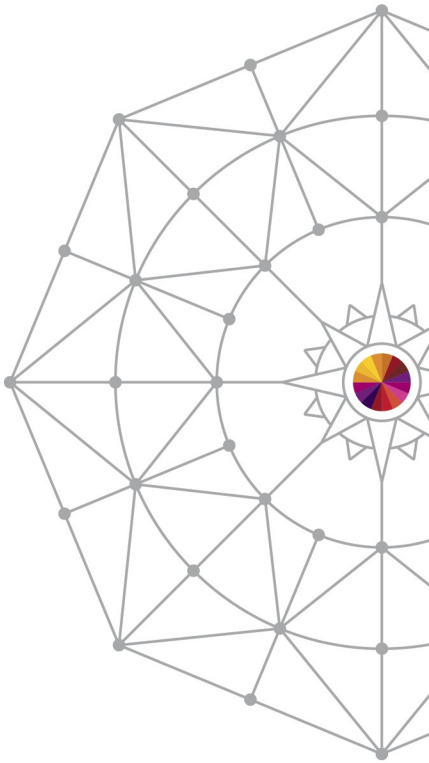
NaviQuest
Testing ACS and Streamlining SMS Tasks

Neal Bohling, DFSMS Defect Support @ IBM

August 6, 2014
Session Number 16120



#SHAREorg

SHARE in Pittsburgh 2014

Overview

"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
- Accessible via ISMF or Batch
- Helps simplify some of the more arduous SMS tasks
  - **Testing ACS**
  - Creating reports
  - Bulk-updating SMS configuration

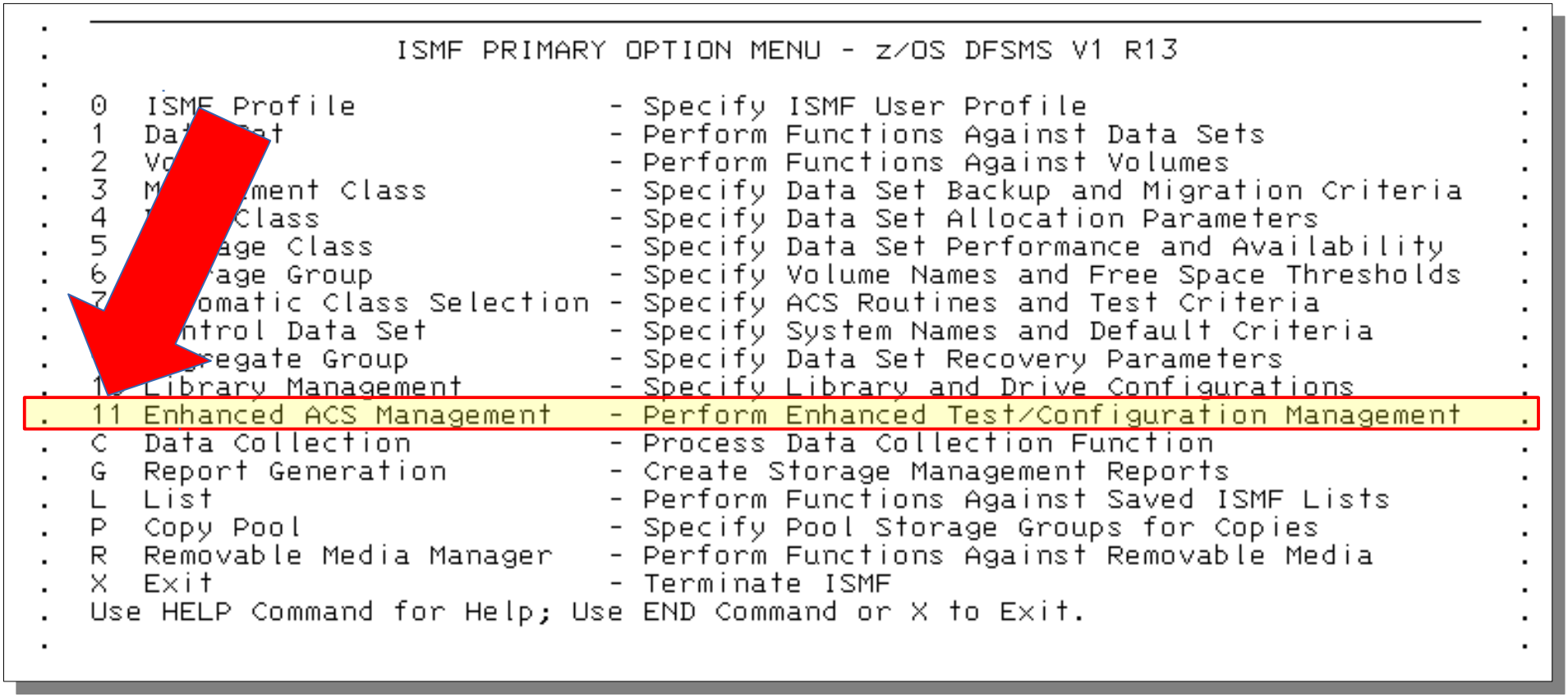
What can it do?

- **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
  - ISPTABL – PDS with LRECL=80, FB

