t!:l t(·:)T'!,;P\:l • mcl Y'

.TITLE

.IDENT

TERSPY Terminal SP� Prosram

/()l /

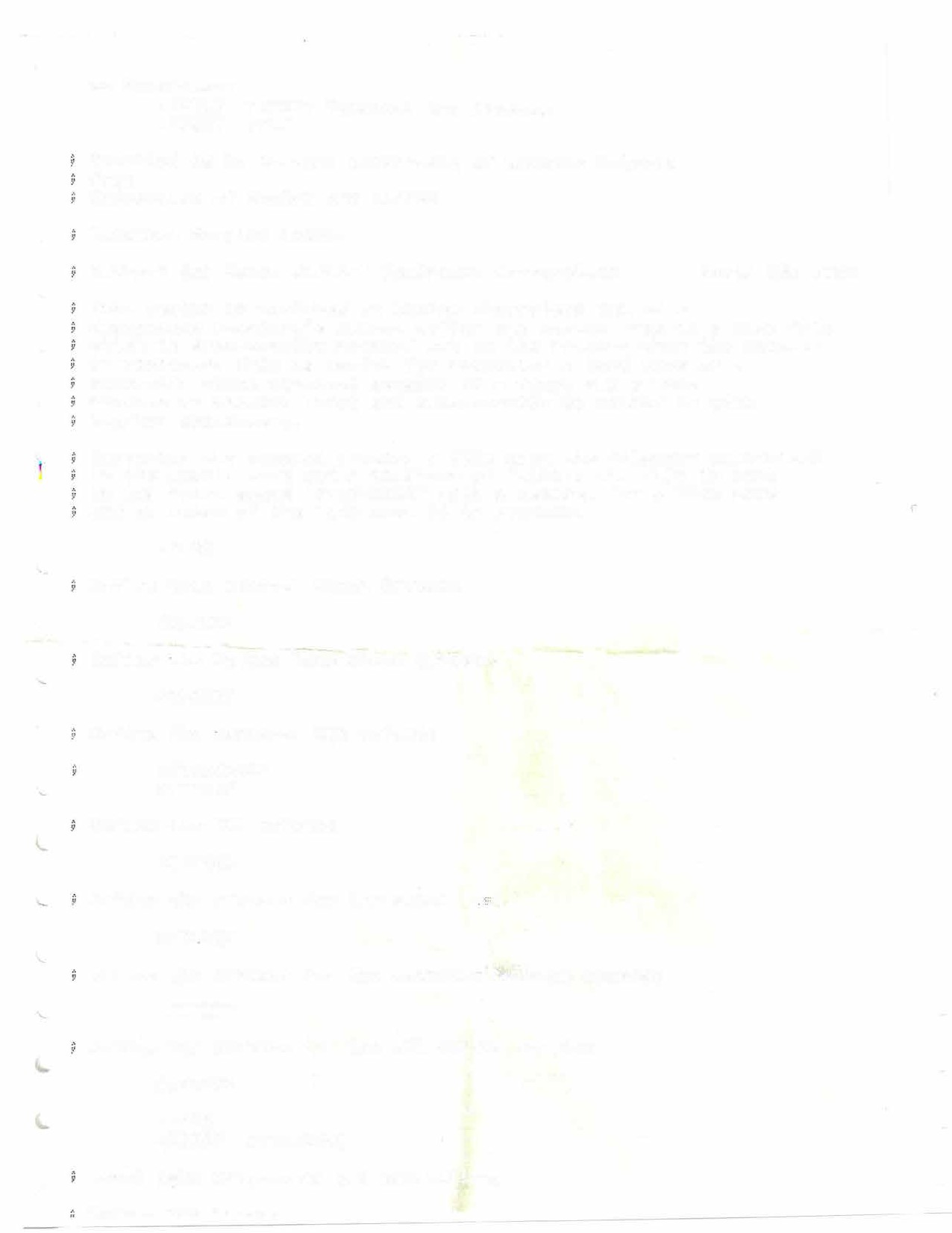
Modified b� D. Martin, Universit� of Western Ontario from

Universit� of Guelph VAX 11/780

Terminal Session Losser

Author: Bob Vera, Disital EQuiPment Corporation

APT'il 28, :1.980



This s�stem is designed to kidnap characters out of a

desisnated terminal's output buffer and record them in a disk file which is subseQuentl� Printed out on the Printer when the session is finished. This is useful for Producins a hard coP� of a student's video terminal session of a final run of his

Program or ProJect which ma� subsenuentl� be handed in with his/her assisnment.

