

*** MIDAS ***

* MICROCOMPUTER DATABASE SYSTEM *

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Now updated as
Ezyfile (from SCUF
Library)

GENERAL DESCRIPTION

MIDAS is a cassette based general purpose database system for handling alphanumeric data. It is written in Z-80 machine language and is suitable for use in either 16K or 32K Sorcerer microcomputers.

The commands available are:

ADD, CREATE, DELETE, EDIT, FIXED FIELDS, LIST, LOAD, QUERY SPACE, REPORT, SORT and WRITE.

Each of these is described fully under its own heading.

Allowance is made for up to 500 records which may consist of 1 to 9 fields. Each field is given a name by the user when CREATING the database and this is used as an aid in manipulating the file. The space available for record storage is about 24K bytes in a 32K machine. (8K in 16K machine). A field may contain up to 56 chars, so that the max. record size is 504 chars. It is best to divide the record up into small fields which would be useful for sorting and searching. e.g. for a file of names and addresses the fields could be 1STNAM, SURNAM, STREET, SUBURB and PHONE.

MIDAS does not use locations 0 to 1FF (hex) of RAM and these may be used to hold any routines the user wishes. If the BASIC ROM-PAQ is inserted, a reset will not affect the program. Many Sorcerer monitor routines are used to provide efficient I/O and other features.

TO LOAD AND RUN PROGRAM

1. Enter monitor and type LOG
or
2. Load program and type GO 200
3. To re-enter program after finishing, type GO 200 to initialise all files
GO 202 to go to command section
without losing previous data.

PRINTER USE - KPATM

In the LIST, REPORT and FIXED FIELDS routines, you may specify listing on a Centronics compatible printer, if one is connected to your system. When the message WANT PRINTER? is shown, type Y to route O/P to the printer. Type anything else to list on video screen.

NOTE: If such a printer is not connected to your system, DO NOT type Y in answer to this question. This will cause the program to 'hang up' in the printer driver. If this should happen, press RESET and then type GO 202 to go to command mode without loss of data.

The listing commences immediately after you respond to the WANT PRINTER? request.

RANGE OPTIONS

For commands LIST, REPORT, EDIT and DELETE the user may select the range of records to be processed from the following options:

- A - ALL the records in the file
- O - ONE of the records in the file (by number)
- R - RANGE of records (by number)
- F - FIELD match using key field.

Range Options (ctd)

The first three are self-explanatory. The F option provides a means of accessing records whose key field matches a string entered by the user. To use this option, choose which field in the record you want as a key and a type in a string for comparison. There are two types of comparison available:

F - FULL comparison - The key field in the record must exactly match the string entered (both contents and length).

P - PART comparison - The first part of the key field must match the string.

e.g. FULL - string ROBERT would only match with key field containing ROBERT

PART - string ROB would match with ROB, ROBERT, ROEYN, ROBERTA etc.

KEYBOARD ENTRY

For single character entries such as commands or field numbers, there is no need to press return. For entries which are (or could be) more than one char., press return at end of entry. For these multi-character entries, normal monitor editing is available (SHIFT-RUB and @).

FIXED FIELDS

Provision is made for up to 25 fields whose contents are set by the user with the FIXED FIELDS command. These fields may hold up to 25 chars and be used to hold commonly used names, comments etc. You do not have to use this feature. If the first fixed field (called #1) was set to NEW SOUTH WALES, then it is possible to type #1 instead of NEW SOUTH WALES wherever a field may be entered (in EDIT, ADD and F option of range). When MIDAS sees #1, it treats the field as the contents of fixed field number 1 (e.g. in SORT). If the fixed field used is blank, then MIDAS will treat the field as a blank field. This feature can be used to save typing and file space if your file contains some commonly used entries. When entering a fixed field number for a field, it must be the only entry for that field.

THE COMMANDS (in alphabetical order)

Note: Type in only the first letter of the command.

ADD To add new records to the file.

Records are always added at the end of the file. The contents of each field is typed beside its name, followed by a CR. If a fixed field (# number) is used, it must be the only entry for that field. Fields may consist of any chars except for the first char of the field which cannot be # (hash) or \ (back slash), except as follows:

(hash) must be followed by a number between 1 and 25 signifying a fixed field. It must be the only entry for that field.

