BACKUP

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This report describes a system BACKUP, which works by incremental scheme. This system allows to back up in two regimes: dialog regime, used menu system and in batch regime by cron.

System is written in tcl/tk (Tool Command Language/Tool Kit)

This system uses *GNU tar* to perform the backup function.

I. INTRODUCTION

This backup uses incremental scheme.

An incremental scheme looks like this:

1. On first day back up all files. This is a MONTHLY BACKUP.
2. On the second through thirtieth days, back up only the files, which were updated since the last MONTHLY BACKUP was created. These are DAILY BACKUPS. If the summary size of files which were modified is more than CNANGES% of the size of the last MONTHLY BACKUP, then back up all files (a MONTHLY BACKUP). By default CHANGES=40%, if you'd like to change this value, choose the "Configure" submenu of the Main menu and then the "Parameters" item (change value of CHANGES).
3. On the N th day back up all files again. By default N=31, if you'd like to change this value, choose the "Configure" submenu of the Main menu and then the "Parameters" item (change value of *the interval between MONTHLY BACKUPS*).

II. SETUP OF PARAMETERS FOR BACKUP

You must specify files or directories which need to be copied. Choose the "Configure" submenu of the Main menu and the "CopyFiles" item. This information is contained in the file *.listfile*.

You may specify files which need not to be copied. Choose the "Configure" submenu of main menu and the "UnCopyFiles" item and then specify or update names of files not to be copied. This information is contained in the file *.filt*. You must specify the names of files as full regular expressions because the *egrep* command uses such a form of file names.

Also, you may specify following parameters:

- interval between MONTHLY BACKUPS (day)
- CHANGES (%) If the size of the DAILY BACKUP is more then CHANGES % of the size of the last MONTHLY BACKUP, then to make the MONTHLY BACKUP
- the number of tape sets for the DAILY BACKUP
- editor, used for specifying files which need or need not to be copied
- device for backup
- size of media, used for backup (Kb)
- program, used to back up and to restore files (*GNU tar*)
- parameters to the program (*GNU tar*) to back up
- parameters to the program (*GNU tar*) to restore
- speed of copying in Kb per second

These parameters are contained in the file *.copyall.*

An example of setup parameters of system is shown in page 3.

III. BACK UP

Before you begin to use this system, you must prepare several sets of cartridge tapes. Mark them (choose the "Backup" submenu of the Main menu and the "WRITING LABEL OF TAPE" item) using the following recommendations:

- two sets are to be used for MONTHLY BACKUPS. Mark them B1.1 - B1.N and B2.1 - B2.N Here N is a number of a tape in a set. The number of the tape in set depends on the size files, which you been back up and the size of media, used for backup.

  One MONTHLY BACKUP may located on several tapes.
- N sets are to be used for a DAILY BACKUPS. Mark them E1.1 ... EN.1 Here N is a number of tape sets for the DAILY BACKUP. By default N=3, if you'd like to change this value, choose the "Configure" submenu of the Main menu and then the "Parameters" item (change value of *the number of tape sets for the DAILY BACKUP*).

DAILY BACKUP E1.1 is located on the tape with label E1.1 into first file.

DAILY BACKUP E1.2 is located on the tape with label E1.1 into second file.

.....

DAILY BACKUP E1.N is located on the tape with label E1.1 into Nth file.

DAILY BACKUP E2.1 is located on the tape with label E2.1 into first file.

DAILY BACKUP E2.2 is located on the tape with label E2.1 into second file.

.....

DAILY BACKUP E2.N is located on the tape with label E2.1 into Nth file.

One tape may contained a several DAILY BACKUPS. (This number depends on the size files, which you been back up and the size of media, used for backup.)

You can back up in two ways.

A. First scenario of backup

Choose the "Automatic Copy" item of the "Backup" submenu. The program defines automatically what you must make today and calls the appropriate program to do the MONTHLY BACKUP or DAILY BACKUP. The program works in menu mode.

Before executing, the program reports the estimated size and the duration time to copy (for example, see page 4).

When executing, the program shows the duration time an files which are being copied (for example, see page 5).

After executing, the program reports a list of files which hasn't been copied.

