DEC-11-UFCAA-A-D

DOS/BATCH
File Compare Program
(FILCOM)

Programmer's Manual

FOR THE DOS/BATCH OPERATING SYSTEM

Monitor Version VØ9

August 1973

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PREFACE

This manual describes the features and operation of FILCOM, a system program for DOS/BATCH. The reader should be familiar with the DOS/BATCH Monitor as described in the DOS/BATCH Monitor Programmer's Manual.

DOCUMENTATION CONVENTIONS

1. All commands are terminated by pressing the nonprinting RETURN key, causing a carriage return/line feed operation. The) symbol is used to represent the RETURN key.

2. SY: represents the system disk device, which can be a DK:, DF:, or DP: disk device.

3. CTRL/key combinations are typed by holding down the CTRL key while typing the required letter key. For example, typing CTRL/C ensures that the Monitor will accept the next command (but will not necessarily immediately stop a job in progress); typing CTRL/U deletes all preceding characters on a line. Striking CTRL/key characters causes ↑C to be echoed on the operator console.

4. Information enclosed in brackets ([]) is optional additional information. Note, however, that a UIC (User Identification Code), when typed at the console, must actually be delimited by left and right brackets.

5. Braces ({}) are used to enclose items from which a choice must be made.

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CHAPTER 1

INTRODUCTION TO FILCOM

File Compare (FILCOM), a system program for use under the DOS/BATCH Monitor, allows a user to compare ASCII* source input datasets and create a difference output dataset. A dataset is specified as

dev:filnam.ext[uic]

where:

- dev: represents a 2-character upper-case alphabetic ASCII device code, optionally followed by a unit number when a device controller controls multiple units (e.g., DT3), terminated by a colon (:).
- filnam represents a 1- through 6-character upper-case alphabetic or numeric ASCII filename. The first character MUST be alphabetic.
- .ext represents a 1- through 3-character upper-case alphabetic or numeric ASCII filename extension preceded by a period (.).
- [uic] represents a 3-character numeric (octal) ASCII project number and a 3-character programmer number, separated by a comma (,) and enclosed in brackets ([]).

If dev: represents a file-structured device (SY:, DP:, DF:, DK:, or DT:), a filename (filnam) must be specified.

If dev: is not specified, the last specified device is used.

If [uic] is not specified, the current project number and programmer number are implied.

Two sets of option switches allow FILCOM to handle different types of comparisons, and help the user select exactly what he wants to compare.

FILCOM can be run when the DOS/BATCH Monitor prints a $ (dollar sign, signifying readiness to load a program) by typing

RUN FILCOM

at the keyboard. FILCOM then prints a # (number sign), indicating readiness to accept commands.

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*American Standard Code for Information Interchange.

NOTE

Although FILCOM can only be used to compare ASCII files, it may be used indirectly to compare binary files. The user should first run the FILDMP program and dump each binary file onto some retrievable medium such as disk, DECtape, or paper tape. The ASCII output files generated by FILDMP may then be compared using FILCOM.

CHAPTER 2

FILCOM COMMANDS

FILCOM commands are processed by the DOS/BATCH Command String Interpreter (CSI). This assures a command language consistent with other system programs operating under DOS/BATCH. Consult the DOS/BATCH Monitor Programmer's Manual for a complete description of the CSI.

2.1 FILCOM COMMAND FORMAT

Note that FILCOM commands are always typed in response to a # character.

To compare a master file and a newer version of that file, use the following command format:

```
list dataset<master dataset,newmaster dataset )
```

where:

list dataset	=	specification of the output dataset on which a list of the differences between the two files (if any) will be written.
master dataset	=	the specification of the master dataset.
newmaster dataset	=	the specification of the newer version of the master dataset (or a copy of the master dataset).

For example, to compare the files MASTER.OLD and MASTER.NEW, listing the differences (if any) on the line printer, the following command is used:

```
LP:< MASTER.OLD,MASTER.NEW )
```

2.2 OPTION SWITCHES

The two sets of option switches available for use with FILCOM are:

1. LOCAL switches
2. GLOBAL switches

2.2.1 LOCAL Switches

LOCAL switches enable the user to select the type of comparison he wishes to make between the two files. LOCAL switches can be placed anywhere in a command string if the correct command format is

followed. There can be one or more LOCAL switches in each command string.

EXAMPLES: LP:<FILE.ONE/switch,FILE.TWO)

LP:<FILE.ONE,FILE.TWO/switch)

LP:/switch<FILE.ONE,FILE.TWO)

If two switches of the same type are specified in one command string, the rightmost switch specification takes precedence.

