NaviQuest: Testing ACS and Streamlining SMS Tasks

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#SHAREorg

SHARE is an independent volunteer-run information technology association that provides education, professional networking and industry influence.

SHARE in Seattle 2015

What is it?

"DFSMS **NaviQuest** is a data and storage management tool for implementing, testing, and verifying the SMS environment."

– DFSMSdfp Storage Administration

Overview

- A suite of simple tools based around SMS
- Composed of ISMF panels, REXX, and CLISTS
- Accessible via ISMF or Batch
- Helps automate some aspects of SMS administration:
  - Testing ACS
  - Creating reports
  - Bulk-updating SMS configuration

Overview

NaviQuest

ISMF Panels

SMS Functions

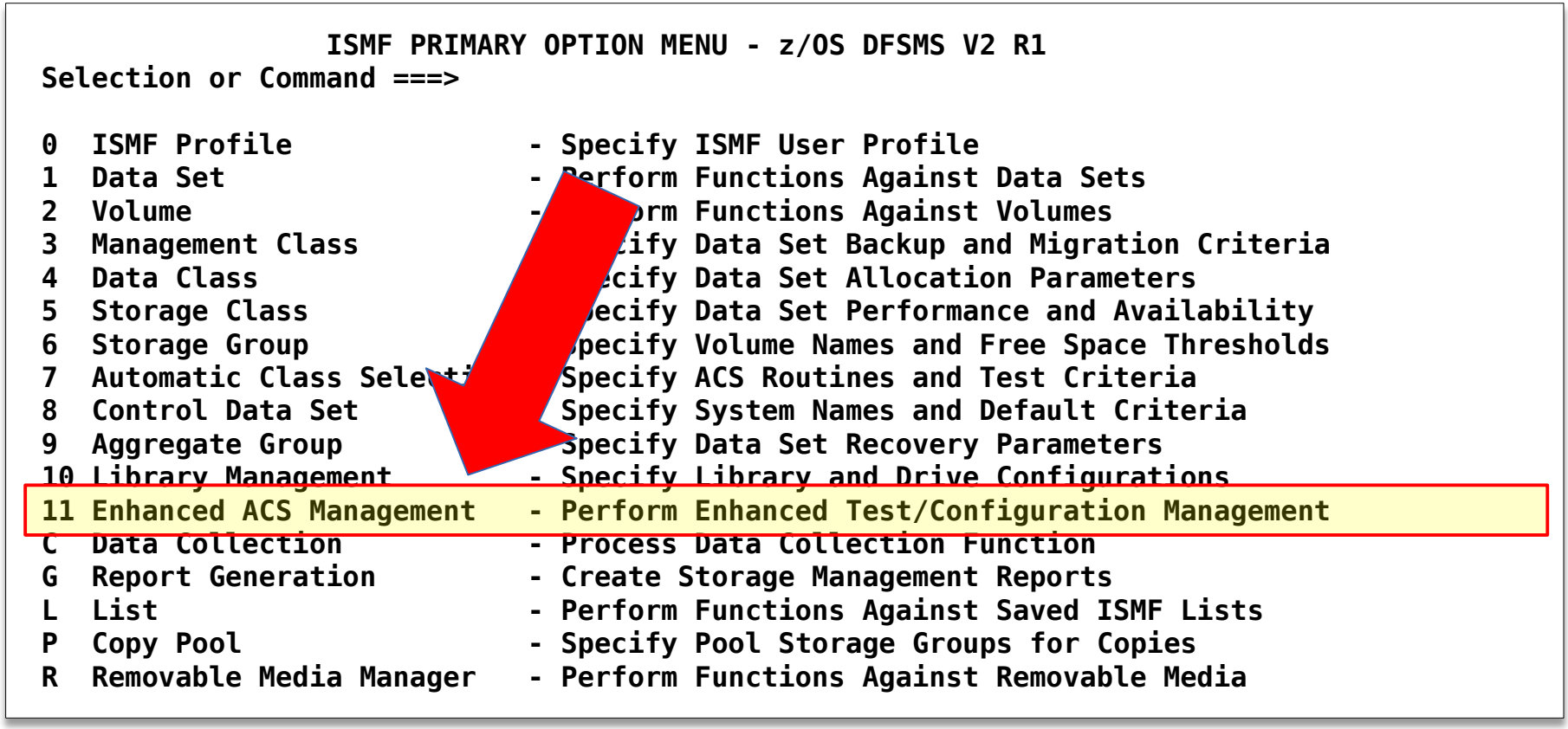
What can it do?

- **ACS Test Case Generation and Comparisons**
  - Generate ACS test cases from your data
  - Build and manage libraries of test cases
  - Reporting exceptions found ACS testing
- **Reporting**
  - Build reports about data sets, disk volumes, tape volumes
  - Builds based on DCOLLECT or ISMF saved tables
- **Batch Storage Admin**
  - Do many ISMF commands in batch
  - Save and recall ISMF queries
  - Keep FILTLISTS consistent between ACS routines
  - Generate large numbers of commands based on ISMF lists

Using NaviQuest

- Most functions have an ISMF panel
- There is a panel to provide JCL for batch
  - Option 7 – Just alter the SYSTSIN DD commands
- Require some input, so have ready:
  - ISMF lists of relevant data (data set, volumes)
  - ACS library
  - Libraries for test cases and results
  - Exception listing and library data sets – two files, one flat, one PDS
  - (for batch) ISPTABL – PDS with LRECL=80, FB

Finding NaviQuest



NaviQuest Main Panel

```
          ENHANCED ACS MANAGEMENT - NaviQuest PRIMARY OPTION MENU

Select one of the following options and press Enter:

  1  Test Case Generation
  2  ACS Test Listings Comparison
  3  Enhanced ACS Test Listing
  4  Test Case Update with Test Results
  5  SMS Report Generation
  6  Model Commands Generation
  7  Batch Testing/Configuration Management
  X  Exit
```

Demonstrations and Details:

- **Collecting Data**
- ACS Testing
  - Building test cases
  - Running ACS tests
  - Repeat in Batch
- Batch SMS
  - Add a set of volumes to a Storage Group
  - Generate a new data class
- Utilities
  - Using COPYFILT
  - Using model command generation
- Reports
  - Volume Report
  - Repeat in Batch

Collecting Data for NaviQuest

- NaviQuest relies on pre-defined lists of data
  - Data sets
  - Volumes
  - Tapes

- Collected from four possible sources:
  - ISMF lists
  - DCOLLECT data
  - SMF records (SMF Exit)
  - Volume Mount Analyzer (VMA) data

ISMF Lists (Data Set / Volume)

- Generated from within ISMF option 1/2
- Stores lists in the active ISPTABL
- Great for finding groups of data sets

- **Pros:**
  - Panel-driven ease of use
  - Extensive filtering capabilities
  - Editable after generation
- **Cons:**
  - Can be cumbersome with large lists
  - Stored in ISPTABL, so easy to lose track of them

ISMF - Generate DS List

```
                ISMF PRIMARY OPTION MENU - z/OS DFSMS V2 R1

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
```

```
                        DATA SET SELECTION ENTRY PANEL              Page 1 of 5

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 . . . 'SHARA20.S17048.**'
       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)
Use ENTER to Perform Selection; Use DOWN Command to View next Selection Panel;
Use HELP Command for Help; Use END Command to Exit.
```

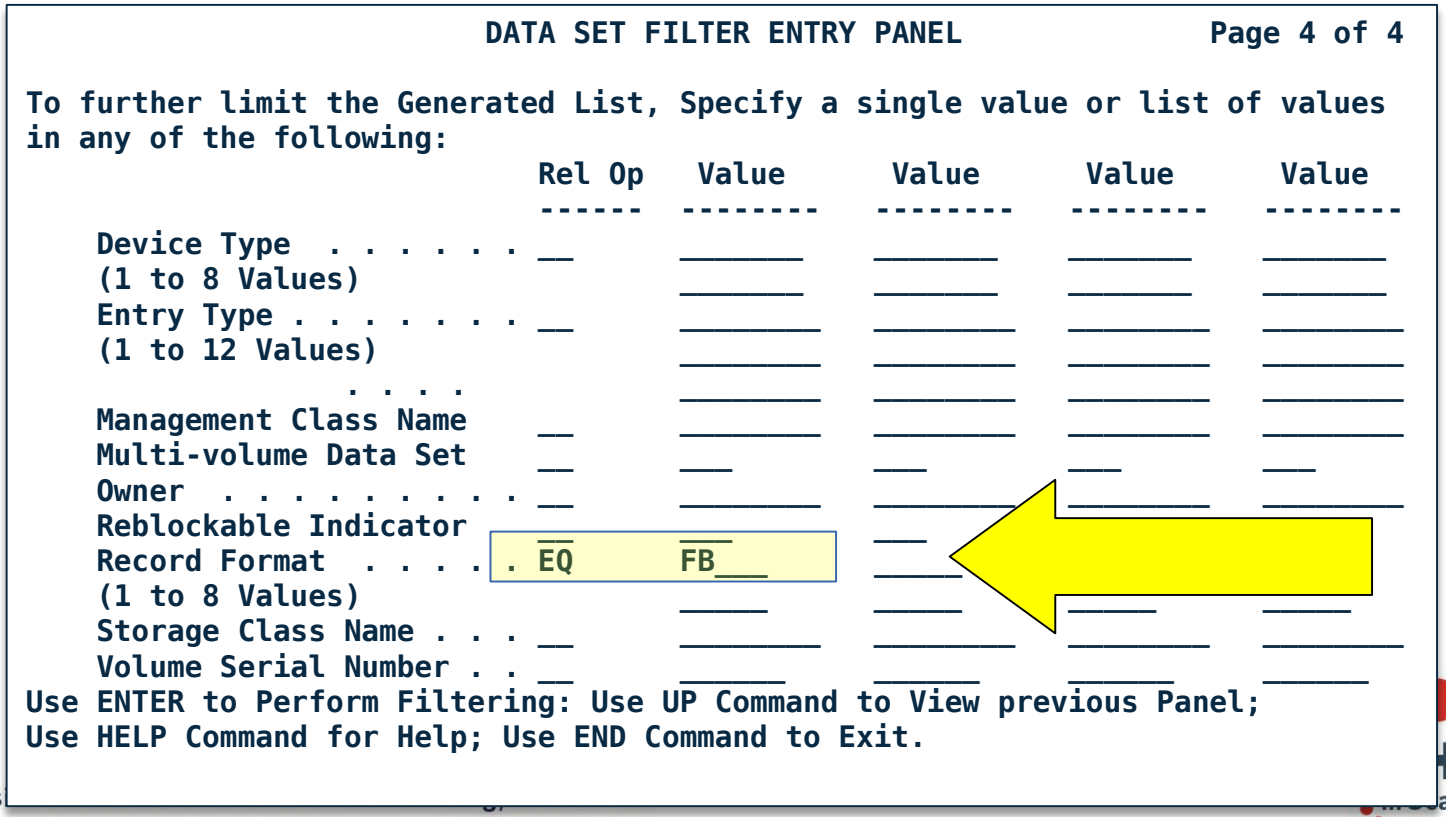
ISMF Lists - Generate DS List

```
                                DATA SET LIST
Command ===> save myfiles                                  Scroll ===> HALF
                                                        Entries 1-9 of 9
Enter Line Operators below:                             Data Columns 3-5 of 42

     LINE                                       ALLOC      ALLOC     % NOT
     OPERATOR          DATA SET NAME            SPACE      USED      USED
    ---(1)----  ------------(2)------------ ---(3)---  ---(4)---  -(5)-
                SHARA20.S17048.ACS                55K        55K       0
                SHARA20.S17048.ACSTSTS            55K        55K       0
                SHARA20.S17048.BATCHTBL          166K       166K       0
                SHARA20.S17048.DOCLINKS           55K        55K       0
                SHARA20.S17048.JCL                55K        55K       0
                SHARA20.S17048.SMS.SCDS      ---------  ---------     ---
                SHARA20.S17048.SMS.SCDS.         830K       204K      71
                  DATA
                SHARA20.S17048.TESTEXS            55K        55K       0
                SHARA20.S17048.ZLABTABL          166K       166K       0
    ----------  ------  -----------  BOTTOM OF  DATA  -----------  ------  ----
```

