Incumbents may also be involved in providing regional support, and in testing equipment and software as part of pilot programs for possible agency-wide applications. While system performance and operations are still important, day-to-day operations are most likely performed by subordinate staff.

SUPPLEMENTARY NOTES:

Before classifying a position by this Part of the FSN-1805 series, the LAN/ADP responsibilities credited to other positions in the organization should be reviewed to ensure the assigned work does not overlap with that of other positions. In particular, comparison should be made to the FSN-1805 Computer Management Assistant/Specialist in charge of the ADP operation. Additionally, one or more positions may be sharing network system administration responsibility, or have systems analysis and programming responsibilities. If either situation exists, the classification of Computer Management Assistant (LAN) positions will be affected.

Before classifying a position to the FSN-9 level, ensure that it meets the full intent of the criteria set forth under "Distinguishing Features and Classification Criteria" for that level. Do not rely simply on the number of work stations; that is but one factor to be considered.

Positions which combine LAN systems administration work with other responsibilities will be classified according to the mixed positions principles found in 3 FAH-2 H-454.1 A.

Computer Management Assistant (LAN) positions proposed for grades above the FSN-9 level must be submitted to PER/FSN/PCM and, if appropriate, the employing agency's headquarters office for final classification action. For instructions, see Section 5 of the Introduction to the FSN-1800 Computer Group.

No additional classification credit may be given for duties and responsibilities involving the initial installation of LAN systems.

ANALYSIS AND EVALUATION WORKSHEET
for
FSN-1805 COMPUTER MANAGEMENT (LAN) POSITIONS

ANALYSIS AND EVALUATION WORKSHEET
for
FSN-1805 COMPUTER MANAGEMENT (LAN) POSITIONS

POST _____   POSITION NUMBER _____

AGENCY _____   ORGANIZATIONAL SEGMENT _____

CURRENT CLASSIFICATION _____

FINAL CLASSIFICATION: COMPUTER MANAGEMENT ASSISTANT (LAN),
          FSN-1805- _____

1. SUPPLEMENTAL POSITION INFORMATION: Use this section to supplement the information provided in the position description, correct or clarify inaccurate and confusing information, or provide any additional information needed for classification purposes. Do not use this section merely to restate or summarize what is described in the PD. If necessary, use additional pages.

ANALYSIS AND EVALUATION WORKSHEET
for
FSN-1805 COMPUTER MANAGEMENT (LAN) POSITIONS
(Continued)

2. ANALYSIS AND EVALUATION AS TO SERIES, GRADE, AND TITLE
(use additional pages if necessary)

   A. INCLUSION CRITERIA DETERMINATION: Compare the position's assigned functions to those described in the FSN-1805 and 9 standard, and state why they meet the criteria for classification by Part 5 of the Computer Management Series.

   B. INTERIM GRADE LEVEL DETERMINATION: If the inclusion criteria is met, determine the interim grade level by comparing the characteristics of the LAN for which the position is responsible to 1805-8 and 9 standard. State the reasons for your grade level determination, and provide specific examples to justify your decision. Do not base your decision simply of the number of workstation/users.

   The interim grade is FSN-_____ because:

   C. FINAL GRADE LEVEL DETERMINATION

1. Compare the position's actual organizational situation to those described below.
   SITUATION A: Responsible for a LAN computer system under the supervision of a more senior FSN Computer Management Assistant/Specialist position which has overall responsibility for an agency's ADP operation.
   SITUATION B: In charge of an agency's ADP operation, which is composed of a LAN, under the non-technical direction of an American official who is responsible for other functions.

ANALYSIS AND EVALUATION WORKSHEET
for
FSN-1805 COMPUTER MANAGEMENT (LAN) POSITIONS
(Continued)

2. Decide which situation best matches that at post and state the basis for your decision.
    Situation _____ applies because:

3. If Organizationl Situation A applies, then the interim grade becomes the final grade.
    If Organizational Situation B applies, then the interim grade is increased by one grade and this
    becomes the final grade.
    The final grade is FSN-_____

3. FINAL CLASSIFICATION DECISION AND CERTIFICATION

Based on the information in the attached position description, supplemental information in Section
I of this Worksheet, and the above analysis and evaluation, this position is properly classified as:

COMPUTER MANAGEMENT ASSISTANCE (LAN), FSN-1805 _____

A future audit of this position which discloses any significant differences in the kinds of work
assigned or level of complexity may result in a different classification conclusion than that stated
above.

This classification is based on (check all that apply):

DESK AUDIT:____   SUPERVISORY AUDIT:____   PAPER REVIEW:____

EVALUATED BY _____   DATE: _____
                          (Name and Title)

REVIEWED BY _____   DATE: _____
                   (Optional) (Name and Title)

APPROVED BY _____   DATE: _____
                          (Name and Title)

PART 6 GLOSSARY OF COMMONLY USED COMPUTER TERMS IN LOCAL AREA NETWORKS (LANs)

ADDRESS—A set of numbers that uniquely identifies something; a workstation on a LAN, a location in computer memory, a packet of data traveling through a network. Similar to the address of a house.

ARCHITECTURE—The manner in which hardware or software is structured. Architecture typically describes how the system or program is constructed, how its components fit together, and the protocols and interfaces used for communication and cooperation among modules or components of the system. Network architecture defines the functions and description of data formats and procedures used for communication between nodes or work stations.

ASYNCHRONOUS SERVER OR ASYNCHRONOUS GATEWAY—See communications server.

BACKUP—A backup copy of a file is a second copy, stored on tape, floppy disk, or hard disk. Backup assures that if the original copy is destroyed or damaged, the file can be restored, at least partially.

BASEBAND—LANs fall into two categories—broadband and baseband. In baseband LANs, the entire bandwidth (capacity) of the LAN cable is used to transmit a single digital signal. The digital signals from the sending device are put directly onto the cable without modulation of any kind. Only one signal is transmitted at a time.

BRIDGE—A device that can connect two or more different networks, provided that they employ the same data-link protocol. For example, a bridge could be used to connect an Ethernet network to a token ring network if both networks are running Netware.

BROADBAND—A method LANs use to convey information. More complex than its counterpart (baseband). Can carry several signals simultaneously, perhaps several data channels, a video channel. Channels on a broadband network are typically kept separate with a technique called frequency division multiplexing.

BROUTER—A networking device that combines some of the capabilities of abridge with those of a router. That is, it can perform routing of some data-link protocols, but acts merely as a bridge when it encounters other protocols. See bridge and router.

BUFFER—A software program, a storage space in RAM, or a separate device used to compensate for differences in the speed of data transmission. A printer buffer is an example. The computer can send data to be printed many times faster than the printer can print it. The computer dumps to the buffer, and the printer then takes from the buffer at its own pace.

BULLETIN BOARD SYSTEM—An electronic message system typically running on a PC. Users can call up, leave messages, read messages, as on an actual bulletin board. Distinct from an electronic mail system, where messages are directed to designated recipients.

BUS TOPOLOGY—A one-cable LAN, in which all work stations are connected to a single cable. On a bus network, all work stations hear all transmissions on the cable. Each workstation then selects those transmissions addressed to it based on address information contained in the transmission. The simplest and now the most common LAN topology. It is possible to connect bus networks together, using a bridge.

CABLING—The medium that connects nodes on a LAN. Cabling can be twisted-pair, coaxial, or fiber optic.

CAD—Computer-Aided Design

CLIENT-SERVER MODEL—Refers to architecture for LAN application programs. Software is split into two parts: client and server. The server component provides things for the client part. The client part interacts with the user. The two parts run on different machines. Usually the server part is a more powerful machine than the client part. The most common client-server application is the database server. This is a database management system (DBMS) where the functions are split into a "front end" that interacts with the user (client) to enter data, ask questions of the data and write reports, and a "back end" that stores the data, controls access to data, protects data and makes necessary changes to the data.

COAXIAL CABLE—A type of electrical cable in which a solid piece of metal wire is surrounded by insulation and then surrounded by a tubular piece of metal whose axis of curvature coincides with the center of the piece of wire--hence the term coaxial. Coaxial cables have wide bandwidth and can carry many data, voice and video conversations simultaneously.

COLLISION—The result of two work stations trying to use a shared transmission medium (cable) simultaneously. The electrical signals, which carry the information the work stations are sending, bump into each other. This ruins both signals and forces the work stations to retransmit their information. In most systems, a built-in delay will make sure the collision does not occur again.

COMMUNICATIONS SERVER—Also called asynchronous server or asynchronous gateway. A communications server is a type of gateway that translates the packetized signals of a LAN into asynchronous signals, usually used on telephone lines or on direct connections to minicomputers and mainframes. It handles different asynchronous protocols and allows nodes on a LAN to share modems or host connections. Usually, one machine on a LAN will act as a gateway, sharing its serial ports for connection to modems or minicomputers. All devices on the LAN can use this machine to get to the modems and the minicomputer.

CONFIGURATION—Can refer to any specific set of variables in hardware or software, as effected via switch settings, software instructions and the like. Most commonly used to denote the specific hardware ingredients in a LAN workstation (processor type, graphics board, hard disk size, interface card). Also used to describe ADP inventory, that is, number of nodes, telecommunications capability at Post.

DATABASE—Data stored in computer-readable form and usually indexed or sorted in a logical order. Users can use the index or logical arrangement to find the item of data they need. Used to store names and addresses, and so on. Typical databases are financial records, inventory, and the USIS Distribution Record System (DRS).

DATABASE SERVER—Software that doles out database data to PC's on a LAN the way a file server doles out files. A database server is the back end part of client-server database (see client-server model). It controls the data, granting access to multiple users, updating and deleting records and communicating with other database servers when necessary.

DISK SERVER—A device equipped with disks and a program that permits users to create and store files on the disks. Users have access to their own section of the disk. It gives users disk space that they would not normally have at their own personal computers. Compare with file server, which allows users to share files.

DISKLESS —A PC without a disk drive. Used on a LAN, a diskless PC runs by booting DOS or another operating system from the file server. Diskless PC's offer better security (there are no floppy disks of important and sensitive data than can be stolen, less chance for introduction of viruses).

DOS—Disk Operating System. A program or set of programs that instruct a disk-based computing system to schedule and supervise work, manage computer resources, and operate and control peripheral devices, including disk drives, keyboards, screens and printers. Comes in different types from different vendors. (See also NOS).

DOWNSIZE—To move a business application from one computing platform to a smaller, less expensive type of computer. Many applications first downsized from mainframes to minicomputers, and are now moving from minis to microcomputer-based networks. LANs are now considered to be reliable enough for even "mission-critical" applications.

DUMB TERMINAL—A workstation that does not have a computer in it and therefore cannot do much with the data it is fed.

DUPLEX—Refers to whether a communications link can transmit and receive simultaneously or perform only one of the two functions at a time. A full-duplex link does both at once, while a half-duplex link can--like a two way radio--do only one at a time.

DUPLEXING—Providing two identical disk drives and controllers, or two complete file servers so that one of them can take over from the other in the event of hardware failure. Mirroring is similar, but involves less hardware duplication. For example, mirroring may rely on a single disk controller to save data to two different disk drives, while duplexing will use two controllers.

ELECTRONIC MAIL—A messaging system operating over some sort of communications medium, often a LAN. Most E-mail systems allow users to write lengthy messages and send them to other users on the system. Many E-mail systems are dial-up services, like MCI Mail or CompuServe. Others are applications running under a network operating system on a LAN.

ETHERNET—A network standard providing computers with network access on a transmit-at-will basis. Runs on either coaxial cable or twisted-pair wiring. If two transmissions collide, they wait and try again until they get through. Ethernet sends data at a raw speed of 10 megabits per second.

FIBER OPTIC CABLE—A data transmission medium consisting of glass fibers. Offers immense bandwidth plus absolute protection from eavesdropping, electromagnetic interference and radioactivity.

FILE SERVER—A computer containing files that are shared by everyone connected to a LAN. In some LANs, the device is a PC with a huge disk drive and specialized software. In other LANs, any PC can be a file server, depending on the software it runs. File servers can offer all types of resources, from simple data storage to gateways and protocol conversion. A file server usually has software rules for allowing LAN users to get into and out of the files and databases it stores. There are also software rules for the other devices that a file server shares, such as serial and gateway ports.

GATEWAY—A device that can connect two or more dissimilar networks, or connect a network to a mainframe or minicomputer.

GRAPHICS-BASED INTERFACE—An interface that allows the user to select a menu item by using a mouse to select a graphic icon (a picture). (See Windows.)

HANDSHAKE—A preliminary procedure, usually part of a communications protocol, to establish a connection. Sometimes, during the handshake, two computers will exchange the conditions under which they will communicate. Other times, they just alert each other to the impending communication.

HOST—A computer system that provides computer service for a number of users, usually a mainframe.

HUB—The center of a star topology network or cabling system. File servers often act as the hub of a LAN. They house the network software and direct communications within the network. They may also act as the gateway to another LAN.

INTELLIGENT TERMINAL—A terminal that can be programmed, usually a PC.

INTERFACE—A demarcation between two devices, where the electrical signals, connectors, timing and handshaking meet. Often the procedures, codes and protocols that enable the two devices to interact are included or carried out by the interface.

INTERFACE CARD—A printed circuit board fitting in the expansion chassis of a computer to make the physical connection between computer and LAN cable. The interface card is responsible for getting raw bits from the computer onto the network and vice versa. This requires translation from parallel to serial form and back, buffering, packet creation, encoding/decoding, cable access, and transmission and reception.

K—A standard measurement of computer storage. Loosely defined as 1,000 bytes. In fact, it is 1,024 bytes, which is the equivalent of two to the tenth power.

LAN ADAPTER—Hardware designed to permit a personal computer to attach by wire or radio link to a LAN. Usually supplied on a removable circuit board known as a network interface card (NIC), but may also be built onto a PC's mother board or designed as an external unit.

LOCAL AREA NETWORK—A data communications network, also known as a LAN, spanning a limited geographical area--a few miles at most. It provides communication between computers and peripherals; sharing of data, software, and hardware.

LOG-ON—The process of identifying and authenticating oneself to a computer system. Used to control access to computer systems or networks.

MACROS—A single computer instruction that stands for a sequence of operations.

MAINFRAME—A large computer usually supplied with peripherals and software by a single large vendor, often with a closed architecture. Mainframes almost always use dumb terminals, connected in star configurations.

MICROCOMPUTER—A personal computer (PC). An intelligent terminal.

MINICOMPUTER—A small or medium-sized computer accessed by either dumb or intelligent terminals. A minicomputer is bigger and may be more powerful than a PC. For example, VS or OIS systems.

MIRRORING—Writing identical information to two separate disk drives so that one of them can take over from the other in the event of hardware failure. Duplexing is similar, but involves more hardware duplication. (See duplexing.)

MODEM—A device that converts (modulates) digital data from a transmitting device into a signal suitable for transmission over a telephone (analog) channel. At the other end, another modem reconverts (demodulates) the analog signal to digital data for use by the computer. The word modem comes from Modulator/Demodulator.

MS-DOS—Microsoft Disk Operating System. The standard operating system for computers equipped with the Intel 8086, 8088 and 80286 (or equivalent) microprocessors. PC-DOS is IBM's version of MS-DOS.

MULTIPLEXING—The transmission of multiple signals over a single communications line. Frequency domain multiplexing, most commonly used, modulates signals onto different frequencies (like the multiple signals carried over TV cables). Time domain multiplexing, also possible, separates signals by sending one after the other.

MULTITASKING—The simultaneous operation of two or more programs by a single computer. Multitasking allows a user to recalculate a spreadsheet while word processing.

MULTIUSER—The ability of a computer to support multiple users while providing a full range of capability to each one.

NETWARE—A popular network operating system, produced by Novell, and supported by almost every hardware and software manufacturer.

NETWORK ACCESS CONTROL—Electronic circuitry that determines which workstation may transmit next, or when a particular workstation may transmit.

NETWORK OPERATING —See NOS.

NETWORK TOPOLOGY—The geography or layout of a network, e.g., star, bus and ring network topologies.

NOD—A point in a network where services are provided, service is used or communications channels are interconnected. This term is sometimes used interchangeably with workstation. (The latter definition is recognized by these standards.)

NON-PROPRIETARY LAN—A LAN that can connect the equipment of several vendors.

NOS—Network Operating System. A program or set of programs that instructs a computer (file server) to schedule and supervise work, manage shared computer resources, and operate and control shared peripherals such as disk drives and printers. Examples of NOS software include Netware, LAN Manager and the AppleShare File Server. NOS software usually comes with components that must be loaded into RAM on work stations before they can connect to the file server. These software components, often known as redirectors, make a workstation and its disk operating system (see DOS) aware of the server and able to access it as if it were a giant disk drive.

ONLINE—The state of a peripheral, such as a printer, modem, terminal or LAN workstation, when it is connected to a computer and ready to operate. In modern communications, you are on-line when connected to a remote computer by telephone. Any network is an on-line computer system whenever users are logged into it.

PACKET—A group of bits, including address, data and control elements, that are switched and transmitted together. Think of a packet as one sentence or one group of numbers being sent at a time. Frame and packet are often used interchangeably.

PEER-TO-PEER—A description of communications between two equal devices. Most easily understood by contrasting to terminal-host communications. Under the latter, a mainframe does all the processing and the communicating devices, including PC's, act like terminals just doing input and output. With peer-to-peer communications, both computers process data at both ends, not just input and output.

PLATFORM—A given computer, or family of computers, as defined by processor type and compatibility with a certain type of executable program. The IBM PC-compatible microcomputer, in all its variants (8088, 80286, 80386, 80486) is usually considered a single platform, though 386 machines are considered to be another platform when running programs that operate only on a 386. Examples of other computer platforms are Macintosh, Sun, and IBM RS/6000.

PORT—Any connector on a computer that is used to hook up a modem, monitor or other external device. Can also describe connectors on a device that is not a computer. For example, LAN hubs feature ports to which personal computers may be connected. (See HUB.)

PRINT SERVER—A computer and/or program providing LAN users with access to a centralized printer. A person using the LAN sends a message to the print server computer. This computer then assigns it a piece of memory or disk space in which to store its file while it waits to be printed. With a print server, users can send to the printer any time. Print jobs are usually handled in the order received. But some users can be given priority and can be bumped to the top of the queue. Print servers allow fewer printers to satisfy more users, and they also make expensive printers more affordable because they spread the cost of these expensive machines (lasers) over many users.

PROPRIETARY LAN—A LAN that runs the equipment of only one vendor. A proprietary LAN cannot join IBM PC's to DEC minicomputers. DEC and Wang both make proprietary LANs.

