

OS/VS2 Development Series

Installing OS/VS2 from Distribution Tapes

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Introduction

About This Series

This series of documents describes the installation, configuration and use of an OS/VS2 Release 3.8 computing environment for software development, suitable for adapting to later generations of this operating system while retaining backward compatibility with older systems.

About This Document

This document describes the installation, configuration and operation of OS/VS2 Release 3.8 as installed from distribution tape images from the software vendor. These procedures assume that the OS/VS2 system is operating in an emulated System/370 environment. Refer to earlier documents in this series for instructions on installing and configuring such an environment.

Intended Readership

This document is intended for those interested in developing software for the mainframe using contemporary operating systems descended from OS/VS2 or legacy operation systems such as version 3.8. This document may also be of use to those interested in learning more about how OS/VS2 is installed, configured and maintained.

About the Author

David J. Walling has developed commercial software professionally for various operating platforms including mainframes, minis and microcomputers since 1986 and may be contacted by email at david.walling@yahoo.com.

OS/VS2

This section describes the installation and configuration of OS/VS2 Release 3.8.

Installing OS/VS2 from Distribution Tapes

This section describes a procedure to install OS/VS2 from distribution tape images. The steps below were adapted from more in-depth procedures provided by Jay Moseley at this site:

<http://www.jaymoseley.com/hercules/installmvs/instmvs1.htm>

This approach to installing OS/VS2 is highly detailed and time-consuming. However following the steps below provides an excellent opportunity to improve one's understanding of how OS/VS2 is constructed.

I've divided the instructions below into the five phases listed below. At the end of each phase, work completed successfully may be saved and restored so that if a problem occurs requiring installation to be restarted, you may restart from the last successfully completed phase.

Phase I	Preparing Tapes and DASD
Phase II	Unloading the Distribution Tapes
Phase III	Preparing for System Generation
Phase IV	System Generation
Phase V	Configuring OS/VS2 3.8

The System Generation Reference document provided by the manufacturer of the System/370 and OS/VS2 is document GC26-3792-8, "OS/VS2 System Programming Library: System Generation Reference" and can be found online at http://www.softlib.org .

Phase I - Preparing Tapes and DASD

The first phase of our installation will include downloading distribution materials from the Internet, setting up our installation environment, creating DASD files, etc.

Step 1 - Download the Tape Images and Installation Job Streams

The links below were used to obtain the installation files used while preparing this document. The first link downloads the OS/VS2 starter system. The second link downloads the OS/VS2 distribution. The third link downloads installation scripts. The fourth link downloads updates to the installation scripts to support 3380 and 3390 DASD.

<http://www.jaymoseley.com/hercules/download/zips/mvsstarter.tgz>
(6.23 MB) [MD5: AA0B033DF00F903CF9A557F9BFC03EED]

<http://www.jaymoseley.com/hercules/download/zips/mvsdist.tgz>
(15.5 MB) [MD5: C8D06A30CF6E8FE3BE1847AFAA5646C5]

<http://www.jaymoseley.com/hercules/download/zips/installmvs.tgz>
(429 KB) [MD5: 93DE12BB7DD5697F8470F18BE3223552]

<http://www.jaymoseley.com/hercules/download/zips/mod3390.tgz>

Although the file names in the links carry the ".tgz" extension, these links actually downloaded the following files, which are compressed archives.

```
mvsstarter.gz
mvsdist.gz
installmvs.gz
mod3390.gz
```

Step 2 - Unload the Compressed Archives

After the installation files are downloaded, we create an installation source directory and rename the downloaded files into it. We rename the files to ".tar.gz" to clarify that these are compressed archives.

```
# mkdir /var/adm/mvs
# mv mvsstarter.gz /var/adm/mvs/mvsstarter.tar.gz
# mv mvsdist.gz /var/adm/mvs/mvsdist.tar.gz
# mv installmvs.gz /var/adm/mvs/installmvs.tar.gz
# mv mod3390.gz /var/adm/mvs/mod3390.tar.gz
# cd /var/adm/mvs
```

We unzip each compressed file and then expand each archive.

```
# gunzip mvsstarter.tar.gz
# gunzip mvsdist.tar.gz
# gunzip installmvs.tar.gz
# gunzip mod3390.tar.gz

# tar -xvf mvsstarter.tar
# tar -xvf mvsdist.tar
# tar -xvf installmvs.tar
# tar -xvf mod3390.tar
```

The following directories and files are created. Note that expanding the mod3390.tar archive will overwrite sysgen01.jcl.

```
mvsstarter.tar

dasd/spool0.151
dasd/start1.150
dasd/work01.152

mvsdist.tar

tape/smp4.het
tape/zdlib1.het
```

installmvs.tar

```
condcode
docs/
ibcdasdi.00c
ibcdasdi.cnf
jcl/az58122.jcl
jcl/ickdsfg.jcl
jcl/sgnreset.jcl
jcl/smp4p44.jcl
jcl/smpjob00.jcl
jcl/smpjob01.jcl
jcl/smpjob02.jcl
jcl/smpjob03.jcl
jcl/smpjob04.jcl
jcl/smpjob05.jcl
jcl/smpjob06.jcl
jcl/sysgen00.jcl
jcl/sysgen01.jcl
jcl/sysgen02.jcl
jcl/sysgen03.jcl
jcl/sysgen04.jcl
jcl/sysgen05.jcl
jcl/sysgen06.jcl
jcl/sysgen07.jcl
jcl/sysgen08.jcl
jcl/writeipl.jcl
mvs.cnf
mvsdasd
smp.cnf
source/
sysgen.cnf
tape/ibcdasdi.het
tape/mvs38jptfs.het
```

mod3390.tar

```
jcl/m3390.jcl
jcl/r3390.jcl
jcl/sysgen01.jcl      (updated)
```

After extracting the installation directories and files, we compress the archive files and move the compressed archive files to an archive directory.

```
# gzip mvsstarter.tar
# gzip mvstdist.tar
# gzip installmvs.tar
# gzip mod3390.tar
# mkdir ../archive
# mv *.gz ../archive
```

The directories and files extracted from the archives may be created with owner, group and access attributes that need to be modified. We installed our system as the root user. Issue the following commands to correct the attributes, owner and group settings of the directories and files..

```
# chown root *
# chown root dasd/*
# chown root jcl/*
# chown root tape/*

# chgrp root *
# chgrp root dasd/*
# chgrp root jcl/*
# chgrp root tape/*
```

```

# chmod 755 condcode
# chmod 755 dasd
# chmod 755 docs
# chmod 755 jcl
# chmod 755 source
# chmod 755 tape

# chmod 644 jcl/*
# chmod 644 tape/*

```

The OS/VS2 installation directories and tape image files are now prepared for use, next we need to prepare the DASD image files.

Step 3 - Create Installation DASD Volumes

The CKD DASD files unloaded from the mvsstarter.tar archive are uncompressed and are each about 100MB in size. Since our development environment will grow to include a large number of DASD volumes, we will use compressed CKD DASD files. We use the ckd2cckd utility distributed with Hercules to convert these three starter system volumes. After compression, the total size of all three compressed CKD DASD files is less than 8MB.

```

# mv dasd dasd_ckd
# mkdir dasd
# ckd2cckd -bz2 dasd_ckd/spool0.151 dasd/spool0.151
HHCDA004I opening dasd_ckd/spool0.151 readonly
HHCDA020I dasd_ckd/spool0.151 cyls=414 heads=19 tracks=7866 trklen=13312
HHCDU044I Creating 3330 volume : 808 cyls, 19 trks/cyl, 13312 bytes/trck
HHCDU041I 808 cylinders successfully written to file dasd/spool0.151
HHCDA020I dasd/spool0.151 cyls=808 heads=19 tracks=15352 trklen=13312
HHCDC010I ckd2cckd successfully completed.
# ckd2cckd -bz2 dasd_ckd/start1.150 dasd/start1.150
HHCDA004I opening dasd_ckd/start1.150 readonly
HHCDA020I dasd_ckd/start1.150 cyls=414 heads=19 tracks=7866 trklen=13312
HHCDU044I Creating 3330 volume : 808 cyls, 19 trks/cyl, 13312 bytes/trck
HHCDU041I 808 cylinders successfully written to file dasd/start1.150
HHCDA020I dasd/start1.150 cyls=808 heads=19 tracks=15352 trklen=13312
HHCDC010I ckd2cckd successfully completed.
# ckd2cckd -bz2 dasd_ckd/work01.152 dasd/work01.152
HHCDA004I opening dasd_ckd/work01.152 readonly
HHCDA020I dasd_ckd/work01.152 cyls=414 heads=19 tracks=7866 trklen=13312
HHCDU044I Creating 3330 volume : 808 cyls, 19 trks/cyl, 13312 bytes/trck
HHCDU041I 808 cylinders successfully written to file dasd/work01.152
HHCDA020I dasd/work01.152 cyls=808 heads=19 tracks=15352 trklen=13312
HHCDC010I ckd2cckd successfully completed.

```

The installmvs.tar archive contains an executable script, mvsdasd, that creates DASD volumes for OS/VS2. This script uses the dasdinit utility provided with Hercules. We edit this file to add the "-bz2" parameter to the dasdinit calls so that compressed CKD DASD files are created. Five lines are changed.

```

# vi mvsdasd
:%s/dasdinit /dasdinit -bz2 /g
:x

```


After editing the mvdsasd script, we run the script to create five compressed CKD DASD files.

```
# ./mvdsasd
This script creates DASD volumes for MVS 3.8j.
Changed directory to: /var/adm/mvs/dasd
HHCDU044I Creating 3350 volume SMP001: 560 cyls, 30 trks/cyl, 19456 bytes/track
HHCDU041I 560 cylinders successfully written to file smp001.3350
HHCDI001I DASD initialization successfully completed.
HHCDU044I Creating 3350 volume MVSRES: 560 cyls, 30 trks/cyl, 19456 bytes/track
HHCDU041I 560 cylinders successfully written to file mvsres.3350
HHCDI001I DASD initialization successfully completed.
HHCDU044I Creating 3350 volume WORK02: 560 cyls, 30 trks/cyl, 19456 bytes/track
HHCDU041I 560 cylinders successfully written to file work02.3350
HHCDI001I DASD initialization successfully completed.
HHCDU044I Creating 3350 volume SPOOL1: 560 cyls, 30 trks/cyl, 19456 bytes/track
HHCDU041I 560 cylinders successfully written to file spool1.3350
HHCDI001I DASD initialization successfully completed.
HHCDU044I Creating 3350 volume PAGE00: 560 cyls, 30 trks/cyl, 19456 bytes/track
HHCDU041I 560 cylinders successfully written to file page00.3350
HHCDI001I DASD initialization successfully completed.
Script completed successfully!
```

We now have a total of eight compressed DASD files in /var/adm/mvs/dasd.

Step 4 - Initialize Installation DASD Volumes

The dasdinit utility, called by the mvdsasd script, creates the five compressed CKD DASD files, but does not prepare them for OS/VS2 installation. To do this, we must run the System/370 program IBCDASDI, under Hercules emulation, and submit to this program as input on the card reader at device 00C, the control deck stored in the file ibcdasdi.00c.

First, we start our emulated System/370 using the configuration file ibcdasdi.cnf. If you prefer, edit the ibcdasdi.cnf file first to set the correct TZOFFSET.

```
#
# Configuration file for Hercules ESA/390 emulator
#
# use for running stand alone disk initialization on target volumes
# (last modified for use with Hercules 3.05 on 18 Feb 2008)
#

ARCHMODE S/370
CPUSERIAL 000611
CPUMODEL 0148
MAINSIZE 8
XPNSIZE 0
CNSLPORT 3270
NUMCPU 1
LOADPARM .....
SYSEPOCH 1900
TZOFFSET -0600

# -----Device number
# | .-----Device type
# | | .-----File name
# | | |
# V V V
#---- ----
0009 1052
000C 1442 ibcdasdi.00c eof
0148 3350 dasd/smp001.3350
0149 3350 dasd/work02.3350
```

```

014A    3350    dasd/mvsres.3350
014B    3350    dasd/page00.3350
014C    3350    dasd/spool1.3350
0280    3420    tape/ibcdasdi.het

```

Note that device 00C is already defined to reference the ibcdasdi.00c job stream. So, we do not have to issue a devinit command at the Hercules console to start the job.

```

# hercules -f ibcdasdi.cnf
...
HHCCF065I Hercules: tid=B79118D0, pid=29679, ppid=29679, priority=0
HHCDA020I dasd/smp001.3350 cyls=560 heads=30 tracks=16800 trklen=19456
HHCDA020I dasd/work02.3350 cyls=560 heads=30 tracks=16800 trklen=19456
HHCDA020I dasd/mvsres.3350 cyls=560 heads=30 tracks=16800 trklen=19456
HHCDA020I dasd/page00.3350 cyls=560 heads=30 tracks=16800 trklen=19456
HHCDA020I dasd/spool1.3350 cyls=560 heads=30 tracks=16800 trklen=19456
HHCTA004I 0280: tape/ibcdasdi.het is a Hercules Emulated Tape file
HHCTE001I Console connection thread started: tid=B77DEB90, pid=29679
HHCTT002I Timer thread started: tid=B6DB8B90, pid=29679, priority=-20
HHCTE003I Waiting for console connection on port 3270
HHCCP002I CPU0000 thread started: tid=B6EB9B90, pid=29679, priority=15
HHCCP003I CPU0000 architecture mode S/370
HHCPN001I Control panel thread started: tid=B79118D0, pid=29679
HHCAO001I Hercules Automatic Operator thread started;
          tid=B6A26B90, pri=0, pid=29679

