

# Chapter 2

# SYSTEM OVERVIEW

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**Objectives**

You will learn:

- Structure of a program.
- Easytrieve Plus job processing logic.
- Easytrieve Plus syntax rules.
- How to use listing commands.

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## **1 Modes of Operation**

There are five modes of operation which include:

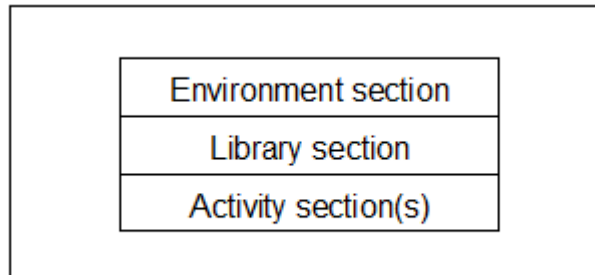
- Syntax check source statements.
- Syntax check and compile source statements.
- Syntax check, compile, and execute source statements; this is the default.
- Syntax check and compile source statements and produce an object module.
- Execute previously link-edited programs.

The modes are determined by the PARM parameters.

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## 2 Structure of a Program

Each program contains an optional environment definition section, an optional library definition section, and one or more activity sections.



### Environment Definition Section

Establishes parameters for the program.

### Library Definition Section

Describes the data to be processed by the program.

### Activity Definition Section

The activity definition section is the only mandatory section of a program.

There are two types of activities: JOB and SORT. Any number of JOB or SORT activities can be coded in any order.

- JOB activities read information from files, examine and manipulate data, write information to files, and initiate printed reports.
- SORT activities create sequenced files.

More than one procedure - PROCs can be coded at the end of each activity.

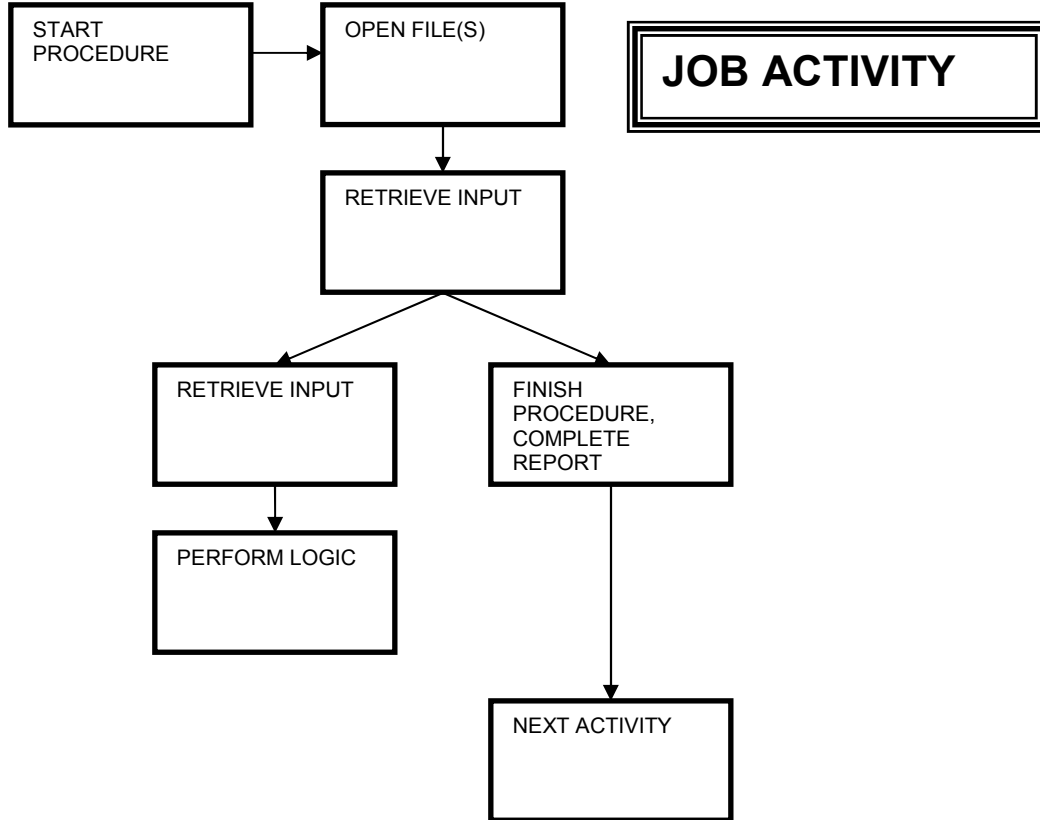
One or more REPORT subactivities can be coded after the PROCs at the end of each JOB activity.  
PROCs used within a REPORT subactivity must be coded immediately after the REPORT subactivity in which they are being used.

