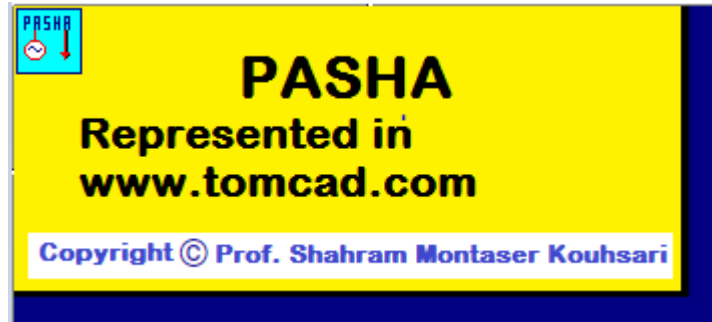




Chapter 5

The filing section (IN POUYA IT IS NOT AS DESCRIBED IN THIS CHAPTER)

The filing section of PASHA provides a method of convenient storage and subsequent retrieval of network diagrams and data. A storage mechanism is a very important feature of PASHA for a number of reasons:

- (i) Any network the user constructs can be stored for later re-use. In this way a set of networks is generated that can be accessed at any time if any re-evaluation becomes necessary. It also means that all the studies on any particular network do not need to be carried out at the same time, they can be done whenever the user chooses. This gives the user great flexibility and complete control over his studies.
- (ii) It is often the case that a user may wish to cease the entry of a network at a certain point and take a break. This can be done with the storage facilities in PASHA. It is possible to file a network at any stage in the drawing and/or parameter entry process.
- (iii) The retrieval of stored networks allows the user to make modifications to an already existing network, and then store it as a completely different network, or optionally to 'overwrite' the old network. This means that a series of similar system designs need not each be constructed from scratch.
- (iv) It is also very necessary to provide a secure means of network storage to guard against computer system failures. Once a network has been entered it can then be used by the load-flow, fault level, transient stability study and other sections of PASHA. Before this is done, however, it is often useful to 'store' the network, so as to have a secure copy in case of computer failure etc.; if the program is terminated unexpectedly, for whatever reason, only those networks that have been stored will still be accessible on re-entry to the program. This 'interim' storage is especially necessary if the network is complex and has taken a long time to enter.
- (V) The users can classify their projects using the concept of workspace as described in chapter 2 section 2.2.2.1 and this chapter. In this way the related projects can be stored in a specific folder. The name of folder may be selected appropriately and related to the projects on that folder.

5.1 The filing structure

PASHA operates with four basic, sequential data files, which contain all the essential parameters of all the networks, which the users have previously selected for storage. These files are used in pairs, each of which comprises a formatted 'directory' file containing the stored network titles, with their basic dimensions and a digitized or 'binary' data file containing all the graphic and system data for these networks. The two 'directory' files have consecutive serial numbers and with their associated 'data' files, are used alternately to read from or to write into. Each time a set of files is used to write into i.e. to store the new or modified network currently held in the core, the serial number is increased by 2, next the details of the network are entered and finally all previously filed networks are appended, by reading from the second set of files.

The two files created in this way contain the most up to date data, for all the networks, and can be identified by the program data, for all the networks, and can be identified by the program through the fact that they have the higher serial number and are the files which are read when the retrieve function is used.

This file structure is termed 'father-son' organization. The 'son' being the most 'recent' file which will be read to access any networks. The 'father' is the 'oldest' and is used for the next write operation, after which it becomes the new 'son' file.

To illustrate this figure 5.1a shows the 2 sets of 2 PASHA network storage files. Each set consists of a binary file, and a directory file that contains the serial number followed by the titles of the networks. The most recent set of files is the one with the highest serial number, i.e. the one the right. This is therefore the 'son' and is used for read operations until the next write operation occurs. The 'father' set on the left is used for the next write operation.

In figure 5.1b the same two sets of files are shown after a write (i.e. a file storage) operation has occurred. The file set on the right remains unchanged; it still has the same serial number. However the 'father' from 5.1a has been overwritten and its serial number has increased by 2, so that it now becomes the new 'son'.

This 'switching' of 'father' to 'son' will occur whenever a network is stored, but not when one is retrieved.

Should, at any time, the 'current' network files become corrupted through a user error, or a system malfunction, the user can revert to the previous generation of files by exiting from PASHA and by:

- (i) Copying the four networks files for backup in case anything goes wrong.
- (ii) Entering the normal EDITOR on his computer and increasing by 2 the serial number of the directory file, which currently has the lower number or by deleting the new files.