```

Second, we open a second window and open a telnet session to the System/370 on port 3270. Hercules will connect this session to the 1052 console device defined in ibcdasdi.cnf.

```

# telnet 0.0.0.0 3270
Trying 0.0.0.0...
Connected to 0.0.0.0.
Escape character is '^]'.
Hercules version 3.07 built on May 10 2010 11:09:42
running on D052775E.ptr.provps (Linux-2.6.18.8-NDCHost_1.#1 SMP Wed Aug 19
14:31:57 PDT 2009 i686 MP=8)
Connected to device 0:0009

```

With the telnet connection established, we can start the IBCDASDI program by issuing an Initial Program Load (IPL) command on device 280, which is the 3420 tape device pointing to the tape/ibcdasdi.het AWS file.

```

Command ==> ipl 280

```

Then, hitting the Enter key in the telnet window displays this prompt and we enter an input statement directing IBCDASDI to read our control cards from device 00C.

```

IBC105A DEFINE INPUT DEVICE. DASDI 7.80
HHCTE006A Enter input for console device 0009
input=1442,00c
          DASDI 7.80
SMP001 JOB 'INITIALIZE SMP001 3350 VOLUME'
MSG TODEV=1052,TOADDR=009
DADEF TODEV=3350,TOADDR=148,IPL=NO,VOLID=SMP001,BYPASS=YES
VLD NEWVOLID=SMP001,OWNERID=HERCULES
VTOCD STRTADR=1,EXTENT=15
END
IBC163A END OF JOB.
          DASDI 7.80
WORK02 JOB 'INITIALIZE WORK02 3350 VOLUME'
MSG TODEV=1052,TOADDR=009
DADEF TODEV=3350,TOADDR=149,IPL=NO,VOLID=WORK02,BYPASS=YES
VLD NEWVOLID=WORK02,OWNERID=HERCULES

```

```

        VTOCD STRTADR=1,EXTENT=15
        END
IBC163A  END OF JOB.
        DASDI 7.80
MVSRES JOB 'INITIALIZE MVSRES 3350 VOLUME'
MSG  TODDEV=1052,TOADDR=009
DADEF  TODDEV=3350,TOADDR=14A,IPL=NO,VOLID=MVSRES,BYPASS=YES
VLD  NEWVOLID=MVSRES,OWNERID=HERCULES
VTOCD STRTADR=1,EXTENT=15
        END
IBC163A  END OF JOB.
        DASDI 7.80
PAGE00 JOB 'INITIALIZE PAGE00 3350 VOLUME'
MSG  TODDEV=1052,TOADDR=009
DADEF  TODDEV=3350,TOADDR=14B,IPL=NO,VOLID=PAGE00,BYPASS=YES
VLD  NEWVOLID=PAGE00,OWNERID=HERCULES
VTOCD STRTADR=1,EXTENT=15
        END
IBC163A  END OF JOB.
        DASDI 7.80
SPOOL1 JOB 'INITIALIZE SPOOL1 3350 VOLUME'
MSG  TODDEV=1052,TOADDR=009
DADEF  TODDEV=3350,TOADDR=14C,IPL=NO,VOLID=SPOOL1,BYPASS=YES
VLD  NEWVOLID=SPOOL1,OWNERID=HERCULES
VTOCD STRTADR=1,EXTENT=15
        END
IBC163A  END OF JOB.

```

The telnet session does not terminate until we enter a quit comand at the Hercules prompt.

```
Command ==> quit
```

Step 5 - Clean Up

After completing the DASD initialization, we create a backup directory for our eight DASD image files and copy them to the backup directory.

```
# mkdir dasd_ibcdasdi
# cp dasd/* dasd_ibcdasdi
```

We have now completed Phase I, downloading our distribution tape image files and creating our compressed DASD image files to hold our OS/VS2 starter system. To preserve disk space, the contents of dasd_ibcdasdi may be archived and compressed.

```
# cd dasd_ibcdasdi
# tar -cvf dasd_ibcdasdi.tar *
# gzip dasd_ibcdasdi.tar
# rm -f *.3*
# rm -f *.1*
# cd ..
```

With our compressed DASD images safely backed-up, we can now free up more storage by deleting the original uncompressed DASD volumes from our downloaded archive.

```
# rm -f -R dasd_ckd
```

Finally, we can create subdirectores in which to backup binaries, Hercules configuration files and control decks which we have finished using.

```
# mkdir bin
# mv mvsdasd bin
```

```
# mkdir config
# mv ibcdasdi.cnf config

# mkdir control
# mv ibcdasdi.00c control
```

At the completion of Phase I, our working directory on Linux, /var/adm/mvs, appears like this:

```
drwxr-xr-x 11 root root 4096 May 28 01:40 .
drwxr-xr-x 6 root root 4096 May 28 09:25 ..
drwxr-xr-x 2 root root 4096 May 28 01:40 bin
-rwxr-xr-x 1 root root 2350 Feb 18 2008 condcode
drwxr-xr-x 2 root root 4096 May 28 01:36 config
drwxr-xr-x 2 root root 4096 May 28 01:37 control
drwxr-xr-x 2 root root 4096 May 28 01:11 dasd
drwxr-xr-x 2 root root 4096 May 28 01:29 dasd_ibcdasdi
drwxr-xr-x 2 root root 4096 Feb 23 2007 docs
drwxr-xr-x 2 root root 4096 Jul 2 2003 jcl
-rw-r--r-- 1 root root 1697 Feb 18 2008 mvs.cnf
-rw-r--r-- 1 root root 826 Feb 18 2008 smp.cnf
drwxr-xr-x 2 root root 4096 Jan 13 2008 source
-rw-r--r-- 1 root root 898 Feb 18 2008 sysgen.cnf
drwxr-xr-x 2 root root 4096 Feb 18 2008 tape
```

Phase II - Unloading the Distribution Tapes

Step 1 - Install SMP4 on the Starter System

We will use the System Modification Program Release 4 (SMP4) to build the distribution libraries on the newly created DASD volumes. Before we can do this, we need to install SMP4 on our starter system. We will start our System/S370 emulation using the smp.cnf configuration, which uses two of the newly created DASD volumes, smp001.3350 and work02.3350, along with the three original DASD volumes (now compressed). We will issue an initial program load on device 150, which references dasd/start1.150, which holds our starter OS/VS2 3.7 system.

When starting Hercules using the original smp.cnf file, an error is generated relating to the SYSEPOCH value 1928. Edit the smp.cnf file to change the SYSEPOCH value from "1928" to "1900". Also correct the TZOFFSET parameter. This Hercules configuration file, smp.cnf, writes job output to the file prt00e.txt and will create a card deck output to the file pch0131.txt.

Like we did in our prior step, we will enter commands in both the Hercules command window and in a telnet session, connected to our System/370 on port 3270. Commands shown below entered at the Hercules command prompt are prefixed with "[Hercules]". Commands shown below entered in the telnet session are prefixed with "[Telnet]".

The smp.cnf file is:

```
#
# Configuration file for Hercules ESA/390 emulator
#
# use for running SMP related jobs to build the distribution libraries
# (last modified for use with Hercules 3.05 on 18 Feb 2008)
#

ARCHMODE S/370
CPUSERIAL 000611
CPUMODEL 0148
```

```

MAINSIZE 16
XPNDSIZE 0
CNLSLPORT 3270
NUMCPU 1
LOADPARM .....
SYSEPOCH 1900
TZOFFSET -0600
PANRATE 250

# .-----Device number
# | .-----Device type
# | | .-----File name
# | | |
# V V V
#---
000E 1403 prt00e.txt
0012 3505
0013 3525 pch013.txt ascii
001F 3215
0148 3350 dasd/smp001.3350
0149 3350 dasd/work02.3350
0150 3330 dasd/start1.150
0151 3330 dasd/spool0.151
0152 3330 dasd/work01.152
0170 3420 *

```

[Hercules]

```

# hercules -f smp.cnf
HHCCF065I Hercules: tid=B799C8D0, pid=29708, pgid=29708, priority=0
HHCDA020I dasd/smp001.3350 cyls=560 heads=30 tracks=16800 trklen=19456
HHCDA020I dasd/work02.3350 cyls=560 heads=30 tracks=16800 trklen=19456
HHCDA020I dasd/start1.150 cyls=808 heads=19 tracks=15352 trklen=13312
HHCDA020I dasd/spool0.151 cyls=808 heads=19 tracks=15352 trklen=13312
HHCDA020I dasd/work01.152 cyls=808 heads=19 tracks=15352 trklen=13312
HHCTE001I Console connection thread started: tid=B785AB90, pid=29708
HHCTE003I Waiting for console connection on port 3270
HHCTT002I Timer thread started: tid=B663BB90, pid=29708, priority=-20
HHCCP002I CPU0000 thread started: tid=B673CB90, pid=29708, priority=15
HHCCP003I CPU0000 architecture mode S/370
HHCPN001I Control panel thread started: tid=B799C8D0, pid=29708
HHCAO001I Hercules Automatic Operator thread started;
          tid=B62A9B90, pri=0, pid=29708

```

[Telnet]

```

# telnet 0.0.0.0 3270
Trying 0.0.0.0...
Connected to 0.0.0.0.
Escape character is '^]'.
Hercules version 3.07 built on May 10 2010 11:09:42
running on D052775E.ptr.provps (Linux-2.6.18.8-NDCHost_1.#1 SMP Wed Aug 19
14:31:57 PDT 2009 i686 MP=8)
Connected to device 0:001F

```

[Hercules]

```

HHCTE009I Client 127.0.0.1 connected to 3215 device 0:001F
Command ==> ipl 150
HHCCP048I 0012:CCW=03000000 20000001=>040E0000 0001AB6E 00000000 00000000
.....>.....
HHCCP075I 0012:Stat=0E00 Count=0001
HHCCP076I 0012:Sense=40100000 00000000 00000000 00000000 00000000 00000000
HHCCP077I 0012:Sense=INTREQ MSG
HHCCP048I 0170:CCW=03000000 20000001=>040E0000 0001AB6E 00000000 00000000
.....>.....
HHCCP075I 0170:Stat=0200 Count=0001

```

```

HHCCP076I 0170:Sense=40220000 00C00300 00000000 00800100 010000FF FF000000
HHCCP077I 0170:Sense=INTREQ EOC WRI

```

[Telnet]

```

IEA101A SPECIFY SYSTEM PARAMETERS FOR RELEASE 03.70.VS2
HHCTE006A Enter input for console device 001F
r 0,clpa
  IEF165I // START JES2
  IEE351I SMF SYS1.MAN RECORDING NOT BEING USED
*00 $HASP426 SPECIFY OPTIONS - HASP-II, VERSION JES2 4.0
r 0,format,noreq
IEE600I REPLY TO 00 IS: SUPPRESSED
*01 $HASP436 REPLY Y OR N TO CONFIRM CHECKPOINT RECORD CHANGE
r 1,y
IEE600I REPLY TO 01 IS: SUPPRESSED
$HASP423 SPOOL0 IS BEING FORMATTED
IEE041I THE SYSTEM LOG IS NOW ACTIVE
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP160 PUNCH1 INACTIVE - CLASS=BK
$HASP100 INIT ON STCINRDR
$HASP373 INIT STARTED
$HASP100 INIT ON STCINRDR
$HASP373 INIT STARTED
$HASP100 INIT ON STCINRDR
$HASP373 INIT STARTED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP309 INIT 2 INACTIVE ***** C=BA
$HASP309 INIT 3 INACTIVE ***** C=CBA
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
m 148,vol=(sl, smp001),use=private
$HASP100 MOUNT ON STCINRDR
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
$HASP373 MOUNT STARTED
$HASP395 MOUNT ENDED
$HASP150 MOUNT ON PRINTER1
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 MOUNT IS PURGED

```

In the above step, we perform an IPL of OS/VS2 3.7, specifying a cold start and a format of the spool volume. We then mount smp001 on device 148 for private use. We can verify that the mount step succeeded by using the condcode utility provided for us in the installmvs.tar archive. In a separate window, labeled "[Linux]" below, we run the condcode utility, specifying the output file to search, prt00e.txt and a the MVS job name to search for. This utility will display result codes from specified job names.

[Linux]

```

# ./condcode prt00e.txt mount
Searching prt00e.txt for MVS Job Name mount

Step Name      Proc Step Name  Completion Code
-----
148            0000

```

We next initialize device 170 to address the AWS tape file tape/zdlib1.het, which is the OS/VS2 distribution. We then load our job card deck, smp4p44.jcl on the reader device to start our load job. When prompted, we reply that the distribution is on tape device 170.

