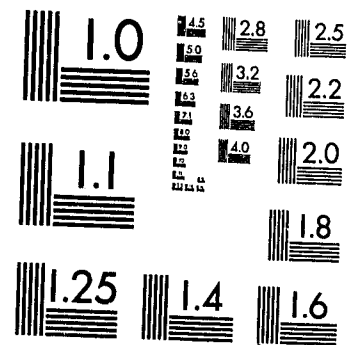


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National Institute of Justice
United States Department of Justice
Washington, D. C. 20531

11/24/82

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MORGAN

Data Management
and
Crime Analysis System

Executive Summary

85153



U.S. Department of Justice
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MORGAN

Data Management and Crime Analysis System

Executive Summary

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SEP 20 1982

ACQUISITIONS

Report of work performed under Grant Number 81-BJ-CX-K030, awarded to SEARCH Group, Inc. of Sacramento, California, by the Bureau of Justice Statistics, U.S. Department of Justice. Points of view or opinions stated in this document do not necessarily reflect the official position or policies of the U.S. Department of Justice.



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The MORGAN Data Management and Crime Analysis System was named after Lieutenant Forrest Lee Morgan of the Lexington, Kentucky Police Department, who as project manager was instrumental in project design and development of the system. Lieutenant Morgan died on October 12, 1979, a few weeks before the project was completed.

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FOREWORD

MORGAN is a comprehensive data management and crime analysis system for law enforcement agencies. Developed by SEARCH Group, Inc. in conjunction with the Lexington-Fayette Urban County Government Division of Police in Kentucky, the system was designed for transfer to agencies participating in the National Integrated Criminal Apprehension Program (ICAP). The MORGAN system, including all necessary equipment and programs, has been installed in a number of agencies.

This volume is one of a set of four designed to guide law enforcement administrators through the selection and implementation of MORGAN. The complete MORGAN series includes:

MORGAN Executive Summary - an overview of MORGAN, describing the background of the system, its features and capabilities.

MORGAN Training Guide - an approach to planning, conducting and assessing MORGAN training sessions. Included are samples of training aids that can be reproduced and used as guides in the development of agency training materials.

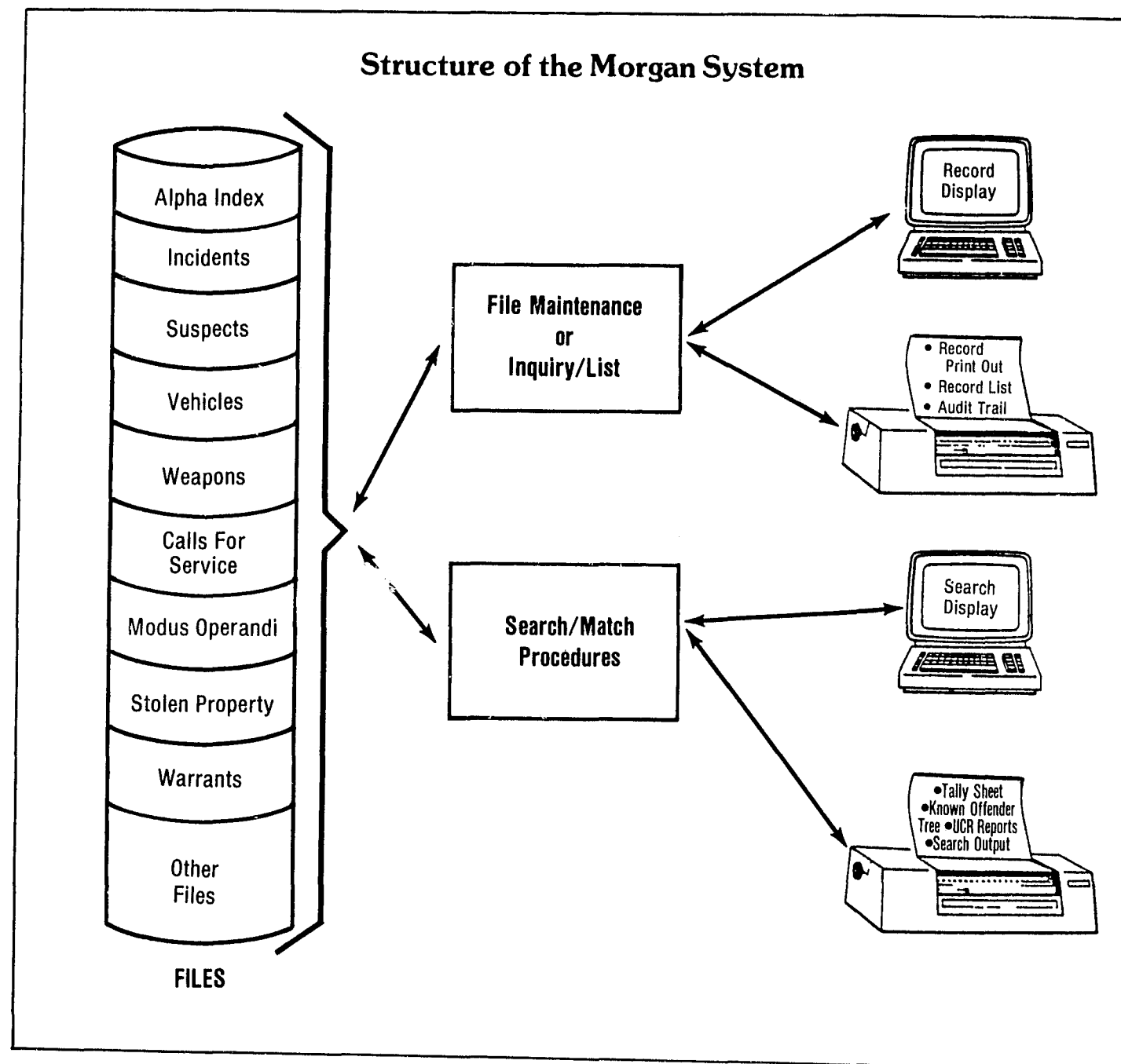
MORGAN Implementation Guide - a guide to planning a successful MORGAN implementation. Included are project management and control techniques, and detailed guidelines for implementation preparation, system transfer, and follow-up procedures. Documentation and assessment needs are part of this document.

