DosVs Rel 34

How-To

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General Information

Download the DOSVS 5Pack system.

My effort in this is to take the information and try and format into a simple readable document. Listed individuals perform all the work and research to make this possible.

I have tried to document the steps, you may start with a fresh download of George Shedlock 5 Pack system, and apply the various changes.

You may download from github.com/tchandler48/DOS5PEXT, the system will all the changes applied. Which ever way you want to play in this sandbox.....

Sysgen DOS/VS

The directory structure used in this install is:
/usr/local/bin/DOS
as the root directory.

The operating system used in these instructions were based on Linux, Ubuntu 18.04.

The Hercules used was SpinHawk 3.13 running under Linux. The hercules system was installed in usr/local/bin.

Start:

ipl

Step 1:

Start Hercules using the dos.conf file.

Step 2:

Connect using a 3270 emulator to the Hercules system. Remember DosVs using port 3277, which is different from most systems.

Step 3:

When you download the github files, in the JCL directory is the supervisor code that you will need to use for RJE and VTAM support. The file supt.jcl needs to be renamed to $$a$supt.jcl. Then you will have submit this job after you have DOS/VS up and running. (Problem with github is the reason)

[DOSVS 3270] 0I04I IPLDEV=X'360',VOLSER=DOSR34,CPUID=FD0077773148
0I03A SPECIFY SUPERVISOR NAME

[Response] $$A$SUP1 (After entering data, you **MUST** press the return key two times, to get the next prompt)

$$A$SUP1 Default DOS/VS supervisor (NO RJE)

```
                $$A$SUP5      Custom DOS/VS supervisor (With RJE
                              can be found in the jcl subdirectory,
                              and powergen.jcl must be compiled to
                              use this supervisor and support RJE)
```

Step 4:

```
[DOSVS 3270]  0I30I DATE=05/25/20,CLOCK=16/43/35,ZONE=WEST/05/00
              0I10A GIVE IPL CONTROL COMMANDS

[Response]    set <Return>
```

Step 5:

```
[DOSVS 3270]  0I71I REAL DEVICE TYPE FOR SYSLOG INSERTED IN SYSLOG PUB

[Response]    dpd <Return>
```

Step 6:

```
(This Step may not appear, if it does not, skip to Step 7)
[DOSVS 3270]  BG 1T00A WARM START COPY OF SVA FOUND

[Response]    keep <Return>
```

Step 7:

```
[DOSVS 3270]  BG 1I00A READY FOR COMMUNICATIONS

[Response]    stop <Return>
[Response]    start f1 <Return>
[Response]    assgn sysin,sysres <Return>
[Response]    <Return>
```

Step 8:

```
[Response]    assgn sysin,reader     (one time each for F2, F4, F3 and BG)
[Response]    assgn sysin,reader     (one time each for F2, F4, F3 and BG)
[Response]    assgn sysin,reader     (one time each for F2, F4, F3 and BG)
[Response]    assgn sysin,reader     (one time each for F2, F4, F3 and BG)
```

Step 9:

```
[DOSVS 3270]  xx 1T20I SYSIN   HAS BEEN ASSIGNED TO X'00C'
[Response]    PRESS ENTER         (one time each for F2, F4, F3 and BG)
```

```
[DOSVS 3270]  xx 1T20I SYSIN   HAS BEEN ASSIGNED TO X'00C'
[Response]    PRESS ENTER         (one time each for F2, F4, F3 and BG)

[DOSVS 3270]  xx 1T20I SYSIN   HAS BEEN ASSIGNED TO X'00C'
[Response]    PRESS ENTER         (one time each for F2, F4, F3 and BG)

[DOSVS 3270]  xx 1T20I SYSIN   HAS BEEN ASSIGNED TO X'00C'
[Response]    PRESS ENTER         (one time each for F2, F4, F3 and BG)

[DOSVS 3270]  F1 1Q34I     xx WAITING FOR WORK
```

Step 10:

```
[Response]    r rdr,*xxinit       (release jobs in the reader queue)
```

(at this point DOS/VS and POWER/VS are up and running)

Shutdown POWER/VS

These commands are issued from the 3277 DosVs console.

```
console ==>  pend
DOSVS   ==>  F1 1Q21I POWER/VS HAS BEEN TERMINATED
DOSVS   ==>  F1 1I00A READY FOR COMMUNICATIONS
console ==>  /&
DOSVS   ==>  F2 1I00A READY FOR COMMUNICATIONS
console ==>  unbatch
DOSVS   ==>  F4 1I00A READY FOR COMMUNICATIONS
console ==>  unbatch
DOSVS   ==>  F3 1I00A READY FOR COMMUNICATIONS
console ==>  unbatch
DOSVS   ==>  BG 1I00A READY FOR COMMUNICATIONS
console ==>  stop       (unbatch is invalid for the BG partition)
DOSVS   ==>  F1 EOJ POWERV ... DATE ...
console ==>  unbatch


The system is down, you can now type "exit" in the Hercules command window
```

Command Reference

The master console solicts input for each active partition that is not assigned to a reader, plus the input for the Attention Routine. The AR will generally only give a prompt when all partitions are stopped, or all have their SYSRDR logical units assign to a real card reader.

A two-character prompt will indicate to which partition or routine the input will be directed. The prompts are:

```
(none) : Attention Routine
AR     : Attention Routine
BG     : Background Partition
Fn     : Foreground Partition n
```

When POWER/VS is running in a partition, commands are given to it via the Attention Routine (AR).

Operator JCL

These are immediate commands which can be entered from the console or via a card reader when the prompt is BG or Fn. They are not preceded by the // of normal JCL. Note: Operator assignments of logical to physical devices span jobs, normal job JCL assignments are for a job only. These commands will NOT work in response to the AR prompt.

Command	Syntax	Explanation
ALLOC	F1=nnK {,F2=nnk,...}	Allocate virtual size of partition
ALLOCR	F1=nnK {,F2=nnK,...}	Allocate Real size of partition
ASSGN	SYSxxx,X'cuu'	Assign logical unit to physical dev
	,UA	Unassign an assignment
	,IGN	Unassign and Ignore an assignment
	,volser	Assign to a named Disk volume
CANCEL		Cancel the currently running job
CLOSE	SYSxxx,x'cuu'	Close a tape or DASD assignment
DVCDN	X'cuu'	Make a device unavailable
DVCUP	X'cuu'	Make a device available
HOLD	Fn	Maintain I/O assignments for part
LISTIO	SYS	List I/O assigns for SYSxxx units
	PROG	List assignments for Programmer
	Fn	List assignments for Part (also BG)
	ALL	List all I/O assignments
	SYSxxx	List device assigned to SYSxxx
	UNITS	List all units and their assignments
	DOWN	List all down units assignments
	UA	List all unassigned units
	X'cuu'	List all logicals assigned to dev
LOG		Logs JCL on syslog
MTC	BSF,X'cuu',nn	Backspace tape
	BSR,X'cuu',nn	Backspace tape
	ERG,X'cuu'	Write ERG to tape
	FSF,X'cuu',nn	Forward space tape
	FSR,X'cuu',nn	Forward space tape
	REW,X'cuu'	Rewind tape
	RUN,X'cuu'	Run Tape
	WTM,X'cuu',nn	Write Tape Mark to Tape
NOLOG		Stop logging JCL to syslog
PAUSE		Pause for operation intervention
RELSE	{BG | Fn}	Release Partition
RESET	SYS	Reset all system I/O assignments
	PROG	Reset programmer device assignments
	ALL	Reset all assignments
	SYSxxx	Reset SYSxxx assignments
SET	{DATE=mm/dd/yy,	

```
          CLOCK=hh/mm/ss,
          UPSI=nnnnnnnn,
          LINECT=nn              Set some parameters
STOP                             Stop current partition
```

POWER/VS Operator Commands

These are commands which can be entered from the console when the prompt is blank or AR. The AR routine will pass them to POWER/VS, assuming it is running. If not, these are invalid. Usually, these commands have one-character abbreviations we put in parenthesis below. Note: we use certain short abbrievations in the syntax below. ur = a unit record address, like X'00C'. tape = a tape drive address, example X'181'. fn = filename. part = Partition (BG, F1, etc). queue = spool queue, LST or RDR for example.

