

NaviQuest – Testing ACS Hands-On Lab

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that provides **education, professional networking and industry influence.**



Lab Agenda

- Log In
- Resources Overview
- Set up ISMF Profile
- Labs 1- 10



Logging In

- Find **SHARE LPAR** icon on the Desktop →



- Enter **TSO** ----->
- Use ID **SHARAxX** ----->
Each workstation
will have it's own ID
SHARA01 – SHARA20
- Use Command ----->
ex 'share.clist(navqlab)'

```
Enter Your Userid:  
Password:  
Application: TSO_  
Application Required. No Installation
```

```
Enter LOGON parameters below:
```

```
Userid      ==> SHARA01
```

```
Password    ==> _
```

```
Procedure   ==> SHARE
```

```
Acct Nbr    ==> SHR
```

```
Size        ==> 204800
```

```
Perform     ==>
```

```
Command     ==> ex 'share.clist(navqlab)'
```

Finding NaviQuest

ISMF PRIMARY OPTION MENU - z/OS DFSMS V2 R1

Selection or Command ===>

0	ISMF Profile	- Specify ISMF User Profile
1	Data Set	- Perform Functions Against Data Sets
2	Volume	- Perform Functions Against Volumes
3	Management Class	- Specify Data Set Backup and Migration Criteria
4	Data Class	- Specify Data Set Allocation Parameters
5	Storage Class	- Specify Data Set Performance and Availability
6	Storage Group	- Specify Volume Names and Free Space Thresholds
7	Automatic Class Selection	- Specify ACS Routines and Test Criteria
8	Control Data Set	- Specify System Names and Default Criteria
9	Aggregate Group	- Specify Data Set Recovery Parameters
10	Library Management	- Specify Library and Drive Configurations
11	Enhanced ACS Management	- Perform Enhanced Test/Configuration Management
C	Data Collection	- Process Data Collection Function
G	Report Generation	- Create Storage Management Reports
L	List	- Perform Functions Against Saved ISMF Lists
P	Copy Pool	- Specify Pool Storage Groups for Copies
R	Removable Media Manager	- Perform Functions Against Removable Media



Resources

- **Publications**
 - *DFSMS Storage Administration Reference - Chapter 22*
 - *DFSMS Using the Interactive Storage Management Facility*
- Both Books are available online.
See data set **SHARAx.S17048.DOCLINKS** for web links
- Quick note on using PCOMM:
 - CTRL is execute (what we think of as ENTER)
 - ENTER is newline
 - F7/F8 for page up / page down

Lab Data Sets

- **SHARAx.x.S17048.ACS** – edit / use these for the lab
 - DCLAB – data class
 - SCLAB – storage class
 - MCLAB – management class
 - SGLAB – storage group
- **SHARAx.x.S17048.ACSTSTS**
 - Library to hold ACS Test Cases
- **SHARAx.x.S17048.SMS.SCDS**
 - Your own SCDS, make changes to this one
- **SHARE.S17048.***
 - “User” and “Application” data used for ACS testing
- And a few more that we'll introduce along the way...

Our Lab SMS Configuration

- **VERY Simple SMS configuration**
 - Everything logically split to USER or APPLICATION groups
 - Based on &DSN(3)
- **No DATACLAS or MGMTCLAS**
- **Two STORCLAS**
 - APPDATA – for applications
 - USRDATA – for user data
- **Two STORGRPs**
 - APPDATA – for applications
 - USRDATA – for user data

Lab Agenda

- **Total of 10 Labs**
- Work at your own pace
- Workbook contains two sections per lab (usually):
 - Instructions – how to get the task done
 - Questions – ask you about the results and verify success
- Don't hesitate to ask if you have questions!

Pre-Lab Setup

- Set yourself up as a Storage Administrator
 - Enter **ISMF** (command ISMF from main menu)
 - Select **0** - Profile Options
 - Select **0** - User Mode Selections
 - Select **Option 2 - Storage Administrator**
 - End/Exit (F3)
- Update your default JCL:
 - From Profile Options Menu (ISMF.0)
 - Select **2 - “ISMF Job Statement”**
 - Set 'Specify ISMF Job Statement Source' to **2**
 - Modify the ISMF Job Statement Information to look like:
//SHARAxxA JOB (ACCOUNT), 'NAME', NOTIFY=&SYSUID
Where xx is your lab id
- Hit PF3 (END/EXIT) 3 times to return to main ISPF menu

Let's get started!