\ (back slash) indicates that the user wants to exit the ADD routine and the current record being entered will be ignored.

Note: # and \ may be entered anywhere but the first char, without worrier. The ADD routine will automatically stop after the 500th record is entered or if there is no further file storage space (see OUT OF SPACE error message). You may use normal monitor editing when entering fields. To enter a blank field simply press return.

CREATE To define the names and number of fields in the database.

The field name is typed beside its number. Only 6 chars are used. If more than 6 chars, the name is truncated and if less, it is right blank filled.

If less than 9 fields required, enter a blank one after the last wanted. At the end of the CREATE routine the internal form of the field names is printed and you are returned to the command mode.

DELETE To remove records from the file. Full range options are available. As the record is to be deleted, it is listed on the video monitor. If you want to delete it enter Y else N. The records are deleted in order from the highest number to the lowest in the range. The space made available by the deletion is immediately usable for file expansion.

EDIT To change the contents of records in the file. Full range options are available. The record to be edited is fully listed then each field is listed individually, followed by a ? (question mark) on the next line. Enter after the question mark:

- (a) CR (carriage return) to leave field unchanged.
- (b) \ (back slash) and CR to delete that field and leave it blank.
- (c) The new contents of the field and CR to change it.

This procedure is repeated for all records in the range in ascending order.

FIXED FIELDS To list and/or change the contents of the fixed fields. The 25 fixed fields are listed, showing a blank if they are not set. The user is then asked CHANGE WHICH FIELD? To change a field, type in its number and CR. The routine will reply by typing #no. Type the contents of the field beside this and CR. You will then be asked WANT PRINTER? (see printer notes). Reply to this will cause fields to be relisted. If the field you enter has more than 25 chars., it will be truncated to 25.

NOTE: To exit routine, enter \ (back slash) for the number of the field you want changed.

LIST To list the records in the file. Full range options are available. The listing format includes record number and names of the fields as well as their contents. If you do not want all this, see REPORT. After reply to WANT PRINTER? (see printer notes) the listing will commence. Fixed fields are listed out in full. To interrupt the listing, hold down the RUN/STOP key and the listing will pause at the end of the current record. Releasing the key will recommence the listing.

LOAD To load a previously created MIDAS file. Enter the file name (up to 5 chars, the first alphabetic) and the cassette unit number (1 or 2). Set up the cassette and when ready, press any key. If using a serial data cable, the cassette motor will be automatically switched on and off. Note that all MIDAS files are of type M and have a loading address of 1650.

QUERY SPACE To check amount of space left for records in file area. This prints out the number of bytes of RAM left for file expansion as a 4 digit hexadecimal number. If the file is bigger than the file space, it prints an OUT OF SPACE message. (see error messages).

REPORT To list records from the file in a user requested format. Full range options are available and a printer may be used (see printer notes). Fixed fields are printed out in full. There are two uses for this routine:

1. A simple listing which is the same as for LIST without record numbers or field names.
2. A tabulated report. For this you must choose one of the options shown on the next page for each of the fields in the record.

For both uses, you may choose the number of lines between each record (0-9). The REPORT listing may be interrupted as for the LIST command.

REPORT Field Options

- 1 - Print TAB(10) on same line
- 2 - Print TAB(20) " " "
- 3 - Print TAB(30) " " "
- 4 - Print TAB(40) " " "
- 5 - Print TAB(50) " " "
- 6 - Do NOT print field
- 7 - Print on same line after 2 spaces
- 8 - Print at start of next line
- 9 - Print at start of line after next

For the TAB options (1-5), if the print position is past the required TAB position the field will be printed immediately after the last one.

SORT

To sort the records in the file using one of the fields as a sort key. The sort is an alphabetic bubble sort. To correctly sort fields holding numbers, they should have the same number of digits in each. The method of sorting permits the use of multi-key sorting. If you wish to use several keys, sort first by the innermost key through to the outermost. e.g. To sort by first name within surname, sort firstly by first name and then by surname. This will put the file into surname order, with first names in order for a given surname. The time taken to sort depends on the number of records, the average length of the sort field and the amount of order already in the file. As a guide it takes about 110 sec to sort a file of 500 average surnames. For smaller numbers of records, the sort is much faster being about 30 sec for 250 names. SORTing commences immediately after you enter the sort field.