Command	Syntax	Explanation
PACCOUNT	(J) {DEL | PUN | DISK,fn | tape}	Clear or dump accounting info.
PALTER	(A) queue,{ALL| class | jobname},{CLASS=c, COPY=n,PRI=n, DISP=d}	Alter the attributes of a spooled file. Select ALL or a class or a given jobname, set class, copys, priority or disposition. (use PRI=H to put file on hold)
PCANCEL	(C) {STATUS | jobname}	Cancel a job
PDELETE	(L) queue,{ALL | class | jobname | jobno}	Delete a job or spooled file -- must be on hold status.
PDISPLAY	(D) queue,{ALL | class FREE | HOLD | jobname | jobno}	Display jobs or files on queues.
	(D) A	Display all Active partitions/tasks.
	(D) M	Display all open operator messages
	(D) Q	Display queue status
	(D) T	Display date and time
PEND	ur,{FORCE}	End spooling on uraddr, or if NO operands are given, end POWER/VS.
PFLUSH	(F) ur,{HOLD}	Flush a device
PGO	(G) ur	Indicate Go status for device
	(G) tape	...or a tape drive
	(G) part,ur	...or a device in a paritition
PRELSE	(R) queue,{ALL | class | jobname | jobno}	Release held jobs
PRESTART	(T) ur	Restart a device
PSETUP	(U) ur	Setup a device (eg forms)
PSTART	(S) {LST,PUN},ur,class	Start a spool writer to a device
	(S) {LST,PUN},ur,tape	Start a spool writer to tape
	(S) RDR,ur,class	Start a reader
	(S) part,class,outclass	Start a partition
	(S) RJE,line,passw	Start RJE spooler
PSTOP	(P) ur,{EOJ | RESTART}	Stop a spool reader/writer

```
(P) part                Stop a partition
(P) line, {EOJ | FORCE} Stop an RJE line
```

Attention (AR) Commands

These are commands which can be entered from the console when the prompt is blank or AR. They will work whether or not POWER is running.

Command	Syntax	Explanation
ALLOC	F1=nnK {,F2=nnk,...}	Allocate virtual size of partition
ALLOCR	F1=nnK {,F2=nnK,...}	Allocate Real size of partition
CANCEL	{BG | Fn}	Cancel job in partition
LOG		Start logging JCL
MAP		Print memory map
MSG	Fn	Give control to foreground message handler (if one is running)
NOLOG		Stop logging JCL
PAUSE	{BG | Fn}	Pause for operator intervention
START	{BG | Fn}	Start a partition
TIMER	{BG | Fn}	Give timer support to a partition

DOS/VS Job Control Language

These are commands which can be entered from the console or as a part of a job in a card deck. They must all fit between jobs and job steps, that is, after a // JOB card and before a // EXEC card (except of course for the // JOB card itself). Note: comments can follow the last operand, with a space in between, on all of these JCL statements.

Command	Syntax	Explanation
ASSGN	// ASSGN SYSxxx,cuu	Make temporary assignment for job
	// ASSGN SYSxxx,ua	Make temporary unassignment for job
CLOSE	// CLOSE SYSxxx,cuu	Close an assignment (?)
	// CLOSE SYSxxx,ua	Close an unassignment (?)
DATE	// DATE xx/dd/yy	Set date for job
DLBL	// DLBL filename, 'file.id',date,code	Provide a reference to a disk label for a program file. Usually
EXEC	// EXEC PGM=progname	Execute a program (PGM= optional)
	// EXEC PROC=procname	Execute a cataloged procedure
EXTENT	// EXTENT symunit, volser,type,seqno, track,#tracks	Give file extent (follows DLBL)
JOB	// JOB jobname	Starts a job
LISTIO	// LISTIO SYS	Lists SYSxxx I/O assignments
	// LISTIO PROG	Lists programmer logical units
	// LISTIO ALL	Lists all assignments
	// LISTIO SYSxxx	Lists assignments for SYSxxx
	// LISTIO UA	Lists all unassigned
	// LISTIO X'cuu'	Lists all assignments for device
MTC	// MTC BSF,X'cuu',nn	Backspace tape
	// MTC BSR,X'cuu',nn	Backspace tape
	// MTC ERG,X'cuu'	Write ERG to tape
	// MTC FSF,X'cuu',nn	Forward space tape
	// MTC FSR,X'cuu',nn	Forward space tape
	// MTC REW,X'cuu'	Rewind tape
	// MTC RUN,X'cuu'	Run Tape
	// MTC WTM,X'cuu',nn	Write Tape Mark to Tape
PAUSE	// PAUSE	pause for operator intervention
OPTION	// OPTION options,...	Give options to a compiler
RESET	// RESET SYS	Reset Sysxxx assignments
	// RESET PROG	Reset programmer unit assignments
	// RESET ALL	Reset all assignments
	// RESET SYSxxx	Reset assignments for SYSxxx
	// RESET X'cuu'	Reset assignments for device
TLBL	// TLBL filename, 'file-id',date,	Provide tape level information

```
            volser,volseq,
            fileseq,gen#,ver#
UPSI      // UPSI nnnnnnnn        Sets the UPSI programmer switches
/*        /*                     Indicates end-of-file
/&        /&                     Indicates end-of-job
*         * comment text         Gives a comment in the JCL
```

Compilers

ASM

Sample job stream to compile a simple ASM program.

```
* $$ JOB JNM=ASMBLR,USER='BUDROW',CLASS=0,DISP=D
* $$ LST LST=00E,JSEP=1,CLASS=A,DISP=D
// JOB ASMBLR
ASSGN SYS001,X'362'
ASSGN SYS002,X'362'
ASSGN SYS003,X'362'
ASSGN SYS004,X'362'
// OPTION LINK
// EXEC ASSEMBLY
HELO     START 0
         BALR 12,0
         USING *,12
         LA 13,SAVE
         COMRG
         OPEN INPUT,OUTPUT
MORE     GET INPUT
         PUT OUTPUT
         B   MORE
ENDJOB   CLOSE INPUT,OUTPUT
         EOJ
INPUT    DTFCD DEVADDR=SYSIPT,IOAREA1=R1,EOFADDR=ENDJOB,BLKSIZE=80
OUTPUT   DTFPR DEVADDR=SYSLST,IOAREA1=P1
R1       DS 0CL80
P1       DC CL133' '
SAVE     DS 32F
         END HELO
/*
// EXEC LNKEDT
// EXEC
HELLO FROM DOS/VS ASSEMBLER!!
HOPE YOU ENJOY YOUR PC MAINFRAME
/*
/&
* $$ EOJ
```

COBOL

Patch for work files.

dosvs-fcobol-patches.jcl

THIS MUST BE DONE so the cobol compiler will work.......

FORTRAN

```
* $$ JOB JNM=FORLNKGO,DISP=D,PRI=3,CLASS=0,USER='PROGRAMMER'
* $$ LST LST=00E,DISP=D,PRI=3,CLASS=A
// JOB FORTRAN
// ASSGN SYSIN,X'00C'
// ASSGN SYSLST,X'00E'
// ASSGN SYSLNK,X'362'
// ASSGN SYS001,X'362'
// ASSGN SYS002,X'362'
// ASSGN SYS003,X'362'
// ASSGN SYS004,X'362'
// OPTION LINK
// EXEC FFORTRAN
C HELLO WORLD, WE HOPE                                                  00070000
      WRITE(3,10)                                                       00080000
   10 FORMAT(12H HELLO WORLD)                                           00090000
      STOP                                                              00100000
      END                                                               00110000
/*
// EXEC LNKEDT
// EXEC
/*
/&
* $$ EOJ
```

RPG

```
Installing RPG compiler RPG1 from DOS/360

There are two jobs to install the RPG1 compiler from DOS/360
to George Shedlock DOS/VS 5-pack:

a) the first (rpglnk-e) installs the compiler,
b) the second (rpgjap) zaps the compiler for work files
       on a 3350 (taken from Bill Carlborg).

To install on native DOS/VS 5-pack, just submit the two jobs:
       rpglnk-e.jcl,
       rpgzap.jcl.

Remember, the first is in EBCDIC.

Then submit rpgjob.jcl to test the compiler.
```

Sort/Merge

Sort Merge Notes

I see a couple of things that I think are a problem--

1). Remember this SORT program came from DOS release 26,2, i.e. before 370 tape and disk devices were available. That's why it only supports 2311 or 2314 for disk; it only supports 360 devices. Likewise for the tapes. It only supports 2401 tape drives. The five pack supervisor was generated with 3420 tape drives so SORT doesn't like the ASSGN for SYS001 because it finds a 3420 (supervisor device type code x'52) and not a 2401 (supervisor device type code x'50'). While the hercules config file won't accept 2401 for tapes, it does work to define the tapes to Hercules as 3420 but in the DOS/VS (and DOS) supervisor the tapes need to be 2401 for these old DOS programs to work. So to fix it either--

   a). reassemble the DOS/VS supervisor and change the tapes to '2400T9'

   b). for temporary solution at IPL time DEL X'280' and ADD X'280',2400T9 to change the device type.

2). You have ASSGNed the input to SYSIN. This is the card reader. The SORT program only reads tape or disk for its input. (You can have the SORT program read cards but you need to create a user exit program to do the reading.) So SYS002 also needs to be ASSGNed to a 2401, 2311, or 2314.

Also, it's not a problem but to let you know this SORT program will work with only one work file. I know other SORT programs require three but that is not the case here.

