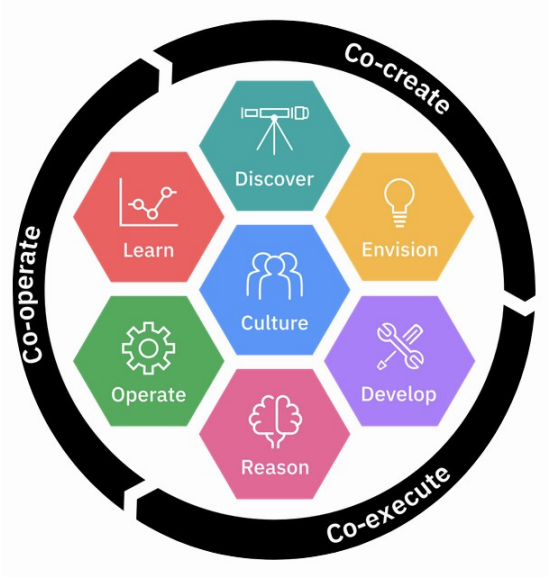
IBM Garage for Systems

Poughkeepsie



CECC z/OS Turnover Documentation

Table of Contents

OVERVIEW **3**
ENVIRONMENT SUMMARY PAGE **4**
SYSTEM ACCESS **5**
EXAMPLE Z/OS TSO LOGIN SCREEN 6
EXAMPLE Z/OS UNIX SYSTEM SERVICES LOGIN SCREEN 6
ALTERNATIVE PCOMM DOWNLOAD AND CONFIGURATION 8
Z/OS VERIFICATION **10**
STORAGE / DASD **11**
VOLUME-LEVEL DETAIL 11
REAL-TIME DASD SNAPSHOT 13
DFSMS 14
ADDING HIGH LEVEL QUALIFIERS 17
SOFTWARE / MIDDLEWARE **19**
DB2 FOR Z/OS V12 SUBSYSTEM INFORMATION 20
CICS/TS V5.5 SUBSYSTEM INFORMATION 21
WEBSPHERE MQ FOR Z/OS V9 SUBSYSTEM INFORMATION 22
WEBSPHERE APPLICATION SERVER V9 SUBSYSTEM INFORMATION 23
UNIX SYSTEMS SERVICES **25**
AUTO-MOUNT 25
CREATING A NEW FILE SYSTEM (ZFS) 25

Overview

The intended audience of this document is any user of the z/OS LPAR nick-named “zLight.” Whomever is reading this should be able to find information regarding:

- System access
- How to dynamically identify system information such as hardware and software specifications
- What middleware is running and how to exploit it
- Understand the network boundaries of this environment
- How to get help where this document falls short

The environment you are using was designed as a scalable solution. The z/OS you are using was automatically provisioned with no human intervention. It was designed as a scalable solution and is differentiated by a single character. For example,

- Each environment is differentiated using system name ZLP@ (where @ is the instance character)
- Userids are provided as L@TSO1 (where @ is a instance character)
- SYSL.ZLP@.PARMLIB is the custom PARMLIB (where @ is a instance character)

Throughout this documentation, the character @ will be used to designate the instance. Wherever you see an @, substitute the z/OS designated character of your system.

Environment Summary Page

Hardware Resources

1 z/OS LPAR named ZLP@
4 non-dedicated General Processors
32 GB memory (RAM)
250 GB physical DASD space

Access

Non-IBM tenants must successfully connect via VPN before attempting to connect to the z/OS. VPN userids & passwords were provided either by automated process or a project manager. VPN instructions are provided in project kit provided.
Userid CECUSER with password provided by automated mechanism. CECUSER has RACF SPECIAL.
Userid L@TSOx (where x is 1 through 6) are pre-built and available. Use TSO user CECUSER to change passwords using this command:

TSO ALU L@TSOx PASSWORD(SOMEPSWD) RESUME NOEXPIRE

Middleware / Software Provided

Middleware	Port	Mount Point	HLQ
DB2 v12	446	/usr/lpp/db2/db2c10	DB2B.**
CICS v5.5	n/a	/usr/lpp/cicsts/cicsts55	CICSTS.**
CICS PA v5.4	n/a	/usr/lpp/cicspa/v540	CICSTS.CICSPA.**
MQ v9.0.0	1210	/usr/lpp/mqm/V9R0M0	MQS.**
Java v1.8.0_181	n/a	/usr/lpp/java/J1.8	n/a
Bash v4.2.53	n/a	/usr/bin/bash-4.2	n/a
z/OSMF	443	/var/zosmf /global/zosmf	n/a
WAS v9.0.0		/usr/lpp/zWebSphere_WLP/V9R0 /usr/lpp/zWebSphere_Plugins/V9R0 /wasv9config/wscell/wsdmnode /wasv9config/wscell/wsnodea /usr/lpp/zWebSphere/V9R0	WAS.**

Support Hours

Support hours are documented in the project kit provided.

Performance Results

Results obtained while using this environment needs to be reviewed and approved before they can be documented externally via white papers, red papers, conferences, presentations, trade shows, etc.

Disaster Recovery / Backup

This environment has no system/data backup or restore capability. These systems are designated as temporary environments for testing use only. In the event of system corruption, you would have to request a new environment thus losing all post turnover configuration changes and any data generated or uploaded.

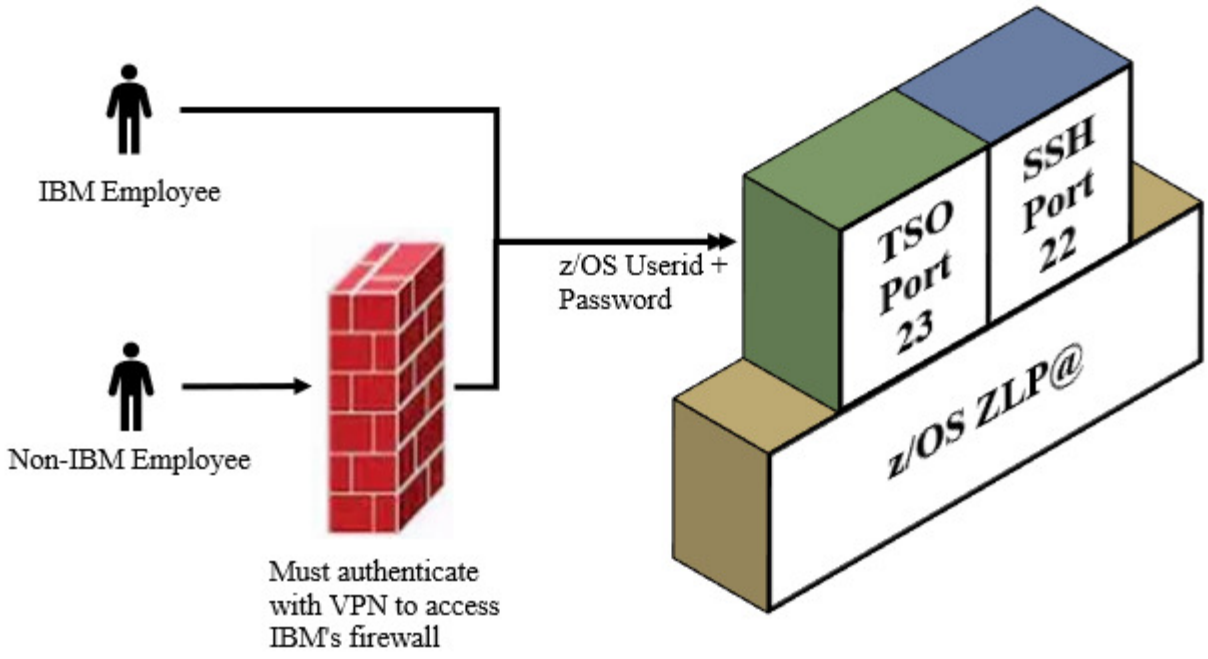
System Access

You should have received a userid, password and IP Address in the project kit or automated delivery mechanisms. Non-IBM users should have received a VPN userid and password. With this information, you should be able to logon to the z/OS system. You will need a 3270 emulator to logon to z/OS. We suggest using PCOMM. If you need the non-IBM version of PCOMM, there is a free alternative which can be found and configured in the section in this document called “Alternative PCOMM download and configuration.”