[Hercules]

```
devinit 170 tape/zdlib1.het
HHCTA004I 0170: tape/zdlib1.het is a Hercules Emulated Tape file
HHCPN098I Device 0:0170 initialized
devinit 012 jcl/smp4p44.jcl eof
HHCPN098I Device 0:0012 initialized
```

[Telnet]

```
$HASP100 SMP4P44 ON READER1 SMP 4.44 from MVS38J
$HASP104 SMP4P44 *****
$HASP104 SMP4P44 * An IPL is required after this job has completed!!! *
$HASP104 SMP4P44 *****
$HASP373 SMP4P44 STARTED - INIT 1 - CLASS A - SYS H158
IEF244I SMP4P44 S1 - UNABLE TO ALLOCATE 1 UNIT(S)
          AT LEAST 1 OFFLINE UNIT(S) NEEDED.
IEF489I SMP4P44 - 1 UNIT(S) NEEDED FOR I1
IEF247I SMP4P44 - 182,183,184,170,171 OFFLINE
IEF247I SMP4P44 - 282,283,284,382,383,384,482,483,484,582 NOT ACCESSIBLE
IEF247I SMP4P44 - 583,584,682,683,684,270,271,370,371,470 NOT ACCESSIBLE
IEF247I SMP4P44 - 471,570,571,670,671 NOT ACCESSIBLE
*02 IEF238D SMP4P44 - REPLY DEVICE NAME OR 'CANCEL'.
r 02,170
IEE600I REPLY TO 02 IS:170
IEC502E K 170,MVS38J,SL,SMP4P44,S2
*IEC501A M 170,T74172,SL,6250 BPI,
IEC501A SMP4P44,S2
```

The next step of our job request the tape T74172, which contains SMP4. We load this tape in the Hercules window with devinit so the job can continue.

[Hercules]

```
devinit 170 tape/smp4.het
HHCTA004I 0170: tape/smp4.het is a Hercules Emulated Tape file
HHCPN098I Device 0:0170 initialized
```

[Telnet]

```
*IEC507D E 150,START1,SMP4P44,S2,
IEC507D SYS1.PROCLIB
*03 IEC507D REPLY 'U'-USE OR 'M'-UNLOAD
r 03,u
IEE600I REPLY TO 03 IS:U
IEF234E K 170,T74172,PVT,SMP4P44,S2
*IEC507D E 150,START1,SMP4P44,LK,
IEC507D SYS1.LINKLIB
*04 IEC507D REPLY 'U'-USE OR 'M'-UNLOAD
r 4,u
IEE600I REPLY TO 04 IS:U
IEF471E FOLLOWING RETAINED VOLUMES NO LONGER NEEDED BY SMP4P44
MVS38J.
$HASP395 SMP4P44 ENDED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP150 SMP4P44 ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
$HASP250 SMP4P44 IS PURGED
```

We use condcode to verify that all three steps of our job smp4p44 have completed.

[Linux]

```
# ./condcode prt00e.txt smp4p44
Searching prt00e.txt for MVS Job Name smp4p44

Step Name      Proc Step Name  Completion Code
-----
S1              0000
S2              0000
S3              LK             0000
```

With our SMP4 installation complete, we stop our system so that we can perform an IPL before continuing.

[Telnet]

```
$pjes2
$HASP395 INIT      ENDED
  $HASP395 INIT      ENDED
  $HASP395 INIT      ENDED
  IEE043I A SYSTEM LOG DATA SET HAS BEEN QUEUED TO SYSOUT CLASS A
  IEE037I LOG NOT ACTIVE
2000 20.27.05 CONSOLE   IEE142I 01F NOW RECEIVING HARDCOPY
4000 20.27.05          IEE043I A SYSTEM LOG DATA SET HAS BEEN QUEUED TO SYSOUT
CLASS A
4000 20.27.05          IEE037I LOG NOT ACTIVE
0000 20.27.05          IEF196I IEF142I JES2 JES2 - STEP WAS EXECUTED - COND CODE
0000
0000 20.27.05          IEF196I IEF285I          SYS1.PROCLIB
KEPT
0000 20.27.05          IEF196I IEF285I VOL SER NOS= START1.
0000 20.27.05          IEF196I IEF285I          SYS1.HASPCCKPT
KEPT
0000 20.27.05          IEF196I IEF285I VOL SER NOS= SPOOL0.
0000 20.27.05          IEF196I IEF285I          SYS1.HASPACE
KEPT
0000 20.27.05          IEF196I IEF285I VOL SER NOS= SPOOL0.
z eod
4000 20.27.46          IEE334I HALT          EOD SUCCESSFUL
quiesce
```

[Hercules]

```
quit
```

Step 2 - Backup DASD after SMP Installation

After completing the SMP4 installation, we create a backup directory for our eight DASD image files and copy them to the backup directory.

```
# mkdir dasd_smp4p44
# cp dasd/* dasd_smp4p44
# cd dasd_smp4p44
# tar -cvf dasd_smp4p44.tar *
# gzip dasd_smp4p44.tar
# rm -f *.3*
# rm -f *.1*
# cd ..
```


Step 3 - Use SMP4 to Build the Distribution Libraries

Start the System/370 using the SMP configuration file as in the above steps.

[Hercules]

```
# hercules -f smp.cnf
```

[Telnet]

```
# telnet 0.0.0.0. 3270
Trying 0.0.0.0...
Connected to 0.0.0.0..
Escape character is '^]'.
Hercules version 3.07 built on May 10 2010 11:09:42
running on D052775E.ptr.provps (Linux-2.6.18.8-NDCHost_1.#1 SMP Wed Aug 19
14:31:57 PDT 2009 i686 MP=8)
Connected to device 0:001F
```

[Hercules]

```
Command ==> ipl 150
```

[Telnet]

```
IEA101A SPECIFY SYSTEM PARAMETERS FOR RELEASE 03.70.VS2
HHCTE006A Enter input for console device 001F
(hit the Enter key)
IEF165I // START JES2
IEE351I SMF SYS1.MAN RECORDING NOT BEING USED
*00 $HASP426 SPECIFY OPTIONS - HASP-II, VERSION JES2 4.0
r 0,noreq
IEE600I REPLY TO 00 IS;SUPPRESSED
IEE041I THE SYSTEM LOG IS NOW ACTIVE
$HASP160 PUNCH1 INACTIVE - CLASS=BK
$HASP150 SYSLOG ON PRINTER1
$HASP150 INIT ON PRINTER1
$HASP250 SYSLOG IS PURGED
$HASP150 INIT ON PRINTER1
$HASP250 INIT IS PURGED
$HASP150 INIT ON PRINTER1
$HASP250 INIT IS PURGED
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 INIT IS PURGED
$HASP100 INIT ON STCINRDR
$HASP373 INIT STARTED
$HASP100 INIT ON STCINRDR
$HASP373 INIT STARTED
$HASP100 INIT ON STCINRDR
$HASP373 INIT STARTED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP309 INIT 2 INACTIVE ***** C=BA
$HASP309 INIT 3 INACTIVE ***** C=CBA
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
m 148,vol=(s1,smp001),use=private
$HASP100 MOUNT ON STCINRDR
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
$HASP373 MOUNT STARTED
$HASP395 MOUNT ENDED
$HASP150 MOUNT ON PRINTER1
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 MOUNT IS PURGED
```

[Linux]

```
# ./condcode prt00e.txt mount
Searching prt00e.txt for MVS Job Name mount

Step Name      Proc Step Name  Completion Code
-----
148                                0000
```

Step 4 - Clean-Up From Any Prior Attempt

[Hercules]

```
devinit 012 jcl/smpjob00.jcl eof
HHCPN098I Device 0:0012 initialized
```

[Telnet]

```
$HASP100 SMPJOB00 ON READER1
$HASP373 SMPJOB00 STARTED - INIT 1 - CLASS A - SYS H158
$HASP395 SMPJOB00 ENDED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP150 SMPJOB00 ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
$HASP250 SMPJOB00 IS PURGED
```

[Linux]

```
# ./condcode prt00e.txt smpjob00
Searching prt00e.txt for MVS Job Name smpjob00

Step Name      Proc Step Name  Completion Code
-----
IEHPROGM                                0008 <--
```

The return code of 0008 in the above IEHPROGM job is normal if no prior attempt to allocate the SMP databases and target distribution libraries failed.

Step 5 - Allocate SMP Datasets and Target Distribution Libraries

[Hercules]

```
Command ==> devinit 012 jcl/smpjob01.jcl eof
HHCPN098I Device 0:0012 initialized
```

[Telnet]

```
$HASP100 SMPJOB01 ON READER1
$HASP373 SMPJOB01 STARTED - INIT 1 - CLASS A - SYS H158
$HASP395 SMPJOB01 ENDED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP150 SMPJOB01 ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 SMPJOB01 IS PURGED
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
```

[Linux]

```
# ./condcode prt00e.txt smpjob01
Searching prt00e.txt for MVS Job Name smpjob01

Step Name      Proc Step Name  Completion Code
-----
DLBALLOC      DLBALLOC        0000
```

Step 6 - Initialize the SMP Environment

[Hercules]

```
Command ==> devinit 012 jcl/smpjob02.jcl eof
HHCPN098I Device 0:0012 initialized
```

[Telnet]

```
$HASP100 SMPJOB02 ON READER1
$HASP373 SMPJOB02 STARTED - INIT 1 - CLASS A - SYS H158
$HASP395 SMPJOB02 ENDED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP150 SMPJOB02 ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 SMPJOB02 IS PURGED
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
```

[Linux]

```
# ./condcode prt00e.txt smpjob02
Searching prt00e.txt for MVS Job Name smpjob02

Step Name      Proc Step Name  Completion Code
-----
DLBUCL         SMP              0008 <--
```

The result code of 0008 from the DLBUCL step is normal if there was no data found to delete.

Step 7 - Receive the OS/VS2 Program Product

[Hercules]

```
devinit 012 jcl/smpjob03.jcl eof
HHCPN098I Device 0:0012 initialized
```

[Telnet]

```
$HASP100 SMPJOB03 ON READER1
$HASP373 SMPJOB03 STARTED - INIT 1 - CLASS A - SYS H158
IEF244I SMPJOB03 SMP DLBUCL - UNABLE TO ALLOCATE 1 UNIT(S)
        AT LEAST 1 OFFLINE UNIT(S) NEEDED.
IEF489I SMPJOB03 - 1 UNIT(S) NEEDED FOR SMPPTFIN
IEF247I SMPJOB03 - 182,183,184,170,171 OFFLINE
IEF247I SMPJOB03 - 282,283,284,382,383,384,482,483,484,582 NOT ACCESSIBLE
IEF247I SMPJOB03 - 583,584,682,683,684,270,271,370,371,470 NOT ACCESSIBLE
IEF247I SMPJOB03 - 471,570,571,670,671 NOT ACCESSIBLE
*01 IEF238D SMPJOB03 - REPLY DEVICE NAME OR 'CANCEL'.
```

[Hercules]

```
devinit 170 tape/zdlib1.het
HHCTA004I 0170: tape/zdlib1.het is a Hercules Emulated Tape file
HHCPN098I Device 0:0170 initialized
```

[Telnet]

```
r 1,170
IEE600I REPLY TO 01 IS:170
(wait a few minutes)
IEF234E K 170,MVS38J,PVT,SMPJOB03
$HASP395 SMPJOB03 ENDED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP150 SMPJOB03 ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 SMPJOB03 IS PURGED
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
```

[Linux]

```
# ./condcode prt00e.txt smpjob03
Searching prt00e.txt for MVS Job Name smpjob03

Step Name      Proc Step Name  Completion Code
-----
DLBUCL        SMP              0000
```

Step 8 - Receive the OS/VS2 PTFs

[Hercules]

```
devinit 170 tape/mvs38jptfs.het
HHCTA004I 0170: tape/mvs38jptfs.het is a Hercules Emulated Tape file
HHCPN098I Device 0:0170 initialized
devinit 012 jcl/smpjob04.jcl eof
HHCPN098I Device 0:0012 initialized
```

[Telnet]

```
$HASP100 SMPJOB04 ON READER1
$HASP373 SMPJOB04 STARTED - INIT 1 - CLASS A - SYS H158
IEC501A SMPJOB04,SMP
IEF234E K 170,200801,PVT,SMPJOB04,SMP
$HASP395 SMPJOB04 ENDED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP150 SMPJOB04 ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 SMPJOB04 IS PURGED
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
```

[Linux]

```
# ./condcode prt00e.txt smpjob04
Searching prt00e.txt for MVS Job Name smpjob04

Step Name      Proc Step Name  Completion Code
-----
DLBUCL        SMP              0000
```

Step 9 - Accept the OS/VS2 Product Elements and PTFs

[Hercules]

```
devinit 012 jcl/smpjob05.jcl eof
HHCPN098I Device 0:0012 initialized
```

[Telnet]

```
$HASP100 SMPJOB05 ON READER1
$HASP373 SMPJOB05 STARTED - INIT 1 - CLASS A - SYS H158
(wait a few minutes)
$HASP395 SMPJOB05 ENDED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP150 SMPJOB05 ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
$HASP250 SMPJOB05 IS PURGED
```

[Linux]

```
# ./condcode prt00e.txt smpjob05
Searching prt00e.txt for MVS Job Name smpjob05
```

Step Name	Proc Step Name	Completion Code
DLBUCL	SMP	0004 <--

This job completes with a return code of 4 because some prerequisite or corequisite PTFs are missing. This is acceptable and unavoidable until the missing PTFs for OS/VS2 are found.