ISMF Lists – Advanced Filtering

- **FILTER** command, or page down on Data Set Selection Panel
- Allows filtering on additional characteristics (4 pages worth)



ISMF Lists – Advanced Filtering

- Filtered on RECFM EQ ‘FB'

```
                                DATA SET LIST
Command ===>                                                Scroll ===> HALF
                                                         Entries 1-5 of 5
Enter Line Operators below:                              Data Columns 11-14 of 42
      **FILTERED LIST**
     LINE                                    DS     REC   RECORD   BLK SZ
     OPERATOR          DATA SET NAME         ORG    FMT   LENGTH   CI SIZE
    ---(1)----  ------------(2)------------ (11)  (12)-  -(13)--  -(14)--
              SHARA20.S17048.ACS            PO     FB          80    27920
              SHARA20.S17048.ACSTSTS        PO     FB          80    27920
              SHARA20.S17048.BATCHTBL       PO     FB          80    27920
              SHARA20.S17048.DOCLINKS       PS     FB          80    27920
              SHARA20.S17048.ZLABTABL       PO     FB          80    27920
    ----------  ------  -----------  BOTTOM OF  DATA  -----------  ------  ----
```

- Additional filtering:
  - **HIDE**: hides lines
  - **RESHOW**: shows hidden lines
  - Remember to “**SAVE name REPLACE**” after changes

DCOLLECT

- IDCAMS tool
- Also available via ISMF option C
- Collects Data Set and Volume info from VTOC
- Great for finding all data sets in a storage group
- Bad for finding data sets based on name

- **Pros**:
  - Faster than ISMF
  - Runs in batch
  - Stores output in FB file
- **Cons**:
  - No advanced filtering
  - Collects from volume, not catalog

SMF and VMA

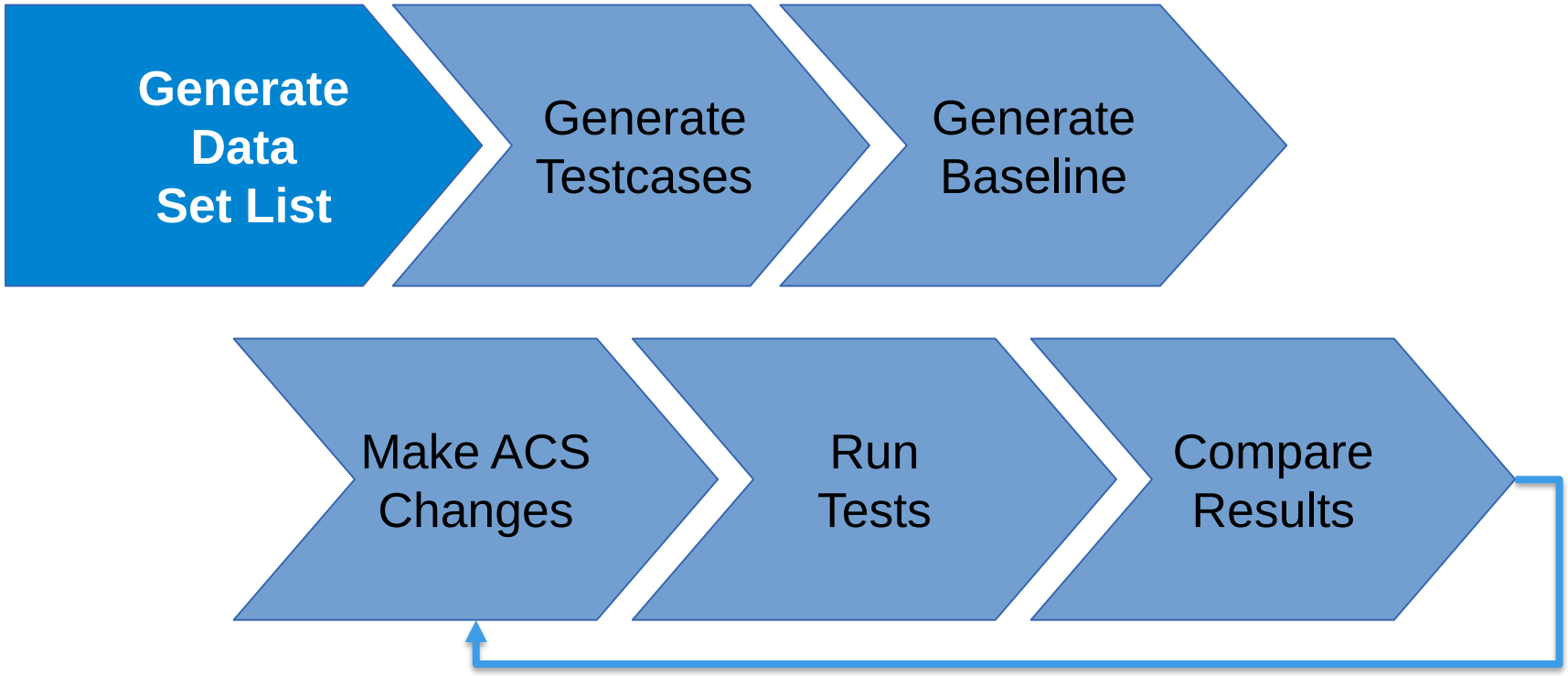
- **SMF ACS Exit**
  - User-written routine
  - Cuts SMF type 127
  - Called during ACS processing
  - Contains ACS variable data
  - Sample in SYS1.SACBCNTL (IGDACSSC)
- **Pros**:
  - Captures real-world scenarios
  - Contains variables you would otherwise have to invent (like &JOB, &DD)
- **Cons:**
  - May not catch all types
  - No filtering

- **Volume Mount Analyzer**
  - Only good for tape data sets
  - Parses SMF records
  - Produces an output file which is used as input for NaviQuest
  - Help understand tape usage
- **Pros**:
  - Real-world data
  - Great for tape data sets
- **Cons**:
  - Only useful for tape
  - Requires external processing

Demonstrations and Details:

- Collecting Data
- **ACS Testing**
  - Building test cases
  - Running ACS tests
  - Repeat in Batch
- Batch SMS
  - Add a set of volumes to a Storage Group
  - Generate a new data class
- Utilities
  - Using COPYFILT
  - Using model command generation
- Reports
  - Volume Report
  - Repeat in Batch

ACS Testing - Process



ISMF - Generate DS List

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  1  Generate from a Saved List          Query Name To
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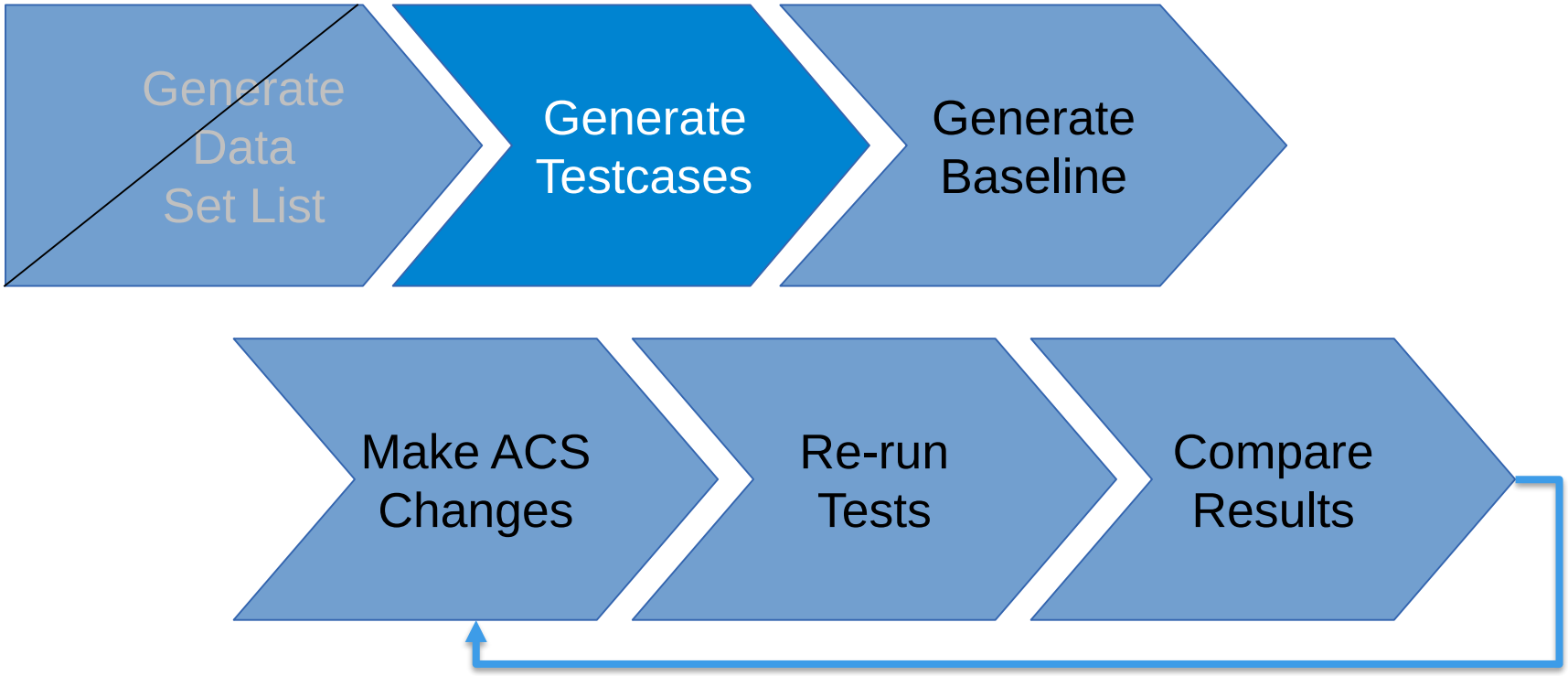
  2  Generate a new list from criteria below
       Data Set Name . . . 'SHARE.S17048.**'
       Enter "/" to select option       Generate Exclusive list
       Specify Source of the new list  . . 2    (1 - VTOC, 2 - Catalog)
       1 Generate list from VTOC
          Volume Serial Number . . .            (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)
Use ENTER to Perform Selection; Use DOWN Command to View next Selection Panel;
Use HELP Command for Help; Use END Command to Exit.
```

ISMF Lists - Generate DS List

