Best wishes!

Yours

VFORMAT

USER'S GUIDE

for Personal Computers

by T. Riemer

ACKNOWLEDGMENT

Siginificant contributions to both the principles and details of V-Format have been made by H.H. Leuschner.

LICENSE INFORMATION

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1 INTRODUCTION

The program's purpose is to translate tree ring data and other kinds of time series in several frequently used data formats. It can read and write data, that are stored in "V-Format", "Göttinger Format", "Tucson Format" or "Matrix Format". "Matrix Format" means, that each observation (tree ring) occupies a different file record and that the items of each observation (sample name / year / ring width) have the same order in every record.

There is an increasing tendency, that tree ring analysis is less done by single specialists but by international cooperation of scientists of different branches. It is necessary to exchange not only experiences, but data, too. V-FORMAT's intention is to simplify the most boring part of tree ring analysis: making foreign data available to your own programs. It also offers a possibility to translate and store your time series in a particular format specially developed for tree ring data. Its advantages and rules are described in chapter 3.

To use the program V-FORMAT, you must have:
- a Personal Computer, DOS 3.00 or above
- at least 300 K free memory

The single steps needed to install the program are described in chapter 2.

The program can be run either in batch mode or in interactive mode. In batch mode, a whole data set is translated into another format. If successfull, the program returns to DOS. In interactive mode, you can control the operations by selecting options from menus or entering parameters into tables. You may store your settings in permanent configuration files to be automatically recalled by future runs of V-FORMAT. For details of handling the program refer to chapters 7 to 9.

2 INSTALLATION

The installation consists of the following steps:

1. Checking the computer's resources
2. Selecting / creating directories for your new files
3. Checking / modifying `CONFIG.SYS`
4. Checking / modifying `AUTOEXEC.BAT`
5. Copying files from diskette to hard disk
6. Rebooting your computer
7. Testing the program

CHECKING THE COMPUTER'S RESOURCES

Use the `CHKDSK` command to check the available storage and memory.
Verify, that there is enough storage on your hard disk for the new files. The programs will take approximate 200 K. But you should have at least 1 M free disk space to ensure a convenient work with small and medium datasets.
If the available memory is less than 300 K, the program may not run correctly or may not run at all.

SELECTING / CREATING DIRECTORIES FOR YOUR NEW FILES

You may select existing directories to take in your new files. You may create new directories for them, too.

The directory containing the executable file (VFORMAT.EXE) should be listed in the PATH command. The directory of the configuration file (VFORMAT.CFG) should be listed in the APPEND command. For the use of PATH and APPEND commands see section "MODIFYING AUTOEXEC.BAT" later in this chapter.

CHECKING / MODIFYING CONFIG.SYS

Verify, that the FILES parameter is set at least to 30.
The BUFFERS parameter should be set at least to 15.
Verify, that ANSI.SYS installed.
For example, the corresponding lines in your CONFIG.SYS could be:

```
FILES   = 50
BUFFERS = 20
DEVICE  = C:\DOS\ANSI.SYS
```

CHECKING / MODIFYING AUTOEXEC.BAT

Verify, that the path containing the executable file (VFORMAT.EXE) is included in the PATH command.
The path containing your configuration file (VFORMAT.CFG) must be listed in the APPEND command.
For example, if the directory of your new files is C:\VFORMAT , your AUTOEXEC.BAT may contain the lines:

```
PATH C:\DOS;C:\VFORMAT
APPEND C:\VFORMAT
```

COPYING FILES FROM DISKETTE TO HARD DISK

Copy the executable, configuration and utility files to their new directory or directories, respectively.
If you do not yet have installed the ANSI driver, copy the file ANSI.SYS from your original DOS diskette to the directory specified in CONFIG.SYS .

REBOOTING YOUR COMPUTER

If you have changed either CONFIG.SYS or AUTOEXEC.BAT , reboot the computer to bring into effect the new configuration.