You should have the following:

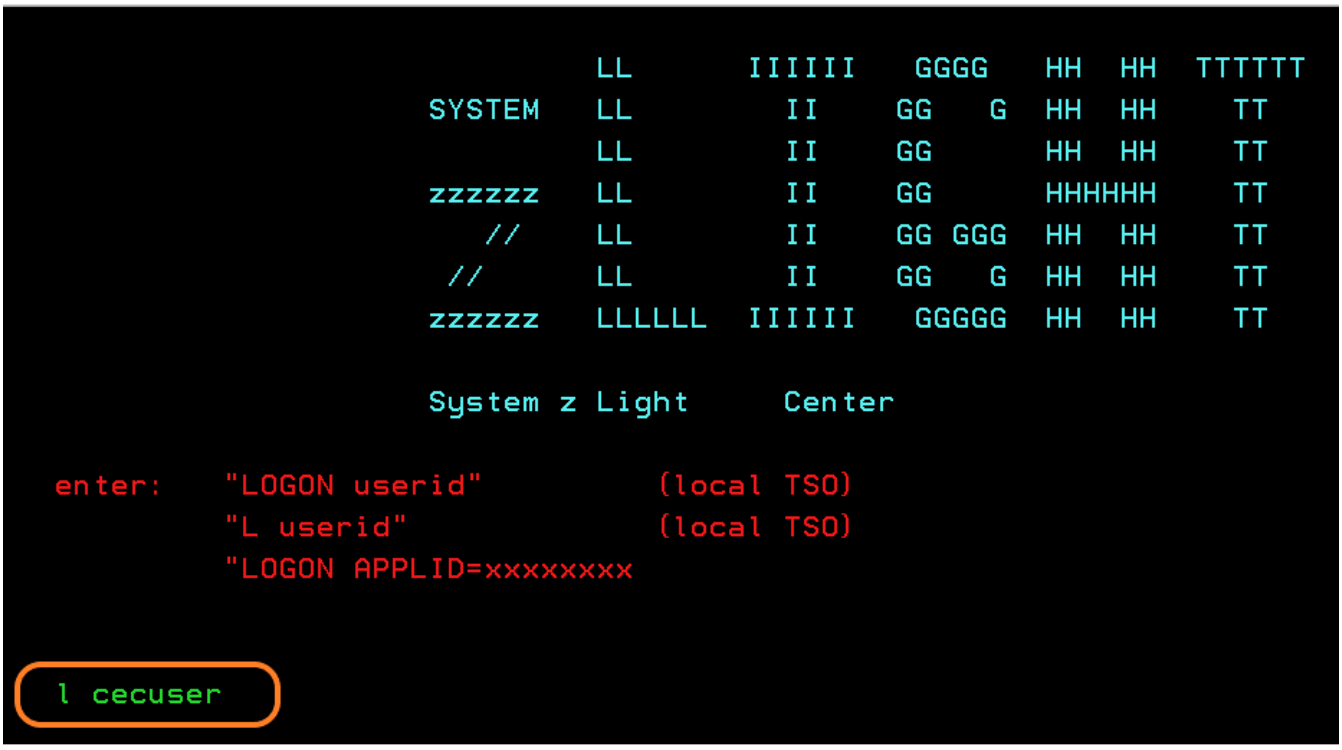
For non-IBM only --- VPN Userid	Provided by IBM automated delivery or project manager.
For non-IBM only --- VPN Password	Provided by IBM automated delivery or project manager.
IP Address	Provided by IBM automated delivery or project manager.
PCOMM Port	23
SSH Port	22
z/OS Userid	CECUSER (by default has RACF SPECIAL)
z/OS Password	Provided by automated delivery or project manager.

The following diagram shows the VPN authentication required before accessing the z/OS.



Example z/OS TSO Login screen

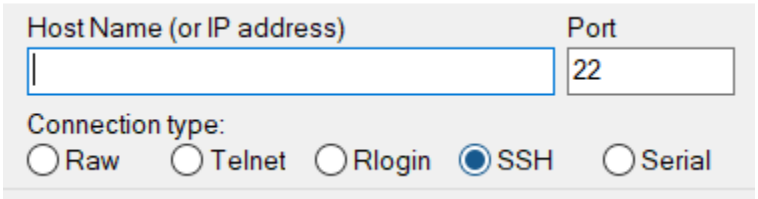
If you are non-IBM, make sure you VPN in first. Once you can successfully reach the IBM network, configure your PCOMM session with the assigned IP address and port 23. Once connected you should enter “L <userid>” to begin the login process. Here is an example:



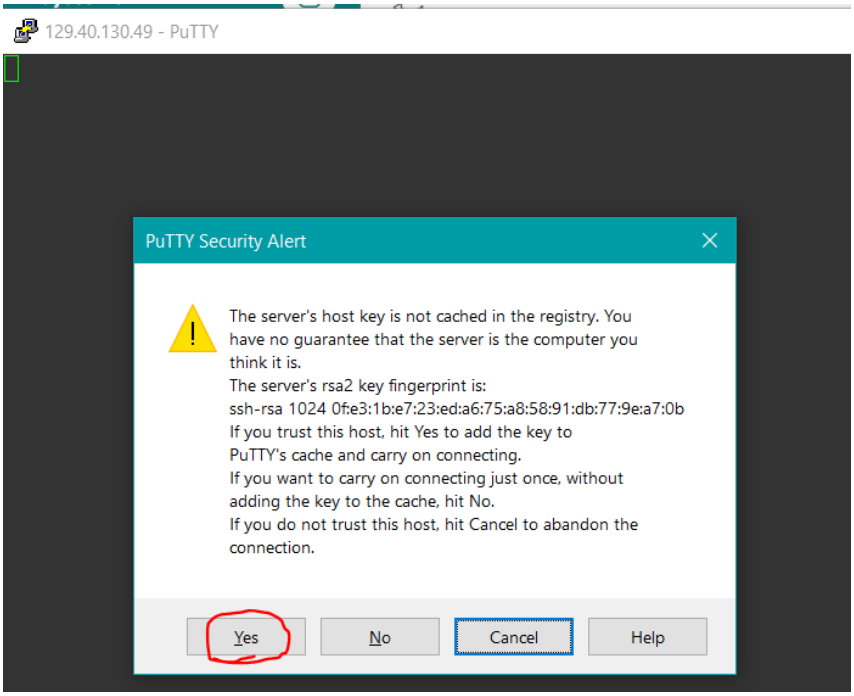
Follow the standard on-screen prompts to continue into TSO.