PROTOCOL—A set of rules for communicating between computers. These rules govern format, timing, sequencing and error control. Without these rules, the computer will not make sense of the stream of incoming bits. There can be sets of protocols in some networks, with each protocol handling rules for a subset of the entire task of communication. This set of protocols is often referred to as a suite of protocols or protocol suite. Protocol stack is another term used to describe a set of protocols.

QUEUE—A line of tasks, such as computer jobs or messages, waiting for service--for processing, printing, storing, etc. A task waiting in a queue can be assigned a "priority", in this way, important tasks can jump ahead.

REPEATER—A device that amplifies a signal so it can travel over a longer distance without data loss. Since it performs no other function, a repeater should not be confused with a bridge or a router. (See bridge and router.)

RING TOPOLOGY—A LAN topology (layout) where each workstation is connected to at least two other work stations. This forms a loop (or a ring). Data is sent from workstation to workstation around the loop in the same direction. Each PC acts as a repeater by resending messages to other PC's. Rings have a predictable response time, determined by the number of PC's. The more PC's, the slower the LAN. Network control is distributed in a ring network.

ROUTER—Like a bridge, this is a device that can connect two or more different networks that use the same data-link protocol. However, it has more intelligence than a bridge. Instead of just passively relaying signals, it checks them to discover where they are going and then sends them on to the appropriate network.

ROUTING—The process of choosing the best path through the LAN. Routing lets PC's that are not directly connected communicate by passing messages along to adjacent PC's. Routing is a difficult science in data networks because there are so many factors to take care of, especially when moving through networks of networks.

SERVER—A computer providing a service to LAN users, such as shared access to a file system, a printer, a modem or an electronic mail system. Usually a combination of hardware and software. Think of it as the butler of the network, distributing information and resources to requesting users. Servers can be PC's, minicomputers, mainframes or specialized computers designed to do nothing but dole out services to multiple users. (See file server, print server.)

SHELL—Refers to an add-on program, such as Norton Commander or the Program Manager in Windows, that has been written to shield the user from an operating system command prompt. These redirect information to and from a network server, shielding the operating system and the user from having to deal with the network directly.

STAR TOPOLOGY—In a star topology, nodes are connected such that the center is a central network processor or wiring concentrator and each node is connected directly to the central point. A message from each node goes through the central point before reaching its destination.

SQL—Structured Query Language. A database query language originally from IBM for its mainframe databases. It is a tool used to get information into and out of a database. A way to manipulate data. This will mean many database programs can interact and exchange data; a way to communicate between database programs.

TOPOLOGY—Description of the layout of physical connections of a network, or the description of the possible logical connections between nodes, indicating which pairs of nodes are able to communicate. Think of it as a "road map" between all the things attached to a LAN. Examples are bus, ring and star.

TWISTED-PAIR CABLE—Two insulated wires wrapped around (i.e., twisted around) each other.

VIRTUAL DEVICE—A device provided to a computer--and any applications run on that computer--via a network operating system. Virtual devices mimic actual physical devices, and include disks, serial ports and printer ports. For example, a PC connected to a LAN might seem to the user as though it has a hard disk drive, when actually that drive exists only as a virtual device--an area set aside on the hard disk of the LAN's disk server. Virtual devices essentially act as a "front" hiding the LAN from users and applications software that might not otherwise be able to access it easily.

WINDOWS—Software from Microsoft. It extends the disk operating system (DOS) to include a graphical user interface. Users can view side-by-side text in multiple styles and graphics, in applications written especially for Windows (such as Word for Windows, Excel and Page maker). Windows applications are increasingly being written specifically for LANs. They can, for example, display a LANs topology on screen as a graphic, thereby simplifying the chore of LAN administration. The term "windows" may also be used generically to describe any technique through which a computer's screen is split to simultaneously display output from several programs--or components of a single program.

WORKSTATION—Input/Output device at which an operator works. Usually a personal computer, sometimes a terminal, through which you can send data to or receive data from a computer.

WIDE-AREA NET WORK—A data communications network designed to serve an area of hundreds or thousands of miles. Public and private packet switching (WAN) networks and the nationwide telephone network are good examples of wide area networks.

FSN-1810 COMPUTER SYSTEMS ANALYSIS AND PROGRAMMING SERIES

This series includes positions supervising or performing work in the design, modification and maintenance of systems for the accomplishment of work processes by use of digital computer, where the primary need is knowledge of computer requirements and techniques. Work includes: identification of subject-matter processes for automation; formulation of systems for automated processing; equipment selection; development of plans and programs within systems, involving specifying types and sequences of processing actions; and other specialized activities relating to the development and design of automatic data processing system.

Excluded from this series are:

a. Positions whose primary or preponderant functions are the operation of computers or ancillary equipment, including the testing of computer programs developed by others. Such positions are classified by use of the Computer Operator Series FSN-1815.

b. Positions whose paramount requirement for accomplishment of work processes or solution of problems is a knowledge of, or full professional qualifications in, a specialized subject matter but which may use some computer knowledges in effecting work-process production improvements or problem resolutions. Such positions are classified in the Series appropriate to the paramount knowledge requirement.

c. Positions requiring primarily technical knowledge and skills in occupational and equipment operational fields associated with the automatic data processing systems, but which require neither extensive knowledge of computer planning and programming nor of computer equipment operation, e.g., in the operation and maintenance of telecommunications equipment for punch-tape or remote terminal data input; or direct access remote terminal installation and operation; or physical installation and maintenance of computers. Such positions are classified in the occupational series applicable to the paramount skill requirement.

d. Positions whose paramount requirement is the keyboard entry of data for computer input, which may involve some incidental formatting for data entry and participation in testing of data entry aspects of processing programs developed by others. Such positions are classified by use of the Data Input Series FSN-1820.

e.   Positions performing work in support of ADP operations, including particularly production scheduling and control functions involving data media processing and storage, scheduling and expediting production, developing and revising run instructions and job streams, processing and distributing of output, and other operational support and control functions. Such positions are classified by use of the Computer Support Series FSN-1825.

f.   Positions with overall responsibility for the management of a major organization's computer installation, requiring knowledge of computer requirements and techniques rather than administrative and program management expertise in a specialized field. Such positions are classified by use of the Automatic Data Processing Management Series FSN-1805.

g.   Positions using automated, computer-linked, magnetic media, keyboard typing equipment to produce standardized narrative and tabular material and formats, which may also include computations and verifications using equipment math-pack capability, where the primary requirement is knowledge of the key-board entry, recall, modification, and repetitious use of developed material. Such positions are classified by use of the Word Processing Machine Operations Series FSN-140.

Positions in this series usually are found in two locations. The most significant of these are the Regional Administrative Management Centers (RAMCs) described in introductory material to the Automatic Data Processing Group FSN-1800. The RAMCs perform systems and programming work for served agencies at may posts in an assigned world region on many and widely varied work processes (sometimes referred to as computer applications) besides the fiscal systems for which the Centers were initially designed to provide services.

The other location is in the minicomputer operation at posts. Only post/agencies with a large scope and variety of applications (including, in some cases, services to proximate post(s) which cannot support their own minicomputer) will have a minicomputer. Introductory material to the FSN-1800 Group explains the minicomputer operation at a post, particularly as it regards the systems and programming work. Substantial amounts of systems and programming work in positions of managers or operators of a post's minicomputer (beyond that taken into account in the FSN-1805 and FSN-1815 series standards) will require use of these standards when applying the Mixed Position Rule (Section 3 FAH-2 H-454.1 N).

The similarity of applications and operations for comparable posts and associated agencies served worldwide, and the centralized prescription of requirements for various work processes which are automated, result in the standardization of numerous systems and programs applicable to many and, in some cases, all posts and associated agencies. Manufacturers and the State Department Information Systems Office (ISO) design and make available to minicomputer users many systems and programs with universal application. Systems and programs are also readily interchanged between computer centers. This standardization does not totally restrict systems analysis and programming at post level; there is always room for automation of new applications, for varying degrees of modification of existing applications, and for adaptation of standard applications to new uses. Care must be exercised to determine the degree to which these already established systems and programs limit the initiative and originality of systems analysts and programmers in RAMCs and in post minicomputer operations. Systems maintenance, with continual assessment of needed changes and improvements (i.e., systems analysis), is an on-going requirement at both RAMC and post levels. However, the requirement of centralized systems development and programming at non-RAMC post level is less substantial and is taken into account in the development of these and other ADP Group standards. The impact of budgetary limitations, of the presence of American staff competent in this function, and of any requirement for agency headquarters concurrence with proposed systems must also be considered. Furthermore, effective resource utilization dictates that, to the extent of availability, ready-made systems and programs and the systems development and programming capabilities of the RAMC and those provided by manufacturers and by Washington, will be utilized for the more substantial requirements of post minicomputer operations.

Typical operations involving positions in this Series include: contact with potential users for discussion of work processes, suitability to automation, and fact gathering; analysis of data gathered and preliminary definition of potential application; requirements, equipment availability, costs and benefits, and alternatives; discussion of recommendations with users; comprehensive analysis of system and related programs and development of specifications, including other system interface/linkage; program design, detailing and testing; system documentation; and, ultimately, systems maintenance. Most of these are performed in RAMCs within a specific organizational element assigned such responsibilities and staffed by analysts and programmers. In post minicomputer operations, these tasks will usually be part of the total position of the minicomputer manager or, to a much lesser degree, the sole or principal operator.

The occupational discipline affords potential for varied specializations besides systems analysis, development, and related programming. For example, there is equipment analysis, data base management, teleprocessing, computer security, etc. However, in most situations to which these standards apply such specialties are a part-of basic systems analysis and computer management positions and do not require full-time, separate positions.

These standards do not describe supervisory positions. Work direction of others is included in most of the non-supervisory class definitions. Where supervision is a major element of the position, and where work direction exceeds numbers of subordinates set forth at the various classes for non-supervisory position, classification will be by use of the supervisory classification principles and guidelines in this Handbook. These standards describe the following classes of positions:

*Computer Systems Analyst	FSN-1810-11
*Computer Systems Analyst	FSN-1810-10
*Computer Systems Operations Analyst	FSN-1810-10
Computer Systems Analyst	FSN-1810-9
*Computer Programmer	FSN-1810-9
*Computer Programmer	FSN-1810-8
Computer Programmer	FSN-1810-7

Distinguishing features of the lower class standards for each category allow for lower levels than standards cover, for (a) developmental assignment, and (b) when the preponderant and continuing assignments are of lesser scope and complexity than those for the lowest class defined.

*The Computer Systems Analyst FSN-1810-11 is responsible for administration and maintenance of the largest, business-type automated systems of a mainframe computer center, with extensive linkage to other similarly large systems in a major computer center, and usually directs other analysts and programmers.

*The Computer Systems Analyst FSN-1810-10 performs in significant segments of the largest; business-type automated systems of a mainframe computer center, with extensive linkage to other large systems, often in support of the FSN 1810-11, or is personally responsible for extensive systems with inter-system linkage but of a smaller scope than those for which the FSN-1810-11 is responsible.

*The Computer Systems Operations Analyst FSN-1810-10 keeps abreast of, selects, tests, and advises on mainframe computer vendors products/ software; monitors performance and investigates problems of a software nature in operating systems; and controls teleprocessing, systems architecture, and data security.

The Computer Systems Analyst FSN-1810-9 assignments are limited to systems' segments which are not major, complex segments of the large systems, or when analysis work is on systems of the less complicated type such as those comparable to the systems of a post's minicomputer.

*Computer Programmer FSN-1810-9 will apply only when more than 50% of the position's time is spent on programming within mainframe automated systems of the greatest complexity with extensive inter-system linkage, usually in the role of the programmer assistant to Computer Systems Analysts FSN-1810-11.

*Computer Programmer FSN-1810-8 is the normal class for positions which do programming in any variety of systems to be found in a major mainframe computer center, involving at least 25% of time in programming in major, extensively integrated, business-type systems of average complexity.

*NOTE: These classes apply to mainframe computer operations (e.g., a RAMC), not to minicomputer operations such as are typical at a post.

Computer Programmer FSN-1810-7 performs programming in less complicated business-type systems normally encountered in a post's minicomputer operations; in similar types of less complex systems within the RAMC; on a continuing basis in the simpler programs for the more complicated systems of a RAMC; or in developmental assignments in the more complex systems of a RAMC.

FSN-1810-11 INTERAGENCY POSITION CLASSIFICATION STANDARDS

GROUP: Automatic Data Processing
TITLE: Computer Systems Analyst

SERIES: Analysis And Programming
CLASS: FSN-1810-11

BASIC FUNCTIONS:

Responsible for the development and/or maintenance of complete and complex major, extensive, business-type, automated systems for posts/agencies served by a major mainframe computer center (e.g., a RAMC). Systems maintained are predominantly for significant functional applications which are linked to other comparably significant (large scale) functional applications, e.g., a payroll system linked to cash/fund accounting, disbursing, and personnel data management systems serving a large number of similar users, involving a large number of benefit/practice variations between posts served, payment in local currency but accounting in U.S. currency, or an accounting system linked to disbursing and payroll transactions with varied requirements for numerous agencies served, including some continuing allocations, fiscal year funding, cash management and local currency buying.

MAJOR DUTIES AND RESPONSIBILITIES

Is personally responsible for and usually directs the work of three or less assisting analysts and/or programmers in the development and/or maintenance of one or a few major systems embracing a large number of programs, for production of data requisite to a significant function used by a very large number of users served. Personally performs and/or directs related tasks which include: leadership role on feasibility studies of potential applications and major systems modifications; devising systems and related programs or adapting existing ones to a different application; dealing with users to assess needs, gather facts, recommend applications and report on application details including costs, benefits, and alternatives; devising system and program specifications, flow charting/diagramming, format and report design, etc., including extensive linkage with related systems; directing or performing tests and debugging; continually evaluating systems' performance by observation of production statistics/reports, analysis of malfunctions and problems, user feedback and requests; and assessment of improvements in technology for potential applicability.

May also guide and assist other analysts on analysis of less complex systems or personally perform such analysis, in addition to the above work for a limited amount of time.

Supervision received normally is confined to the supervisor's interpretation of new project objectives, the occasional suggestion of approach to systems analysis, and the review of end products by means of broad evaluation of, results and of user satisfaction.

DESIRED QUALIFICATIONS:

EDUCATION:—B.A. in computer sciences or business administration or the equivalent combination of three years of computer science technical training and technical experience.

EXPERIENCE:—From six to seven years of progressively responsible experience, primarily of a technical, administrative or business management nature, at least four of which should have been as an analyst and programmer on large computer systems, three years of which should have been with English language systems and programs in a U.S. agency computer operation. Where computer experience is a substitute for the B.A. education requirement, the total experience will be nine to ten years.

LANGUAGE:—Level 4 (fluent) English required.

KNOWLEDGE:—Comprehensive and expert knowledge of systems analysis and design techniques; computer equipment and software capabilities/limitations; ADP procedures and standards; standard business work processes and management principles; fact-finding techniques; programming techniques using COBOL: system/program documentation techniques; programs, objectives, relationships, and management practices of post and agencies served; and current equipment/systems technology.

ABILITIES:—Level 1 (less than 40 wpm) typing ability, enabling CRT computer terminal operation. Outstanding ability when fact-gathering and analysis, and in logic application, systems documentation and testing. Demonstrated ability to lead and work with others (e.g., a team of analysts/programmers).

DISTINGUISHING FEATURES:

Although the FSN-11 Computer Systems Analysts are primarily non-supervisory, the scope of the responsibility assigned will require at least intermittent work direction of a few subordinate analysts and/or programmers. The principal (grade-controlling) characteristic is responsibility for the development and/or maintenance of one or more very large scale system extensively linked with other large scale, business-type systems in a mainframe computer center. Therefore, although working leadership of subordinates is involved at this level, such responsibility is not grade controlling. Those positions which involve supervision of larger numbers of subordinates plus full technical responsibility for their work, will

be classified according to supervisory classification principles and guidelines of 3 FAH-2 H-454.2 A.

The main difference between this FSN-1810-11 class and Computer Systems Analysts of lower grade levels is the responsibility at FSN-11 for complete major, large-scale and complex systems in a mainframe computer center whereas the FSN-1810-10 and FSN-1810-9 classes (1) perform in segments of large-scale systems, usually in support of FSN-1810-11 positions or (2) work independently on entire systems of smaller scope and complexity. Only a few positions of this class will exist in a mainframe computer center. Existence of an FSN supervisor over the entire systems analysis and programming function will not prevent the use of this class except when the supervisory control imposed is more than broadly managerial and detracts from total system responsibility, in which case the position may not meet requirements for classification to this level.

FSN-1810-10 INTERAGENCY POSITION CLASSIFICATION STANDARDS

GROUP: Automatic Data Processing   **SERIES:** Analysis and Programming
TITLE: Computer Systems Analyst   **CLASS:** FSN-1810-10

BASIC FUNCTIONS:

(1) Responsible for project assignments for modifications to major sub-systems of complete and complex, major, extensive, business-type, automated systems for posts/agencies served by a major mainframe computer center (e.g., a RAMC). In this work, may act as the principal assistant to a higher grade computer systems analyst. and/or

(2) Individually responsible for advising and assisting on the development and/or maintenance of systems of considerable complexity involving linkage with other systems.

MAJOR DUTIES AND RESPONSIBILITIES:

Working independently or as the principal assistant to a higher grade computer systems analyst in a major mainframe computer center, is responsible for special project assignments or continuing design, modification, or maintenance tasks on major sub-systems of complete and complex major, extensive, business-type, automated systems which, in toto, are usually the responsibilities of a higher class systems analyst. and/or

Is individually responsible for advising on systems of considerable complexity which may cross major systems lines as sub-systems. Does feasibility studies of applications or modifications. Devises new sub-systems or modifications of existing systems, including system flow, controls, file organization, data element inventory, input and output format design, system specifications, related program specifications, and tests. Performs or directs tests and debugging. Contacts users regarding their needs for fact-gathering, and to recommend applications,including costs, benefits and alternatives. On major, very complex sub-system projects, may collaborate with an FSN-11 systems analyst, coordinating efforts with all those involved in and/or responsible for the major system(s) of which such projects are a part or with which they interface.

