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THE EPICS COOKBOOK: A BARE BONES START

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NOTE: This booklet is just a very simpified look at the EPICS system. Refer to the green OPERATORS GUIDE for more indepth information.

COOKBOOK TABLE OF CONTENTS

**This cookbook was created for the novice operator. A suggested exercise to accompany the use of this text is to sit down at a terminal and type through each given example to see how the system reacts to each step. You should be reminded that most of the content in this manual is superficial. Refer to the green Operators Guide for more detailed information.

I. LOGGING ON (LOG)**********

Before using the facilities in your account, you must log on

A.
[1] (cr)
[2] LOG (cr)
[3] ACCOUNT NAME: your acct name (cr)
[4] PASSWORD: your password (cr)

You may also log on by combining steps [2], [3] and [4] together.

B.
[1] (cr)
[2] LOG accountname/password (cr)

Ex. Let's say you would like to log onto the account which has the name 'John' and the password 'Spy'.
[1] (cr)
[2] LOG JOHN/SPY (cr)

II. LOGGING OFF**********

When you are finished with the computer, you should log off using one command.
[1] BYE (cr)

If the operator does not use the keyboard for approximately 20 minutes the system automatically logs off. This is called a "Timeout". To avoid timingout while you are sitting idle at the console, press (cr) every 10 minutes.

III. VIEWING A PAGE (P)**********

[1] P pagename (cr)

A listing will come up similar to the one in Figure 1.

Figure 1
A Page Listing of NTPS

```
NTPS    /NT BEAM LINE POWER SUPPLIES     0 09:46
  1K NE0H      -27.223   27.998 PUL RSR LOC
  2K NE0V       12.038   12.744 RSR REV REM
  3K NE1ED    1321.230 1332.810 RMP REM
  4K NE1VR       0.100    5.000 RMP RSR REV REM
  5K NE1DW      -1.249 3490.940 OFF TRP RMP REM
  6K NE1Q1       0.549    0.000 RMP RSR REV REM
  7K NE1Q2       0.649    0.000 RMP RSR REV REM
  8K NE1H        1.798   60.000 RMP RSR REV REM
  9K NE1V        0.050   45.000 RMP RSR REM
 10K NE4E        4.995 3210.000 OFF TRP RMP REM
 11K NE4V       45.866   51.000 RMP RSR REV REM
 12E NT8E1AD
 13K NT8E1    2861.000 3725.000 RMP REM
 14* NT8AD1   T5+6.000    6.000
>15K NT8E2     -2.427 3740.000 RMP REM
```

If you would like to view lines below line 15 (if more exist) press the right arrow key located on the auxillary keypad to the right.

[2] ⟶

Repeat step [2] until an EOB is reached.
If you wish to go back to the beginning, press the left arrow key.

[3] ⟵

See page 16 for information about the "fast attach" key.

Ex. The following steps demonstrate how one would view the entire page called NTEST front to back and back to front:

[1] P (cr)
[2] P NTEST (cr)
[3] ⟶

Continue step [3] until an EOB is reached.

[4] ⟵

Continue step [4] until the beginning of the page returns.

Ex. It is also possible to get a page from another account, but you must know its UIC. You may get another person's UIC by simply asking him/her for it. The following example will call up NT200 from the account [20,1].

[1] P [20,1]NT200 (cr)

IV. VIEWING A PAGE WITH VARIOUS OVERLAYS**********

The overlay keys are the red keys located directly above the alphanumeric keys.

Table 1 displays these keys and their function.

[1] P filename (cr)
[2] Press the key which corresponds to the horizontal overlay that you desire.

Table 1
Horizontal Overlays

Overlays	Overlay Content
Fixed Overlay	Cursor character ">", line number, device access characters, device name, device readback
Overlay 0	Device setting, most significant hardware status bits.
Overlay 1	Additional most significant hardware status bits
Overlay 3	Levels and Slopes
Overlay 8	Saved Value; Watch Time; Watch Repeat Count

For a more extensive list of the horizontal overlays, please refer to the Operators Guide on page 15.

Ex. The following example demonstrates the procedure for viewing the page NTPS, and inspect the saved values. From there it will display the levels and slopes of the devices.

[1] P (cr)
[2] P NTPS (cr)
[3] Press the 9th red key from the right (Saved values)
[4] Press the 4th red key from the right (Slopes + Levels)

V. CREATING A PAGE (PEDIT)**********

The page editor is used to create and/or modify a page. It is called PEDIT. The command sequence used to create or modify a page is:

[1] PEDIT filename (cr)

Your filename can be up to 9 alphanumeric characters.
NOTE: All PEDIT commands can be abreviated as PED.