WRITE

To save a MIDAS file on cassette. Enter file name as for LOAD and tape unit number. Press any key to start saving. Cassette motor automatically controlled with serial data cable.

(ESC)

To exit the MIDAS program and return to monitor. In command mode, press the escape key to return to monitor. If the file has been changed and not saved, a warning message is printed. If you elect to save the file, you will be returned to command mode. MIDAS always returns you to monitor. If you want to re-enter the program without losing the data, type GO 202.

ERROR MESSAGES

1. **ILLEGAL ENTRY - 'REPEAT**
 You have entered (a) an incorrect command
 (b) a record number not in the file
 (c) a range of record numbers with the second less than the first.
 REPEAT ENTRY AS REQUESTED.
2. * NO DATABASE PRESENT *
 You have attempted to add records when the field number and names were undefined. This error will return you to monitor.
 RESTART USING GO 200 AND THEN CREATE OR LOAD
3. * ILLEGAL # NUMBER *
 You have entered a number after # which is not in the range 1 to 25
 REPEAT ENTRY

ERROR MESSAGES (ctd)

4. * OUT OF SPACE *

- (a) When ADDING records, the last record entered would go beyond the end of file space available. This last record will be ignored and the ADD routine finished. You should periodically use the QUERY SPACE command to check the space available.
- (b) When EDITING, the revised record extends beyond file space. This record will be included, but the editing process curtailed. To ensure correct operation of MIDAS you should either EDIT or DELETE to bring the file back within its bounds.

TECHNICAL INFORMATION

1. Entry points: GO 200 start of program - all files initialised
GO 202 command section - current files unchanged
2. Memory Map:
- | Locations | Contents |
|-----------------------|---------------------------------------|
| 0 - 1FF | Unused. Free for user routines. |
| 200 - 164F | MIDAS program and messages. 0014-164F |
| 1650 - 168F | Field name storage |
| 1690 - 191A | Fixed field storage |
| 191B - 191C | Number of records |
| 191D | Number of fields |
| 191E - 191F | Free space pointer |
| 1920 - 1D17 | Data pointers to start of records. |
| 1D18 - 7E00
(3E00) | File space for records |
3. Record Storage: Records are stored with fields separated by a null (0). Location 1D18 also has a null. The start of each record is stored in the data pointer area with implied addressing. The start of each record is the last null of the previous one. Records are added at the location pointed to by the free space pointer. The storage overhead in file space for each record is equal to the number of chars in each field + the number of fields.
4. MIDAS Output: All output is sent via the Sorcerer vector O/P routine at E00C, with the exception of the printer O/P which is sent via E993. Thus you can use the monitor command SET O=X to arrange your O/P. Exit the program and use GO 202 to restart.
5. File Size: The top address allowed for file storage is 7E00 in 32K and 3E00 in 16K. This leaves some free space between the end of the file and the monitor stack. Editing and adding could take the file up into this area, so be wary of overwriting the monitor stack. Note that the upper limits on the file are 500 records or space available (whichever comes first).
6. No of records: If you want to find out how many records there are in the file use the ADD routine, by entering \ (back slash) for the first field of the first record. This will print out the no of records in the file.

FINAL NOTE: MIDAS is pretty well fool-proofed, so try all the commands on a dummy database to get used to their operation before you try seriously using it.

MIDEX: MIDAS ADDITIONS

One of the most useful of the early utilities to become available for SORCERER was the MIDAS routine. This was written by Bob Stafford and provided a DataBase facility. After much use of the program I became convinced that a few extras would add even more to the routine.

The main effort allows the summation of a column of figures in a given field (as defined by MIDAS). So if your DataBase consists of countries and political subdivisions, you might well have included census figures as a separate field in each record. e.g.

(<u>COUNTRY</u>	<u>STATE</u>	<u>ELECTORATE</u>	<u>VOTERS</u>)
(Australia	Vic	Deakin	80024)

To then determine the number of voters in Victoria one would need to add the values in the fourth field for each record associated with Victoria. The addition of the command TOTAL does this automatically. But more of this later.