The following LOCAL switches are available to the user:

/SC:n = ASCII source compare for n lines

/BL:OFF = compare blank lines

{/BL, /BL:ON} = ignore blank lines

{/TR, /TR:ON} = compare trailing blanks within lines

/TR:OFF = ignore trailing blanks within lines

/MB = reduce multiple blanks to a single blank

/DE = delete old list file (if it exists).

2.2.1.1 The SC (Source Compare) Switch

The format of the SC switch is

/SC:n

Where n is a decimal integer specifying the number of consecutive lines that constitutes the minimum unit of comparison. A unit of comparison in the newmaster file must match a unit of comparison in the master file to establish a successful comparison. Since the default unit of comparison is a single line, small recurring sets of lines that are identical in two dissimilar files will cause a successful comparison. Use of this switch will prevent this occurrence, and condense the comparison listing.

EXAMPLES:

LP:/SC:3<FILE.ONE,FILE.TWO) (three lines must match for a successful comparison)

LP:/SC:2<FILE.ONE/SC:4,FILE.TWO) (four lines must match for a successful comparison)

2.2.1.2 The BL (Blank Lines) Switch

The format of the BL switch is

```
{/BL     }
{/BL:ON  }
{/BL:OFF }
```

where /BL:OFF indicates that blank lines are to be included in comparisons, and /BL or /BL:ON indicates that blank lines are to be ignored during comparisons. Blank lines appear in the difference file or listing, and are accounted for in line numbers regardless of the setting of the BL switch.

EXAMPLES:

LP:/BL:OFF<FILE.ONE,FILE.TWO ↵	(include blank lines during comparison)
LP:/BL<FILE.ONE,FILE.TWO ↵	(ignore blank lines in comparison)
LP:<FILE.ONE/BL:ON,FILE.TWO ↵	(ignore blank lines in comparison)

If the BL switch is not specified, a default value of /BL:ON is used.

2.2.1.3 The TR (Trailing Blanks) Switch

The format of the TR switch is

```
{/TR     }
{/TR:ON  }
{/TR:OFF }
```

where /TR or /TR:ON indicate that trailing blanks are significant and are to be included in comparisons, and /TR:OFF indicates that trailing blanks are to be ignored during comparisons.

EXAMPLES:

LP:<FILE.ONE,FILE.TWO/TR ↵	(include trailing blanks in comparison)
LP:<FILE.ONE/TR:ON,FILE.TWO ↵	(include trailing blanks in comparison)
LP:/TR:OFF<FILE.ONE,FILE.TWO ↵	(ignore trailing blanks in comparison)

If the TR switch is not specified, a default value of /TR:ON is used.

2.2.1.4 The MB (Multiple Blanks) Switch

The format of the MB switch is

```
/MB
```

When included in a command string, the MB switch indicates that multiple non-trailing blanks within a line are to be regarded as a single blanks for comparisons. TAB characters are considered to be multiple blanks. If the MB switch is not specified, multiple non-trailing blanks are counted separately during comparisons.

2.2.1.5 The DE (Delete Existing) Switch

The format of the DE switch is

```
/DE
```

When included in a command string, the DE switch indicates that if a specified list dataset exists, it is to be deleted prior to command execution. If such a dataset exists and the DE switch is not specified, an error results because of the conflict in filenames.

EXAMPLE:

```
DTI:LIST.FIL/DE<FILE.ONE,FILE.TWO)
```

if a file named LIST.FIL already exists on DECtape 1, delete it before attempting to create LIST.FIL for this command.

2.2.2 GLOBAL Switches

GLOBAL switches are used to specify a default condition for the execution of a series of command to follow. They differ from LOCAL switches in the following ways:

1. GLOBAL switches influence a series of commands; LOCAL switches influence only the commands in which they occur.

2. Only one GLOBAL switch is permitted in a command string; multiple LOCAL switches are permitted in the same command string.

3. No file comparison can be made in the command string that contains a GLOBAL switch; file comparisons can be made in command strings containing LOCAL switches.

An example of the use of a GLOBAL switch is given below:

```
<LP:/LS:ON)
<FILE.ONE,FILE.TWO )
<FILE.OLD,FILE.NEW )
</LS:OFF)
```

As a result of the command strings shown in the above example, differences between the files specified in the command strings will be listed at the line printer. Command strings following the /LS:OFF switch must specify the output device for the difference listing.