[2] ENTER TITLE: page description (cr)

Describe your page in 0 to 30 alphanumeric characters.
Now the monitor should display the following:

```
Filename/Page description
NAME TIME VAL RPT/WATCH-TIME LO UP PROG STS
>000.0 DEFAULT *D 0.000*

PED>
--
```

Ex. In order to create a page called 'JAPE' and give it the description 'Just a practice example' the following must be done:

[1] PEDIT JAPE (cr)
[2] ENTER TITLE: JUST A PRACTICE EXAMPLE (cr)

This will return:

```
JAPE/ Just a Practice Example
NAME TIME VAL RPT/WATCH TIME LO UP PROG STS
>000.0 DEFAULT *D 0.000*
```

VI. INSERTING DEVICES ONTO A PAGE (I)**********

A. [1] PEDIT filename (cr)

Use step 1 only if you are not already in the PEDIT mode.

[2] I (cr)

You should now have the following prompt at the bottom of the screen.

```
PED>
I
INS PED>
```

[3] Devicename (cr)

To get out of the Insert mode, press the Escape key.

[4] Press "ESCAPE" (cr)

To save what you have entered:

[5] GO (cr)

Ex. Let's go back to the page 'JAPE' and begin to insert devices NT9Q1, NT9Q2, and NTEBR.

[1] PEDIT JAPE (cr)
[2] I (cr)
[3] NT9Q1 (cr)
[4] NT9Q2 (cr)
[5] NTEBR (cr)

If you would like to get out of the INS PED mode:

[6] Press 'ESCAPE'

If you would like to save your entries:

[7] GO (cr)

B. Inserting a Device onto a particular line number*********

[1] PEDIT filename (cr)
(if you are not already in PEDIT)
[2] I linenumber devicename (cr)

In order to squeeze a line between two whole numbered lines you must insert by 1/10.

Ex. 0.000 NT9Q1
0.100 NT9Q2
0.200 NT9CH
1.000 NT9V

NOTE: The units diget is required when inserting.

Ex. Once again let's go back to the file 'JAPE' and insert NT%VR (with a saved value of 10) between lines 1 and 2, and NHBV (with a saved value of 50) onto line 4.

```
[1] P (cr)
[2] PEDIT JAPE (cr)
[3] I 1.5 NT%VR V=10 (cr)
[4] I 4 NHBV V=50 (cr)
```

Now to save it:

```
[5] GO (cr)
```

VII. CHANGING PARAMETERS ON A PAGE (C)**********

```
[1] PEDIT filename (cr)
```

(If not already in PEDIT)

```
[2] C linenumber parameter=newvalue (cr)
```

Table 2 lists some PEDIT parameters and their keywords.

Table 2
PEDIT Parameters and Keys

Parameter	Key
Title of Page	TITLE
Line number	LN (optional)
Name of device	N (optional)
Time of reading	T
Value for save & restore	V

For a more comprehensive list of the PEDIT parameters refer to the Operators Guide on page 21.

Ex. In order to change the saved value of NT9Q1 (line 1) on the JAPE page to 250 we must do the following:

[1] P (cr)
[2] PEDIT JAPE (cr)
[3] C 1 V=250 (cr)

To save the change:

[4] GO (cr)

Other PEDIT commands are D(elete) and L(ist). D is used to delete a particular line number and L is used to list several lines starting with the desired number.

Ex. The following commands will PEDIT NT200, list from line 8, and delete line 10.

[1] PEDIT NT200 (cr)
[2] L 8 (cr)
[3] D 10 (cr)

And to save the corrections:

[4] GO (cr)

VIII. EXITTING PEDIT**********

There are 4 ways to exit PEDIT, and each has a different outcome.

A. [1] GO (cr)

This exits PEDIT, and saves the file with changes made. Then it will call up the new version of the page for viewing.

B. [1] E (cr)

This command exits PEDIT and saves the file with cnanges made.

C. [1] A (cr)

Exits PEDIT, but does NOT save any changes made during the editing session.

D. [1] CTRL-Z

Exits PEDIT at any time during the editing session, but does NOT save any changes.

IX. STORING CURRENT "SET-TO" VALUES ON PERMANENT TAPE (SVD)*****

[1] P filename (cr)

[2] SVD filename (cr)

Ex. In this example let's store the current set-to values of JAPE on permanent tape.

[1] SVD JAPE (cr)

WARNING: This can be a very dangerous command. With an SVD command, you are losing what is presently stored. You are also reminded that the stored set-to values can be seen on Overlay 8.

X. RESTORING THE SAVED "SET-TO" VALUES BACK TO CURRENT (RSD)***

[1] P filename (cr)

(if not already at the desired page)

[2] RSD filename (cr)

Ex. When the values that were stored into JAPE are needed, we must do the following:

[1] RSD JAPE (cr)

XI. LISTING A DATABASE ENTRY (DBL)**********

A. If you would like to list just 1 device:

[1] DBL devicename (cr)

If you would like a listing of all the devices with the same name up to a certain character:

Ex.