Finding NaviQuest



What it looks like

```
  Panel  Help
 ------------------------------------------------------------------------------
              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









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

Demonstrations and Details:

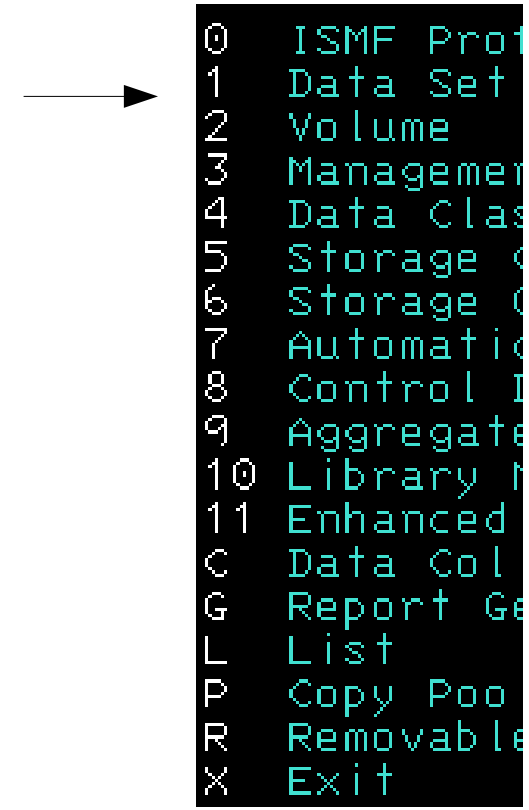
- **Collecting Data**
- ACS Testing
  - Building test cases
  - Running ACS tests
  - Repeat in Batch
- Batch SMS
  - Add a set of volumes to a Storage Group
  - Generate a new data class
- Utilities
  - Using COPYFILT
  - Using model command generation
- Reports
  - Volume Report
  - Repeat in Batch

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 V1 R13

  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
```

```
  Panel  Defaults  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                          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 . . . 'NB.**'
        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  . . Y  (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

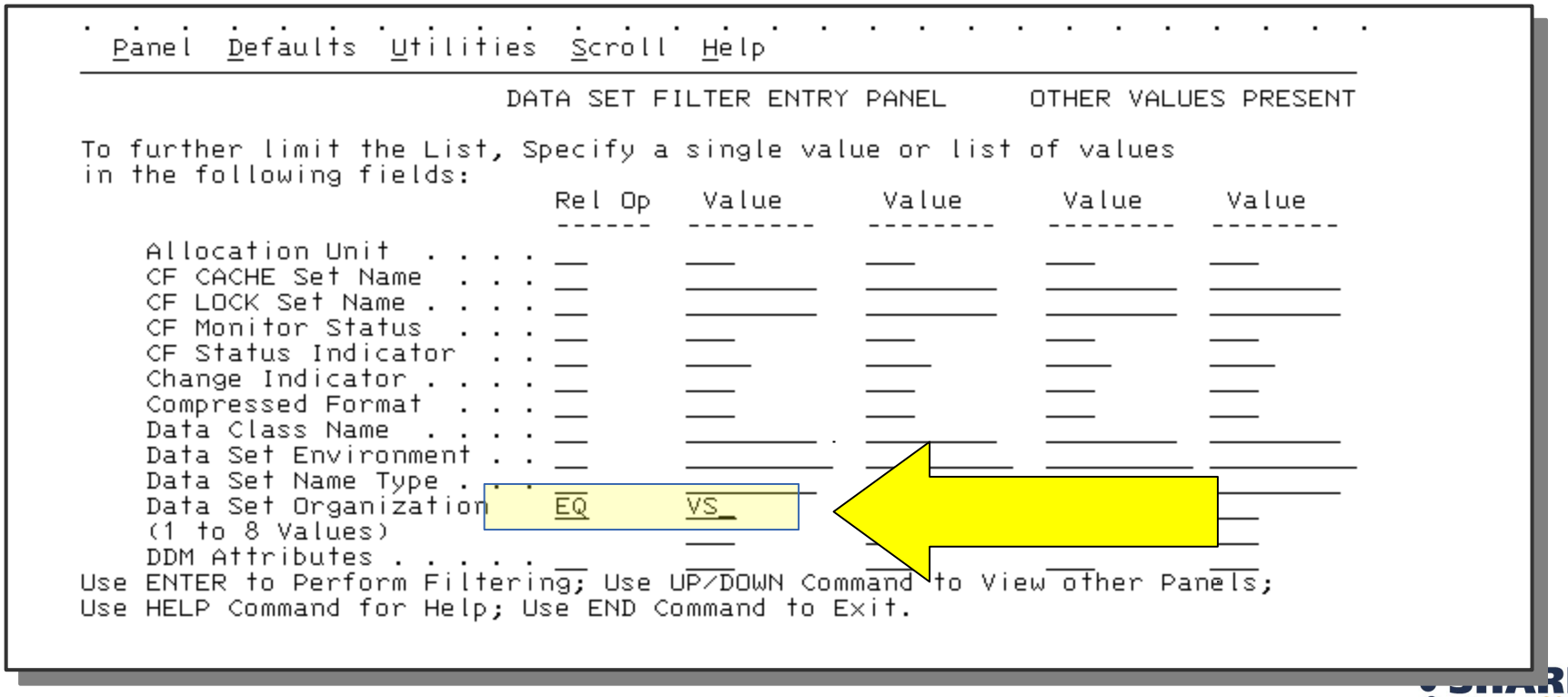
```
  Panel  List  Dataset  Utilities  Scroll  Help
------------------------------------------------------------------------------
                                                          DATA SET LIST
                                                       Entries 1-8 of 8
Enter Line Operators below:                            Data Columns 4-6 of 42

     LINE                                      ALLOC      % NOT   COMPRESSED
     OPERATOR          DATA SET NAME           USED       USED    FORMAT
    ---(1)----  ------------(2)------------ ---(4)---   -(5)-   ---(6)----
                NB.RLS.TEST1                ---------     ---   ---
                NB.RLS.TEST1.DATA                810K       0   ---
                NB.RLS.TEST1.INDEX                 1K      96   ---
                NB.SMS.TESTA                      55K      93   NO
                NB.SMS.TESTB                      55K      93   NO
                NB.SMS.TESTOUT                    55K      99   NO
                NB.SMSN.TEST1                     55K      93   ---
                NB.SMSN.TEST2                     55K      93   ---
    ----------  ------  -----------  BOTTOM OF  DATA  -----------  ------  ----


Command ===> SAVE NBFILES _                                  Scroll ===> HALF
```

ISMF Lists – Advanced Filtering

- **FILTER** command, or page down on Data Set Selection Panel
- Allows filtering on 4 more pages of values:



ISMF Lists – Advanced Filtering

- Filtered on DSORG EQ 'VS'