TESTING THE PROGRAM

Create a new directory on your hard disk, e.g. C:\TEST .
Insert the original program diskette in your floppy disk drive and copy the demo files (VFORMAT.KEY , DEMO1.BAT , DEMO*.!OJ and DEMO*.TUC) to C:\TEST .
Verify, that this directory contains no other files than those of your original V-FORMAT program diskette.
Set the default directory to C:\TEST and enter the command DEMO1 .
The demo file will automatically execute some file operations. If neither warnings nor error messages are given, the installation has been successful.

3 V-FORMAT

V-Format is a definite manner of storing time series data. In addition to the raw values, e.g. tree ring widths, it contains an identification of the series, information about the time period, sampling and measurment of the data, geographical coordinates, etc. . On PCs, all these items are ASCII-coded, therefore they can be read by most text editing and a lot of data analyzing programs.
If you do not want to write programs, that will read or write V-Format data, you do not have to know the details, that are described in this chapter. The knowledge of coding and decoding the different informations is not neccessary to work with VFORMAT. Thus you might skip this chapter when reading the user's guide the first time.

Each V-Format file may consist of many single series. First, each series takes 2-4 rows by 80 columns, regardless the length of the time series. Each following row contains up to 10 values of the series, that means, each point of time occupies 8 columns.
The first row ("top line") contains the following information:

Column	Meaning
1-12	series identification
1	code character representing the project or country the series belongs to
2	code character representing the region or ecological area
3- 4	code number (tree rings: sample site)
5- 6	series number (tree rings: tree number)
7	code character (tree rings: height of measurment)
8	running number, if several series have the same first 7 columns
9	always "."
10	"I" for single -, "Z" for partial -, "#" for mean curves or chronologies
11	code character representing the statistical data treatment
12	code character representing the originally measured parameter
13-15	unit of measurement
16-20	number of values (years, series length)
21-24	type (tree rings: tree species)
25-30	date (year) of last stored value
31-50	label or description
51-58	date of first data measurement (2 digits for day, 2 for month, 2-4 for year)
59-60	initials of the owner or person, that had measured the data
61-68	date of last data manipulation
69-70	version of V-Format (00, 01, ...)
71-73	estimated number of missing values preceding the series start
74-75	standard error of this estimate
76-78	estimated number of missing values following the series end
79-80	standard error of this estimate

The numbers in columns 3-6 may be coded hexadecimal or hexatresimal to enable the representation of values greater than 99.

The tree's height is coded in the following manner:

1	1 meter
2	2 meter
.	. .
A	10 meter
B	11 meter
.	. .
S	lumber height (30 cm)
T	breast height (130 cm)

In column 11 (statistics) are commonly used:

F	frequency filtered series
I	index (original divided by model curve)
M	moment, mean of several series
O	original
P	pointeryear statistic
Q	cluster-pointeryear statistic
R	residual (original minus model curve)
S	moving deviation or variance
T	trend, fitted curve, model
W	transformed original, "Wuchswert"
X	series with standardized running mean and variance
Z	central moment, deviation or variance between several series

The parameters (column 12) are usually coded as:

D	mean density
F	width of earlywood
G	maximum density
J	ring width
K	minimum density
P	portion of latewood (%)
S	width of latewood

The first 12 columns of the top line identify the time series. Usually they determine the filename, too. Columns 10 to 12 determine the filename's extension and are also called "extension". All positions except the eighth, that are identical all through the file, will be used to name the file. Positions, in that at least two series differ, will be marked by a "_" . The eighth column again contains a running number for files, that otherwise would have the same name.

Example: The series

NF1303T1.!OJ
NF1304T1.!OJ
NF1401T2.!OJ

will be put together in the file

NF1_0_T1.!OJ .

But if this file already exists, the name is changed to

NF1_0_T2.!OJ .

This procedure has the advantage, that you

- do not have to invent new names again and again,
- achieve a uniform naming convention for your files,
- can survey each file's contents just by its name.

The program obeys these rules itself, but allows you to select other names, too.