Currentl� the Prosram creates a file with the filename eauivalent to the user's name and a filet�Pe of ".LOG". The file is sent

to the Print Gueue "SYSSPRINT" with a reauest for a flas PaSe and deletion of the file once it is Printed •

### PAGE

Define Unit Control Block Offsets

!l,l.JCBl1EF

Define Lhe Device Data Block Offset�

$DDBDEF

� Define the terminal UCB offsets

$TTYUCBDEF 11;TTYDEF

Define the IRP offsets

$ Ii:�r-:·DEF

Df.·ifinE• the of·fsets for thf? nuc>ta J.j ,t

*it,POI.. DEF*

Define the offsets for the s�mbiont mana�er messase

Define the offsets for the JPI s�stem service

$,.JPIDEF

### .PAGE

.PSECT DATA,QUAD

l Local Data Structures and definitions

**T'lo+" .; r·.,... C:•MC� r, ·, ... ... 1 • .••**

wish to have an entr� made then remove the •;• from the FOP oPtion to make it a temporar� file.

FABBI...I'( ! $F,�B

A ......

v '

FAC FOF' FNM

Of�G

rms

RFM

FAB

i:rnc **F\f:);!** F�BF

*....*

*....*

*....*

*....*

*....*

....

....

*....*

....

<PUT ***9*** BIO>v .... TMPv·...

<1:>Y13 i�C)LJ T PUT> *y* ·-

�;[Q v ....

:l.2B v ....

FIX

F(1BBL.K ***9*** ....

SEQ, *....*

204f:lv*....* F�FCBUF

;enable block I/0 vT€·)mPOT'ar� f:i.1<-:.'

iASCII filename strin�

;!:;c,:.)au<:·)nt :i. al

;Maximum record size

;Fixed lensth records

;Asi;;ociatc·�d FAB

;seauential access vRecord buffer size PReccrd buffer address

Define hex eauivalents of some ASCII characters

ESC :::'''X:I.B

c:1:� ::::'''XOD

LF *:,,,,.'XO(.�*

FF :::, r'XOC

BS ::::'''XOB

BL.NI< ::::"'X::.>O

Mrnow :::: r'X!3E

CTJ=<I...Z :: r'X:I.A

\.. ZEE ::::"'X!:'iA

Stora�e definitions

; Af;CII f<Jr E'::,caPe

vr)SCII fa T' F,eturn

*;* {;!3CJ I for l...:i l"IP FE·iE-1d vASCI I 'f''or Form *Fe:�f:•d* vr'.�SCII 'for Back **f)F1<:J<::t·::'**

;; r-)i:;c:i: I for *�:) F1* a **C� <·:·�**

*,�* "

vMlCI I for **II**

**II** "

v Af;c:,: :i: for <CTl:(1... >Z

*;,* ()SC T J fn r **II** ,*")'..* **II**

CHAFnIM: m.JADTIM!

TTNAME: Tl�AN!3DESC: TF<ANSI...EN: TF.:ANSAD Di:< ! TRANSNAME!

D EV:LT\_LJNIT ! DEVI\_. T....DEVNAM:

TT ....UCB: TT .... WB....NXT !

L TT.... I1:;:p:

T'T .... lJB....END:

Sl<IP\_.CNT: L.AST.\_CHAR: l<F'<NL\_CNT: 1,1:�NL.. ....PNT:

FU::C ....CNT:

1.. RECBUF !

OVERFLOW:

.Ar;c:i:n

.CWAD

* t.,f;C JD

.LONG

.LONG

.BL.KB

* WOFW
* BLl,B
* LONG

.LONG

.LONG

.LONG

* lJORD

.LONG

.LONG

.LONG

* LONG

.LDNG

* BLl<B

.BLl<B

/0 00:00:00.0�:=;;

**()**

/SPY.... TEf;:MJNAI.,

*f.,3*

TRANSNAME

f.,3

0

:1.00

**()**

BOOOOOOO 0

**()**

**()**

.... 1

**()**

**()**

**()**

0

204B

200

�ASCII delta time of 1/:1.00 sPc

;Binar� eauivaJent stored herf

;1...osical name of Process term vlrar,�;Jat:i.nn nf abc:1vc:,• r,ut, h1-:irf vLen�th of translated strin� vAddr of translated strins

;Translated string

;Terminal unit number here

;Terminal device name CTTx)