Examples of major sub-systems include: a system for automatic adjustment of all affected systems for varied currency rate exchange or dollar relationship fluctuations; a check-writing system for payroll and other disbursing processes; modifications to affected major systems to adapt them to significant revisions of the data input system; institution of a new leave plan, a new social insurance plan, or other radical revision to the pay system for a post; the determination of requirements for taking over serving

a newly acquired post for FSN pay; revisions in accounting applications to implement a new agency accounting system; annual changes of accounting classifications with differentiation of continuing appropriations from new fiscal year funding; etc.

Examples of systems of considerable complexity include: a total, local data base management system; a system for use of fund transfers in lieu of check payments; a system for cash management tied into local currency buying; a system to enable using local checks in lieu of U.S. Treasury checks for disbursements; etc.

DESIRED QUALIFICATIONS:

EDUCATION:—B.A. in computer sciences or business administration or the equivalent combination of three years of computer science technical training and technical experience.

EXPERIENCE:—Five to six years of progressively responsible experience, primarily of a technical, administrative or business management nature, at least three of which should have been as an analyst and programmer on large computer systems, two years of which should have been with English language systems and programs, in a U.S. agency computer operation. Where computer experience is a substitute for the B.A. education requirement, the total experience will be eight to nine years.

LANGUAGE:—Level 4 (fluent) English required.

KNOWLEDGE:—Thorough knowledge of systems analysis and design techniques; computer equipment and software capabilities/limitations; ADP procedures and standards; standard business work processes and management principles; fact-finding techniques; programming techniques using COBOL; system/program documentation techniques; programs; objectives, relationships, and management practices of posts and agencies served; and current equipment/systems technology.

ABILITIES:—Level 1 (less than 40 wpm) typing ability, enabling CRT computer terminal operation; Excellent ability in fact gathering and analysis, and in logic application, systems documentation and testing. Some demonstrated leadership ability.

DISTINGUISHING FEATURES:

The FSN-10 Computer Systems Analyst is primarily a non-supervisory level; however, the scope of normal project assignments or continuing systems analysis responsibilities typically require at least occasional work direction of one or two subordinates. Also, this is not to be treated as the journeyman level for this occupation just because it is the middle of three non-supervisory classes. Rather, in a major mainframe computer center, it is the highest level for analysis work in very complicated, major, business-

type, automated systems of significant scope and with extensive linkage with other systems, including major sub-systems or major, complex systems. The next lower class (FSN-1810-9) is the normal level for systems analysis work dealing with business-type automated systems which are only moderately complex and are not of significant scope nor extensively linked with other systems.

Although positions at this level are responsible for considerably complex systems analysis work and serve as advisors on those systems or sub-systems within their area of assignment, the processes and techniques used and the basic tasks involved are broadly comparable in complexity to those of the FSN-11 level. However, the scope of responsibility at this level relates to less complex and less extensive systems/sub-systems. In classifying positions to these two top levels in the series, great care should be taken to identify fully and evaluate the exact scope and complexity of the systems analysis responsibility involved.

Supervision received and supervision exercised over others at this level are similar to these characteristics described in Distinguishing Features of the FSN-1810-11 class. Care should be exercised to ensure that the supervisory control imposed over specific positions in both these grade levels is as described herein and is not so strong and rigid as to prevent classification to these grade levels (FSN-10 and FSN-11).

Barring restrictions in the scope of assigned responsibilities and in the extent of independence from supervisory control, positions within a major mainframe computer center which operate to a large extent in specialty areas such as the software, data base management, or (where justified) computer equipment will normally attain this class.

FSN-1810-10 INTERAGENCY POSITION CLASSIFICATION STANDARD

GROUP: Automatic Data Processing   **SERIES:** Analysis and Programming
TITLE: Computer Systems Operations Analyst   **CLASS**: FSN-1810-10

BASIC FUNCTIONS:

In a major, mainframe computer center, monitors the operations of all automated systems' performance as related to: software applications and architecture, core and data file space allocations, priorities, data security restrictions in teleprocessing applications, and input/output device utilization. Through liaison with manufacturers and intensive literature research, keeps abreast of software developments and the state of the art.

MAJOR DUTIES AND RESPONSIBILITIES:

Selects vendors' products for installation and test, and advises analysts and operating personnel of potential applications. These may include various control programs interacting between console operator, program under execution, and input/output devices being used, e.g., compilers, sorts, tape to print, delayed printing, remote job entry, controlling interactivity between terminals and computers.

Organizes software architecture under which all jobs are operated, including: allocations of the number of core partitions for multi-programming; specific core allocations; data file space on disks; priorities and security-oriented restrictions in telecommunications applications; and establishment of backup and restart procedures to guarantee systems' and programs' security.

Conceives and develops general-use programs to avoid redundant programming or to solve particular problems not covered by standard programming capabilities.

Researches causes of hardware and software malfunctions. Advises and guides on use of new techniques tested and assists in resolving problems.

May also perform systems analysis work of the FSN-1810-10 class, for less than a preponderance of working time.

DESIRED QUALIFICATIONS:

EDUCATION:—B.A. in computer sciences or business administration or the equivalent combination of three years of computer science technical training and technical experience.

EXPERIENCE:—Five to six years of progressively responsible experience, primarily of a technical, administrative or business management nature, at least three of which should have been as an analyst and programmer on large computer systems, two years of which should have been with English language systems and programs, and the last year of which preferably should have been with a U.S. agency computer operation in responsible ADP work.

LANGUAGE:—Level 4 (fluent) English required.

KNOWLEDGE:—Thorough knowledge of systems analysis and design techniques; computer equipment and software capabilities/limitations; ADP procedures and standards; standard business/work processes and management principles; fact-finding techniques; programming techniques using COBOL; system/program documentation techniques; programs, objectives, relationships, and management practices of posts and agencies served; and current equipment/systems technology.

ABILITIES:—Level 1 (less than 40 wpm) typing ability, enabling CRT computer terminal operation. Excellent ability in fact gathering and analysis, and in logic application, systems documentation and testing. Some demonstrated leadership ability. Ability to maintain a large computer-type operating system including, advanced techniques for file management and teleprocessing.

DISTINGUISHING FEATURES

In this series, this is the only class defined for Computer Systems Operations Analysts which exist only in major mainframe computer centers (e.g., a RAMC). Lower levels may be used for training positions.

The Computer Systems Operations Analyst serves as a technical link between systems development and computer operations and is the point of convergence of data processing and communications technologies in data teleprocessing applications.

The Operations Analyst FSN-1810-10 is interchangeable with the Systems Analyst FSN-1810-10 but not necessarily vice versa, as required knowledges are sufficiently specialized to warrant separate class segregation. Fundamental knowledge requirements, complexity of operations with which involved, and competence in fact-finding, analysis, and decision making are equivalent to the Computer Systems Analyst FSN-1810-10.

FSN-1810-9 INTERAGENCY POSITION CLASSIFICATION STANDARD

GROUP: Automatic Data Processing   **SERIES:** Analysis and Programming
TITLE: Computer Systems Analyst   **CLASS:** FSN-1810-9

BASIC FUNCTIONS:

At a major computer center, responsible for:

(1) Execution of project assignments involving predominantly less complicated but, as needed, some moderately complex aspects of larger, complete and complex automated data systems under direction of a higher grade analyst. and/or

(2) At any center (including a post's minicomputer operation), performs tasks for the development, modification, and maintenance of less complicated, business-type, automated systems used at posts/agencies served. These less complicated systems are usually heterogeneous and involve little linkage with others, although data bases sometimes may be the same.

MAJOR DUTIES AND RESPONSIBILITIES

At a major computer center, assists a more senior systems analyst in the development and modification of a portion of a system or sub-system, by performing typical tasks described below. Examples of systems' portions worked on and assignment complexity include: revision in the FEHB health benefit deductions/payments for all U.S. employees served by the center; addition of or change to a fringe benefit applicable to a single post or a few posts with similar requirements, where the addition or change is not particularly complicated, or can be implemented by adaptation of an existing application, or when the system is already built to accept the change readily; absorption of a new FSN compensation or accounting plan into existing automated payroll or accounting system, when the plan has characteristics very similar to those existing at a post already served, enabling extensive adaptation of a precedent application. and/or

At a major computer center or a post minicomputer center in a large to very large scope, diverse and complicated post (see "Distinguishing Features" of this level standard), performs systems analysis and programming work for a variety of moderately complex to less complicated business-type automated applications used by agencies served by the center. Examples of such applications include: distribution records system personnel management records; vehicle registration; residential management; U.S. citizen registration; automated message processing; post and regional security data management; automated visitor control; drug enforcement and narcotics control data management; and other

usually independent systems with related programs sometimes recurring infrequently or not at all, including service to international and other agencies unable to locally obtain required English language programming and data processing reports relating to a variety of organizational work processes, including, for example, socio-economic survey data for a university-contracted USAID program, refugee control data processing, etc.

Typical tasks include: consults with users and lead systems analysts, when there are team leaders in charge, regarding projects needs; fact-finding on work processes and objectives; analyzes and evaluates the feasibility for computer application and availability; recommends and presents to user the various elements of a proposal including costs, benefits, and alternative(s); personally performs on less complex systems, or collaborate with a senior systems analyst on more complex systems in the writing of system and program specifications and in the preparation of flow charts, block diagrams, and test programs; conducts or participates in tests and debugging; performs or assists in system implementations and, through continuing analysis of system operations, malfunctions, user feedback, and potential applicability of new technology, maintains system(s).

May occasionally act as leader in task assignments requiring one or two peer level systems analysts or programmers. On assignments of more extensive scope and greater complexity, may receive preliminary guidance and some ongoing assistance from a supervisor or higher class analyst. Work is usually reviewed by supervisor prior to referral to user for acceptance.

DESIRED QUALIFICATIONS:

EDUCATION:—Completion of secondary school required, plus one year of either technical or college level training with emphasis on computers or business administration.

EXPERIENCE:—Four to five years of progressively responsible experience, primarily of a technical or business management nature, at least three years of which should have been as a computer analyst and/or programmer, two years of which should have been with English language systems and programs, and one year of which preferably should have been with a U.S. agency computer operation in responsible ADP computer work.

LANGUAGE:—Level 4 (Fluent) English required.

KNOWLEDGE:—Sound knowledge of systems analysis and design techniques; computer equipment and software capabilities/limitations; ADP procedures and standards, standard business work processes and management principles; fact-finding techniques; programming techniques using COBOL; and systems program documentation techniques.

This is the lowest of three non-supervisory classes defined for major mainframe computer center Computer Systems Analysts and the only level of computer analysis work described for a post minicomputer center. It is a full performance level. Lower levels will be used for trainee assignments leading to ability to perform at FSN-9 full performance level, or for full performance level work where the nature of continuing assignments involves only the simplest of systems in such small numbers and such limited variety as to be clearly less than FSN-9 level complexity. For example, care should be exercised in evaluating the impact of readymade systems provided by manufacturers and State Department ISO, particularly upon minicomputer operations. Design of new systems and significant modification or adaptation of existing systems will utilize at least 25% of a position's time to warrant classification to this class. Otherwise, positions using preponderantly prepackaged systems, which require minor or no modification or adaptation to the original design will be allocated to the next lower class as Computer Systems Analyst FSN-1810-8.

As stated above, FSN-1810-9 is the highest class to which analysis work connected with post minicomputers centers will be classified and very few minicomputer facilities will have analysis work of this level. Also, introductory material to this Series and to the FSN-1800 Group set forth the expectation that, from a position management standpoint, systems analysis work, per se, in post minicomputer operations will be insufficient to warrant the full-time assignment of a Computer Systems Analyst. Rather, it is anticipated that at substantive analysis work, including the consultative aspects of work process analysis, fact-gathering and computer application recommendations, will be a significant if not the major part of the responsibilities of the minicomputer manager. This standard should be used in conjunction with standards for the Automatic Data Processing Management Series, FSN-1805, to classify that portion of the minicomputer manager's position concerned with such analysis work, with due consideration to whether the work is at FSN-8 or FSN-9 level (reference preceding paragraph).

This FSN-9 class definition includes full performance systems analysis work of the typical business-type, automated systems which are not of the scope and complexity of systems encountered by major mainframe computer center positions at FSN-1810-10 and FSN-1810-11. These two highest levels have systems analysis responsibilities of significantly greater scope and complexity involving extensive linkage of major systems or sub-systems within a major computer center.

FSN-1810-9 INTERAGENCY POSITION CLASSIFICATION STANDARD

GROUP: Automatic Data Processing   SERIES: Analysis and Programming
TITLE: Computer Programmer   CLASS: FSN-1810-9

BASIC FUNCTIONS:

In a major mainframe computer center (e.g. a RAMC), is responsible for the development of computer programs primarily for extensive and complex automated systems. Spends more than 50% of work time programming for systems and sub-systems which are normally the maintenance responsibility of Computer Systems Analyst FSN-1810-11 as described in these standards, i.e., systems of extensive scope and complexity, and linkage with others of equal significance.

MAJOR DUTIES AND RESPONSIBILITIES:

Receives system specifications from Computer Systems Analyst FSN-1810-11, including the essentials of programs which are portions of very large, complex, broadly inter-connected, business-type, automated systems processed and maintained by the major computer center. Develops appropriate programs for new or existing systems and reprograms for new or revised requirements. May assist the analyst in the development of program essentials. Devises program architecture. Develops program specifications, flow charts, coding, formats, file and record layouts, run interfaces, and operating documentation. The nature of the systems served requires extensive concern with the interface with other systems, their data bases and their programs. Develops and runs program tests and validations. Debugs programs, appropriately revising and finalizing program documentation. Participates in tests of systems utilizing newly developed programs. Independently or in collaboration with systems analyst, determines program changes required by policy, procedural or regulatory instructions or directives. Provides estimates of programming costs related to feasibility studies for significant system changes. May participate in management and user discussions of problems with and needed changes to, systems and related programs.

May direct the work of one or two assisting programmers or clerks. In completing programs, utilizes sound working knowledge of local systems, programs, and standards, obviating the need for ongoing guidance from the analyst or supervisor except rarely in the most unusual circumstances. Is expected to maintain highest level of programming expertise in relation to the full range of the facility's systems, programs, and requirements.

DESIRED QUALIFICATIONS:

EDUCATION:—B.A. degree in computer science or business administration is desirable; however, at this level, completion of secondary school and three additional years of either technical or college level training with emphasis on ADP or business administration is required.

EXPERIENCE:—Four to five years of progressively responsible technical ADP or business management experience, at least two and a half years of which should have been as a computer programmer, one year of which should have been with English language programming, in a U.S. agency computer operation. In the absence of a job-related degree, seven to eight years of progressively responsible ADP experience are required.

LANGUAGE:—Level 4 (fluent) English required.

KNOWLEDGE:—Sound knowledge of ADP functions and general management principles; programming standards and techniques using at least 2 programming languages, e.g., an evolved one such as COBOL and a basic language such as basic and assembly; fact-finding techniques; computer capabilities/limitations, utility programs, programming aids, system software, and documentation techniques in complex, extensively linked programs and systems operating under a teleprocessing monitor and a data base management system; and post's ADP systems and program in relationship to applications programming, job control preparation, standard utility program usage and operating system features usage.

ABILITIES:—Level 1 (less than 40 wpm) typing ability, enabling CRT computer terminal operation. Sound ability in logic application, flow charting, coding, and program documentation and testing. Ability to collaborate with others in system/program design.

DISTINGUISHING FEATURES:

This is the highest of three non-supervisory classes defined for Computer Programmers in these standards. It is distinguished from the Computer Programmer FSN-1810-8 by the requirement for devoting a majority of time in programming for systems maintained by Computer Systems Analysts of the FSN-1810-11 class, i.e., those of the greatest scope, complexity and inter-system linkage. Consistent with the expectation that few FSN-1810-11 positions will occur, no more than two positions of this level will exist at the same location (i.e., a major mainframe computer center) since (a) there are a limited number of systems developed or maintained of the scope required for programming at this class and (b) effective position management dictates that the maximum amount of the most complex programming, such as at this class, be assigned to the minimum number of positions.

FSN-1810-8 INTERAGENCY POSITION CLASSIFICATION STANDARD

GROUP: Automatic Data Processing   **SERIES:** Analysis and Programming
TITLE: Computer Programmer   **CLASS:** FSN-1810-8

BASIC FUNCTIONS:

Develops computer programs in a major mainframe computer center for any automated system used, including some systems of the most extensive and complex nature with considerable inter-system linkage. (See Distinguishing Features regarding programming in the most complex systems for a majority of working time.)- Following system specifications provided by analysts, writes program specifications, flow charts, and operating documentation. Develops and conducts program tests. Participates in system tests using programs developed.

MAJOR DUTIES AND RESPONSIBILITIES:

Receives system specifications, including essentials of programs which are portions of any of the variety of new and/or existing, extensive and complex, business-type, automated system applications in a major mainframe computer center. Devises program architecture. Develops program specifications, flow charts, coding, formats, file and record layouts, run interfaces, and operating documentation. Develops and runs program tests and validations. Debugs programs, appropriately revising and finalizing program documentation. Participates in tests of systems utilizing newly developed programs. Receives instructions or directives requiring program changes; collaborates as necessary with systems analysts in determining program changes or independently develops changes which are not extensive or complicated. May assist analysts in feasibility studies by providing estimates of programming costs. May confer with users or computer operators concerning detailed needs or problems affecting programs developed.

May direct the work of one or two assisting programmers or clerks. Receives guidance from higher grade analyst or supervisor as needed to handle unprecedented assignments and particularly difficult problems. Must be very familiar with local systems, programs, and standards in order to maintain capability of adapting existing programs and utility routines to new requirements.

DESIRED QUALIFICATIONS:

EDUCATION:—Completion of secondary school and two additional years of either (I) technical or college level training with emphasis on ADP or business administration or (2) computer job experience are required.

EXPERIENCE:—Three to four years of progressively responsible clerical and technical experience, at least two years of which should have been as a (large) computer programmer, one year of which should have been with English language programming in a U S. agency. Where computer job experience is substituted for the above required technical or college education, five to six years of progressively, responsible ADP experience is required.

LANGUAGE:—Level 4 (fluent) English required.

KNOWLEDGE:—Working knowledge of ADP functions and general management principles; programming standards and techniques using COBOL; fact-finding techniques; computer capabilities/limitations; utility programs, programming aids, system software, and documentation techniques in complex, extensively linked programs and systems, and post's ADP systems and programs.

ABILITIES:—Level 1 (less than 40 wpm) typing ability, enabling CRT computer terminal operation. Sound ability in logic application, flow charting, coding, and program documentation and testing. Ability to collaborate with others in system/program design.