MORGAN Operations Manual - a guide for system operators and users that describes file maintenance, troubleshooting procedures, and system operations-- use of passwords, calling up files, use of keyboard, error messages and other operational functions.

This volume, the MORGAN Executive Summary, gives an overview of MORGAN and describes its main features and capabilities. After reading this document, you may have additional questions. For answers or to arrange a demonstration of MORGAN, contact SEARCH at (916) 392-2550.

MORGAN

Data Management and Crime Analysis System



MORGAN is a computerized system that captures basic crime reporting data and translates it into useful and current information for all segments of an agency. The system produces a full range of management and crime analysis reports, and meets requirements for UCR reporting. It also develops various summaries for one-time use, e.g., information displayed in a manner that allows the recognition of crime patterns.

MORGAN is only one of several computerized information systems now available for law enforcement. Police officials need to carefully evaluate and compare these systems as part of a thorough procurement process.

MORGAN compares favorably to other systems in a number of ways. Among these are four major system features that distinguish MORGAN as a leader in automated law enforcement systems:

- **System Flexibility** - Agencies are not forced into a rigid system of pre-designed files, forms, and codes that ignore the agency's unique needs. MORGAN allows a broad range of user decisions that tailor the system to local requirements.
- **Privacy and Security Safeguards** - MORGAN ensures the privacy of sensitive crime information through built-in safeguards.
- **Low Cost** - Future installers benefit by a basic system that was developed by the federal government and system enhancements that were purchased by previous implementors.
- **Capability for Modification and Growth** - MORGAN is a dynamic system that has grown considerably

from a basic crime analysis system. Its growth and expansion are directed by a User Group of experienced and skilled MORGAN users.

The system features listed above and other system capabilities are documented more completely in the following pages. They clearly identify MORGAN as a useful tool in processing crime information.

System Flexibility

System Definition

Users can tailor the system to specific agency data needs and hardware limitations by first defining the record size and structure within each file, and then the name and length of each field within the record. For example, an incident file could be defined to exactly match an agency's crime report form for ease of data entry.

The user can define and reserve disk space for any file. New files are defined by name, number of records, number and name of data fields, and file security levels. Maximum record size depends upon the system configuration. There is no limit to the number of records per file as long as there is enough disk space.

Agencies have the ability to define all file structures. After determining their own user needs, agencies have a freedom of choice to adopt another agency's reporting formats, develop their own unique reports, or define files to match current report forms or data requirements. If the source document (e.g., crime report) is later changed, the file structure can be redefined to match the new form. The system will restructure the old data to match the new format.

Data fields are defined by number, type of data, size (of alpha-numeric field), range (for numeric fields), associated codes



and their literal translations, indexing requirements, and any specific edit criteria. The system generates a formatted input screen and automatically positions the cursor at the beginning of each data field. Any existing automated files can be utilized in MORGAN by making the file definition the same as the existing file.