The species name will be abbreviated by the first two characters of its scientific names, e.g. "Fasy" for the beech, Fagus sylvatica.

The entries about missing points of time, not included in the data but belonging to it in a way, have some importance in dendrochronology. They may denote rings, that the tree had built but that have not been measured. The knowledge or at least estimation of their quantity is necessary to determine the total life time or year of the tree's death. In addition to the estimates you can enter their standard errors in order to enable further statistical analysis. If the standard errors are unknown or if you only know the minimum number of missing values, you should enter a "." instead.

The second "comment" line contains any desired text up to 80 characters. It may be changed at any time.

Future development may demand other or additional items stored together with time series data. In order to avoid the complete exchange of datasets or programs, that are based on V-Format, you have the possibility to use different versions of V-Format together at the same time. The version number has its fixed place in columns 69-70 in the top line. From version 10 on there is a third line, containing 8 floating point numbers by 10 digits: X/Y/Z coordinates (longitude, latitude and altitude), height of the tree's measurement and up to 4 other numbers, depending on the actual application. From version 20 on follows a further line, also containing 8 numbers by 10 digits. The numbers are read in free format, but they do not have to be separated by blanks.

The following lines consist of up to ten data fields by 8 columns for each point of the time series. Each data field contains 3 values:

The actual measured value takes 5 digits. On input, if no decimal point is included, the value is devided by 100 (like FORTRAN format F5.2). Decimal points will be taken into account on input but usually dropped on output. Before these numbers may be two alphanumerical values:

- two characters representing the validity and importance and
- one character coding any desired information about the actual point of time.

Information about the validity of single values in a time series is necessary to achieve a varied evaluation of nonequivalent data. A different accuracy or reliability of measurements should be taken into account by a different weighing of the data. Also different time intervals may be less or more interesting for a specific kind of evaluation.

The number of single curves used to build up a mean curve or chronology may be considered as weighing factors, too. Therefore V-Format regards the two concepts of validity and weighing.
There are 8 possible characters to describe the validity of single points of time: / /!/"/#/$/%/&/'/ (ASCII codes 32-39).

Their meaning is:

" "	full validity
!	not yet used
"	not yet used
#	not yet used
$	no validity for long-term evaluations
%	no validity for single-value evaluations
&	no validity except for cumulative statistics
'	no validity at all, unknown value

Each of the eight characters may be combined with a quasi-binary representation of the weighing factor. Consider the first 2 of total 8 bytes occupied by one point of time:
The 8 types of validity are coded by the 3 least significant bits of the first byte. Let n be the value of this and m that of the following byte. n and m may have values between 32 and 126. `m* = i-32` corresponds to the weight's mantissa, `n* = [(n-32)/8]` to its exponent (applied to base 3). The actual weight is computed by the following formulas.

range of n*	expression	range of weight	precision
9	$(m^* / 95) / 9$	0.0 - 0.1099	0.00117
10 - 11	$(1 + 2 \cdot m^* / 95) \cdot 3^{n^*-12}$	0.1111 - 0.9930	0.00234 - 0.00702
0 - 8	$(1 + 2 \cdot m^* / 95) \cdot 3^{n^*}$	1.0 - 19545.	0.02105 - 138.126

Examples:

validity	weight	byte 1	byte 2	characters
" "	1.0	32	32	" "
" "	3.0	40	32	"("
"'"	0.0	111	32	"o "
"$"	49.7	60	72	"<H"

There is no rule concerning the third column of each data field. It is neither considered nor modified by VFORMAT. You can store in it additional qualitative information about single points of time.