DISTINGUISHING FEATURES:

This is the middle of three non-supervisory classes defined for Computer Programmers in these standards. It is normally the journeyman level of operation on complex programs where there is significant inter-system linkage in a major mainframe computer center.

When work of this type is performed in support of Computer Systems Analysts FSN-1810-11 for more than 50% of working time, i.e., preponderantly for the most extensive and complex, inter-linked, business-type, automated systems, the Computer Programmer FSN-1810-9 level may be used. However, such work may be done for less than the majority of working time by Computer Programmers FSN-1810-8. Consequently, there are expected to be no more than two FSN-1810-8 Programmers at any major mainframe computer center concurrently.

Work at the FSN-1810-7 class differs from this FSN-1810-8 class in that it involves programming within the moderately complex to less complicated systems under close guidance, or on systems with no inter-system linkage.

FSN-1810-7 INTERAGENCY POSITION CLASSIFICATION STANDARD

GROUP: Automatic Data Processing　　　**SERIES:** Analysis and Programming
TITLE:　　Computer Programmer　　　　　**CLASS:** FSN-1810-7

BASIC FUNCTIONS:

Develops computer programs which are portions of less complicated automated systems based on systems specifications provided by systems analysts in a major mainframe computer center, or

Develops programs for entire automated systems which are typical of the less complicated automated systems of a post minicomputer installation, based on systems specifications provided by the computer manager or others, or

Performs in a developmental capacity, under close guidance, programming work of the next higher level, i.e., on portions of systems of a more complex nature in a major mainframe computer center.

Writes program specifications, flow charts, and operating documentation. Develops and conducts tests. Participates in systems test using programs developed.

MAJOR DUTIES AND RESPONSIBILITIES:

Receives system specifications including content essentials of assigned programming projects (within the above framework) relating to a variety of new and/or existing, less complicated, business-type, automated system applications. Devises program architecture. Develops program specifications, flow charts, coding, formats, file and records layouts, run interfaces, and other operating documentation. Develops and runs program tests and validations. debugs programs, revising documentation and other prior work accordingly. Participates in tests of systems utilizing newly developed programs. Receives instructions or directives requiring program changes; participates in determining changes or independently develops changes to established programs when such changes are uncomplicated and fairly straightforward. May assist in feasibility studies by providing estimates of programming costs. May contact users concerning detailed needs or problems involving programs developed. Examples of less complicated systems for which programs are developed or changed, include: audience record system; personnel management records; vehicle registration; residential management; U.S. citizen registration; automated message processing; post and regional security data management; automated visitor control; drug enforcement and narcotics data management; or other usually independent systems normally involving fewer individual programs, little if any inter-system linkage, one-time or

infrequently recurring production runs, and changes which are usually not extensive nor complicated. Many of these programs typify non-RAMC, minicomputer operations at post. or

In a developmental capacity, under relatively close guidance, performs work of the next higher class on programs constituting portions of any automated system used in a major computer center. Besides tasks of the higher class, employee learns the entire range and variety of systems processed by the center through completion of a combination of assignments for developing programs and through study assignments. Systems analysts and senior programmers are readily available for consultation on unfamiliar systems/programs and usually provide preliminary review of products prior to proceeding to successive major steps in assignments. On simpler programs in the major system and those of a less complicated nature in less than major systems, proceeds independently, obtaining guidance when personally determined necessary.

DESIRED QUALIFICATIONS:

EDUCATION:—Completion of secondary school is required. Some technical school and/or college training in computer technology is desirable.

EXPERIENCE:—Two and a half to three years of progressively responsible clerical and/or technical experience, at least one year of which should have been as a computer programmer, preferably with an English language programming operation.

LANGUAGE:—Level 4 (fluent) English required.

KNOWLEDGE:—Basic knowledge of ADP functions and general management principles, programming standards, fact-finding techniques, post's computer capabilities/limitations, utility programs, programming aids, typical system software, and documentation techniques.

ABILITY:—Level 1 (less than 40 wpm) typing ability, enabling CRT computer terminal operation. Ability to apply standard logic tables, develop flow charts with coding, and document and test programs developed. Some demonstration of potential for working with others in a team situation.

DISTINGUISHING FEATURES:

This is the lowest of three non-supervisory classes defined for Computer Programmers in these standards. However, positions should be established at the FSN-1810-6 class when warranted, including:

a. Positions not involved for at least 25% of normal work time in programming work of the level of difficulty, types, and degree of independence described under BASIC FUNCTIONS and MAJOR DUTIES AND RESPONSIBILITIES above, i.e., work which is typical of FSN-7 level. (See ensuing comments regarding impact of ready-made systems with universal applicability provided by the manufacturer or the State Department Information Systems Office.)

b. Positions in training for programming in the less-complicated systems with little inter-system linkage (i.e., trainee positions for work typical of the Computer Programmer FSN-1810-7 class). (Note: Where such training is for less than 25% of the time and remaining time is spent in programming and systems clerical support work, the position should be classified at FSN-1810-5 level.)

c. Positions in training restricted to assignments on the simplest aspects of programming in the more complicated systems which are typical of the Computer Programmer FSN-1810-8 class.

The basic difference between this FSN-1810-7 class and the Computer Programmer FSN-1810-8 is the complexity of systems for which programs are developed. While the FSN-1810-7 works in the less-complicated systems the little inter-system linkage, the FSN-1810-8 performs programming in major mainframe computer centers which have more complex systems with intensive inter-system linkage, requiring greater knowledge of more complicated internal systems and more extensive systems interfacing considerations, e.g., output predicated on input from other systems data updating data in system other than that in which the position is programming.

Care should be exercised in the classification of programming work within post's minicomputers operation, with particular attention to paragraph a. above concerning the impact of the ready-made systems of manufacturers and ISO. Introductory material to the FSN-1800 Group set forth that neither systems analysis nor programming within a post computer operation normally will warrant full-time position(s) in the specialization and that such work is expected to be part of the possibilities of either the minicomputer-manager or (in a few cases) computer operator. These standards should be used to determine the level of that portion of the work of either position concerned with programming, in collaboration with the FSN-1805 and FSN-1815 standards, or the Mixed Position Principles, 3 FAH-2 H-454.1 A.

FSN-1815 COMPUTER OPERATOR SERIES

This series includes positions concerned with operating and supervising the operation of computers and related peripheral equipment directly supporting computer operations, requiring a knowledge of the function and operation of the equipment, and ability to (a) interpret and react to coded instructions for equipment operations, and (b) to deal with equipment operational problems.

Excluded from this series are:

a. Positions with overall responsibility for the management of the computer installation of an organization, requiring administrative and program management abilities in the automatic data processing field. Such positions are classified by use of the Automatic Data Processing Management Series FSN-1805.

b. Positions with responsibility for designing, developing, or maintaining systems and programs for the processing of computer applications, utilizing knowledge of computer requirements and techniques. Such positions are classified by use of the Computer Systems Analysis and Programming Series FSN-1810.

c. Positions whose paramount requirement is the keyboard entry of data for computer input, involving some knowledge of operation of the keyboard input and data storage devices external to the main computer core. Such positions are classified by use of the Data Input Series FSN-1820.

d. Positions performing work in support of ADP operations, including production scheduling and control functions involving data media processing and storage, scheduling and expediting production, developing and revising run instructions and job streams, processing and distributing of output, and other operational support and control functions. Such positions are classified by use of the Computer Support Series FSN-1825.

e. Positions using automated, computer-linked, magnetic media, keyboard typing equipment to produce standardized narrative and tabular material and formats, where the primary requirement is knowledge of the keyboard entry, recall, modification, and repetitious use of developed material. Such positions are classified by use of the Word Processing Machine Operations Series FSN-140.

f. Positions whose paramount requirement for accomplishment of work processes or solution of problems is full professional qualifications in, or knowledge of a specialized subject matter field, but which may involve use of some computer equipment and data processing knowledges. Such positions are classified in the series appropriate to the paramount knowledge requirement.

g. Positions performing technical work or equipment operation associated with automatic data processing, or with computer and peripheral equipment installation and maintenance, which do not require extensive knowledge of computer and peripheral equipment operation. Examples of such positions include: telecommunications equipment operation for punch-tape or remote terminal data input; computer, peripheral, and remote terminal equipment installation and repair; remote terminal operation for data input or inquiries. Such positions are classified in the occupational series applicable to the paramount skill or occupational requirement.

Introductory material to the Automatic Data Processing Group should be reviewed with regard to automatic data processing operations typically found in Foreign Service posts.

Computer Operator positions for the more sophisticated full-size computer hardware (versus minicomputers) will be found in the Regional Administrative Management Centers. The RAMCs do not have identical equipment. RAMC Bangkok has an older generation unit which requires much more physical area for data storage than the physically smaller units with equal or greater core capacity in Mexico City or Paris. The varied applications in each are determined largely by individual advances and the differences in agencies/organizations served. For example, RAMC Bangkok processes some of the systems and programs developed on a cost reimbursable basis by the RAMC for external organizations with no other available English language programming capability. Usually applications are comparable, with adaptations or adjustments required by the different hardware. New applications and advancements in existing ones are readily exchanged. Each RAMC has one main computer and at least one minicomputer. The computer room control console is used to instruct, receive responses from,and monitor processing of the main computer. The main computers are capable of multi-programming, i.e., the interleaved processing of two or more programs concurrently. The main computer core or internal data storage capacity is limited to original design, but increased external storage capacity and functional capabilities are enabled by the addition of storage and input components such as tape drives, disk units, or magnetic drums. Besides the more familiar peripheral equipment, e.g., card readers, card punches, keying units, tape and disk units, printers, collators, sorters, bursters, etc., each RAMC will have various remote input/output devices, including one or more involving teleprocessing. Examples include the Mitron system for transmittal of input/output data via teletypewriter paper tape-punching, and the remote keyboard I10 terminals with cathode

ray tube (CRT) or other visual display devices, in varying numbers and at varying distances. Special attention is required for those units which can directly access storage units in the RAMC, since space on tape or disk and input time allocations are involved, and machine failures or schedule changes require prompt notification of users for appropriate adjustments. Logistical support equipment is a concern also, since power failures and humidity change, critically affect equipment functioning and necessitate auxiliary power sources for machine operation and air conditioning continuity. System and program documentation as well as equipment operating and maintenance literature must always be readily available to operating personnel and must be maintained accordingly. The multi-programming feature of the main computer requires usage allocation consistent with machine capacity, program sequencing, output schedules and priorities, failures and resultant reruns, and other operational control considerations. Various aspects of such control may be the responsibility of the shift operational supervisor, specific support personnel, or an operator. The extent to which operating personnel can go to resolve operational problems or failures will depend upon the organizational procedures/policies and the individual capabilities of the operational personnel involved. Upon machine failure during processing, in some instances it is possible to find alternative steps for producing the same results, but decisions regarding alternatives require knowledge of programs, data bases, and equipment functions. Thus, some problems will exceed capability of any assigned personnel of the organization and may even exceed that of the manufacturer's representatives, necessitating alternative action or causing processing inability.

On the other hand, an associated agency's minicomputer operations or a post's minicomputer operations (the latter usually in the Administrative Section of the Embassy and serving all agencies at the post) usually will require no more than one minicomputer operator position per post facility, unless the heavy work volume necessitates shifts. At some posts, the minimal work volume requires only a single mixed position responsible for programming, equipment operating, and managing the facility Even the larger volume post installations seldom have more than two positions, a manager and an operator. In other words, the minicomputer manager and operator positions at the post will also involve functions normally associated with other occupations, e.g., programmers, data entry clerks, word processing machine operators, and, in some cases, limited and uncomplicated systems analysis. Effective position management dictates that the more complex functions warranting higher classifications be concentrated in as few positions as practicable. So, it is expected that, to the maximum extent practicable, any needed systems analysis and programming functions will be delegated to the minicomputer manager position (rather than to the operator position) as programming is more closely related to, and promotes effectiveness of the service aspects of managing.

The minicomputer is a complete computer, but with limited capacity. Therefore, any of the characteristics of the post's minicomputer operation will compare with the RAMC computer operations, but on a lesser scale. The principal differences include: (a) the post's hardware is not as complex or varied as in the RAMC; (b) the capacity of the post' s hardware does not enable systems and programs of the scope and complexity of those handled by RAMC; (c) the volume processed will be smaller at post; (d) the generally less-complicated systems processed at post are not linked or interfaced to the extent of those processed by RAMC (e) the impact of post's processing errors usually will not be as serious as at RAMC (e.g., few post transactions are as critical as employees' pay, agency financial status, intergovernmental fund transfers, and expanded regional reporting for all agencies to served agency headquarters and to central depositories such as health and social insurance plans, retirement funds, the U.S. Treasury); (f) similarity of computer applications among the posts worldwide results in many systems and programs ready-made for post by manufacturers or State Department Information Systems Office; and (g) the input/output terminal operation training problems at post for a variety of users and applications may be more significant than at RAMC, but, with no monitoring and verification staff as a RAMC.

These standards describe positions with shift or other responsibilities for work direction of a few assisting personnel, but do not describe supervisory positions with continuing, substantial managerial supervision. Where supervision is a major element of the position; i.e., involves a number of subordinates exceeding those set forth in the non-supervisory classes defined, classification will be according to the supervisory classification principles and guidelines in this Handbook.

These standards describe the following classes of positions:

Teleprocessing Assistant	FSN-1815-7
Computer Operator	FSN-1815-7
Computer Operator	FSN-1815-6
Computer Operator	FSN-1815-5
Peripheral Equipment Operator	FSN-1815-5
Peripheral Equipment Operator	FSN-1815-4
Minicomputer Operator	FSN-1815-6
Minicomputer Operator	FSN-1815-5
Computer Operator (LAN)	FSN-1815-7

The Teleprocessing Assistant FSN-1815-7 class defines positions which perform liaison between users of remote input/output devices and the computer center for the continuity of effective service involving telecommunicated data processing. These positions make regular checks for circuitry functioning and deal with observed or referred problems in production or service to users involving telecommunications. Their work involves intensive knowledge of equipment operations and extensive contact with users and international telecommunications organizations for the resolution of malfunctions.

The Computer Operator classes include positions involved with the operation of major, full-sized computer operations and peripheral equipment. Classes defined are:

Computer Operator FSN-1815-7 involves shift responsibility in the main computer room, processing major, linked, business-type, automated systems, special program processing and testing, some program testing and debugging, and alternative processing requiring intense program and operational knowledge.

Computer Operator FSN-1815-6 involves full-fledged main computer operation on the largest system, as above, without the shift responsibility or other specialized responsibilities and knowledge applications of the higher class, and where required, operation or direction of operation of an additional minicomputer(s) for concurrent processing of smaller systems or feeder programs.

Computer Operator FSN-1815-5 involves less than full-time main computer operation as the backup or auxiliary operator to higher grade Computer Operators, and, where required, some minicomputer peripheral equipment operation or other computer room tasks for remainder of time, under direction of the employee assisted.

The Peripheral Equipment Operator classes apply largely to RAMC positions, but, on very rare occasions as warranted by workload, a position may exist in a post's minicomputer installation. In either case, these positions are involved preponderantly with the operation of the peripheral equipment for input/output (i.e., little or no actual main or minicomputer operation), requiring comprehensive knowledge of the function and operations of a variety of peripheral equipment. Incidental use of some such equipment to support computer applications of work processes requiring paramount knowledge of another subject-matter is excluded. (See later comments on mixtures of functions within this series and Distinguishing Features of the FSN-1815-5 class standard regarding the expected infrequency of occurrence of this specialization.) Classes defined are:

Peripheral Equipment Operator FSN-1815-5 involves operation of the full range of peripheral equipment, including specifically those with internal memories, requiring operator instruction for proper use and potentially some incidental computer room tasks of equal level, i.e., for less than 25% of working time.

Peripheral Equipment Operator FSN-1815-4 involves operation of less than a full range of peripheral equipment, and none involving internal memories, or operation of the full range under close control in a developmental capacity.

The Minicomputer Operator classes include positions involved with the operation of minicomputers and their peripheral equipment primarily in posts' minicomputer installations. These classes include formatting input/output control, equipment operation and limited maintenance, remote terminal user training, and occasional counseling of the minicomputer manager in operational capabilities and limitations for application feasibility studies. Where organization or volume warrants, these positions may include some limited programming work and shift supervision or working supervision of one or two subordinate minicomputer or peripheral equipment operators or support personnel. Classes defined are:

Minicomputer Operator FSN-1815-6 involves operation of minicomputer(s) and peripheral equipment in a computer installation serving a post and/or associated agencies. In some positions, there is some work relating to the development of new programs or adaptation of existing programs to new applications in conjunction with the Minicomputer Manager for less than 25% of working time. (See sub-paragraph a., under Distinguishing Features of standard for Computer Programmer FSN-1810-7 which discusses minimum requirements for Computer Programmer FSN-1810-6 class. Under mixed position rules of this handbook (3 FAH-2 H-454.1 A), a preponderance of FSN-1815-6 work, in combination with less than substantial time at FSN-1810-7, requires FSN-6 classification of the position as a whole.)

Minicomputer Operator FSN-1815-5 involves operation of a minicomputer and peripheral equipment in a computer installation serving a post and associated agencies, as assistant to either the Minicomputer Operator in charge of operations or the Computer Manager. Any work to develop new programs or adapt existing programs to new applications usually involves less than 10% of the position's working time and, in any case, is extremely limited and simple. This class also covers Minicomputer Operators in similar level computer processing, under computer room supervision, in a RAMC.

Normally under the mixed position principles of this handbook, where a position involves a combination of mixed functions at equal grade levels, the function which consumes the largest percentage of the working time is title and series controlling. Where work of a position embraces more than one of the specialties of this series, at equal level, the computer title specialty shall take precedence, provided such computer work consumes as much as 25% of the working time. For example, combinations of equal portions of main computer, minicomputer, and peripheral equipment operation at the FSN-1815-5 level will be titled Computer Operator; combinations of at least 25% minicomputer and 75% peripheral equipment operations will be titled Minicomputer Operator. Peripheral Equipment Operator will control only where neither main computer nor minicomputer operation consume as much as 25% of the working time of the position.

Also, the work of the specialties within this series is not sufficiently unrelated for the application of the bonus grade for variety of work of equivalent level, as provided in the mixed position principles of this handbook (3 FAH-2 H- 454.1 A). In other words, the mixture of three types of computer functions (as described in these standards for the FSN-1800 Group) of equal grade will not support a bonus grade.