SPF

SPF Installation

I used the tape, (SPF.asw) attached it to DOSVS and used the following job to perform the installation:

```
* $$ JOB JNM=SPFINST,CLASS=0,DISP=D,USER='NELSON DHEGAS'
* $$ LST CLASS=A,DISP=D,JSEP=1
// JOB CATMAPS INSTALL THE SPF-PACKET
// PAUSE Mount SPF Installation Tape on 280 ...
// OPTION LOG,CATAL
// ASSGN SYSIPT,X'280'
// MTC REW,SYSIPT
 INCLUDE
/*
// EXEC LNKEDT
/*
/&
// JOB CATALR OBJECT MODULS
// ASSGN SYSIPT,X'280'
// EXEC MAINT
/*
/&
// JOB CATALC VSTSO
// OPTION CATAL,LOG
// ASSGN SYSIPT,X'280'
 PHASE VSTSO,*
 INCLUDE VSTSO
// EXEC LNKEDT
/*
/&
// JOB CATALS
// ASSGN SYSIPT,X'280'
// EXEC MAINT
/*
/&
* $$ EOJ
```

Then I "dialed" another 3270 section to DOSVS (Dial DOSVS 081), and used the following
 job to start (I)SPF in BG:

```
* $$ JOB JNM=SPF,CLASS=0,DISP=L,USER='NELSON DHEGAS'
* $$ LST CLASS=A,DISP=D,JSEP=1
// JOB SPF
// OPTION LOG,NODUMP
// ASSGN SYS005,X'00E' PRINTER
// ASSGN SYS007,X'081'
```

```
// EXEC VSTSO,SIZE=1024K
/*
// RESET SYS007
/&
* $$ EOJ
```

After that I got the (I)SPF Logo in the dialed terminal. (userid=ibmuser password=ibm)

Here's the JCL that matches with the tape content:

```
-------------------------------------------------------------
* $$ JOB JNM=INSTALL
* $$ LST CLASS=P,DISP=D,JSEP=1
* -------------------------------------------------
* INSTALL THE SPF-DISTRIBUTION PACKET
* -------------------------------------------------
* 1. - CATAL MAPS
* 2. - CATALR OBJECT-MODS
* 3. - LINK OBJECT-MODS TO CREATE PHASE VSTSO
* 4. - CATALS THE SOURCE MODULES AND MACROS
* -------------------------------------------------
// JOB CATMAPS INSTALL THE SPF-PACKET
// OPTION LOG,CATAL
* -------------------------------------------------
* 1. - LINK MAPS
* -------------------------------------------------
// ASSGN SYSIPT,X'280' your aws-tape
// MTC REW,SYSIPT
INCLUDE
/*
// EXEC LNKEDT
/*
/&
// JOB CATALR OBJECTS MODULS
// ASSGN SYSIPT,X'280' your aws-tape
// MTC FSF,SYSIPT
// DLBL IJSYSRL,'SPF.DOSR34.RELO',99/365,SD your priv. DOS/VS-RL
// EXTENT SYSRLB,OPTDOS
// ASSGN SYSRLB,X'440'
* -------------------------------------------------
* 2. - CATALR OBJECT-MODS
* -------------------------------------------------
// EXEC MAINT
/*
/&
// JOB CATALC VSTSO
// OPTION CATAL,LOG
// ASSGN SYSIPT,X'280' your aws-tape
PHASE VSTSO,*
INCLUDE VSTSO
* -------------------------------------------------
```

```
* 3. - LINK OBJECT-MODS TO CREATE PHASE VSTSO
* ------------------------------------------------
// EXEC LNKEDT
/*
/&
// JOB CATALS
// ASSGN SYSIPT,X'280' your aws-tape
// MTC FSF,SYSIPT
// DLBL IJSYSSL,'SPF.DOSR34.SOURCE',99/365,SD your priv.SSL
// EXTENT SYSSLB,OPTDOS
// ASSGN SYSSLB,X'440'
* ------------------------------------------------
* 4. - CATALS THE SOURCE MODULES AND MACROS
* ------------------------------------------------
// EXEC MAINT
/*
/&
* $$ EOJ



* $$ JOB JNM=INSTALL
* $$ LST CLASS=P,DISP=D,JSEP=1
// JOB CATMAPS INSTALL THE SPF-PACKET
// OPTION LOG,CATAL
// ASSGN SYSIPT,X'280'
// MTC REW,SYSIPT
INCLUDE
/*
/*
// EXEC LNKEDT
/*
/&
// JOB CATALR OBJECT MODULS
// ASSGN SYSIPT,X'280'
// EXEC MAINT
/*
/&
// JOB CATALC VSTSO
// OPTION CATAL,LOG
// ASSGN SYSIPT,X'280'
ACTION NOCANCEL
PHASE VSTSO,*
INCLUDE VSTSO
// EXEC LNKEDT
/*
/&
// JOB CATALS
// ASSGN SYSIPT,X'280'
// EXEC MAINT
/*
/&
```

```
* $$ EOJ
```

Then fire up another 3270 terminal at 080 address and submit "start" job:

```
* $$ JOB JNM=VSTSO,CLASS=2
// JOB VSTSO
// OPTION LOG
// ASSGN SYS004,X'360' OPTIONAL DOS
// ASSGN SYS005,X'00E' PRINTER
// ASSGN SYS007,X'081' Your Local NON-SNA-SCREEN for SPF
// ASSGN SYS008,X'362'
// EXEC VSTSO,SIZE=1024K
/*
// RESET SYS007
//&
* $$ EOJ
```

VTP

VTAM

DASD Creation

VTAM is stored on 362, WORK01 in this test.

Supervisor Changes

Ultimately, VTAM doesn't want to run in a POWER partition if it's ever going to handle any RJE traffic. VTAM's partition must be at a higher priority than that of any application using it, and partitions with a higher priority than POWER can't be POWER partitions.

This necessitates specifying "...,F1,F2)" in the PRTY parameter of our supervisor gen, and getting our canned startup some other way.

VTAM will be running in F2, therefore the following changes must be made.

There are several changes that must be made to the DOS/VS supervisor. We will create a **NEW** supervisor of this effort, so we do not destroy a working supervisor.

New JCL and Supervisor code: $$a$sup6 (located in jcl folder of DOS5PEXT)

Changes to $$a$sup6

```
       Change ID    to ID=6
       Change PRTY  to PRTY=(BG,F4,F3,F1,F2), (Make F2 VTAM highest priority)
       Change ALLOC to ALLOC F4=512K,
                             F3=4096K,         (Increased Virtual size)
                             F2=4096K,
                             F1=512K
```

Power Changes

In the subdirectory JCL, you will find pwrvtam.jcl. This is a modified power generation, to support issuing VTAM comands to POWER.

Changes to pwrvtam.jcl:

```
      Add:       SNA=,,POWER
```

Submit pwrvtam.jcl to generate a new POWER configuration.

CONFIGURATION

First, I know very little about VTAM. The following notes were made from information found. Any HELP is appreciated.....

Must configure several 'B' books that configure VTAM. These 'B' book jcl can be found in the VTAM subdirectory. Submit these 'B" jobs to process them into the system.

ATCSTR00

```
* $$ JOB JNM=ATCSTR00,DISP=D,CLASS=0
* $$ LST LST=SYSLST,FNO=A,CLASS=A,JSEP=1
// JOB ATCSTR00 CATALOG B.ATCSTR00
// ASSGN SYSIPT,X'00C'
// ASSGN SYSLST,X'00E'
// EXEC MAINT
 CATALS B.ATCSTR00
 BKEND
CONFIG=00,                                                      +
SSCPID=01, /*ID IN NETWORK*/                                    +
NOPROMPT,                                                       +
NETSOL=YES,                                                     +
SUPP=NOSUP,                                                     +
MAXSUBA=31, /*MAX NETWORK SUBAREAS*/                            +
COLD,                                                           +
APBUF=(128,,064),                                               +
LFBUF=(016,,16),                                                +
LPBUF=(032,,32),                                                +
NPBUF=(32,,08),                                                 +
PPBUF=(032,256,08),                                             +
SFBUF=(032,,32),                                                +
SPBUF=(032,,32),                                                +
UECBUF=(032,,16)
 BKEND
/*
/&
* $$ EOJ
```

ATCCON00

```
* $$ JOB JNM=ATCCON00,DISP=D,CLASS=0
* $$ LST LST=SYSLST,FNO=A,JSEP=1
```

```
// JOB ATCCON00 CATALOG B.ATCCON00
// ASSGN SYSIPT,X'00C'
// ASSGN SYSLST,X'00E'
// EXEC MAINT
 CATALS B.ATCCON00
 BKEND
APPLBUDD,                                                              X
LCLMAJ00
 BKEND
/*
/&
* $$ EOJ
```