Example z/OS Unix System Services Login screen

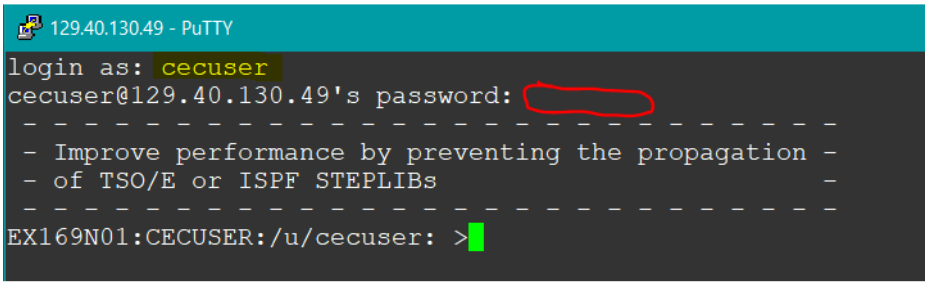
The following shows how to access Unix Systems Services (USS) via Putty:



Note: make sure to put in the IP address of the system you were provided. If prompted, select “Yes” to the host key prompt:



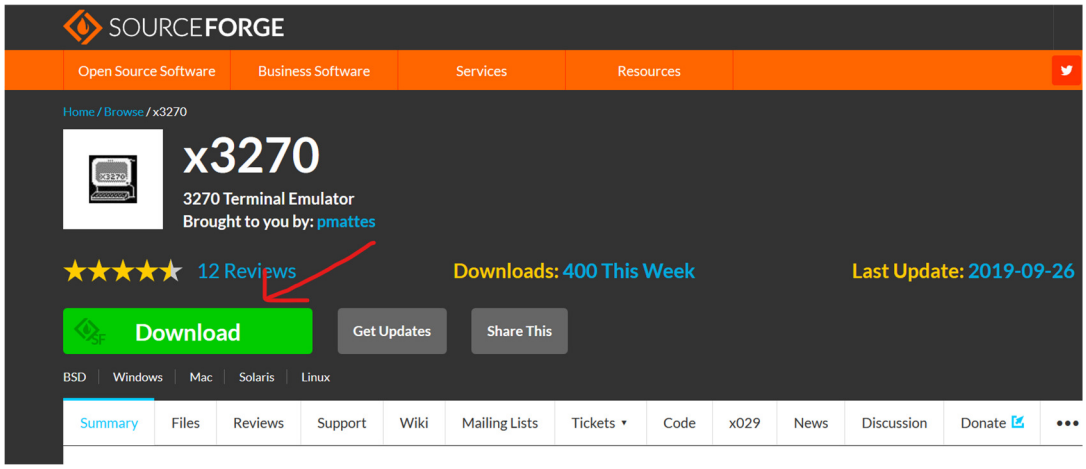
Enter the userid to which you were provided to proceed with login:



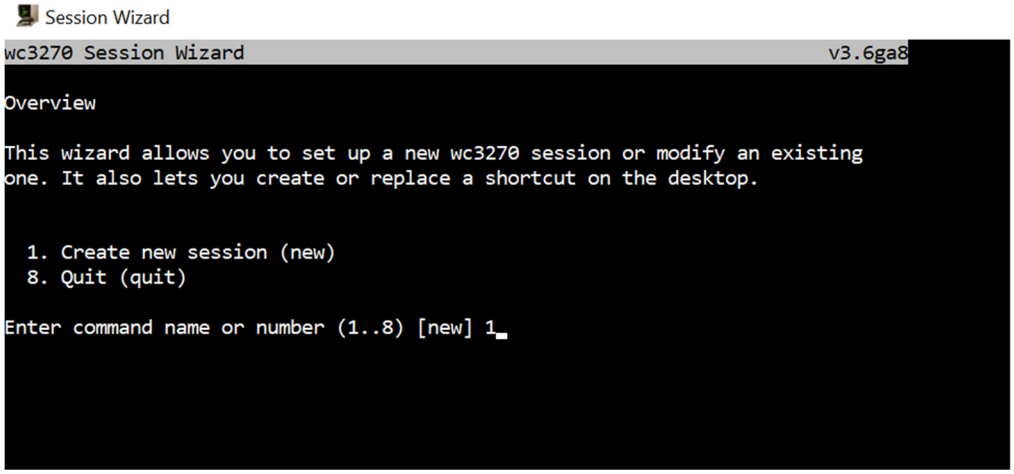
Alternative PCOMM Download and Configuration

x3270 is an alternative to IBM PCOMM utility.

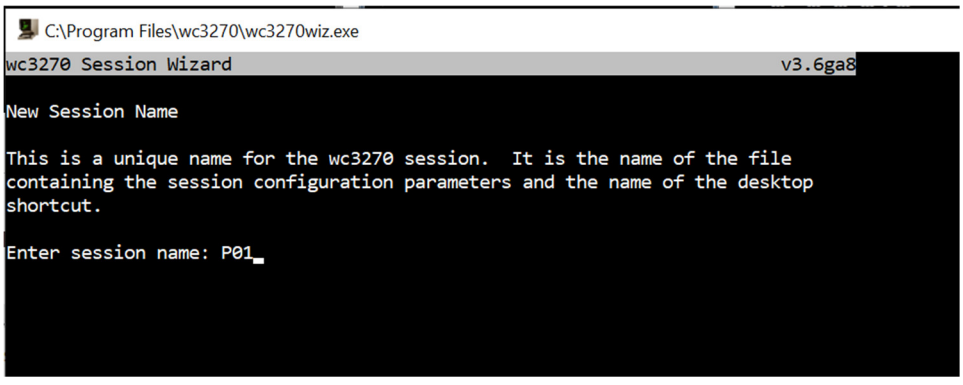
First download x3270, which is a free suite of 3270 terminal emulation tools at:
https://sourceforge.net/projects/x3270/



Go through the wizard installation and it will bring up the wc3270 session wizard terminal window automatically once the wizard completes.



Enter option 1 and it will ask you for the session name. Enter **P01**

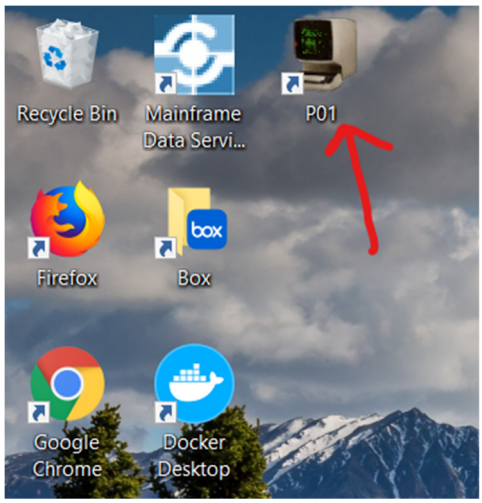


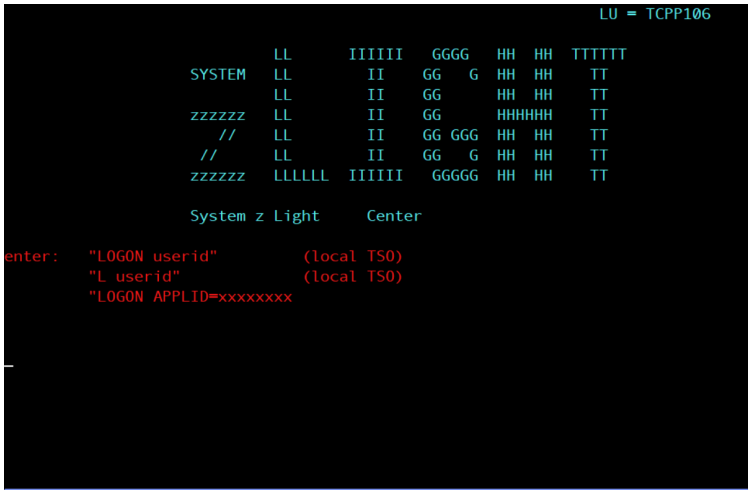
Next it will ask for the host name or IP address. Enter the IP address of the system you were provided. In this example, the IP was 129.40.19.33.