STerminal's UCB address vAddres s of next char vAddress of current IRP vAddress of buffer end

vldle search counter

;Last character t�Ped

;counter for chars transferrer

;current Position in RECBLJF

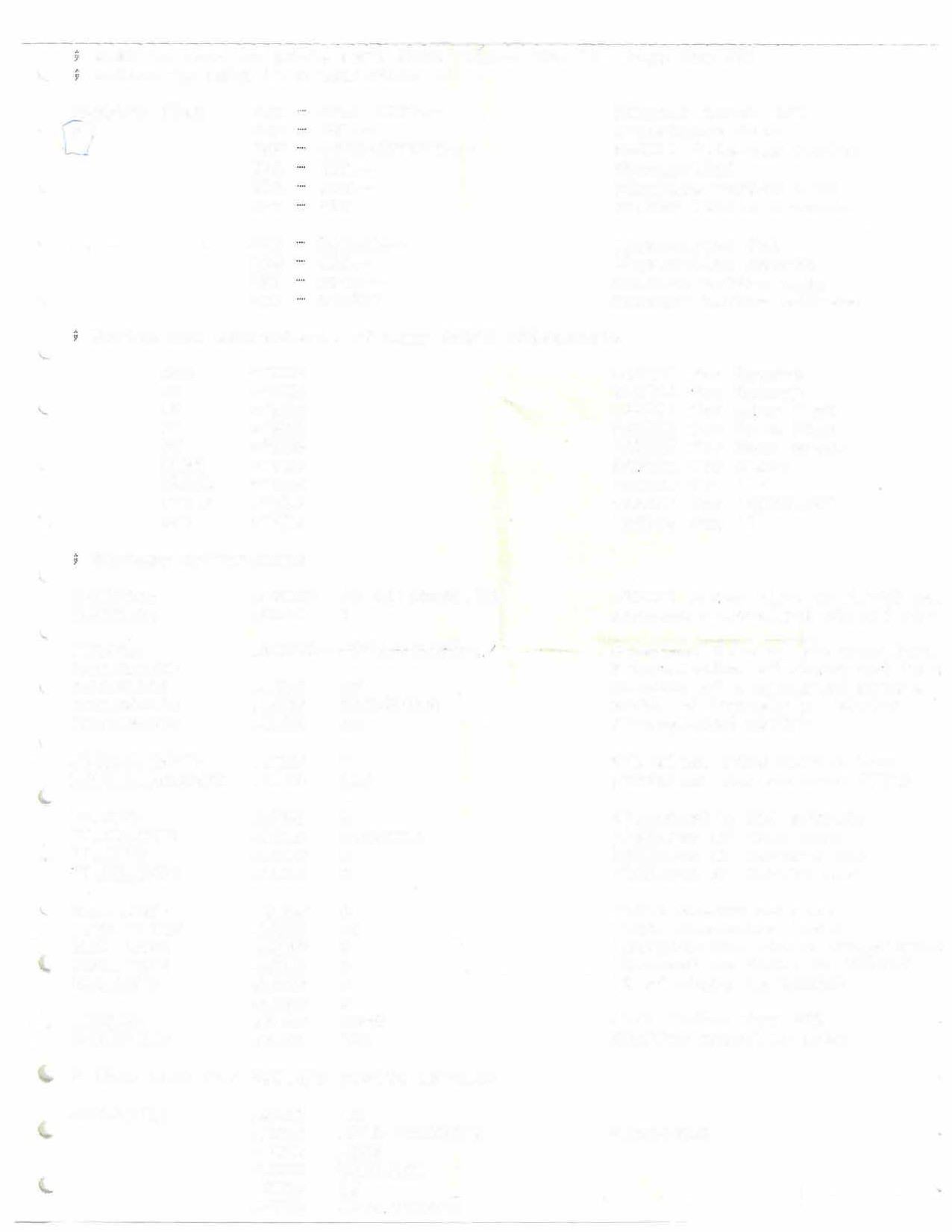
vi of chars in RECBUF

vI/0 Buffer for RMS

;Buffer overflew area

; Item List for SGETJPI s�stem service

,.JDIL INFCJ: .worw



* WORD
* I...CJND
* LONG

.wmrn

.1,.101:?n

1 .':.>.

,JP I il> .... LJSE!=�NAME USE!�

USEFLLEN

l !:j

..JP I$ ... PF?CNAM

vl.JSE�rnalTIC:·1

USEFLL.EN !

#### USER! PROCESS..\_l..EN: Pf OCESS: MBXCHAN!

.LONG ()

+ BLKB 1'•:.>.