The detailed information about the results of backup is written to the special directories (directory *day* for the information about DAILY BACKUPS and directory *base* for the information about MONTHLY BACKUPS). Later this information is used for restoring.

B. Second scenario of backup

MONTHLY BACKUP executed in dialog regime.

Choose the "MONTHLY BACKUP" item of the "Backup" submenu. And MONTHLY BACKUP will be executed as described above.

DAILY BACKUP executed in batch regime by cron. Here is an example *cron* command:

```
00 18 * * 1,2,3,4,5 .../backup/copy cron
```

Place this line in a *crontabs* file.

Cron will perform DAILY BACKUPS everyday at 6 p.m. except weekends. and send the listing of backup by email. Before backup, you must insert a tape in a drive.

IV. RESTORING

The restoring of files can be made in two ways too.

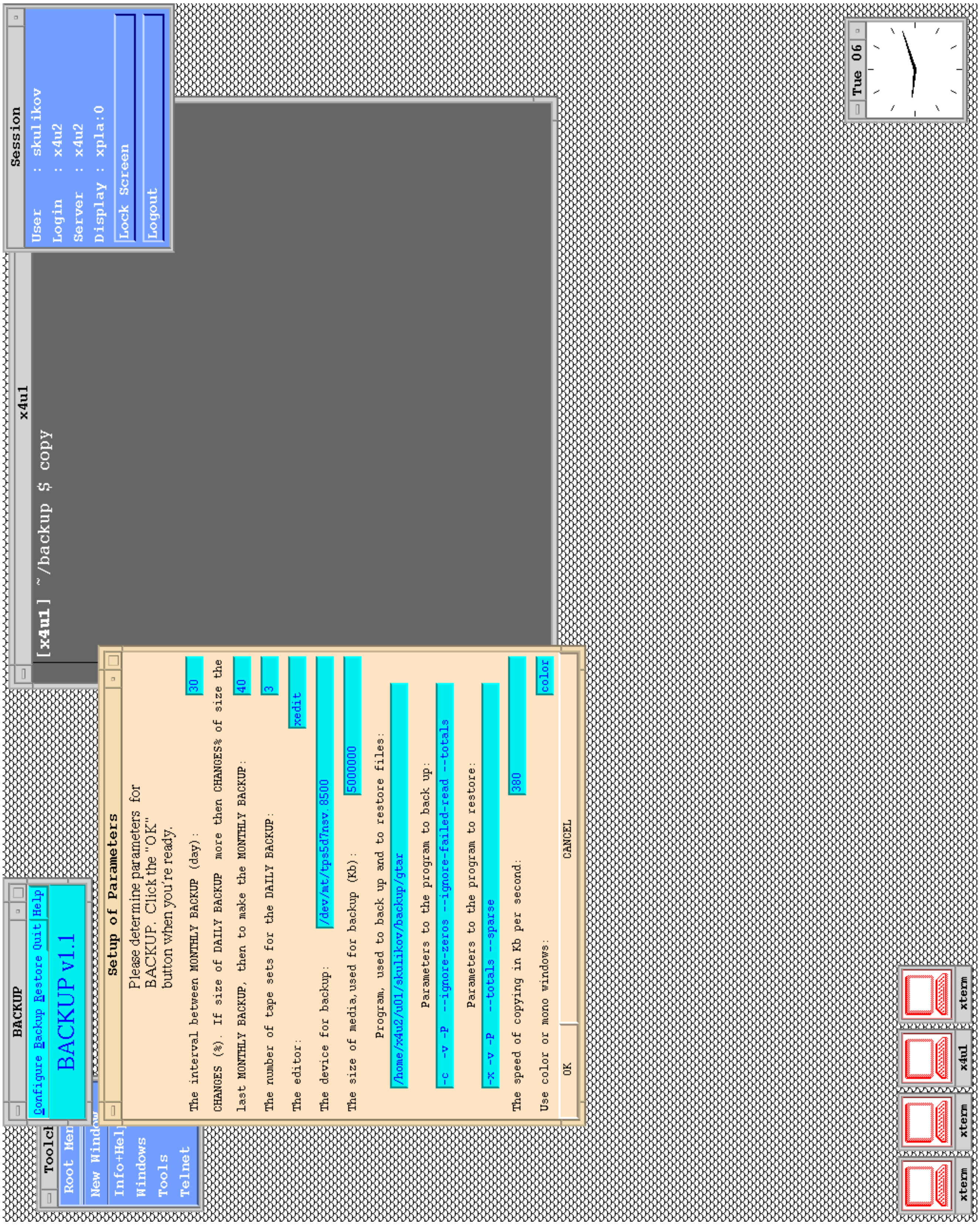
The first way is to choose the "Restore directory or file" item of the "RESTORE" submenu and to indicate a directory or file which you wish to restore and a tape set to restore from.