Next the settings for the session will be listed and are asked if any of them need to change. Nothing important needs to change in these settings. However, changing optional settings, such as Font Size or Background Color, is at your discretion.
Recommendation for **option 5: S**et the dimension to be **62x160.**

If you agree with all the setting changes you made, press enter again and it will prompt you to create a file to store the session settings. Afterwards, it will ask you to create a desktop shortcut for the session. We recommend creating the shortcut otherwise you will have to navigate to where the file is stored and start it from there at every invocation. Enter **y** for both.

The shortcut will be created and you can select it to start the z/OS session





z/OS Verification

There are several ways you can validate or check system settings:

When you login to TSO, you are presented with a banner which shows real-time system specifications. Here is an example:

Other tools used to display system information:

1. When in TSO, you can issue command TSO IPLINFO which shows a litany of important system specifications. This is extremely valuable and used often by many users.

2. When in SDSF, you can issue the following commands to display system information:
   - /d m=cpu
   - /d m=stor
   - /d iplinfo
   - /d omvs,o
   - /q ipldata
   - / $D INITINFO
   - /$d JES2
   - /$JD STATUS

Storage / DASD

The z/OS is built utilizing non-performance ECKD storage. The z/OS LPAR has 4 channel paths connected to a DS8886 enterprise storage subsystem.

zLight LPAR's 1, 2, 3, 4, 5, 6, 7, 8 have approximately 250 GB of usable DASD.
zLight LPAR's 9, A, B, C, D have approximately 100 GB of usable DASD.

Volume-level Detail

The following volumes are considered part of the base z/OS infrastructure. You should avoid using the following volumes. However, the system is yours to do as you please.

						Each LPAR Instance		
What	Description	SMS	StorGrp	ModType	Size_GB	ZLP1	ZLP2	ZLPx
L@MCAT	Catalogs + DFSMS + RES ZFS'	No		Mod-9	8.5	L1MCAT	L2MCAT	L@MCAT
L@JCK1	JCK stuff	No		Mod-9	8.5	L1JCK1	L2JCK1	L@JCK1
L@JSP1	JES Spool - HASPACE dataset	No		Mod-9	8.5	L1JSP1	L2JSP1	L@JSP1
L@PGEA	Paging, EREP, SMF, HCD	No		Mod-9	8.5	L1PGEA	L2PGEA	L@PGEA
L@DMP1	Required Dump Dataset	No		Mod-9	8.5	L1DMP1	L2DMP1	L@DMP1
L@LG01	IXGLOGR (Logger)	Yes	LOGGER	Mod-9	8.5	L1LG01	L2LG01	L@LG01
L@PUB1	DFSMS catch-all bucket	No		Mod-9	8.5	L1PUB1	L2PUB1	L@PUB1
L@PPLB	Program Products	No		Mod-9	8.5	L1PPLB	L2PPLB	L@PPLB
L@RESA	z/OS RES Pack (T-Libs only)	No		Mod-18	15	L1RESA	L2RESA	L@RESA

The following volumes are designed specifically for your use. There are pre-defined DFSMS storage groups for common tasks such as segregating "data" from non-data, segregating middleware, etc. However, you are free to configure the DFSMS definitions as you choose. Instructions follow for how to do this.

This table shows the usable volumes available to you:

						Each LPAR Instance		
What	Description	SMS	StorGrp	ModType	Size_GB	ZLP1	ZLP2	ZLPx
L@MT01	Non-SMS for user	No		Mod-9	8.5	L1MT01	L2MT01	L@MT01
L@MT02	Non-SMS for user	No		Mod-9	8.5	L1MT02	L2MT02	L@MT02
L@OMV1	Unix ZFS file systems	Yes	OMVSPOOL	Mod-18	15	L1OMV1	L2OMV1	L@OMV1
L@D001	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D001	L2D001	L@D001
L@D002	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D002	L2D002	L@D002
L@D003	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D003	L2D003	L@D003
L@D004	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D004	L2D004	L@D004
L@D005	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D005	L2D005	L@D005
L@D006	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D006	L2D006	L@D006
L@D007	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D007	L2D007	L@D007
L@D008	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D008	L2D008	L@D008
L@D009	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D009	L2D009	L@D009
L@D010	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D010	L2D010	L@D010
L@D011	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D011	L2D011	L@D011
L@D012	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D012	L2D012	L@D012
L@D013	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D013	L2D013	L@D013
L@D014	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D014	L2D014	L@D014
L@D015	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D015	L2D015	L@D015
L@D016	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D016	L2D016	L@D016
L@D017	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D017	L2D017	L@D017
L@D018	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D018	L2D018	L@D018
L@D019	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D019	L2D019	L@D019
L@D020	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D020	L2D020	L@D020
L@D021	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D021	L2D021	L@D021
L@D022	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D022	L2D022	L@D022
L@D023	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D023	L2D023	L@D023
L@D024	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D024	L2D024	L@D024
L@D025	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D025	L2D025	L@D025
L@D026	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D026	L2D026	L@D026
L@D027	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D027	L2D027	L@D027
L@D028	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D028	L2D028	L@D028
L@D029	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D029	L2D029	L@D029
L@D030	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D030	L2D030	L@D030
L@D031	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D031	L2D031	L@D031
L@D032	Data Pool	Yes	DATAPOOL	Mod-9	8.5	L1D032	L2D032	L@D032
L@MS01	Middleware Pool	Yes	MIDDLEWR	Mod-9	8.5	L1MS01	L2MS01	L@MS01
L@MS02	Middleware Pool	Yes	MIDDLEWR	Mod-9	8.5	L1MS02	L2MS02	L@MS02
L@MS03	Middleware Pool	Yes	MIDDLEWR	Mod-9	8.5	L1MS03	L2MS03	L@MS03
L@MS04	Middleware Pool	Yes	MIDDLEWR	Mod-9	8.5	L1MS04	L2MS04	L@MS04
L@MS05	Middleware Pool	Yes	MIDDLEWR	Mod-9	8.5	L1MS05	L2MS05	L@MS05
L@MS06	Middleware Pool	Yes	MIDDLEWR	Mod-9	8.5	L1MS06	L2MS06	L@MS06
L@MS07	Middleware Pool	Yes	MIDDLEWR	Mod-9	8.5	L1MS07	L2MS07	L@MS07
L@MS08	Middleware Pool	Yes	MIDDLEWR	Mod-9	8.5	L1MS08	L2MS08	L@MS08
L@PR01	Project Pool	Yes	PROJECT	Mod-9	8.5	L1PR01	L2PR01	L@PR01
L@PR02	Project Pool	Yes	PROJECT	Mod-9	8.5	L1PR02	L2PR02	L@PR02
L@PR03	Project Pool	Yes	PROJECT	Mod-9	8.5	L1PR03	L2PR03	L@PR03
L@PR04	Project Pool	Yes	PROJECT	Mod-9	8.5	L1PR04	L2PR04	L@PR04
L@PR05	Project Pool	Yes	PROJECT	Mod-9	8.5	L1PR05	L2PR05	L@PR05
L@PR06	Project Pool	Yes	PROJECT	Mod-9	8.5	L1PR06	L2PR06	L@PR06
L@PR07	Project Pool	Yes	PROJECT	Mod-9	8.5	L1PR07	L2PR07	L@PR07

Note, certain LPAR's have lower DASD quantity and may have less volumes available in some DFSMS storage groups. The above chart is intended as a guide to show general architecture and naming conventions.