Step 10 - Clean Up Following SMP

[Hercules]

```
devinit 012 jcl/smpjob06.jcl eof
HHCPN098I Device 0:0012 initialized
```

[Telnet]

```
$HASP100 SMPJOB06 ON READER1
$HASP373 SMPJOB06 STARTED - INIT 1 - CLASS A - SYS H158
$HASP395 SMPJOB06 ENDED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP150 SMPJOB06 ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 SMPJOB06 IS PURGED
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
```

[Linux]

```
# ./condcode prt00e.txt smpjob06
Searching prt00e.txt for MVS Job Name smpjob06
```

Step Name	Proc Step Name	Completion Code
DLBUCL	SMP	0004 <--

This job should complete with a return code of 4 because we did not apply the modules that we accepted. Therefore our command to reject unapplied modules reports that none were applied.

Step 11 - Build ICKDSF Utility to Write IPL Records

[Hercules]

```
devinit 012 jcl/ickdsfg.jcl eof
HHCPN098I Device 0:0012 initialized
```

[Telnet]

```
$HASP100 ICKDSFG ON READER1
$HASP104 ICKDSFG *****
$HASP104 ICKDSFG * AN IPL IS REQUIRED AFTER THIS JOB HAS COMPLETED!!! *
$HASP104 ICKDSFG *****
$HASP373 ICKDSFG STARTED - INIT 1 - CLASS A - SYS H158
$HASP100 ICKDSFL ON INTRDR
$HASP373 ICKDSFL STARTED - INIT 2 - CLASS A - SYS H158
*IEC507D E 150,START1,ICKDSFG,
IEC507D IEBCOPY,SYS1.SVCLIB
*02 IEC507D REPLY 'U'-USE OR 'M'-UNLOAD
*IEC507D E 150,START1,ICKDSFL,LK,
IEC507D SYS1.LINKLIB
*03 IEC507D REPLY 'U'-USE OR 'M'-UNLOAD
r 02,u
IEE600I REPLY TO 02 IS;U
$HASP395 ICKDSFG ENDED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP150 ICKDSFG ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 ICKDSFG IS PURGED
r 03,u
IEE600I REPLY TO 03 IS;U
$HASP395 ICKDSFL ENDED
$HASP309 INIT 2 INACTIVE ***** C=BA
$HASP150 ICKDSFL ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
$HASP250 ICKDSFL IS PURGED
```

[Linux]

```
# ./condcode prt00e.txt ickdsfl
Searching prt00e.txt for MVS Job Name ickdsfl

Step Name      Proc Step Name  Completion Code
-----
LINK           LK              0000
```

Step 12 - Shut Down the Starter System

[Telnet]

```
$pjes2
$HASP395 INIT      ENDED
$HASP395 INIT      ENDED
$HASP395 INIT      ENDED
```

```

IEE043I A SYSTEM LOG DATA SET HAS BEEN QUEUED TO SYSOUT CLASS A
IEE037I LOG NOT ACTIVE
2000 21.32.34 CONSOLE IEE142I 01F NOW RECEIVING HARDCOPY
4000 21.32.34 IEE043I A SYSTEM LOG DATA SET HAS BEEN QUEUED TO SYSOUT
CLASS A
4000 21.32.34 IEE037I LOG NOT ACTIVE
0000 21.32.34 IEF196I IEF142I JES2 JES2 - STEP WAS EXECUTED - COND CODE
0000
0000 21.32.34 IEF196I IEF285I SYS1.PROCLIB
KEPT
0000 21.32.34 IEF196I IEF285I VOL SER NOS= START1.
0000 21.32.34 IEF196I IEF285I SYS1.HASPKPT
KEPT
0000 21.32.34 IEF196I IEF285I VOL SER NOS= SPOOL0.
0000 21.32.34 IEF196I IEF285I SYS1.HASPACE
KEPT
0000 21.32.34 IEF196I IEF285I VOL SER NOS= SPOOL0.
z eod
4000 21.33.24 IEE334I HALT EOD SUCCESSFUL
quiesce

```

[Hercules]

```
Command ==> quit
```

Step 13 - Backup DASD files

After completing all the steps to prepare for generating the system, we backup the DASD files in case we need to restart from this point.

```

# mkdir dasd_ickdsf1
# cp dasd/* dasd_ickdsf1
# cd dasd_ickdsf1
# tar -cvf dasd_ickdsf1.tar *
# gzip dasd_ickdsf1.tar
# rm -f *.3*
# rm -f *.1*
# cd ..

```

We are finished with our SMP configuration file for Hercules. We can move this now into the configuration archive.

```
# mv smp.cnf config
```

We have completed Phase II. All OS/VS2 components and PTFs have been accepted. In the next phase, we will customize the system generation JCL so that our generated 3.8 system has all the devices that we want. We will also use the ICKDSF utility loaded above to write IPL records onto our new MVSRES volume. Then we will prepare system catalogs and datasets to hold our generated 3.8 system control program. Lastly we will update system macros to recognize 3380 and 3390 DASD

Phase III - Preparing for System Generation

Step 1 - Backing Up Variable JCL Streams

During the system generation phase we will modify two of the JCL streams, sysgen01.jcl and sysgen08.jcl. We backup the original JCL streams in case we need to restore them to the original versions.

```
mkdir jcl_backup
cp jcl/sysgen01.jcl jcl_backup
cp jcl/sysgen08.jcl jcl_backup
```

Step 2 - Planning the Device Mapping

```
CHANNEL 0

000C          2540R  Reader
000D          2540P  Punch
000E          1403   Printer 1
000F          3211   Printer 2
0010          3277   Console
0011          3277   Alternate Console
0012          1403   Hardcopy output

00C0-00C7     3277

CHANNEL 1

0120-0127     2314
0130-0137     3330
0140-0147     3340
0150-0157     3350
0160-0167     3330
0180-0187     3380
0190-0197     3390
01C0-01C7     3277   tso2

CHANNEL 2

0220-0227     2314
0230-0237     3330
0240-0247     3340
0250-0257     3350
0260-0267     3330
0280-0287     3380
0290-0297     3390

CHANNEL 3

0310-0318     3420
```

Step 3 - Editing SYSGEN JCL Streams

Edit the sysgen01.jcl file to add two additional console devices (009 and 01F) and an additional 8 3277 devices. We will edit the Hercules configuration file to allow HTTP web access to the 3215 console unit at device address 009.


```

CON009  IODEVICE UNIT=3215,ADDRESS=009                00471000
*
RDR00C  IODEVICE UNIT=2540R,MODEL=1,ADDRESS=00C,FEATURE=CARDIMAGE 00472000
...
CON01F  IODEVICE UNIT=3215,ADDRESS=01F                00641000
*
LCL0C0  IODEVICE UNIT=3277,MODEL=2,ADDRESS=(0C0,8),    C00650000
        FEATURE=(EBKY3277,DOCHAR,KB78KEY,AUDALRM,NUMLOCK) 00660000
*
        00670000
LCL1C0  IODEVICE UNIT=3277,MODEL=2,ADDRESS=(1C0,8),    C00671000
        FEATURE=(EBKY3277,DOCHAR,KB78KEY,AUDALRM,NUMLOCK) 00672000
*
        00673000
...
ACONS   CONSOLE SECONS=011,ALTCONS=010,AREA=04,PFK=12,  C01390000
        ROUTCDE=ALL                                01400000
*
        01410000
        CONSOLE SECONS=009,ALTCONS=01F,ROUTCDE=ALL    01411000
        CONSOLE SECONS=01F,ALTCONS=009,ROUTCDE=ALL    01412000
*
        01413000
...

```

Edit SYSGEN08.JCL Job Stream

We change the maximum TSO users from 8 to 16 to accommodate all our 3270 display devices. We also change the IOBUF and PPBUF parameters settings to increase the buffer sizes in order to support higher resolution terminal models.

```

...
USERMAX=16,                /* MAXIMUM USERS                */ 00280000
RECONLIM=60,               /* MAXIMUM DISCONNECT MINUTES  */ 00290000
BUFRRSIZE=132,            /* VTIOC BUFFER SIZE           */ 00300000
HIBFREXT=13200,          /* MAX BUFFERS BEFORE SWAP OUT */ 00310000
LOBFREXT=6600,           /* MINIMUM BUFFERS BEFORE SWAP IN */ 00320000
MODE=NOBREAK,            /* KEYBOARD LOCK OPTION       */ 00330000
MODESW=NO,               /* MODESWITCH FROM TERMINAL OPTION */ 00340000
CHNLEN=4,                /* NO. OF RU'S PER CHAIN      */ 00350000
SCRSIZE=1920             /* MAXIMUM SCREEN SIZE        */ 00360000
...
CONFIG=00,                /*CONFIG LIST SUFFIX          */ +03020000
SSCPID=01,               /*THIS VTAMS ID IN NETWORK   */ +03030000
NETSOL=YES,             /*NETWORK SOLICITOR OPTION   */ +03040000
MAXSUBA=31,             /*MAXIMUM SUBAREAS IN NETWORK */ +03050000
NOPROMPT,              /*OPERATOR PROMPT OPTION    */ +03060000
SUPP=NOSUP,            /*MESSAGE SUPPRESSION OPTION  */ +03070000
COLD,                  /*RESTART OPTION - COLD/WARM */ +03080000
APBUF=(128,,064),       /*ACE STORAGE POOL          */ +03090000
CRPLBUF=(256,,44),      /*RPL COPY POOL             */ +03100000
IOBUF=(032,3976,16,F), /*FIXED IO                  */ +03110000
LFBUF=(016,,16,F),     /*LARGE FIXED BUFFER POOL   */ +03120000
LPBUF=(032,,32,F),     /*LARGE PAGEBLE BUFFER POOL */ +03130000
NPBUF=(032,,08,F),     /*NON WS FMCB              */ +03140000
PPBUF=(016,3976,08,F), /*PAGEBLE IO               */ +03150000
SFBUF=(032,,32,F),     /*SMALL FIXED BUFFER POOL   */ +03160000
SPBUF=(032,,32,F),     /*SMALL PGBL BUFFER POOL   */ +03170000
UECBUF=(32,,16,F),     /*USER EXIT CB              */ +03180000
WPBUF=(64,,64,F)       /*MESSAGE CONTROL BUFFER POOL */ 03190000
...
TSO0001  APPL AUTH=(PASS,NVPACE,TSO),BUFFACT=5          03280000
TSO0002  APPL AUTH=(PASS,NVPACE,TSO),BUFFACT=5          03290000
TSO0003  APPL AUTH=(PASS,NVPACE,TSO),BUFFACT=5          03300000
TSO0004  APPL AUTH=(PASS,NVPACE,TSO),BUFFACT=5          03310000
TSO0005  APPL AUTH=(PASS,NVPACE,TSO),BUFFACT=5          03320000
TSO0006  APPL AUTH=(PASS,NVPACE,TSO),BUFFACT=5          03330000
TSO0007  APPL AUTH=(PASS,NVPACE,TSO),BUFFACT=5          03340000
TSO0008  APPL AUTH=(PASS,NVPACE,TSO),BUFFACT=5          03350000
TSO0009  APPL AUTH=(PASS,NVPACE,TSO),BUFFACT=5          03350100
TSO0010  APPL AUTH=(PASS,NVPACE,TSO),BUFFACT=5          03350200