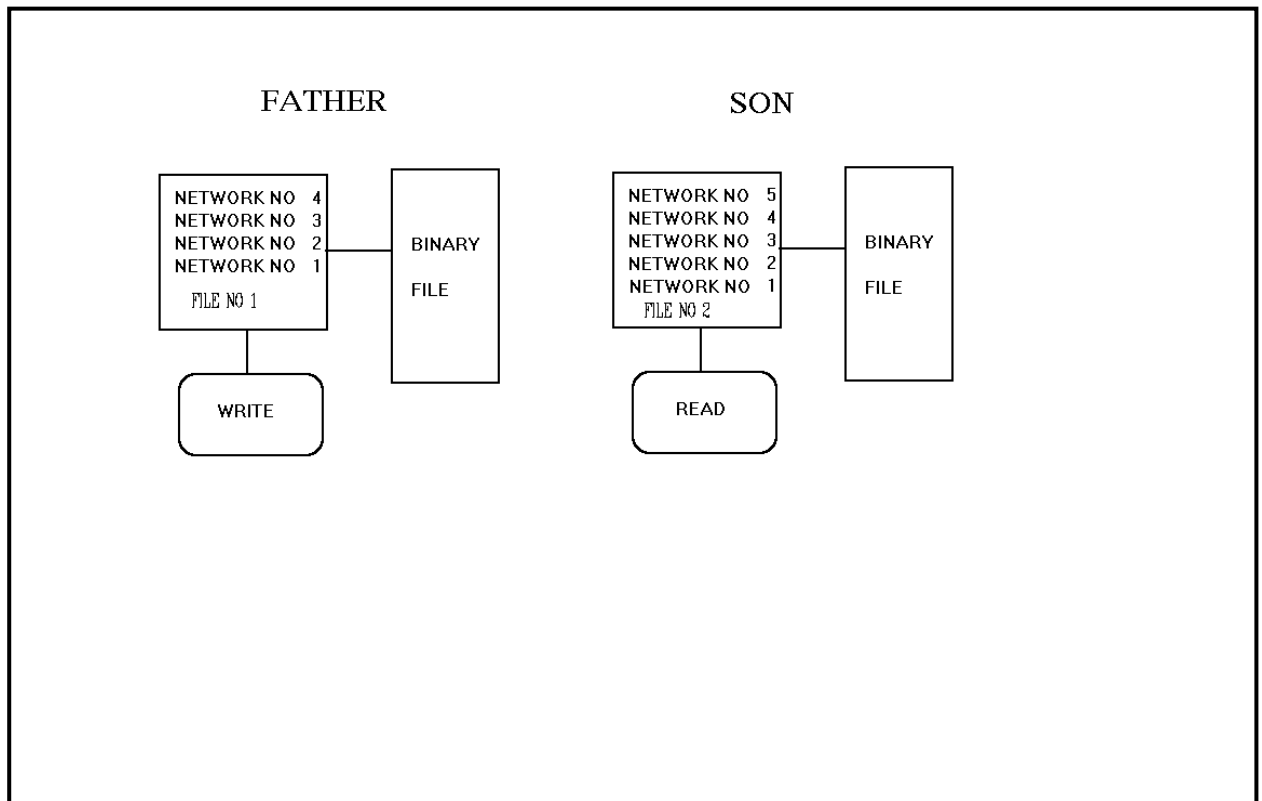


Figure 5.1a

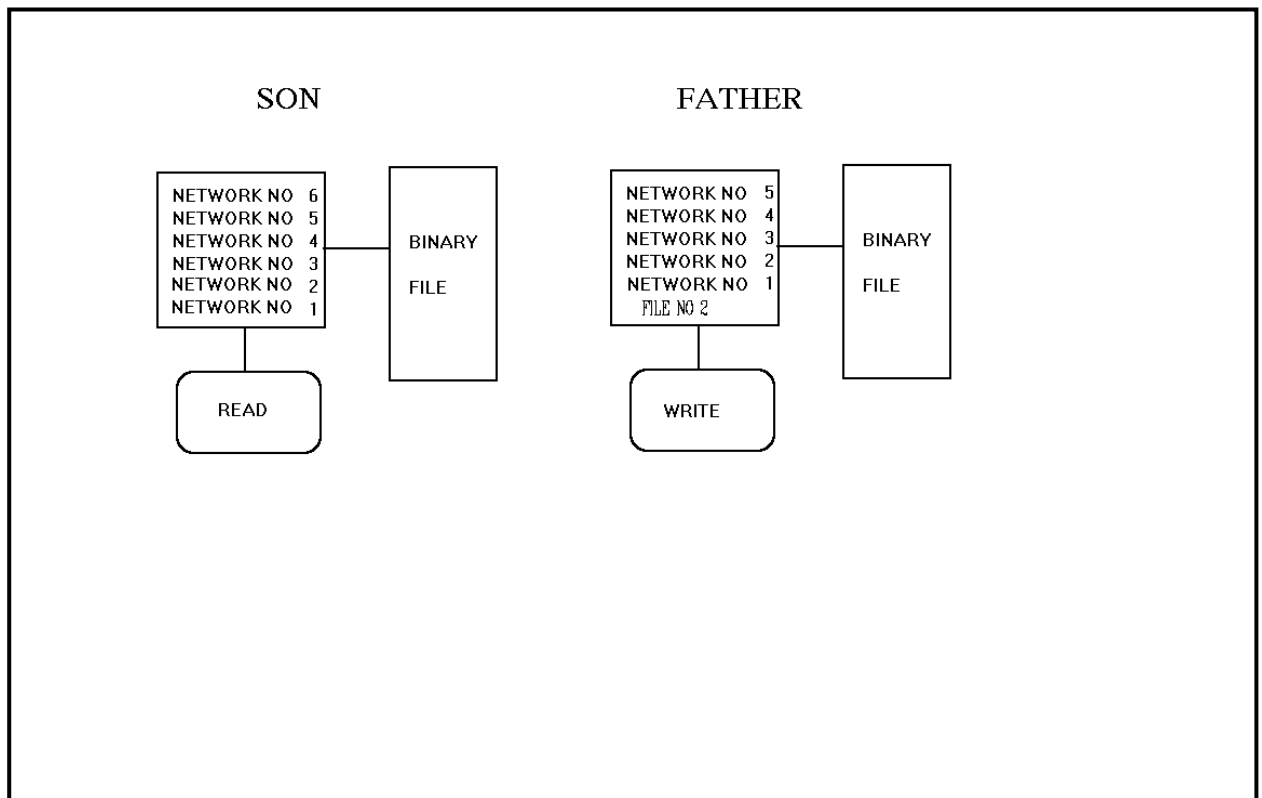


Figure 5.1b

5.1.1 Workspace concept

The concept of workspace is useful for classifying the projects. A workspace is a directory where all the PASHA data files relating to a group of projects may be stored in this place. PASHA data files consist of the following files:

- Network files: NETDIR1.92, NETDIR2, NETDAT1, NETDAT2, which is called network group.
- Data bases files: DBASE1, DBASE2, DBASE3, which is called databases group.
- UDEM files: CONDIR1, CONDIR2, CONDAT1, CONDAT2, which is called UDEM group.

When you create a new workspace (see section 2.2.2.1), these three groups of files are created to store information at the workspace level. They are empty files i.e. containing no data when they are new. You may save your networks in a workspace using Network files, or you may store your databases in a workspace (chapter 9), or you may save your UDEM modules in a workspace (chapter 10). Changing the appropriate directory to the desired workspace using the ordinary menus of PASHA (as described in sections 5.2.2.2, 9.6, 10.6 or as described in