Complete your session evaluations online at www.SHARE.org/Seattle-Eval

Lab 1 - Generate ISMF Data Set List

- Enter ISMF List Panel
 - ISMF Option 1
 - Select '2' for Source
 - Enter '**SHARE.S17048.US*R*.***' for DS Name
 - Specify '2' for 'Source of the New List' to indicate Catalog
 - Specify 'Y' for 'Acquire Data from Volume'
 - Hit Enter
- You should have 5 data sets listed
- On the command line, type **SAVE USRDATA**

Lab 1 – Example DS Panel Options

DATA SET SELECTION ENTRY PANEL

Page 1 of 5

Command ===>

For a Data Set List, Select Source of Generated List . . 2 (1 or 2)

- 1 Generate from a Saved List Query Name To
List Name . . Save or Retrieve

- 2 Generate a new list from criteria below
Data Set Name . . . 'SHARE.S17048.US*R*.**'
Enter "/" to select option Generate Exclusive list
Specify Source of the new list . . 2 (1 - VTOC, 2 - Catalog)
 - 1 Generate list from VTOC
Volume Serial Number . . . (fully or partially specified)
Storage Group Name (fully specified)
 - 2 Generate list from Catalog
Catalog Name . . .
Volume Serial Number . . . (fully or partially specified)
Acquire Data from Volume Y (Y or N)
Acquire Data if DFSMSHsm Migrated . . N (Y or N)

Lab 1 - Generate More Lists

- Repeat the search for an application group:
 - Search for '**SHARE.S17048.APP*.****'
 - Save list as **APPS**

- Repeat for a second application group:
 - '**SHARE.S17048.*JOB*.****'
 - Save list as **JOBS**

Lab 1 - Questions

- Use ISMF Option **L** to view your saved lists
- How many lists do you see? (should be 3)
- What are their names?

Lab 2 – Data Set Report

- **Our first foray into the NaviQuest Panels**
- Select ISMF Option **11** - “Enhanced ACS Management”
- Select Option **5** - “SMS Report Generation”
- Select Option **1** - “Data Set Report from Saved ISMF List”
- Select the following options:
 - Saved ISMF List: **USRDATA**
 - Data Set to Hold Report: **S17048.REPORT1** (no “ ” required)
 - Replace Contents: **Y**
 - Everything else can remain default
- For the columns:
 - Data Set Name: **1**
 - Alloc Space: **2**
 - % Not Used: **3**
 - Volume Serial: **4** (you'll have to scroll down to find it)

Lab 2 – Data Set Report - Questions

- How many data sets are in the List?
- Which data set uses the most space?
- What is the total allocated space?
 - (Scroll to the bottom to see the totals)

Lab 3 – Run an ACS Test Case

- Run an ACS Test case!
- Use ISMF Option **7** - “**ACS Class Selection**”
- Select Option **4** - “Test” (the CDS Name field can be ignored)
- Select Option **3** - “Test” and fill in:
 - ACS Test Library: **S17048.ACSTSTS**
 - ACS Test Member: **ATEST1**
- Fill in the panel fields:
 - CDS Name: **S17048.SMS.SCDS**
 - ACS Test Library: **S15748.ACSTSTS**
 - ACS Test Member: **ATEST1**
 - Listing Data Set: **LISTING**
 - DC, SC, MC, SG: **Y**

Lab 3 – Questions:

- What Data Class was assigned?
- What Storage Class was assigned?
- What Management Class was assigned?
- What Storage Group was assigned?
- What was the final ACS Testing Return Code?
 - If non-zero, double-check your inputs and re-run

Lab 4 – Generate Test Cases

- Use the ISMF Lists to Generate ACS Test Cases
- ISMF Option **11** - “Enhanced ACS Management”
- Option **1** - “Test Case Generation”
- Option **1** - “Saved ISMF List”
- Fill in:
 - Saved ISMF List: **USRDATA**
 - Member Name Prefix: **USR**
 - Test Case PDS: **S17048.ACSTSTS**
 - You can leave the rest blank
- Hit Enter/CTRL to build the test cases