Real-time DASD Snapshot

At anytime, you can run a batch job to provide real-time DASD volume usage in the z/OS. To execute this, navigate to SYSL.ZLP@.JCL(DCOLREPT). Follow the prologue in the JCL (very simple change-all commands) and submit. The job will quickly produce a flat file that you can browse located here: ZLP@.REPTDCOL.REPORT.D*. This will show usage of every volume available on the z/OS. An example of the report is as follows:

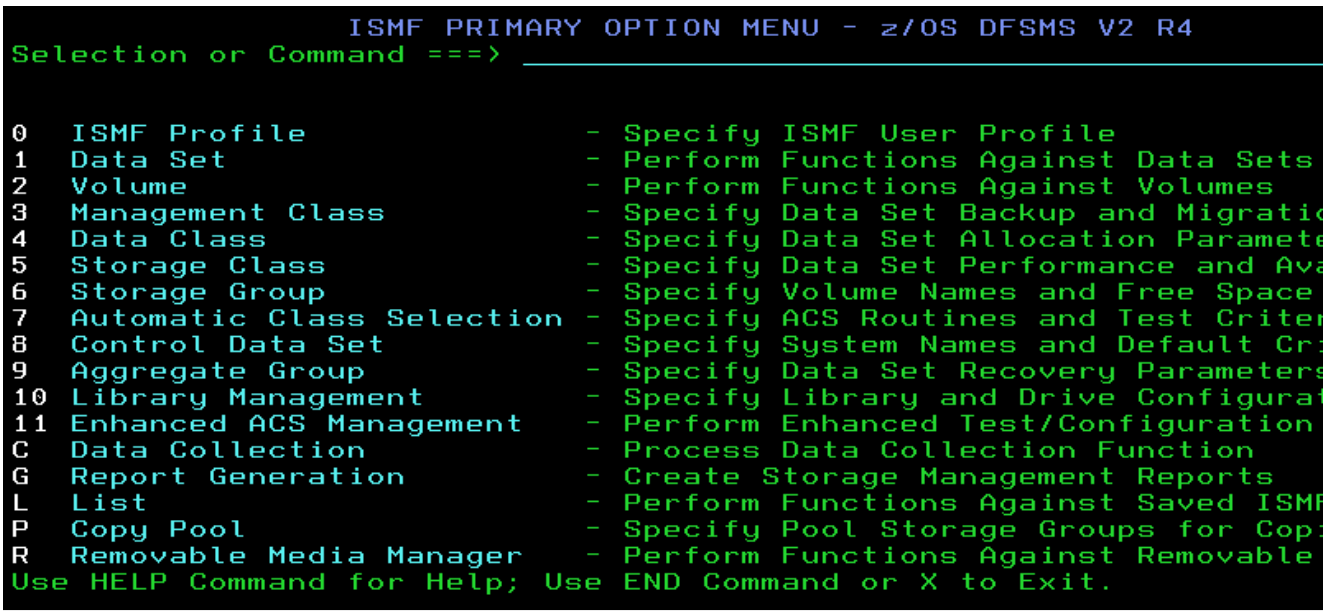
```
****************************** Start DCOLRPT Pgm ******************************
09/01/20
11:53am

Timestamp of DCOLLECT: 2020-09-01 / 11:53:11

*****************************************************************************
*                              Volume Summary                               *
*****************************************************************************
StgGrp        Volumes   CapaGIG   AllcGIG   FreeGIG    PctFree
------------- ------- --------- --------- ---------    -------
++NO_STGGRP++      41   527.868   147.692   388.878      73.7%
DATAPOOL            7   187.308    32.742   154.636      82.6%
LOGGER              1     8.514     0.732     7.799      91.6%
MIDDLEWR            3    25.542    19.503     6.040      23.6%
OMVSPOOL            1     8.514     2.437     6.077      71.4%
PROJECT             7    59.598    18.081    41.551      69.7%



StgGrp        Vol      DevType  DevNum   ModType   CapaGIG   AllcGIG   FreeGIG
------------- -------- -------- -------- ------- --------- --------- ---------
++NO_STGGRP++ LDDMP1   3390     AF60           9     8.514     1.155     7.376
++NO_STGGRP++ LDJCK1   3390     AF5C           9     8.514     0.124     8.390
++NO_STGGRP++ LDJSP1   3390     AF5E           9     8.514     8.513     0.001
++NO_STGGRP++ LDMCAT   3390     AF5B           9     8.514     6.206     2.308
++NO_STGGRP++ LDMT01   3390     AF6B          18    17.028     4.116    12.912
++NO_STGGRP++ LDMT02   3390     AF6C          18    17.028     5.670    15.653
++NO_STGGRP++ LDOMV1   3390     AF5D           9     8.514     7.344     1.170
++NO_STGGRP++ LDPGEA   3390     AF5F           9     8.514     4.970     3.545
.
.
.
DATAPOOL      LDD001   3390     AF70           9     8.514     0.014     8.517
DATAPOOL      LDD002   3390     AF71           9     8.514     0.014     8.517
DATAPOOL      LDD003   3390     AF72           9     8.514     2.435     6.096
DATAPOOL      LDD004   3390     AF73           9     8.514     0.014     8.517
DATAPOOL      LDD005   3390     AF74          54    51.084    25.401    25.684
DATAPOOL      LDD006   3390     AF75          54    51.084     0.014    51.070
DATAPOOL      LDD007   3390     AF76          54    51.084     4.850    46.235
============= ======== ======== ======== ======= ========= ========= =========
DATAPOOL      TOT      -        -              -   187.308    32.742   154.636

.
.
.
0.02 minutes of execution for this job.
****************************** End DCOLRPT pgm ******************************
```

DFSMS

If you wish to make your own DFSMS changes, you are free to do that. The following instructions will guide you through.

Set your user id to Storage Administrator:

1. At the ISPF command line, enter option =13.5.
2. At the ISMF Primary option menu enter option 0 to enter the ISMF profile.
3. At the ISMF Profile option menu, enter option 0 for User Mode Selection.
4. At the User Mode Entry Panel, enter option 2 for Storage Administrator.
5. <PF03> completely out of ISMF.
6. At the ISPF command line, enter option =13.5. You should now see a full list of options like this:



Update ACS Routines

To update the DFSMS ACS routines, the following instructions can be followed.

1. In ISPF 3.4, navigate to SYSL.ZLP@.ACS.SOURCE. There are four current and active ACS routines stored in the PDS.
2. Make a backup before you make changes!
3. Make the desired change. <PF03> out of the PDS.
4. Navigate to ISPF 13.5.
5. At the ISMF Primary Option Menu, select option 7 for Automatic Class Selection.
6. At the ACS Application Selection menu, select option 2 for Translate. On the CDS Name entry line, enter: SYSL.ZLP@.SMS.SCDS. Example:

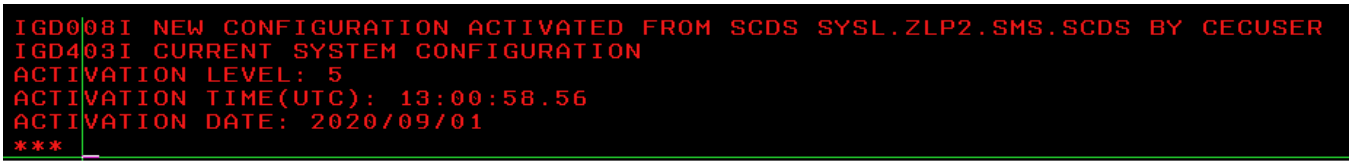
```
                          ACS APPLICATION SELECTION
Command ===>

Select one of the following options:
2   1. Edit              - Edit ACS Routine source code
    2. Translate         - Translate ACS Routines to ACS Object Form
    3. Validate          - Validate ACS Routines Against Storage Constructs
    4. Test              - Define/Alter Test Cases and Test ACS Routines
    5. Display           - Display ACS Object Information
    6. Delete            - Delete an ACS Object from a Source Control Data Set


If Display Option is Chosen, Specify:

  CDS Name  . . 'SYSL.ZLP@.SMS.SCDS'
                                (1 to 44 Character Data Set Name or 'Active')
```

7. At the Translate ACS Routines screen, enter the following criteria:
   a. SCDS Name SYSL.ZLP@.SMS.SCDS
   b. ACS Source Data Set SYSL.ZLP@.ACS.SOURCE
   c. ACS Source Member STORCLAS (or the member you changed)
   Example:

```
                          TRANSLATE ACS ROUTINES
Command ===>

To Perform ACS Translation, Specify:

   SCDS Name . . . . . . . 'SYSL.ZLP@.SMS.SCDS'
                                (1 to 44 Character Data S

   ACS Source Data Set . . 'SYSL.ZLP@.ACS.SOURCE'
                                (1 to 44 Character Data S

   ACS Source Member . . . STORCLAS  (1 to 8 characters)


   Listing Data Set  . . .
                                (1 to 44 Character Data S
```

   d. Hit <enter> to process the screen.