this chapter using Open Workspace Menu) can do the job. The difference is that, when you open a workspace, you bring all the data groups from one place. You may also use different workspaces for your networks, databases, or UDEM modules in any particular instant of PASHA run. However, it is a good practice to put all related files in a single workspace. A workspace may also contain just one group of files e.g. data bases group.

If you work in a team, you can put the project workspace file in a directory with your name and share them with other members of your team so that they can use your constructed networks or modules or they can share your data bases defined in your workspaces. The users may access your files through a computer network including those that can be accessed through Internet.

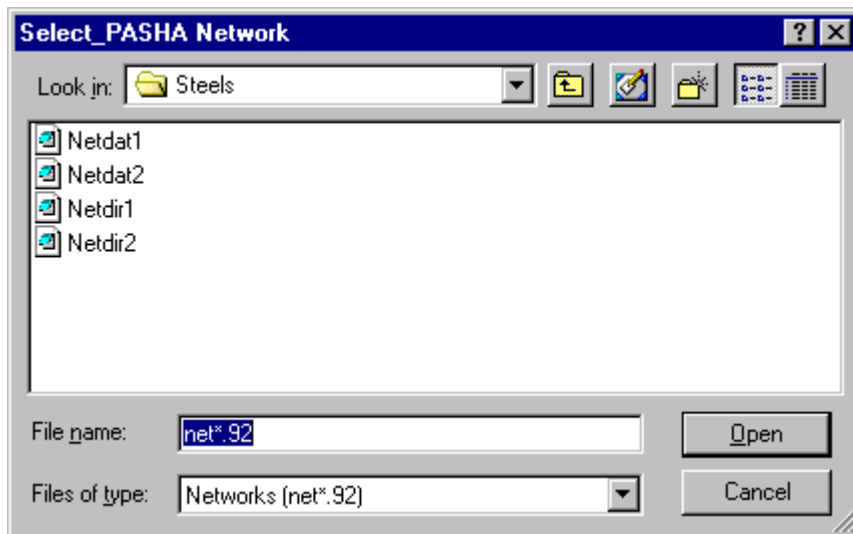
Selecting new workspace option as described in chapter 2 prompts the user to choose a directory. He can also create a new folder as shown below. The directory must not contain old PASHA group files.

A previously created workspace may be opened at any time, using the open workspace option as described in chapter 2.