Lab 4 – Questions and Next Steps

- You should see members ATEST1 and USR1 – USR5
- Use 'b' to browse one the members
- What does test member USR1 list as the DSN?
- What is the value for ACSENVIR listed in test USR4?
- **Re-run the ACS Test Case Generation for:**
 - Saved list **APPS**, using prefix **APP**
 - Saved list **JOBS**, using prefix **JOB**
- Verify that you now have 12 test cases

Lab 5 – Generate ACS Testing Baseline

- This will run the tests you just created and save the results for later comparison
- Use ISMF Option **7** - “Automatic Class Selection”
- Option **4** - “Test”
- Option **3** - “Test”
- Fill in:
 - CDS Name: **S17048.SMS.SCDS**
 - ACS Test Library: **S17048.ACSTSTS**
 - ACS Test Member: *
 - Listing Data Set: **S17048.BASELINE'**
 - Select **Y** for DC, SC, MC, SG
- Hit ENTER/CTRL to run the test!

Lab 5 – Questions

- You'll now see the testing results for every test case in your test case library. Scroll through and answer:
- What Storage Class is set for test APP1?
- What Storage Group is set for test USR1?
- What Storage Class is set for test JOB1?
- Go back and look at your test case PDS..
What DSN is used for JOB1?

Lab 6 – Make Changes to the ACS

- We're going to add two new application filters: **US*** and **CA***
- We'll make use of the **COPYFILT** tool to do this!

- Open your ACS PDS in ISPF 3.4 – '**SHARAx.S17048.ACS**'
- Open the **FILTLIST** member for editing
- Change the line:
 - From: **FILTLIST APPDATA INCLUDE(APP*,JOB*,BANK*)**
 - To: **FILTLIST APPDATA INCLUDE(APP*,JOB*,BANK*,US*,CA*)**
- On the command line, enter: **SAVE**
- On the command line, enter: **COPYFILT**
- Fill in:
 - Member Containing FILTLISTs: **FILTLIST**
 - Data Class ACS Routine Name: **DCLAB**
 - Fill in the other 3 routine names: **SCLAB, MCLAB, SGLAB**
 - Change Log Entry: **Updated in Lab** (or whatever you like)

Lab 6 – Translate and Verify

- Go back and browse ACS Member SCLAB.
Do you see your comment line above the FILTLIST?
- Now we need to **TRANSLATE** the routines:
 - ISMF Option **7** - “Automatic Class Selection”
 - Option **2** - “Translate”
 - Fill in:
 - SCDS Name: **S17048.SMS.SCDS**
 - ACS Source Data Set: **S17048.ACS**
 - ACS Source Member: **DCLAB**
 - Listing Data Set: **LISTING**
 - Hit ENTER/CTRL and verify return code: **RETURN CODE: 0000**
- Repeat Above steps but use ACS Source Members:
 - **SCLAB, MCLAB, SGLAB, one at a time**

Lab 7 – Run the ACS Tests Again

- Except this time, we'll do it with JCL in BATCH
- ISMF Option **11** - “Enhanced ACS Management”
- Option **7** - “Batch Testing/Configuration Management”
- Option **3** - “Configuration Change Batch Sample”
- Scroll down and select “**TEST ACS Routines**”
- You'll now see JCL for this job. Make the following changes:
 - Verify JOBCARD uses your jobname: **SHARAxxA**
 - TABL2=**SHARAxX.S17048.BATCHTBL**
 - PROFILE PREFIX(**SHARAxX**)
 - DEL **S17048.CHNGTST1**
 - SCDS(**S17048.SMS.SCDS**)
 - TESTBED(**S17048.ACSTSTS**)
 - LISTNAME(**S17048.CHNGTST1**)
- Under TESTGEN EXEC
 - SYSUT1 DSN=**SHARAxX.S17048.CHNGTST1**
- (see next page for updated JCL)