If the tape set isn't indicated, then system will be suggest to restore from all available tape sets by turns.

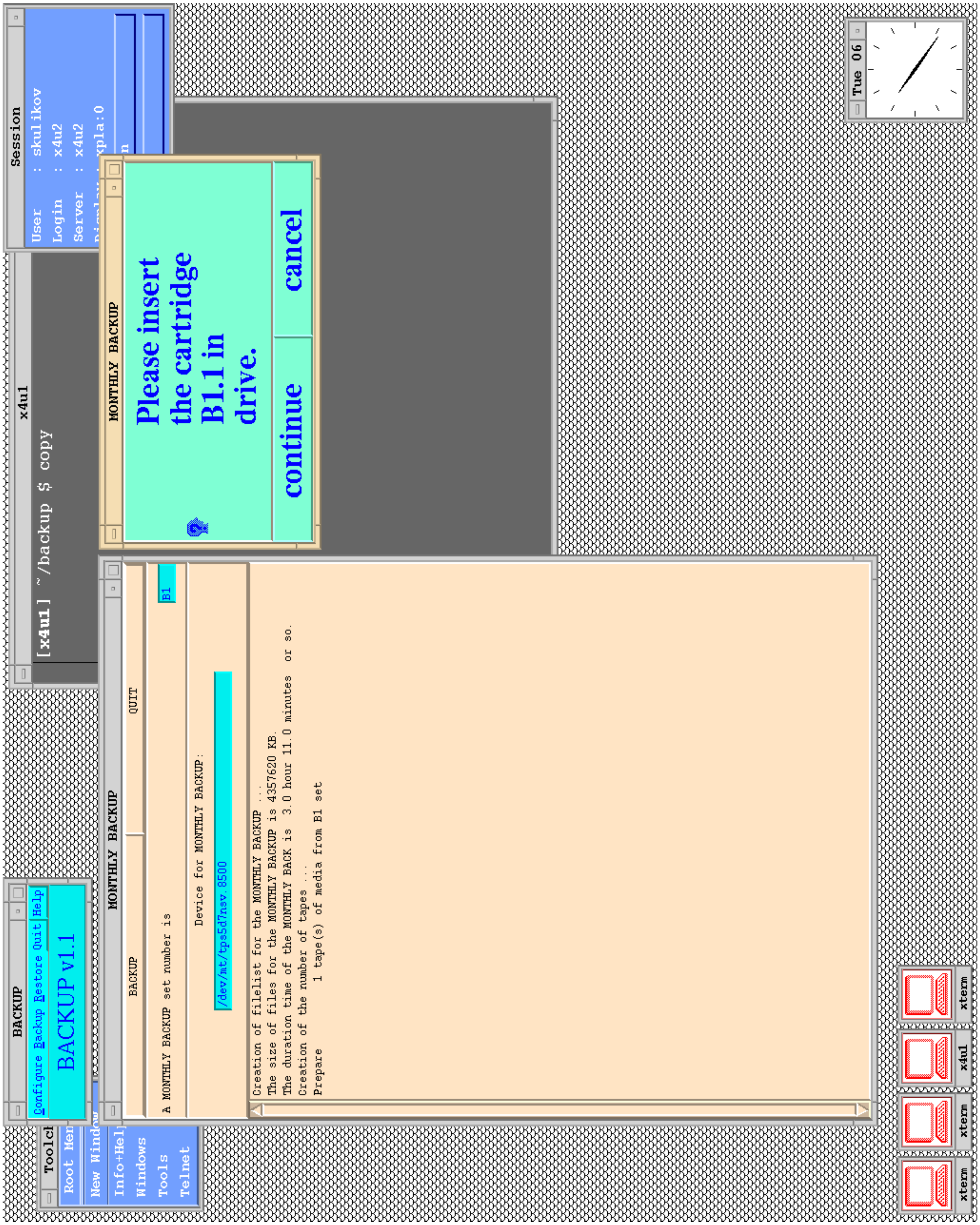
Another way is to choose the "View and Restore marked files" item of the "RESTORE" submenu. There are a list of all tape sets. Then you must indicate a tape set, contents which you wish to look over. On the list of files you have to mark files to restore and then click on the "CLICK HERE TO RESTORE MARKED FILE(S)" button (for example, see page 6).