```

```

TSO0011  APPL AUTH=(PASS,NVPACE,TSO),BUFFACT=5          03350300
TSO0012  APPL AUTH=(PASS,NVPACE,TSO),BUFFACT=5          03350400
TSO0013  APPL AUTH=(PASS,NVPACE,TSO),BUFFACT=5          03350500
TSO0014  APPL AUTH=(PASS,NVPACE,TSO),BUFFACT=5          03350600
TSO0015  APPL AUTH=(PASS,NVPACE,TSO),BUFFACT=5          03350700
TSO0016  APPL AUTH=(PASS,NVPACE,TSO),BUFFACT=5          03350800
...
CUU0C0   LOCAL TERM=3277,CUADDR=0C0,ISTATUS=ACTIVE,    +03380000
          LOGTAB=BSPLIN01,LOGAPPL=NETSOL,              +03390000
          FEATUR2=(MODEL2,PFK)                          03400000
CUU0C1   LOCAL TERM=3277,CUADDR=0C1,ISTATUS=ACTIVE,    +03410000
          LOGTAB=BSPLIN01,LOGAPPL=NETSOL,              +03420000
          FEATUR2=(MODEL2,PFK)                          03430000
CUU0C2   LOCAL TERM=3277,CUADDR=0C2,ISTATUS=ACTIVE,    +03440000
          LOGTAB=BSPLIN01,LOGAPPL=NETSOL,              +03450000
          FEATUR2=(MODEL2,PFK)                          03460000
CUU0C3   LOCAL TERM=3277,CUADDR=0C3,ISTATUS=ACTIVE,    +03470000
          LOGTAB=BSPLIN01,LOGAPPL=NETSOL,              +03480000
          FEATUR2=(MODEL2,PFK)                          03490000
CUU0C4   LOCAL TERM=3277,CUADDR=0C4,ISTATUS=ACTIVE,    +03500000
          LOGTAB=BSPLIN01,LOGAPPL=NETSOL,              +03510000
          FEATUR2=(MODEL2,PFK)                          03520000
CUU0C5   LOCAL TERM=3277,CUADDR=0C5,ISTATUS=ACTIVE,    +03530000
          LOGTAB=BSPLIN01,LOGAPPL=NETSOL,              +03540000
          FEATUR2=(MODEL2,PFK)                          03550000
CUU0C6   LOCAL TERM=3277,CUADDR=0C6,ISTATUS=ACTIVE,    +03560000
          LOGTAB=BSPLIN01,LOGAPPL=NETSOL,              +03570000
          FEATUR2=(MODEL2,PFK)                          03580000
CUU0C7   LOCAL TERM=3277,CUADDR=0C7,ISTATUS=ACTIVE,    +03590000
          LOGTAB=BSPLIN01,LOGAPPL=NETSOL,              +03600000
          FEATUR2=(MODEL2,PFK)                          03610000
CUU1C0   LOCAL TERM=3277,CUADDR=1C0,ISTATUS=ACTIVE,    +03610100
          LOGTAB=BSPLIN01,LOGAPPL=NETSOL,              +03610200
          FEATUR2=(MODEL2,PFK)                          03610300
CUU1C1   LOCAL TERM=3277,CUADDR=1C1,ISTATUS=ACTIVE,    +03610400
          LOGTAB=BSPLIN01,LOGAPPL=NETSOL,              +03610500
          FEATUR2=(MODEL2,PFK)                          03610600
CUU1C2   LOCAL TERM=3277,CUADDR=1C2,ISTATUS=ACTIVE,    +03610700
          LOGTAB=BSPLIN01,LOGAPPL=NETSOL,              +03610800
          FEATUR2=(MODEL2,PFK)                          03610900
CUU1C3   LOCAL TERM=3277,CUADDR=1C3,ISTATUS=ACTIVE,    +03611000
          LOGTAB=BSPLIN01,LOGAPPL=NETSOL,              +03611100
          FEATUR2=(MODEL2,PFK)                          03611200
CUU1C4   LOCAL TERM=3277,CUADDR=1C4,ISTATUS=ACTIVE,    +03611300
          LOGTAB=BSPLIN01,LOGAPPL=NETSOL,              +03611400
          FEATUR2=(MODEL2,PFK)                          03611500
CUU1C5   LOCAL TERM=3277,CUADDR=1C5,ISTATUS=ACTIVE,    +03611600
          LOGTAB=BSPLIN01,LOGAPPL=NETSOL,              +03611700
          FEATUR2=(MODEL2,PFK)                          03611800
CUU1C6   LOCAL TERM=3277,CUADDR=1C6,ISTATUS=ACTIVE,    +03611900
          LOGTAB=BSPLIN01,LOGAPPL=NETSOL,              +03612000
          FEATUR2=(MODEL2,PFK)                          03612100
CUU1C7   LOCAL TERM=3277,CUADDR=1C7,ISTATUS=ACTIVE,    +03612200
          LOGTAB=BSPLIN01,LOGAPPL=NETSOL,              +03612300
          FEATUR2=(MODEL2,PFK)                          03612400
XX                                              03620000
...

```

Step 4 - Loading the Starter System

We use the sysgen.cnf configuration file during the System Generation phase. Edit the sysgen.cnf configuration file to change the SYSEPOCH to "1900". Adjust the TZOFFSET to your time zone offset.

The sysgen.cnf is

```

#
# Configuration file for Hercules ESA/390 emulator
#
# use for running System Generation jobs to build the target MVS 3.8j system
# (last modified for use with Hercules 3.05 on 18 Feb 2008)
#

ARCHMODE S/370
CPUSERIAL 000611
CPUMODEL 0148
MAINSIZE 64
XPNDSIZE 0
CNSLPORT 3270
NUMCPU 1
LOADPARM .....
SYSEPOCH 1900
TZOFFSET -0600
PANRATE 250

# .-----Device number
# | .-----Device type
# | | .-----File name
# | | |
# V V V
#--- ----
000E 1403 prt00e.txt
0012 3505
0013 3525 pch013.txt ascii
001F 3215
0148 3350 dasd/smp001.3350
0149 3350 dasd/work02.3350
014A 3350 dasd/mvsres.3350
014B 3350 dasd/page00.3350
0150 3330 dasd/start1.150
0151 3330 dasd/spool0.151
0152 3330 dasd/work01.152
0170 3420 *

```

[Hercules]

```
# hercules -f sysgen.cnf
```

[Telnet]

```

# telnet 0.0.0.0 3270
Trying 0.0.0.0...
Connected to 0.0.0.0..
Escape character is '^]'.
Hercules version 3.07 built on May 10 2010 11:09:42
running on D052775E.ptr.provps (Linux-2.6.18.8-NDCHost_1.#1 SMP Wed Aug 19
14:31:57 PDT 2009 i686 MP=8)
Connected to device 0:001F

```

[Hercules]

```
ipl 150
```

[Telnet]

```

IEA101A SPECIFY SYSTEM PARAMETERS FOR RELEASE 03.70.VS2
HHCTE006A Enter input for console device 001F
(hit enter)
IEF165I // START JES2
IEE351I SMF SYS1.MAN RECORDING NOT BEING USED
*00 $HASP426 SPECIFY OPTIONS - HASP-II, VERSION JES2 4.0
r 0,noreq

```

```

IEE600I REPLY TO 00 IS;SUPPRESSED
IEE041I THE SYSTEM LOG IS NOW ACTIVE
$HASP160 PUNCH1 INACTIVE - CLASS=BK
$HASP150 SYSLOG ON PRINTER1
$HASP100 INIT ON STCINRDR
$HASP150 INIT ON PRINTER1
$HASP250 SYSLOG IS PURGED
$HASP150 INIT ON PRINTER1
$HASP250 INIT IS PURGED
$HASP150 INIT ON PRINTER1
$HASP250 INIT IS PURGED
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 INIT IS PURGED
$HASP373 INIT STARTED
$HASP100 INIT ON STCINRDR
$HASP373 INIT STARTED
$HASP100 INIT ON STCINRDR
$HASP373 INIT STARTED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP309 INIT 2 INACTIVE ***** C=BA
$HASP309 INIT 3 INACTIVE ***** C=CBA
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
m 14a,vol=(s1,mvsres),use=private
$HASP100 MOUNT ON STCINRDR
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
$HASP373 MOUNT STARTED
$HASP395 MOUNT ENDED
$HASP150 MOUNT ON PRINTER1
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 MOUNT IS PURGED
m 14b,vol=(s1,page00),use=private
$HASP100 MOUNT ON STCINRDR
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
$HASP373 MOUNT STARTED
$HASP395 MOUNT ENDED
$HASP150 MOUNT ON PRINTER1
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 MOUNT IS PURGED

```

[Linux]

```

# ./condcode prt00e.txt mount
Searching prt00e.txt for MVS Job Name mount

Step Name      Proc Step Name  Completion Code
-----
14A             0000
14B             0000

```

Step 5 - Restarting the System Generation Process

The JCL stream sgnreset.jcl is provided in case the system generation process needs to be restarted. Only run this step if a prior system generation attempt has failed.

[Hercules]

```
devinit 012 jcl/sgnreset.jcl eof
```

[Telnet]

```

IEF142I SGNRESET IDCAMS1 - STEP WAS EXECUTED - COND CODE 0000
IEF142I SGNRESET IDCAMS2 - STEP WAS EXECUTED - COND CODE 0012

```

IEF142I SGNRESET IEHPROGM - STEP WAS EXECUTED - COND CODE 0000

[Linux]

```
# ./condcode prt00e.txt sgnreset
Searching prt00e.txt for MVS Job Name sgnreset

:Step Name      Proc Step Name  Completion Code
-----
IDCAMS1         0000
IDCAMS2         0012 <--
IEHPROGM        0000
```

Step 6 - Writing IPL Records onto MVSRES

[Hercules]

```
devinit 012 jcl/writeipl.jcl eof
HHCPN098I Device 0:0012 initialized
```

[Telnet]

```
$HASP100 WRITEIPL ON READER1
$HASP104 WRITEIPL *****
$HASP104 WRITEIPL * WRITING IPL TEXT ONTO MVSRES *
$HASP104 WRITEIPL *****
$HASP373 WRITEIPL STARTED - INIT 1 - CLASS A - SYS H158
$HASP395 WRITEIPL ENDED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP150 WRITEIPL ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 WRITEIPL IS PURGED
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
```

[Linux]

```
# ./condcode prt00e.txt writeipl
Searching prt00e.txt for MVS Job Name writeipl

Step Name      Proc Step Name  Completion Code
-----
WRITEIPL         0000
```

Step 7 - Preparing Catalogs and Datasets

[Hercules]

```
devinit 012 jcl/sysgen00.jcl eof
HHCPN098I Device 0:0012 initialized
```

[Telnet]

```
$HASP100 SYSGEN00 ON READER1
$HASP373 SYSGEN00 STARTED - INIT 1 - CLASS A - SYS H158
$HASP395 SYSGEN00 ENDED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP150 SYSGEN00 ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 SYSGEN00 IS PURGED
```

```
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
```

[Linux]

```
# ./condcode prt00e.txt sysgen00
Searching prt00e.txt for MVS Job Name sysgen00
```

Step Name	Proc Step Name	Completion Code
-----	-----	-----
DELETE		0000
DEFCAT		0000
ALLOC		0000
LINK1		0000
LINK2		0000
RECATLG		0000

Step 8 - Adding 3380 and 3390 Support

[Hercules]

```
devinit 012 jcl/m3390.jcl eof
HHCNP098I Device 0:0012 initialized
```

[Telnet]

```
$HASP100 M3390 ON READER1 APPLY 3390 MODS
$HASP373 M3390 STARTED - INIT 1 - CLASS A - SYS H158
$HASP395 M3390 ENDED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP150 M3390 ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 M3390 IS PURGED
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
```

[Linux]

```
# ./condcode prt00e.txt m3390
Searching prt00e.txt for MVS Job Name m3390
```

Step Name	Proc Step Name	Completion Code
-----	-----	-----
IEBCOPY1		0000
IEBCOPY2		0000
ASMBLR1		0000
LKED1		0004 <--
UPDTE1		0000
ASMBLR2		0000
ASMBLR3		0000
LKED2		0000
LKED3		0000
ZAP		0000
IEBCOPY3		0000

We have completed Phase III. We are now ready to proceed to create the OS/VS2 system control program using the configuration we have prepared. We proceed directly to the next phase.

Phase IV - System Generation

Review edits to sysgen01.jcl prior to running this step.

Step 1 - Assemble System Source

[Hercules]

```
devinit 012 jcl/sysgen01.jcl eof
HHCPN098I Device 0:0012 initialized
```

[Telnet]

```
$HASP100 SYSGEN01 ON READER1
$HASP373 SYSGEN01 STARTED - INIT 1 - CLASS A - SYS H158
$HASP395 SYSGEN01 ENDED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP150 SYSGEN01 ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 SYSGEN01 IS PURGED
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
```

[Linux]

```
# ./condcode prt00e.txt sysgen01
Searching prt00e.txt for MVS Job Name sysgen01

Step Name      Proc Step Name  Completion Code
-----
DELETE         0000
ASMBLR         0000
```

Step 2 - Output the Stage 2 JCL

[Hercules]

```
devinit 012 jcl/sysgen02.jcl eof
HHCPN098I Device 0:0012 initialized
```

[Telnet]

```
$HASP100 SYSGEN02 ON READER1
$HASP373 SYSGEN02 STARTED - INIT 1 - CLASS A - SYS H158
$HASP395 SYSGEN02 ENDED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP150 SYSGEN02 ON PUNCH1
$HASP150 SYSGEN02 ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP160 PUNCH1 INACTIVE - CLASS=BK
$HASP250 SYSGEN02 IS PURGED
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
```

[Linux]

```
# ./condcode prt00e.txt sysgen02
Searching prt00e.txt for MVS Job Name sysgen02
```

Step Name	Proc Step Name	Completion Code
PUNCH		0000

Step 3 - Edit the Stage 2 JCL

First, we copy the output of the above step to the JCL directory.

```
# cp pch013.txt jcl/stage2.jcl
# cd jcl
# vi stage2.jcl
```

Next we need to apply some fixup edits to the stage 2 JCL stream.