#### •LONG 0

.LONG PROCESS

.BL.KB J.',"J"

+ LONG 0 *v* Ma :i.lbo:-: channc-:-i l

EXITBL..K:

#### + LONG

+ LONG

+ LONG

#### •LONG

()

MBXAST J. HEM;ON

r Lin k i:lSC-:-! W C> T'd

;Handler add r·c !,:S

;One a r l1..1men t

;i:<:i a .on f or <:i :-: :.t

#### REASON! .LONG O

.F'AGE

.PSECT MAINCODE,QUAD

sTAFa:: .wmrn

() ;And awa we go • • •

:30$!

-.. 20$

*1oi:*

"'

102$!

"'

:1. 0311; :

#### SGETJPI\_S ITMLST = JOB\_INFO

$CREATE FAB = FABBLK BL.BC FW ,20$

$CONNECT RAB = RABBLK

BL.BS i:rn, 10$

#### F'l.JSHI . FW

$CLOSE FAB = FA BBL.K

POF'l.. *FW*

FET

SDCLEXH\_S DESBL.K = EXITBL.K

$SETPr I s F'R I:::::@

#### SBINTIM\_ S TIMBUF=CHARTIM,-

T MADF== CUADT M

#### STRNLOG\_S LOGNAM=TTNA ME v ­

RSLLEN=TR ANSLEN,­

RSLBUF=TR ANSDESC

;Get Process and user names

;create a file with RMS

v Errc> r cCJnd it:i.,:in

;connect an I/0 stream to it

;Errci r ccindition

;Fecord hand J. :i.ni.;l ri rr·o r rf?tu rn

;File handling error return

;set UP exit handler

v BumP UP our priorit

;Get 64 bit eGuivalent of a

;delta time of 1/100 second

v F:i. nd out wl1j.ch t<,·ir·m:i.nal W f.1

v ar€,' c:H1 . This .i. s th<:.'one we:-:­

;w:i.11 1ncin.1.tor

#### CMF'I . BNEO

,u,; ;i .-NORMAL *v* 1:rn

30$

Here we shall et the terminal we are runn1ns on in the form \_TTax:

; This wi 11 then bf. ui;;ed bi3 thc-:i rout:i.1 1r' GFT...TT .\_.l.JCB wh:i.ch w:i.1.1. scan th<'

; *I / 0* data base for this term inal and re turn the address of it's

UCB (Unit Control Block).



1$!

CMF'B BNED Sl.J BL ADDL MOVL

Tf ANSNP1ME: *v* :IJ:' X :I. B

:1. $

:14 ,·nrnNSLEN

:IJ:4 ,·n ANSADJ)l=i:

TRANSADDR *9* rw

;Is the first char an <ESC)

*;No v* skiP the rest

;subtract 4 from the lensth

;Move Pointer UP 4 btes

;Point to the terminal name

ADDL ,11:4 ,FW MOVZBL (·rn) *v* RO Sl.JBL =lt-' X:30 *v* FO

#### MOVZBW RO,DEVI\_T\_UNIT

ADDL i1,TRANSADDR

$CMKRNL\_S GET\_TT\_ l.J CB

TSTI... TT.\_l.JCB

BNEC-l 107$

#### BRW 30$

SPick UP the unit number char S Get the ASCII bte

;convert the ASCII Store the unit number

Point to Proper device name

S Get the UCB add r for the terr

;Exit i f not found

? a n '.] => T,r:·a **J. 1n**!.:.t **T.. r1**(.·) c,**1**<::: ,• <:> **l.:** ,,*·::* ,.":=.> **t,,** ,<:s **t, t,,** ,*\·:.'* > cs ,.*t-::* •••, .,. "'::> ,.• ••• •=> ::> .,• • • *::.,* \.,, , \,, ,,·.- ,,*.:.-.-* , ,.• •,• • ,<:> .• •

We have a SrouP of buffers for this Purpose and the buffer current l bei ns used is Pointed to b the variable "KRNI...\_ PNT"

10}$, ! MOVt,I... MDV I...

CI... F<B

RECBLJF+l ,KR NI...\_ PNT

*=II=* :I. ,F<EC.... CNT F<ECBLJF

;Initialize the Pointer

A ll set! Scan the IRP's and if we find characters, send them to the subProcess . Else trs another scan . If we scan 3 times and find nothi ns then So to sleep for 5/ :1. 00 of a second and start over.