LCLMAJ00

```
But the important question is: what about our terminals?
Just change the cuu assignments to devices already defined as
3277s to our supervisor, and we should be all set, right?

* $$ JOB JNM=LCLMAJ00,DISP=D,CLASS=0
* $$ LST LST=SYSLST,FNO=A,JSEP=1
// JOB LCLMAJ00 CATALOG B.LCLMAJ00
// ASSGN SYSIPT,X'00C'
// ASSGN SYSLST,X'00E'
// EXEC MAINT
 CATALS B.LCLMAJ00
 BKEND
LCLMAJ00 LBUILD
CUU080 LOCAL TERM=3277,CUADDR=080,LOGTAB=BUDINTAB,LOGAPPL=NETSOL,      X
               FEATUR2=(MODEL2,PFK),ISTATUS=ACTIVE
 BKEND
/*
/&
* $$ EOJ
```

APPLBUDD

```
* $$ JOB JNM=APPLBUDD,DISP=D,CLASS=0
* $$ LST LST=SYSLST,FNO=A,JSEP=1
// JOB APPLOGON CATALOG B.APPLBUDD
// ASSGN SYSIPT,X'00C'
// ASSGN SYSLST,X'00E'
// EXEC MAINT
 CATALS B.APPLBUDD
 BKEND
BUDD APPL AUTH=(ACQ,PASS),BUFFACT=5
BUDD0001 APPL AUTH=(ACQ,PASS),BUFFACT=5
```

```
 BKEND
/*
/&
```

- $$ EOJ
-

BUDINTAB

```
* $$ JOB JNM=BUDINTAB,DISP=D,CLASS=0
* $$ LST CLASS=A,JSEP=1
// JOB BUDINTAB
ASSGN SYS001,X'362'
ASSGN SYS002,X'362'
ASSGN SYS003,X'362'
ASSGN SYS004,X'362'
ASSGN SYSLNK,X'365'
ASSGN SYSIPT,X'00C'
// DLBL IJSYSLN,'DOS/VS.SYSLNK.FILE',0,SD
// EXTENT SYSLNK,WORK03,1,0,1,15449
// OPTION LINK,CATAL
 PHASE BUDINTAB,*
// EXEC ASSEMBLY
BUDINTAB   INTAB
           LOGCHAR  APPLID=(APPLICID,BUDD),SEQNCE='budd'
           LOGCHAR  APPLID=(APPLICID,BUDD),SEQNCE='Budd'
           LOGCHAR  APPLID=(APPLICID,BUDD),SEQNCE='BUDD'
           ENDINTAB BUDINTAB
           END
/*
// EXEC LNKEDT
/*
/&
* $$ EOJ
```

VTAM JCL

```
* $$ JOB JNM=ATCCON00,DISP=D,CLASS=2
* $$ LST LST=00E,FNO=A
// JOB VTAM
// ASSGN SYS000,UA
// ASSGN SYS001,X'362'
// DLBL TRFILE,'DOS/VS.WORK-FILE.2',,SD
// EXTENT SYS001,WORK01,1,0,3651,300
// EXEC ISTINCVT,SIZE=512K
/*
/&
* $$ EOJ
```

Notice I've un-assigned SYS000. If you don't do this, VTAM will issue a message on startup saying that 370X support is switched off because SYS000 is not unassigned. Since I'd like to get that support working someday, I'm following its advice and unassigning SYS000.

You'll see VTAM start a subtask, declare APPLCICS, APPLTSO, and LCLMAJ00 as ACTIVE. It will then issue LOCAL 3270 ERRORs on any 3270 devices that weren't active (DIALled or otherwise connected) at start time, and then a message declaring the startup complete.

Issuing commands to VTAM from the console is not what you'd expect. Out-of-the-box, POWER doesn't know to forward "D NET", "Z NET", "V NET" and so on to VTAM. Instead, we need to talk to VTAM directly for this. At the console, type "MSG F2".

The first prompt you'll get is from the attention routine (AR). Why he feels the need to interrupt is beyond me, but you don't want to talk to him. Simply hit enter. You'll then get a prompt from F2.

At this point, you can issue display, vary, halt, and all the usual VTAM commands just like you would to a VSE or MVS system, only without the "NET," modifier.

For example (lines starting with "->" are user input, don't actually type "->"):

-> MSG F2 (enter)
AR
-> (enter)

F2
-> D ID=CUU080 (enter)

...is exactly the same as typing "D NET,ID=CUU080" on a VSE or MVS system. There's probably a way to re-gen POWER to get it to forward NET actions to VTAM, but I don't know the procedure offhand.

So, to shut VTAM down again:

-> MSG F2 (enter)

AR
-> (enter)

F2
-> Z NET (enter

VTAM commands

d id = ...

Display information about the specified VTAM resoure

Ex: d id=cuu080

v net,act,id=.....

Active the specified resource

Ex: v net,act,id=cuu0080

z net

Terminate VTAM processing normally

Ex: z net

If VTAM gets stuck on the way down (this can happen if a device is left in a peculiar state), it may be necessary to PFLUSH F2. This should be a last resort, but will result in VTAM being terminated by cancellation.

z net,quick

Terminate VTAM processing normally

Ex: z net,quick

Terminate VTAM processing immediately without waiting for normal termination of existing sessions – should only be used when normal termination does not complete successfully

halt

Ex: halt

...or "HALT QUICK", if that's your preference. Either way, VTAM will deactivate the network resources, terminate its subtasks, and the job will exit.

1. Display commands

DNET,VTAMOPTS	Display VTAM options, including SUBAREA Number, NETID, SSCPNAME, SSCPID
D NET,BFRUSE	Display information about VTAM¢s virtual storage and buffer pool usage
D NET,APPLS	Display the applications (APPLIDS) that VTAM knows about
D NET,PATHTAB	Display the status of communications PATHs between subareas in the VTAM network
D NET,MAJNODES	Display details about major nodes
D NET,ID=…,E	Display more information about the specified VTAM resource

2. Vary commands

V NET,INACT,ID=…	Deactivate the specified resource
V NET,INACT,ID=…,I	Immediately deactivate the specified resource
V NET,INACT,ID=…,F	Force-deactivate the specified resource
V NET,ACQ,ID=…	Acquire the specified resource (NCP or non-switched PU) without activating it – used during network recovery whereby this VTAM can take ownership of another VTAM¢s resource

********* The notes below have not been cleaned up or tested **********

In this example, I've set up a new 560-cyl 3350 pack, and
initialized it as "NET001". I did this to have a sandbox volume for
coming up with a stable VTAM environment before writing anything to
the main volumes.

What this example does:

1) Stores a Cataloged Procedure for writing the F2 PARSTD labels.
2) Stores a Cataloged Procedure for assigning required devices.
3) Stores the VTAM startup JCL to disk.

Note that the VTAM startup job stored in step 3 runs the procedures
cataloged in steps 1 and 2 before starting VTAM. Running the PARSTD
procedure isn't necessary for every startup, but it does make
certain that any changes to the procedure take effect on the next
startup.

The JCL:

```
* $$ JOB JNM=SETUPF2,CLASS=0,USER='TROUNDS'
* $$ LST FNO=A,CLASS=A
// JOB PROCSF2 TROUNDS
// EXEC MAINT
CATALP PARSTDF2
* PARSTDF2
// OPTION PARSTD
// DLBL IJSYSIN,'VTAM.SYSIN',99/365,SD
// EXTENT SYSIN,NET001,1,0,15000,30 1 CYL, CYL 500 ON NET001
/*
/+
CATALP ASSGNF2
* ASSGNF2
ASSGN SYS000,UA
ASSGN SYS001,DISK,VOL=NET001,SHR
/*
/+
/*
/&
// JOB CDTODISK - CREATE F2 SYSIN FILE
* F2SYSIN
// DLBL UOUT,'VTAM.SYSIN',99/365,SD
// EXTENT SYS005,NET001,1,0,15000,30 1 CYL, CYL 500 ON NET001
// ASSGN SYS004,SYSIPT
// ASSGN SYS005,DISK,VOL=NET001,SHR
*
* IF MSG 4433A COMES UP, RESPOND WITH:
* DELETE
*
// EXEC PGM=OBJMAINT,SIZE=AUTO
```

```
./ CARD DLM=$$
./ COPY
NOLOG
// JOB VTAM
// EXEC PROC=PARSTDF2
// EXEC PROC=ASSGNF2
// DLBL TRFILE,'VTAM.TRACE.FILE',,SD
// EXTENT SYS001,NET001,1,0,1,299 10 CYLS, CYL 0-9, ON NET001
* STARTING VTAM
// EXEC ISTINCVT,SIZE=512K
/&
NOLOG
CLOSE SYSIN,UA
$$
/*
/&
* $$ EOJ
```

As you can see, I'm wasting a lot of space on this volume, but that's okay, this is mostly for demonstration purposes.

POWER job SETUPF2 contains two DOS jobs: PROCSF2 and CDTODISK.

Job PROCSF2 stores (but does not execute) procedures PARSTDF2 and ASSGNF2. PARSTDF2 contains JCL for writing the partition standard labels (so F2 will use VTAM.SYSIN when SYSIN is assigned to disk NET001), ASSGNF2 contains JCL to unassign SYS000 and assign SYS001 to the NET001 volume.

