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Worldwide Response Center

HP 3000 APPLICATION NOTE #45

VPLUS & MULTIPLEXERS

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RESPONSE CENTER APPLICATION NOTES

HP 3000 APPLICATION NOTES *are published by the Worldwide Response Center twice a month and are distributed with the Software Status Bulletin. These notes address topics where the volume of calls received at the Center indicates a need for addition to or consolidation of information available through HP support services.*

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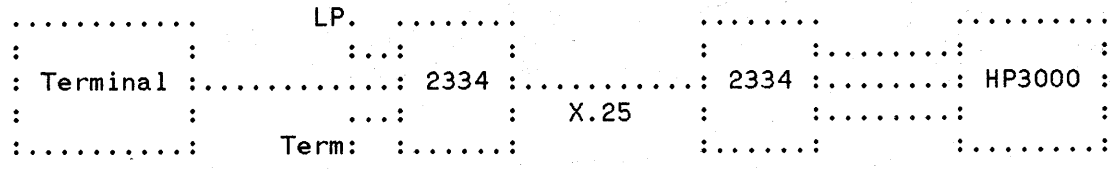
VPLUS & MULTIPLEXERS

HOW TO USE VPLUS ON A PAD - TERMINAL
(Connected to a CLUSTER CONTROLLER HP 2334A)

What is a CLUSTER CONTROLLER?

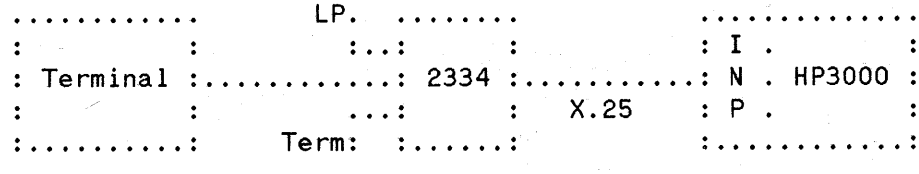
When you use a Packet Switching Network (PSN) for data communication, you need equipment to do the packing and unpacking of the data at both ends. A CLUSTER normally will receive the packets for different users, unpack them and change the transmission mode from synchronous to asynchronous. This way you can connect several different asynchronous devices, such as printers and terminals to one X.25 packet line (on a HP 2334A up to 16).

At the computerside you can use another CLUSTER and connect the asynchronous ports to the ATP or ADCC ports of the HP 3000. This kind of connection is called STATISTICAL MULTIPLEXER.



(FIG.1: STATISTICAL MULTIPLEXER)

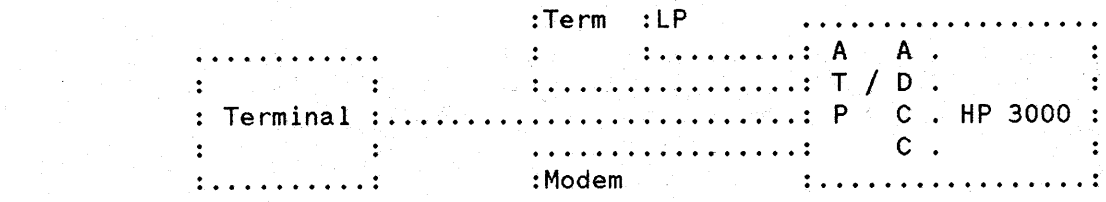
The other way is to connect the X.25 packet line direct to an INP-card in the HP 3000 computer. To support the INP, you need special DS- or NS-software. The software and the INP-card will do the packing and unpacking of the data received. This configuration is the CLUSTER CONNECTION and we call it Packet Assembler / Dissassembler (PAD).



(FIG.2: PAD or CLUSTER connection to a HP 3000 with an INP)

First we will describe the minor differences between using the terminal directly to an ADCC / ATP port on a HP 3000, or to a port on a PAD (HP 2334A).