File Search

MORGAN enables personnel to maintain, search and recall information from various files. The system will also provide data summaries and displays which allow the crime analyst to recognize patterns in reported incidents and to match suspects, vehicles, and weapons with criminal activities.

Agencies are using MORGAN to support the information requirements of various divisions within their agencies. Some examples of MORGAN capabilities for improved departmental operations include: Calls for Service Analysis by a Patrol Division, matching of suspects and vehicles by a Detective Division, data entry and generation of Uniform Crime Reports by a Records Division, warrants and warrant checks by Dispatch, and crime trend identification by a Crime Analysis Unit.

Individual files can be searched to identify all records which satisfy a prescribed set of criteria. The allowable operations for entry in the search are:

- "or" e.g., a search for the crimes of burglary or robbery.
- "and" adds a second element: that involves a green Ford or Mercury.
- "and" adds a third element that limits the Fords or Mercurys to: those manufactured from 1972 to 1976.
- "and" adds a fourth element that adds an asterisk to designate a partial spelling or sequence: a license plate with a number beginning with 12*.

These operations result in the following search:

Burglaries or robberies involving Fords or Mercurys manufactured from 1972 to 1976 with a license number beginning with 12*.

Up to ten data elements with up to four values for each data element can be searched at any one time.

Report Generation

Users can define exactly what they want to see and how they want the information portrayed. Information may be developed from data in one file or up to five files. Most reports are first displayed on the terminal screen and then, if needed, they are printed. Other user-defined reports can be printed automatically.

Pre-programmed reports include a tally sheet, known associates tree and the Uniform Crime Reports. Tally sheets are numerical counts of incidents which meet certain specifications. An example would be crime activity by area, time of day, day of week.

The known associates tree is a search of the suspect/known offender file of all known associates of a crime suspect. A three-generation tree is then printed containing all associations.

The Uniform Crime Reports printed are: the Return A - Monthly Return of Offenses Known to Police; Supplement to Return A - Property by Type and Classification and Property Stolen by Classification; and the Monthly Arrest and Citation Register.

Data Entry

The user can enter data for any file that has been previously defined. Data is validated as it is entered and an asterisk appears in any field that is incorrect or left blank (if a required field).

The applications software provides for detailed checking against all user-defined edit criteria. This includes such items as range checking on variable entries and the

completion of mandatory fields.

Records can be added, modified, or deleted from the files. File maintenance is performed by selected personnel and is protected by a security code.

File Management

A number of utility routines are provided for data file management including file purge, file reorganization, and an index reorganization program to optimize file processing efficiency. File backup and reorganization is automatic and can be timed to start at non-peak hours.

System Safeguards

Data Privacy and Security

Privacy of data in the MORGAN system is protected by a two-digit security level procedure. The first digit of the security code defines the functions an individual is allowed to perform. The second digit offers a separate security level of up to 4 fields within any file.

User's Log/Audit Trail

An important privacy and security safeguard is the user's log/audit trail. MORGAN maintains a log of all transactions. It contains the user's password, date, time, terminal used, file accessed, and transaction. If file maintenance is performed, the log will contain this data plus the old and new value of the field modified.

Management can change the name, password, or allowed functions for any system operator. This provides total management control over system use. There is the option of having the audit trail printed automatically or storing the log for batch processing at some other time.

MORGAN documentation includes recommendations for system privacy and security. Methods of protecting data from unauthorized loss, alteration and dissemination, the physical security of computer hardware, and the careful screening and

proper training of employees responsible for system maintenance are discussed in light of appropriate federal and state requirements and recommendations.

System Implementation

Transferability

MORGAN was designed specifically for transfer. The software, developed by A.L. Roark and Associates, Inc., was initially developed for use on Lexington's IBM Series 1 minicomputer. Now, MORGAN can be transferred to any computer with comparable or greater capabilities: 128K bytes of internal memory and an ANS 74 COBOL compiler. SEARCH anticipates that the system will soon be available on the equipment of a variety of other major computer manufacturers, such as Burroughs, IBM mainframes, and IBM System 38.

Software development costs for the MORGAN system have run about \$90,000. Since the cost of the basic system was supported by a grant from the federal government and the costs of enhancements were absorbed by earlier implementors, there are no software development costs to subsequent MORGAN cities. The software is in the public domain and is now available for only the cost of reproduction, typically under \$200.00.

Computer Language

All MORGAN programs are written in COBOL, a computer language available for nearly all computer models, and for which there is an ample supply of programmers nationwide. Thus, agencies wishing to adapt MORGAN to another manufacturer's computer will find the task straightforward and relatively inexpensive.