8. You should receive a message in the upper right of the screen that says TRANSLATION SUCCESSFUL.
9. <PF03> back to the ACS Application Selection screen.
10. Select option 3 for Validate. Confirm that SYSL.ZLP@.SMS.SCDS is shown on the CDS Name area.
11. At the "VALIDATE ACS ROUTINES.." menu, the SCDS Name input field should be filled in with SYSL.ZLP@.SMS.SCDS. Hit <enter>.
12. You should receive a message in the upper right of the screen that says SUCCESSFUL VALIDATION.
13. <PF03>
14. <PF03> You should now be at the ISMF PRIMARY OPTION MENU.
15. Select option 8 for Control Data Set.
16. Enter SYSL.ZLP@.SMS.SCDS on the CDS Name field. Select option 5 and hit <enter>.
17. Enter a / in the confirmation area to confirm you want to activate the ACS routines and hit <enter>.
18. You should receive a message in the upper right corner of the screen that says ACTIVATION SCHEDULED. Hit <enter>.
19. You should receive a message to your screen that says the new configuration was activated. Example:



You are done. The ACS routines have been successfully activated on the z/OS. As good practice, you should validate your change by allocating a dataset and confirming it is correctly DFSMS directed as you specified.

Adding High Level Qualifiers

You are free to add high level qualifiers (HLQ). Good system programming practice is to identify what DASD the HLQ will be directed to. If you choose to DFSMS manage your HLQ (which is recommended) make sure you update the DFSMS STORCLAS / STORGRP instructions documented above.

If you choose not to DFSMS manage your HLQ, please be aware that you must specify a VOLSER anytime you allocate a dataset using that new HLQ. Failure to specify a VOLSER will result in the dataset being allocated in volume L@PUB1. Eventually, this volume will fill up and you will inevitably run into problems.

To add the new HLQ, use JCL located in SYSL.ZLP@.JCL(ADDHLQ). Here is an example:

```
//ADDHLQS JOB ,,MSGLEVEL=1,MSGCLASS=H,CLASS=A,REGION=0M,
//    USER=CATUPDT
//ADD2MSTR EXEC PGM=IDCAMS
//SYSPRINT DD   SYSOUT=*
//SYSIN    DD   *
  DELETE (MYHLQ) ALIAS CAT(CATALOG.ZLP@MSTR.CAT)
 SET MAXCC=0
 DEF ALIAS (NAME(MYHLQ) REL(CATALOG.ZLP@USER.CAT)) -
            CAT(CATALOG.ZLP@MSTR.CAT)
/*
//*
//TSO     EXEC PGM=IKJEFT01,DYNAMNBR=50
//SYSLBC    DD DSN=SYS1.BRODCAST,DISP=SHR
//SYSTSPRT  DD SYSOUT=*
//SYSTSIN   DD *
ADDGROUP (MYHLQ)         OWNER(SYS1) SUPGROUP(SYS1) TERMUACC
ADDSD ('MYHLQ.**')       UACC(NONE)
PERMIT 'MYHLQ.**'        ACCESS(ALTER)  ID(ZLP@)
PERMIT 'MYHLQ.**'        ACCESS(ALTER)  ID(SYSPROG)
PERMIT 'MYHLQ.**'        ACCESS(ALTER)  ID(STCSYS)
PERMIT 'MYHLQ.**'        ACCESS(READ)   ID(STCUSR)
PERMIT 'MYHLQ.**'        ACCESS(ALTER)  ID(TWSUSR)
PERMIT 'MYHLQ.**'        ACCESS(READ)   ID(HIS)
/*
```

As an example, you should see the ALIAS of your HLQ after running the above job:

```
- Enter "/" to select action                    Message          Volume
-------------------------------------------------------------------------
 MYHLQ                                                          *ALIAS
****************************** End of Data Set list ***************************
```

If you wish to DFSMS direct datasets for this HLQ to the PROJECT storage pool, here is the change you would make in SYSL.ZLP@.ACS.SOURCE(STORCLAS):

```
   SYSL.ZLPC.ACS.SOURCE(STORCLAS) - 01.84                 Columns 00001
===> ____________________________________________________________ Scroll ===>
                              NOSMS.**,
                              MSTR.**)

 FILTLIST PLEXXN      INCLUDE(ZLP%N.**)

 FILTLIST RACF        INCLUDE(SYS1.RACF%)
 FILTLIST IXGLOGR     INCLUDE(IXGLOGR.**)
 FILTLIST PROJECT     INCLUDE(ZLP%.**,
                              MYHLQ.**)     /* Added for demonstration */
 FILTLIST MIDDLEWR    INCLUDE(WAS.**)
 FILTLIST DATAPOOL    INCLUDE(SPARK.ZFS.**)
```

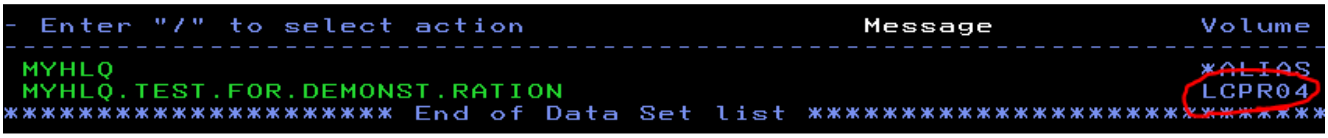
Using the DFSMS instructions in above section, execute the TRANSLATE → VALIDATE → ACTIVATE.

Allocate a dataset using ISPF 3.2 as follows:

Hit <Enter>.

You should see two messages appear on the screen.

You should see the dataset allocated on a L@PRxx volser.



Software / Middleware

The following summary identifies the middleware currently configured and operational on the z/OS. Following sections provide details with how to exploit this software. Note, full SMP/e installation of middleware was not performed. You only have the necessary "target" libraries required for the product to be operational. Therer are no CSIs and "distribution" libraries.

Software	Version	TSO Location	Mount point	Started Task	HLQ
Bash	4.3.0	n/a	/usr/bin/bash-4.3	n/a	n/a
DB2	12.0.0	DB2B.**	/usr/lpp/db2/db2c10	DB2B*	DB2B.**
CICS	5.5.0	CICSTS.**	/usr/lpp/cicsts/cicsts55	CICS*	CICSTS.**
CICS PA	5.4.0	CICSTS.CICSPA.**	/usr/lpp/cicspa/v540	n/a	CICSTS.CICSPA.**
ICSF	n/a	CSF.**	n/a	ICSF	n/a
Java	1.8.0	n/a	/usr/lpp/java/J1.8/J8.0_64	n/a	n/a
MQ	9.0.0	MQS.**	/usr/lpp/mqm/V9R0M0	MQZL*	MQS.**
WAS	9.0.0	WAS.**	/usr/lpp/IHSA/V9R0 /usr/lpp/zWebSphere_WLP/V9R0 /usr/lpp/zWebSphere_Plugins/V9R0 /wasv9config/wscell/wsnodea /usr/lpp/zWebSphere/V9R0	n/a	WAS.**

See the individual middleware sections of this documentation for information on the set up and use of the middleware component.