1. Terminal configuration when used to a direct line (ADCC / ATP):



(FIG.3: Direct connection to a ATP- or ADCC-Port)

DATACOMM :

BaudRate	: line speed	(9600, 4800, 2400, 1200, ..)
Parity/Bits	: Par/# of bits	(None/8, O'S/7, ODD/7, EVEN/7)
Enq/Ack	: YES	use enq/ack handshake
Asterisk	: OFF	no indicator is shown
Chk Parity	: NO	we don't check for parity errors
SR(CH)	: LO	we don't select any Baudrate
CS(CB)Xmit	: NO	we don't use modem signals
RecvPace	: NONE	no XON and XOFF handshake is done
XmitPace	: NONE	on receive or transmit

NOTE

Do not turn RecvPace or XmitPace to on at a 2392A terminal if it is connected directly to a HP 3000. A XOFF (ctl S) could hang the terminal. (Only POWER-OFF the terminal will reset this situation).

TERMINAL :

Datacomm/ExtDev	: PORT1/PORT2	
Keyboard	: USASCII (or other keyboards)	
LocalEcho	: OFF	the HP 3000 will echo
CapsLock	: OFF	we allow upper and lowercase
Start Col	: 01	start column
Bell	: OFF	no right margin cell
XmitFnctn	: NO	move- and editor-keys are not transmitted to the computer
SPOW	: NO	spaces will overwrite existing characters
InhEolWrp	: NO	no wraparound at the end of line
Line/Page	: LINE	transmit one line at a time
InhHndShk	: NO	enable XON / XOFF handshake
Inh DC2	: NO	ignored
Esc Xfer	: NO	transmit esc-sequences to the printer
TermMode	: HP	use HP special sequences

2. When you want to connect the terminal to a HP 2334A CLUSTER (PAD) you must change the following specifications:

```
DATACOMM :

  RecvPace   : Xon/Xoff          use XON/XOFF handshake
  XmitPace   : Xon/Xoff            on send and receive
                                   transmission.

TERMINAL :

  InhHndShk  : YES               disables the use of DC1-
  Inh DC2    : YES                 and of DC1/DC2/DC1-
                                   handshake on blockmode.
```

With the reconfiguration of the terminal you switch off the handshake normally used. For example: you do not use a XON and XOFF protocol between the computer and the terminal to control the dataflow on a direct line. The terminal does not transmit XON or XOFF (DC1 and DC3) automatically, this only can be sent by pressing the 'CTRL Q' or 'CTRL S' key combination.

The CLUSTER must be configured to use the PROFILE 1 to work properly.

The HP 3000 must have a PAD-terminal configured in the system like this:

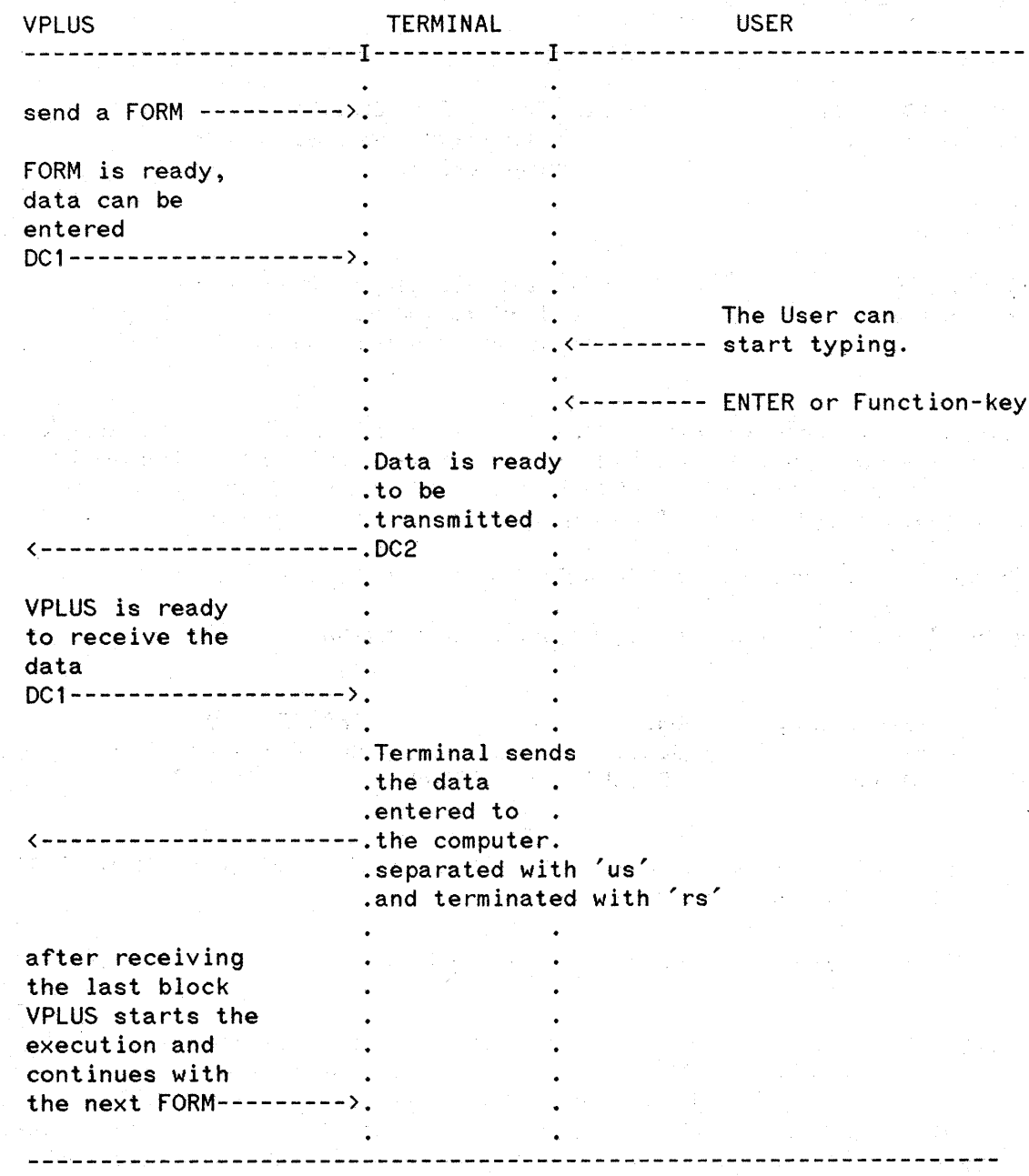
```
DRT#        = ldev of inp     UNIT       = 0        CHANNEL = 0
TYPE        = 16              SUBTYPE    = 0        REC.WTH = 40
DRIVER NAME = IOPADO          DEV.CLASS  = PADTERM
```

If you want to use VPLUS on the terminal connected to a HP 3000 via a port on a PAD (HP 2334A), you need a terminal supporting blockmode. For example:

HP 2382A, HP 2392A-2394A, HP 700/92-700/94 or similar.

One of the problems will be the transmission of a block after pressing the ENTER key. Normally the HP 3000 will control the dataflow with the normal DC1 and DC3 handshake (XON / XOFF). When starting VPLUS, the Application reconfigures the terminal, so it will use a handshake named DC1/DC2/DC1. By using this protocol, the computerside tells the terminal, that the FORM is transmitted completely and that the user may start entering data to the FORM. This is initiated with the signal DC1.

When the input is terminated either with an ENTER, a SELECT or a function-key, the terminal tells the ready-state of the data to the computer with the DC2-signal. The computer now will initiate the transmission with the signal DC1.



This handshake does not work when you use your terminal on a PAD. The PAD itself catches the DC1 and DC3 signals or generates them as needed. So you can not use them to specify the transmission between the computer and the terminal, or to use the DC1/DC2/DC1 handshake for blockmode applications.