Job CDTODISK stores (but does not execute) the VTAM startup JCL to VTAM.SYSIN. The // EXEC PROC=PARSTDF2 line can be removed if start-time updates of the PARSTD labels is not desired.

The VTAM startup job and its supporting procedures are now stored. For the change to take effect, the PARSTDF2 procedure must be run in F2. If F2 is still under POWER control, you can simply submit a job to run this procedure. Otherwise, you can start F2 and code it in by hand:

```
// JOB VTAM
// EXEC PROC=PARSTDF2
```

...and, while you're at it, you might as well start VTAM:

```
// EXEC PROC=ASSGNF2
// DLBL TRFILE,'VTAM.TRACE.FILE',,SD
// EXTENT SYS001,NET001,1,0,1,299
// EXEC ISTINCVT,SIZE=512K
```

...making sure you change the DLBL and EXTENT statemets to match the start job you already recorded.

From this point forward, starting VTAM is just a matter of starting F2 and assigning SYSIN to the disk the startup job is stored on. Since this example has it stored on a volume called NET001, that assignment would be:

```
ASSGN SYSIN,DISK,VOL=NET001,SHR
```

...or, if you store your VTAM startup job to your system residence volume:

```
ASSGN SYSIN,SYSRES
```

Once the assignment is made, simply hit enter and VTAM will start up.

NOTES:

To change the location of the VTAM startup JCL, change the DLBL and EXTENT statements in BOTH the PARSTDF2 procedure AND the CDTODISK job.

To change the size/location of the VTAM trace file, you only need to change the VTAM startup job's DLBL and EXTENT statements.

The PARSTDF2 procedure must be run in F2 in order for the changes to take effect.

These jobs were adapted from a bunch of configuration jobs Fish posted to H390-DOSVS quite some time ago.

This is a sample procedure. It is not ideal (in fact it is overkill for an application like VTAM), and is intended only as an example of how to autostart VTAM (or any other application) in a partition that is not under POWER control.

Okay, I just got done typing up the procedure I used to hack the MVS VTAM config members into something DOS/VS VTAM would swallow.

In the meantime, I got a response to a seperate email I sent to Gerry Wertelaers asking about his VTAM/OLTEP experience, and he gave me the whole ball of wax (thank you VERY much, Gerry)!

I'm posting this by way of Yahoo, and it's a rather long procedure. I'm hoping it doesn't get mangled or truncated. If it does, I'll try it again by proper email, or upload it to the files section if all else fails.

I am going to take the information Gerry provided and apply it to what I already have, and hopefully a merger of our two procedures will result in one that works correctly.

********** CUT HERE **********

Congratulations, you've now got VTAM running in F2.

After this, nothing actually seems to work. Given the lack of
startup parameters, resource definitions, and actual resources
themselves, this is not much of a suprise.

To give you an idea of how broken things really are, try typing
"logon applid(applcics)" on device 080. The network solicitor
will complain about an error with the logon command, and VTAM
will issue an I/O error to the console, and vary the device
inactive.

In short, it's broken, but again, this is no suprise.

This is a work-in-progress, and I'm far from an expert at this.
It's a starting point, anyway, and hopefully some folks with
more VTAM-savvy can help fill in the (many, many) blanks. In
addition, I will be going through the VTAM source code to try
and determine what startup parameters *are* supported, since
the ones that are missing are most likely to blame for the
many issues VTAM still has being brought up this way.

That's it. You are in a maze of twisty little passages,
all alike. Good luck!

********** CUT HERE **********

...and there it is, subject to change soon. Use at your own risk.

--Thom Rounds, KA1ZGC
Reply
the_thom
Feb 11, 2008
View Source
Addendum:

Printed the VTAM source code to my Linux disk last night so I could grep through it. Don't try this at home, unless you really want to.

An SSERV job doing a DSPLY ALL of DOSVS.OPTIONAL.VTAM ran for 1 hour, 6 minutes, and generated roughly 1.5 million records. Output file was 146 megabytes, but it told me what I needed to know.

Most of the keywords that VTAM was coughing over are supported in that code, but not in whatever was already genned on the system. Reading through the POWER manual also gave me some clue as to why "D NET", "V NET", and "Z NET" don't work.

In short, both VTAM and POWER need to be re-genned. POWER needs SNA support turned on to become VTAM-aware. POWER also needs to be defined as a network resource to VTAM for VTAM to become POWER-aware. I'm still working on the VTAM gen parms. Some additional supervisor linking is also required, fortunately there are system procedures already in place for that.

Back to the grindstone...
Reply
Kevin Leonard
Feb 19, 2008
View Source

> To give you an idea of how broken things really are, try typing
> "logon applid(applcics)" on device 080. The network solicitor
> will complain about an error with the logon command, and VTAM
> will issue an I/O error to the console, and vary the device
> inactive.

Thom:

After getting quite a few I/O errors, I tried an experiment. I took the network solicitor from the MVS distribution, and tried using it under DOS/VS (the NETSOL macro is supposed to contain everything necessary for it to be assembled under MVS, VS1 or DOS/VS depending on parameter specification). There were a couple of assembly problems where MVS changes hadn't properly been bracketed with conditional assembly logic. Once I got those fixed, the resulting network

solicitor ran much more reliably. If you'd like to try
it, I could put the modified macro somewhere.

--
Kevin
Reply
the_thom
Feb 19, 2008
View Source
--- In H390-DOSVS@yahoogroups.com, "Kevin Leonard"
<kleonard_list@...> wrote:

> After getting quite a few I/O errors, I tried an
> experiment. I took the network solicitor from the
> MVS distribution, and tried using it under DOS/VS
> (the NETSOL macro is supposed to contain everything
> necessary for it to be assembled under MVS, VS1 or
> DOS/VS depending on parameter specification). There
> were a couple of assembly problems where MVS changes
> hadn't properly been bracketed with conditional assembly
> logic. Once I got those fixed, the resulting network
> solicitor ran much more reliably. If you'd like to try
> it, I could put the modified macro somewhere.

Sure. I've got a few different network solicitors to try out, one
more certainly wouldn't hurt. I'm going to try the ones Gerry sent
me and see how they behave, as well.

There should be plenty of room in my inbox if you want to just email
it to me.

--Thom
Reply

RJE

What is RJE80?

It's a program that emulates an IBM 3780 RJE Terminal over a simulated bisync line connected to the Hercules/370/390 Emulator. If that made perfect sense to you, skip on to the next section. Otherwise, I'll explain it all now.

RJE stands for Remote Job Entry, a protocol for transferring files to an IBM mainframe, and receiving files in return. Normally, but not necessarily, these files take the form of 80 column "card decks" going to the mainframe, and "printed output" coming back to the terminal. The original intent and the most common use is to submit JCL to a mainframe operating system such as MVS or DOS/VS, and to receive the results of the job.

The IBM 3780 was the second in a line of RJE terminals IBM designed to implement "clients" for the system. The 3780 is the most commonly emulated terminal in the commercial world, so I choose to emulate it. The others, the 2780, 2770, 3770, and 3741 are different in hardware but almost (not quite!) the same in their capabilities and how they interact with the host system.

The Hercules emulator is a software program that runs under Microsoft Windows and Linux on modern PC hardware, which emulates an IBM mainframe of the System/370 class. One of the devices that Hercules emulates is a IBM 2703 Bisync interface.

RJE uses as its communications medium an IBM protocol known as bisync, which stands for Binary Synchonous Communications. Ordinarily, in the real world bisync uses special interfaces and modems to connection two machines. RJE80 does not use real bisync hardware like this, instead it pretends to be sending data over a bisync link but really it uses a TCP/IP socket connection that is compatible with the Hercules implementation of the 2703. What this all means is that a mainframe operating system running under Hercules that is configured to use a 2703 for RJE can talk to RJE80 and it will think it's a 3780.

The bottom line is, once you have your Hercules emulated System/370 configured, and your mainframe operating system sysgenned to talk to the 2703 lines, RJE80 will submit jobs and receive printouts and punched card decks.

Configuring Hercules

Note: To use RJE80 with Hercules, you need version 3.01 or above. The 2703 emulation is broken in earlier releases.

Configuring Bisync lines is easy. For each line you want to use, put a line in your Hercules configuration file:

```
0070 2703 dial=IN lhost=my.hostname.com lport=3780
```

This line places a 2703 compatible bisync line at device 0070. You need to supply the internet name or IP address in the lhost parameter, and the port that Hercules will use to listen for incoming "calls" from RJE80 in the lport parameter. If you are only going to use RJE80 to connect to Hercules running on the same machine, use 127.0.0.1 as the lhost. The lport is your choice, but it should be above 1000 and each separate bisync line requires its own unique port.

Configuring the Host Operating System

This is a broad topic, only part of which is understood by me at this point in time. I have tested RJE80 with VM/370 and DOS/VS, however in this document DOS/VS will be discussed.