Example: A complete time series including additional information in V-Format may look like the following one.

```
NL3W34T1.!OJmm     88Pisi   1986NL3W34T1.!OJ                    FB01/06/9002  0 0   0 0
1st date unknown
&    259      238      302      276      272      199      322      246      235      289
     244      212      167      173      107      130      131      130      132      177
     132      157      115      144      168      144      150      133      136       87
     120      143       91      139      154      111      127      101      140      138
     175      113      189      175      123      125      192      170      126      133
     102      115       96       95      106       69      62o       0o        0       45
      40       67       73      101       95      114      133      151      188      172
     115      132      134      137      119      120      150      128      120      126
      99      142      117      137      151      124      127      109
```

4 GÖTTINGER FORMAT

Göttinger Format is similar to V-Format, but there is less information, that can be stored in it in addition to the raw time series data. Another important difference is, that the series is arranged by descending time, that means, the first stored data value belongs to the last point of time and vice versa. Each time series occupies 2 header lines and additional data lines corresponding to the length of the time series. The maximum record length is 70 bytes.

The first header line contains:

Column	Meaning
1- 8	series identification
9-12	number of values (years, series length)
13-17	estimated number of missing values preceding the series start
18-22	estimated number of missing values following the series end
23-29	date (year) of first stored value (last point of time)
31-50	label or description

The second header line contains the series length in columns 1-6 again.

The actual time series data are multiplied by 100 and are stored as integer values. Each record may have 10 integers by 7 columns. (This corresponds to FORTRAN format (10I7)). Invalid or missing data are coded by a minus sign.

Example: The sample series from the previous chapter is now shown in Göttinger Format.

```
NL3W34T1   88     0     0    1986 NL3W34T1.!OJ
    88
    109     127     124     151     137     117     142      99     126     120
    128     150     120     119     137     134     132     115     172     188
    151     133     114      95     101      73      67      40      45      -1
     -1      62      69     106      95      96     115     102     133     126
    170     192     125     123     175     189     113     175     138     140
    101     127     111     154     139      91     143     120      87     136
    133     150     144     168     144     115     157     132     177     132
    130     131     130     107     173     167     212     244     289     235
    246     322     199     272     276     302     238    -259
```

5 TUCSON FORMAT

The main difference between this and the previous formats is, that there are no header lines at all but each data line starts with the series identification and a time value (year) instead. The time value represents the beginning of the next 10 data values. The identification takes 8, the time value 4 columns. They are followed by 10 integer values, each taking 6 columns. They usually have to be divided by 100 or 1000 to get the real time series data. You may change this factor (the number of decimals respectively) with the program VFORMAT. The resulting maximum record length is 72 bytes. Usually the data are arranged in such a manner, that the time values are multiples of 10. Invalid or missing values are coded by -999, the end of each time series by 999.

Example: The already shown time series is now listed in Tucson Format, using the factor 100 (2 decimals).

```
NL3W34T11899  -999
NL3W34T11900   238   302   276   272   199   322   246   235   289   244
NL3W34T11910   212   167   173   107   130   131   130   132   177   132
NL3W34T11920   157   115   144   168   144   150   133   136    87   120
NL3W34T11930   143    91   139   154   111   127   101   140   138   175
NL3W34T11940   113   189   175   123   125   192   170   126   133   102
NL3W34T11950   115    96    95   106    69    62  -999  -999    45    40
NL3W34T11960    67    73   101    95   114   133   151   188   172   115
NL3W34T11970   132   134   137   119   120   150   128   120   126    99
NL3W34T11980   142   117   137   151   124   127   109   999
```

6 MATRIX FORMAT

Matrix Format is thought of as interface to other data bases and data analysis software. The only requirement is, that they can read formatted or free formatted line oriented ASCII data. A matrix in this context means a table of time series data, where each row has identical structure and represents one point of time. Identical structure means the same order and usually the same field length. There are 3 components (fields) in every row: identification, time and actual data value. The identification is unique for one time series. The time is an integer value and denotes the absolute point of time of the corresponding data value. In VFORMAT, the time series must be sorted either increasing or decreasing by the time value on input. It is always sorted by increasing time on output. Data values are real numbers with or without decimal points. Invalid or missing values can be marked on input by a single decimal point. They may be dropped on output. The series identification and the time value can be left out, if there remains no doubt about the order of the data. That means, the identification must be at least in the first row and the time value at least in the first two rows of each series. The time value must not be missing, if there are any gaps in the time sequence.
In VFORMAT you can choose formats in FORTRAN notation or free format both for input and output files. You may even mix free an fixed formats in the same file. The details of defining the structure of Matrix files are described in the chapter "PROGRAM FLOW".