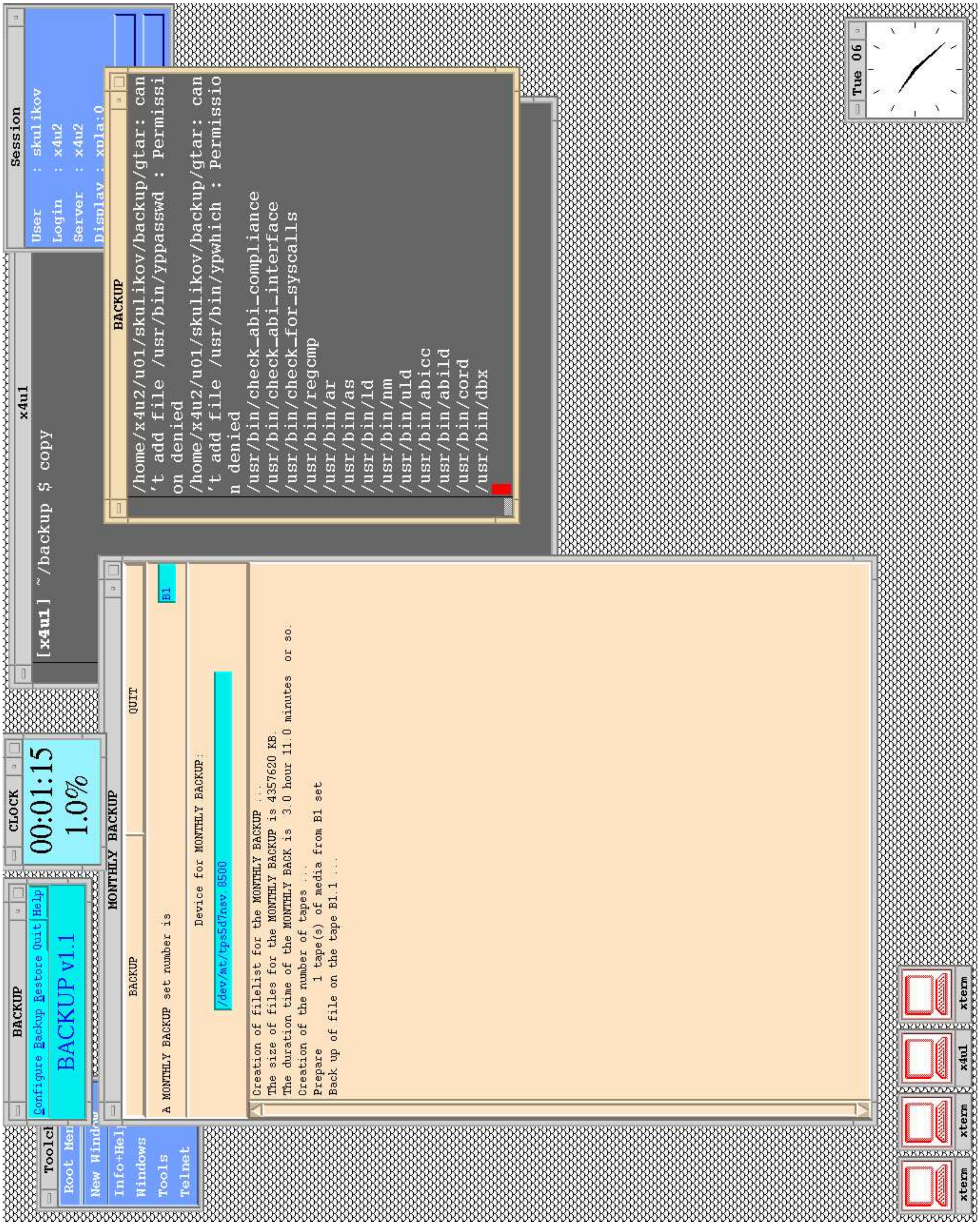
You have a possibility to search the list of files for a string.