LOOP: MOV W t-3,SKIP\_ CNT R EPEAT : SCMKR NL\_S GET\_TT\_ NXT

:I. OB$ : T b T L 1-<l:<NI... .... CNT

BGTI:< :I. 011;

ADDW 2 il ,SKIP\_CNT

BL. SS i=<EPEAT

SSCHDWK\_S DAYT IM=QLJ ADTIM

 t H I BEl:<.. 13

DRB 1...DD P

;set UP the idle scan counter

*v* Scan thc·:·i I F< F' i,;

v An thins returned?

;Yes, then send them on i No, count this idle

;If 3 of them then . • •

* f.!o to SLEEP

;and tri,1 *a!.=J a* 1n

This next trick i s to make sure we don 't overpri nt our screen. Sometimes we miss a form feed. This next section checks ta see in the last character

tPed was a carrise return. If so then we must tsPe a l i ne feed if there i 3 not one in the fi rst two character s of our new l ine

,

•...

*I*

;:mi :

20! *g*

60$!

40! :

CMPB BNED MDVI...

### CMPB

1:iEOI...

CMF'L.. BL.ED CMF'B BED!... MOVB

f)DDL.:.!

CMPI...

Bl.. :lS

!p l.,Jf< TE M()l,,•{it... MOV (L

MDVI...

MDVI...

r-)DDI...?

!:;UBl...::2 BL.EU MDVB

I N Ci...

l:10BGTI:< CLl:<I...

MDVI... MCJl,,1C:!'i MOVL CL..i=<I... MDV I... t,DDt...::.! MOVB Cl...r<B

I NCi...

MCJ tJL. BF< W

I... A!:;T....CHhF *v* =ll= CI:<

20!1,

I'(1:;:NI.......F'NT *v* 1:<0

< F<O ) + *v =11=1... F*

2011;

hFrnL.....CNT *v* :fl: :L

30$

< 1:< 0 ) *v =11=1... F*

::.011;

=ll=L F *v* ...2 ( F<O )

KRNL\_ CNT v REC\_ CNT 1:<EC...CNT *v* =11= 204B

4()!p

f<f.':\ B :::: 1:<hBB L..I-<

OVEFFI...CJW *v* F< :I.

F<LCBUF+:I. *v !=<6*

:If: :I. 1• t=<EC ....CNT

l< F< N I... .... PNT *v* f<O

l< F< NI... ..CN T *v* 1:< 0

:lf,CJ'v1EF<F I... DW *v* RO

!'.'.i ()!

( 1:0. ) + v ( FU, ) +

f< EC....CNT

rm *v* 6<H

r<O

:lf:200 v f< l

RO ,OVERFI...OW v RO,R:l. ,OV LRFL..DW

FU> *v* l'(l:<NI....... PNT 1-<RNL. ....CNT

KF< NI... ....F'NT 1• F< O

Kl:<NI... ....CNT *v* 1:<0

.... :t ( l:<0 ) v l... { ET...CHAI:<

( R O H·

1:<EC...CNT

F<O 1• K l:<NI...... PNT

1...CJ CJ P

;Did we l8st tsPe a <CR>?

;No , skiP the whole mess

;1...ook at the first new char

;. I s :i.t a <LF> '!'

P Yesv then don 't wor rs

S No v I s there a second char

i No, can 't check it then

i Yes, Is it a <LF> ?

;Yc·: s *v* thank Dc:>d

;Nov then insert a <L.F >

& Record the bte count

;Bu f f f·.' T' f u l l *'r ?*

;No v continue scanni n

;Yes, wri te it out

D lransfer overflow to

;beinnin of buffer

;Re-ini tal ize buffer count

;check if ansthins in the

;D V <·:i rf1ow bu f f c-:-i ·,,

;Yes, do the move

;clear the overflow buffer

;Re-initial ize the Pointer

;store the last character

;that was i,;c-:·int





then this routine rads the mai lbox to see how many coPies are desi red and then flushes the record buffer, closes the file, and sends

a messase to the PT·int sym biont man Ller to Print it.

* If zero copies are asked for then the file is sim Pl deleted This is now an exit handler to bow out sracefull Y. /MDM

MBXA!:>T: :

## wmrn o



$CLOSE FAB = FABBLK

$EXI T .... :l

### .PAGE

;Lower our Priority aain

;close the los file

Th:i.i;; Kernri l Modc"i rout:i.nf2 !,: can; the I/ CJ data bai:;c-,i and ·,c-:-itur'n!;; th<-:-1 addrc2!;;s of the UCB (Unit Control Block) for the terminal whose name is Pointed

to b "TRANSADDR " and whose unit number is 1n "DEVI\_T\_UNIT"

GET.\_ T"LUCB :!