FSN-1815-7 INTERAGENCY POSITION CLASSIFICATION STANDARD

GROUP: Automatic Data Processing   **SERIES:** Computer Operator
TITLE: Teleprocessing Assistant   **CLASS:** FSN-1815-7

BASIC FUNCTIONS:

As sole monitor of telecommunications circuitry, performs liaison between users of remote input/output devices and the computers in relation to equipment performance, locating, identifying the nature of, and taking steps to resolve malfunctions.

MAJOR DUTIES AND RESPONSIBILITIES:

Regularly checks telecommunications circuitry for operability. Responds to user reports and production malfunction indicators of problems of a possible teleprocessing nature. Operates terminals, including the main computer console, for potential detection of malfunction causes. Runs prescribed and trial-and-error testing to determine sources of problems. Researches otherwise to determine causes, including checks of hardware, circuitry, networks, telecommunications system of countries at terminals and intermediate points, and software (and whether attributable to software supplier or its internal application deficiencies). Having located sources of problems, initiates personal contacts as necessary for their resolution, including direct dealings with telecommunication system operational/maintenance personnel in various nations in the re-try procedures. Develops and presents to appropriate authority a comprehensive report of each malfunction and solution applied, for analysis and determination of policy, procedural,or system change requirements to minimize recurrences.

Maintains comprehensive records of checks made, incidents reported and how handled, and the continuing status toward resolution. Maintains detailed records of all data teleprocessing circuitry, terminals, equipment and applications involved, and of appropriate contacts with users and intermediate elements in the circuits.

May consult with systems managers on circuitry requirements indicated by prospective and existing users. May research records of circuit usage to determine adequacy/economy of utilization or possible time sharing. May be consulted by management in its determination of terminal allocations, changes and terminations.

DESIRED QUALIFICATIONS:

EDUCATION:—Completion of secondary school is required. Some additional ADP operational training is desired. OR, a combination of secondary school and ADP technical training equivalent in duration to secondary school completion is acceptable.

EXPERIENCE:—Two and a half to three years of progressively responsible experience in a combination of clerical and ADP operations work, which has included at least one year in the operation of a digital computer doing preferably English/language program automatic data processing, preferably in a U.S. agency.

LANGUAGE:—Level 3 (good working knowledge of) English required.

KNOWLEDGE:—Thorough knowledge of the organization's ADP operations and management principles. Technical knowledge of hardware capabilities, computer operation procedures, and computer applications run regularly so as to differentiate normal processing problems from machine problems requiring personal attention. Thorough knowledge of the telecommunications aspects of equipment functioning.

ABILITIES:—Level 1 (less than 40 wpm) typing ability, enabling CRT computer terminal/console operation. Ability to perform hardware setups, operational adjustments, terminal manipulations, and minor maintenance consistent with malfunction indicators. Personal contact skills which enable the incumbent to obtain the maximum cooperation in the location and resolution of circuitry problems. Sound abilities for the concise, comprehensible presentation of details, facts, and proposed solutions of indicated problems.

DISTINGUISHING FEATURES:

The very few positions in this class are unique among the operating types of the FSN-1800 Group, requiring thorough knowledge of main computer and peripheral equipment and its operation, and especially of the remote input/output devices and related interconnections, to enable early detection and resolution of service malfunctions. Each position provides users and the computer center with a dedicated specialist specifically for identification, location and resolution of their problems with the data input/output from points remote to the main computer center. Besides the comprehensive technical knowledges requisite to functioning, the positions in this class require a high level of personal contact ability to deal tactfully and persuasively with I/O device and computer operating personnel and sometimes high level representatives of commercial and nationalized communications organizations intermediate circuitry.

FSN-1815-7 INTERAGENCY POSITION CLASSIFICATION STANDARD

GROUP: Automatic Data Processing   **SERIES:** Computer Operator
TITLE: Computer Operator   **CLASS:** FSN-1815-7

BASIC FUNCTIONS:

Participates in and oversees the operations of the computer room shift comprised of one or two subordinate computer operators and possibly a peripheral equipment operator. Programs processed are of a large variety predominantly associated with major, complex, linked, business-type, automated systems; but some involve less complicated and feeder programs processed on the main computer and minicomputer(s). Operates and directs others in operation of control consoles, input/output devices, and other peripheral equipment required for production runs, consistent with run instructions. Resolves production and machine problems, sometimes deviating from programmed instructions to maintain continuity and minimize scheduling lapses.

MAJOR DUTIES AND RESPONSIBILITIES:

For not less than one-third of normal work year, is working leader in charge of a small shift of computer room personnel operating the main computer and minicomputers in running a large variety of programs of the major, integrated systems applications (as well as the less complicated systems).

Duties and responsibilities include all of those of the Computer Operator FSN-1815-6class plus: (a) closely controlling the processing of special programs which may not have been totally tested and debugged; (b) guiding other operators in the resolution of processing malfunctions on routine runs, utilizing extensive and intensive knowledge of all programs of all integrated systems in the identification and analysis of problems and adopting of alternative solutions which will ensure keeping operations on-target and minimize involvement of the supervisor; (c) collaborating with programmers and others in the testing and debugging of new and modified programs and systems and in documentation of deficiencies in testing to facilitate programming adjustments; (d) deciding on partition use consistent with core capacity; (e) making minor adjustments of operations for backlogs, reruns, special runs, and other problems or consulting with supervisors or production control personnel on major rescheduling for these problems; (f) ensuring that control and data input personnel have provided proper and adequate run instructions and data files/media on time, including reflections of dependencies and multiple use of input; and (g) ensuring that adequate logistical support material for shift operations is available.

Develops comprehensive reports of operating difficulties and action taken to resolve problems.

May occasionally contribute suggestions for improved routines or utility programs.

DESIRED QUALIFICATIONS:

EDUCATION:—Completion of secondary school is required. Some additional ADP operational training is desired OR, a combination of secondary school and ADP technical training equivalent in duration to secondary school completion is acceptable.

EXPERIENCE:—Two and a half to three years of progressively responsible experience in a combination of clerical and ADP operations work, which has included at least one year in the operation of a digital computer doing preferably English language program automatic data processing, preferably in a U.S. agency.

LANGUAGE:—Level 3 (good working knowledge of) English required.

KNOWLEDGE:—Thorough knowledge of the organization's ADP operations and management principles. Technical knowledge of hardware capabilities, computer operation procedures, and computer programs run regularly in a variety of systems sufficient to differentiate normal processing problems from machine problem requiring personal attention.

ABILITIES:—Level 1 (less than 40 wpm) typing ability, enabling CRT computer terminal/console operation. Ability to perform hardware setups, operational adjustments, and minor maintenance consistent with failure indicators. Ability to apply some programming logic and to collaborate in testing and debugging new programs and changes to existing programs. Demonstrates team leadership abilities.

DISTINGUISHING FEATURES:

Computer Operator FSN-1815-7 is the highest class defined for full-sized computer operations in standards for this series. It is distinguished by (a) shift responsibility for the main computer room, which entails running the major, linked systems which provide services, (b) direction of the processing of special untested programs, and (c) using extensive and intensive program and hardware operational knowledges to adopt alternate processing solutions to problems. Thus it is distinguished from the Computer Operator FSN-1815-6, which is a full-fledged operator of the same equipment on the same programs, but without shift responsibility or the other aforementioned characteristics.

Work direction of one or two subordinates is normal for this class, although work direction of others is not always involved, e.g., in the case of operating as a lone shift operator from time to time. At least one-third of the time will be involved in lone operator or working supervision of a small staff of computer room personnel on a shift with no on-site supervisory guidance available. Supervisory responsibilities over any greater numbers will require consideration of the principles for classification of supervisory positions in this Handbook.

FSN-1818-6 INTERAGENCY POSITION CLASSIFICATION STANDARD

GROUP: Automatic Data Processing **SERIES:** Computer Operator
TITLE: Computer Operator **CLASS:** FSN-1818-6

BASIC FUNCTIONS:

Operates the main computer console to process a large variety of programs associated with major, complex, linked, business-type, automated systems. May also operate or direct operation of minicomputer(s) for concurrent processing of smaller systems or feeder programs. Responsible for sequencing of programs and for changes to input/output devices consistent with run instructions. Instructs and receives responses from the computer, and monitors processing through visual display on the console. Resolves run-of-the-mill problems, consulting a supervisor when difficulties are unusual. May work with one or two assisting operators or clerks, acting as the senior or leader.

MAJOR DUTIES AND RESPONSIBILITIES

Operates the computer consistent with designated documented programs, or receives run instructions from control unit indicating program sequences, input data media, allocated positions on data files, and other job stream requirements. Rechecks data media for consistency with run instructions prior to use. Inserts or ensures insertion of input media as required of the program, e.g., disk into unit or tape into drive, punched paper tape into reader, etc. Initiates processing by appropriate keyboard entry of instructions. Monitors console messages (from system software or application programs) for initiation of succeeding steps or anticipates and automatically initiates action. Observes visual display and monitors hardware functioning for correct operations. Anticipates problems and adjusts where appropriate, usually consistent with program alternatives. May perform or oversee the monitoring of output for quality, e.g., format, alignment, print quality, etc. May initiate further processing before distribution. Responsible for maintaining flow or programs consistent with the job stream and with own knowledge of programs related to often-processed system applications.

Analyzes operational problems and systems malfunctions and decides to initiate corrective action or, in complicated situations beyond capability, to consult supervisor or higher grade operator so as to maintain schedules and ensure production file and output integrity. Maintains related records supplementing programmed console log, e.g., a record of problems encountered and resolution actions taken, etc.

May serve as leader over the work of one or two assisting operators performing peripheral equipment operation or handling input/output changes and processing in the main computer run, or performing operations of less complicated programs. May perform routine hardware maintenance and minor repairs, or initiate repair calls to manufacturer's representative.

The nature and variety of programs of major systems require a thorough knowledge of variations in computer setups for multiple input on a single run and for proper sequencing of input/output media on appropriate drives during the run to obviate contingencies or contentions. Is also required, upon halt or malfunction, to select and initiate action for alternative processing to ensure continuity consistent with system requirements, overall work scheduling, and the security and integrity of the data files. However, this action is eased considerably by the availability of alternative programs in many cases and by the easy access to a supervisor.

DESIRED QUALIFICATIONS:

EDUCATION:—Completion of secondary school required. Some additional ADP operational training is desired, or a combination of secondary school and ADP training equivalent in duration to secondary school completion is acceptable.

EXPERIENCE:—Two to two and a half years of progressively responsible experience in a combination of clerical and ADP operations work which has included at least nine months in operation of a digital computer and peripheral equipment, doing preferably English-language program automatic data processing in a U.S. agency.

LANGUAGE:—Level 3 (good working knowledge of) English required.

KNOWLEDGE:—Basic knowledge of organization's ADP operations and management principles. Technical knowledge of hardware capabilities and complex operation procedures, and of most computer programs run within the systems, enabling differentiation of normal processing problems from machine problems requiring personal attention.

ABILITIES:—Level 1 (less than 40 wpm) typing ability, enabling CRT computer terminal/console operation. Ability to perform hardware setups, adjustments, and minor maintenance consistent with equipment failure indicators. Ability to work in a team situation.

DISTINGUISHING FEATURES:

Computer Operator FSN-1815-6 is the second highest level defined for mainframe computer operation. It recognizes the full operating responsibility for the computer and minicomputer(s) operation in the computer room, and for dealing with program and machine problems. But, in contrast to the FSN-7 operator level, prescribed alternative processing instructions usually are used for problem resolutions, thus minimizing a requirement for intense program knowledges or a superior is contacted. Although this level also may involve some direction of the work of others, those directed usually are assigned less than full time to main computer operations as relief operators or peripheral equipment operators. In any case, the supervisory responsibilities is minimal and does not warrant an additional grade. The FSN-1815-6 is distinguished from the Computer Operator FSN-1815-5 in that the FSN-5 level is the backup or auxiliary main computer operator who also performs peripheral equipment, minicomputer or other computer operation tasks of a lower class than the principal operator (FSN-6 or FSN-7) or the working supervisor assisted.

FSN-1815-5 INTERAGENCY POSITION CLASSIFICATION STANDARD

GROUP: Automatic Data Processing   **SERIES:** Computer Operator
TITLE: Computer Operator   **CLASS:** FSN-1815-5

BASIC FUNCTIONS:

Performs as backup or auxiliary main computer operator for the processing of a large variety of programs associated with major, complex, linked, business-type, automated systems. For operational familiarity and effectiveness, relieves the principal operator (usually a Computer Operator FSN-1815-6 or FSN-1815-7) in main console operation for a substantial part of their working time, and divides the remainder of working time, as appropriate, to the operation of either or both the minicomputer and the input/output devices and other peripheral equipment requisite to production runs.

MAJOR DUTIES AND RESPONSIBILITIES:

Assists a Computer Operator of higher level by relief operation of the computer console for the production of a variety of programs associated with the instructions. Looks after the insertion of input media. Keys instructions to computer on console. Monitors console messages (from system software or applications programs) for determination of timing of successive steps or indicators of problems. Monitors hardware functions. When problems are encountered, attempts to deal with them, but usually refers to the more senior operator in charge. Does not normally attempt alternate processing in event of malfunction, but calls for the principal operator to take over, unless the operator is immediately unavailable and alternative program is readily available and understood.

Operates in other capacities in computer room when not performing as relief operator on main computer console, including, as appropriate, minicomputer and peripheral equipment operator, supporting the computer room production effort.

DESIRED QUALIFICATIONS:

EDUCATION:—Completion of secondary school required. Some additional ADP operational training is desirable, or a combination of secondary schooling and ADP training equivalent in duration to secondary school completion is acceptable.

EXPERIENCE:—One and a half to two years of progressively responsible experience in a combination of clerical and ADP operations work, which has included at least six months in the operation of a computer and/or a minicomputer and/or ADP peripheral equipment, preferably in the ADP installation of a U.S. agency.

LANGUAGE:—Level 3 (good working knowledge of) English required.

KNOWLEDGE:—Some knowledge of organization's ADP operations and management principles. Sound working knowledge of most computer hardware and peripheral equipment and of their operations and capabilities.

ABILITIES:—Level 1 (less than 40 wpm) typing ability, enabling CRT computer terminal/console operation. Ability to perform hardware setups and operational adjustments, and to assist principal operator in minor maintenance.

DISTINGUISHING FEATURES:

Computer Operator FSN-1815-5 is the lowest class defined for operation of a full-sized computer operation in this series. It is distinguished from the Computer Operator FSN-1815-6 class, which is usually a principal computer operator who spends the majority of time operating the main computer console and instructing the peripheral equipment or relief computer operators, as available, in their assistance on production runs. The Computer Operator FSN-1815-5 is the backup or auxiliary main computer operator to the aforementioned FSN-1815-6 or an FSN-1815-7 shift supervisor, providing relief on the main console for at least 25% of time, and for the remainder of time performs such other computer room tasks as minicomputer operation, peripheral equipment operations or possibly computer support clerical tasks.

See the introductory material to this series regarding the titling of mixtures of work of the specialties of this series when of equal level.

FSN-1815-5 INTERAGENCY POSITION CLASSIFICATION STANDARD

GROUP: Automatic Data Processing   **SERIES:** Computer Operator
TITLE: Peripheral Equipment Operator   **CLASS**: FSN-1815-5

BASIC FUNCTIONS:

Operates all types of peripheral equipment employed in support of production runs in the main and minicomputer operations of the computer room. Normally operates under control of the shift supervisor or the principal computer operator assisted in production runs, but exercises considerable independence in following run instructions and prescribed sequences of operations. Peripheral equipment operated includes devices with internal memories requiring operator instruction for proper use, e.g., magnetic tape drives and disk units, card readers, printers and other units which must be programmed or instructed for operations such as headings, pagination, line spacing, etc.

May also perform other computer room functions for less than 25% of working time.

MAJOR DUTIES AND RESPONSIBILITIES

Following run instructions without specific direction from Computer Operator, independently checks input/output media provided for production runs for accuracy and condition prior to using in peripheral equipment. Loads and unloads media and appropriately adjusts labeling. Sets keys and switches for tape drive and other unit adjustments for tape density, print pressure, density, and location, etc. Advances disks or tapes to space/position appropriate to run in production. Operates tapes-to-card and card-to-card converters, card and tape readers and punches, high and low speed printers, bursters,. sorters, trimmers, collators, and keyboards with visual displays for off-line input data adjustments or corrections. Observes lights, dials, and visual displays for error or malfunction indicators. Initiates action to detect and correct a discrepancy. Adjusts for operation resumption, or consults with supervisors for appropriate action.

May also occasionally operate the main computer console, the minicomputer, or do computer control clerical work.

DESIRED QUALIFICATIONS:

EDUCATION:—Completion of secondary school, or a combination of secondary and technical schooling equivalent in duration to secondary school completion is acceptable.

EXPERIENCE:—One and a half to two years of progressively responsible experience in clerical and ADP operations work which has included at least six months in the operation of some ADP peripheral equipment, preferably in the ADP installation of a U.S agency.

LANGUAGE:—Level 3 (good working knowledge of) English required.

KNOWLEDGE:—Some knowledge of organization's ADP operations. Sound working knowledge of peripheral equipment operations and procedures. Detailed familiarity with repeatedly run programs and run sequences.

ABILITIES:—Level 1 (less than 40 wpm) typing ability, enabling CRF terminal operation for minicomputer or similarly controlled peripheral equipment processing. Ability to set up, operate and adjust peripheral equipment and to make minor maintenance repairs with Computer Operator assistance.

DISTINGUISHING FEATURES.

The Peripheral Equipment Operator FSN-1815-5 is the highest level defined for peripheral equipment operation in standards for this series. It involves operation of all types of peripheral equipment including those with internal memories requiring operator instruction of equipment usually through keyboard terminal, for processing. It is distinguished from the Peripheral Equipment Operator FSN-1815-4 which is limited to operation of less than a full range of equipment, none of which has internal memories, or operation of a full range of equipment under close supervisory guidance.

It is probable that few full-time Peripheral Equipment Operators, at any level, will be found in the system since maximum utilization and interchangeability of personnel will necessitate substantial backup auxiliary computer or minicomputer operation, which need will be met by mixed positions involving peripheral equipment operating and computer operating tasks. Also, in a minicomputer operation at a post, there usually will not be sufficient workload to justify a full-time position devoted solely to peripheral equipment operations, in which case the minicomputer operator or the manager will perform this work. Accordingly, in those rare instances when this class will be used, the "NOTE" in the introductory material regarding title will apply. Also, see series introductory material regarding the titling of mixtures of specialties at the same level within this series. Mixtures of work of different levels and series will be classified according to the mixed position principles of 3 FAH-2 H-454.1 A, with the exception that, due to their close relationship, combinations of specialties within this series will not constitute basis for the bonus grade of those principles.