Before executing, the program reports the estimated time to restore. When executing, the program shows the duration time and the files which are being restored.

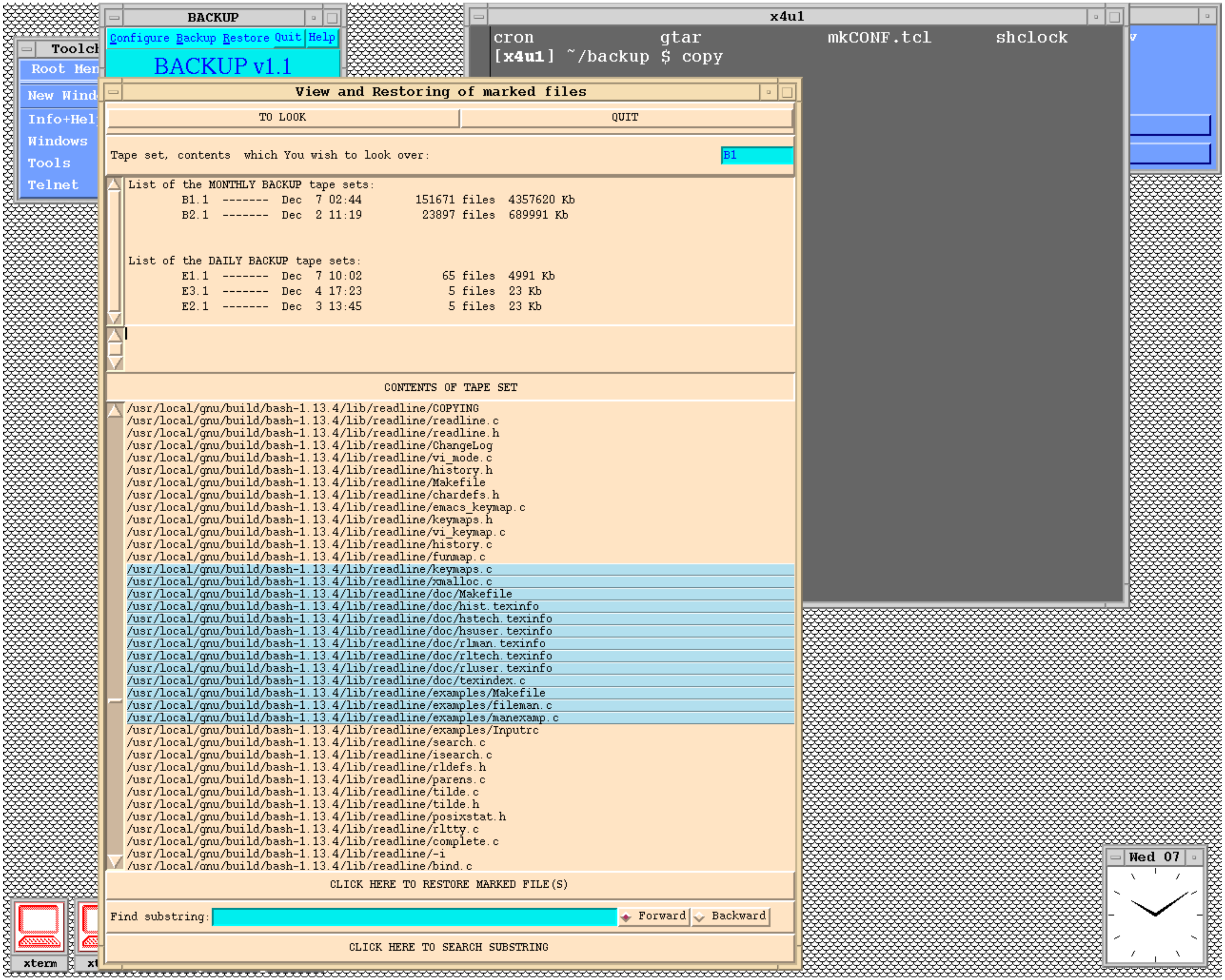


Session
User : skulikov
Login : x4u2
Server : x4u2
Display : xpla:0
Lock Screen
Logout
x4ul
[x4ul] ~/backup $ copy
Tue 06
BACKUP
Configure Backup Restore Quit Help
BACKUP v1.1
Setup of Parameters
Please determine parameters for BACKUP. Click the "OK" button when you're ready.
The interval between MONTHLY BACKUP (day):
30
CHANGES (%). If size of DAILY BACKUP more then CHANGES% of size the last MONTHLY BACKUP, then to make the MONTHLY BACKUP:
40
The number of tape sets for the DAILY BACKUP:
3
The editor:
xedit
The device for backup:
/dev/mt/tps5d7nsv.8500
The size of media, used for backup (Kb):
5000000
Program, used to back up and to restore files:
/home/x4u2/u01/skulikov/backup/gtar
Parameters to the program to back up:
-c -v -P --ignore-zeros --ignore-failed-read --totals
Parameters to the program to restore:
-x -v -P --totals --sparse
The speed of copying in Kb per second:
380
Use color or mono windows:
color
OK
CANCEL
Toolchest
Root Menu
New Window
Info+Help
Windows
Tools
Telnet
xterm
xterm
x4ul
xterm


Session
User : skulikov
Login : x4u2
Server : x4u2
x4u1
[x4u1] ~/backup $ copy
MONTHLY BACKUP
Please insert the cartridge B1.1 in drive.
continue
cancel
Tue 06
BACKUP
Configure Backup Restore Quit Help
BACKUP v1.1
Tools