```
                                DATA SET LIST
Command ===> save demolist                                  Scroll ===> HALF
                                                          Entries 1-11 of 11
Enter Line Operators below:                               Data Columns 3-5 of 42

     LINE                                          ALLOC      ALLOC     % NOT
     OPERATOR          DATA SET NAME               SPACE      USED      USED
    ---(1)----  ------------(2)------------ ---(3)---  ---(4)---  -(5)-
                SHARE.S17048.APP1.DATA           221K        55K     75
                SHARE.S17048.APP2.DATA           221K        55K     75
                SHARE.S17048.CAJOB.DATA          221K        55K     75
                SHARE.S17048.JOB1.DATA           221K        55K     75
                SHARE.S17048.JOB2.DATA           221K        55K     75
                SHARE.S17048.USER.DATA1          221K        55K     75
                SHARE.S17048.USER.DATA2          221K        55K     75
                SHARE.S17048.USJOB.DATA          221K        55K     75
                SHARE.S17048.USR.DATA1           221K        55K     75
                SHARE.S17048.USR.DATA2           221K        55K     75
                SHARE.S17048.USR.MYDATA          221K       111K     49
    ----------  ------  -----------  BOTTOM OF  DATA  -----------  ------  ----
```

ACS Testing - Process



ACS Testing – Overview

- SMS can simulate running your ACS
- Demonstrates what ACS output will be for various inputs
- ISMF ACS / Test (7.4)

```
                              ACS TEST SELECTION
Command ===>

Select one of the following Options:

  1  1. DEFINE      - Define an ACS Test Case
     2. ALTER       - Alter an ACS Test Case
     3. TEST        - Test ACS Routines


If DEFINE or ALTER Option is Chosen, Specify:

  ACS Test Library . . S17048.acststs
  ACS Test Member  . . ztest1
```

- Two ways to generate test cases:
  - Panel above and NaviQuest

ACS Testing – Overview

- Defining Test Cases is time consuming

```
                              ACS TEST CASE DEFINE                 Page 1 of 4
Command ===>

ACS Test Library  : SHARA20.S17048.ACSTSTS
ACS Test Member . : ZTEST1

To DEFINE ACS Test Case, Specify:
  Description ==> ____________________________________________________________
  Expected Result ____________________________________________________________
  DSN (DSN/Collection Name) . . ______________________________________________
  MEMN (Object Name)  . . . . . ______________________________________________
  Sysname . . . ________  Xmode . . . . _____      Def_dataclas  . . _________
  Sysplex . . . ________  ACSenvir  . . ________   Def_mgmtclas  . . _________
  DD  . . . . . ________  Dataclas  . . ________   Def_storclas  . . _________
  Dsorg . . . . __        Mgmtclas  . . ________   Dsntype . . . . . _____
  Recorg  . . . __        Storclas  . . ________     If Ext  . . . . _
  Dstype  . . . ____      Storgrp . . . ________   Seclabel  . . . . _________
  Dsowner . . . ________  Size  . . . . __________ Space_Type  . . . __
  Expdt . . . . _______   Maxsize . . . __________ Second_Qty  . . . ______
  Retpd . . . . _____     Blksize . . . __________
Use ENTER to Perform Verification; Use DOWN Command to View next Panel;
Use HELP Command for Help; Use END Command to Save and Exit; CANCEL to Exit.
```

- NaviQuest can speed up the process...

ACS Testing – Generate Testcases

- ISMF 11.1.1 – NaviQuest generate

```
10 Library Management          - Specify Library and Drive Configurations
11 Enhanced ACS Management     - Perform Enhanced Test/Configuration Management
C  Data Collection             - Process Data Collection Function
```

```
            ENHANCED ACS MANAGEMENT - NaviQuest PRIMARY OPTION MENU
Enter Selection or Command ===> 1

Select one of the following options and press Enter:

  1  Test Case Generation
  2  ACS Test Listings Comparison
  3  Enhanced ACS Test Listing
  4  Test Case Update with Test Results
  5  SMS Report Generation
  6  Model Commands Generation
  7  Batch Testing/Configuration Management
  X  Exit
```

```
                       TEST CASE GENERATION SELECTION MENU
Enter Selection or Command ===> 1

Select the input data to be used and press Enter:

  1  Saved ISMF List
  2  DCOLLECT Data
  3  SMF Data
  4  VMA Extract Data
```

ACS Testing – Generate Testcases

```
                TEST CASE GENERATION FROM SAVED ISMF LIST ENTRY PANEL
Command ===> ____________________________________________________________

To generate test cases, specify the following information and press Enter:
  Saved ISMF List . . . . . DEMOLIST  (Data set list)
  Member Name Prefix  . . . . DEMO      (1 to 4 alpha characters)
  Test Case PDS . . . . . . . S17048.acststs
    Replace Existing Prefix   y         (Y or N)
ACS Test Case Variables:
                                                                More:     +
  Applic  . . . . _________          DD  . . . . . . SYSUT1__
  Def_dataclas    _________          Def_mgmtclas    _________
  Def_storclas    _________          Filenum . . . . ____
  Group . . . . . _________          Job . . . . . . MYJOBNAM
  Label . . . . . ___                Libname . . . . _________
  Pgm . . . . . . _________          Storgrp . . . . _________
  Retpd . . . . . _____              Sysplex . . . . _________
```

* there is a special prefix – NEVR – for data sets that should never be managed

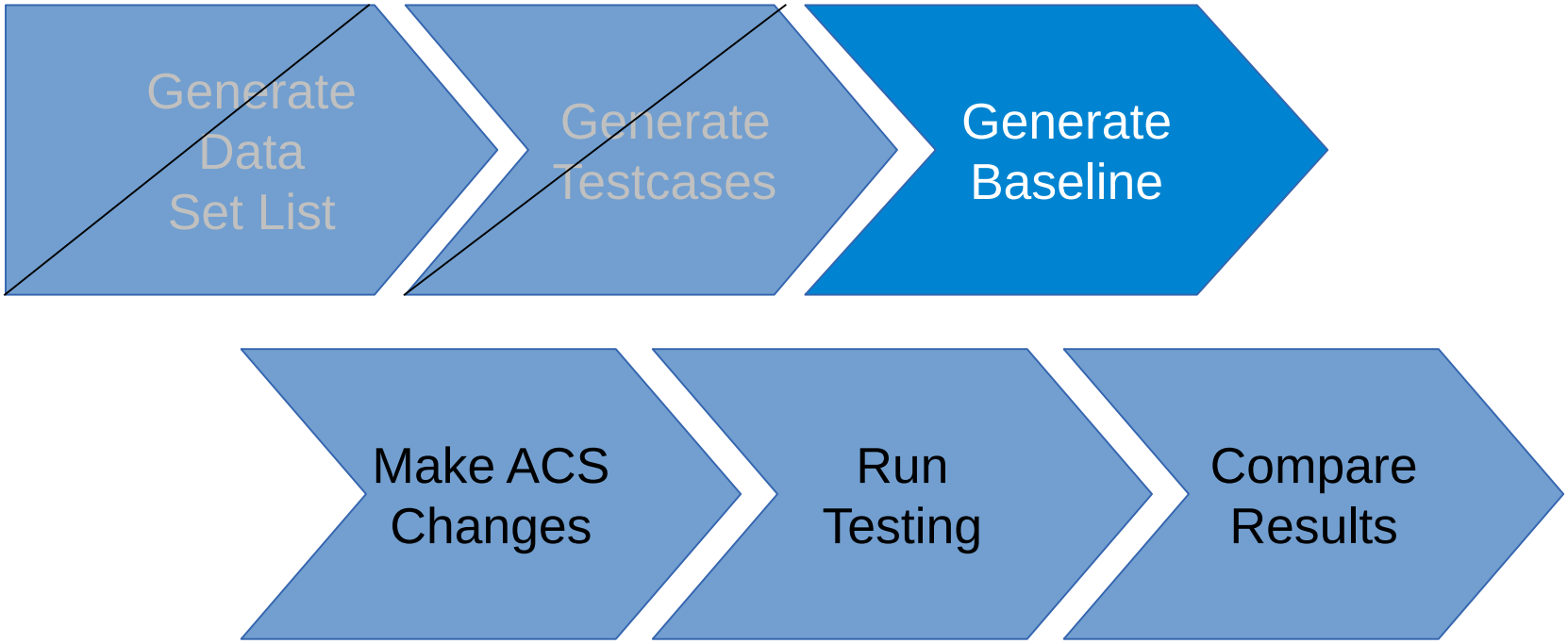
ACS Testing – Generating Testcases

```
BROWSE    SHARA20.S17048.ACSTSTS                          Row 0000001 of 0000012
Command ===>                                                 Scroll ===> PAGE
   Name      Prompt          Size    Created          Changed             ID
. DEMO1
. DEMO10
. DEMO11
. DEMO2
. DEMO3
. DEMO4
. DEMO5
. DEMO6
. DEMO7
. DEMO8
. DEMO9
. ZTEST1
  **End**
```

New Test Cases

```
 BROWSE    SHARA20.S17048.ACSTSTS(DEMO1)
 Command ===>
******************************** Top of Data ****
DESCRIPTION1:
TEST CASE CREATED 2015/03/03 AT 03:25 BY SHARA20
DSN: SHARE.S17048.APP1.DATA
DSTYPE: PERM
ACSENVIR: ALLOC
MAXSIZE: 1046
STORCLAS: SHARE
DSORG: PS
SIZE: 221
NVOL: 1
VOL: 01
SHR002
JOB: MYJOBNAM
DD: SYSUT1
UNIT: 3390
******************************** Bottom of Data **
```

ACS Testing - Process



ACS Testing – Generate Baseline

- Creating a “normal”
- Simply run the tests and save the output
- ISMF 7.4.3 (Automatic Class Selection, Test ACS Routines, Test)

```
                              TEST ACS ROUTINES
Command ===>

To Perform ACS Testing, Specify:

  CDS Name . . . . . S17048.SMS.SCDS                                  _
                                (1 to 44 Character Data Set Name or 'Active')
  ACS Test Library . . S17048.ACSTSTS                                 _
  ACS Test Member  . . DEMO*      (fully or partially specified or * for all
                                members)
  Listing Data Set . . s17048.baseline                                _
                                (1 to 44 Character Data Set Name or Blank)

Select which ACS Routines to Test:

  DC ===> Y  (Y/N)  SC ===> Y  (Y/N)  MC ===> Y  (Y/N)  SG ===> Y  (Y/N)
```

ACS Testing – Generate Baseline

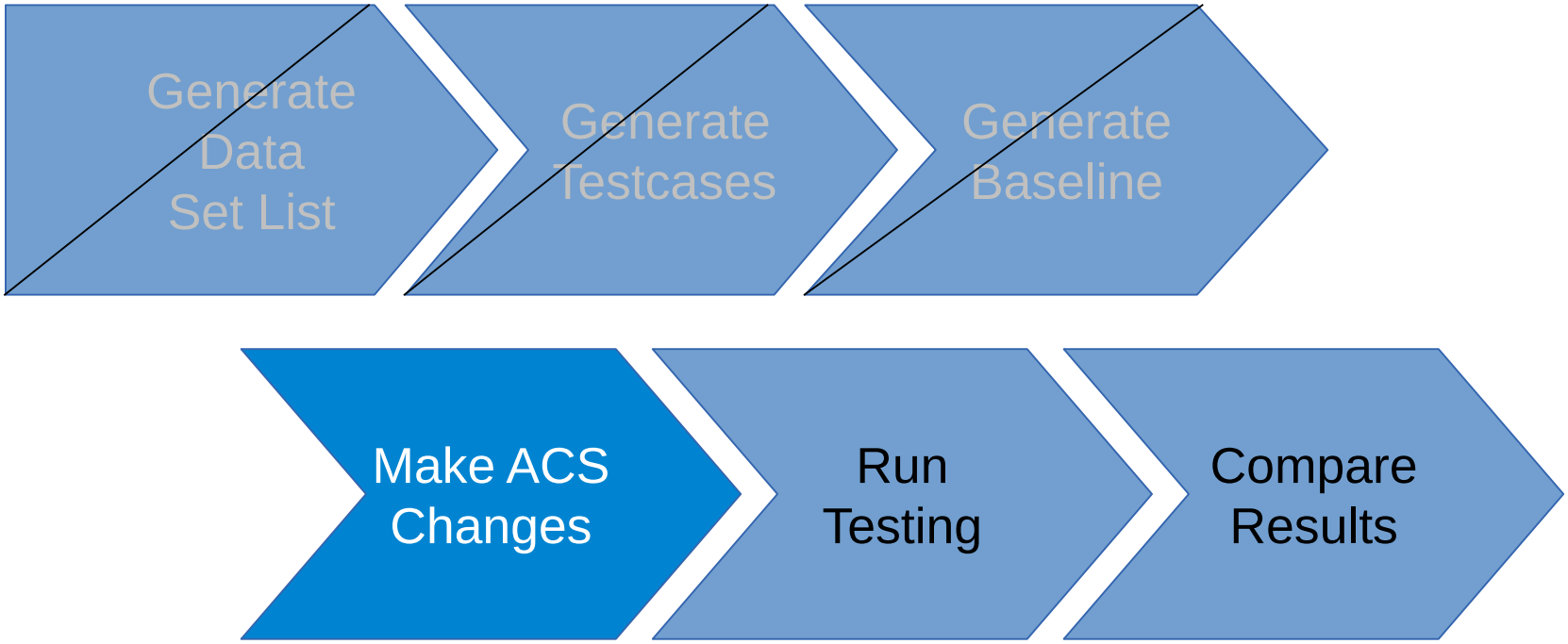
```
                                ACS TESTING RESULTS

CDS NAME          : SHARA20.S17048.SMS.SCDS
ACS ROUTINE TYPES: DC SC MC SG
ACS TEST LIBRARY : SHARA20.S17048.ACSTSTS

  ACS TEST
  MEMBER        EXIT CODE   RESULTS
  ---------     ----------  ------------------------------------
  DESCRIPTION: TEST CASE CREATED 2015/03/03 AT 03:25 BY SHARA20
  EXPECTED RESULT:
  DEMO1                  0  DC = NULL VALUE ASSIGNED
    MSG : NOTHING ASSIGNED
                         0  SC = APPDATA
    MSG : STORCLAS SET: APPDATA
                         0  MC = NULL VALUE ASSIGNED
                         0  SG = APPDATA
    MSG : STORGRP SET: APPDATA

  DESCRIPTION: TEST CASE CREATED 2015/03/03 AT 03:25 BY SHARA20
  EXPECTED RESULT:
  DEMO10                 0  DC = NULL VALUE ASSIGNED
    MSG : NOTHING ASSIGNED
                         0  SC = USERDATA
    MSG : STORCLAS SET: USERDATA
                         0  MC = NULL VALUE ASSIGNED
                         0  SG = USERDATA
    MSG : STORGRP SET: USERDATA
```

ACS Testing - Process



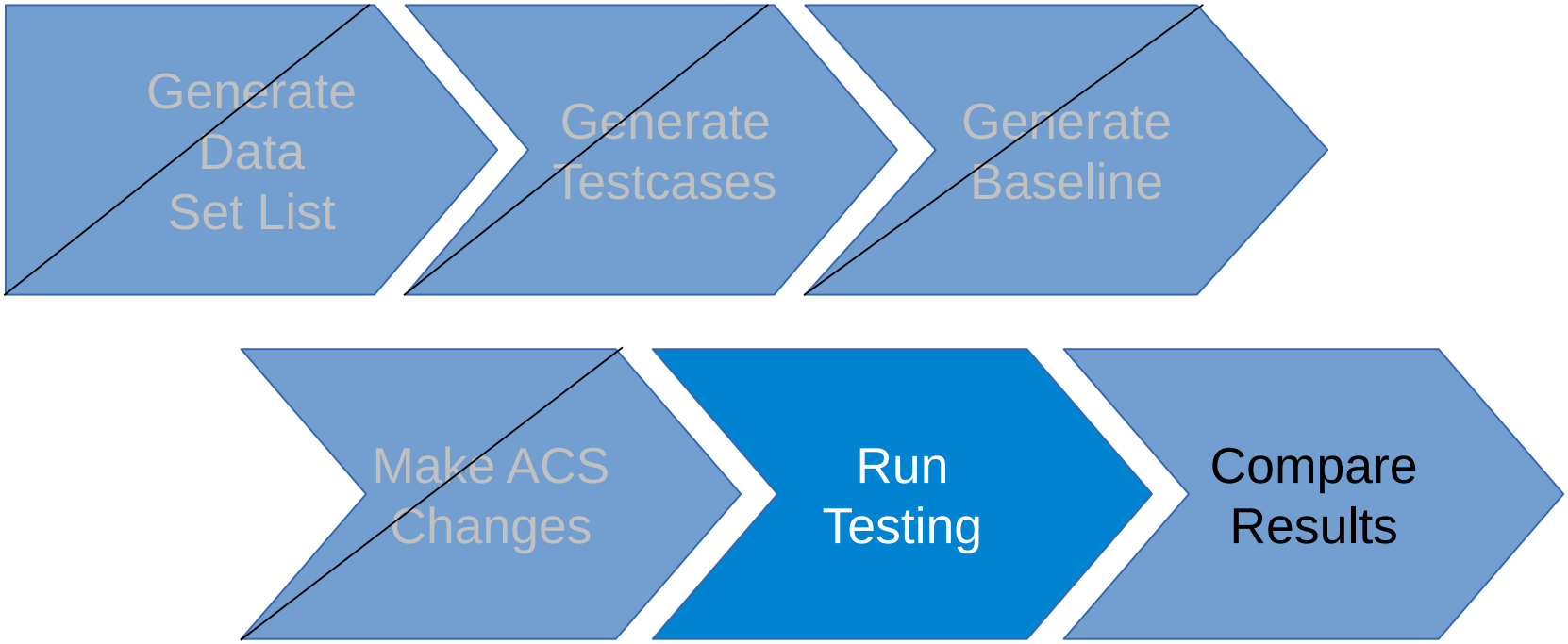
Make Changes to ACS

- Make changes to your ACS
  - Recommended that you use a COPY
  - Or keep a backup

- Remember to translate and validate!
  - ISMF 7.2 and 3
  - Optionally, translate into a test SCDS if you prefer

- For the demo, I've added *JOB to APPDATA
  - Old: `FILTLIST APPDATA INCLUDE(APP*,JOB*,BANK*)`
  - New: `FILTLIST APPDATA INCLUDE(APP*,JOB*,BANK*,*JOB)`

ACS Testing - Process



ACS Testing – Run Tests Again

- BE SURE TO TRANSLATE
- Repeat the same steps as building a baseline
- ISMF 7.4, Save to a new listing DS

```
                              TEST ACS ROUTINES
Command ===>

To Perform ACS Testing, Specify:

  CDS Name . . . . . S17048.SMS.SCDS
                                (1 to 44 Character Data Set Name or 'Active')
  ACS Test Library . . S17048.ACSTSTS
  ACS Test Member  . . DEMO*     (fully or partially specified or * for all
                                members)
  Listing Data Set . . S17048.NEWCONF
                                (1 to 44 Character Data Set Name or Blank)

Select which ACS Routines to Test:

  DC ===> Y  (Y/N)  SC ===> Y  (Y/N)  MC ===> Y  (Y/N)  SG ===> Y  (Y/N)
```

ACS Testing – Run Tests Again

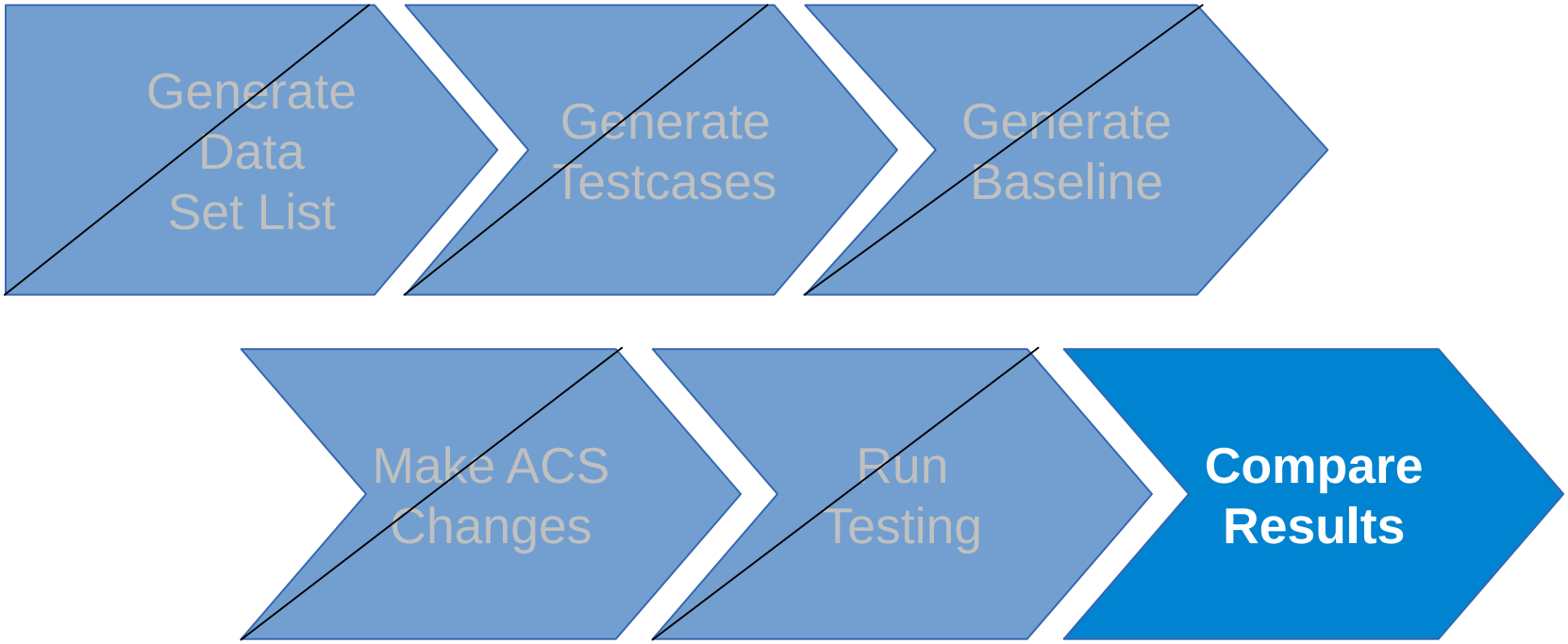
```
                                ACS TESTING RESULTS

CDS NAME          : SHARA20.S17048.SMS.SCDS
ACS ROUTINE TYPES: DC SC MC SG
ACS TEST LIBRARY : SHARA20.S17048.ACSTSTS

  ACS TEST
  MEMBER        EXIT CODE   RESULTS
  ---------     ----------  ----------------------------------
  DESCRIPTION: TEST CASE CREATED 2015/03/03 AT 03:25 BY SHARA20
  EXPECTED RESULT:
  DEMO1                  0  DC = NULL VALUE ASSIGNED
    MSG : NOTHING ASSIGNED
                         0  SC = APPDATA
    MSG : STORCLAS SET: APPDATA
                         0  MC = NULL VALUE ASSIGNED
                         0  SG = APPDATA
    MSG : STORGRP SET: APPDATA

  DESCRIPTION: TEST CASE CREATED 2015/03/03 AT 03:25 BY SHARA20
  EXPECTED RESULT:
  DEMO10                 0  DC = NULL VALUE ASSIGNED
    MSG : NOTHING ASSIGNED
                         0  SC = USERDATA
    MSG : STORCLAS SET: USERDATA
                         0  MC = NULL VALUE ASSIGNED
                         0  SG = USERDATA
    MSG : STORGRP SET: USERDATA
```

ACS Testing - Process



ACS Testing – Compare Results

- ISMF Option 11.2
  (NaviQuest ACS Testing Listing Comparison)

```
                          ACS TEST LISTINGS COMPARISON ENTRY
Command ===>

To compare ACS listings, specify the following information and press Enter:
  Input Data Sets:
    Base ACS Test Listing (Before latest ACS routine changes)
      ===> S17048.BASELINE                                                  _
    New ACS Test Listing (After latest ACS routine changes)
      ===> S17048.NEWCONF                                                   _
  Reference Data Set for Compare:
    Test Case PDS (Test source for listings above)
      ===> S17048.ACSTSTS                                                   _

  Output Data Sets:
    Comparison Results Data Set (Summary of exception test cases)
      ===> S17048.RESULTS                                                   _
      Replace Contents if DSN Exists  . . y  (Y or N)
    Exception Test Case PDS (Contents of exception test cases)
      ===> S17048.EXCEPTS                                                   _
      Replace Contents if DSN Exists  . . y  (Y or N)

Use HELP Command for Help; Use END Command to Exit.
```

ACS Testing – Compare Results

```
                        ACS TEST LISTINGS COMPARISON REPORT

Base ACS listing   :   SHARA20.S17048.BASELINE
New ACS listing    :   SHARA20.S17048.NEWCONF
Testcase dataset   :   SHARA20.S17048.ACSTSTS
Exception dataset  :   SHARA20.S17048.EXCEPTS


TESTCASE MEMBER : DEMO3
                      * * * * E X C E P T I O N * * * * *
             RC DATACLAS      RC STORCLAS      RC MGMTCLAS      RC STORGROP
             -- --------      -- --------      -- --------      -- --------
     BASE     0 NULL           0 SHARE          0 NULL           0 NULL
      NEW     0 NULL           0 APPDATA        0 NULL           0 APPDATA

                      DSN: SHARE.S17048.CAJOB.DATA
                      SIZE: 221
                      VOL: SHR001
                      JOB: MYJOBNAM
                      UNIT: 3390
```

ACS Testing – Practical Considerations

- One test case per data set in list
- Number limited by PDS that holds them
- Testing through panels will hold your console
- You probably have a lot of data sets

- Managing Large Test Groups:
  - Logically group your data
    - How does ACS decide which class to use?
    - Create test cases according to those variables
  - Don't test for everything – just a subset
  - Create different test case libraries depending on your needs

ACS Testing - Example

- What variables does your ACS use to assign classes?
  - &DSTYPE = TEMP
  - &HLQ = 'SYS1'
  - &DSN(2) – 4 different options
  - &STORCLAS – set on JCL
- So you'll need at least 7 test cases – one per ACS path
- You'll also want to do some cross-testing:
  - What if SYS1 matches, but so does &DSN(2) ?

ACS Testing Strategy

Rule	Approach
&DSNTYPE='TEMP'	Use ACS Test panels to create a couple test cases where type = TEMP, but DSN is varied
&HLQ = 'SYS1'	Create ISMF list of 'SYS1.*', use NaviQuest to generate test cases under prefix SYS1xx
&DSN(2) = xx	Create ISMF lists for each possible value. Use NaviQuest to generate test cases with prefix DSN2xx
&STORCLAS = xx	Use ACS Test panels to create a couple different DSNs with different STORCLAS= settings

ACS Testing - Summary

- Build test cases from data set lists
- Develop a suite of test cases (different prefixes)
- Run the entire suite on any changes – verify results

- ISMF 11.4 – Update test cases with new expected results
  - Updates test cases “Expected Results” field

Demonstrations and Details:

- Collecting Data
- ACS Testing
  - Building test cases
  - Running ACS tests
  - Repeat in Batch
- **Batch SMS**
  - **Add a set of volumes to a Storage Group**
  - Generate a new data class
- Utilities
  - Using COPYFILT
  - Using model command generation
- Reports
  - Finding fragmented volumes
  - Finding fragmented VSAM

NaviQuest Batch

- Same functions, different interface
- Batch JCL calls REXX/CLISTs which call ISMF
- Plenty of sample JCL exists – SYS1.SACBCNTL
- Controlled by parameters of format PARM(VALUE)
  - Well-documented in JCL Comments
  - Also documented in DFSMSdfp Storage Administration
- ISMF NaviQuest panels make it easy to find the right job!

ACS Testing in Batch

- ISMF 11.7 Gives Sample JCL for batch processing
- ACS Testing is in 11.7.3 – Configuration Changes Batch

```
                CONFIGURATION CHANGES BATCH SAMPLES SELECTION MENU
Command ===> ____________________________________________________________

Select an option by typing '/' or enter Data Set to Edit and press Enter:

                                                        More:   -

  _    Validate SCDS
  s    Test ACS Routines
  _    Generate Enhanced ACS Test Listing
  _    Compare ACS Test Listings
  _    Update Test Cases with Test Results
  _    Delete Management Class
  _    Delete Data Class
  _    Delete Storage Class
  _    Delete Storage Group
  _    Delete Copy Pool
  _    Delete Aggregate Group
  _    Delete Tape Library

Data Set to Edit . . ____________________________________________________

Use HELP Command for Help; Use END Command to Exit.
```

ACS Testing in Batch - Testing

```
000041 //*********************************************************************
000042 //*                                                                   *
000043 //*   TEST STEP                                                       *
000044 //*                                                                   *
000045 //*    SCDS     - NAME OF SCDS THAT CONTAINS THE TRANSLATED,     @D1C*
000046 //*               VALIDATED ACS ROUTINES TO BE TESTED (INPUT)         *
000047 //*    TESTBED  - PDS CONTAINING TEST CASES THAT THE ACS ROUTINES    *
000048 //*               SHOULD BE TESTED FOR (INPUT)                        *
000049 //*    MEMBER   - MEMBERS TO BE TESTED IN TESTBED (INPUT)            *
000050 //*    DC,SC,MC,SG - ROUTINES TO BE TESTED Y OR N (INPUT)            *
000051 //*    LISTNAME - TEST LISTING (OUTPUT)                              *
000052 //*                                                                   *
000053 //*********************************************************************
000054 //*********************************************************************
000055 //TESTACS  EXEC ACBJBAOB,
000056 //         PLIB1='SYS1.DGTPLIB',
000057 //         TABL2=userid.TEST.ISPTABL
000058 //SYSTSIN  DD *
000059 PROFILE PREFIX(IBMUSER)
000060 DEL NEW.TESTLIST
000061 ISPSTART CMD(ACBQBAIA +
000062 SCDS(MYSCDS) +
000063 TESTBED(TESTCASE.LIBRARY) MEMBER(*) +
000064 LISTNAME(NEW.TESTLIST) +
000065 DC(Y) SC(Y) MC(Y) SG(Y)) +
000066 NEWAPPL(DGT) BATSCRW(132) BATSCRD(27) BREDIMAX(3) BDISPMAX(99999999)
000067 /*
```

Parameters documented in comments

EXEC statement

NaviQuest TSO/panel start commands

NaviQuest Parameters (change these)

ACS Testing in Batch - Testing