The selected folder must contain at least one of the PASHA file groups as described in New Workspace Menu option of chapter 2.

When a workspace is selected all the current file groups of PASHA will be related to the new workspace. If you need to just select a file group of PASHA i.e. Network group from a workspace you must use [SELECT TO CHANGE DIRECTORY] as described in this chapter from the appropriate ordinary menu option of PASHA. In this case you may choose your network files from a workspace and data bases files from another workspace.

The following figures, shows the familiar changing directory (folder) menu used in windows environment as described in chapter 2. The user selected any of files shown and presses Open.



The directory selected will be shown in a box.



It should be noted that PASHA filing section is downward compatible from the first version released in 1992 and they are not dependent to the operating system too. This means that if you file a network with DOS you can access it with Windows version and vice versa. This is true in Linux framework too.

5.2 Accessing the filing section from PASHA

There are two options on the main menu that enable the user to access the filing section:

- (i) [SAVE THE PRESENT NETWORK]-selection of this option allows the user to store a network in the files.
- (ii) [RETRIEVE A NETWORK FROM FILE]-selection of this option allows the user to retrieve a network from the files. Pressing <CR> access the test systems.

The two options are described individually below.

There are other means of accessing the files and workspaces. These are described in Chapter 2, section 2.2.2.1. The functions of what is described in this chapter that comes from the ordinary menu of PASHA and those described in chapter 2 are more or less the same.

5.2.1 Filing networks

When the [SAVE THE PRESENT NETWORK] option is selected the user enters a conversational set of questions that are fairly self-explanatory. To illustrate the use of the storage mechanism, figure 5.2 shows the dialog for storing a newly constructed network. The user replies are all shown underlined and are terminated with the <CR> character. See next section for changing directory.

The user is first asked if he wants to change the current directory. Then he is prompted for a title. This has to be longer than 4 characters and less than 60. An optional password of up to 8 characters can then be entered. This is used to stop unauthorized deletion of networks. The user is then asked if he wishes to delete any other networks. In this example the response is <N><CR> for no. The stored networks are then listed and the storage is complete.

Figure 5.3 shows an example of overwriting a network. It should be noted that it is necessary to enter the password before it can be overwritten. Figure 5.4 shows an example filing an old network without overwriting it.

As has been mentioned above, it is possible to delete any of the previously stored networks during a network storage operation. This can be accomplished by replying <Y><CR> to the deletion question. This is shown in figure 5.5. The storage routine then prompts the user to reply with:

- <SP><CR> to keep a network or a click
- <D><CR> to delete a network
- <Y><CR> to stop the deletion and keep all the remaining networks

As can be seen in figure 5.5 the program then displays the network titles and invites the user to enter one of the above keys. The example shows the network 'OREGINAL PAPER' being deleted. If the network has a password associated with it, this must be entered in reply to the 'PASSWORD:' prompt (not shown) before the network can be deleted. If the wrong password

```

STORAGE OF SYSTEM FILES
THE PRESENT DIRECTORY IS: C:\manual
DO YOU WANT TO CHANGE DIRECTORY? (Y OR N OR C) N
TYPE IN NETWORK TITLE: TEST NETWORK FOR FILING SECTION OF MANUAL
IF YOU WISH TO PROTECT NETWORK TYPE PASSWORD:TEST
DO YOU WISH TO DELETE ANY OTHER NETWORKS? (Y OR N) N
THE FOLLOWING NETWORKS HAVE BEEN RETAINED...
(PLEASE WAIT FOR COMPLETION)
TEST NETWORK FOR FILING SECTION OF MANUAL
WELCOME TO PASHA AN EXAMPLE NETWORK
TWO IDENTICAL NETWORKS ONE WITH UNDERFREQUENCY RELAY
A SMALL MULTI PATHS SYSTEM WITH PROTECTIVE DEVICES
A SMALL NETWORK CONSISTING OF DISTANCE RELAYS
HARMONIC CANCELATION BY TRANSFORMERS
A CAPACITIVE INDUSTRIAL PLANT GENERATES HARMONIC
AN EXAMPLE OF OPTIMAL POWER FLOW
EXPERIENCE MOTOR STARTUP IN AN ACTUAL PUMP STATION
TEST HITACHI MOTORS IN TEST CONDITION
A MEDIUM SIZE PETROCHEMICAL PLANT
A LARGE STEEL MILL PLANT
A LARGE INTERCONNECTED NETWORK
END OF NETWORK STORAGE
PRESS ANY KEY TO RETURN TO MAIN OPTIONS