1. Remove first two lines and last line.
2. Add terminator "/" at the end of the job stream.
3. Replace Job 6 STEP Y from IDCAMS to IEFBR14.
4. Replace EXPDT=99350 with EXPDT=10001. There will be 21 substitutions.
5. Add "," at the end of the first five JOB cards
6. Add " TYPRUN=HOLD" as a new continuation card to the first five JOB cards
7. Add ",TIME=1439" as a new JOB card parameter to all six JOB cards
8. Add "/*JOBPARM LINES=100" to all six jobs.
9. Add "//JOB CAT DD DSN=SYS1.AMASTCAT,DISP=SHR" to all six jobs

Step 4 - Run the Stage2 JCL as Held Jobs

[Hercules]

```
devinit 012 jcl/stage2.jcl eof
HHCPN098I Device 0:0012 initialized
```

[Telnet]

```
$HASP100 SYSGEN1 ON READER1 SYSTEM GENERATION
$HASP100 SYSGEN2 ON READER1 SYSTEM GENERATION
$HASP100 SYSGEN3 ON READER1 SYSTEM GENERATION
$HASP100 SYSGEN4 ON READER1 SYSTEM GENERATION
$HASP100 SYSGEN5 ON READER1 SYSTEM GENERATION
$HASP100 SYSGEN6 ON READER1 SYSTEM GENERATION
$HASP101 SYSGEN1 HELD
$HASP101 SYSGEN2 HELD
$HASP101 SYSGEN3 HELD
$HASP101 SYSGEN4 HELD
$HASP101 SYSGEN5 HELD
$HASP101 SYSGEN6 HELD
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
```

Step 5 - Release the first Stage-2 JOB

[Telnet]

```
$a 'sysgen1'
$HASP000 SYSGEN1 RELEASED
$HASP373 SYSGEN1 STARTED - INIT 3 - CLASS C - SYS H158
$HASP395 SYSGEN1 ENDED
```



```

$HASP309 INIT 3 INACTIVE ***** C=CBA
$HASP150 SYSGEN1 ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 SYSGEN1 IS PURGED
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE

```

[Linux]

```

# ./condcode prt00e.txt sysgen1
Searching prt00e.txt for MVS Job Name sysgen1

Step Name      Proc Step Name  Completion Code
-----
LPA1           A               0000
SG2            A               0000
SG3            A               0000
SG4            A               0000
SG5            A               0000
SG6            A               0000
SG7            A               0000
SG8            A               0000
SG9            A               0000
SG10           A               0000
LPA11          A               0000
SG12           LK              0000
SG13           LK              0000
SG14           LK              0000
SG15           LK              0000
SG16           LK              0000
SG17           LK              0000
SG18           LK              0000
SG19           LK              0004 <--
SG20           LK              0000
SG21           LK              0000
SG22           LK              0000
SG23           LK              0000
SG24           LK              0000
SG25           LK              0000
SG26           LK              0000
SG27           LK              0000
SG28           LK              0004 <--
SG29           LK              0004 <--
SG30           LK              0000
SG31           LK              0004 <--
SG32           LK              0004 <--
SG33           LK              0000
SG34           LK              0000
SG35           LK              0000
SG36           LK              0000
SG37           LK              0004 <--
SG38           LK              0000
SG39           LK              0000
SG40           LK              0000

```

Step 6 - Release the Second Stage-2 Job

[Telnet]

```

$a 'sysgen2'
$HASP000 SYSGEN2 RELEASED
$HASP373 SYSGEN2 STARTED - INIT 3 - CLASS C - SYS H158
$HASP395 SYSGEN2 ENDED
$HASP309 INIT 3 INACTIVE ***** C=CBA
$HASP150 SYSGEN2 ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 SYSGEN2 IS PURGED

```

\$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE

[Linux]

```
# ./condcode prt00e.txt sysgen2
Searching prt00e.txt for MVS Job Name sysgen2
```

Step Name	Proc Step Name	Completion Code
LNK1		0000
SG2	A	0000
SG3	A	0000
SG4	A	0000
SG5	A	0000
LNK6		0000
SG7	LK	0000
SG8	LK	0004 <--
SG9	LK	0000
SG10	LK	0000
SG11	LK	0000
SG12	LK	0000
SG13	LK	0004 <--
SG14	LK	0000
SG15	LK	0000
SG16	LK	0000
SG17	LK	0000
SG18	LK	0000
SG19	LK	0000
SG20	LK	0000
SG21	LK	0000
SG22	LK	0000
SG23	LK	0000
SG24	LK	0000
SG25	LK	0000
SG26	LK	0000
SG27	LK	0000
SG28	LK	0000
SG29	LK	0000
SG30	LK	0000
SG31	LK	0000
SG32	LK	0000
SG33	LK	0004 <--
SG34	LK	0000
SG35	LK	0000
SG36	LK	0000
SG37	LK	0000
SG38	LK	0000
SG39	LK	0000
SG40	LK	0000
SG41	LK	0000
SG42	LK	0000
SG43	LK	0000
SG44	LK	0000
SG45	LK	0000

Step 7 - Release the third Stage-2 Job

[Telnet]

```
$a'sysgen3'
$HASP000 SYSGEN3 RELEASED
$HASP373 SYSGEN3 STARTED - INIT 3 - CLASS C - SYS H158
$HASP395 SYSGEN3 ENDED
$HASP309 INIT 3 INACTIVE ***** C=CBA
$HASP150 SYSGEN3 ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
```

```
$HASP250 SYSGEN3 IS PURGED
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
```

[Linux]

```
# ./condcode prt00e.txt sysgen3
Searching prt00e.txt for MVS Job Name sysgen3

Step Name      Proc Step Name  Completion Code
-----
SVC1           0000
SVC2           0000
SVC3           0000
```

Step 8 - Release the Fourth Stage-2 Job

[Telnet]

```
$a'sysgen4'
$HASP000 SYSGEN4  RELEASED
$HASP373 SYSGEN4  STARTED - INIT  3 - CLASS C - SYS H158
$HASP395 SYSGEN4  ENDED
$HASP309  INIT   3 INACTIVE ***** C=CBA
$HASP150 SYSGEN4  ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 SYSGEN4  IS PURGED
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
```

[Linux]

```
# ./condcode prt00e.txt sysgen4
Searching prt00e.txt for MVS Job Name sysgen4

Step Name      Proc Step Name  Completion Code
-----
NUC1           0000
SG2            A              0000
SG3            A              0000
SG4            A              0000
SG5            A              0000
SG6            A              0000
SG7            A              0000
SG8            A              0000
SG9            A              0000
SG10           A              0000
SG12           A              0000
NUC13          0000
NUC14          LK             0004 <--
SG15           LK             0000
SG16           LK             0000
SG17           LK             0000
SG18           LK             0000
```

Step 9 - Release the Fifth Stage-2 Job

[Telnet]

```
$a'sysgen5'
$HASP000 SYSGEN5  RELEASED
$HASP373 SYSGEN5  STARTED - INIT  3 - CLASS C - SYS H158
+IFC001I  D=3350 N=0B F=01190000 L=01190019 S=0119000002 DIP COMPLETE
```

```

$HASP395 SYSGEN5 ENDED
$HASP309 INIT 3 INACTIVE ***** C=CBA
$HASP150 SYSGEN5 ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 SYSGEN5 IS PURGED
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE

```

[Linux]

```

# ./condcode prt00e.txt sysgen5
Searching prt00e.txt for MVS Job Name sysgen5

```

Step Name	Proc Step Name	Completion Code
MISC1		0000
SG2		0000
SG3		0000
SG4	A	0000
SG5	A	0000
MISC6		0000
SG7	LK	0000
SG8	LK	0000
SG9	LK	0000
SG10	LK	0000
SG11	LK	0000
SG12	LK	0000
SG13	LK	0000
SG14	LK	0000
SG15	LK	0000
SG16	LK	0000
SG17	LK	0000
SG18		0000
SG19		0000
SG20		0000

Step 10 - Release the Sixth Stage-2 Job

[Telnet]

```

$a 'sysgen6'
$HASP000 SYSGEN6 RELEASED
$HASP373 SYSGEN6 STARTED - INIT 3 - CLASS C - SYS H158
$HASP395 SYSGEN6 ENDED
$HASP309 INIT 3 INACTIVE ***** C=CBA
$HASP150 SYSGEN6 ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 SYSGEN6 IS PURGED
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE

```

[Linux]

```

# ./condcode prt00e.txt sysgen6
Searching prt00e.txt for MVS Job Name sysgen6

```

Step Name	Proc Step Name	Completion Code
LIST1		0000
LIST2		0000
STEPY		0000
STEPZ1		0008 <--
STEPZ2		0000

Step 11 - Generating JES2

[Hercules]

```
devinit 012 jcl/sysgen03.jcl eof
HHCPN098I Device 0:0012 initialized
```

[Telnet]

```
$HASP100 SYSGEN03 ON READER1
$HASP373 SYSGEN03 STARTED - INIT 1 - CLASS A - SYS H158
$HASP395 SYSGEN03 ENDED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP150 SYSGEN03 ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 SYSGEN03 IS PURGED
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
```

[Linux]

```
# ./condcode prt00e.txt sysgen03
Searching prt00e.txt for MVS Job Name sysgen03
```

Step Name	Proc Step Name	Completion Code
-----	-----	-----
JES2		0000
SSSM		0000
JES2PARM		0000
JES2PRC		0000

Step 12 - Adding SPOOL1 Volume

[Hercules]

```
attach 14c 3350 dasd/spool1.3350
HHCDA020I dasd/spool1.3350 cyls=560 heads=30 tracks=16800 trklen=19456
```

[Telnet]

```
v 14c,online
IEE302I 14C ONLINE
m 14c,vol=(sl,spool1),use=private
$HASP100 MOUNT ON STCINRDR
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
$HASP373 MOUNT STARTED
$HASP395 MOUNT ENDED
$HASP150 MOUNT ON PRINTER1
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP250 MOUNT IS PURGED
```

[Linux]

```
# ./condcode prt00e.txt mount
Searching prt00e.txt for MVS Job Name mount
```

Step Name	Proc Step Name	Completion Code
-----	-----	-----
14A		0000
14B		0000

Step 13 - Applying Post-Generation Updates

[Hercules]

```
devinit 012 jcl/sysgen04.jcl eof
HHCPN098I Device 0:0012 initialized
```

[Telnet]

```
$HASP100 SYSGEN04 ON READER1
$HASP373 SYSGEN04 STARTED - INIT 1 - CLASS A - SYS H158
$HASP395 SYSGEN04 ENDED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP150 SYSGEN04 ON PRINTER1
$HASP160 PRINTER1 INACTIVE - CLASS=AJ
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
$HASP250 SYSGEN04 IS PURGED
```

[Linux]

```
# ./condcode prt00e.txt sysgen04
Searching prt00e.txt for MVS Job Name sysgen04
```

Step Name	Proc Step Name	Completion Code
UPDTE1		0000
UPDTE2		0000
UPDTE4		0000
UPDTE5		0000
PROGM6		0000
UPDTE7		0000
UPDTE8		0000
UPDTE9		0000
IDCAMS10		0000
IEFBR14		0000

Step 14 - Shutting Down OS/VS2 and Hercules

[Telnet]

```
$pjes2
$HASP395 INIT ENDED
$HASP395 INIT ENDED
$HASP395 INIT ENDED
IEE043I A SYSTEM LOG DATA SET HAS BEEN QUEUED TO SYSOUT CLASS A
IEE037I LOG NOT ACTIVE
2000 01.14.11 CONSOLE IEE142I 01F NOW RECEIVING HARDCOPY
4000 01.14.11 IEE043I A SYSTEM LOG DATA SET HAS BEEN QUEUED TO SYSOUT
CLASS A
4000 01.14.11 IEE037I LOG NOT ACTIVE
0000 01.14.11 IEF196I IEF142I JES2 JES2 - STEP WAS EXECUTED - COND CODE
0000
0000 01.14.11 IEF196I IEF285I SYS1.PROCLIB
KEPT
0000 01.14.11 IEF196I IEF285I VOL SER NOS= START1.
0000 01.14.11 IEF196I IEF285I SYS1.HASPCKPT
KEPT
0000 01.14.11 IEF196I IEF285I VOL SER NOS= SPOOL0.
```

```
0000 01.14.11          IEF196I  IEF285I          SYS1.HASPACE
KEPT
0000 01.14.11          IEF196I  IEF285I  VOL SER NOS= SPOOL0.
z eod
4000 01.14.37          IEE334I  HALT      EOD SUCCESSFUL
quiesce
```

[Hercules]

```
quit
```

Congratulations! Your OS/VS2 implementation is now at release level 3.8.