Telnet
MONTHLY BACKUP
BACKUP
QUIT
A MONTHLY BACKUP set number is
B1
Device for MONTHLY BACKUP:
/dev/mt/tps5d7nsv.8500
Creation of filelist for the MONTHLY BACKUP ...
The size of files for the MONTHLY BACKUP is 4357620 KB
The duration time of the MONTHLY BACK is 3.0 hour 11.0 minutes or so.
Creation of the number of tapes ...
Prepare 1 tape(s) of media from B1 set
xterm
x4u1
xterm
xterm



BACKUP
Configure Backup Restore Quit Help
BACKUP v1.1
CLOCK
00:01:15
1.0%
MONTHLY BACKUP
BACKUP
QUIT
A MONTHLY BACKUP set number is
B1
Device for MONTHLY BACKUP:
/dev/mt/tps5d7nsv.8500
Creation of filelist for the MONTHLY BACKUP ...
The size of files for the MONTHLY BACKUP is 4357620 KB
The duration time of the MONTHLY BACK is 3.0 hour 11.0 minutes or so.
Creation of the number of tapes ...
Prepare 1 tape(s) of media from B1 set
Back up of file on the tape B1.1 ...
x4u1
[x4u1] ~/backup $ copy
Session
User : skulikov
Login : x4u2
Server : x4u2
Display : xpla:0
/home/x4u2/u01/skulikov/backup/gtar: can't add file /usr/bin/yppasswd : Permission denied
/home/x4u2/u01/skulikov/backup/gtar: can't add file /usr/bin/ypwhich : Permission denied
/usr/bin/check_abi_compliance
/usr/bin/check_abi_interface
/usr/bin/check_for_syscalls
/usr/bin/regcmp
/usr/bin/ar
/usr/bin/as
/usr/bin/ld
/usr/bin/nm
/usr/bin/uld
/usr/bin/abicc
/usr/bin/abild
/usr/bin/cord
/usr/bin/dbx
Toolchest
Root Menu
New Window
Info+Help
Windows
Tools
Telnet
xterm
xterm
x4u1
xterm
Tue 06