* + W DFD

MOVL

'

J flB MOVL CL..RL..

M <R2v R3v R 4v R5,R6,R10 ,R11>

@ISCHSGL\_CLJRPCB,R 4 SCH!I, DL.OCKF

nrnNSADDF ,r6

TT.\_.UCB

;EntT'!,I PO int

;Lock the I / 0 Data Base

;Point to thP tri T'm 1na l na,r,Ei

;C 1f,i a ,, thri r*c=:i* tur n :i.nfor 111a t j n ri

First scan the DDB's (Device Data Blocks) for devices of the type TTx (where x is a controller letter).

10$!

MOVAL MOVL BNEGU CUL

Bf J MUVZBI... INCL

L r, I OC$GL\_ .DEVL I ST-··DDE<-L I. .L.1NK *v* F..: :I. :I.

DDBSL\_L.INK( R11)Y R 11

:L:?$

fdO

00$

DDBST\_NA M E (R11),RO

F.:O

;Get addr of addr cf first DD

,Get ri•:·i;-:t DDB

;:r s ther e another?

;!:> .i. iria l UCB add r not found

;Al l i.':ionc-:,!

;Get lensth of device name

MOVC3 CMPB BNEG CMPB BNEG

FW v DDBST\_ NAME< l:u1),Wr'Dl:VJ .\_T\_.D VNAM v L:m,,'::.I dev:i.cc: n;;ime

(R6),DEVI\_T\_DEV NAMt1 v Check for TT device name

10$ ;No v set next DDB

1( R6 ) *v* DEV I.\_ T\_D VNAM+2 *v* Ch0ick .c-ic.. Dnd char·

10i ;No

CMPB BNEG

### 2(R6)v DEVI\_T\_DEVNAM+3

:I. 0$

;check the controll er letter

Now scan throush the UCB's for this device look ins fer the unit

Wf? dl S:i T' € +

•50$!

# •

MCJ V AL.. MOVL BEOL.U CMPW

BNEG

DDB$L\_ LJCB-UCBSL\_LINK (R11),R10 UCB$L\_ LINK C R10),R10

60$

### UCBSW\_lJNIT< RlO> ,DEVI\_T\_ LJNIT

:'5()!

v Get addr of addr of UCB

;Get next UCB addr

*v* Noth ins thE rc:-i

;check the unit number

Got :i.t ! !

* MDVL

### BFrn

FU O *v* TT ..UCB

()()$

;store the UCB address

;; And retuT'n home

.\_ 60S:

BOi !

BRW

MDVL

,JSB

F<ET

:l 01;

@ISCHSGL\_CURPCB v R4

SC H; I Cll.J NLOCI'\

;continue to next DDB

;unlock the I/0 Data Base

This Kernel Mode routine is the work-horse of the sustem. This code scan!,; thf: IRP'i,; cc>m:i.n .l throui.:.!h for th:i.s d<·:v:i.cc,: and d<: c:i.de!:; .i.f it

ls a read or w rite reGuest. If it is a w rite reGuest then the enti re buffer is transferred in shot. If it is a read reauest then we work an a character bY character basis so that the we can emulate the tuPin

on the characters on the screen

One mau notice that the code for lockins the I /0 data base has been commented out. This is intended to speed thinss UP for the sustem when a lar e number of People are usins the Prosram. Since the

code below onls reads the data base the sustem should suffer no ill effects . However, if one wishes to feel more secure about the situation then simPls remove the comment characters (" ;" ) in the aPProPriate Places. (There are six lines where this must be done).

GE T ....TT...NXT !:

* + WDFW MCJ VL JSB



cua..

MDVI .

EX T \,'

BNEC

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| BRW :I.!f; ;No, then sim Pls return | | | | | | | |
| 3()()$ : | MOVL | l.JCBSL\_SV APTE (R5)*v* r.:4 | ;Ch:::> t | buff<:·: | | r add T'l:':',;!,; | |
|  | MOVL | TTY$L\_ WB\_ NEXT (R4> ,F..: 3 | v Get | addr | | of the:,' nE:;-:t char | |
|  | MDVI... | TTY!l;I...\_WB\_END (1:<4 ) *v* TT.. WB\_.END | v Get | addr | | of thf.:.1 last char | |
| MOVL UCB1;L\_ IRP (H5> ,Rf> ;Gf:::> t add-r· of thf? *:uo* Packe: t | | | | | | | |
|  | MOVZWL | IfP!l;W..SUNC (R6)*v* F.:5 | v Pick | | UP th0) tYP€-) of | | l'C-:lcuest |
|  | BECH.. | 7$ | v Read | | :i.f t\:lPCi·!.. 0 | |  |
| r.m w 99il; *v* L J!,;e :i.t 1!,; a wr:i.t.e | | | | | | | |