```
 Panel  List  Dataset  Utilities  Scroll  Help
------------------------------------------------------------------------------
                                                          DATA SET LIST
                                                       Entries 1-6 of 6
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)-
                 NB.RLS.TEST1                 ---------  ---------    ---
                 NB.RLS.TEST1.DATA                830K       810K      0
                 NB.RLS.TEST1.INDEX                55K         1K     96
                 NB.RLS.TEST2                 ---------  ---------    ---
                 NB.RLS.TEST2.DATA               2490K      2430K      0
                 NB.RLS.TEST2.INDEX                55K         4K     87
     ----------  ------  -----------  BOTTOM OF  DATA  -----------  ------  ----
```

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

DCOLLECT

- IDCAMS tool, DCOLLECT
- 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

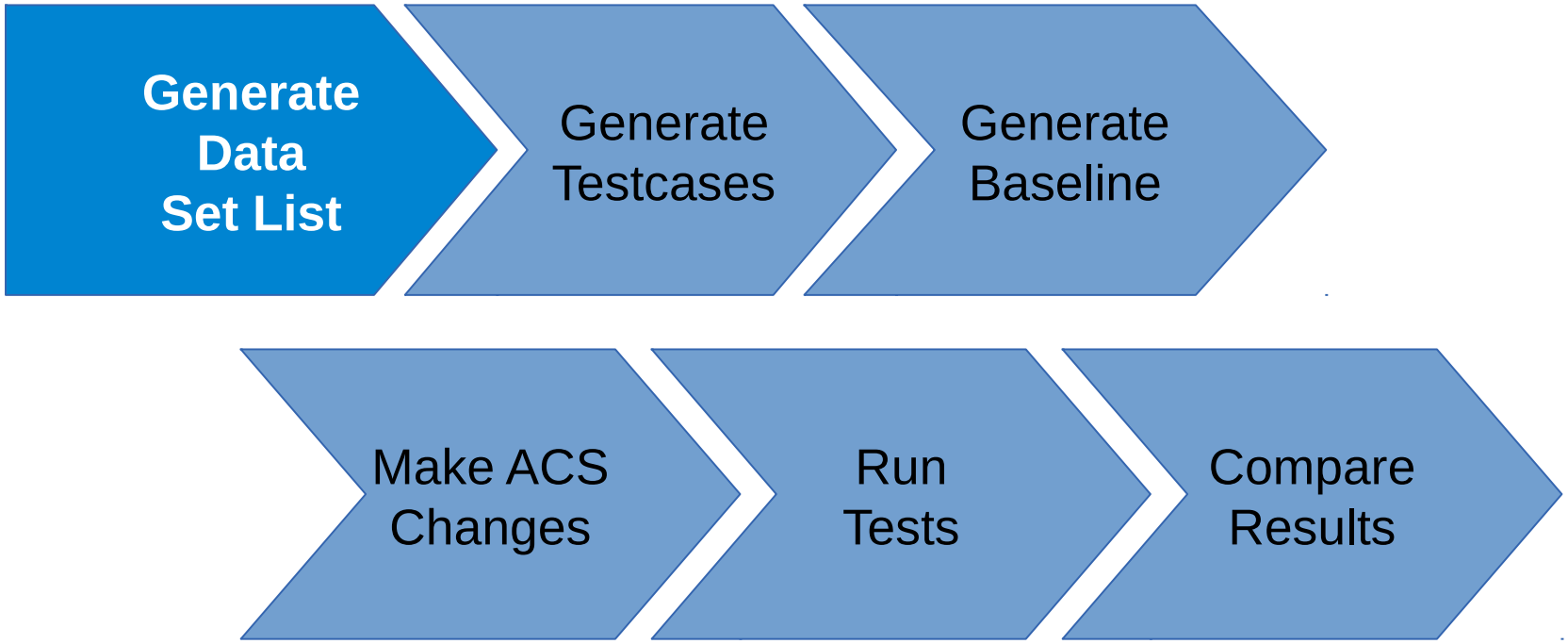
- **SMF ACS Exit**
  - User-written routine
  - Cuts SMF type 127
  - Called during ACS processing
  - Contains ACS variable data
  - Sample in SYS1.SACBCNTL(IGDACSSC)
- **Pros:**
  - Captures real-world scenarios
  - Contains variables you would otherwise have to invent (like &JOB, &DD)
- Cons:
  - 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



ACS Testing - Generate Data Set List

```
                ISMF PRIMARY OPTION MENU - z/OS DFSMS V1 R13

  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
```

```
  Panel  Defaults  Utilities  Scroll  Help
 ------------------------------------------------------------------------------
                          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 . . . 'NB.**'
        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  . . Y  (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.
```

ACS Testing – Generate DS List

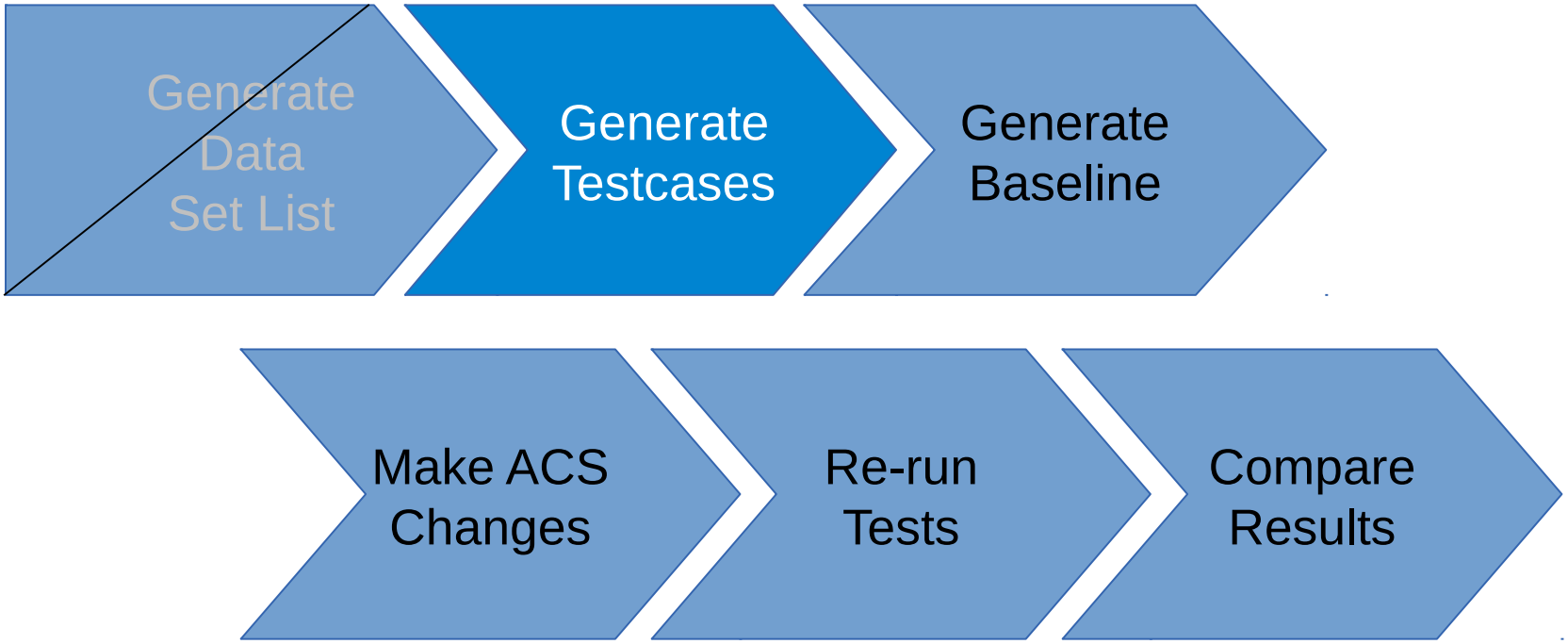
```
  Panel  List  Dataset  Utilities  Scroll  Help
------------------------------------------------------------------------------
                                                          DATA SET LIST
                                                       Entries 1-8 of 8
Enter Line Operators below:                            Data Columns 4-6 of 42