The following GLOBAL switches are available:

/DF - sets default conditions for one or more LOCAL switches

/IN - reads and interprets the contents of a specified file as FILCOM commands

/LO - writes a log of all commands executed indirectly through use of the /IN switch

/LS - specifies the output dataset for FILCOM difference listing

2.2.2.1 The DF (Define Default) Switch

The format of the DF switch is:

```
{ /DF/sw:df[/sw:df...]      }
{ /DF:ON/sw:df[/sw:df...]   }
{ /DF:OFF                   }
```

where /DF or /DF:ON followed by one or more local switch specifications serves to set default conditions for those switches. The specification /DF:OFF returns all LOCAL switches to their original default conditions (described previously).

EXAMPLES:

/DF:ON/DE:ON ↵	(sets the default condition of the DE switch to ON; i.e., until the DF switch is turned OFF, list datasets with the same name as those specified in a command string will be deleted prior to execution of the command)
/DF/DE:ON/TR:OFF ↵	(sets the default condition of the DE switch to ON as described above; also sets the default condition of the TR switch to OFF -- trailing blanks will be ignored until the DF switch is turned OFF)
/DF:OFF ↵	(returns all previously specified LOCAL switches to normal default conditions)

2.2.2.2 The IN (Indirect Commands) Switch

The format of the IN switch is

```
{dataset/IN     }
{dataset/IN:ON  }
{/IN:OFF        }
```

The dataset specified with the IN switch is any legal DOS/BATCH input dataset indicating a file whose contents can be read and executed as FILCOM commands.

The last command in the indirect command file can be /IN:OFF canceling the IN switch; however, an end-of-file condition reached in that file also has the effect of turning OFF the IN switch. The command /IN:OFF can be issued from the keyboard, but has no effect until FILCOM has completed processing the specified input file; since the end-of-file condition will have already turned OFF the IN switch, it is redundant to type /IN:OFF at the keyboard.

Once the IN switch has been turned ON at the keyboard, indirect command execution will take place after the user presses CTRL/C (control-C) and types BEGIN.

Indirect command files (files specified with the IN switch) can be chained, but care must be taken not to chain a file that chains (directly or indirectly) to the current file.

EXAMPLES:

DT2:FILE.IND/IN ↵	(causes the contents of FILE.IND on DECtape 2 to be read and interpreted as FILCOM commands)
FILE.IND/IN:ON ↵	(causes the contents of FILE.IND on the system device to be read and interpreted as FILCOM commands
/IN:OFF ↵	(when typed at the keyboard, has no effect; when included in an indirect file, terminates indirect interpretation)

2.2.2.3 The LO (LOg dataset) Switch

The format of the LO switch is

```
{dataset/LO     }
{dataset/LO:ON  }
{/LO:OFF        }
```

The LO switch is used to specify a log dataset. Commands specified in an indirect command file will be listed in this log when they are encountered. Keyboard commands are also listed in this log dataset; it is thus redundant to specify the keyboard as the log dataset if commands are being entered normally through the keyboard. All list file information will also be duplicated in the file specified in the log dataset.

The command /LO:OFF terminates use of the previously specified log dataset; the LO switch can be turned OFF in this manner either at the keyboard or within the command coding in an indirect file.

EXAMPLES:

```
<LP:/LO:ON↵
<DT0:LINES.IND/IN↵
<FILE.ONE,FILE.TWO↵
```

(specifies the line printer as a log dataset; commands read indirectly from the file LINES.IND on DECtape unit 0 will be listed at the line printer. Also, the files FILE.ONE and FILE.TWO on the system device will be compared; list output will be duplicated at the line printer.

```
<DT4:LINES.LOG/LO↵
<LINES.IND/IN↵
</LO:OFF↵
```

(specifies the file LINES.LOG on DECtape unit 4 as a log dataset; commands read indirectly from the file LINES.IND on the system device will be duplicated in this file. List output will also be duplicated in this file. After LINES.IND has been read and executed, the file LINES.LOG is terminated as a log.)

2.2.2.4 The LS (List dataset) Switch

The format of the LS switch is

```
{dataset/LS     }
{dataset/LS:ON  }
{/LS:OFF        }
```

where the commands /LS or /LS:ON specify a default list dataset to be used for subsequent commands; this dataset is used until terminated by the LS:OFF command. A new default dataset can be specified without turning the LS switch OFF, as shown in the example below.

EXAMPLE:

```
<LP:/LS↵
<FILE.ONE,FILE.TWO↵
<DT1:LIST.FILE/LS↵
<FILE.SIX,FILE,TEN↵
<FILE.OLD,FILE.NEW↵
</LS:OFF↵
```

(the line printer is the default list dataset when comparing the files FILE.ONE and FILE.TWO; the file LIST.FIL on DECtape unit 1 is the default list dataset when comparing files FILE.SIX and FILE.TEN, and when comparing files FILE.OLD and FILE.NEW. The /LS:OFF specification terminates the default list dataset; subsequent commands must contain a list dataset specification until the LS switch is turned on again.)