Example: The following is one possibility to store the already listed series in Matrix Format. The series identification has been written only to the first row. The three components are formatted, but at least separated by 1 blank. So they can be read by most other data analysis programs.

```
NL3W34T1.!OJ    1900        2.380
                1901        3.020
                1902        2.760
                1903        2.720
                1904        1.990
                1905        3.220
                  .           .
                  .           .
                  .           .
                1984        1.240
                1985        1.270
                1986        1.090
```

7 PROGRAM START

Before you run the program, be sure, that the license has not expired and that the system date and time of your computer is set correctly. VFORMAT may also fail to work, if you use files with a wrong creation date. Thus be careful to have always set the right system date, even if you do not use VFORMAT !

There are two ways to start and execute VFORMAT. You may either enter

VFORMAT

at the DOS prompt to run VFORMAT interactively or

VFORMAT *filespecification directory*

to run VFORMAT in batch mode. In batch mode a single file defined by *filespecification* is translated with standard settings. The output file is stored in *directory*. You may include a drive or path in *filespecification* to translate a file in another than the default directory. You may drop *directory*, if you want the output file to be stored in the default directory. Since VFORMAT determines the proper name for the output file automatically, you must not specify a filename instead of *directory*. If you are not quite sure, which file to translate or whether the actual settings are correct, use interactive mode.

There is a configuration file `VFORMAT.CFG` belonging to the program VFORMAT, which contains the actual settings and options. Each record contains one parameter in the first 12 columns. It is followed by the standard setting and a short description of the value's meaning. The original file's contents is:

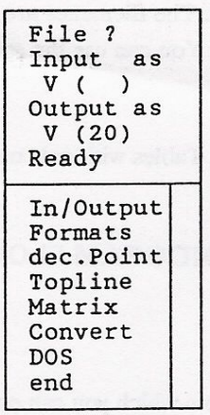
```
4           (4     ) Format of  input file, 4: V-Format
4           (4     ) Format of output file, 4: V-Format
2           (2     ) Input position of decimal point
2           (2     ) Output position of decimal point
            (      ) Series name or key
!OJ         (!OJ   ) Extension
mm          (mm    ) Units
            (      ) Species
            (      ) 1. date (measurement)
            (      ) Initials
today       (today) 2. date (last modification)
02          (02    ) V-Version
```

```
  0           (  0  ) Preceding missing values
  0           (  0  ) Estimated standard-deviation
  0           (  0  ) Following missing values
  0           (  0  ) Estimated standard-deviation
     .        (  .  ) Height
     .        (  .  ) x, Longitude
     .        (  .  ) y, Latitude
     .        (  .  ) z, Altitude
N             (N    ) Write over series key (Y/N) ?
N             (N    ) Write over extension (Y/N) ?
N             (N    ) Write over unit (Y/N) ?
N             (N    ) Write over species (Y/N) ?
N             (N    ) Write over 1. date  (Y/N) ?
N             (N    ) Write over initials (Y/N) ?
N             (N    ) Write over 2. date (Y/N) ?
N             (N    ) Write over V-version (Y/N) ?
N             (N    ) Write over preceding missing values (Y/N) ?
N             (N    ) Write over standard deviation (Y/N) ?
N             (N    ) Write over following missing values (Y/N) ?
N             (N    ) Write over standard deviation (Y/N) ?
N             (N    ) Write over height (Y/N) ?
N             (N    ) Write over x (longitude) (Y/N) ?
N             (N    ) Write over y (latitude) (Y/N) ?
N             (N    ) Write over z (altitude) (Y/N) ?
*.GOF         (*.GOF) File(s) in Göttinger format
*.DAT         (*.DAT) File(s) in Matrix format
*.TUC         (*.TUC) File(s) im Tucson format
*.!*          (*.!* ) File(s) in V-Format
  1           (  1  ) 1. column for key
 14           ( 14  ) 1. column for time
 21           ( 21  ) 1. column for value
A12           (A12  ) Format for key
I6            (I6   ) Format for time
F10.3         (F10.3) Format for value
Y             (Y    ) Complete key (Y/N) ?
Y             (Y    ) Complete time (Y/N) ?
Y             (Y    ) Complete Value (Y/N) ?
```