```
000041 //*********************************************************************
000042 //*                                                                       *
000043 //*   TEST STEP                                                           *
000044 //*                                                                       *
000045 //*    SCDS     - NAME OF SCDS THAT CONTAINS THE TRANSLATED,     @D1C*
000046 //*               VALIDATED ACS ROUTINES TO BE TESTED (INPUT)            *
000047 //*    TESTBED  - PDS CONTAINING TEST CASES THAT THE ACS ROUTINES       *
000048 //*               SHOULD BE TESTED FOR (INPUT)                           *
000049 //*    MEMBER   - MEMBERS TO BE TESTED IN TESTBED (INPUT)                *
000050 //*    DC,SC,MC,SG - ROUTINES TO BE TESTED Y OR N (INPUT)                *
000051 //*    LISTNAME - TEST LISTING (OUTPUT)                                  *
000052 //*                                                                       *
000053 //*************************************************************************
000054 //*************************************************************************
000055 //TESTACS  EXEC ACBJBAOB,
000056 //         PLIB1='SYS1.DGTPLIB',
000057 //         TABL2=SHARA20.S17048.BATCHBL
000058 //SYSTSIN  DD *
000059 PROFILE PREFIX(SHARA20)
000060 DEL S17048.BATCHLST
000061 ISPSTART CMD(ACBQBAIA +
000062 SCDS(S17048.SMS.SCDS) +
000063 TESTBED(S17048.ACSTSTS) MEMBER(DEMO*) +
000064 LISTNAME(S17048.BATCHLST) +
000065 DC(Y) SC(Y) MC(Y) SG(Y)) +
000066 NEWAPPL(DGT) BATSCRW(132) BATSCRD(27) BREDIMAX(3) BDISPMAX(99999999)
000067 /*
```

TABL2 must be allocated
It is a standard ISPF table.

PDS Dataset
RECFM=FB
LRECL=80
DSORG=PO (PDS)

ACS Testing in Batch - Results

```
                              ACS TESTING RESULTS

CDS NAME          : SHARA20.S17048.SMS.SCDS
ACS ROUTINE TYPES: DC SC MC SG
ACS TEST LIBRARY : SHARA20.S17048.ACSTSTS

  ACS TEST
  MEMBER       EXIT CODE   RESULTS
  ---------    ----------  ------------------------------------
  DESCRIPTION: TEST CASE CREATED 2015/03/03 AT 03:25 BY SHARA20
  EXPECTED RESULT:
  DEMO1                 0  DC = NULL VALUE ASSIGNED
                        0  SC = APPDATA
    MSG : STORCLAS SET: APPDATA
                        0  MC = NULL VALUE ASSIGNED
                        0  SG = APPDATA
    MSG : STORGRP SET: APPDATA

  DESCRIPTION: TEST CASE CREATED 2015/03/03 AT 03:25 BY SHARA20
  EXPECTED RESULT:
  DEMO10                0  DC = NULL VALUE ASSIGNED
                        0  SC = USERDATA
    MSG : STORCLAS SET: USERDATA
                        0  MC = NULL VALUE ASSIGNED
                        0  SG = USERDATA
```

ACS Testing in Batch – Compare Output

- ISMF 11.7 Gives Sample JCL for batch processing
- ACS Testing is in 11.7.3 – Configuration Changes Batch

```
                CONFIGURATION CHANGES BATCH SAMPLES SELECTION MENU
Command ===> ____________________________________________________________

Select an option by typing '/' or enter Data Set to Edit and press Enter:

                                                        More:   -

 _   Validate SCDS
 _   Test ACS Routines
 _   Generate Enhanced ACS Test Listing
 s   Compare ACS Test Listings
 _   Update Test Cases with Test Results
 _   Delete Management Class
 _   Delete Data Class
 _   Delete Storage Class
 _   Delete Storage Group
 _   Delete Copy Pool
 _   Delete Aggregate Group
 _   Delete Tape Library

Data Set to Edit . . ____________________________________________________

Use HELP Command for Help; Use END Command to Exit.
```

ACS Testing in Batch – Compare job

```
//*********************************************************************
//*                                                                   *
//* SAMPLE JCL TO COMPARE ACS TEST LISTINGS IN BATCH                  *
//*                                                                   *
//*   INSTRUCTIONS BEFORE SUBMITTING:                                 *
//*                                                                   *
//*     CHANGE JOBCARD                                                *
//*     CHANGE PREFIX
//*     CHANGE PARAMETERS
//*
//*   PARAMETERS:
//*
//*     BASELIST - BASE ACS TEST LISTING (INPUT
//*     NEWLIST  - NEW ACS TEST LISTING (INPUT)
//*     TESTBED  - TEST CASE PDS (REFERENCE INP
//*     RSLTDSN  - COMPARISON RESULTS DATA SET
//*     XCPTPDS  - EXCEPTION TEST CASE PDS (OUT
//*     XCPSPACE - SPACE values of Except DS (O
//*       Values: (Primary Tracks,Secondary Tra
//*         which are positional and optional.
//*
//*   NOTE:  If you receive message IEC217I B14
//*       data set, you need to increase your d
//*       the XCSPACE parameter (specially the
//*
//*********************************************
```

```
//CMPRSTEP EXEC  ACBJBAOB,
//         PLIB1=SYS1.DGTPLIB,
//         TABL2=SHARA20.S17048.BATCHTBL
//SYSTSIN  DD *
PROFILE PREFIX(SHARA20)
DEL S17048.COMPARE.LISTING
DEL S17048.TESTCASE.EXCP
ISPSTART CMD(%ACBQBAC1 +
BASELIST(S17048.BASELINE) +
NEWLIST(S17048.NEWCONF) +
TESTBED(S17048.ACSTSTS) +
RSLTDSN(S17048.COMPARE.LISTING) +
XCPTPDS(S17048.TESTCASE.EXCP) +
XCPSPACE(5,3,30)) + BATSCRW(132) BATSCRD(27)
BREDIMAX(3) BDISPMAX(99999999)
/*
```

ACS Testing – Batch Compare Results

```
                        ACS TEST LISTINGS COMPARISON REPORT

Base ACS listing   :   SHARA20.S17048.BASELINE
New ACS listing    :   SHARA20.S17048.NEWCONF
Testcase dataset   :   SHARA20.S17048.ACSTSTS
Exception dataset  :   SHARA20.S17048.EXCEPTS


TESTCASE MEMBER : DEMO3
                      * * * * E X C E P T I O N * * * * *
             RC DATACLAS      RC STORCLAS      RC MGMTCLAS      RC STORGROP
             -- --------      -- --------      -- --------      -- --------
     BASE     0 NULL           0 SHARE          0 NULL           0 NULL
      NEW     0 NULL           0 APPDATA        0 NULL           0 APPDATA

                     DSN: SHARE.S17048.CAJOB.DATA
                     SIZE: 221
                     VOL: SHR001
                     JOB: MYJOBNAM
                     UNIT: 3390
```

ACS Batch Summary

- Find sample JCL in ISMF 11.7
- Change the necessary parameters
- Save / Submit
- Get work done.

Demonstrations and Details:

- Collecting Data
- ACS Testing
  - Building test cases
  - Running ACS tests
  - Repeat in Batch
- **Batch SMS**
  - Add a set of volumes to a Storage Group
  - **Generate a new data class**
- Utilities
  - Using COPYFILT
  - Using model command generation
- Reports
  - Finding fragmented volumes
  - Finding fragmented VSAM

Adding a volume to a SG - Batch

- **Sample in 11.7.3 - “Change Storage Group Volume Status”**

```
                CONFIGURATION CHANGES BATCH SAMPLES SELECTION MENU

Select an option by typing '/' or enter Data Set to Edit and press Enter:

  _  Update/Display Lock Set Defintions
  s  Change Storage Group Volume Status
  _  Translate ACS Routines
```

3 DD : VOLADD, VOLDEL, VOLALT:

```
//SYSTSIN  DD *
PROFILE PREFIX(IBMUSER)
ISPSTART CMD(ACBQBAI9) +
BATSCRW(132) BATSCRD(27) BREDIMAX(3) BDISPMAX(99999999)
/*
//VOLADD  DD  *
UPDHLVLSCDS(Y)
SCDS('NEAL.SMS.SCDS') VOL(SMS900) SG(PRIMARY) STATUS(ENABLE)
SCDS('NEAL.SMS.SCDS') VOL(SMS901) SG(PRIMARY) STATUS(DISALL,+
  ENABLE,,DISNEW,,NOTCON,DISALL,ENABLE,QUIALL)
SCDS('NEAL.SMS.SCDS') VOL(SMS902) SG(PRIMARY) STATUSALL(ENABLE)
```

Adding a Volume to a SG – Batch Results

```
READY
PROFILE PREFIX(USER2)
READY
ISPSTART CMD(ACBQVAI1 SCDS('NEAL.SMS.SCDS') SG(PRIMARY) VOL(SMS903)
STATUSALL(ENABLE) STATUS() UPDHLVLSCDS(Y) ADDVOL) NEWAPPL(DGT)
BATSCRW(132)
BATSCRD(27) BREDIMAX(3) BDISPMAX(25)

Volume name to add/alter/delete: SMS903
Volume status to add/alter:
   STATUS    :
   STATUSALL : ENABLE
Storage Group to alter          : PRIMARY
SCDS to alter                   : 'NEAL.SMS.SCDS'
 USER2.ADDVOLJ.JOB00191.D0000112.? was preallocated (no free was done).
READY
READY
READY
END
```

Generate Data Class

ISMF 11.7.3 “Define/Alter/Display Data Class”

```
//*   PARAMETER FOLLOWING ACBQBAD1 - DEFINE OR ALTER OR DISPLAY      *
//************************* ADD BEG ***********************************
//*                                                          3@WA49380 *
//* Required Fields:                                                   *
//*                                                                    *
//*   SCDS     : Specify the name of the CDS  that  contains the       *
//*              dataclass you want to Define/Alter/Display.           *
//*                                                                    *
//*              Possible values : Valid CDS name .                    *
//*                                                                    *
//*   DCNAME   : Name of the Dataclass.                                *
//*                                                                    *
//*              Possible values : 1 - 8 characters                    *
//*                                                                    *
//* Optional Fields:                                         2@WA49380 *
//*                                                                    *
//*   DESCR    : Remarks about the DC being defined/altered.           *
//*              1-120 characters.                                     *
//*                                                                    *
//*   RECORG   : Specify how the records in the Datasets will be @A1C*
//*              organized during allocation.                          *
//*                                                                    *
//*              Possible values :                                     *
```

Generate a Data Class - JCL

- **DC for Extended format PS data sets, RECFM=FB LRECL=133**