Table 2-1 contains a summary of all switches usable in the FILCOM program.

Table 2-1 FILCOM Command Switch Summary

Switch	Name	Type	Function
/BL	Blank Lines	Local	When OFF, blank lines are compared in files; when ON, blank lines are ignored during comparison.
/DE	Delete Existing	Local	When present, existing dataset of same name as that specified in command is deleted; when not present, deletion is not performed.
/MB	Multiple Blanks	Local	When present, reduces multiple blanks to a single space during comparison; when not present, multiple blanks are compared individually.
/SC	Source Compare	Local	Specifies the number of consecutive lines to be compared to establish a successful comparison.
/TR	TRailing blanks	Local	When ON, trailing blanks are ignored during comparison; when OFF, trailing blanks are compared.
/DF	define DeFault	Global	Allows user to specify default conditions for one or more LOCAL switches.
/IN	INdirect commands	Global	Specifies dataset containing file to to be read and interpreted as FILCOM commands.
/LO	LOg dataset	Global	Specifies log dataset for subsequent commands.
/LS	LiSt dataset	Global	Specifies list dataset for subsequent commands.

2.3 OUTPUT FROM FILCOM

Output from FILCOM consists of the following elements:

1. A copy of the FILCOM command that initiated the compare,

2. For the master copy, the line number of the difference detected followed by the associated text,

3. For the new master, the line number of the difference detected followed by the associated text.

Figure 2-1 illustrates sample output from FILCOM generated by comparing two versions of the Gettysburg Address.

```
**********************************************
**********************************************
KB:<DT0:FILE01.FIL,DT0:FILE02.FIL
**********************************************
**********************************************
MASTER LINE 00002

THIS CONTINENT A NEW NATION CONCEIVED IN LIBERTY AND DEDICATED TO
THE PROPOSITION THAT ALL MEN ARE CREATED EQUAL.


*****

NEW MASTER LINE 00002

THIS CONTINENT AN OLD NATION CONCEIVED IN LIBERTY AND DEDICATED TO
THE PROPOSITION THAT ALL MEN ARE CREATED EQUAL

**********************************************
```

Figure 2-1. Sample FILCOM Output

CHAPTER 3

ERROR MESSAGES

The FILCOM program issues three types of error messages to identify the source of errors during execution:

1. Command Syntax Errors
2. I/O Device Initialization Errors and I/O Errors
3. Runtime Errors

3.1 COMMAND SYNTAX ERRORS

Table 3-1 lists command syntax error messages and their meanings.

Table 3-1 Command Syntax Errors

Message	Meaning
TOO MANY GLOBAL SWITCHES	More than one GLOBAL switch has been specified in a command string. The command must be retyped with only one GLOBAL switch per string.
UNKNOWN OPTION	FILCOM does not recognize a switch name in a command string; possible mistyping of switch. Command must be retyped using correct switch designation.
BAD NUMERIC FIELD	An invalid number has been typed as the argument of a switch (e.g., the SC switch). Command must be retyped using valid number for the switch.
SYNTAX ERROR IN COMMAND	A typed command does not conform to rules of the CSI; command must be retyped to conform to CSI rules.
TOO MANY SWITCHES	The number of switches in a command exceeds the capacity of the switch buffer. Commands must be retyped using fewer switches per string.
WRONG # OF INPUT DEVICES	A command has been entered containing more (or less) than two input dataset specifications. Two input datasets (master and newmaster) must be specified for a comparison. Command must be retyped correctly.

3.2 I/O DEVICE INITIALIZATION ERRORS AND I/O ERRORS

The following message formats indicate an I/O error:

xxxx DEVICE INIT ERROR

xxxx DEVICE OPEN ERROR

xxxx IO ERROR

where xxxx indicates a file in error, and can be MASTER, NEWMAS, LIST, or COMMAND (indirect command file). These messages are issued if one or more of the following conditions exist:

1. An attempt is made to initialize a nonexistent device
2. Output is attempted to an input-only device
3. Input is attempted from an output-only device
4. An output device (list or log dataset) is duplicated in two commands.

3.3 RUNTIME ERRORS

Table 3-2 lists runtime error messages and their meanings.

Message	Meaning
COMPARE CAPACITY EXCEEDED	There is not enough core available to compare two specified files.
RAN OUT OF BUFFER HEADERS	Program error in FILCOM. Kill program and re-run. If error message is issued again, report via SPR.*

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* Software Performance Report; submit to Digital Equipment Corporation, Software Information Services, Maynard, Massachusetts 01754.

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