```

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Figure 5.2

```

STORAGE OF SYSTEM FILES
THE PRESENT DIRECTORY IS: C:\manual
DO YOU WANT TO CHANGE DIRECTORY? (Y OR N OR C) N
PRESENT NETWORK TITLE IS:
TEST NETWORK FOR FILING SECTION OF MANUAL
OVERWRITE THE RETRIEVED NETWORK? (Y OR N) Y
PASSWORD:TEST
OLD NETWORK WILL BE DELETED
CHANGE NETWORK TITLE? (Y OR N) Y
TYPE IN NETWORK TITLE:TEST NETWORK FOR MANUAL REVISION 2000
DO YOU WISH TO DELETE ANY OTHER NETWORKS? (Y OR N) N
THE FOLLOWING NETWORKS HAVE BEEN RETAINED...
(PLEASE WAIT FOR COMPLETION)
TEST NETWORK FOR MANUAL REVISION 2000
WELCOME TO PASHA AN EXAMPLE NETWORK
TWO IDENTICAL NETWORKS ONE WITH UNDERFREQUENCY RELAY
A SMALL MULTI PATHS SYSTEM WITH PROTECTIVE DEVICES
A SMALL NETWORK CONSISTING OF DISTANCE RELAYS
HARMONIC CANCELATION BY TRANSFORMERS
A CAPACITIVE INDUSTRIAL PLANT GENERATES HARMONIC
AN EXAMPLE OF OPTIMAL POWER FLOW
EXPERIENCE MOTOR STARTUP IN AN ACTUAL PUMP STATION
TEST HITACHI MOTORS IN TEST CONDITION
A MEDIUM SIZE PETROCHEMICAL PLANT
A LARGE STEEL MILL PLANT
A LARGE INTERCONNECTED NETWORK
END OF NETWORK STORAGE
PRESS ANY KEY TO RETURN TO MAIN OPTIONS

```

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Figure 5.3

is entered the network is retained. A master password exists which will allow the deletion of networks whose passwords have been forgotten. Contact with us if this problem arises.

5.2.2 Retrieving networks

When the [RETRIEVE A NETWORK FROM FILE] option is selected from the main options the user enters the network retrieval routine. Figure 5.6 shows the page that is created on entry to the retrieval section.

It shows the stored networks inside a 'menu box' and a menu of four options at the bottom. The options at the bottom are not all active, as there is only one page of networks. The four options are:

(i) [EXIT FROM NETWORK RETRIEVAL] - returns to the main menu without retrieving a network. Selecting this option will always clear the network data.

(ii) [SELECT TO CHANGE DIRECTORY] - when selected the directory changing menu is displayed.

(iii) [DISPLAY PREVIOUS PAGE OF NETWORKS] - displays the next page of stored networks (if it exists).

(iv) [DISPLAY NEXT PAGE OF NETWORKS] - displays the previous page of stored networks (if it exists).

It should be noted that PASHA filing section is downward compatible from the first version released in 1992 and they are not dependent to the operating system too. This means that the user can read the previous versions filing without knowing that it is filed with the previous version and PASHA takes care of the operating system file structure.

```

STORAGE OF SYSTEM FILES
THE PRESENT DIRECTORY IS: C:\manual
DO YOU WANT TO CHANGE DIRECTORY? (Y OR N OR C) N
PRESENT NETWORK TITLE IS:
TEST NETWORK FOR MANUAL REVISION 2000
OVERWRITE THE RETRIEVED NETWORK? (Y OR N) N
TYPE IN NETWORK TITLE: TEST NETWORK FOR MANUAL IS SAVING AGAIN WITH MORE PARAMETERS
IF YOU WISH TO PROTECT NETWORK TYPE PASSWORD:
DO YOU WISH TO DELETE ANY OTHER NETWORKS? (Y OR N) N
THE FOLLOWING NETWORKS HAVE BEEN RETAINED...
(PLEASE WAIT FOR COMPLETION)
TEST NETWORK FOR MANUAL IS SAVING AGAIN WITH MORE PA
TEST NETWORK FOR MANUAL REVISION 2000
WELCOME TO PASHA AN EXAMPLE NETWORK
TWO IDENTICAL NETWORKS ONE WITH UNDERFREQUENCY RELAY
A SMALL MULTI PATHS SYSTEM WITH PROTECTIVE DEVICES
A SMALL NETWORK CONSISTING OF DISTANCE RELAYS
HARMONIC CANCELATION BY TRANSFORMERS
A CAPACITIVE INDUSTRIAL PLANT GENERATES HARMONIC
AN EXAMPLE OF OPTIMAL POWER FLOW
EXPERIENCE MOTOR STARTUP IN AN ACTUAL PUMP STATION
TEST HITACHI MOTORS IN TEST CONDITION
A MEDIUM SIZE PETROCHEMICAL PLANT
A LARGE STEEL MILL PLANT
A LARGE INTERCONNECTED NETWORK
END OF NETWORK STORAGE
PRESS ANY KEY TO RETURN TO MAIN OPTIONS

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Figure 5.4