[1] DBL NT8AD (cr)

This will give you a listing of all the devices beginning with NT8AD. The output would resemble Figure 2.

Figure 2
DBL of NT8AD

DBL NT8AD

DEVICE	MODULE	CRATE	SLOT	CHAN	SCALE1	SCALE2
NT8AD1	891T	51,15	5	0	0.000	0.000
NT8AD2	891T	51,15	5	2	0.000	0.000

You can also DBL moduletypes, crates, crates and slots, and modules. See Operators Guide on page 35 for further details.

XIII. COPYING A PAGE TO YOUR ACCOUNT**********

[1] PEDIT newfilename=[UIC of desired page]oldfilename (cr)

**Note: You must be in the account of the newfilename.

Ex. 1 If you are in your account, and would like to copy one page (NT50) to a new page in your file (NT100) and change the title (NT at 100 GEV), the procedure is as follows:

[1] PEDIT NT100=NT50 (cr)

The page will be copied, and you will still be in FEDIT of the page NT100. Now to change the title:

[2] TITLE=NT AT 100 GEV (CR)

And then save:

[3] GO (cr)

Ex. 2 This example will demonstrate how to copy a page called NTPS in the operators account [20,1] to your own account.

[1] PEDIT NTPS=[20,1]NTPS (cr)
[2] GO (cr)

XIII. PLOTTING A DEVICE'S CURRENT (PLT)**********

A. General

[1] PLT (cr)

The computer should respond:

PLT>
--

[2] out= console name for output (cr)
(This is usually written on a label above the monitor.)

The computer will continue the prompt:
PLT>
--

[3] AD= devicename (cr)

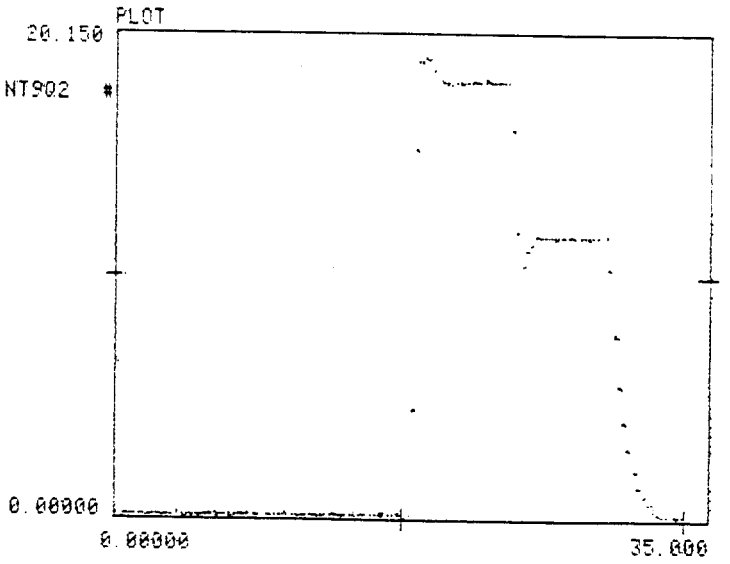
[4] XB= the time (in seconds after T1) at which you want the graph to begin (cr)

[5] XE= the time (in seconds) at which you want the graph to end (cr)

[6] GR (cr)

It should take several minutes. When it does display a graph, it should resemble Figure 3.

Figure 3
A Plotted Graph of NT9Q2



At about T1+17.5 seconds, NT9Q2 ramps up, overshoots, and then settles down to a current of about 19 amps. Approximately eight seconds later, it ramps down to a new current of about 12 amps.

B. Changing the device and Plotting again

[1] DE= old device (cr)

[2] AD= new device (cr)

[3] GR (cr)

If none of the parameters are changed the computer continues to plot with the most recent parameters.
If you do not delete the old device before entering a new device, you will get a graph of both. Refer to the Operators Guide on page 54 for more advanced features of PLT

C. Exit PLT

[1] ctrl-z

Ex. The following set of instructions will plot the magnet NH8UE from 0 to 60 seconds on the monitor NG210S1.BLK. Once this graph is done, we will change the magnet to NT9V. After this completed, we will exit the PLT mode.

[1] PLT (cr)
[2] OUT=NG210S1.BLK (cr)
[3] AD=NH8UE (cr)
[4] XB=0 (cr)
[5] XE=60 (cr)
[6] GR (cr)

Wait for this graph.