Future releases of VFORMAT may differ from this version of `VFORMAT.CFG` . If the program is started, the standard settings are read from the configuration file. This is first searched in the default directory, then, if not yet found, in the directories of the APPEND command. If `VFORMAT.CFG` is not found at all, the program uses its internal standard settings, which are listed above inside the brackets (columns 15-19). To change the configuration, you can modify the file with any text editor program. But it is recommended to modify and save the settings using VFORMAT in interactive mode by means of its tables and menus. The details of settings, options and the use of tables and menus are described in the following chapters. If you change the configuration file with a text editor, be sure to keep the settings separated from the comments by at least one blank. If you should loose the configuration file, you can ask VFORMAT to generate the original `VFORMAT.CFG` again.

To prolong an expired license, you also have to start VFORMAT in interactive mode. In this case, the executable file itself, `VFORMAT.EXE` , must be in the default directory. Press the key "V", as soon as the program's name appears on the screen. You will be prompted to enter the information necessary for the prolongation.
The old program will be renamed to VFORMAT.BAK and a new version of `VFORMAT.EXE` will be created. Thus there must be enough storage for both the new and the backup file.

If you do not press "V" and if the license conditions are accepted, the program will read the configuration file and build up the main menu, from which you can control the further execution:



8 TABLES AND MENUS

Each menu consists of 3 fields. The upper field contains several informations about the actual status and settings. For example, the main menu starts with the input filename, the input and output format. The last line of the upper field describes the recent status of the program, e.g. "Ready" or it displays an error message.
The possible selections of the menu are listed in the lower left field. In most selections, one or more letters are written in upper case. To choose an option, press the key corresponding to these upper case letters.
You may alternatively position the cursor in the lower right field beside any desired option and press »ENTER«. To move the cursor, use the spacebar, tabulator or cursor keys.
To select an option entire written in lower case, you must use the cursor and »ENTER« keys. To leave another than the main menu without any selection, press the »ESC« key.

After selecting from a menu (except »end« in the main menu), the program will

- execute your request and remains in the actual menu
- show you another menu or
- build up a table of parameters or text.

For example, if you press "m" in the main menu, you will see a table of column numbers and format specifications, that will define the Matrix Format.
Each table consists of up to 3 fields. Above and left may be any text, that will describe the meaning of the parameters you can enter or modify in the lower right field. The following keys will help you to edit the table's contents fast and convenient:

»RETURN«	moves to the beginning of the next line
»DEL«	deletes the character at cursor position
»BACKSPACE«	deletes the character before the cursor
»INS«	inserts one space character
»HOME«	moves to the upper left corner
»END«	deletes the text right from the cursor
»CTRL-HOME«	moves to the beginning of the line
»CTRL-END«	moves to the end of the line
»CTRL-PGUP«	moves to the beginning of the table
»CTRL-PGDN«	moves to the end of the table

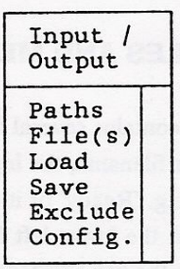
If you use wild cards to define an input file and if there are several files, that match these wild cards, you will see another menu, which works somewhat different. The filenames are listed row by row on the screen and the actual choosen file is displayed in reverse video mode. You can use the spacebar, backspace, tabulator and cursor keys to choose another input file.