     LINE                                      ALLOC     % NOT  COMPRESSED
     OPERATOR          DATA SET NAME           USED      USED   FORMAT
    ---(1)----  ------------(2)------------ ---(4)---  -(5)-  ---(6)----
                NB.RLS.TEST1                ---------    ---  ---
                NB.RLS.TEST1.DATA                810K      0  ---
                NB.RLS.TEST1.INDEX                 1K     96  ---
                NB.SMS.TESTA                      55K     93  NO
                NB.SMS.TESTB                      55K     93  NO
                NB.SMS.TESTOUT                    55K     99  NO
                NB.SMSN.TEST1                     55K     93  ---
                NB.SMSN.TEST2                     55K     93  ---
    ----------  ------  -----------  BOTTOM OF  DATA  -----------  ------  ----


Command ===> SAVE NBFILES _                                  Scroll ===> HALF
```

* Note: you can see and edit your saved lists from ISMF Option L (LISTS)

ACS Testing - Process



ACS Testing – Overview

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

```
                              ACS TEST SELECTION

Select one of the following Options:

  _  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 . . 'NEAL.SMS.ACS'
  ACS Test Member  . . ZTEST3
```

- 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

ACS Test Library  : NEAL.SMS.ACS
ACS Test Member . : ZTEST3

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 speeds up the process...

ACS Testing – Generate Testcases

- ISMF 11.1.1 – NaviQuest generate

```
 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
```

```
              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
```

```
                        TEST CASE GENERATION SELECTION MENU

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

```
   Panel  Help
 ------------------------------------------------------------------------------
              TEST CASE GENERATION FROM SAVED ISMF LIST              Top of data

 To generate test cases, specify the following information and press Enter:
   Saved ISMF List . . . . . . NBFILES_   (Data set list)
   Member Name Prefix  . . . . NB__       (1 to 4 alpha characters)
   Test Case PDS . . . . . . . 'NEAL.SMS.ACSTST'____________________________
     Replace Existing Prefix   N          (Y or N)
 ACS Test Case Variables:
                                                                   More:     +
   Applic  . . . . CICSJOB_                DD  . . . . . . ________
   Def_dataclas    ________                Def_mgmtclas    ________
   Def_storclas    ________                Filenum . . . . ____
   Group . . . . . ________                Job . . . . . . ________
   Label . . . . . ___                     Libname . . . . ________
   Pgm . . . . . . ________                Storgrp . . . . ________
   Retpd . . . . . _____                   Sysplex . . . . ________



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

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

ACS Testing – Generating Testcases

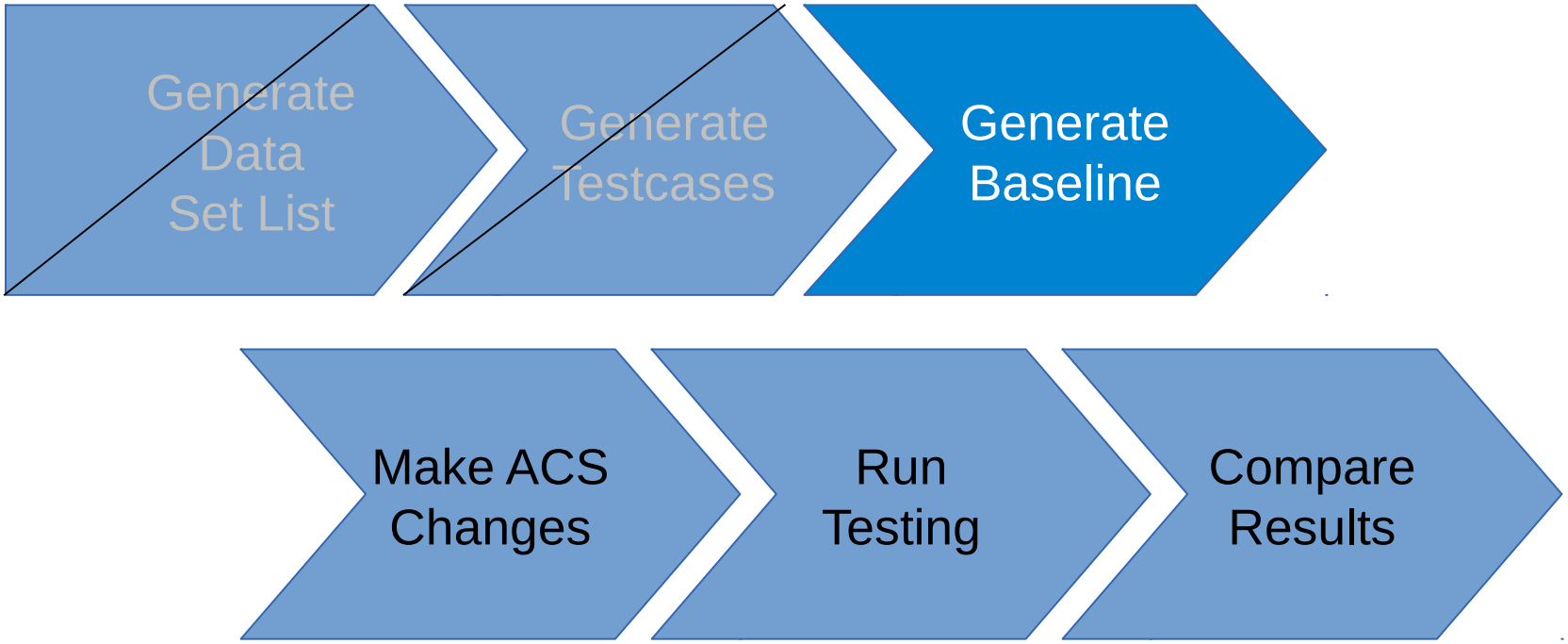
```
   Menu  Functions  Utilities  Help
 ------------------------------------------------------------------------------
 BROWSE    NEAL.SMS.ACSTST                                    Row 00001 of 00007
    Name      Prompt          Size     Created           Changed           ID
  . NB1
  . NB2
  . NB3
  . NB4
  . NB5
  . NB6
  . NB7
   **End**