[7] DE=NH8UE (cr)
[8] AD=NT9V (cr)
[9] GR (cr)

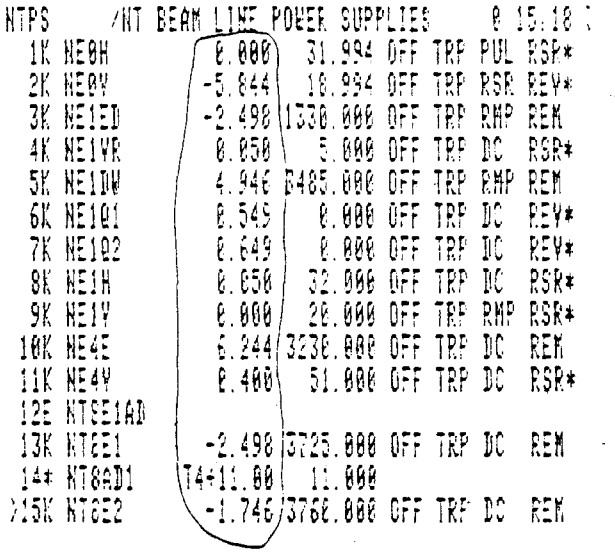
Wait for this graph.

[10] ctrl-z (cr)

XIV. READING A DEVICE**********

A.
Reading a device can be done a number of ways. When a device is entered onto a page, there is a continuous readback only after it has been PEDITED onto the page via the GO command. When reading the device on a page you are looking at the column to the right of the device name. No matter what overlay you have on display the device name and device readback are always present. Figure 4 has highlighted the device readback column from a power supply page.

Figure 4
Page of NTPS



```
NTPS     /NT BEAM LINE POWER SUPPLIES     @ 15:18 :
  1K NE0H        0.000   31.994 OFF TRP PUL RSR*
  2K NE0V       -5.844   18.994 OFF TRP RSR REV*
  3K NE1ED      -2.498 1330.000 OFF TRP RMP REM
  4K NE1VR       0.050    5.000 OFF TRP DC  RSR*
  5K NE1DW       4.946 8485.000 OFF TRP RMP REM
  6K NE1Q1       0.545    0.000 OFF TRP DC  REV*
  7K NE1Q2       0.649    0.000 OFF TRP DC  REV*
  8K NE1H        0.050   32.000 OFF TRP DC  RSR*
  9K NE1V        0.000   20.000 OFF TRP RMP RSR*
 10K NE4E        6.244 3230.000 OFF TRP DC  REM
 11K NE4V        0.400   51.000 OFF TRP DC  RSR*
 12E NTSE1AD
 13K NT6E1      -2.498 3725.000 OFF TRP DC  REM
 14* NT8AD1    14+11.00   11.000
>15K NT6E2      -1.746 3760.000 OFF TRP DC  REM
```

It is also worth mentioning, at this time, about the Fast Attach key (located on the auxillary keyboard). The Fast Attach allows the viewer to get a continuous reading on a device (instead of the usual reading every couple seconds). The up (↑) and down (↓) arrow keys must be used to select the device line that you wish to Fast Attach. The cursor (to the left of the line numbers) resembles a greater than sign (>). The up and down arrows control the cursor position. In Figure 4 the cursor is set on line 15. Once the cursor is on the desired device line, pressing the Fast Attach key is all that is required.

B.

A readback can also be viewed on the device's parameter page. This page has its current reading located at the top of the second column. The other numbers in the second column are the device's settings for each level and slope. Figure 5 has highlighted the readback on a parameter page.

Figure 5
Readback From NTBQ1

```
NTBQ1    /NTBQ1 LEVELS AND SLOPES
> 1K NTBQ1        0.000  ( -1)  C
  2K NTBQ1        9.000 .LVL(  0)  C
  3K NTBQ1       18.750 .LVL(  1)  C
  4K NTBQ1        0.000 .LVL(  2)  C
  5K NTBQ1        0.000 .LVL(  3)  C
  6K NTBQ1        0.000 .LVL(  4)  C
  7K NTBQ1        0.000 .LVL(  5)  C
  8K NTBQ1        0.000 .LVL(  6)  C
  9K NTBQ1      200.000 .SLP(  0)  C
 10K NTBQ1      200.000 .SLP(  1)  C
 11K NTBQ1      200.000 .SLP(  2)  C
 12K NTBQ1      200.000 .SLP(  3)  C
 13K NTBQ1      200.000 .SLP(  4)  C
 14K NTBQ1      200.000 .SLP(  5)  C
 15K NTBQ1      200.000 .SLP(  6)  C
```

XV. SETTING A DEVICE**********

To set any device to a particular level there is only one command.

[1] SET devicename = level (cr)

Ex. To set NTAQ to 300 amps, the following steps must be followed.

[1] SET NTAQ=300 (cr)