```
//STEP1   EXEC ACBJBAOB,
//        TABL2=MYUSER.TEST.ISPTABL
//SYSUDUMP DD  SYSOUT=*
//SYSTSIN  DD *
PROFILE PREFIX(MYUSER)
ISPSTART CMD(ACBQBAD1 +
DEFINE +
SCDS(TEST.CDS) DCNAME(NEWDC1) +
DESCR(TESTING DATACLASS FOR BATCH GEN) +
RECFM(FB) LRECL(133) SPCAVREC(K) +
SPCPRM(10000) SPCSEC(500) VOLCNT(3) +
DSNMTYP(EXT) IFEXT(R) UPDHLVLSCDS(Y) ) +
BATSCRW(132) BATSCRD(27) BREDIMAX(3) BDISPMAX(999999)
```

Practical Example:

- Enable or Disable CA RECLAIM in a DC:

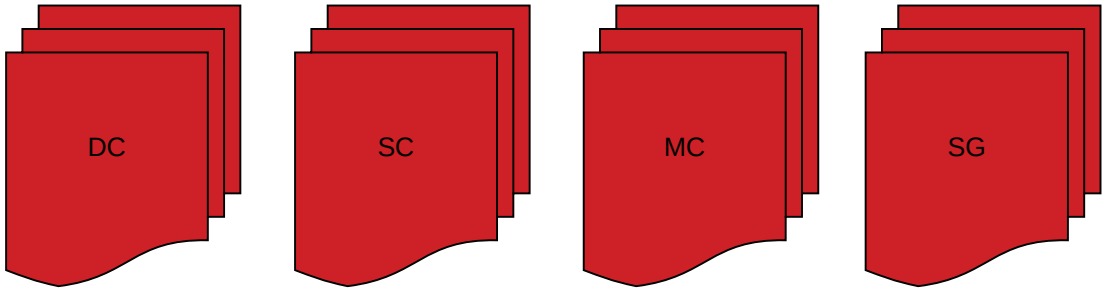
```
//STEP1   EXEC ACBJBAOB,
//        TABL2=SYS1.SMP.OTABLES
//SYSUDUMP DD  SYSOUT=*
//SYSTSIN  DD *
PROFILE PREFIX(MYUSER)
ISPSTART CMD(ACBQBAD1 +
ALTER +
SCDS('MYSYS.SMS.SCDS') +
DCNAME(DCNEW2) +
RECLAIMCA(Y) +
UPDHLVLSCDS(Y) +
) +
BATSCRW(132) BATSCRD(27) BREDIMAX(3) BDISPMAX(999999)
```

Demonstrations and Details:

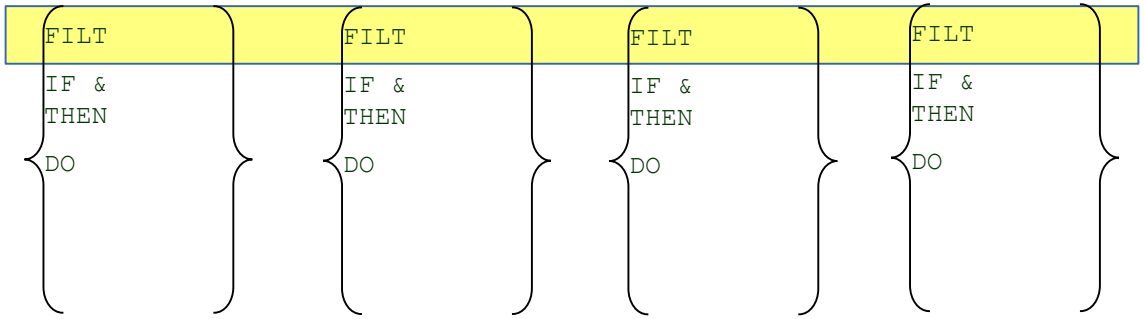
- Collecting Data
- ACS Testing
  - Building test cases
  - Running ACS tests
  - Repeat in Batch
- Batch SMS
  - Add a set of volumes to a Storage Group
  - Generate a new data class
- **Utilities**
  - **Using COPYFILT**
  - **Using model command generation**
- Reports
  - Finding fragmented volumes
  - Finding fragmented VSAM

COPYFILT - INTRO

SMS CONSTRUCTS

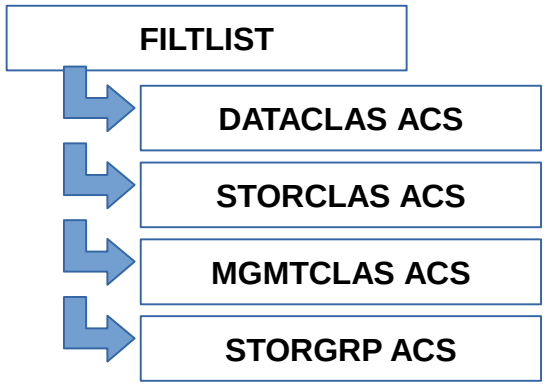


ACS ROUTINES



COPYFILT

- Copies your FILTLISTS
  - From one member
  - To specified ACS members



- Uses comments lines to denote top and bottom of section:
  - Start: /*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*/
  - End: /**_**_**_**_**_**_**_**_**_**_**/
  - Put in all of your ACS and FILTLIST member

- Type COPYFILT while in ISPF Edit

COPYFILT Example

- **Update FILTLIST to look like:**

```
/* * * * * * * * * * * * * * * * * * * * */
FILTLIST APPDATA INCLUDE(APP*,JOB*,BANK*)
FILTLIST USRDATA INCLUDE(USR*,USER*)
/** ** ** ** ** ** ** ** ** ** ** ** ** **/
```

- **Update all ACS with the comment headers**

```
PROC STORCLAS
/* * * * * * * * * * * * * * * * * * * * */
/** ** ** ** ** ** ** ** ** ** ** ** ** **/
/* LOGIC */
SELECT(&DSN(2))
```

COPYFILT Example

- Issue COPYFILT command

```
EDIT       SHARA20.S17048.ACS(FILTLIST) - 01.13                 Columns 00001 00080
Command ===> copyfilt                                             Scroll ===> CSR
****** ********************************* Top of Data ***********************************
==MSG> -Warning- The UNDO command is not available until you change
==MSG>           your edit profile using the command RECOVERY ON.
000200 /* * * * * * * * * * * * * * * * * */                          00020012
000210 FILTLIST APPDATA INCLUDE(APP*,JOB*,BANK*,*JOB)                  00021012
000220 FILTLIST USRDATA INCLUDE(USR*,USER*)                            00022013
000300 /**_**_**_**_**_**_**_**_**_**/                                  00030012
```

COPYFILT Example

```
                        COPY FILTLISTS ENTRY PANEL
Command ===> ____________________________________________________________

To copy FILTLISTs, specify the following information and press Enter:

  Member Containing FILTLISTs . . . . FILTLIST

  Data Class ACS Routine Name . . . . DCLAB
  Storage Class ACS Routine Name  . . SCLAB
  Management Class ACS Routine Name   MCLAB
  Storage Group ACS Routine Name  . . SGLAB

  Change Log Entry . . For Demo
```

```
'*************************************************************'
'* ACS DATACLAS MEMBER DCLAB UPDATED RC = 0      *  '
'* ACS STORCLAS MEMBER SCLAB UPDATED RC = 0      *  '
'* ACS MGMTCLAS MEMBER MCLAB UPDATED RC = 0      *  '
'* ACS STORGRP MEMBER SGLAB UPDATED RC = 0        *  '
'*************************************************************'
***
```

COPYFILT Example - Result

```
PROC STORCLAS
/* FILTLISTS */
/* UPDATED : BOHLING - INITIAL SETUP */
/* UPDATED : SHARA20 - FOR DEMO */
/* * * * * * * * * * * * * * * * */
  _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
FILTLIST APPDATA INCLUDE(APP*,JOB*,BANK*,*JOB)
FILTLIST USRDATA INCLUDE(USR*,USER*)
/** ** ** ** ** ** ** ** ** **/
  _  _  _  _  _  _  _  _  _  _

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

Demonstrations and Details:

- Collecting Data
- ACS Testing
  - Building test cases
  - Running ACS tests
  - Repeat in Batch
- Batch SMS
  - Add a set of volumes to a Storage Group
  - Generate a new data class
- **Utilities**
  - Using COPYFILT
  - **Using model command generation**
- Reports
  - Finding fragmented volumes
  - Finding fragmented VSAM

Model Command Generation

- Takes items from a saved list
- Generates a list of commands from that list

- Great for
  - Commands that do not accept wildcards
  - Very specific lists of data sets

- Use any command:
  - / to denotes the Data set
  - @ to denotes VOLSER

Model Command Generation

- ISMF 11.6 – we'll use our previously saved list

```
            MODEL COMMANDS GENERATION FROM SAVED ISMF LIST ENTRY PANEL

To generate model commands, specify the following information and press Enter:

   Saved ISMF List . . . DEMOLIST  (Data Set List or DASD Volume List)

   Model Command for Generation
     ===> ALTER / NEWNAME(/.BAK)_____________________________________________




  Note: Available substitutions in the Model Command for Generation field
        are '/' for Data Set Name and '@' for Volume Serial.
```

Model Command Generation Results

- Have IDCAMS JCL import this as SYSIN, and you have a mass rename job

```
EDIT       SHARA20.M1.MODELCMD
Command ===>
****** ***************************************************** Top of Da
==MSG> -Warning- The UNDO command is not available until you change
==MSG>           your edit profile using the command RECOVERY ON.
000001 ALTER SHARE.S17048.APP1.DATA NEWNAME(SHARE.S17048.APP1.DATA.BAK)
000002 ALTER SHARE.S17048.APP2.DATA NEWNAME(SHARE.S17048.APP2.DATA.BAK)
000003 ALTER SHARE.S17048.CAJOB.DATA NEWNAME(SHARE.S17048.CAJOB.DATA.BAK)
000004 ALTER SHARE.S17048.JOB1.DATA NEWNAME(SHARE.S17048.JOB1.DATA.BAK)
000005 ALTER SHARE.S17048.JOB2.DATA NEWNAME(SHARE.S17048.JOB2.DATA.BAK)
000006 ALTER SHARE.S17048.USER.DATA1 NEWNAME(SHARE.S17048.USER.DATA1.BAK)
000007 ALTER SHARE.S17048.USER.DATA2 NEWNAME(SHARE.S17048.USER.DATA2.BAK)
000008 ALTER SHARE.S17048.USJOB.DATA NEWNAME(SHARE.S17048.USJOB.DATA.BAK)
000009 ALTER SHARE.S17048.USR.DATA1 NEWNAME(SHARE.S17048.USR.DATA1.BAK)
000010 ALTER SHARE.S17048.USR.DATA2 NEWNAME(SHARE.S17048.USR.DATA2.BAK)
000011 ALTER SHARE.S17048.USR.MYDATA NEWNAME(SHARE.S17048.USR.MYDATA.BAK)
```

Demonstrations and Details:

- Collecting Data
- ACS Testing
  - Building test cases
  - Running ACS tests
  - Repeat in Batch
- Batch SMS
  - Add a set of volumes to a Storage Group
  - Generate a new data class
- Utilities
  - Using COPYFILT
  - Using model command generation
- **Reports**
  - **Volume Report**
  - **Repeat through Batch**