Lab 7 – Run ACS Tests Again

Your Edited JCL should look like this:
(Using **SHARA01** as Example – remember to use your ID!)

```
//SHARA01A JOB (ACCOUNT), 'SHARA01', NOTIFY=&SYSUID ←  
  
//TESTACS EXEC ACBJBAOB,  
//          PLIB1='SYS1.DGTPLIB', ←  
//          TABL2=SHARA01.S17048.BATCHTBL ←  
//SYSTSIN DD *  
PROFILE PREFIX(SHARA01) ←  
DEL S17048.CHNGTST1 ←  
ISPSTART CMD(ACBQBAIA +  
SCDS(S17048.SMS.SCDS) + ←  
TESTBED(S17048.ACSTSTS) MEMBER(*) + ←  
LISTNAME(S17048.CHNGTST1) + ←  
DC(Y) SC(Y) MC(Y) SG(Y) +  
NEWAPPL(DGT) BATSCRW(132) BATSCRD(27) BREDIMAX(3) BDISPMAX(99999999)  
  
//TESTGEN EXEC PGM=IEBGENER  
//SYSUT1 DD DSN=SHARA01.S17048.CHNGTST1, DISP=SHR ←  
//SYSUT2 DD SYSOUT=*  
//SYSIN DD DUMMY  
//SYSPRINT DD SYSOUT=*
```

Lab 7 – Run ACS Tests Again

- Enter '**SUB**' on the Command Line
 - This submits the job for processing
- Hit F3 to exit and save your JCL:
 - Select '**Y**' to Save JCL
 - Data Set Name: **S17048.JCL(TESTACS)**
 - Replace Contents: **Y**
- Return to ISPF Main menu (or split your screen with F2)
- Enter option **SDSF** to start SDSF
- Enter command: **ST**
- Find your job (should be at the bottom of the list)
 - Select with '**S**'
 - **Verify RC 0**

Lab 7 - Questions

- Go to **ISPF 3.4** and browse data set SHARAx.S17048.CHNGTST1
- What Storage Class is set for test APP1?
- What Storage Group is set for test JOB1?
- What Storage Class is set for test USR1?

Lab 8 – Compare Listings

- Now we'll compare the **BASELINE** to our **CHNGTST1**
Use **EITHER** the NaviQuest Panels (below) or Batch (next page)
- **NaviQuest Panels:**
 - ISMF Option **11** - “Enhanced ACS Management”
 - Option **2** - “ACS Test Listings Comparison”
 - Fill in:
 - Base ACS Test Listing: **S17048.BASELINE**
 - New ACS Test Listing: **S17048.CHNGTST1**
 - Test Case PDS: **S17048.ACSTSTS**
 - Comparison Results: **S17048.TESTRES**
 - Exception Test Case PDS: **S17048.TESTEXS**
 - Hit **ENTER/CTRL** to process results
 - Skip the next two pages of the lab handout.....
- **Batch (see next page):**

Lab 8 – Batch Option

To Compare Listings via Batch:

- ISMF Option **11** - “Enhanced ACS Management”
- Option **7** – “Batch Testing/Configuration Management”
- Option **3** - “Configuration Change Batch Examples”
- Scroll down and select “**Compare ACS Test Listings**”

- Update JCL – see next page for changes
- Submit job ('**SUB**')

- Save your JCL on exit – DS: **S17048.JCL(anymember)**
- Check SDSF to verify RC=0

Lab 8 – Checking Change via Batch

```
//CMPRSTEP EXEC ACBJBAOB,  
//          PLIB1=SYS1.DGTPLIB,  
//          TABL2=SHARAx.x.S17048.BATCHTBL  
//SYSTSIN DD *  
PROFILE PREFIX(SHARAx.x)  
DEL S17048.TESTRES  
DEL S17048.TESTEXS  
ISPSTART CMD(%ACBQBAC1 +  
BASELIST(S17048.BASELINE) +  
NEWLIST(S17048.CHNGTST1) +  
TESTBED(S17048.ACSTSTS) +  
RSLTDSN(S17048.TESTRES) +  
XCPTPDS(S17048.TESTEXS) +  
XCPSPACE(5,3,30)) +  
BATSCRW(132) BATSCRD(27) BREDIMAX(3) BDISPMAX(99999999)  
  
//REPGEN EXEC PGM=IEBGENER  
//SYSUT1 DD DISP=SHR,DSN=SHARAx.x.S17048.TESTRES  
//SYSUT2 DD SYSOUT=*  
//SYSIN DD DUMMY  
//SYSPRINT DD SYSOUT=*
```

Lab 8 - Questions

- **Use ISPF 3.4 to inspect SHARAx.S17048.TESTRES**
- *This contains only the test cases with different results.*
- For test cases JOB1 and JOB4, which classes changed?
- For cases USR1 – USR5, what changed?
- Are all USR cases assigning the same classes?
We might have a problem in our ACS!