-M<R2,R3,R 4?R5,R6>

@fSCHSGL\_CLJRPCB v R4 SCH; CJLOCKl=i:

F<2

TT\_l.JCB, R :i

fl.JCB$V\_BSY v f1 ,l.JCB$W\_STS< R5> ,RO

300,

;; nt·i'\,l Po:i.n t

S Lock the I/0 Data Base

;clear the char count D Get the UCB address

;r s the unit currentlu busu?

;Yes, then check the IRP's

The next section of code handles read reGuests. This includes read with Prompts which reGui re some fanc backtrack in



2$:

:I. $:

CMPL BEC L.. MDVL DECL BR B SUBL.:-5

CMPI... BNUJ BRW CMPL BGTRU

### BF<W

,UBL:·5 BDTR CMPL BU L BRW MDVL DECI...

T[;TB BEOI... CLR B MDVI...

BFW

CMF'I.. BL.En M CJ VL..

r6 *v* TT.... I r.;;P

))!;

180000000v TT\_WB\_ NXT

F<:3

*b$*

f< 3 *v* TT....JB ...END *v* r4

FM*v* :U=··-1

6i

10!

1::3 *v* :fl:'''X 200

21;

:I. i

TT....WB...NXT *v* r<:·5 *v* F4

:I. :l ;

f<4 *v* :ff: 1

12$

:1. 0$

Kl: NL.. .... PNT *v* R 'i

F<EC....CNT

..-·( F<.i)

:1.:3$

< r:'i>

H::'i *v* l,R NL.. ....P NT

1O!I;

R 4 *v* :11: 20

::. ()$

r:3*v* r.:4

a is this a new Packet?

O No, then Pick from before

v Ye!;; v r-i: !;;c-:it Prcv:i.ous Pointer· 8Decrement our current Pointe

v How man characters added

S None v Just retu rn 8 Check for i llesal addr

v Yes, inore it and retu rn

;compute diff from last time

;If Positive then ok

D if -:I. a <DEL> char was tPed

IAnd we must simulate it v Else no diff, Retu rn

;simulate <DEL> char

;Reduce the character count v if last char was Null then D Find one that wasn't

v Df:::> l.f.=:tE :i.t

S l.J Pdate the buffer Pointer

*v* And rf:,: turn

IDiff <= 20 then move chars

*V* <:SS i:;

;Else initiate backward searc,

BGEC-l

CMF'B BEOI... CMF'B

40!

< F< 4 ) ,:ff:L..F

4!'.'j;

( FM) ,=U= CF<

;Like line feeds • • •

* • carria e returns . . .

\.

4'.':i! :

:?0$ :

5 5 :

30$!

BO$ !

:1 00$!

90$!

:L O$ ;

:l$ :



BECll..

#### CMF'B

BE CL

INCL

SLJBL3 CMF'L.. BGTF< BRB

MDVL.

MOVL MOVD I NCi... CMr-:·B

BNEO MOVB MCJ VB MCJ VB ADDI... BF<B CMPB BNEO CMPB BNED

T:-:;TB

DECI...

### BRB

CMf:·B

HEDI..

MOVB MCJ VB INCL

CMPL.. Bl... !:l!3 CLF<B MDVI .

MD )I...

MDVI... MCJ VL. JSB F<ET

4!'51;

( F 4 ) ,:U:FF

4 .'j$

FM

F4 *v* 1: 3 *v* F<5

F'.'.) *v* :IJ:40

:l. 0$

'..':i .'i$

TT.. WB....NX T *v* FM

KFrnL.\_.PN T ,F<:'.'i

< F< 4 *>* ·h o;: .'i>

F<2

< F< 'i) ,:D:CTRL.Z

80$

:U:*Maw* w *v* Oi::D+

:ltZEE ,( f<'i) +

:II:CR *v* < F<:'5 ) +

:12 ,l:<2

90$

< F<:'.) ) + *v* :IJ:L..F

9();

....2 ( 1:<.'i> *v* :fl,f...F

:I. 00$

....( *1:< :=;:* )

r;::!