BACKUP
Configure Backup Restore Quit Help
BACKUP v1.1
x4u1
cron gtar mkCONF.tcl shclock
[x4u1] ~/backup $ copy
Toolc
Root Men
New Wind
Info+Hel
Windows
Tools
Telnet
View and Restoring of marked files
TO LOOK
QUIT
Tape set, contents which You wish to look over:
B1
List of the MONTHLY BACKUP tape sets:
B1.1 ------- Dec 7 02:44 151671 files 4357620 Kb
B2.1 ------- Dec 2 11:19 23897 files 689991 Kb
List of the DAILY BACKUP tape sets:
E1.1 ------- Dec 7 10:02 65 files 4991 Kb
E3.1 ------- Dec 4 17:23 5 files 23 Kb
E2.1 ------- Dec 3 13:45 5 files 23 Kb
CONTENTS OF TAPE SET
/usr/local/gnu/build/bash-1.13.4/lib/readline/COPYING
/usr/local/gnu/build/bash-1.13.4/lib/readline/readline.c
/usr/local/gnu/build/bash-1.13.4/lib/readline/readline.h
/usr/local/gnu/build/bash-1.13.4/lib/readline/ChangeLog
/usr/local/gnu/build/bash-1.13.4/lib/readline/vi_mode.c
/usr/local/gnu/build/bash-1.13.4/lib/readline/history.h
/usr/local/gnu/build/bash-1.13.4/lib/readline/Makefile
/usr/local/gnu/build/bash-1.13.4/lib/readline/chardefs.h
/usr/local/gnu/build/bash-1.13.4/lib/readline/emacs_keymap.c
/usr/local/gnu/build/bash-1.13.4/lib/readline/keymaps.h
/usr/local/gnu/build/bash-1.13.4/lib/readline/vi_keymap.c
/usr/local/gnu/build/bash-1.13.4/lib/readline/history.c
/usr/local/gnu/build/bash-1.13.4/lib/readline/funmap.c
/usr/local/gnu/build/bash-1.13.4/lib/readline/keymaps.c
/usr/local/gnu/build/bash-1.13.4/lib/readline/xmalloc.c
/usr/local/gnu/build/bash-1.13.4/lib/readline/doc/Makefile
/usr/local/gnu/build/bash-1.13.4/lib/readline/doc/hist.texinfo
/usr/local/gnu/build/bash-1.13.4/lib/readline/doc/hstech.texinfo
/usr/local/gnu/build/bash-1.13.4/lib/readline/doc/hsuser.texinfo
/usr/local/gnu/build/bash-1.13.4/lib/readline/doc/rlman.texinfo
/usr/local/gnu/build/bash-1.13.4/lib/readline/doc/rltech.texinfo
/usr/local/gnu/build/bash-1.13.4/lib/readline/doc/rluser.texinfo
/usr/local/gnu/build/bash-1.13.4/lib/readline/doc/texindex.c
/usr/local/gnu/build/bash-1.13.4/lib/readline/examples/Makefile
/usr/local/gnu/build/bash-1.13.4/lib/readline/examples/fileman.c
/usr/local/gnu/build/bash-1.13.4/lib/readline/examples/manexamp.c
/usr/local/gnu/build/bash-1.13.4/lib/readline/examples/Inputrc
/usr/local/gnu/build/bash-1.13.4/lib/readline/search.c
/usr/local/gnu/build/bash-1.13.4/lib/readline/isearch.c
/usr/local/gnu/build/bash-1.13.4/lib/readline/rldefs.h
/usr/local/gnu/build/bash-1.13.4/lib/readline/parens.c
/usr/local/gnu/build/bash-1.13.4/lib/readline/tilde.c
/usr/local/gnu/build/bash-1.13.4/lib/readline/tilde.h
/usr/local/gnu/build/bash-1.13.4/lib/readline/posixstat.h
/usr/local/gnu/build/bash-1.13.4/lib/readline/rltty.c
/usr/local/gnu/build/bash-1.13.4/lib/readline/complete.c
/usr/local/gnu/build/bash-1.13.4/lib/readline/-i
/usr/local/gnu/build/bash-1.13.4/lib/readline/bind.c
CLICK HERE TO RESTORE MARKED FILE(S)
Find substring:
Forward
Backward
CLICK HERE TO SEARCH SUBSTRING
xterm
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