DOS/VS

DOS/VS supports the 3780 for RJE quite nicely. It does so through its spooling subsystem POWER/VS. You'll need to run a job to configure your bisync lines and remote terminals for POWER/VS. This is all covered in detail in the POWER/VS installation and reference guide, starting on page 34. It will be a two-step process. First, you'll need to modify your DOS/VS sysgen to include the bisync lines, then you'll need to define them to POWER/VS by regenning it.

I define 1 bisync line at device 070. Put this statement in the right place (numeric order by device address) in your sysgen deck and run a sysgen:

```
         DVCGEN CHUN=X'070',DVCTYP=2703
```

For the POWER/VS gen, insert these definitions after the POWER macro:

```
         PLINE ADDR=X'070',TRNSP=YES,CODE=EBCDIC,PSWRD=PASSWORD,       X
               TIMEOUT=NO,SWITCH=NO,MODSET=AA
         PRMT  REMOTE=1,TYPE=3780,PUNROUT=1,LSTROUT=1,LIST=132
```

Once you have run your sysgen, re-ipled with the new supervisor, then regenned POWER/VS and start it up, you should be able to use this command to enable the line:

```
S RJE,X'070',PASSWORD
```

DOS/VS is now ready for a call from RJE80.

Using RJE80

RJE80 will run under Windows or Linux. It works identically on both. It's a command-line driven program, sort of inspired by the familiar interface of the Unix FTP program.

We'll practice by connecting to DOS/VS.

The first thing I do is expand my window to show 132 columns across, and expand its history buffer to the max. I use a command window under Windows and Konsole under linux. Most every terminal emulator will give you those choices.

To use RJE80, you need to tell it three things. The first is the address and port to connect to, the second is what host OS you're interfacing with, and the last is the line ID and password for the line you're using.

I could not get the console version of rje80 to work correctly. However the gui version of the program works great....

Start the rje80.   (GUI version, NOT rje80c (console))

You must enter on the dos/vs console, the following:

```
              s rje,070
```

Connect to your dos/vs host system.

Send the file dos_logon.jcl, this will logon on to the DOS/VS system. A message should be displayed on the DOS/VS console showing user signing into the system.

Now you are ready to send files/commands to the DOS/VS system via RJE.

Customizing

DOS/VS System Generation.

Compared to it's big (no, huge) brother OS, the DOS sysgen is simple. Just run a simgle assembly job to build a new supervisor. Here's an example. You can run it if you want. Experiment with changing some of the options even. This job generated the supervisor we used to run the examples in this document.

```
* $$ JOB JNM=$$A$SUPA,USER='SYSPRG',CLASS=0,DISP=D
* $$ LST LST=00E,FNO=0001,CLASS=A
// JOB     ASSEMBLY    - ASSEMBLE AND LNKEDT AN ALC PROGRAM
*
* $$ NOTE              - GENERATE CUSTOMIZED SUPERVISOR - $$A$SUPA
*
// ASSGN SYSLNK,X'150'
// ASSGN SYS001,X'150'
// ASSGN SYS002,X'150'
// ASSGN SYS003,X'150'
// OPTION  CATAL
   ACTION  CLEAR
// EXEC    PGM=ASSEMBLY,SIZE=512K
         TITLE 'DOS/VS SUPERVISOR A,SYSTEM=(3350,MOD=158,NPARTS=5)'
*********************************************************************
*                                                                   *
*        SYSEND = X'20000' = 128K                                   *
*                                                                   *
*********************************************************************
         SPACE
* SUPERVISOR CONFIGURATION
         SUPVR                                                      X
               ID=A,               NAME SUFFIX - $$A$SUPA           X
               AP=YES,             MULTITASKING                     X
               ASCII=YES,          ASCII TAPE TRANSLATE             X
               ERRLOG=RDE,         RELIABILITY DATA EXTRACTOR       X
               EU=YES,             14XX EMULATOR                    X
               MICR=NO,            MAGNITIC INK CHARACTER READERS   X
               NPARTS=5,           NUMBER OF PARTITIONS             X
               POWER=YES,          POWER/VS SPOOLING                X
               PAGEIN=24,          PAGING MACRO SUPPORT             X
               PHO=YES,            PAGE HANDLING OVERLAP            X
               TP=(BTAM,VTAM)      TELEPROCESSING OPTIONS
         SPACE
* HARDWARE CONFIGURATION
```

```
         CONFG                                                          X
               FP=YES,             FLOATING POINT FEATURE               X
               MODEL=158           CPU MODEL/CLASS
         SPACE
* STANDARD JOB CONTROL DEFAULTS
         STDJC                                                          X
               ALIGN=YES,          HALF/FULL WORD ALLIGNMENT            X
               ACANCEL=NO,         AUTO-CANCEL DUE TO BAD ASSGN         X
               CHARSET=60C,        PL/I CHARACTER SET TRANSLATOR        X
               DATE=MDY,           FORMAT OF DATE (MDY OR YMD)          X
               DECK=NO,            OBJECT TO SYSPCH                     X
               EDECK=NO,           EDITED MACROS TO SYSPCH              X
               DUMP=YES,           AUTO-DUMP DUE TO ABEND               X
               ERRS=YES,           COMPILER ERRORS ON SYSLST            X
               LINES=60,           LINES PER PAGE ON SYSLST             X
               LIST=YES,           SOURCE LISTINGS ON SYSLST            X
               LOG=YES,            LIST CONTROL STATEMENTS ON SYSLST    X
               RLD=YES,            RELOCATION DICTIONARY ON SYSLST      X
               SPARM=YES,          &SYSPARM ASSEMBLER VARIABLE          X
               SYM=YES,            SYMBOL & OFFSET LIST ON SYSLST       X
               XREF=NO             CROSS-REFERENCE ON SYSLST
         SPACE
* OPTIONAL FEATURE SPECIFICATIONS
         FOPT                                                           X
               AB=YES,             ABEND EXIT FUNCTIONS                 X
               CBF=NO,             CONSOLE BUFFERING                    X
               DASDFP=(1,6),       DASD FILE PROTECT (CHANNELS 1-6)     X
               DOC=3215,           DISPLAY OPERATOR CONSOLE             X
               ECPREAL=YES,        VIRTUAL ADDRESSING MACRO SUPPORT     X
               ERRQ=25,            TELEPROCESSING ERROR QUEUES          X
               EVA=NO,             TAPE ERROR VOLUME ANALYSIS           X
               FASTTR=YES,         DASD FAST CCW TRANSLATE              X
               GETVIS=YES,         GETVIS STORAGE MANAGEMENT            X
               IDRA=YES,           FETCH/LOAD INDEPENDENT DIRECTORIES   X
               IT=YES,             INTERVAL TIMER SUPPORT               X
               JA=(64,64,64,64,16), J/A + SIO COUNTERS/PARTN            X
               JALIOCS=(1024,224), J/A USER LIOCS AREAS                 X
               OC=YES,             OPERATOR CONSOLE SUPPORT             X
               OLTEP=YES,          ONLINE TESTING FUNCTIONS             X
               PC=YES,             STXIT PC SUPPORT                     X
               PCIL=YES,           PRIVATE CORE IMAGE SUPPORT           X
               PD=YES,             PROBLEM DETERMINATION AIDS           X
               PFIX=YES,           PFIX/PFREE SUPPORT                   X
               PSLD=12,            PRIVATE 2ND LEVEL DIRECTORIES        X
               RELLDR=YES,         RELOCATING LOADER SUPPORT            X
               RETAIN=NO,          2955 DEVICE SUPPORT                  X
               RPS=YES,            ROTATION POSITION SENSING            X
               SKSEP=YES,          DASD SEEK SEPARATION                 X
               SLD=16,             SYSTEM 2ND LEVEL DIRECTORIES         X
               SYNCH=YES,          SYNCHRONOUS SVC SWAPPING             X
               SYSFIL=YES,         SYSTEM FILES ON DASD                 X
               TEB=NO,             2495 TAPE ERROR STATISTICS           X
```

```
              TOD=YES,            TIME-OF-DAY CLOCK                   X
              TRKHLD=255,         DASD TRACK HOLD (PROTECTION)        X
              TTIME=F2,           TASK TIMER SUPPORT                  X
              USERID=,            IPL ID TEXT (16 BYTES)              X
              VSAM=YES,           VSAM SUPPORT                        X
              WAITM=YES,          WAIT MULTIPLE SUPPORT               X
              XECB=40,            CROSS-PARTITION EVENT CONTROL       X
              ZONE=NO             ZONE EAST/WEST OF GMT
        SPACE
* PHYSICAL IOCS SPECIFICATIONS
        PIOCS                                                         X
              BLKMPX=YES,         BLOCK MULTIPLEXOR SUPPORT           X
              BMPX=YES,           BURST MODE DEVICES ON BYTE CHANNEL  X
              CHANSW=NO,          TAPE CHANNEL SWITCHING              X
              DISK=(3350),        SUPPORT 3350 DASD TYPES             X
              MRSLCH=NO,          MICR ON SELECTOR CHANNEL            X
              TAPE=7              SUPPORT 7 & 9 TRACK TAPES
        SPACE
* VIRTUAL STORAGE SPECIFICATIONS
        VSTAB                                                         X
              RSIZE=2048K,        REAL ADDRESS AREA (NOT MEMORY SIZE) X
              VSIZE=14336K,       VIRTUAL ADDRESS AREA (16 MB MAX)    X
              BUFSIZE=256,        CHANNEL PROGRAM TRANSLATION BUFFERS X
              SVA=(1024K,64K)     SHARED VIRTUAL STORAGE AREA
        SPACE
* DEFAULT VIRTUAL PARTITION ALLOCATIONS
        ALLOC                                                         X
              F1=512K,                                                X
              F2=4096K,                                               X
              F3=512K,                                                X
              F4=4096K
        SPACE
* DEFAULT REAL PARTITION ALLOCATIONS
        ALLOCR                                                        X
              F1R=48K,                                                X
              F2R=64K,                                                X
              F3R=64K,                                                X
              F4R=64K,                                                X
              BGR=64K
        SPACE
* I/O DEVICE CONTROL SPECIFICATIONS
        IOTAB                                                         X
              BGPGR=48,           MAX BG SYSXXX ASSGN'S               X
              CHANQ=255,          NUMBER OF CHANNEL QUEUES            X
              D2311=0,                                                X
              D2314=0,                                                X
              D3330=0,                                                X
              D3340=0,                                                X
              D3350=48,           MAX 3350 DASD DEVICES               X
              D3420=8,            MAX 3420 TAPE DRIVES                X
              D3800=2,            MAX 3800 LASER PRINTERS             X
              F1PGR=12,           MAX F1 SYSXXX ASSGN'S               X
```

```
               F2PGR=12,           MAX F2 SYSXXX ASSGN'S              X
               F3PGR=48,           MAX F3 SYSXXX ASSGN'S              X
               F4PGR=48,           MAX F4 SYSXXX ASSGN'S              X
               IODEV=254,          NUMBER OF DEVICES SUPPORTED        X
               JIB=255,            NUMBER OF JOB INFORMATION BLOCKS   X
               NRES=64             NUMBER OF RESOURCE USAGE RECORDS
          SPACE
* DEFAULT DEVICE DEFINITIONS
          DVCGEN CHUN=X'00C',DVCTYP=3505
          DVCGEN CHUN=X'00D',DVCTYP=3525P
          DVCGEN CHUN=X'00E',DVCTYP=1403U
          DVCGEN CHUN=X'01E',DVCTYP=1403U
          DVCGEN CHUN=X'01F',DVCTYP=3215
          DVCGEN CHUN=X'02E',DVCTYP=1403U
          DVCGEN CHUN=X'03E',DVCTYP=1403U
          SPACE
          DVCGEN CHUN=X'150',DVCTYP=3350
          DVCGEN CHUN=X'151',DVCTYP=3350
          DVCGEN CHUN=X'152',DVCTYP=3350
          DVCGEN CHUN=X'153',DVCTYP=3350
          DVCGEN CHUN=X'154',DVCTYP=3350
          DVCGEN CHUN=X'155',DVCTYP=3350
          DVCGEN CHUN=X'156',DVCTYP=3350
          DVCGEN CHUN=X'157',DVCTYP=3350
          SPACE
          DVCGEN CHUN=X'180',DVCTYP=3420T9
          DVCGEN CHUN=X'181',DVCTYP=3420T9
          DVCGEN CHUN=X'182',DVCTYP=3420T9
          DVCGEN CHUN=X'183',DVCTYP=3420T9
          DVCGEN CHUN=X'184',DVCTYP=3420T9
          DVCGEN CHUN=X'185',DVCTYP=3420T9
          DVCGEN CHUN=X'186',DVCTYP=3420T9
          DVCGEN CHUN=X'187',DVCTYP=3420T9
          SPACE
          DVCGEN CHUN=X'350',DVCTYP=3350
          DVCGEN CHUN=X'351',DVCTYP=3350
          DVCGEN CHUN=X'352',DVCTYP=3350
          DVCGEN CHUN=X'353',DVCTYP=3350
          DVCGEN CHUN=X'354',DVCTYP=3350
          DVCGEN CHUN=X'355',DVCTYP=3350
          DVCGEN CHUN=X'356',DVCTYP=3350
          DVCGEN CHUN=X'357',DVCTYP=3350
          SPACE
          DVCGEN CHUN=X'440',DVCTYP=3277
          DVCGEN CHUN=X'441',DVCTYP=3277
          DVCGEN CHUN=X'442',DVCTYP=3277
          DVCGEN CHUN=X'443',DVCTYP=3277
          DVCGEN CHUN=X'444',DVCTYP=3277
          DVCGEN CHUN=X'445',DVCTYP=3277
          DVCGEN CHUN=X'446',DVCTYP=3277
          DVCGEN CHUN=X'447',DVCTYP=3277
          SPACE
```

```
* DEFAULT LOGICAL DEVICE ASSIGNMENTS
         ASSGN SYSLOG,X'01F'
         ASSGN SYSREC,X'150'
         ASSGN SYSCAT,X'151'       VSAM MASTER CATALOG
         ASSGN SYSRDR,X'00C',BG
         ASSGN SYSIPT,X'00C',BG
         SPACE
* PAGE DATASET DEFINITION
         DPD                                                        X
               UNIT=X'150',        DPD DEVICE                       X
               VOLID=SYSRES,       DPD VOLID                        X
               CYL=400             DPD LOCATION
         SPACE
         SEND
         END
/*
// EXEC    PGM=LNKEDT
/*
/&
* $$ EOJ
```