Volume Report

- ISMF 11.5.2 – SMS Report Generation, Volume Report

```
              DASD VOLUME REPORT FROM SAVED ISMF LIST ENTRY PANEL
Command ===> ____________________________________________________________

To generate report, specify the following information and press Enter:
  Saved ISMF List  . . . . . . . . . . MYVOLS    (DASD Volume List)
  Data Set to Hold Report
    ===> S17408.VOLREPRT_____________________________________________
    Replace Contents if DSN Exists . . Y  (Y or N)  Page Length    60
                                                    Totals . . . . Y  (Y or N)

Specify fields in numeric order (max width of report is 133 characters):
                          Length                                  Length
                                                                   More:     +
  Volume Serial  . . . 1    (7)    Free VIRs  . . . . . __    (9)
  Free Space . . . . . 2   (10)    Device Type  . . . . __    (8)
  % Free . . . . . . . 4    (6)    Dev Number . . . . . 3    (7)
  Alloc Space  . . . . __   (10)    Shr DASD . . . . . . __    (8)
  Frag Index . . . . . __    (8)    Use ATTR . . . . . . __    (8)
  Largest Extent . . . __   (10)    RD Cache Status  . . __    (9)

Use DOWN Command to Scroll Forward; Use UP Command to Scroll Backward;
Use HELP Command for Help; Use END Command to Exit.
```

Volume Report - Results

```
BROWSE    SHARA20.S17408.VOLREPRT
Command ===>
******************************************************** Top of Data ********

VOLSER FREESPC   DEVNUM %FREE
------------------------------------------------------------------------------

ARCH01 2123683K  7E3B    26
ARCH02 3724330K  7E3C    45
ARCH03 2388188K  7E22    29
CICSS1 7836122K  7E23    94
CICSS2 7856928K  7E24    94
CICSS3 7826549K  7E25    94
DBSGI1 7671719K  7E14    92
DBSGS1 6726028K  7E12    81
DBSGS2 6326281K  7E13    76
DBSG01 8309466K  7E15    99
DBSG02 8309466K  7E16    99
DBSG03 8309466K  7E17    99
DBSG04 8307142K  7E26    99
..

*****************************************************
***              V O L U M E  S P A C E  I N F O    ***
*****************************************************

***  TOTAL ALLOC SPACE...KB=318239813  MB=310781  GB=303
***  TOTAL FREE SPACE ...KB=1352051051  MB=1320362   GB=1289
```

Volume Report – via Batch

- **ISMF 11.7.1.“Generate DASD Volume Report”**
- JCL:

```
//GENREP  EXEC ACBJBAOB,
//        PLIB1=SYS1.DGTPLIB,
//        TABL2=SYS1.SMP.OTABLES
//ISPFILE DD  DSN=SHARA20.S17048.VOLRPT,DISP=OLD
//SYSTSIN  DD *
PROFILE PREFIX(USER2)
ISPSTART CMD(ACBQVAR1 MYVOLS SORT(VOLSER)) +
NEWAPPL(DGT) BATSCRW(132) BATSCRD(27) BREDIMAX(3) BDISPMAX(99999999)
/*
//SYSIN DD  *
VOLSER
DEVNUM
FREESPC
%FREE
TITLE=STATUS OF VOLUMES
TOTALS
/*
```

Output DSN

Saved ISMF List Name

Colums, In order.
See comments in JCL for available columns

Volume Report - Results

```
BROWSE    SHARA20.S17408.VOLRPT
Command ===>
******************************************************** Top of Data ********

VOLSER FREESPC   DEVNUM %FREE
------------------------------------------------------------------------------

ARCH01 2123683K  7E3B    26
ARCH02 3724330K  7E3C    45
ARCH03 2388188K  7E22    29
CICSS1 7836122K  7E23    94
CICSS2 7856928K  7E24    94
CICSS3 7826549K  7E25    94
DBSGI1 7671719K  7E14    92
DBSGS1 6726028K  7E12    81
DBSGS2 6326281K  7E13    76
DBSG01 8309466K  7E15    99
DBSG02 8309466K  7E16    99
DBSG03 8309466K  7E17    99
DBSG04 8307142K  7E26    99
..

*********************************************************
***              V O L U M E  S P A C E  I N F O     ***
*********************************************************

***  TOTAL ALLOC SPACE...KB=318239813  MB=310781  GB=303
***  TOTAL FREE SPACE ...KB=1352051051  MB=1320362   GB=1289
```

Reporting Summary

- Use saved lists to generate reports
  - Data Set reports for all DS in a Storage Group
  - DASD Volume reports
  - TAPE Volume reports
  - DFSMS Configuration Reports -
- Example tasks:
  - Track FREESPACE on a daily basis
  - Watch storage groups for high fragmentation

Want More?

- Create an entire SMS config via batch
- Code a single batch job for ACS translate / validate / test
- Code REXX to generate JCL for you to:
  - Add a volume based on input (example at end)
  - Define new data classes
  - Run custom volume reports to check fragmentation
- Run daily reports to watch certain data sets
- Come play in session 17048– NaviQuest Lab (Today, 12:30 in Boren room x)

Summary

- NaviQuest is a suite of tools to do SMS tasks
- Accessible via ISMF Option 11
- Batch JCL available through ISMF or SYS1.SACBCNTL
- Very helpful for ACS testing

For More Information:

- Manuals:
  - *DFSMSdfp Storage Administration* (SC26-7402)
    - Chapter 22 – Using NaviQuest
  - *DFSMS Using the Interactive Storage Management Facility* (SC26-7411)

- Redbooks
  - *Maintaining Your SMS Environment* (SG24-5484)
  - *NaviQuest Demonstration and Hands-On Usage Guide* (SG24-4720)

NaviQuest: Testing ACS and Streamlining SMS Tasks

Neal Bohling, DFSMS Development @ IBM

March 5, 2015

Session # 17045

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Sample REXX to call NaviQuest

```
/* REXX */
/*********************************************************************
**
** Author: Neal Bohling, IBM Level 2 Support
** Date  : 7/23/14
** Description:
**
** This program generates JCL to call NaviQuest to add a specified
** volume to a specified storage group on a specified CDS.
** Defaults to ENABLED on all systems.
**
** Syntax: ADDVOL SCDS STORGRP VOLSER
**
** Feel free to use, modify, expand, etc.
**
*********************************************************************/
CURUSER = SYSVAR("sysuid")

/*********************************************************************
**
** SET THE FOLLOWING PARMS FOR YOUR SHOP
**
** JOBCARD1/2: JOBCARD DATA
** STATUSALL : Status for volume on all systems
** STATUS    : Status for specific systems
**
** Permited values for STATUSALL/STATUS:
**   ENABLE / DISALL / DISNEW / NOTCON / QUIALL / QUINEW
**
*********************************************************************/
JOBCARD1 = "//ADDVOLJ  JOB ,'"||CURUSER||"',MSGLEVEL=(1,1),TIME=(5,0),"
JOBCARD2 = "//      MSGCLASS=H,CLASS=A,NOTIFY=&SYSUID,REGION=4096K"
STATUSALL = "ENABLE"
STATUS    = ""

/* start mainline */
/* check args */
ARG SCDS SG VOL

IF SCDS='' | SG='' | VOL='' THEN DO
  SAY 'COMMAND REQUIRES THREE PARMS: SCDSNAME SGNAME VOLSER'
  EXIT 4
  END

IF LENGTH(VOLSER) > 6 THEN DO
  SAY 'VOLSER NAME TOO LONG. Maximum of 6 characters'
  EXIT 4
  END

ADDRESS TSO
```

```
/* Make sure the ISPTABL exists */
EXIST_MSG = SYSDSN("'"||CURUSER||".TEST.ISPTABL'")
IF EXIST_MSG \='OK' THEN DO
  /* PREALLOCATE IT */
  "ALLOC DA('"||CURUSER||".TEST.ISPTABL') DSORG(PO) SPACE(5,0) ",
  " TRACKS LRECL(80) RECFM(F,B) NEW DIR(2) DSNTYPE(PDS)"
  "FREE DA('"||CURUSER||".TEST.ISPTABL')"
  EXIST_RC = 0
END

/* Pre-fill the VOLADD data set */
j=0
j=j+1;OUTDATA.j = JOBCARD1
j=j+1;OUTDATA.j = JOBCARD2
j=j+1;OUTDATA.j = "//MYLIB JCLLIB ORDER=SYS1.SACBCNTL"
j=j+1;OUTDATA.j = "//ADDVOL1 EXEC ACBJBAOB,"
j=j+1;OUTDATA.j = "//       PLIB1='SYS1.DGTPLIB',"
j=j+1;OUTDATA.j = "//       TABL2="||CURUSER||".TEST.ISPTABL"
j=j+1;OUTDATA.j = "//SYSUDUMP DD SYSOUT=*"
j=j+1;OUTDATA.j = "//TEMPFILE DD DSN=&&VOLADDS,DISP=(NEW,KEEP),"
j=j+1;OUTDATA.j = "// SPACE=(TRK,(1,1)),LRECL=300,RECFM=F,BLKSIZE=300"
j=j+1;OUTDATA.j = "//SYSTSIN DD *"
j=j+1;OUTDATA.j = "PROFILE PREFIX("||CURUSER||")"
j=j+1;OUTDATA.j = "ISPSTART CMD(ACBQBAI9) +"
j=j+1;OUTDATA.j = "BATSCRW(132) BATSCRD(27) BREDIMAX(3) BDISPMAX(99999999)"
j=j+1;OUTDATA.j = "//VOLADD DD *"
j=j+1;OUTDATA.j = " UPDHLVLSCDS(Y)"
j=j+1;OUTDATA.j = " SCDSNAME("||SCDS||") VOL("||VOL||") SG("||SG||") +"
j=j+1;OUTDATA.j = " STATUSALL("||STATUSALL||") +"
j=j+1;OUTDATA.j = " STATUS("||STATUS||")"
j=j+1;OUTDATA.j = "//VOLALT DD *"
j=j+1;OUTDATA.j = "//VOLDEL DD *"
j=j+1;OUTDATA.j = "//ADDVOL2 EXEC ACBJBAOB,"
j=j+1;OUTDATA.j = "//       PLIB1='SYS1.DGTPLIB',"
j=j+1;OUTDATA.j = "//       TABL2="||CURUSER||".TEST.ISPTABL"
j=j+1;OUTDATA.j = "//SYSUDUMP DD SYSOUT=*"
j=j+1;OUTDATA.j = "//SYSTSIN DD DSN=&&VOLADDS,DISP=(OLD,DELETE)"
OUTDATA.0 = j
"EXECIO "||OUTDATA.0||" DISKW VOLADD (STEM OUTDATA."
"EXECIO 0 DISKR VOLADD (FINIS"

/* QUEUE UP THE JCL */
"NEWSTACK"
DO I=1 TO OUTDATA.0
  QUEUE OUTDATA.I
END

QUEUE ""
x = outtrap("tsomsg.")
ADDRESS TSO "SUBMIT *"
x = outtrap("OFF")
SAY tsomsg.2 /* display submit message of JCL job */
"DELSTACK"
RETURN 0 /* JCL job will display return code messages, return 0 */
/* END */
```