 Command ===>                                                  Scroll ===> PAGE
  F1=Help      F2=Split     F3=Exit      F5=Rfind     F7=Up        F8=Down      F9=Swap
 F10=Left     F11=Right    F12=Cancel
   Menu  Utilities  Compilers  Help
 ------------------------------------------------------------------------------
 BROWSE    NEAL.SMS.ACSTST(NB1)                        Line 00000000 Col 001 080
********************************* Top of Data **********************************
DESCRIPTION1:
TEST CASE CREATED 2013/08/09 AT 13:11 BY USER2
DSN: NB.RLS.TEST1.DATA
DSTYPE: PERM
ACSENVIR: ALLOC
MAXSIZE: 13280
DSORG: VS
SIZE: 830
NVOL: 1
VOL: 01
XP0403
APPLIC: CICSJOB
UNIT: 3390
******************************** Bottom of Data ********************************
```

New Test Cases (NB1–NB7)

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

To Perform ACS Testing, Specify:

  CDS Name . . . . . 'NEAL.SMS.SCDS'
                                (1 to 44 Character Data Set Name or 'Active')
  ACS Test Library . . 'NEAL.SMS.ACSTST'
  ACS Test Member  . . NB*       (fully or partially specified or * for all
                                members)
  Listing Data Set . . 'NEAL.SMS.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

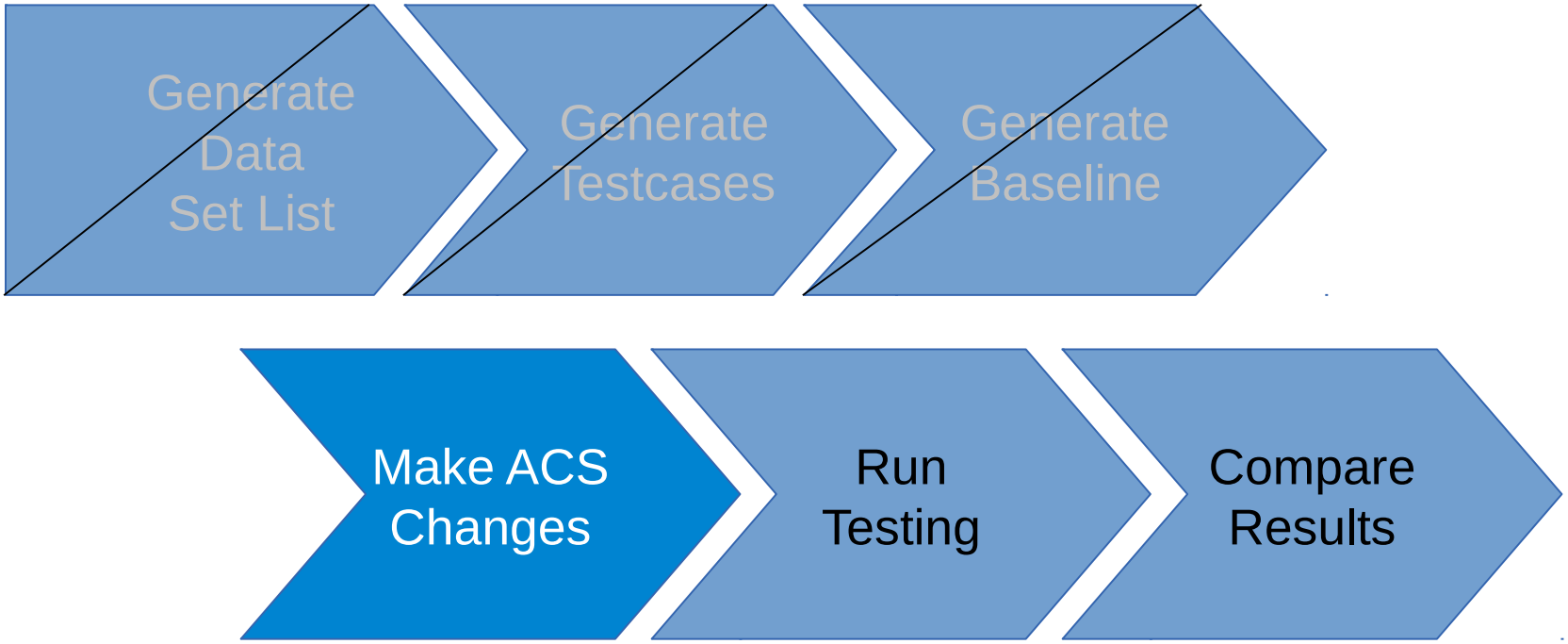
```
 BROWSE    NEAL.SMS.BASELINE
*********************************************************** Top of Data ************
                               ACS TESTING RESULTS