Db2 for z/OS v12 Subsystem Information

Conventions for DB2B Subsystem

Entity	Value
Group name	n/a
Catalog alias	DB2B
Group attach name	n/a
Location name	DB2BLOC
Generic LU name	n/a
IRLM group name	n/a
Subsystem name	DB2B
Command prefix	-DB2B
BSDS names	DB2B.BSDS01 DB2B.BSDS02
Active log prefix	DB2B.LOGCOPY1 DB2B.LOGCOPY2
Archive log prefix (OFFLOAD=NO in ZPARM)	DB2B.ARCLG1 DB2B.ARCLG2
Work file database	DSNDB07
Procedure names	DB2BMSTR DB2BDBM1 DB2BDIST DB2BADMT
Subsystem ZPARM	DSNZDB2B
LU name	DB2BLU
TCPIP Ports	DRDA PORT# 447 RESYNC PORT# 5021
IRLM subsystem name	IRLB
IRLM procedure name	DB2BIRLM
IRLM ID	1

DB2 System libraries: DB2B.SDSN***

DB2 Tools libraries: DB2B.SADB*** (IBM DB2 Administration Tool)

High Level Qualifiers: **DB2B** - Used for DB2 system datasets.
(SMS - STORCLAS=DB2SYST2, DATACLAS=DB2SYSTM (VOLCOUNT - 3))

DB2BDB - Used for DB2 application tables/indexes
(SMS - STORCLAS=DB2DATA2,DATACLAS=DB2EXAD (VOLCNT - 4))

DB2 STOGROUP: **Use DB2BSG DB2 STOGROUP**
(VCAT = DB2BDB) for application DB2 tablespaces and indexes.
(SMS - STORCLAS=DATAPOOL, DATACLAS=DB2EXAD)

Customized libs: DB2B.NEW.SDSNSAMP
(DB2 installation jobs begin with ZLBTIJxx. DB2 IVP jobs begin with ZLBTEJxx)
DB2B.NEW.SDSNCLST
DB2B.NEW.SDSNTEMP
DB2B.DB2.JCL (Contains DB2 sample utility JCL, members need to be tailored)
DB2B.DBRMLIB.DATA
DB2B.RUNLIB.LOAD
DB2B.SRCLIB.DATA

DB2 Bufferpools:

4K Bufferpools:
BUFFERPOOL (BP0) VPSIZE(20000) - DB2 Catalog / Directory tables / indexes.
BUFFERPOOL (BP1) VPSIZE(50000) - Default 4K bufferpool for tables
BUFFERPOOL (BP2) VPSIZE(50000) - Default 4K bufferpool for indexes
BUFFERPOOL (BP3) VPSIZE(50000)
BUFFERPOOL (BP4) VPSIZE(50000)
BUFFERPOOL (BP5) VPSIZE(50000)
BUFFERPOOL (BP6) VPSIZE(50000)
BUFFERPOOL (BP7) VPSIZE(10000) - DB2 4K workfiles - (VPSEQT=100)
BUFFERPOOL (BP8) VPSIZE(50000)
BUFFERPOOL (BP9) VPSIZE(50000)
BUFFERPOOL (BP10) VPSIZE(50000)
BUFFERPOOL (BP11) VPSIZE(50000)
BUFFERPOOL (BP12) VPSIZE(50000)

8K Bufferpools:
BUFFERPOOL (BP8K0) VPSIZE(10000) - Default 8K bufferpool
BUFFERPOOL (BP8K1) VPSIZE(10000)
BUFFERPOOL (BP8K2) VPSIZE(10000)

16K Bufferpools:
BUFFERPOOL (BP16K0) VPSIZE(10000) - Default 16K bufferpool
BUFFERPOOL (BP16K1) VPSIZE(10000)
BUFFERPOOL (BP16K2) VPSIZE(10000)

32K Bufferpools:
BUFFERPOOL (BP32K) VPSIZE(10000) - Default 32K bufferpool
BUFFERPOOL (BP32K1) VPSIZE(10000)
BUFFERPOOL (BP32K2) VPSIZE(10000)
BUFFERPOOL (BP32K7) VPSIZE(10000) - DB2 32K workfiles - (VPSEQT=100)

zFS: DB2B.ZFS.JDBC.DB2C10 Mount point: /usr/lpp/db2/db2c10

To start DB2: -DB2BSTA DB2

To stop DB2: -DB2BSTO DB2

 # DB2 Active logs: 3 pair of logs (Uses SMS, STORCLAS=MIDDLEWR)
(Note: archiving has been set to off; OFFLOAD=NO in ZPARM)

 # DB2 Work Files Five 4K and five 32K workfiles (Uses SMS, STORCLAS=MIDDLEWR)

To access SPUFI: From ISPF primary option menu, select **DB2** and make sure HLQ is **DB2B**

DB2 Tools installed:
IBM DB2 Administration Tool is available from the main DB2 panel under option **A**
* Make sure the appropriate DB2 name is set via the DB2I DEFAULTS (option D)

CICS/TS v5.5 Subsystem Information

CICSTS System libraries: CICSTS.**

CICSTS Runtime libraries: CICSTS.CICSZLx1.** where x=T or A

zFS: CICSTS.ZFS mountpoint: /usr/lpp/cicsts/cicsts55

Customized libraries:	CICSTS.CICS.CSD	(CICS csd)
	CICSTS.CICS.CSDDEFS	(CICS csd resource defs)
	CICSTS.CICS.SYSIN	(SIT override parms)
CICS applids:	CICSZLT1	(TOR)
	CICSZLA1	(AOR)
Sysident:	ZLT1	(TOR)
	ZLA1	(AOR)
SIT:	DFHSIT6$	
GRPLIST:	(DFHLIST,ZLLIST,ZLTORLST)	(TOR)
	(DFHLIST,ZLLIST,ZLAORLST)	(AOR)
Logger DSNs:	IXGLOGR.ZLIGHT.*applid*.DFHLOG	
	IXGLOGR.ZLIGHT.*applid*.DFHSHUNT	

To start:

S CICSZLT1,START=y	where y=INITIAL, COLD or AUTO; AUTO is the default
S CICSZLA1,START=y	where y=INITIAL, COLD or AUTO; AUTO is the default

To stop:

F CICSZLT1,CEMT P SHUT	Stops the TOR
F CICSZLA1,CEMT P SHUT	Stops the AOR

Logon

To logon to CICS, start an OpenVPN session to your z/OS image and configure a 3270 session to point to the appropriate IP address and port 23.

When the initial VTAM screen is shown, enter **LOGON APPLID=CICSZLx1** where x is either T or A (applid of the CICS region to which you wish to connect).

CICS Performance Analyzer

CICS PA libraries:	CICSTS.CICSPA.**
To Start:	EX 'CICSTS.CICSPA.SCPAEXEC(CPAOREXX)' 'CICSTS.CICSPA E'

CICS Management Interface for use with CICS Explorer

Port 1490	CICSZLT1
Port 1491	CICSZLA1

Websphere MQ for z/OS v9 Subsystem Information

MQ System libraries:	MQS.**		
zFS:	MQS.ZFS	Mountpoint	/usr/lpp/mqm/V9R0M0
Customized libs:	MQS.USER.SCSQAUTH	(customized CSQZPARM module)	
	MQS.USER.SCSQPROC	(customized INIT members)	

Subsystem name:	MQZL
Command prefix:	!MQZL
BSDS:	MQS.BSDS01 MQS.BSDS02
Active log data sets:	MQS.LOGCOPY1.DS01 MQS.LOGCOPY1.DS02 MQS.LOGCOPY1.DS03 MQS.LOGCOPY1.DS04

MQ has been configured with no dual logging, no archiving.