2314 Work Volume

Adding 2314 work files in DOS/VSE 5pack

1. create a 2314 DASD with the following command:

   dasdinit -z -a -r WORK02.2314.CCKD 2314

   and store the emulated DASD in the dasd folder of the 5-pack;

2. edit the Hercules conf file of the 5-pack to add the 2314 DASD:

   0130 2314 WORK02.2314.CCKD

   (adjust the path of the DASD to your system);

3. start the 5-pack normally (don't forget the last command r rdr,*xx);

4. run the job below to initialize the new 2314 pack:

```
* $$ JOB JNM=INT2314,CLASS=0,DISP=D
* $$ LST CLASS=A,DISP=D,JSEP=1
// JOB INTDSK - INITIALIZE 2314 DISK
// ASSGN SYS000,X'130'
// EXEC INTDK
// UID IA,C1
// VTOC STRTADR=(0199000),EXTENT=(20)
VOL1WORK02
// END
/*
/&
* $$ EOJ
```

5. then run the job below to set the work files labels in the BG partition:

```
* $$ JOB JNM=COBLBL,CLASS=0,DISP=D
* $$ LST CLASS=A,DISP=D,JSEP=1
// JOB COBLBL - BG LU AND LBL
ASSGN SYS001,X'130'
ASSGN SYS002,X'130'
ASSGN SYS003,X'130'
ASSGN SYS004,X'130'
* BG LOGICAL UNITS SET
// OPTION PARSTD
// DLBL IJSYS01,'DOS/VS.WORK-FILE.1',0,SD
// EXTENT SYS001,WORK02,1,0,2420,400
```

```
// DLBL IJSYS02,'DOS/VS.WORK-FILE.2',0,SD
// EXTENT SYS002,WORK02,1,0,2820,400
// DLBL IJSYS03,'DOS/VS.WORK-FILE.3',0,SD
// EXTENT SYS003,WORK02,1,0,3220,400
// DLBL IJSYS04,'DOS/VS.WORK-FILE.4',0,SD
// EXTENT SYS004,WORK02,1,0,3620,300
/*
* BG LABELS FOR FCOBOL WORK FILES SET
/&
* $$ EOJ
```

Utility JCL

Condense Libraries

(condslibs.jcl)

```
$$ JOB JNM=CONDENSE,CLASS=0,USER='WS'
* $$ LST LST=SYSLST,FNO=0001,CLASS=A
// JOB CONDENSE LIBS
*  MUST RUN IN BG WITH NO OTHER PARTS ACTIVE
// EXEC MAINT
 CONDS CL,RL,SL,PL
/*
/&
$$ EOJ
```

•

History List

(histlist.jcl)

```
* $$ JOB JNM=HISTLIST,USER='JSCHUKNE',CLASS=0,DISP=D
* $$ LST LST=00E,FNO=1PT6,CLASS=A,DISP=D
// JOB     HISTLIST    - DISPLAY SYSTEM MAINTENANCE HISTORY UTILITY
// UPSI    0000000     - PRINT ALL LISTS
*/ UPSI    1000000     - CONSOLE CONTROL OPTION
*/ UPSI    0100000     - SUPPRESS HISTORY BOOK LIST
// EXEC    PGM=HISTLIST
/*
/&
* $$ EOJ
```

```
************************************************************************
* ALL MEMBERS WHO ARE INSTALLING RPG FROM THE 360N-RG-460.aws TAPE BEGIN HERE **
************************************************************************
```