I came up with three other modifications which you may find useful. Also an easy way to eliminate that annoying reminder that you don't have a printer yet. (you know -the question DO YOU WANT PRINTER? -the answer is YES but it still doesn't buy one) The first change modifies the significance of the Qu. DO YOU WANT SIMPLE LISTING? Instead of a fixed and not very useful format (it's similar to LIST anyway) the routine will use the previous format setup, if you answer "YES". If you say "NO" then the program sets up a new format in the usual way. The facility allows for your favourite format to remain in force while different reports or sorts are tried.

X The next change to be discussed allows a faster way of deleting records (very useful if more than ten records are to go), by removing the Qu. OK TO DELETE? One must be sure of what is to be deleted, of course, but there are times when mass deletions are necessary. (If the DataBase has been saved on tape and you've made a BIG mistake then --reload). Anyway, I call it XDEL (Express DELETE) invoked using "X" and it works as soon as the items have been specified.

P Also, I have added an option for the EDIT phase which permits all but one field to be PROTECTED. This is useful if you wish to alter a number of records but in only one field. Thus in the example used earlier, all the numbers of voters can be upgraded by protecting the other fields. It is a lot faster and safer, since one can't enter new data into the wrong field. Use this one by the command "P". The Qu. WHICH ONE? refers to that field that you wish to allow changes. A zero returns to normal while incorrect entries result in the question being repeated.

T Now, at last the detail on the TOTAL routine. It is activated by "T" when at the command level, and will work on the nominated field until a new "T" command is given. The effects are seen at each REPORT command. During the setup (after "T") the Qu. WHICH FIELD? is asked. The program then expects a field number. A zero will disable the function while an incorrect entry (too large or non numeric) results in a new request. The nominated field should be that used for the numeric data. Because the program operates during the REPORTING phase the full selection facilities

of MIDAS are available to generate the required report and appropriate total at the end. I use the report to confirm which records are involved in the total. By suitable selection of format, the report need not be displayed (the screen image may dance about but all is well). The result is flagged by the field label whatever format is chosen and appears at the end just before the continuation banner. During the report listing RUN/STOP can be used to stop processing. Any key can be used to restart the listing.

The summation allows for eight significant digits in the field entry, of which two decimal places are included. The value may be negative, in which case a "-" should immediately precede the numeric part. Decimals are not mandatory and the entry can be an integer. However, extra decimals are ignored. The result is printed with leading zeros suppressed (except that preceding the decimal point) with a negative sign as needed. Ten significant digits are allowed including the two decimal places (special fixed point formats can be provided). There are four error exits and each returns control to MONITOR. It is possible for the errors to be non fatal but there is no special diagnostic report so too many errors might look untidy on a report; besides it is easy to restart MIDAS and the faulty record will be on display.

error exit

C ERROR	Total overflow (greater than 99999999.99)
ERROR	Field overflow (greater than 999999.99)
INVALID PARAMETER	Means a non decimal char in the field.
COADDRS	A non decimal char just prior to digit or -ve.

The last case is a jump which could be to a routine to handle non decimal number bases, or leading \$ or whatever.

A word about the changes. The Tape containing MIDEK, available from the Library is intended for existing owners of MIDAS. That program should be loaded first followed by LOG MIDEK. All the necessary changes will then be made and the new improved MIDAS can then be saved (from FE00 to 164F). In making these extras, the facilities of MIDAS have been retained even to point of compatibility of data. It is assumed that no other changes have been made. Certain variables have been given more significance and locations FE00 to FF70 and 0 to 1FF are now used. The use of the upper 8K RAM space can cause some screen flicker. This will only occur during reports when TOTAL is active. If a normal report format is used the effect is not significant. FF70 to FFFF is available for extra code. There was't room to fit the extra commands neatly into the existing command list so they do not appear everytime. Instead, whenever a command is used that cannot be recognised then the user is reminded of XDEL, PROTECT and TOTAL by a message displayed for a few seconds before the command list returns. And lastly, for those without printers simply change the location 752H to 0C9H.