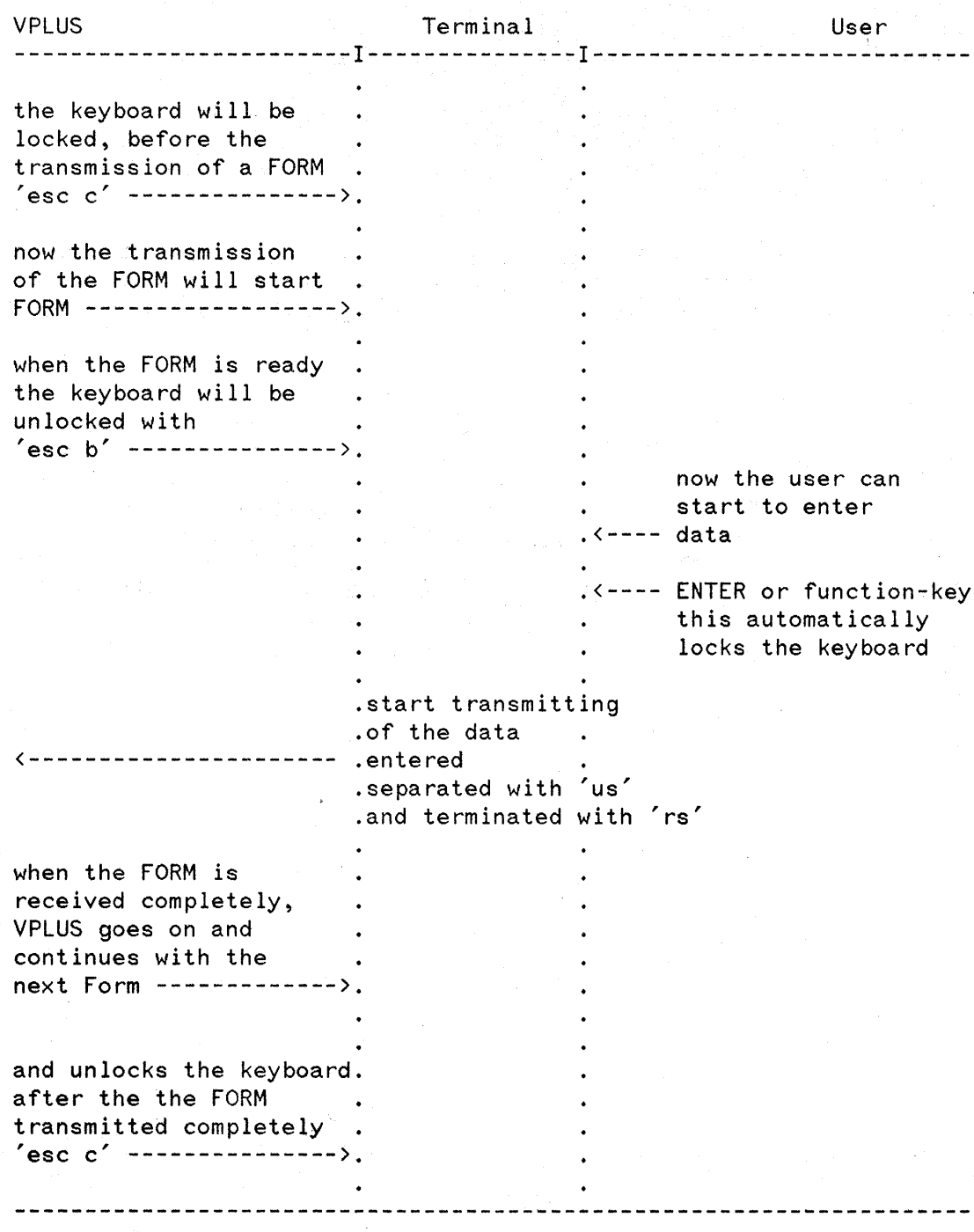
The alternative is the use of the term=24 in the LOGON like this:

HELLO paduser,user/usrpass.account/acctpass;TERM=24

This terminal type does not exist as a Term-Type file. The only program that requires it as a parameter, is VPLUS (and all VPLUS using applications). VPLUS checks this parameter and if the terminal type is decoded to be 'type=24', then there will be a special handling of the FORMS.

Normally when starting the blockmode, the application will check the configuration of the terminal with the sequence 'esc^' and 'esc~'. Additionally it will check if the terminal is able to SPOW. Thereafter it will switch the terminal with the escape sequence 'ecs&s0h1G' to do the DC1/DC2/DC1-handshake.

When using TERM=24, the application first will set the InhHndShk=Y and the InhDC2=YES with the escape-sequence 'esc&s1h1G'. Normally you should set this before you start the session, but if you forgot, VPLUS will do it for you (but other things could go wrong, so it's better to do it yourself to be sure!). This sequence will switch off all handshakes. After this, the terminal will be checked like usual. Additionally the terminal will be set to lock the keyboard every time the ENTER or one of the Function-Keys is hit. This is done with the sequence 'esc&k1K'. It will prevent the user from entering data before the new FORM is rebuilt completely, and the keyboard is unlocked with 'escb'. This is necessary because the normal handshake with DC1/DC2/DC1 does not work here.