FSN-1815-4 INTERAGENCY POSITION CLASSIFICATION STANDARD

GROUP: Automatic Data Processing **SERIES**: Computer Operator
TITLE: Peripheral Equipment Operator **CLASS:** FSN-1815-4

BASIC FUNCTIONS:

(1). Operates less than the full variety of peripheral equipment, and none with internal memories, employed in support of the main computer and the minicomputer, assisting others in charge of production runs in the computer room. Follows run instructions precisely and is given specific directions on complex or unfamiliar sequencing of operations; or

(2). Operates most of the variety of peripheral equipment in the computer room, but uses those with internal memories that require operator instructions under the careful direction of the person in charge of the production run.

MAJOR DUTIES AND RESPONSIBILITIES:

In one or both of the two above-described operating situations performs the following typical tasks:

Following run instructions and program documentation, checks input/output media provided for, or resulting from, production runs to verify accuracy and condition prior to input use or output release. Loads and unloads media and adjusts labels as necessary. Sets keys and switches of tape drives and other unit adjustments for tape density print pressure, density, format and location of output. Operates various peripheral equipment including tape-to-card and card-to-card converters, card and paper tape readers and punches, high and low speed printers, sorters, collators, bursters, trimmers, tape cleaner and degausser, microfilm process, etc.

Key punches cards in small quantities, e.g., to insert post code in time and attendance card blanks, or to modify control decks by changing "as of" dates.

Checks reason for machine halts and makes adjustments, including processing of correct or replacement data record, e.g., punch card. May also perform for less than 25% of working time closely related work of computer operator, minicomputer operator, or computer control clerk. (More than 25% in any one of these or other functional areas requires classification of the position according to instructions in series introductory material.)

DESIRED QUALIFICATIONS:

EDUCATION:—Completion of some secondary school or a combination of secondary and technical schooling equivalent in duration to secondary school completion is acceptable.

EXPERIENCE:—One to one and a half years of experience in clerical and/or technical work, six months of which preferably should have been closely associated with ADP operations or servicing.

LANGUAGE:—Level 3 (good working knowledge of) English required.

KNOWLEDGE:—Basic knowledge of some peripheral equipment operation, including machine setups, adjustments, and minor maintenance.

ABILITIES:—Ability to operate selected ADP peripheral equipment and to understand simple ADP program steps with supervisory assistance.

DISTINGUISHING FEATURES:

The Peripheral Equipment Operator FSN-1815-4 is the lowest class defined for peripheral equipment operation in standards for this series. It involves operation of less than a full range of equipment and none involving internal memories or the operation of a full range of equipment under closer supervisory guidance than would be given an FSN-1815-5. At FSN-5 level, employees independently operate a full range of equipment, including those with internal memories. (See comments in the FSN-1815-5 level standard regarding anticipated limited use of the FSN-5 and FSN-4 levels of this Series.)

FSN-1815-6 INTERAGENCY POSITION CLASSIFICATION STANDARD

GROUP: Automatic Data Processing
TITLE: Minicomputer Operator

SERIES: Computer Operator
CLASS: FSN-1815-6

BASIC FUNCTIONS:

Responsible for the operation of minicomputers and peripheral equipment of an installation serving at least one post. Programs processed relate generally to less complicated,business-type, automated system normally used at posts, i.e., systems which are usually heterogeneous, involve little inter-system linkage, and which have many programs provided by the manufacturer or agency headquarters. In a post's installation, participates with the supervisor for 15% to 25% of the working time in the development of new programs or adaptation of existing programs to new applications. May direct one or two subordinate clerical or equipment operating personnel in supporting functions.

MAJOR DUTIES AND RESPONSIBILITIES:

Performs as the operator in charge of minicomputers at a post's installation (usually on post's WANG VS or equivalent capacity minicomputer). Programs processed are in systems the same as those listed in the next lower class standard for Minicomputer Operator FSN-1815-5. May supervise one or two subordinate clerical or equipment operating personnel required by the operation/installation.

Except for the following, tasks performed are basically the same as those required for the Minicomputer Operator FSN-1815-5 class:

Assists the Computer Operations Manager for 15% to 25% of the time in the development of new programs or the adaptation of existing programs to new applications, by making some substantive recommendations regarding, and giving assistance in, such matters as program logic, formatting, file and record layout, documentation, etc. Assists manager in the testing and debugging of such programs. (See group and series introductory materials regarding the nature of minicomputer programming.)

Provides basic information to the Computer Operations Manager in relation to feasibility studies including hardware capabilities/limitations processing, programming, debugging, cost estimates, etc.

DESIRED QUALIFICATIONS:

EDUCATION:—Completion of secondary school required. Some additional ADP operations training is desired. Or, a combination of secondary school and ADP operations training equivalent to secondary school completion is acceptable.

EXPERIENCE:—Two to two and a half years of progressively responsible experience in clerical and a combination of ADP operation, work which has included at least one year in operation of a digital computer and peripheral equipment doing preferably English language program processing in a U.S. agency.

LANGUAGE:—Level 3 (good working knowledge of) English required.

KNOWLEDGE:—Basic knowledge of organization's ADP operations or management principles. Technical knowledge of minicomputer and peripheral equipment capabilities and operation and of programs of various systems processed sufficient to differentiate processing problems from those of a machine nature requiring personal attention.

ABILITIES:—Level 1 (less than 40 wpm) typing ability, enabling CRT computer terminal operation. Ability to perform hardware setups, adjustments, and minor maintenance. Ability to apply some programming logic and to test and debug programs devised. Ability to train others in equipment operations.

DISTINGUISHING FEATURES:

Minicomputer Operator FSN-1818-6 is the higher of the two classes recognized by these standards for minicomputer operations. Positions at this level function as "operator in charge", a role which includes a considerable portion of time in assisting the Computer Operations Manager to develop new programs or to adapt existing programs to new applications (a requirement not found in the Minicomputer Operator FSN-1815-5 class). Some positions at this level operate more than one minicomputer and the related peripheral equipment, although this is not a requirement for FSN-6 nor does it serve as a basis for classification above FSN-5.

Minicomputer operations at numerous posts will not support both a full-time operator and a full-time manager position. The Computer Operations Manager will perform both functions in a mixed position and the manager responsibilities will be grade controlling.

FSN-1815-5 INTERAGENCY POSIITON CLASSIFICATION STANDARD

GROUP: Automatic Data Processing   **SERIES:** Computer Operator
TITLE: Minicomputer Operator   **CLASS:** FSN-1815-5

BASIC FUNCTIONS:

Operates a minicomputer and related peripheral equipment of a post, RAMC or FMC installation. Programs processed relate to less complicated, business-type, automated systems normally used at posts, i.e., systems which are usually heterogeneous, involve little inter-system linkage; and which have many programs provided by the manufacturer or agency headquarters. May perform very limited and uncomplicated programming and testing/debugging of new applications for 5% to 10% of the time and under very close supervision of the Computer Operations Manager or the minicomputer operator in charge. In a RAMC, may also process less complicated input/output which is part of systems and programs of the more complex, inter-linked type that are capable of being (and are) effectively processed on minicomputer.

MAJOR DUTIES AND RESPONSIBILITIES:

Performs as the operator of a post's minicomputer installation (usually involving WANG VS or equivalent capacity minicomputer). Programs processed are in systems of a less complicated, business-type, involving little inter-system linkage and often based on manufacturer or agency provided systems/programs. These include: audience records; personnel management; vehicle registration; residential management; U.S. citizen registration; automated message processing; post and regional security data management; automated visitor control; drug enforcement and narcotics control data management; expendable and non-expendable property accounting; building and fixtures data and maintenance management; work order processing; telephone call accounting; automotive transportation management; safety and fire-fighting program management, etc.

Within the systems processed, may assist the Computer Operations Manager or other higher level personnel (e.g., the minicomputer operator in charge) for 5% to 10% of working time in the development of new, or adaptation of existing, programs and their testing/debugging. Handles specific assignments designed to provide knowledges and skills in program logic, formatting, file and record layout, and documentation. May develop specific information following detailed instructions and guidelines for supervisor's feasibility studies. (See group and series introductory materials regarding the nature of minicomputer programming.)

Performs log-on and off procedures, verifying codes, passwords, time and core/disk allocations, where applicable. Specifies data input accuracy before entry whenever practicable. May personally prepare input data on keyboard terminal with visual display, including-large volumes of data as bases for new system installations. Responsible for data file maintenance, extracting files for update and restoring those updated. Prints backup and restore logs. Ensures security of backup and master files, rotating them as appropriate into post's vault. Reorganizes files where appropriate, using utility programs.

At reporting periods may press users for timeliness of required input. Operates peripheral equipment including high and low speed printers, decollators, trimmers, cutters, bursters, binding machines, paper drills, shredders, etc. Checks quality of output for alignment, impression, omissions, errors, etc. Notifies manager of needed reruns when scheduling becomes problematic. Helps to train remote terminal operators and to resolve their remote terminal operating problems, including on-going assistance to word processing center personnel. Personally operates terminal to instruct computer for program processing, to monitor processing, receive feedback from utility program in event of processing problems, and to approve remote terminal usage of the minicomputer or storage devices. Keeps reference files on each system and its programs. Maintains logs of operations and system usage and output for periodic reporting to ISO. Runs programs to produce periodic reports, directories, tabulations, and other output of various systems. Ensures the availability of required logistical supplies for operations. Contacts company representatives for maintenance and repair of, or analysis of problems with, computers or air conditioning/humidification equipment.

DESIRED QUALIFICATIONS:

EDUCATION:—Completion of secondary school required. Some additional; ADP operation training is desired. Or, a combination of secondary school and ADP operation training equivalent induration to secondary school is acceptable.

EXPERIENCE:—One and a half to two years of progressively responsible experience in a combination of clerical and ADP operational work, at least six months of which should have been in operation of a digital computer and peripheral equipment doing preferably English language program processing in a U.S. agency.

LANGUAGE:—Level 3 (good working knowledge of) English required.

KNOWLEDGE:—Basic knowledge of organization's ADP and management principles. Good working knowledge of hardware capabilities and operating procedures and/or computer programs of systems processed to enable differentiation of normal processing problems from machine problems requiring personal attention.

ABILITIES:—Level 1 (less than 40 wpm) typing ability, enabling CRT computer terminal operation. Ability to perform hardware setups, adjustments, and minor maintenance. Ability to learn and apply limited programming logic and to test and debug simple programs.

DISTINGUISHING FEATURES:

The Minicomputer Operator FSN-1815-5 is the lower of two levels defined for post's minicomputer operations in these standards, and includes some computer programming only on a very limited scale and under very close supervision. Progression to FSN-6 level depends upon the employee's ability to perform limited programming with greater skill and freedom, and assumption of the full range of operator-in-charge responsibilities.

FSN-1815-7 INTERAGENCY POSITION CLASSIFICATION STANDARD

GROUP: Computer Group   **SERIES:** Computer Operator
TITLE: Computer Operator (LAN)   **CLASS:** FSN-1815-7

BASIC FUNCTION:

Responsible for day-to-day operations, installation, modification and maintenance of an agency's local area network (LAN) system, and for providing support to users.

MAJOR DUTIES AND RESPONSIBILITIES:

1. LAN Operations, Installation, Modification and Maintenance - Performs or assists with installation of hardware, cabling and disk operating systems software. This entails the setting of option board switches and jumpers, insertion of boards, and testing of the hardware. Components include uninterruptable power supplies (UPS), network interface cards, monitors, hard disks, power supplies for the cable concentrator, as well as all option cards for the cable concentrator.

Installs and maintains off-the-shelf and local PC applications on both the file server and local hard disks.

Performs diagnostic checks and trouble-shoots LAN hardware and software, and the cable plant.

Repairs minor cable problems. Monitors telecommunications circuitry and resolves problems. Monitors LAN activity to determine adequacy of disk space on the file server, and whether memory must be increased there and on workstation PCs. Tracks all software installed on PCs to trace memory problems, use of disk space, etc. Performs required incremental periodic system backup procedures with a minimum of disruption to users.

Sets up access rights for users, sets file and directory attributes to protect shared files. Monitors use of network applications to determine need for additional hardware and software. Ensures that only shared files reside on the file server. Monitors use of shared peripherals such as laser printers. Assigns logical user groups and queue priorities, and monitors print servers and user queues for effectiveness.

Diagnoses problems related to file server, cable plant, workstation PCs, and applications. Analyzes memory problems and option card conflicts. Removes and replaces option boards, hard and floppy disks, and builds and/or repairs accessible cable segments as required. Uses network applications to track file server resources (memory and disk space) and data packet activity.

Ensures adherence to system security procedures, including password protection and physical security. Maintains directory trustee assignments, log-on identifiers, and file and directory attributes to protect privacy and data integrity on a shared system. Advises users that system is non-sensitive and that no classified documents may or should be created or stored on PCs. Advises users about "virus" problems and their prevention. Ensures only authorized software is installed on PCs.

2.   User Support and Assistance - Installs option cards and network interface cards in PCs, resolves address conflicts, and ensures proper operation. Develops workstation shells which properly reflect each user's PC configuration. Provides users with network IDs, creates user directories on the network, and sets up the correct access rights to network files and directories. Creates network user groups; i.e., which users share data. Develops system and user log-on scripts as well as user-friendly menus. Assists users resolve operational problems with the LAN, network application software, and standard applications installed on local hard disks.

3.   Administrative Tasks - Maintains inventory of all ADP related items including hardware, software, training materials, reference books and manuals, supplies, and spare parts. Maintains a database of hardware and serial numbers. Tracks original software and documentation and ensures proper registration. Upon receipt and installation of newly procured equipment, advises appropriate headquarters offices, as required, of installation dates for inventory update. Sets up telecommunications sessions with headquarters and other offices for file transfer, E-mail, and/or diagnostic and trouble-shooting procedures.

May perform receiving function for ADP equipment. Documents receipt of ordered items. Notes any items which are missing, back ordered, damaged, etc., and advises appropriate offices or officials of problems.

DESIRED QUALIFICATIONS:

The "Desired Qualifications" set forth above in the FSN 1815-7 Computer Operator standard apply.

DISTINGUISHING FEATURES AND CLASSIFICATION CRITERIA:

FSN-7 Computer Operator (LAN) positions are responsible for day-to-day LAN operations, installation, modification and maintenance. This includes monitoring telecommunications circuitry and user support. Positions at this level typically support a more senior LAN system administrator, or the Computer Management Specialist/Assistant. There is no requirement for system analysis and development, programming, or management advisory service.

SUPPLEMENTARY NOTES:

Positions concerned only with operating and supervising the operation of computers (either PCs or minicomputers) and related peripheral equipment directly supporting LAN computer operations as opposed to responsibility for day-to-day LAN operations, installation, modification and maintenance including monitoring telecommunications circuity, and user support do not meet the FSN-7 level. Such positions are classified using the FSN-1815 Computer Operator standards at the FSN-6 and FSN-5 levels discussed above.

FSN-1820 Data Input Series

This series includes all positions the duties of which are to supervise or perform work operating primarily keyboard-type machines for the recording of alphabetic, numeric and alphanumeric data into computer-acceptable form, verifying the accuracy of the recorded data, augmenting or correcting source information as appropriate, and operating machines and equipment requisite to preparing recorded data for ultimate computer entry.

This series reflects data input processes and is usually limited to positions in RAMCs since data entry for post minicomputer operations are performed by subject matter specialists. This series may be used for post minicomputer operations when the size the scope and operation demand it.

Excluded from this Series are:

Positions whose primary or preponderant functions are the operation of computers or ancillary equipment preparatory to or in production of computer products (i.e., not specifically for the data input routine), including card readers, optical character readers, card readers, optical character readers, card sorters, display terminals, collators, decollaters, burseters, trimmers, etc. Such functions are appropriate to the Computer Operator Series, FSN-1815.

Positions whose paramount requirement for data input is knowledge of a specialized subject matter, e.g., accounting, personnel and other subject-matters clerks and technicians who may use prescribed punch cards or formats for the input of initial or correcting/adjusting data relating to computerized systems in their subject-matter areas. These positions are classified in the Series appropriate to the paramount knowledge requirement.

Positions required to spend a substantial amount (25%) of their time developing formats for data input, including some testing by machine use appropriate to this Series. Such positions are more appropriately classified by use of standards for the Programs and Systems Analysis Series, FSN-1810.

Positions performing duties of this Series in combination with duties of another series be classified by the Mixed Position Rule discussed in 3 FAH-2 H-454.1 A.

Computerization of functions such as accounting, disbursing, payroll, personnel, audience record systems, etc., and the special non-recurring processing of one-time programs in various subject-matter fields, require the feeding of information from source material into selected fields, in the computer data base. Among means for inputting this data are punched cards, magnetic tapes, disks and diskettes. Source material is usually developed at the transaction origin point (e.g., at the post or agency served by the computer center) on original, standard forms; sometimes with a completed data input form prescribed by the computer center which elicits specific data from the original for entry. Documents are sent, or the data from the documents are transmitted telegraphically to the computer center where trained input specialists extract appropriate data and, using a keyboard machine with a verifier or an electronic reader or monitor, transfer the data from source document(s) onto the punch card, tape or disk to be used to incorporate the data into the appropriate computerized system(s). Because of data processing schedules and deadlines for the reports produced, work is normally done under pressure for maximum output in minimum time.

The variety of functional areas being computerized makes almost unlimited the number of different types of transactions, data items, source documents, and the scope of information bits to be selected from them. Employees in this Series must become familiar with the data required from each of the multitude of source forms and formats handled. Often there is a pre-sort of comparable type transactions to expedite processing, versus repeated shifting from keying one type transaction to another. Volume permitting, pre-sorting and specialization can minimize the knowledge requirement of data input clerk. But, typically the need for workload balancing and rotation during absences dictate that most data input clerks work on the maximum variety consistent with computer center need and clerks' learning capacity.

Most FSN positions in this Series will be found in Regional Administrative Management Centers (RAMCs) (Bangkok, Mexico City, and Paris) which provide Regional Service Center automated data processing in many fields, but particularly in the fiscal area. Large numbers of posts/agencies served by a RAMC may be expected to increase variety and complexity of data entry knowledges required.