```

STORAGE OF SYSTEM FILES
THE PRESENT DIRECTORY IS: C:\manual
DO YOU WANT TO CHANGE DIRECTORY? (Y OR N OR C) N
PRESENT NETWORK TITLE IS:
TEST NETWORK FOR MANUAL IS SAVING AGAIN WITH MORE PA
OVERWRITE THE RETRIEVED NETWORK? (Y OR N) N
TYPE IN NETWORK TITLE: OLD ONE IS GOING TO BE DELETED AND NEW ONE IS SAVING
IF YOU WISH TO PROTECT NETWORK TYPE PASSWORD:
DO YOU WISH TO DELETE ANY OTHER NETWORKS? (Y OR N) Y
AFTER TITLE TYPE 'D' TO DELETE, ' ' TO KEEP; 'Y' TO KEEP ALL NETWORKS
TEST NETWORK FOR MANUAL IS SAVING AGAIN WITH MORE PA
TEST NETWORK FOR MANUAL REVISION 2000
PASSWORD: TEST
WELCOME TO PASHA AN EXAMPLE NETWORK
TWO IDENTICAL NETWORKS ONE WITH UNDERFREQUENCY RELAY
A SMALL MULTI PATHS SYSTEM WITH PROTECTIVE DEVICES
A SMALL NETWORK CONSISTING OF DISTANCE RELAYS
HARMONIC CANCELATION BY TRANSFORMERS
A CAPACITIVE INDUSTRIAL PLANT GENERATES HARMONIC
AN EXAMPLE OF OPTIMAL POWER FLOW
EXPERIENCE MOTOR STARTUP IN AN ACTUAL PUMP STATION
TEST HITACHI MOTORS IN TEST CONDITION
A MEDIUM SIZE PETROCHEMICAL PLANT
A LARGE STEEL MILL PLANT
A LARGE INTERCONNECTED NETWORK
END OF NETWORK STORAGE
PRESS ANY KEY TO RETURN TO MAIN OPTIONS

D (MEANS DELETE)
D # #

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```

Figure 5.5

5.2.2.1 Selecting a network for retrieval

In order to retrieve a network the mouse cursor is positioned over the required network title.

In figure 5.6 the cursor has been positioned over the network 'MANUAL WITH DATA'. If the <SP> key is pressed this network will be retrieved. Figure 5.7 shows the result of the retrieval. The user is then asked if he wishes to view the network diagram. If <Y><CR> is pressed the screen is cleared and the retrieved network diagram is displayed, as shown in figure 5.8. If <N><CR> is typed the user exits to the main menu with the retrieved network data.

The user is then asked if this is the network that he wanted. Replying <Y><CR> will exit from the retrieval section and return to the main menu with the retrieved network in core, replying with an <N><CR> will return to the retrieval section main screen (figure 5.6) to allow the selection of another network.

If [SELECT TO CHANGE DIRECTORY] option is selected, a DOS file pattern will be shown on a window. Use the cursor keys to change the directory and select any NET*.* files on the desired directory by pressing <CR> or press <ESC> to cancel the directory selection.

5.2.2.2 Change directory

When this option is selected, the user is invited to change the directory by showing the tree of the subdirectories in the current directory. The menu, however, depends to the operating system you are using. The user can select his desired subdirectory where the PASHA network files (designated with NET*.92) are allocated. The highlighted bar can be located on the NETDIR1.* or NETDIR2.* or NETDAT1.* or NETDAT2.* and any key may be pressed to choose the present subdirectory as the current directory. In Windows environment a familiar Windows folder workspace will be appeared.

Included in the PASHA installation program is a folder (workspace) named "Example". To open this workspace, you may change directory to this directory or click Open workspace from the File Menu on the menu bar. Whenever, this workspace is your current directory, the description and the purpose of practicing of each example network will be shown on screen when the mouse is located on the name of the networks stored in this workspace.

You may also use change directory to go through computer networks. You may access other users files through a computer network including those that can be accessed through Internet.

5.3.Merrging or Updating a part of network

As described in chapter 3, section 3.7 merging of two or more networks is possible by using the concept of PASHA windows. You can press <A> in an empty window and add another network to your existing network. The added network comes from the previously stored networks. Therefore during this process, the user is invited to retrieve a network from file.