90!1;

....2 < F<:'.'i) *v* ,n,cR

90;

-1. ( R5 ) *v* ( R!iH·

:U:Cf< ,···2 ( F<!:'i>

*1=<2*

1:<4 *v* F<3

3(H

0 5) +

1: 3 *v* TT ...WB....NX T f<2 *v* KF<NL.....CNT F<6 *v* TT.... F<P

@ISCHSGL\_CLJRF'CB, R4

SCH$I Cll.JNL.ClCK

; • • or form feeds.

;:i: nore ans others

;Point to where we left off

S Point to where we are oins

;Mov<·:J i:l char (;CCJ unt :i. t

S if :i. t was a <CTRL>Z then

;Emulate it with ·z·

;If it is a line feed make

;sure it has a matchi n

;; carr:i.a!.,ie r<:·itu rn

;Are we at the end?

;; *N o v* cont:i.nu<:·i

;StCJ re the new Pointer

;store the char counter

;store the IRP add ress

;unlock the I/CJ Data Base

y (lrtd f'f.JtUT'l"I

Here we handle the wr:i. te reauests. We take the address of the end of the buffer v subtract the nuffiber of bstes trsnsferred v and use that as the startins address

991 : CLF I... l'(F<NI... ...CNT

CMF'l... l,:6 ? T T .... l:p

•

BECH.. 9!'5;

MDV ZWL HW$W ....BCNT (F<6 ) *v* f<5 CMF'I... TT\_ WB\_END v i80000000 Bl...!3f;LJ 95$

•

MDVI... TT....WB ....END *v* F<;.

1:;un1...: R:'.'i*v* F<2

•

MD'v'I... 1·rnNL..\_ F'NT *v* F<:3

MDVI... F<!'.) *v*l{f<NI.......CNT

:!:1. 0$ : M CJlJB ( f,2 ) ·h0< 3 H·

. SCJBGTF< f< *''.'.i y*:? :I. ()!

*9 :i $ :* MOVL f<6 *v* T T.... r.:P

'- *1')* MDVI... @IS.C. H... t..G.J.....\_. C..l..J RF'CB v R4

.....

;N<, w Packet'!'

;Nov Then no action!

;vesv et the b te coun t

;Buffer in sssteffi space?

;No v then iSnore it

;com pute address of buffer

;besinnins and transfer

;fint r<, buf f tir .

f

;Unlock the I/Cl Data Base

, 1\,/ *V* A.1

INCL.

*<JO i* ! CMF' I...

#### Bl... JS

CLl:<B

:L O $ : MOVL

:l$: M DV L.

MDVI...

Q)

MDVI...

•.Jf:lB

·fH.,t( *Y* ••••:'. ( f,:::1 )

R) . FM vFn 30$

( F<.'i) +

F<3 *v* TT .\_WB.\_. NXT r-::2 *v* KF<NL....CNT f<6 Y TT ... F<P

@tSCHSGL\_ CURF'CB v R4

!3CH$ Dl.JNI...OCI,

;Are we at the end?

il No *v* cont:i.nuc:·i

;store the new Pointer

;store the char counter

;store theIRF' add ress

;Unl ock the I/CJ Data Base

m::T

;A nd

n:-d,urn

Here we handle the write re8uests .We take the add ress of the end of the bufferv subtract the number of bstes transfer red v and use that as the startins address

CLF<I...

#### CMPI...

BEUL. MDVZWL CMPI...

BL.!3 Sl.J

MDVI...

!:>U BL::!.

MCJl,,1 L.

MDVI...

 MOVB

KRNI.......CNT

l,:6 v TT ...IF<P

*<J :':j ;*

#### IRPSW\_BCNT (R6> v R5

TT\_ WB\_END v f80000000

95$

TT ..WB ...ENI:i ,F< ?

R:'.'i *v* 1:< 2

hJ<NI......F'NT *v* f<3

F<:'.'i ' KF<NL....CNT

( F< - ) + *v* ( 1:<3 ) +

;N€·'W pack01t?

*; No v* Then no action!

v Yesv set the bste count

;Buffer in Shlstem space?

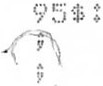
*; No v* then isnore it

;com pute add ress of buffer v besi nnins and transfer

*v* f:1nt r c-:i buff€·1 r .



MDVI...



MDVI...

#### •.Jl:J B

F<ET

.END

$

f<6 v TT .. Il,:P

#### @tSCHSGL\_CLJRPCB v R4

,CHif;J 01.J N I...OCK

;T AF< T

;Unlock the I/ 0 I:iata Base

;Ar,d rE·itu r·n

•

•