To leave either a menu or a table, press »ESC«. Tables with only one line will be finished by »ENTER«, too.

9 PROGRAM FLOW

The main menu offers the following options:

In/Output You will see another menu, from which you can control the file operations:



Paths Here you may enter the drive and path of the files to be processed, if they are not in the default directory. You must enter separate specifications for input and output files, for example:

Paths of input and output files	
Input	A:
Output	\TREERING\

Be aware, that the paths do not contain any filename.

File(s) The actual input filename has to be specified in this separate table:

File(s)
C*.!OJ

Like in this example, you may use wild cards to abbreviate names or to denote several files. Be aware, that the name does not contain any drive or path specification. Use the previous table to select another than the default directory.

Load To prepare a specified input file for translation, use this option. If you have entered wild cards in the »File(s)« table and if several files match the wild cards, these files will be listed on the screen. Use cursor keys to position the reverse representation to the file, that shall be processed next and press »ESC«. If you skip loading a file, it may happen later, that TREND prompts you to do this.

Save Select this point, if a file has already been translated and you want the output file to be closed. Otherwise the next input file is appended to the same output file. The last output file is saved automatically as soon as you leave VFORMAT.
After saving a file, VFORMAT shows a table containing the filename built by the V-Format conventions.

New filename:
NLS_0_T1.!IJ

To accept this name, press »ENTER«. You may also change the filename like any information in other tables. VFORMAT is still able to change the path of the output file. Simply insert the path before the filename. Since the data are already physically written to a specific disk drive, you must not include a drive specification.

Exclude Perhaps you want several series to be excluded from the translation. You will see a table, in which you can define two filters, that the series identifications must pass to be translated and regarded on output. You may specify either one or both or no filter at all. You may even enter the complete identifications or only parts of it ("masks"). It does no matter if you enter lower or upper case letters. The first filter is passed, if the actual identification completely matches the entered text ("Keep" filter). The second one ("Drop" filter) is passed, if there is a difference at least at one position of the identification. Positions with a space character are not taken into account. Enter a "*" in the last column of the filter, that shall be decisive, if the series passes only one of both filters. Example:

Filter	Mask	Ext	*
Keep		!0J	
Drop	D		*

The program regards all series, that have the extension "!0J" and that do not have an identification beginning with "D". If the identification starts with "D" and ends with "!0J", the series is nevertheless excluded.

Config. VFORMAT stores the actual settings permanently in the configuration file. So they will be considered in future runs of VFORMAT again. If the program cannot find the file VFORMAT.CFG in either the default or any appended directory, it will create a new file.

Formats You will see two other menus, each listing the available data formats. Specify the format of the input files in the first menu and the output format in the second one.

Input as V (02)	
Göttingen	
Matrix	
Tucson	
V ( )	

The previous choosen formats are shown in the upper menu field. If specified, V-Format is companied by its version number inside the brackets.

dec. Point Here you can change the position of the decimal point when reading or writing Tucson Format. Enter the number of decimals after the point separately for input and output.

Decimal	
Input	2
Output	2

Greater numbers allow higher precision but may also result in an i/o error, if any value of a time series exceeds the maximum representable value. The relations are:

decimals :	0	1	2	3	4
precision :	1	0.1	0.01	0.001	0.0001
minimum :	-99999	-9999.9	-999.99	-99.999	-9.9999
maximum :	999999	99999.9	9999.99	999.999	99.9999

In most applications, a number of 2 decimals is sufficient.

Topline This option is suitable to modify or to complete any additional information in the header lines of V-Format. You will see a table similar to this one:

Field	Default	*
Series id		N
Extension	!0J	N
Units	mm	N
Species	Pcab	N
1. Date		N
Initials		N
2. Date	31031991	Y
V-version	02	Y
Pre. missing	0	N
Std. error	0	N
Fol. missing	0	N
Std. error	0	N
Height	.	N
X (longitude)	.	N
Y (latitude)	.	N
Z (altitude)	.	N

Each row of the lower part corresponds to a specific field of the header lines in V-Format. The rows concerning missing values will be regarded by Göttinger Format, too. All formats regard the series identification in the first row. The informations in this table will be written to the output files, if

- the input file does not contain the corresponding information or
- you have entered a "Y" in the last column of the table.