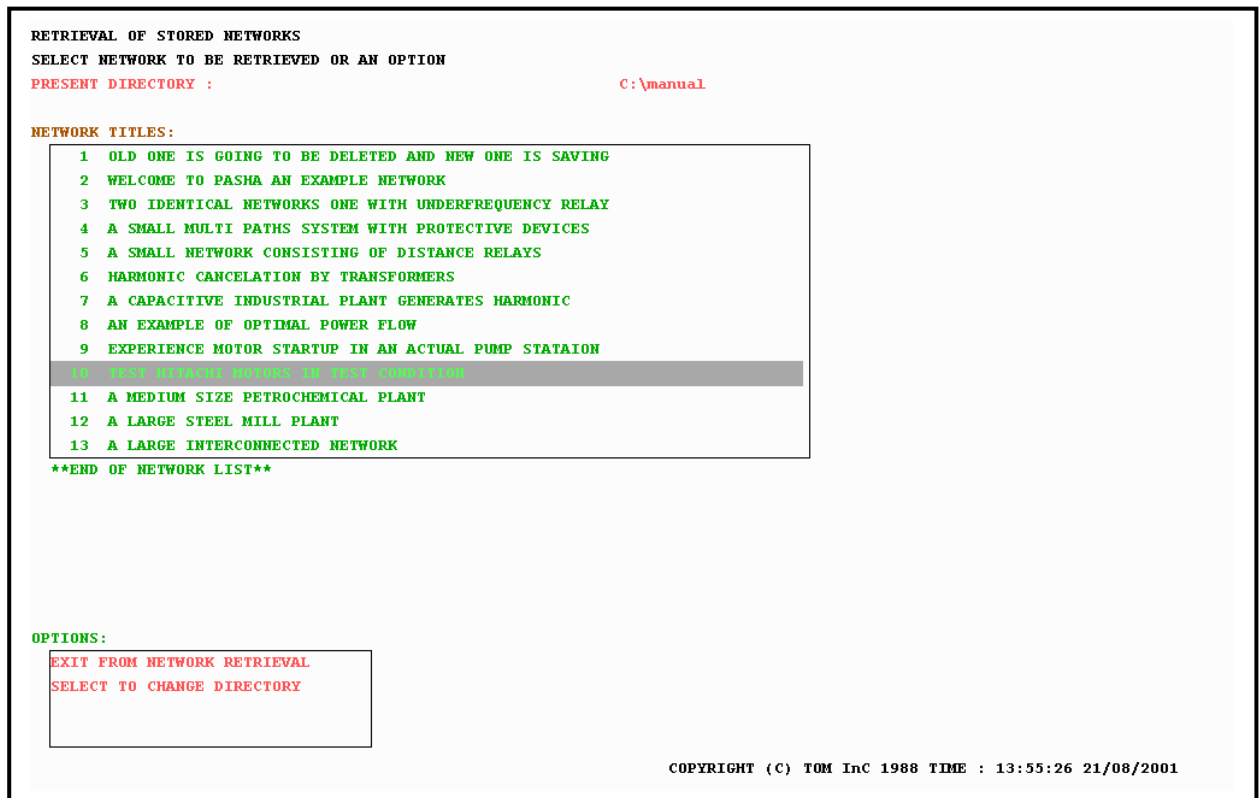


Figure 5.6

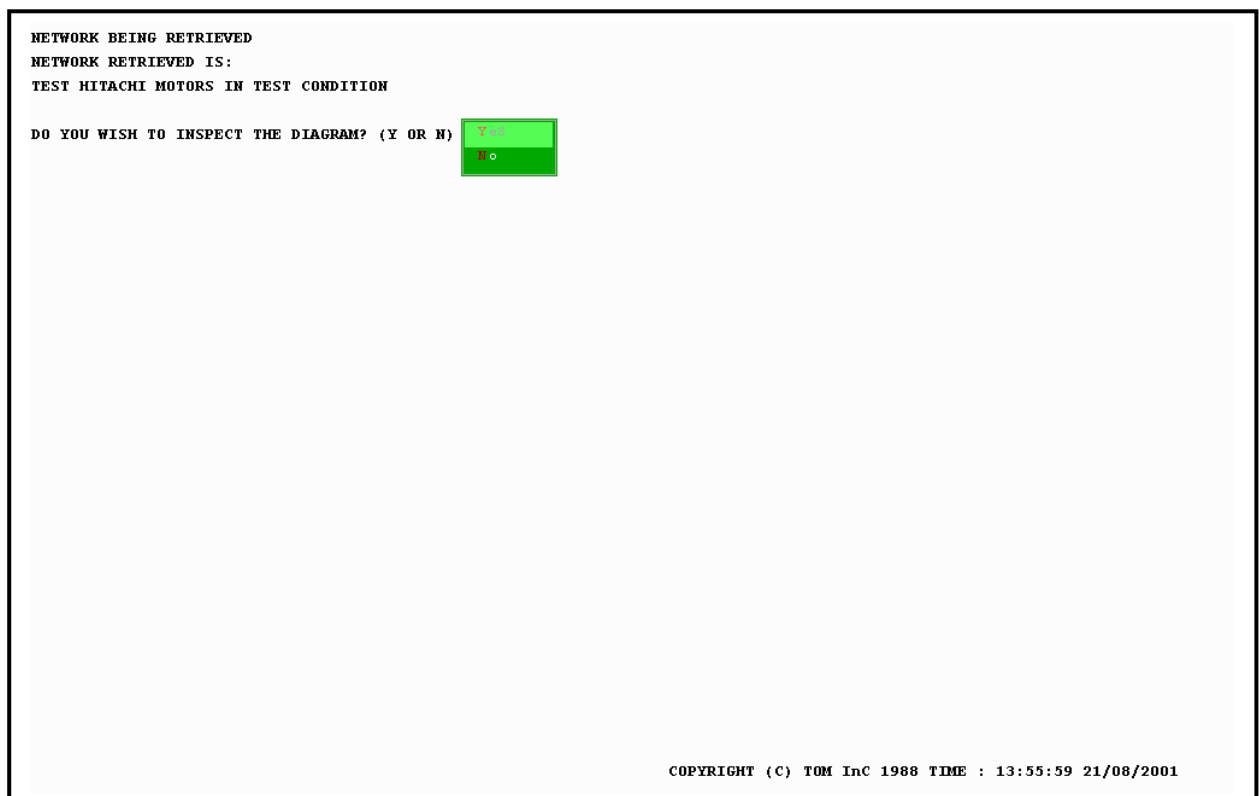


Figure 5.7

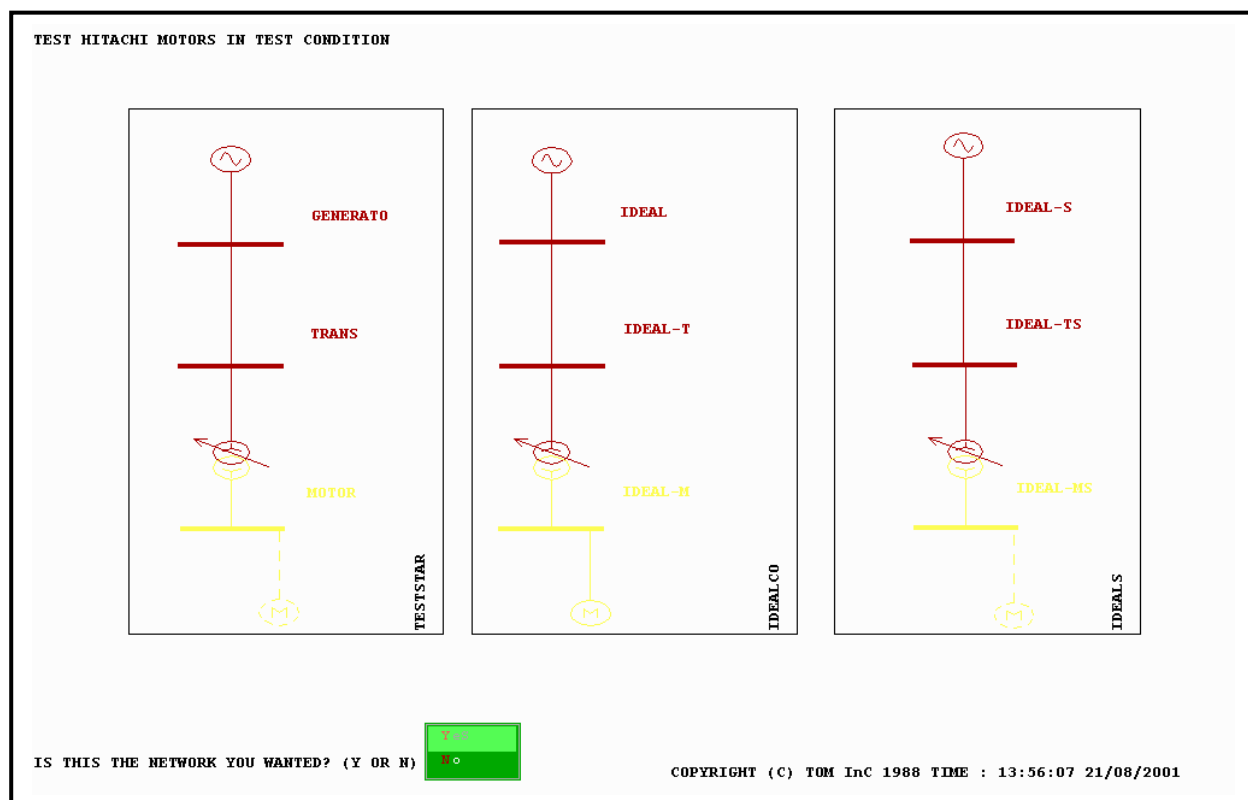


Figure 5.8

5.3 Summary

The filing section of PASHA provides a comprehensive method of storing networks and their associated data, at any stage in their development, for later retrieval.

The system files are divided into sets of two a 'father-son' organization to keep a fresh copy of the previous state of the files in case of file corruption.

Networks can be both filed and retrieved, and during the storage process any unwanted networks can be deleted. To protect networks from unauthorized deletion an optional password can be entered.

PASHA filing section is downward compatible from version released in 1992 and they are not dependent to the operating system too. This means that the user can read the previous versions filing without knowing that it is filed with the previous version and PASHA takes care of the operating system file structure.