Lab 9 – Fix ACS Again

- What's wrong?
 - With the addition of the mask US* to the APP FILTLIST, the USR* data sets are also getting assigned to the application class!
- **The lab assignment:** correct the ACS and try again.
 - Update ACS (see below)
 - Translate the ACS routines (see lab 6)
 - Repeat labs 7 and 8 to Test and Compare
Note: if you saved your JCL, this should be quick and easy!
- **ACS Fix:**
 - The ACS did not follow best practice:
“Put your most specific tests first.”
 - Use ISPF 3.4 to open the **SHARAx.S17048.ACS**
 - See the next page for recommended changes

Lab 9 – ACS Changes Again

- **The solution is to switch the order of the WHEN statements**
 - Check USRDATA first, because:
 - USR* and USER* masks are more specific than US*
 - And the SELECT will stop checking as soon as a WHEN matches..

- SCLAB Solution:

```
/* LOGIC */  
SELECT (&DSN (3) )  
    WHEN (&USRDATA) SET &STORCLAS = 'USERDATA'  
    WHEN (&APPDATA) SET &STORCLAS = 'APPDATA'  
END
```

- SGLAB Solution:

```
/* LOGIC */  
SELECT (&DSN (3) )  
    WHEN (&USRDATA) SET &STORGRP = 'USERDATA'  
    WHEN (&APPDATA) SET &STORGRP = 'APPDATA'  
END
```

Lab 9 - Continuing

- **Translate the updated routines (Lab 6)**
 - You can also do this through batch if you prefer
- **Re-run the ACS Tests**
 - Run in batch (Lab 7, did you save your JCL?)
OR via panels (Lab 5)
 - Just be careful not to overwrite the BASELINE
- **Compare the results again**
 - Run in batch or via panels (Lab 8)

Lab 9 – Summary and Questions

- **Examine the test output and comparison output:**
- Do all the APP* and JOB* test cases result as follows?
 - STORCLAS: APPDATA
 - STORGRP: APPDATA
- Do all the USR* test cases result as follows?
 - STORCLAS: USRDATA
 - STORGRP: USRDATA
- If so, then congratulations! You've now experienced ACS testing with NaviQuest! Excellent work.

Lab 10 – Define a volume to a storage group

- We'll use batch to add volume “S17048” to SG APPDATA
- ISMF Option **11** – NaviQuest
- Option **7** – Batch Testing
- Option **3** – Configuration Change Batch Examples
- Scroll to find “**Change Storage Group Volume Status**”
- Update the JCL again:
 - Verify **JOB CARD** (jobname should be unique to you)
 - Update **TABL2** on BOTH exec statements (ADDVOL1 and ADDVOL2) (point to **SHARAx.x.S17048.BATCHTBL**)
 - Update **PROFILE PREFIX** to your ID (**SHARAx.x**)
 - Delete all the lines in the VOLADD DD and replace with:

```
UPDHLVLSCDS(Y)  
SCDS(S17048.SMS.SCDS) SG(APPDATA) VOL(S17048) STATUS(DISALL)
```

- Submit the job!

Lab 10 – Verification

- Check the storage group to verify the volume addition.
- ISMF Option **6** – Storage Group
- Specify:
 - CDS Name: **S17048.SMS.SCDS**
 - Storage Group Name: *
 - Storage Group Type: <leave blank>
- Select Option **1** – List
- On the resulting list
 - Use command **LISTVOL** next to APPDATA
- Do you see the volume S17048?

Need More?

Here are some other things you can try!

- Set up a batch job to run a VOLUME report from a saved list
- Set up a batch job to set field GURNTSPC=Y in the APPDATA storage class
- Create one single batch job to run after ACS changes:
 - Translate ACS
 - Run suite of test cases
 - Compare results
- Construct a single batch job to build a minimal SMS configuration from scratch:
 - Define SCDS (IDCAMS)
 - Define base configuration
 - Create one STORCLAS
 - Create one STORGRP with 1 volume
 - Translate and Validate ACS
- Build a REXX job to call JCL to add a volume to a storage group

Conclusion

- After this Lab, you should know:
 - How to generate ISMF lists
 - How to use those lists to generate ACS test cases
 - How to run those test cases through ACS
 - Compare the results and identify changes
 - How to find the JCL for any batch SMS
- For more information, see the manuals on the resources page

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