A "N" in the last column means, that the table's contents in that row will only be written to the output file, if it is not inconsistent with the input data. This rule is valid for every single position of the series identification and extension. That means, you may enter single characters in the first two rows to modify single positions on output, too.

Matrix The details of Matrix Format must be specified in the following table.

Field	Col.	Format	*
Id	1	A12	Y
Time	14	I6	Y
Value	21	F10.3	Y

There are 3 informations necessary to define each matrix component (id, time and value). You must specify the starting column (numerical), format (character) and the supplement (logical).
The format entries are kept in FORTRAN notation. The id format must be either "*" if you want to use free format or "A" followed by an integer number denoting the length of the stored text.
The time format may be "*" again or "I" followed by the number of decimals reserved for the time value.
The format of the actual time series value must be "*", "I", "F", "E" or "G" . "I" means integer representation without decimal point and must be followed by the number of decimals. "F" means fixed point, "E" floating point and "G" mixed representation of real numbers. "F", "E" and "G" must be followed by the total number of decimals and the number of digits behind the decimal point. The two numbers are separated by a "." .
The real position of each component is determined by both the format and the starting column. In the example above, the data components will occupy columns 1-12, 14-19 and 21-30 in every file record.
If you specify free format for one or more components, the corresponding starting columns are only used to determine the components' order. On output, the absolute positions are choosen in such a manner, that there remains one space character between two components.
The table column titled "*" contains the information, whether to fill up missing data on input or to drop unnecessary data on output, respectively. If you think, that it is sufficient to write the series identification only once to the first line of each series, enter "Y" behind "Id". If you want the time index (if missing) to be increased or decreased automatically, enter "Y" behind "Time".
A "Y" behind "Value" means, that missing or invalid values will not be written to the output file at all.

Convert This selection actually starts the translation and writes the output data to disk. The output filename, series identification and number of already stored series are indicated in this table:

File:	NLS_0_T1.!IJ
Series:	NLS307T1.!IJ
Number:	7

To interrupt the process, press »ESC«. To continue, select »Convert« again.

DOS To submit a DOS command without leaving VFORMAT, enter it into this table and press »ENTER«.

DOS command
DIR A:

When the command has been executed, the program flow will return to the main menu.

end This item forces VFORMAT to finish and return to DOS. If an output file is still open, it will be closed. VFORMAT prompts you to confirm or to change the filename. For details refer to the selection »Save« of the »In/Output« menu.

Remarks

Future releases of VFORMAT may slightly differ from this description. If the differences are important for you, there will be an update or a new version of the user's guide.

The program VFORMAT has been intensively tested with huge numbers of data sets. Because of its complexity, there is nevertheless no guarantee for faultless execution in all cases. If any errors will be detected, they will be removed in future releases.

If you should detect a reproducable error, please send a description of it to the publisher, including the conditions, that have led to the error, the program's reaction and (if possible) the corresponding data.

Most errors during input will be reported and described by the program as soon as the error occurs. Thus in most cases you are able to locate the problem, e.g. a partially destroyed data file. If it is not possible to recognize the reason for the problem, follow these steps:

- Determine the file and the record of the file, that is responsible for the error condition.
- If possible, restrict a larger file to the part, that has caused the error.
- Compare the file's contents to the description of the corresponding data format in this manual.
- If there are differences between the real and the described data structure, adapt the real data to the correct structure and verify, whether VFORMAT accepts the corrected data.

If an error occurs, while VFORMAT reads a configuration file, it reports the number of the invalid record. If you cannot correct the file, you should delete it and create a new one, using the item »Config.« of VFORMAT's »In/Output« menu.