On the Hercules console, issue the following command. This will mount the 360N-RG-460.aws tape.

```
       devinit 180 tape/360N-RG-460 eof


ASSGN SYSIN,TAPE        Set up x'180' to be read like a card reader.
                        DOS/VS should confirm your assignment with message 1T20I

[ENTER]                 RPG installation will begin
                        Press [ENTER] to all pauses so all three steps will run
                        These steps are:
                        CATALR     Catalogs all RPG relocatable modules to your
                                   relocatable library
                        CATALS     Catalogs the Z.RG1 book to your source
statement
                                   library
                        LNKEDT     Catalogs RPG phases to your core image library


ASSGN SYSIN,UA        Sets up the card reader for running the remaining jobs
ASSGN SYSIN,X'00C'

CONDSLIBS.JCL(EBCDIC) Condenses all libraries

DSERVALL.JCL(EBCDIC)  Generate directory display listing to show the state of
                            all libraries after the RPG installation

RPG.JCL(EBCDIC)        Small RPG compile, link and go to verify the RPG
installation

*************************************************************************
* END OF RPG INSTALL PROCEDURES *****************************************
*************************************************************************

PRINTLOG.JCL(EBCDIC) Generates a log of all console messages and system activity

ROD                  System shutdoen procedure
                     REPLY 'Y' TO END OF DAY =
STOP                 Stops the BG partition

POWER OFF            Cuts power to the system

/--------------------------------------------------------------------/
```

Hercules Configuration

```
################################################################################
# Hercules configuration file for DOS/VS 5 Pack version 1.1 (S/370 mode)      #
#                                                                              #
# Important!  This file assumes the directories are set up thusly:             #
#    dosvs5pack11 (or whatever name you choose)  ...command and config. files #
#       |                                                                      #
#       +--3270                           ...3270 emulator                   #
#       |                                                                      #
#       +--dasd                           ...DOS/VS disk files               #
#       |    +                                                                 #
#       |    |                                                                 #
#       |    +--Shadows                   ...shadow disk files               #
#       +--IO                             ...I/O files                       #
#                                                                              #
# Michel Beaulieu, P.eng., MBA, Project+    February 2010                      #
################################################################################
#
# These Hercules configuration parameters are documented in the Hercules User
# Reference manual.
#
# Archmode of S/370 allows for 24-bit addressing only
# I/O instructions.
ARCHMODE        S/370
CNSLPORT        3277        #  not the usual 3270 of hercules
#
CODEPAGE        437/500
#               ^   ^
#               |   |
# ASCII --------+   +----- EBCDIC
CPUMODEL        3148
CPUPRIO         0
CPUVERID        FD
CPUSERIAL       007777
DEVPRIO         0
DEVTMAX         0
DIAG8CMD        ENABLE
ECPSVM          NO
HERCPRIO        8
#               |
#               +------------ -20 <= p < -15 : Real time priority
#                            -15 <= p <  -8 : High priority
#                             -8 <= p <   0 : above normal
#                              8 <= p <  16 : below normal
#                             16 <= p <= 20 : idle
#HTTPPORT       8081
# Load support for TCPIP instruction.
#LDMOD          DYNINST DYN75
```

```
MAINSIZE        0004        # 4 mb of storage real
NUMCPU          1
OSTAILOR        QUIET
PANRATE         FAST
PGMPRDOS        RESTRICTED
XPNDSIZE        0
#
# Next we define the devices attached to our system.
#
# +----------------------Device number
# |     +-----------------Device type
# |     |       +---------File name and parameters
# |     |       |
# V     V       V
#---    ----    --------------------
#
# Card Reader   the file "card.txt" in the IO directory will be read.
000C    3505    /usr/local/bin/DOS/io/card.txt ascii eof trunc
# this card reader to be used with HercRdr to submit jobs anywhere in Windows
002C    3505   3505 sockdev ascii eof trunc
#
# Card Punch    anything you punch will be written to "punch.txt" in the IO
#               directory.
000D    3525    /usr/local/bin/DOS/io/punch.txt ascii
#
# Printers      anything you print will be written to "print00E.lst
#               in the IO directory
000E    1403    /usr/local/bin/DOS/io/print00E.lst crlf
#
# this printer to be used with HercPrt
002E    1403    /usr/local/bin/DOS/io/print02E.lst crlf
#
# The Operator's Typewriter Console, accessed from the Hercules window.
# 001F    3215-C  NOPROMPT
#
# The Operator's DOC Console, accessed from the another window.
001F    3270
#
# BSC lines connect to other hosts (future plans)
#0070   2703 dial=no lhost=127.0.0.1 lport=10040 rhost=127.0.0.1 rport=10041
#0071   2703 dial=no lhost=127.0.0.1 lport=10041 rhost=127.0.0.1 rport=10040
#0072   2703 dial=no lhost=127.0.0.1 lport=10042 rhost=127.0.0.1 rport=10043
#0073   2703 dial=no lhost=127.0.0.1 lport=10043 rhost=127.0.0.1 rport=10042
#
# Display Terminals... these are defined as 3277s.
0080    3270
0081    3270
0082    3270
0083    3270
0084    3270
0085    3270
0086    3270
```

```
0087    3270
#
# Tape Drives
0280    3420    /usr/local/bin/DOS/tape/work281.aws       # work280.aws used as
re-usable work file for SYSPCH
0281    3420    /usr/local/bin/DOS/tape/work281.aws       # used as re-usable work
file
0282    3420    *
0283    3420    *
0284    3420    *
0285    3420    *
0286    3420    *
0287    3420    *
#
# These five packs are for the dos/vs r34 5 packs v1.0
# Shadow files are used to preserve the initial state of the 5 packs
#
#  location for DOS/VS 5 packs --> .\dasd\...
#
0360 3350 /usr/local/bin/DOS/dasd/DOSR34.3350.CCKD
0361 3350 /usr/local/bin/DOS/dasd/PWRR34.3350.CCKD
0362 3350 /usr/local/bin/DOS/dasd/WORK01.3350.CCKD
0363 3350 /usr/local/bin/DOS/dasd/VSAM01.3350.CCKD
0364 3350 /usr/local/bin/DOS/dasd/OPTLB1.3350.CCKD
0365 3350 /usr/local/bin/DOS/dasd/WORK03.3350.CCKD
#
# *** end of this file ***
```

DOS/VS aws tapes

5745-010	20504684	Install Package (S/A + Backup/Restore)	
5745-010-opt1	15435572	Optional Source Vol 1	See the PID document
5745-010-opt2	12730174	Optional Source Vol 2	for the contents of
5745-010-opt3	12344064	Optional Source Vol 3	each individual tape.
5745-010-opt4	10876402	Optional Source Vol 4	The PID document is
5745-010-opt5	11548298	Optional Source Vol 5	in the files area of
5745-010-opt6	16560896	Optional Source Vol 6	the H390-DOSVS site
5745-010-opt7	16701202	Optional Source Vol 7	.
5745-010-opt8	16598526	Optional Source Vol 8	.
5745-010-opt9	16583130	Optional Source Vol 9	.
5656-092-5000	355164	VS/OLTEP 1.1 Install Package (Backup/Restore)	
5656-092-7029	1344316	VS/OLTEP 1.1 Optional Source	
5747-BW1	221540	DOS/VS Batch Transfer Program (I think DOS-2-JES RJE facility) (SYSIN Format)	
5747-CC1-9029	251780	3800 Laser Printer Feature (requires SSS) (MSHP format)	
5747-CC1-7029	1679118	Optional Support Libraries? (POWER 3800 PRINTER SUPPORT?)	
5747-CC1-7063	1634676	Optional Support Libraries?	
5747-CC3	1540332	DOS/VS 1400 Emulator Program ICR (uses SVC support) (MSHP format)	
5747-CC3-opt	2683352	Optional Source	
5747-CC6	654530	Subsystem Support Services ICR (also called SSS) (MSHP format)	
5747-AG1-2001-T24406	189400	EP/VS for DOS/VS & VSE – 3704/3705 Emulator Support (SYSIN format) (This modifies the assembler to do assemblies for 37xx FEPs)	

5747-AG1-2001-T24407	3655100	Run Libraries (MSHP format)
5747-AG1-7429	31038	Optional Bisync control blocks (SYSIN format)
5731-AA1	3528912	DOS Type 1 Compilers & Utilities for DOS/VS (blocked SYSIN format)

****

DOS/VSE SCP Release
(non-chargeable)

Product Code	Bytes	Description...
5745-030	4492646	Install Package (MSHP format) (starter for VSE/Advanced Functions Licensed Program 5746-XE8, Version 1 Release 3) (or maybe V1R2?)

****

VSE EREP

Product Code	Bytes	Description...
5656-260	306874	EREP 3.3.1 (MSHP format)

****

Miscellaneous Software

Product Code	Bytes	Description...
5747-DS2	7345462	ICKDSF V1.R5.M0 (Most modules are 1.4.0 with a few 1.3.0 and some 1.5.0)

****