CDS NAME         : NEAL.SMS.SCDS
ACS ROUTINE TYPES: DC SC MC SG
ACS TEST LIBRARY : NEAL.SMS.ACSTST

  ACS TEST
  MEMBER       EXIT CODE   RESULTS
  ---------    ----------  ------------------------------------
  DESCRIPTION: TEST CASE CREATED 2013/08/09 AT 13:11 BY USER2
  EXPECTED RESULT:
  NB1                      0   DC = RLS
    MSG : DATACLAS=RLS
                           0   SC = RLS
    MSG : STORCLAS=RLS
                           0   MC = NULL VALUE ASSIGNED
                           0   SG = SG1

  DESCRIPTION: TEST CASE CREATED 2013/08/09 AT 13:11 BY USER2
  EXPECTED RESULT:
  NB2                      0   DC = RLS
    MSG : DATACLAS=RLS
                           0   SC = RLS
    MSG : STORCLAS=RLS
                           0   MC = NULL VALUE ASSIGNED
                           0   SG = SG1
```

ACS Testing - Process



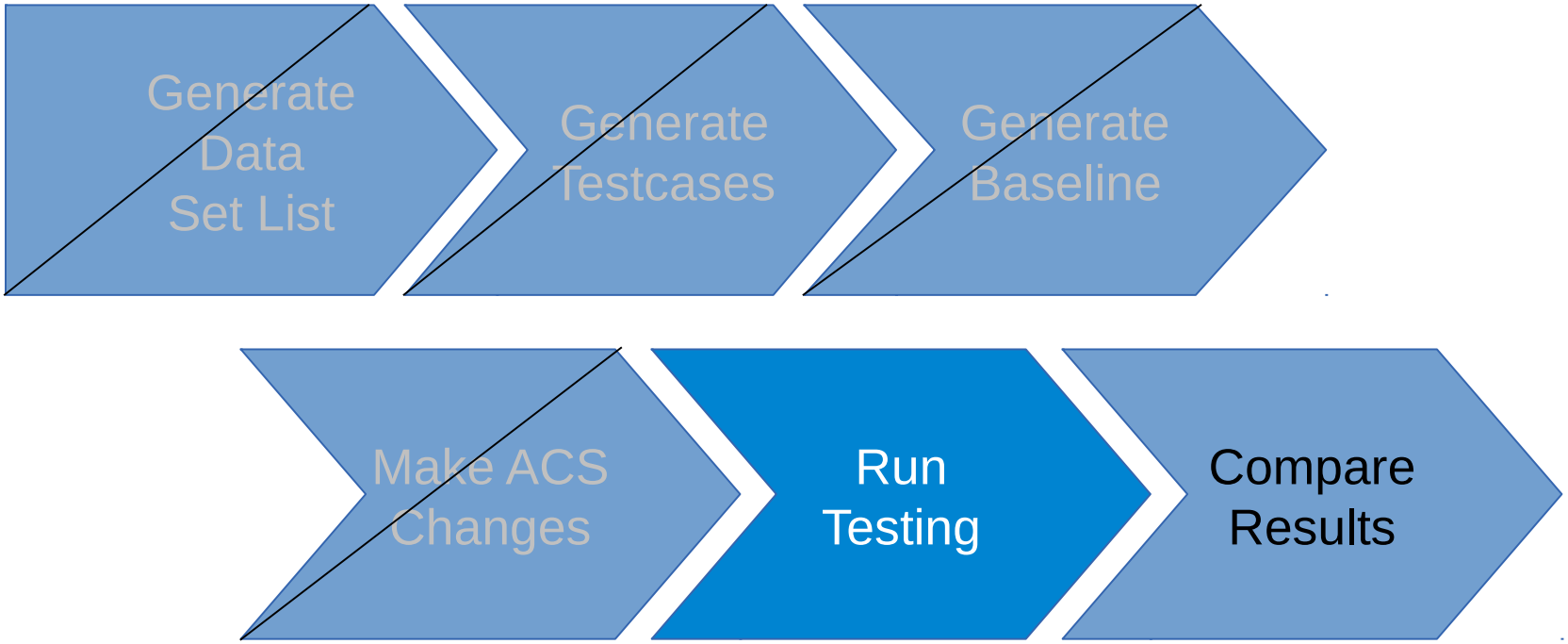
Make Changes to ACS

- 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 changed this line:
  - `From: WHEN(&RLS) SET &STORCLAS = 'RLS'`
  - `To  : WHEN(&RLS) SET &STORCLAS = 'SMS'`

ACS Testing - Process



ACS Testing – Run Tests Again

- Done in the same way as building baseline:
- ISMF 7.4
- Save to a new listing DS

```
                                TEST ACS ROUTINES

To Perform ACS Testing, Specify:

  CDS Name . . . . . 'NEAL.SMS.SCDS'
                                (1 to 44 Character Data Set Name or 'Active')
  ACS Test Library . . 'NEAL.SMS.ACSTST'
  ACS Test Member  . . NB*        (fully or partially specified or * for all
                                members)
  Listing Data Set . . 'NEAL.SMS.NEWCFG'
                                (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)