Staffing

MORGAN was designed for operation by regular agency staff. No special data processing skills are required. Personnel can competently operate the system after a few hours of instruction.

Preparation

MORGAN system effectiveness is enhanced by adequate preparation. Several preliminary stages--planning, analysis of the present system, and design/development of the new system--provide an orderly sequence of steps in the MORGAN development process. This series of pre-installation activities would include the following representative tasks:

- Conduct of staff orientation meetings.
- Development of an implementation workplan.
- Analysis of present system and identification of user needs.
- Revisions of forms, procedures, written policies.
- Assessment of training needs and actual training.
- Procurement of hardware/software.
- Definition of data files.
- Development of output reports.
- Evaluation of privacy and security needs.
- Documentation and assessment designs.

Capacity for Modification and Growth

MORGAN has grown significantly since its beginning and now has completed its third developmental stage. Originally developed as a crime analysis package, the system contained files of incidents, suspects, vehicles, weapons and modus operandi. As the system was transferred to other law enforcement agencies, additional needs were identified. In February 1981,

the second phase of MORGAN development was completed. The enhancements incorporated the ability to add and define up to 10 additional files of a user's choice, such as personnel, stolen property, evidence control, wants/warrants, managing criminal investigations, and all Uniform Crime Reports.

A MORGAN System User's Group held several meetings in which additional needs were identified and prioritized. This led to the third phase of MORGAN development. Programming for phase three included a single screen entry which allows data entry into a single format with data automatically transferred to various data files; the ability to reorganize any data base to match any new file structure; an automated master name index; enhancements to the report generator to include more user-defined 132-column reports, field headers on output reports, sorting, and capabilities for basic mathematical operations that permit the functions of averaging, percentage change, determining means, etc.; a screen indication that search or tally operations are in progress; increased batch reporting with automatic file backup and reorganization; a method of rebuilding secondary keys; a method of modifying data elements throughout the entire data base; and expanded coding that will allow use of numeric or alpha codes.

One of the most important of these enhancements is a modified consonant coding technique soundex system that allows for searching of personal or business names. The system incorporates a nickname dictionary (e.g., Bill ---- William) and the ability to page through any file (e.g., all the Smiths). Thus the system greatly improves accuracy and protects the privacy of persons named in the master name index.

Any future system modifications, like past modifications, will be accomplished through the support and advice of present system users who are in the best position to suggest needed modifications and enhancements.



Summary

MORGAN is a flexible computer system that allows a police agency to decide on its own choice of data elements, to set up its own choice of records. MORGAN is not a set of recordkeeping programs. Rather, it is a software program that creates recordkeeping systems, and allows agencies to tailor the system to their unique needs.

Once installed, MORGAN protects the information with appropriate privacy and security measures.

The simplicity of MORGAN results in smooth and easy transfer. Flexibility, privacy and security measures, low cost, and capacity for modification and growth--these are system features that are creating interest in law enforcement circles throughout the country.

REPRESENTATIVE SYSTEM FEATURES

REPORT GENERATOR

The ability to produce special outputs for specific records is a useful tool for crime analysts. The Morgan System's report generator allows the analyst to define any report with data from any of the files. The report appears on the screen before it is printed.

| | | | | | |
|----------|---------|----|-------|---------|----|
| 82-01174 | Ford | 72 | Green | 123 ABC | CA |
| 82-01382 | Mercury | 75 | Green | 128 XYZ | TX |
| 82-02379 | Ford | 74 | Green | 126 CDE | CA |
| 82-02563 | Ford | 76 | Green | 129 TSU | CA |
| 82-03789 | Mercury | 74 | Green | 125 JYL | CA |

DATA SECURITY

Data in the Morgan System is protected by a two-digit security level procedure. The first digit of the security code defines the functions an individual is allowed to perform. The second digit offers a separate security level of up to 4 fields within any file. For example, names of rape victims could be protected by assigning a high security level.

INVALID PASSWORD REENTER

USERS LOG/AUDIT TRAIL

The Morgan system maintains a log of all transactions. This can be printed automatically or stored for later batch processing. It contains the user's password, date and time of usage, file accessed, and transaction. If file maintenance is performed, the log will contain this data plus the modified field and its new value.

| Password | Date | Time | Terminal | Log Message File |
|----------|--------|------|----------|------------------|
| Parrot | 821012 | 0830 | TRM02 | Delete CR# |
| Gemini | 821012 | 0900 | TRM02 | Add CR# |
| Jonny | 821013 | 1045 | TRM03 | Change Suspect |
| Boss | 821015 | 1130 | TRM06 | Print User Log |

END