Step 15 - Backing Up DASD

Copy the DASD to a backup location in case we need to restart from this point

```
# mkdir dasd_sysgen04
# cp dasd/* dasd_sysgen04
# cd dasd_sysgen04
# tar -cvf dasd_sysgen04.tar *
# gzip dasd_sysgen04.tar
# rm -f *.3*
# rm -f *.1*
# cd ..
```

Backup the sysgen.cnf configuration file.

```
# mv sysgen.cnf config
```

We have retained the stage2.jcl file in our jcl directory. We can remove the output of the sysgen02.jcl job.

```
# rm pch013.txt
```

Phase V - Configuring OS/VS2 3.8

Step 1 - Starting OS/VS2 3.8

Edit the mvs.cnf configuration file

```
#
# Configuration file for Hercules ESA/390 emulator
#
# use for running the target MVS 3.8j system
# (last modified for use with Hercules 3.05 on 17 Feb 2008)
#

ARCHMODE S/370
OSTAILOR LINUX
PGMPRDOS LICENSED
CPUSERIAL 000611
CPUMODEL 3090
CPUVERID FD
LPARNAME HERCULES
MAINSIZE 64
XPNDSIZE 0
CNSLPORT 5050
NUMCPU 1
LOADPARM 0120....
SYSEPOCH 1900
TZOFFSET -0600
PANRATE 250
TODDRAG 1
HTTPROOT /usr/local/share/hercules
HTTPPORT 8080 AUTH user password
SHRDPRT 3090
MODPATH /usr/local/lib/hercules
CKKD COMP=2,COMPPARM=9

0009 3215-C /
# ----- reader
000C 3505
# ----- punch & printers
000D 3525 printout/pch00d.txt ascii
000E 1403 printout/prt00e.txt
000F 3211 printout/prt00f.txt
# ----- consoles
0010 3270 console
0011 3270 altconsole
0012 1403 printout/mvslog.txt
001F 3215-C %
# ----- 3330 on channel 1
0130 3330 dasd/work01.152
# ----- 3350 on Channel 1
0150 3350 dasd/mvsres.3350
0151 3350 dasd/smp001.3350
0152 3350 dasd/work02.3350
# ----- 3380 on Channel 1
# ----- 3330 on Channel 2
# ----- 3350 on Channel 2
0250 3350 dasd/page00.3350
0251 3350 dasd/spool1.3350
# ----- 3380 on Channel 2
# ----- 2314 on Channel 1
# ----- 3420 on channel 3
0310.2 3420 *
# ----- 3270's
00C0.8 3270
01C0.8 3270
```


Start Hercules

```
# hercules -f mvs.cnf
```

Start a 3270 Emulation session at GROUP=console

```
Hercules Version : 3.07
Host name       : D052775E.ptr.provps
Host OS        : Linux-2.6.18.8-NDCHost_1 #1 SMP Wed Aug 19 14:31:57 PDT 200
Host Architecture : i686
Processors     : MP=8
Chanl Subsys   : 0
Device number  : 0010
Subchannel     : 000C
```

```
HHH          HHH   The S/370, ESA/390 and z/Architecture
HHH          HHH                               Emulator
HHH          HHH
HHH          HHH   EEEE RRR   CCC U  U L   EEEE SSS
HHHHHHHHHHHHHHHHHHHH E   R  R C   U  U L   E   S
HHHHHHHHHHHHHHHHHHHH EEE RRR   C   U  U L   EEE  SS
HHHHHHHHHHHHHHHHHHHH E   R  R C   U  U L   E   S
HHH          HHH   EEEE R  R   CCC  UU  LLLL EEEE SSS
HHH          HHH
HHH          HHH
HHH          HHH   My PC thinks it's a MAINFRAME
```

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[Hercules]

```
ipl 150
```

[Console]

```
| IEA101A SPECIFY SYSTEM PARAMETERS FOR RELEASE 03.8 .VS2
r 0,clpa
IEF165I // START JES2
*00 IFB010D ENTER 'IPL REASON,SUBSYSTEM ID' OR 'U'
IEE354I SMF PARAMETERS
IEE354I SID=H155
IEE354I JWT=10
IEE354I BUF=2000
IEE354I MAN=ALL
IEE354I EXT=YES
IEE354I OPT=2
IEE354I OPI=YES
*01 IEE357A REPLY WITH SMF VALUES OR U
r 0,u
IEE600I REPLY TO 00 IS;U
IGF992I MIH INIT COMPLETE, PRI=000300, SEC=000015
r 1,u
IEE600I REPLY TO 01 IS;U
IEE360I SMF NOW RECORDING ON SYS1.MANX ON MVSRES TIME=06.30.04
IEF677I WARNING MESSAGE(S) FOR JOB JES2 ISSUED
*02 $HASP426 SPECIFY OPTIONS - HASP-II, VERSION JES2 4.1
r 2,format,noreq
IEE600I REPLY TO 02 IS;SUPPRESSED
*03 $HASP479 UNABLE TO OBTAIN CKPT DATA SET LOCK - IO ERROR
* REPLY Y OR N TO CONTINUE
```

```

r 3,y
IEE600I REPLY TO 03 IS;SUPPRESSED
*04 $HASP436 REPLY Y OR N TO CONFIRM CHECKPOINT RECORD CHANGE
r 4,y
IEE600I REPLY TO 04 IS;SUPPRESSED
$HASP493 JES2 COLD-START IS IN PROGRESS
$HASP423 SPOOL1 IS BEING FORMATED
IEE041I THE SYSTEM LOG IS NOW ACTIVE
$HASP160 PUNCH1 INACTIVE - CLASS=B
$HASP000 PRINTER2 00F ACTIVE F=STD.,OPER P=N R=LOCAL C=6 ,STD
$HASP000 T=PN ,STD S=Y LIM=0-* Q=A
$HASP160 PRINTER2 INACTIVE - CLASS=A
$HASP100 INIT ON STCINRDR
- $HASP373 INIT STARTED
$HASP100 INIT ON STCINRDR
- $HASP373 INIT STARTED
$HASP100 INIT ON STCINRDR
- $HASP373 INIT STARTED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP309 INIT 2 INACTIVE ***** C=BA
$HASP309 INIT 3 INACTIVE ***** C=CBA
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE

```

Step 2 - Cleaning Up the SMP Environment

[Hercules]

```

Command ==> devinit 00c jcl/sysgen05.jcl eof
HHCPN098I Device 0:000C initialized

```

[Console]

```

$HASP100 SYSGEN05 ON READER1 CREATE SMP4
- $HASP373 SYSGEN05 STARTED - INIT 1 - CLASS A - SYS H155
- $HASP395 SYSGEN05 ENDED
$HASP309 INIT 1 INACTIVE ***** C=A
00 $HASP150 SYSGEN05 ON PRINTER2 21,300 LINES
$HASP160 PRINTER2 INACTIVE - CLASS=A
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
$HASP250 SYSGEN05 IS PURGED

```

[Linux]

Note that the condcode utility is now searching a new file, prt00f.txt.

```

# ./condcode prt00f.txt sysgen05
Searching prt00f.txt for MVS Job Name sysgen05

Step Name      Proc Step Name  Completion Code
-----
DELETE                0000
ALLOC                0000
HMASMP               0000
HMASMP               0000
CLEANUP              0000
ADD                  0000

```

Step 3 - Installing IEFACTRT

[Hercules]

```
devinit 00c jcl/sysgen06.jcl eof
HHCPN098I Device 0:000C initialized
```

[Console]

```
$HASP100 SYSGEN06 ON READER1      INSTALL IEFACTRT
$HASP104 SYSGEN06 *****
$HASP104 SYSGEN06 *
$HASP104 SYSGEN06 * This Usermod becomes effective only *
$HASP104 SYSGEN06 * if you do an IPL with the CLPA option *
$HASP104 SYSGEN06 *
$HASP104 SYSGEN06 *****
- $HASP373 SYSGEN06 STARTED - INIT 1 - CLASS A - SYS H155
00- $HASP395 SYSGEN06 ENDED
   $HASP309 INIT 1 INACTIVE ***** C=A
   $HASP150 SYSGEN06 ON PRINTER2      4,925 LINES
   $HASP160 PRINTER2 INACTIVE - CLASS=A
   $HASP250 SYSGEN06 IS PURGED
   $HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
```

[Linux]

```
# ./condcode prt00f.txt sysgen06
Searching prt00f.txt for MVS Job Name sysgen06
```

Step Name	Proc Step Name	Completion Code
-----	-----	-----
CLEANUP		0000
ADD		0000
ASM	ASM	0000
RECAPP	HMASMP	0012 <--

The RECAPP step is expected to end with a return code of 12 because it attempts to delete a prior version of the modification before applying it.

Step 4 - Installing SMF Mods

[Hercules]

```
devinit 00c jcl/sysgen07.jcl eof
HHCPN098I Device 0:000C initialized
```

[Console]

```
$HASP100 SYSGEN07 ON READER1      INSTALL SMF MODS
$HASP104 SYSGEN07 *****
$HASP104 SYSGEN07 *
$HASP104 SYSGEN07 * THIS USERMOD BECOMES EFFECTIVE ONLY *
$HASP104 SYSGEN07 * IF YOU DO AN IPL WITH THE CLPA OPTION *
$HASP104 SYSGEN07 *
$HASP104 SYSGEN07 *****
- $HASP373 SYSGEN07 STARTED - INIT 1 - CLASS A - SYS H155
00- $HASP395 SYSGEN07 ENDED
   $HASP309 INIT 1 INACTIVE ***** C=A
   $HASP150 SYSGEN07 ON PRINTER2      1,199 LINES
```

```

$HASP160 PRINTER2 INACTIVE - CLASS=A
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
$HASP250 SYSGEN07 IS PURGED

```

[Linux]

```

# ./condcode prt00f.txt sysgen07
Searching prt00f.txt for MVS Job Name sysgen07

```

Step Name	Proc Step Name	Completion Code
-----	-----	-----
IDCAMS		0000
IEBUPDTE		0000
IEBUPDTE		0000
CLEANUP		0000
ADD		0000
ASM	ASM	0000
RECAPP	HMASMP	0012 <--

The RECAPP step is expected to end with a return code of 12 because it attempts to delete a prior version of the modification before applying it.

Step 5 - Assembling VTAM

[Hercules]

```

devinit 00c jcl/sysgen08.jcl eof
HHCNP098I Device 0:000C initialized

```

[Console]

```

00 $HASP100 SYSGEN08 ON READER1      INSTALL VTAM/TSO
- $HASP373 SYSGEN08 STARTED - INIT 1 - CLASS A - SYS H155
$HASP100 SYSGEN08 ON INTRDR        ASSEMBLE VTAM
$HASP301 SYSGEN08 - DUPLICATE JOB NAME - JOB DELAYED
- $HASP395 SYSGEN08 ENDED
$HASP150 SYSGEN08 ON PRINTER2      520 LINES
$HASP160 PRINTER2 INACTIVE - CLASS=A
$HASP250 SYSGEN08 IS PURGED
IEF677I WARNING MESSAGE(S) FOR JOB SYSGEN08 ISSUED
- $HASP373 SYSGEN08 STARTED - INIT 1 - CLASS A - SYS H155
- $HASP395 SYSGEN08 ENDED
$HASP309      INIT 1 INACTIVE ***** C=A
$HASP150 SYSGEN08 ON PRINTER2      224 LINES
$HASP160 PRINTER2 INACTIVE - CLASS=A
$HASP250 SYSGEN08 IS PURGED
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE

```

[Linux]

```

# ./condcode prt00f.txt sysgen08
Searching prt00f.txt for MVS Job Name sysgen08

```

Step Name	Proc Step Name	Completion Code
-----	-----	-----
CLEANUP		0008 <--
TSOKEY		0000
VTAMSRC		0000
PROCLIB		0000
VTAMLST		0000
IEBGENER		0000
BSPLIN01	ASM	0000

```

BSPLIN01      LKED          0000
BSPLMT01      ASM           0000
BSPLMT01      LKED          0000

```

Step 6 - Starting VTAM and TSO

Setup the console display window size.

[Console]

```

k a,none
k a,10
d a,1
IEE102I 09.20.45 10.148 ACTIVITY      FRAME LAST          F          E          1A
      00001 JOBS      00003 INITIATORS
      JES2      JES2      IEFPROC      V=V
      00000 TIME SHARING USERS
k e,d

```

Start VTAM

```
s net
```

Start TSO

```

s tso
  $HASP100 TSO      ON STCINRDR
- $HASP373 TSO      STARTED
- IKT007I TCAS ACCEPTING LOGONS
- IKT005I TCAS IS INITIALIZED
d a,1
IEE102I 09.23.05 10.148 ACTIVITY      FRAME LAST          F          E          1A
      00003 JOBS      00003 INITIATORS
      JES2      JES2      IEFPROC      V=V
      NET      NET      IEFPROC      V=V
      TSO      TSO      STEP1      V=V
      00000 TIME SHARING USERS
      00000 ACTIVE  00016 MAX VTAM TSO USERS

```

Test connecting 3270 sessions.

16 sessions should connect.

test accessing tso from each session.

determine where logons cease to work. insufficient buffers?