Use ENTER to Perform Verification and Testing;
Use HELP Command for Help; Use END Command to Exit.
```

ACS Testing – Run Tests Again

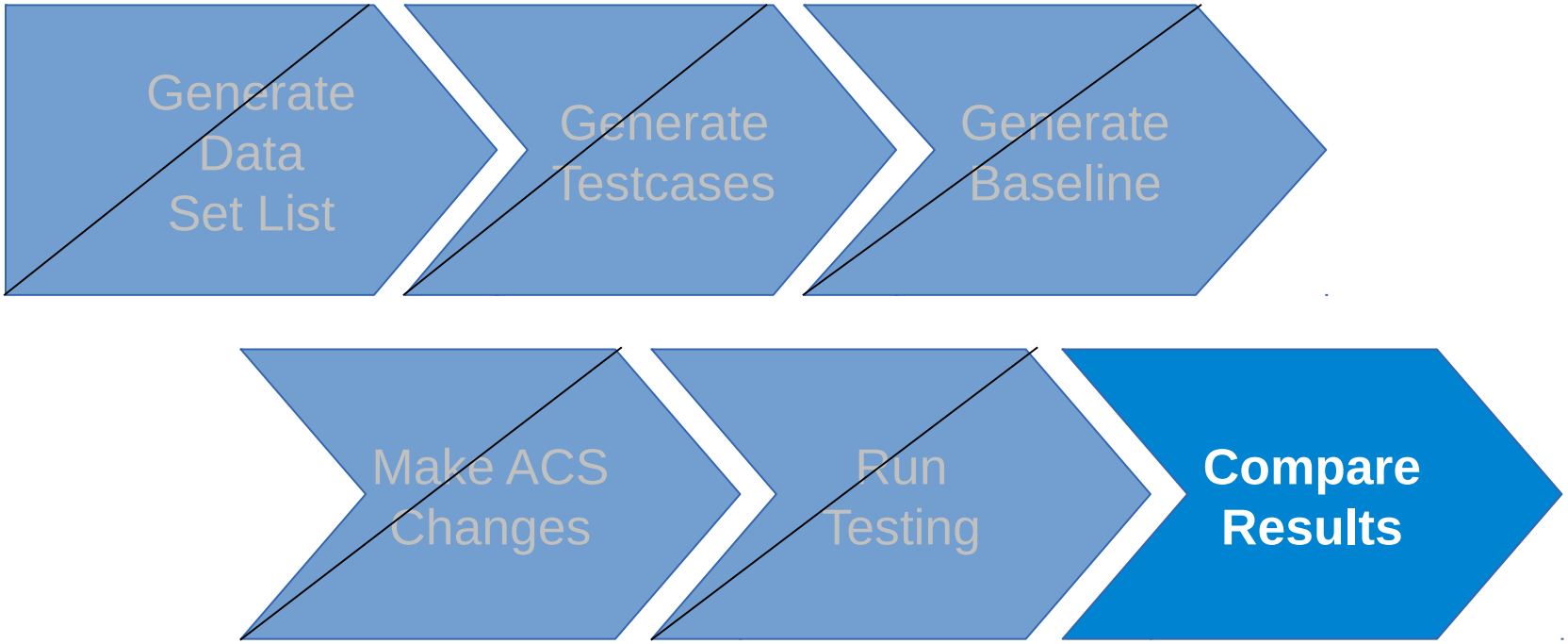
```
 BROWSE    NEAL.SMS.NEWCFG
******************************************************************************** Top of Data ******
                                ACS TESTING RESULTS

CDS NAME          : NEAL.SMS.SCDS
ACS ROUTINE TYPES: DC SC MC SG
ACS TEST LIBRARY : NEAL.SMS.ACSTST

  ACS TEST
  MEMBER        EXIT CODE   RESULTS
  ---------     ----------  ------------------------------------
  DESCRIPTION: TEST CASE CREATED 2013/08/09 AT 13:11 BY USER2
  EXPECTED RESULT:
  NB1                       0  DC = RLS
    MSG : DATACLAS=RLS
                            0  SC = SMS
    MSG : STORCLAS=SMS
                            0  MC = NULL VALUE ASSIGNED
                            0  SG = SG1

  DESCRIPTION: TEST CASE CREATED 2013/08/09 AT 13:11 BY USER2
  EXPECTED RESULT:
  NB2                       0  DC = RLS
    MSG : DATACLAS=RLS
                            0  SC = SMS
    MSG : STORCLAS=SMS
                            0  MC = NULL VALUE ASSIGNED
                            0  SG = SG1
```

ACS Testing - Process



ACS Testing – Compare Results

- ISMF Option 11.2
  (NaviQuest ACS Testing Listing Comparison)

```
                    ACS TEST LISTINGS COMPARISON ENTRY PANEL

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

  Output Data Sets:
    Comparison Results Data Set (Summary of exception test cases)
      ===> 'NEAL.SMS.EXPT'
      Replace Contents if DSN Exists  . . Y  (Y or N)
    Exception Test Case PDS (Contents of exception test cases)
      ===> 'NEAL.SMS.EXPTC'
      Replace Contents if DSN Exists  . . Y  (Y or N)

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

ACS Testing – Compare Results

```
 BROWSE    NEAL.SMS.EXPT
*************************************************************** Top of Data ****************
                  ACS TEST LISTINGS COMPARISON REPORT

Base ACS listing   :   NEAL.SMS.BASELINE
New ACS listing    :   NEAL.SMS.NEWCFG
Testcase dataset   :   NEAL.SMS.ACSTST
Exception dataset  :   NEAL.SMS.EXPTC


TESTCASE MEMBER : NB1
                         * * * * E X C E P T I O N * * * * *
             RC DATACLAS      RC STORCLAS      RC MGMTCLAS      RC STORGROP
             -- --------      -- --------      -- --------      -- --------
     BASE     0 RLS            0 RLS            0 NULL           0 SG1
      NEW     0 RLS            0 SMS            0 NULL           0 SG1

                        DSN: NB.RLS.TEST1.DATA
                        SIZE: 830
                        VOL: XP0403
                        UNIT: 3390

TESTCASE MEMBER : NB2
                         * * * * E X C E P T I O N * * * * *
             RC DATACLAS      RC STORCLAS      RC MGMTCLAS      RC STORGROP
             -- --------      -- --------      -- --------      -- --------
     BASE     0 RLS            0 RLS            0 NULL           0 SG1
      NEW     0 RLS            0 SMS            0 NULL           0 SG1

                        DSN: NB.RLS.TEST1.INDEX
                        SIZE: 55
                        VOL: XP0403
                        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 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 and 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 '*.xx.**', use NaviQuest to generate test cases under 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
- 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

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
    _  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 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=NEAL.SMS.ISPTABL
000058 //SYSTSIN  DD *
000059 PROFILE PREFIX(USER2)
000060 DEL 'NEAL.SMS.NEW.TESTLIST'
000061 ISPSTART CMD(ACBQBAIA +
000062 SCDS('NEAL.SMS.SCDS') +
000063 TESTBED('NEAL.SMS.ACSTST') MEMBER(*) +
000064 LISTNAME('NEAL.SMS.NEWCFG') +
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