Besides the ability to operate the appropriate machines for transfer of the data from source to input device, employees in this Series must: (a) basically understand the computer program; (b) recognize the proper document and the required input device for the type of transaction processes; (c) know the limitations of data field (i.e., allowed computer line spaces for each data item); (d) learn the typical coding of the various fields in order to readily recognize discrepancies and omissions; (e) learn a large variety of abbreviations for organizations, transaction types, locations, etc., and (f) at upper classes/levels, learn the allotment accounting

classifications appropriate to the transaction for all of the posts/agencies served. They must know also how to set up the tape or disk to receive the data from the terminal to be operated, and occasionally to receive similar data concurrently from other remote terminals but on different sections of the disk. They also may need to know how to operate equipment to transfer accumulated data from one receiving device to another, e.g., diskette to tape. They must be able to deal with routine machine problems and make adjustments or recognize the need to call either the supervisor or the operation specialist. In operating equipment, security measures must be exercised to ensure data is not mistakenly lost or erased.

Positions not in a RAMC may be involved in direct access data input through a terminal. Where such positions are engaged in data input substantially full-time, they may be classified by application of these standards. Care in application of classes to positions outside of RAMC is required since the agency at the post may not afford the opportunity for the diverse knowledge requirements of those classes to warrant the scope of knowledge requirement indicated by the distinguishing features.

Some positions outside of RAMCs may also be involved with the local post minicomputer installation which is handling varied smaller computer systems of local need, e.g., personnel administration, audience records, expendable and non-expendable property, housing occupancy and availability, POV and USG vehicle registrations and assignments, etc. Such positions normally will fall into this Series only when they perform substantially full-time on most or all of the varied systems in the minicomputer. In most instances, data entry relating to each such program will be done by subject-matter specialists using remote terminals, thereby obviating the need for a full-time data input position.

These standards describe Data Input Clerks at the FSN-1820-3, FSN-1820-4, and FSN-1820-5 classes only. The FSN-1820-3 class recognized the potential for a lower level trainee. The FSN-1820-3 describes work that is limited by specialization to less complicated data input with minimum requirement for discrepancy detection. The FSN-1820-4 class describes work on a substantial variety of types of transactions with moderately complicated data, some expectation of data discrepancy recognition, including errors relating to recurring accounting code classifications, and some less complex non-recurring program data input with participation in related formatting. The FSN-1820-5 describes the top level of data input in a large and complex computer center where (a) the most complicated data entry, typically from complicated source documents with quantities of data to be extracted, is performed, (b) there is a requirement for discrepancy recognition and correction, including extensive knowledge of accounting classification codes, and (c) any type of complicated special project data input and related formatting is performed.

Supervisory standards are not separately described. The principles for classifying supervisory positions are set forth in 3 FAH-2 H-454.2 A.

FSN-1820-5 INTERAGENCY POSITION CLASSIFICATION STANDARD

GROUP: Automatic Data Processing   **SERIES:** Data Input
TITLE: Data Input Clerk   **CLASS**: FSN-1820-5

BASIC FUNCTIONS:

Operating independently, applying knowledge and skill in all of the data input processes, and using a keyboard-type machine with related monitor or verifier, extracts from a very wide variety of source documents or data entry forms a typically large quantity of generally complicated types of alphabetic, numeric, and alpha-numeric data which is often one-time in nature and non-recurring, some of which involves complex formatting performed independently; and keys or types it into proper spaces prescribed for the separate data fields of the card or format for the device into which data is being entered.

MAJOR DUTIES AND RESPONSIBILITIES:

Receives entry data, some of which has been pre-sorted by transaction types and may be accompanied by a data form that elicits from others specific information to be entered into data fields. Very often the voluminous and often-complicated data must be selected by the employee from the proper element of the source document, which is often related to one-time projects or those seldom recurring. Prior to keying or typing, reviews paperwork to ensure consistency and adequacy of data on form with accompanying document and with the nature of the transaction, to enable proper entry. Is required to utilize extensive knowledge of the coding systems related to each data item and to recognize and make corrections to incomplete and incorrect information, requiring comprehensive knowledge of the various accounting classification codes applicable to the various types of transactions processed for many different agencies. Participates in the formatting of projects which are new, complicated, and unprecedented, and in the keying of data on such projects.

Does machine setups and procedures appropriate to the type of processing to be keyed, e.g., starts minicomputer, diskette station, diskette converter, etc.; inserts tapes, disk or diskette; ensures marking of disks or tapes consistent with job; transfers data from diskette to tape and logs transfer and items involved; applies security requirements to ensure proper location of data and that data is not loss or erased erroneously.

At this class, employees are capable of independent performance, keying even the most unfamiliar, unprecedented, complicated data without extensive supervisory guidance beyond participation in the initial formatting for typically one-time projects or those which will recur infrequently. Employees of this class usually perform without need to refer to available procedural manuals except on very rare occasions.

Positions in this class may also involve work direction or training of one of two subordinate employees, but such responsibility will not enhance the classification, i.e., supervisory classification principles will not apply.

DESIRED QUALIFICATIONS:

EDUCATION:—Completion of secondary school or an equivalent combination of secondary and technical school is required.

EXPERIENCE:—From one and a half to two years of general clerical experience, the majority of which was in computer data input or a combination of card punch and other keyboard with monitor operations, and, preferably, at least nine months of which was with a U.S. Government agency.

LANGUAGE:—Level 3 English ability (good working knowledge of) is required.

KNOWLEDGE:—Comprehensive knowledge of the operation of computer data input equipment, processes and procedures. Good working knowledge of computer programs and systems for which data is being input, and of the various codes related to data items entered, particularly the accounting classification codes. Working knowledge of the agency regulations, procedures and policies controlling data input.

ABILITIES:—Must be able to operate the keyboard machines of the post at level 2 Typing speeds (at least 40 words per minute).

DISTINGUISHING FEATURES:

This is the highest of three non-supervisory classes described for Data Input Clerks. Only a few of the total data input positions will be classified at this level. Employees at this class regularly key, at the full performance level, any of a full and very wide variety of types of transactions with all of the characteristics of the next lower class plus: there is no distinction in the types of difficulty of transactions assigned; data is complicated; there is a requirement to be well-acquainted with coding, including ready recognition of the inaccuracy of most accounting classification codes applicable to the agencies' transactions; there is regular participation in the formatting of new transactions of a complicated type on recurring programs;employee is regarded as an expert in data entry concepts and procedures.

It is the skill and expertise of the employee which enables the independent performance of work at this level, i.e., extracting from a very wide variety of source documents or data entry forms a large quantity of generally complicated types of data which are often one-time, non-recurring, and involve some complex formatting. Users of this standard must exercise great care in assuring that all requirements for this level are met before a decision to classify at FSN-5 is made. Specifically, (1) the types, variety, and quantity of complicated data to be processed must exist and (2) there must be a work environment which permits independence in performing the data input processes.

FSN-1820-4 INTERAGENCY POSITION CLASSIFICATION STANDARD

GROUP: Automatic Data Processing   **SERIES:** Data Input
TITLE: Data Input Clerk   **CLASS:** FSN-1820-4

BASIC FUNCTIONS:

Using a keyboard-type machine with related monitor or verifier, extracts from a wide variety of source documents or data entry forms a reasonably large quantity of generally complicated types of alphabetic, numeric, and alpha-numeric data, and keys or types it into proper spaces prescribed for the separate data fields of the card or format for the device into which data is being entered.

MAJOR DUTIES AND RESPONSIBILITIES:

Receives entry data (source documents), some of which have been pre-sorted by transaction types and may be accompanied by a data entry form that elicits from originator or others specific information to be entered into data fields. Very often the varied data must be selected by the employee from the proper element of the source document. Prior to keying or typing, review paperwork received to ensure consistency and adequacy of data on form with accompanying source document and with the nature of the transaction, to enable proper entry. Uses sound knowledge of the coding systems related to each data item and its field of entry to recognize and correct incomplete and incorrect information, including a requirement for a working knowledge of the various accounting classification codes applicable to the various types of transactions processed for many different agencies. Adjusts inadequate or erroneous information on pre-processed data entry forms or refers such errors or omissions on original source documents to the supervisor or others designated to obtain accurate information or provide assistance. Enters data by keying or typing into receiving device. May enter erroneous data on edit or proof lists automatically fed by computer programs to subject matter specialists who adjust errors after research or consultation with records and/or originators.

Does machine setups and procedures appropriate to the type of processing to be keyed, e.g., starts minicomputer, diskette station, diskette converter, etc., inserts tapes, disks or diskette; ensures marking of disks or tapes consistent with jobs; transfers data from diskettes to tape and logs transfer and items involved; applies security requirements to ensure proper location of data and that data is not lost or erased erroneously.

May do simple formatting where data units are not very numerous nor complicated.

Does the most complex formatting and entry of voluminous and complicated data of an unprecedented nature in a work situation which assures extensive guidance from supervisor. Otherwise, most data entry typical of this class is done independent of supervisory guidance, except when requested by employee. Also, work is normally performed without need to refer to available procedural manuals except on most questionable cases.

DESIRED QUALIFICATIONS:

EDUCATION:—Completion of secondary school or an equivalent combination of secondary and technical school is required.

EXPERIENCE:—From one to one-and-a-half years of clerical experience, at least one year of which should have been in computer data input or a combination of card punch and other keyboard with monitor operations, and preferably, at least six months of which was in computer operations at a U.S. Government agency.

LANGUAGE:—Level 3 English (good working knowledge) is required.

KNOWLEDGE:—Very good knowledge of the operation of computer data input equipment, processes, and procedures. Very good working knowledge of computer programs and systems for which input data is being processed, and of the various codes related to data items entered, including the various accounting classification codes for most transactions being handled. Working knowledge of agency regulations, procedures, and policies controlling data input.

ABILITIES:—Must be able to operate the keyboard data input machines at the post at Level 2 typing speeds (at least 40 words per minute).

DISTINGUISHING FEATURES:

This is the middle of three classes described for non-supervisory Data Input Clerks. Most positions classified to this series will be found at this level. Employees in this class regularly key, independently and at the full performance level, a substantial variety of types of transactions. Work characteristics include: employee does not specialize on less complicated types; however, on the newest, most complex types, receives supervisory guidance; several types of transactions normally do not involve an originator-completed data entry form, so Data Entry Clerk must select a moderate quantity of data from appropriate segments of source documents of a wide variety; some problems regularly occur due to inadequacies or inaccuracies of data on source documents or on pre-processed data entry forms, requiring Data Entry Clerk to recognize discrepancies and to initiate action to correct discrepancies and other deficiencies in data, e.g., data elements in wrong data fields, inaccurate codes for transaction, locality, post/agency, or accounting classifications normally and routinely applicable

to originator or transaction; quantity of data items entered and related formatting is often significant, e.g., more than one line of data, each with numerous data items to be entered from the original source document; supervisory guidance is provided only on the most complex type transactions, (e.g., new programs involving complex formatting and one-time programs involving non-recurring data entry processes); Data Input Clerk processes most transactions without need to closely refer to available procedural manuals.

FSN-1820-3 INTERAGENCY POSITION CLASSIFICATION STANDARD

GROUP: Automatic Data Processing   **SERIES**: Data Input
TITLE: Data Input Clerk   **CLASS**: FSN-1820-3

BASIC FUNCTIONS:

Using a keyboard-type machine with related monitor or verifier, extracts from a variety of source documents or data entry forms a limited variety of uncomplicated types of alphabetic, numeric, and alphanumeric data, and keys or types it into proper spaces prescribed for the separate data fields of the card or format for the device into which data is being entered.

MAJOR DUTIES AND RESPONSIBILITIES:

Receives entry data (source documents), the majority of which have usually been pre-sorted by transaction types and are often accompanied by a data entry form that elicits from originator or others specific information to be entered into data fields. Prior to keying or typing into machine, reviews paperwork received to ensure consistency of data on form with accompanying source document and with the nature of the transaction, to enable proper entry. Corrects or adjusts obviously improper and easily correct entries on data entry forms or, where doubt exists, annotates discrepancy for further study (usually by supervisor or others) for correction or adjustment action. Key or types data into receiving device. May enter erroneous data on edit or proof lists automatically fed by computer programs to subject-matter specialists who adjust errors after research or consultation with records or originators.

May be expected to correct obvious errors in familiar appropriation accounting data of limited variety, i.e., normally that regularly recurring for very similar type transactions for a limited number of like agencies.

May do machine setups and procedures appropriate to the type of processing to be keyed, e.g., starts minicomputer, diskette station, diskette converter, etc.; inserts tapes, disk or diskettes; ensures proper marking of disks or tapes consistent with job; transfers data from diskette to tape, and logs transfer and items involved; applies security requirements to ensure proper location of data and that data is not lost or erased erroneously.

Under very close supervision for developmental purposes, may do formatting and entry of non-recurring but uncomplicated data. Has detailed procedural manuals to which reference is often and readily made.

DESIRED QUALIFICATIONS:

EDUCATION:—Completion of secondary school is desirable, or a combination of secondary school and some technical training relating to card punch or keyboard data input.

EXPERIENCE:—From six months to one year of general clerical experience at least six months of which should have been in card punch or keying of computer data.

LANGUAGE:—Level 3 English (good working knowledge of) is required.

KNOWLEDGE:—Basic knowledge of the operation of computer data input equipment, processes, and procedures. Working knowledge of computer programs for which data is being input. Some knowledge of data coding related to entries. Working knowledge of agency regulations, procedures and policies controlling data input.

ABILITIES:—Must be able to operate the keyboard data input machines at the post at Level 2 typing speeds (at least 40 words per minute or more).

DISTINGUISHING FEATURES:

Other than the trainee level(s) allowed by 3 FAH-2 H-454.1 B, this is the lowest class provided by these standards for non-supervisory Data Entry Clerks. Work of employees in this class is characterized by: specialization on a limited variety of types of transactions which are uncomplicated; most transactions are covered by a data input form which has been completed by others; there is little opportunity for problems with erroneous input forms applicable to transaction types; there is limited responsibility for discerning other than obvious discrepancies in data to be entered; there is no requirement for recognition of accounting classification code inaccuracies; items of data to be entered are not more than a few for each transaction, seldom more than one line, usually less than a half-dozen items; close guidance from supervisors or senior Data Input Clerks is provided when non-routine transactions are to be input or there is readily available, and generally used, comprehensive operating instructions. This may be a training position for higher level work in this series or a permanent, full performance level.

FSN-1825 Computer Support Series

This Series includes positions supervising and performing work in support of automatic data processing by digital computers, including: (a) computer production scheduling and quality control tasks; (b) computer data media handling, processing, and storage; (c) systems and programs documentation maintenance; (d) computer hardware and related equipment logistical support; (e) non-technical assistance to computer systems a analysts, programmers, and operators; and (f) other non-technical support functions. Work requires knowledge of processing sequences, procedures, controls, programming language, and limited knowledge of hardware operation; but little knowledge of computer techniques such as required by systems analysis, programming, or full operation of hardware. Separate, full-time computer support positions are normally found only at major computer centers.

Excluded from this Series are:

a. Positions with overall responsibility for management of the computer installation of a major organization, requiring administrative and program management abilities in the automatic data processing field. Such positions are classified by use of the Automatic Data Processing Management Series, FSN-1805.

b. Positions concerned with designing, developing, and maintaining systems and programs for processing of computer applications, utilizing knowledges of computer requirements and techniques. Such positions are classified by use of the Computer Systems Analysis and Programming Series, FSN-1810.

c. Positions whose preponderant work is in operation of automatic data processing equipment, including peripheral equipment, requiring a knowledge of the functions and operations of all or most such equipment, ability to interpret and react to code instructions for equipment operations and to deal with equipment operational problems. Such positions are classified by use of the Computer Operator Series, FSN-1815.

d. Positions whose paramount requirement and preponderant work is the keyboard entry of data for computer input, involving knowledge of the operation of the keyboard and of the storage input equipment external to the main console. Such positions are classified by use of the Data Input Series, FSN-1820.

e. Positions using automated keyboard equipment to produce standardized narrative and tabular material and formats, where the primary requirement is knowledge of the keyboard entry, recall, modification, and repetitious use of developed narrative or tabular material. Such positions are classified in the Word Processing Machine Operations Series, FSN-140.

f. Positions whose paramount requirement for accomplishment of work processes or solution of problems is full professional qualifications in, or knowledge of, a specialized subject matter field, which may involve use of some computer equipment and data processing knowledges. Such positions are classified in the Series appropriate to the paramount knowledge requirement.

g. Positions performing technical work or equipment operation associated with automatic data processing, or with computer and peripheral equipment installation and maintenance, which do not require extensive knowledge of computer and peripheral equipment operation or control. Examples of such punching or remote terminal input of data; computer, peripheral, and remote terminal equipment installation and repair. Such positions are classified in the occupational series applicable to the paramount skill requirement.

h. Positions whose preponderant duties and responsibilities are in performance of clerical work, which may involve computer data input/output or computer systems monitoring for work process support but where tasks do not require knowledges of the work of this process managers whose work processes are computerized; accounting or other specialty clerks providing input for computerized systems and reviewing closely the computer output to determine system status. Such positions are classified in the occupational series appropriate to the paramount or preponderant duties of the position.

The positions to which this Series will apply are in support of positions at major computer centers where the operations are of sufficient scope to require separate support personnel for the computer room operation scheduling and quality control, input/output data handling and storage, systems analysts and programmers. Functions of this type in the smaller minicomputer installations at posts will be part of the broader positions of the Computer Manager of the FSN-1805 Series or the Minicomputer Operator of the FSN-1815 Series. In rare instances, the scope of the post's minicomputer operation may involve substantial tasks appropriate to this Series; however, the absence of linked, major, automated systems in a post installation, such as exist in RAMCs, will preclude equivalent classification. Positions performing duties of this series in combination with duties of another series will be classified by the Mixed Positions Rule discussed in 3 FAH-2 H-454.1 A.

Although the Series is all-encompassing of support type functions in computer operations, in general, the standards are concentrated on the functional areas prevalent in RAMCs at the time of standards development, which include: computer production scheduling and quality control, and data media handling, processing and storage. Systems and programs documentation maintenance, hardware and operations logistical support, and assistants to analysts, programmers, and operators are currently found predominantly as part of positions of systems analysts, programmers, or operational supervisory and non-supervisory positions.