The difference between the use of VPLUS on a direct line and a PAD is just the kind of dataflow control. The problem comes up only by the intelligence of the CLUSTER CONTROLLER which tries to prevent his memory or that of the terminal to overflow. This problem is solved by using 'term=24' in the logon. If you want to use VPLUS applications on a specified PADTERM you can configure the terminal type in the system configuration to be '24'. This will switch on the correct blockmode handling for every user on this logical device.

BACK ISSUE INFORMATION

Following is a list of the Application Notes published to date. If you would like to order single copies of back issues please use the *Reader Comment Sheet* attached and indicate the number(s) of the note(s) you need.

Note #	Published	Topic
1	2/21/85	*Printer Configuration Guide (superseded by note #4)*
2	10/15/85	*Terminal types for HP 3000 HPIB Computers (superseded by note #13)*
3	4/01/86	*Plotter Configuration Guide*
4	4/15/86	*Printer Configuration Guide - Revised*
5	5/01/86	*MPE System Logfile Record Formats*
6	5/15/86	*Stack Operation*
7	6/01/86	*COBOL II/3000 Programs: Tracing Illegal Data*
8	6/15/86	*KSAM Topics: COBOL's Index I/O; File Data Integrity*
9	7/01/86	*Port Failures, Terminal Hangs, TERMDSM*
10	7/15/86	*Serial Printers - Configuration, Cabling, Muxes*
11	8/01/86	*System Configuration or System Table Related Errors*
12	8/15/86	*Pascal/3000 - Using Dynamic Variables*
13	9/01/86	*Terminal Types for HP 3000 HPIB Computers - Revised*
14	9/15/86	*Laser Printers - A Software and Hardware Overview*
15	10/01/86	*FORTRAN Language Considerations - A Guide to Common Problems*
16	10/15/86	*IMAGE: Updating to TurboIMAGE & Improving Data Base Loads*
17	11/01/86	*Optimizing VPLUS Utilization*
18	11/15/86	*The Case of the Suspect Track for 792X Disc Drives*
19	12/01/86	*Stack Overflows: Causes & Cures for COBOL II Programs*
20	1/01/87	*Output Spooling*
21	1/15/87	*COBOLII and MPE Intrinsics*
22	2/15/87	*Asynchronous Modems*
23	3/01/87	*VFC Files*
24	3/15/87	*Private Volumes*
25	4/01/87	*TurboIMAGE: Transaction Logging*
26	4/15/87	*HP 2680A, 2688A Error Trailers*
27	5/01/87	*HPTrend: An Installation and Problem Solving Guide*
28	5/15/87	*The Startup State Configurator*
29	6/01/87	*A Programmer's Guide to VPLUS/3000*
30	6/15/87	*Disc Cache*
31	7/01/87	*Calling the CREATEPROCESS Intrinsic*
32	7/15/87	*Configuring Terminal Buffers*
33	8/15/87	*Printer Configuration Guide*
34	9/01/87	*RIN Management (Using COBOLII Examples) (A)*
34	10/01/87	*Process Handling (Using COBOLII Examples) (B)*
35	10/15/87	*HPDESK IV (Script files, FSC, and Installation Considerations)*
34	11/01/87	*Extra Data Segments (Using COBOLII Examples) (C)*
36	12/01/87	*Tips for the DESK IV Administrators*
37	12/15/87	*AUTOINST: Trouble-free Updates*
38	1/01/88	*Store/Restore Errors*
39	1/15/88	*MRJE Emulates a HASP Workstation*
40	2/01/88	*HP 250 / 260 to HP 3000 Communications Guidelines*
41	4/01/88	*MPE File Label Revealed - Revised 6/15/88*

42	7/15/88	*System Interrupts*
43	7/15/88	*Run Time Aborts*
44	8/01/88	*HPPA Pathing Conventions For HP3000 900 Series Processors*
45	8/15/88	*Vplus & Multiplexers*