Step 7 - Stopping TSO and VTAM

[Console]

```

p tso
- p tso
| 06 IKT012D TCAS TERMINATION IN PROGRESS - SPECIFY 'U' OR 'DUMP'
r 6,u
- r 6,u
  IEE600I REPLY TO 06 IS;U

```

```

- IKT006I TCAS ENDED
- $HASP395 TSO ENDED
$HASP150 TSO ON PRINTER2 39 LINES
$HASP160 PRINTER2 INACTIVE - CLASS=A
$HASP250 TSO IS PURGED
z net,quick
- z net,quick
IST097I HALT ACCEPTED
IST133I VTAM TERMINATION IN PROGRESS
IST109I NETWORK SOLICITOR IS NOW TERMINATED
IST141I NODE LCLMAJ00 NOW DORMANT
IST105I LCLMAJ00 NODE NOW INACTIVE
IST105I APPLTSO NODE NOW INACTIVE
IST412I VTAM COMMAND PROCESSING TERMINATED
IST102I VTAM IS NOW INACTIVE
- $HASP395 NET ENDED
$HASP150 NET ON PRINTER2 43 LINES
$HASP160 PRINTER2 INACTIVE - CLASS=A
$HASP099 ALL AVAILABLE FUNCTIONS COMPLETE
$HASP250 NET IS PURGED
$spunch1
- $spunch1
$HASP000 OK
$sprinter2
- $sprinter2
$HASP000 OK
$sreader1
- $sreader1
$HASP000 OK
- $pjes2
- $HASP395 INIT ENDED
- $HASP395 INIT ENDED
- $HASP395 INIT ENDED
IEE043I A SYSTEM LOG DATA SET HAS BEEN QUEUED TO SYSOUT CLASS A
IEE037I LOG NOT ACTIVE
- $HASP085 JES2 TERMINATION COMPLETE
z eod
00- z eod
*IEE362A SMF ENTER DUMP FOR SYS1.MANX ON MVSRES
IEE360I SMF NOW RECORDING ON SYS1.MANY ON MVSRES TIME=09.39.21
IEE334I HALT EOD SUCCESSFUL
quiesce

```

[Hercules]

```
quit
```

Step 8 - Backup DASD

We archive our DASD to dasd_sysgen08. We can restore the state of the system from this point by copying these archived DASD image files.

```

# mkdir dasd_sysgen08
# cp dasd/* dasd_sysgen08
# cd dasd_sysgen08
# tar -cvf dasd_sysgen08.tar *
# gzip dasd_sysgen08.tar
# rm -f *.3*
# rm -f *.1*
# cd ..

```

We create a new subdirectory to hold our system output files, copy the current output files into that directory and also move the condcode utility into that directory.

```
# mkdir printout
# mv *.txt printout
# mv condcode printout
```

Edit the mvs.cnf configuration file to point the print output to the printout directory.

Move the mvs.cnf file to the config directory.

```
# mv mvs.cnf config
```

The OS/VS2 Release 3.8 installation is now complete.

Extending the OS/VS2 Environment

This section describes various activities following installation useful in further configuring the OS/VS2 environment for development use.

Adding Additional DASD Devices

Planning New DASD Devices

Additional DASD devices may be added to the system. First plan the devices to be added by identifying the unit address, physical file name, device type and use, such as in the following example table.

0120	pub000.2314	2314	
0252	pub001.3350	3350	RPF VSAM Files; SYS1.UCAT.TSO
0180	daa180.3380	3380	Private Work
0280	daa280.3380	3380	Private Work Backup

Create DASDLOAD control files

Next, prepare control files for each new DASD device to be created. These control files will serve as input to the dasdload utility.

```
# vi control/pub000.ct1
pub000 2314 *
sysvtoc vtoc trk 5

# vi control/pub001.ct1
pub001 3350 *
sysvtoc vtoc trk5

# vi control/daa180.ct1
daa180 3380 *
sysvtoc vtoc trk5

# vi control/daa280.ct1
daa280 3380 *
sysvtoc vtoc trk5
```

Use DASDLOAD to create and initialize the DASD image files

Next, issue the dasdload command with appropriate parameters. In the examples below, we are creating compressed DASD (-bz2). The control files are located in the 'control' directory and the created DASD files are stored in the 'dasd' directory.

```
dasdload -bz2 control/pub000.ct1 dasd/pub000.2314
dasdload -bz2 control/pub001.ct1 dasd/pub001.3350
dasdload -bz2 control/daa180.ct1 dasd/daa180.3380
dasdload -bz2 control/daa280.ct1 dasd/daa280.3380
```

Editing the Hercules Configuration File

Next, add a new line in the mvs.conf file to relate the new disk file to a device number.

```
# vi config/mvs.cnf
...
# ----- 2314 on Channel 1
0120    2314    dasd/pub000.2314
...
# ----- 3380 on Channel 1
0180    3380    dasd/daa180.3380
...
# ----- 3350 on Channel 2
0250    3350    dasd/page00.3350
0251    3350    dasd/spool1.3350
0252    3350    dasd/pub001.3350
# ----- 3380 on Channel 2
0280    3380    dasd/daa280.3380
...
```

Editing OS/VS2 Configuration for the new DASD Devices

Next, restart OS/VS2. At the Hercules emulator prompt, issue 'attach' commands to attach the physical files to the emulator.

[Hercules]

```
# hercules -f config/mvs.cnf

attach 120 2314 dasd/pub000.2314
attach 180 3380 dasd/daa180.3380
attach 252 3350 dasd/pub001.3350
attach 280 3380 dasd/daa280.3380
```

At the OS/VS2 console, vary the devices online and mount the new DASD volumes.

[Console]

```
v 120,online
m 120,vol=(s1,pub000),use=private
v 180,online
m 180,vol=(s1,daa180),use=private
v 252,online
m 252,vol=(s1,pub001),use=private
v 280,online
m 280,vol=(s1,daa280),use=private
```


Maintaining User Accounts

This section describes adding and deleting TSO users, and user catalogs.

Adding Users

The IBMUSER, as initially configured, does not have sufficient region size to run RPF. To create a new user with sufficient region size, log on to TSO as IBMUSER and issue the following commands as shown in bold face. The system responses are included in normal type face. In this example, the user account being added is dwall01.

```
alloc f(sysuads) da('sys1.uads') shr
READY
alloc f(syslbc) da('sys1.broadcast') shr
READY
account
ACCOUNT
sync
BROADCAST DATA SET INITIALIZED AND SYNCHRONIZED
add (dwall01 * * ikjacnt) oper acct jcl mount unit(3350) size(4096)
ADDED
list (dwall01)
  DWALL01  USER ATTRIBUTES:   OPER   ACCT   JCL   MOUNT
           INSTALLATION ATTRIBUTES, IN HEX: 0000
           MAXSIZE: NOLIM
           USER PROFILE TABLE:
           00000000000000000000000000000000 DWALL01
           DESTINATION = CENTRAL SITE DEFAULT
           NO PERFORMANCE GROUPS
           (*)
           (*)
           IKJACCNT  PROCSIZE= 4096K, UNIT NAME= 3350
LISTED
end
READY
```

Deleting Users

To delete a TSO user, issue the following commands at the TSO prompt. In this example, the user account being deleted is dwall01.

```
account
ACCOUNT
sync
B...
delete (dwall01)
DELETED
end
READY
```

Creating a User Catalog for VSAM

It is recommended that VSAM catalogs for users not be placed on the master catalog. Follow the steps below to create a user catalog for VSAM. Logon as a user with sufficient space as shown above.

```

define usercatalog ( name ('sys1.ucat.tso') volume (pub001) tracks (8324 0) for (999
)) data (tracks(15 5)) index(tracks(15))
CATALOG ALLOCATION STATUS FOR VOLUME PUB001 IS 0
READY

listcat ent('sys1.ucat.tso')
USERCATALOG --- SYS1.UCAT.TSO
      IN-CAT --- SYS1.AMASTCAT
      READY

listds 'sys1.ucat.tso'
SYS1.UCAT.TSO
--LRECL--DSORG-
  **
--VOLUMES-BLKSIZE
  PUB001  1
      READY

define alias (name('pub001') relate('SYS1.UCAT.TSO'))

```

Deleting a Catalog

To delete a user catalog, issue a command similar to the following.

```
delete sys1.ucat.tso usercatalog force purge
```

Installing RPF

The RPF program for OS/VS2 is a menu-driven command interface to TSO written by Rob Pringle. As of this writing, installation materials for this program were available at

<http://members.quicknet.nl/rn.prins/rpf153.zip>

Download the JCL

<http://members.quicknet.nl/rn.prins/RPFJCL.txt>

Copy and paste this JOB into the rpf153.jcl file in the jcl directory.
 Edit the JOB card to set the CLASS and MSGCLASS to A.
 Change PUB000 to PUB001

Run the rpf153.jcl Job Stream

[Hercules]

```
devinit 310 tape/rpf153.aws
devinit 00c jcl/rpf153.jcl eof
```

[Console]

```
00 $HASP100 RPF153$1 ON READER1      Install RPF
- $HASP373 RPF153$1 STARTED - INIT 1 - CLASS A - SYS H155
- CCI001C CLEANUP /IDCAMS /00:00:00.41/ /00000/TSO /RPF153$1
- IEF244I RPF153$1 ALLOC - UNABLE TO ALLOCATE 1 UNIT(S)
- AT LEAST 1 OFFLINE UNIT(S) NEEDED.
- IEF489I RPF153$1 - 1 UNIT(S) NEEDED FOR ASMIN
- IEF247I RPF153$1 - 310,311,312,313,314,315,316,317 OFFLINE
*03 IEF238D RPF153$1 - REPLY DEVICE NAME OR 'CANCEL'.
- r 3,310
IEE600I REPLY TO 03 IS:310
IEF234E K 310,RPF153,PVT,RPF153$1,ALLOC
- CCI001C ALLOC /IEBCOPY /00:00:00.30/ /00000/TSO /RPF153$1
- CCI001C GENER /IEBUPDTE/00:00:00.01/ /00000/TSO /RPF153$1
- CCI001C ALLOC /IEBCOPY /00:00:00.19/ /00000/TSO /RPF153$1
00- CCI001C HELP /IEBCOPY /00:00:00.02/ /00000/TSO /RPF153$1
- $HASP395 RPF153$1 ENDED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP150 RPF153$1 ON PRINTER2 807 LINES
$HASP160 PRINTER2 INACTIVE - CLASS=A
$HASP250 RPF153$1 IS PURGED
```

Authorizing RPF

Lastly, to authorize RPF, modify the IKJEFTE2 table using the JCL available at

<http://www.jaymoseley.com/hercules/download/jcl/zum0001.jcl>

[Hercules]

```
devinit 00c jcl/zum0001.jcl eof
```

[Console]

```
*$HASP191 MOUNT PRINTER1 HALTED/POSSIBLE DATA LOST
$HASP104 ZUM0001 *****
$HASP104 ZUM0001 *
$HASP104 ZUM0001 * This Usermod becomes effective only *
$HASP104 ZUM0001 * if you do an IPL with the CLPA option *
$HASP104 ZUM0001 *
$HASP104 ZUM0001 *****
IEF677I WARNING MESSAGE(S) FOR JOB ZUM0001 ISSUED
- $HASP373 ZUM0001 STARTED - INIT 1 - CLASS A - SYS H155
- CCI001C CLEANUP /IDCAMS /00:00:00.03/ /00000/SMP /ZUM0001
- CCI001C ADD /IEBUPDTE/00:00:00.01/ /00000/SMP /ZUM0001
- CCI001C ASM /IFOX00 /00:00:00.07/ /00000/SMP /ZUM0001
- CCI001C LINK /IEWL /00:00:00.02/ /00000/SMP /ZUM0001
00- CCI001C HMASMP /HMASMP /00:00:00.00/ /00012/SMP /ZUM0001
- $HASP395 ZUM0001 ENDED
$HASP309 INIT 1 INACTIVE ***** C=A
$HASP150 ZUM0001 ON PRINTER2 856 LINES
$HASP160 PRINTER2 INACTIVE - CLASS=A
$HASP250 ZUM0001 IS PURGED
```

Restart the System to Apply the MOD

```
p tso
*04 IKT012D TCAS TERMINATION IN PROGRESS - SPECIFY 'U' OR 'DUMP'
- r 4,u
  IEE600I REPLY TO 04 IS;U
- IKT006I TCAS ENDED
- $HASP395 TSO ENDED
  $HASP150 TSO ON PRINTER2 46 LINES
00 $HASP160 PRINTER2 INACTIVE - CLASS=A
  $HASP250 TSO IS PURGED
00- z net,quick
  IST097I HALT ACCEPTED
  IST133I VTAM TERMINATION IN PROGRESS
  IST109I NETWORK SOLICITOR IS NOW TERMINATED
  IST141I NODE LCLMAJ00 NOW DORMANT
  IST105I LCLMAJ00 NODE NOW INACTIVE
  IST105I APPLTSO NODE NOW INACTIVE
  IST412I VTAM COMMAND PROCESSING TERMINATED
  IST102I VTAM IS NOW INACTIVE
- $HASP395 NET ENDED
  $HASP150 NET ON PRINTER2 36 LINES
  $HASP160 PRINTER2 INACTIVE - CLASS=A
  $HASP250 NET IS PURGED
$pjes2
- $pjes2
- $HASP395 INIT ENDED
- $HASP395 INIT ENDED
- $HASP395 INIT ENDED
  IEE043I A SYSTEM LOG DATA SET HAS BEEN QUEUED TO SYSOUT CLASS A
  IEE037I LOG NOT ACTIVE
00- $HASP085 JES2 TERMINATION COMPLETE
00- z eod
  *IEE362A SMF ENTER DUMP FOR SYS1.MANX ON MVSRES
- IEFU29 HAS ISSUED COMMAND 'START SMFDUMP,ID=X '
  IEE360I SMF NOW RECORDING ON SYS1.MANY ON MVSRES TIME=11.39.03
  IEE334I HALT EOD SUCCESSFUL
- IEC141I 013-C8,IGG0193K,MSTRJCL,JES2,STCINRDR
quiesce
```

Accessing RPF

After restarting the OS/VS2 system, VTAM and TSO, logon with a user account and enter the command rpf at the TSO prompt. The RPF main menu will be displayed.