Page data sets:	MQS.PSID00 MQS.PSID01 MQS.PSID02 MQS.PSID03 MQS.PSID04
ZPARM:	MQZLPARM
Procedure for MQ qmgr:	MQZLMSTR
Procedure for CHINIT:	MQZLINIT
TCPIP port :	1414
To access MQ panels:	Enter TSO MQS
To Start:	!MQZL START QMGR PARM(MQZLPARM) This will automatically start the channel initiator
To Stop:	!MQZL STOP QMGR This will stop down both channel initiator and queue manager

Websphere Application Server v9 Subsystem Information

WebSphere Application Server 9 have been installed and configured. WebSphere has been configured in a single ND cell configuration without security.

Cell name:	wscell
Node name:	wsagnta
Server:	wssr00a

zFS:	WAS.WAS900.ZFS	Mountpoint: /usr/lpp/zWebSphere/V9R0/
	WAS.IHS900.ZFS	Mountpoint: /usr/lpp/IHSA/V9R0
	WAS.PLG900.ZFS	Mountpoint: /usr/lpp/zWebSphere_Plugins/V9R0
	WAS.LB900.ZFS	Mountpoint: /usr/lpp/zWebSphere_WLP/V9R0

Customized Install Libraries: WAS.WAS900.WSDMNODE.CNTL

WAS.WAS900.WSDMNODE.DATA
WAS.WAS900.WSFEDA.CNTL
WAS.WAS900.WSFEDA.DATA
WAS.WAS900.WSNODEA.CNTL
WAS.WAS900.WSNODEA.DATA

TCPIP port usage:

```
Application Server:
   SOAP JMX Connector port                              - 9562
   ORB port                                             - 9563
   ORB SSL port                                         - 9564
   Administrative console port                          - 9060
   Administrative console secure port                   - 9043
   HTTP Transport port                                  - 9080
   HTTPS Transport port                                 - 9443
   Administrative local port                            - 9569
   High availability manager communication port         - 9570
   Service Integration port                             - 9571
   Service Integration Secure port                      - 9572
   Service Integration MQ Interoperability port         - 9573
   Service Integration MQ Interoperability Secure port - 9574
   Session Initiation Protocol (SIP) port               - 9575
   Session Initiation Protocol (SIP) secure port        - 9576
   Daemon IP port                                       - 9560
   Daemon SSL port                                      - 9561

Network deployment:
   SOAP JMX Connector port                              - 9502
   CELL DISCOVERY ADDRESS port                          - 9517
   ORB port                                             - 9503
   ORB SSL port                                         - 9504
   Administrative console port                          - 9060
   Administrative console secure port                   - 9043
   Administrative local port                            - 9509
   High Availability Manager Communications port        - 9510
   Daemon IP port                                       - 9500
   Daemon SSL port                                      - 9501

Node agent :
   SOAP JMX Connector port                              - 9522
   Node Discovery port                                  - 9537
   Node Multicast Discovery Port                        - 9539
   Node IPv6 multicast discovery port                   - 9534
   Node Agent's ORB port                                - 9523
   Administrative local port                            - 9529
   High Availability Manager Communication port         - 9530
   Node Agent's ORB SSL port                            - 9524
   Application Server's ORB Port                        - 9563
```

To Start:

START WSDCR,JOBNAME=WSDMGR,ENV=WSCELL.WSDMNODE.WSDMGR
START WSACRA,JOBNAME=WSAGNTA,ENV=WSCELL.WSNODEA.WSAGNTA
START WSACRA,JOBNAME=WSSR00A,ENV=WSCELL.WSNODEA.WSSR00A

Admin console available at ***http://{hostname}.pbm.ihost.com:9060/admin***

To Stop:

P W9DEMN (to bring down all WebSphere address spaces)

Unix Systems Services

To access TSO i-Shell, enter “TSO ISH” from any ISPF command line.

To enter OMVS from a TSO session, enter “TSO OMVS” from any ISPF command line.

If you access the z/OS via SSH, you are automatically put into OMVS.

Userid CECUSER and L@TSO* userids all have Super-User ability. To enter Super-User mode, type “su” and hit <enter> in USS.
You can validate you are Super User by typing “whoami”.

If you wish to grant other userids Super-User authority, you can do this with userid CECUSER (RACF SPECIAL) via RACF by adding entries to class(FACILITY) name(BPX.SUPERUSER) access(READ).

Auto-Mount

Please note that AUTOMOUNT is used for managing the mounting of user ZFSs when entering USS. This is governed by program /usr/sbin/automount which references /etc/auto.map and /etc/auto.master.

When creating new user ids that require a USS segment, a user ZFS needs to be allocated. If you use the following naming convention, no changes to AUTOMOUNT are needed and the new user’s ZFS will automatically be mounted. Naming convention: OMVS.ZFS.USER.<userid>

Creating a new File System (ZFS)

If you wish to create a new file system ZFS. please use caution with choosing an appropriate DASD location for the new ZFS. It is recommended you choose a naming convention that is managed by DFSMS to allow the system architecture to automatically handle this. Please reference SYSL.ZLP@.ACS.SOURCE(STORCLAS) for details regarding this. It is recommended you use ZLP@.ZFS.** which is automatically DFSMS directed to the PROJECT storage pool.

To allocate a new ZFS, you may use job SYSL.ZLP@.JCL(ZFSALLOC).
The following is an example:

```
//ZFSALLOC JOB ,,MSGLEVEL=1,MSGCLASS=H,CLASS=A,REGION=0M,
//    USER=&SYSUID,NOTIFY=&SYSUID
//*****************************************************************
//* MAKE SURE 'CAPS OFF' IS SPECIFIED. THIS JOB IS CASE-SENSITIVE!    *
//* CHANGE ++ZFS_NAME++ TO THE ZFS FILE SYSTEM.                       *
//* SUBMIT.                                                           *
//* ----------------------------------------------------------------- *
//* FYI: 1170 CYL = 1 GB                                              *
//*****************************************************************
//DEFINE   EXEC   PGM=IDCAMS
//SYSPRINT DD     SYSOUT=H
//SYSUDUMP DD     DUMMY
//AMSDUMP  DD     DUMMY
//SYSIN    DD     *
  DEFINE CLUSTER (NAME(++ZFS_NAME++)  -
```

```
   STORCLAS(OMVSPOOL)                          -
   LINEAR CYL(1170 50) SHAREOPTIONS(3))
/*
//*****************************************************************
//FORMAT   EXEC   PGM=IOEAGFMT,REGION=0M,
//        PARM=('-aggregate ++ZFS_NAME++ -compat')
//SYSPRINT DD   SYSOUT=H
//STDOUT   DD   SYSOUT=H
//STDERR   DD   SYSOUT=H
//SYSUDUMP DD   DUMMY
//CEEDUMP  DD   DUMMY
/*
```

Make sure the job ends with RC=0. If you get RC=1 it is because you don't have mixed-case enabled! Make sure -aggregate and -compat are in lowercase.

After the ZFS is allocated, go into USS and mount the new ZFS at the mount point of your choosing. Note into to insure the ZFS is mounted after an IPL, update the BPXPRM00 member in SYSL.ZLP@.PARMLIB.