The general order of statements is:

|             |  |
|-------------|--|
| Environment | <u>PARM...</u>   |
| Library     | FILE ...<br>DEFINE ...<br>...  |
| Activities  | JOB<br>(statements)<br>(job procedures)<br>REPORT<br>(report procedures)<br>SORT<br>(sort procedures)<br>... |

3 Easytrieve Job Processing Logic

This diagram outlines the steps when the JOB statement is executed with automatic input:



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## 4 Syntax Rules

Easytrieve Plus utilizes a number of syntax rules.

### Statement Area

All source statements are records of 80 characters each. The default statement area is in columns 1 through 72.

### Multiple Statements

The statement area normally contains a single statement. However, multiple statements can be entered on a single record. The EBCDIC character string '.', a period followed by a space, indicates the end of a statement.

### Comments

When the first non-blank character of a statement is an '\*' (asterisk), the remainder of that record is a comment statement.

### Continuations

The last non-blank character of a statement terminates the statement unless that character is a - (hyphen) or a + (plus). The - indicates that the statement continues at the start of the next statement area. The + indicates that the statement continues with the first non-blank character in the next statement area.

The difference between - and + is important only when continuing words. Continuation between words is the same for both.

**Words and Delimiters**

A word can be a keyword, field name, literal, or symbol. All words begin with a non-blank character. A delimiter or the end of the statement area terminates these words.

| <b>Word Delimiters</b> | <b>Function</b> |  |
|------------------------|-----------------|--|
|                        | Space           | The basic delimiter within each statement.   |
| '                      | Apostrophe      | Encloses literals which are alphabetic.  |
| .                      | Period          | Terminates a statement.  |
| ,                      | Comma           | Used optionally for readability.   |
| ()                     | Parenthesis     | Encloses multiple parameters and portions of arithmetic expressions; the left parenthesis acts as a basic delimiter. |
| :                      | Colon           | Used as a delimiter for file, record, and field qualifications.  |

**Labels**

Labels are locations within the program.

**EBCDIC Alphabetic Literals**

Alphabetic literals are words enclosed within apostrophes, and can be 254 characters long.

Whenever an alphabetic literal contains an embedded apostrophe, two apostrophes must be coded.

**Numeric Literals**

Numeric literals can contain 18 numeric digits - EBCDIC characters 0 to 9. The algebraic sign of a numeric literal can be attached to a numeral with a + (plus) or a (minus) prefix.

**EBCDIC Format Hexadecimal Literals**

Prefix hexadecimal literals with 'X' - the letter X and an apostrophe and terminate it with an apostrophe.



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## 5 Listing Commands

**LIST [ON,OFF] [MACROS,NO MACROS]**

|         |   |
|---------|---|
| LIST ON | Specifies that all subsequent statements are to be printed. |
| MACROS  | Specify that macro statements are to be printed.            |

**NEWPAGE**

Ejects the printer to the top of the next page before printing the next line of the source program

**SKIP n**

SKIP is a listing control statement that spaces the printer a designated number of lines before printing the next line

**PARM**

|       |   |
|-------|---|
| CLIST | CLIST creates a condensed listing of the executable program produced by the compiler.   |
| DMAP  | DMAP creates a listing of the data map for each file and its associated fields.   |
| PMAP  | PMAP creates a complete listing of the executable program produced by the compiler.   |
| XREF  | XREF causes the creation of a cross-reference listing of each field name, file name, procedure name, screen name, report name, and statement label. |
| STATE | STATE saves the statement number of the statement currently being executed.   |
| FLOW  | Activates a trace of the statements being executed.   |