These standards do not describe full supervisory positions. However, the Production Control Assistant FSN-1825-7 class includes work direction of one or two subordinate full-time assistants. The nature of the work is such that effective position management will concentrate the highest level work in the minimum number of positions to obviate proliferation of the higher level functions among subordinates. Consequently, it is not expected that added volume necessitating, for example, two additional subordinates (above the one or two described in the FSN-7 level of this standard) will support any more than the one subordinate of the FSN-1825-6 class (among the two additional). As a base level for classifying working supervision by 3 FAH-2 H-454.2 A, this situation would result in the FSN-7 level supervisory position which is only slightly stronger within the FSN-7 range than the non-supervisory FSN-7 position described in this standard. Management supervision of three or more subordinates on rare occasions (where this is not the delegated responsibility of the computer production manager) will not warrant higher grade.

This standard describes four non-supervisory classes:

Computer Control Assistant FSN-1825-7 is the highest non-supervisory class defined. It covers the principal production controller responsible for working direction of the production scheduling ad control function in the computer room of a major computer operation, such as a RAMC. Normally, only one FSN-7 production controller position will exist at such an activity.

Computer Control Clerk, FSN-1825-6 performs substantive tasks in support of the production controller, for activation of production jobs, input quality validation, job continuity, quality control, final processing and distribution of output from production.

Computer Control Clerk, FSN-1825-5 performs functions less oriented to actual production control and principally involving data file management, especially as regards magnetic tape librarian responsibilities.

The Computer Control Clerk, FSN-1825-4 is designed to provide support to all of the foregoing classes by performing the less complicated clerical and machine processing aspects, or developmental assignments for higher classes.

FSN-1825-7 INTERAGENCY POSITION CLASSIFICATION STANDARD

GROUP: Automatic Data Processing   **SERIES:** Computer Support
TITLE: Computer Control Assistant   **CLASS**: FSN-1825-7

BASIC FUNCTIONS:

In a production scheduling and control unit of a major computer operation, such as a RAMC, serves as the sole production controller and is responsible for: collaborating in long and short range schedule development; setting up production runs consistent with periodic schedule and special job requirements; maintaining all control records of projected, in-progress and completed work of the computer room; acquisition, maintenance, and distribution of data files; maintenance of computer room sets of system, program, and hardware documentation; final review and preparation of produced output for distribution as appropriate; schedule adjustments consistent with slippage, reruns, malfunctions, or other unanticipated gaps; and miscellaneous other quality control functions in the computer room operation. Directs the work of one or two (sometimes three) subordinate Computer Control Clerks.

MAJOR DUTIES AND RESPONSIBILITIES:

Participates in development and revision of computer production schedules. Following periodic production plan, acts as production controller by scheduling a variety of production runs for a very large number of standing and special programs ranging from the most complex, linked, business-type, automated system processed on a main computer to the least complicated ones which may be processed on a minicomputer. Adjusts scheduled processing to accommodate priority jobs, backlog, reruns, or other special requirements. Determines new and changing job production requirements. Collaborates with computer room supervisor and/or computer manager in developing or revising production schedules. May do analyses of production records to determine problems from job streams, equipment assignments, or dependency/contention problems, for referral to management for consideration in future plans.

Follows up with users and input personnel, e.g., mail room, keyboard data entry personnel, teleprocessing units, remote terminal operators, payroll, accounting and disbursing transaction verification units, etc., for timely input of data files for job processing. Sees to the logging of inputs in a variety of forms (e.g., magnetic tapes, disks, diskettes, punched or mark-sensed cards/decks, punched paper tapes, etc.) and their pre-processing necessary for computer use. Responsible for verification of completeness and accuracy consistent with local standards. Directs conversions, card punching, or data correction as necessary.

Responsible for development of run instructions in various forms dependent on the nature of the job. On repetitious programs, regardless of complexity, operators work directly from the program documentation and processing familiarity. On other jobs, a position of this class develops concise flow chart or job stream with specific data file numbers and space allocations, required sequencing of runs, and expected output. Particular care is exercised on special jobs to ensure the feasibility of runs proposed but not thoroughly tested and debugged. Where practicable, provides run instruction computer printout sheet only, giving specific numbered existing programs, data files, etc. to be used/adapted.

Is responsible for the finished processing of production output, including: checking of quality, alignment, print clarity, and other adequacy; collating, sorting, bursting, trimming, labeling, and otherwise readying of output for distribution to users. Outputs are of great variety and quantity, including a very large number and total value of Government checks, inventory accounting for which position is usually responsible also.

Responsible for tape library or other data files, including input, storage, inventory, use and restorage, scratching and reuse, survey/retirement of old or expired tapes, and backup and master tape safeguarding.

Directs the work of one or two assisting Computer Control Clerks in the performance of tasks and responsibilities of the unit.

DESIRED QUALIFICATIONS:

EDUCATION:—Completion of secondary school required. Some technical training in ADP operations desirable.

EXPERIENCE:—Two or three years of progressively responsible clerical and/or ADP technical work, at least one of which should have been as a digital computer operator or production controller, preferably with a U.S. agency computer organization.

LANGUAGE:—Level 3 (good working knowledge of) English required.

KNOWLEDGE:—Besides basic knowledge of the ADP functions and organization's management principles, thorough knowledge of hardware functioning and capabilities, programs sequencing, systems linkage, utility programs, systems control language, management priorities, and production format and content.

ABILITIES:—Level 1 (less than 40 wpm) typing ability enabling CRT computer terminal operation. Ability to operate most peripheral equipment, to adapt existing programs to special job requirements, to recognize and resolve production delays, to relate production requirements to available time for scheduling, to recognize delays which are process related and those beyond personal skills requiring an analyst or higher management consultation. Capable of directing small number of subordinates.

DISTINGUISHING FEATURES:

This is the highest class defined for Computer Control positions in the standards for this Series. Each position of this class serves as the production controller in a major computer operation such as a RAMC. Higher level functions are expected normally to be the managerial responsibilities of either the computer room supervisor or the overall computer production manager.

Computer Control Assistant FSN-1825-7 is distinguished from the FSN-1825-6 by the responsibility for the actual production scheduling and control function, whereas the FSN-1825-6 class performs significant job activation, continuity, and output processing and distribution functions in support of production control. Also, the work of the FSN-7 class requires the assistance of one or two (sometimes three) Computer Control Clerks who are preforming work in various combinations as described in FSN-4, FSN-5 and FSN-6 levels of this series. It should be noted, however, that FSN-7 is supported on the basis on the position's role as the production controller not on the basis of working supervisory responsibilities. These supervisory responsibilities only strengthen the position at FSN-7 level, i.e., they are not required to justify FSN-7 classification and do not support FSN-8.

FSN-1825-6 INTERAGENCY POSITION CLASSIFICATION STANDARD

GROUP: Automatic Data Processing   **SERIES:** Computer Support
TITLE: Computer Control Clerk   **CLASS:** FSN-1825-6

BASIC FUNCTIONS:

In a production scheduling and control unit of a major computer center such as a RAMC, performs work required for the activation and continuity of production runs, and the processing, verification of quality, and distribution of products/output to end users. Work includes: operation of keyboard and visual display terminal for concurrent recording of jobs, according to schedule, and preparation of run instruction and related labels; assemble and verification of quality of input media; review of output for quality; finished processing of output on peripheral equipment; proper sorting, identification, and delivery of output for ultimate distribution to end users; and performance of miscellaneous other peripheral equipment operations for preparation or completion of input and output.

MAJOR DUTIES AND RESPONSIBILITIES:

Operates keyboard entry terminal to develop run instructions and concurrently record production items in the production plan for mainframe and minicomputers consistent with the advance, periodic control plan of the production controller. Develops run instructions for non-standard and special jobs, referencing, to the maximum extent possible, existing programs, data files, and output requirements. Collaborates with production controller on complex job streams, or independently develops uncomplicated job streams, indicating data files and allocated space, run sequencing, and expected output, with particular concern for contingencies, contentions, dependencies and other consideration for obviating potential halts and reprogramming. Only occasionally works on the non-tested program run instructions.

Operates a variety of peripheral equipment and external input/output devices to process data input/output, including: operating card and tape readers to verify punched card and tape data accuracy prior to processing into runs; pre-processing time and attendance cards for input accuracy prior to conversion to storage tape/disk for later direct input; running card punching equipment to develop sets of pre-processed time and attendance cards for various posts use; operating keyboard terminal with visual display to correct discrepancies in input or output data processed or to be processed; operates collators, decollators, bursting, trimming, drilling, stapling, and labeling equipment, for the preparation of output for distribution; develops tape label identification to replace those on data base files to be augmented in processing; and,merges new partially coded time and attendance cards with pay check cards in required sequence prior to dispatching to users.

Reviews a very large volume of output thoroughly for quality and conformance to job specification including alignment, print clarity, garbling, omissions, quantity, timeliness, or other potential errors. Determines required reprocessing and coordinates with production controller and operating personnel for, or personally performs, processing of corrections or arrangements for reruns. Assembles output with accompanying material for dispatch to users.

Assists in follow-up on production runs by keying inquiries into computer utility routines, consulting with shift operating supervisor or physically observing status from knowledge of standard program routines. Advises production controller when production is not expected to meet schedule, for appropriate adjustment decision.

May direct work of one or two assisting clerks or peripheral equipment operators.

DESIRED QUALIFICATIONS:

EDUCATION:—Completion of secondary school required. Some technical training in ADP operations desirable.

EXPERIENCE:—From two to two and a half years of progressively responsible clerical and/or technical work, at least one of which should have been as a digital computer, minicomputer, or peripheral equipment operator or in clerical work in production scheduling and control, preferably with an ADP operation in a U.S. agency.

LANGUAGE:—Level 3 (good working knowledge of) English required.

KNOWLEDGE:—Besides basic knowledge of ADP functions and of organization's management principles, thorough knowledge of hardware functions and capabilities, systems and programs documentation and flow, management priorities, and production formats and content.

ABILITIES:—Level 1 (less than 40 wpm) typing ability enabling CRT computer terminal operation. Ability to operate most peripheral equipment, to develop run instructions and job streams, to apply output specifications to quality determinations, and to utilize production flow knowledge to recognize delays beyond personal skill which require help of an analyst.

DISTINGUISHING FEATURES:

Computer Control Clerk FSN-1825-6 is the next to higher class defined by these standards for computer production control work. Unlike the Computer Control Assistant FSN-1825-7, which is the designated level for the production controller, this FSN-1825-6 class performs substantive but less broadly responsible functions in developing job instructions, validating the quality and pre-processing of input, following up timeliness of production, and performing the quality inspection and final processing and distribution of output to users, in support of the responsibilities of the production controller. It differs from the FSN-1825-5 class which performs much less difficult and responsible functions as those of tape librarian and the more routine aspects of the job activation process.

FSN-1825-5 INTERAGENCY POSITION CLASSIFICATION STANDARD

GROUP: Automatic Data Processing   **SERIES:** Computer Support
TITLE: Computer Control Clerk   **CLASS**: FSN-1825-5

BASIC FUNCTIONS:

In a production scheduling and control unit of a major computer operation such as a RAMC, performs work for the activation and continuity of production runs and the proper processing, management, and storage of data files whose turnover is very large (approximately 20,000 annually). Work includes: maintenance responsibility for tape library and for security of master and backup files; maintenance of computerized date for file inventory records; on-going system-wide in-use tape quality control; responsibilities for alternating tape files to balance usage; withdrawal of data files from storage and delivery to processor consistent with job stream requirements; proper labeling of data files for job usage and file updating on completion; cleaning, packaging or otherwise preparing tapes for delivery to users and processing personnel, transfer to safe-keeping, or disposal; managing inventories of data files, etc.

MAJOR DUTIES AND RESPONSIBILITIES:

Receives tape files from users for data input to computerized systems. Closely reviews for matching with manifest, physical damage, tape quality and consistency with system standards. Initiates contact with user regarding data deficiencies. Responsible for maintenance of the magnetic tape file and its related inventory record by category, e.g., input, output, backup, master, historical, etc. Keys accessions to inventory file, withdrawals from file for use and transfer to users vault or disposal. From review of scheduled daily run instructions or job streams, withdraws or directs withdrawals of appropriate tapes from library, properly marks or labels with space allocations as appropriate, and delivers new label for recording of tape status and as of date upon completed usage. Assembles tapes in sequence consistent with run instruction and places at designated usage point. Must be sufficiently familiar with standard programs to automatically recognize tape requirements, contentions, dependencies, backup tape rotation requirements, and other requisites to accurate systems maintenance. Corrects data file identification and other observed discrepancies in run instructions, referring to production controller those of a serious nature. Receives magnetic data files on completion of processing. Checks for accuracy of markings/label. Directs to tape library, user vault or appropriate distribution consistent with system/program requirements. Properly stores in library according to prescribed control system developed in collaboration with supervisor. Appropriately logs distribution in computerized data file record. Matches tapes against output documentation

scheduled for distribution. Packs, wraps, prepares address labels and shipping or mailing documents for delivery to mail room.

From retention dates in inventory record, determines on-going requirements for scratching tapes from system; removes them from the active inventory, degausses as appropriate, and prepares for distribution and reuse. Develops and releases scratch notifications to users. Performs or directs tape cleaning, erasing, quality inspections, and conditioning.

Conducts periodic inventory of tapes and other data files for consistency with computerized record. Searches for misplaced or otherwise unaccountable data files. Appropriately adjusts inventory record where discrepancy is from past recording deficiency.

DESIRED QUALIFICATIONS:

EDUCATION:—Completion of secondary school required. Some technical training, preferably in ADP principles, desirable.

EXPERIENCE:—From one and a half to two years of clerical and/or technical work, at least six months of which should have been associated with input of computer data, operation of a minicomputer or peripheral equipment or in clerical work related to an ADP organization, preferably of a U.S. agency.

LANGUAGE:—Level 3 (good working knowledge of) English required.

KNOWLEDGE:—Basic knowledge of organization's ADP operations and management principles. Good working knowledge of computer data input procedures and related program documentation, alpha-numeric filing principles, and basic functioning of input/output equipment operation.

ABILITIES:—Level 1 (less than 40 wpm) typing ability enabling CRT computer terminal operation. Ability to operate selected peripheral equipment for off-line processing of input/output data for acceptability, shipment, and storage.

DISTINGUISHING FEATURES:

Computer Control Clerk, FSN-1825-5 is the second level defined for computer production control work in this Series. It is primarily concerned with magnetic data file management, as distinguished from the FSN-1825-6 class, which is more oriented toward development of job instructions for production activation, and the follow-up and finalizing of production for distribution. It is distinguished from the FSN-1825-4 class, which performs the least complicated tasks in support of other higher class production scheduling and control positions, including support of the tape librarian of this class. Users of this level standard should bear in mind that several

functions described are well below the FSN-5 level of difficulty and responsibility e.g., packing and dispatching documents is an FSN-2/FSN-3 level task. It is the magnetic data file management responsibility which supports FSN-5. Also, it is possible that the work described at the FSN-4 level of this series will be combined with work at this FSN-5 level, in which case, FSN-5 level file management tasks must occupy 25 % of the time for classification of the position as a whole to FSN-5.

FSN-1825-4 INTERAGENCY POSITION CLASSIFICATION STANDARD

GROUP: Automatic Data Processing   **SERIES**: Computer Support
TITLE: Computer Control Clerk   **CLASS:** FSN-1825-4

BASIC FUNCTIONS:

In a production scheduling and control unit of a major computer operation such as a RAMC, performs miscellaneous tasks in assisting unit personnel, including: performing simpler tasks in tape library maintenance; performing routine computer peripheral equipment operation for input/output data processing consistent with standard instructions; keying information into tape inventory by standardized or specific instructions; receiving input and output files and further processing or storing, where minimal verification or checking is involved; maintenance of stocks of supplies used and files of records and reports maintained in production control; extracting simple information from system to assist in report development; etc. Usually receives guidance on non-routine or more complicated tasks from a supervisor or higher level person in the production scheduling and control unit.

MAJOR DUTIES AND RESPONSIBILITIES:

Files and withdraws tapes according to specific or standing instructions. Keys entries into inventory for tapes filed and withdrawn. Assists in the physical inventory of data files by identifying files, annotating lists, and helping to physically locate misplaced tapes or research records according to instructions from tape librarian. Unpacks and packs tapes received and shipped. Checks tapes upon receipt for obvious physical damage, matching with manifest, and consistency with prescribed tape specifications. Notifies tape librarian of discrepancies for action. Identifies from retention dates in inventory and withdraws tapes to be scratched. Processes them for restoration to use after clearance with tape librarian.

Checks identification markings on received card and paper tape data input files. Keys data receipts into log. May operate key punch equipment for standardized, small job pre-processing of card files for input, or produce simple jobs of small quantity for output, e.g., sets of posts' time and attendance card blanks with only post codes and other standard information, or changes of as-of dates, user designation, or command and control cards according to specific or standing instructions. Operates collator, decollator, burster, trimmer, and other peripheral equipment for finished processing of output for distribution under guidance of higher class clerk. Checks output for obvious discrepancies, e.g., missing headers, garbled or missing information, non-prints, inadequate quantities, etc. Matches assemble output with address labels and delivers to mail room.

Maintains stocks of supplies used in production planning and control. Initiates replenishment according to low limits fixed by supervisor.

Based on specific utility routines, keys instruction for computer output on visual display or small printout of data regarding production, e.g., tape utilization, volume of completed programs, operating times, etc.

Enters system, program, and machine specifications/documentation into manuals according to clearly identifiable insertion or modification instructions.

Performs miscellaneous other tasks of the unit which are of a simple nature, involve specific guidelines or personal instruction and review where not covered by established guidelines.

May perform more complicated tasks of higher levels in a developmental capacity.

DESIRED QUALIFICATIONS:

EDUCATION:—Completion of secondary school or and equivalent combined period of secondary and some technical school (preferably ADP) is required.

EXPERIENCE:—From one to one and a half years of experience of a clerical and/or technical nature, at least six months of which should have been associated with an ADP operation, preferably in a U.S. agency.

LANGUAGE:—Level 3 (good working knowledge of) English required.

KNOWLEDGE:—Basic knowledge of ADP concepts and functions. Some knowledge of data input/output procedures.

ABILITIES:—Level 1 (less than 40 wpm) typing ability enabling CRT computer terminal operation. Ability to operate selected peripheral equipment for limited input/output off-line data processing and magnetic tape maintenance.

DISTINGUISHING FEATURES:

This is the lowest class defined by standards for this Series for Computer Control Clerks. It is distinguished from the other higher classes of this Series by the performance of the less complicated function of the higher classes, in support of their operations or in developmental status for future advancement to the higher class(es). For example, the FSN-1825-5 class has responsibility for the maintenance and safe-guarding of the tape library with backup and master files, and related computerized inventory records whereas this FSN-1825-4 class only assists in these functions.