```
ISPSTART CMD(ACBQBAIA SCDS('NEAL.SMS.SCDS') TESTBED('NEAL.SMS.ACSTST') MEMBER(*) LISTNAME('NEAL.SMS.NEW.TESTLIST') DC(Y) SC(Y) MC(Y)
 SG(Y)) NEWAPPL(DGT) BATSCRW(132) BATSCRD(27) BREDIMAX(3) BDISPMAX(99999999)
Library containing test cases was: 'NEAL.SMS.ACSTST'
Members tested were: *
SCDS tested against was: 'NEAL.SMS.SCDS'
Output listing for test was: 'NEAL.SMS.NEW.TESTLIST'
Value of Command was: ISPSTART CMD(ACBQBAIA SCDS('NEAL.SMS.SCDS') TESTBED('NEAL.SMS.ACSTST') MEMBER(*) LISTNAME('NEAL.SMS.NEW.TESTL
IST') DC(Y) SC(Y) MC(Y) SG(Y)) NEWAPPL(DGT)
 USER2.NAVIQ.JOB00023.D0000105.? was preallocated (no free was done).
READY
END
```

```
   Time               *** ISPF transaction log ***                      Userid: USER2     Date: 13/08/09    Page: 1

   14:40   Start of ISPF Log - - -  - Session # 1 -------------------------------------------------------
   14:40      TSO     - Command  -  - ACBQBAIA SCDS('NEAL.SMS.SCDS') TESTBED('NEAL.SMS.ACSTST') MEMBER(*)
   14:40                              LISTNAME('NEAL.SMS.NEW.TESTLIST') DC(Y) SC(Y) MC(Y) SG(Y)
   14:40      TSO     - Command  -  - ACBQBAIA SCDS('NEAL.SMS.SCDS') TESTBED('NEAL.SMS.ACSTST') MEMBER(*)
   14:40                              LISTNAME('NEAL.SMS.NEW.TESTLIST') DC(Y) SC(Y) MC(Y) SG(Y)
   14:40      TSO     - Command  -  - ACBQBAIA SCDS('NEAL.SMS.SCDS') TESTBED('NEAL.SMS.ACSTST') MEMBER(*)
   14:40                              LISTNAME('NEAL.SMS.NEW.TESTLIST') DC(Y) SC(Y) MC(Y) SG(Y)
   14:40      TSO     - Command  -  - ACBQBAIA SCDS('NEAL.SMS.SCDS') TESTBED('NEAL.SMS.ACSTST') MEMBER(*)
   14:40                              LISTNAME('NEAL.SMS.NEW.TESTLIST') DC(Y) SC(Y) MC(Y) SG(Y)
   14:40    End of ISPF Log - - - - - Session # 1 -------------------------------------------------------
                           ACS TESTING RESULTS                                  TIME 14:40:10 DATE 08/09/2013 PAGE 0001
```

```
CDS NAME         : NEAL.SMS.SCDS
ACS ROUTINE TYPES: DC SC MC SG
ACS TEST LIBRARY : NEAL.SMS.ACSTST
```

```
ACS TEST
MEMBER       EXIT CODE   RESULTS
---------    ----------  -----------------------------------
DESCRIPTION: TEST CASE CREATED 2013/08/09 AT 13:11 BY USER2
EXPECTED RESULT:
NB1                   0   DC = RLS
  MSG : DATACLAS=RLS
                      0   SC = SMS
```

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

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
    _  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 INPUT)                    *
//*     RSLTDSN  - COMPARISON RESULTS DATA SET (OUTPUT)               *
//*     XCPTPDS  - EXCEPTION TEST CASE PDS (OUTPUT)                   *
//*     XCPSPACE - SPACE values of Except DS (Optional)    3a@WA32832*
//*       Values: (Primary Tracks,Secondary Tracks,Directory Blocks)  *
//*         which are positional and optional. Defaults: (3,1,20).    *
//*                                                                   *
//*   NOTE:  If you receive message IEC217I B14-0C on your exception  *
//*       data set, you need to increase your data set size by using  *
//*       the XCSPACE parameter (specially the directory blocks)      *
//*                                                                   *
//*********************************************************************
```

```
//CMPRSTEP EXEC  ACBJBAOB,
//         PLIB1=SYS1.DGTPLIB,
//         TABL2=USER2.TEST.ISPTABL
//SYSTSIN  DD *
PROFILE PREFIX(USER2)
DEL 'NEAL.SMS.EXPT'
DEL 'NEAL.SMS.EXPTC
ISPSTART CMD(%ACBQBAC1 +
BASELIST('NEAL.SMS.BASELINE') +
NEWLIST('NEAL.SMS.NEWCFG') +
TESTBED('NEAL.SMS.ACSTST') +
RSLTDSN('NEAL.SMS.EXPT') +
XCPTPDS('NEAL.SMS.EXPTC') +
XCPSPACE(5,3,30)) +
BATSCRW(132) BATSCRD(27) BREDIMAX(3)
BDISPMAX(99999999)
/*
```

ACS Testing – Compare Results

```
 BROWSE    NEAL.SMS.EXPT
*************************************************************** Top of Data ****************
                  ACS TEST LISTINGS COMPARISON REPORT

Base ACS listing   :   NEAL.SMS.BASELINE
New ACS listing    :   NEAL.SMS.NEWCFG
Testcase dataset   :   NEAL.SMS.ACSTST
Exception dataset  :   NEAL.SMS.EXPTC


TESTCASE MEMBER : NB1
                         * * * * E X C E P T I O N * * * * *
             RC DATACLAS      RC STORCLAS      RC MGMTCLAS      RC STORGROP
             -- --------      -- --------      -- --------      -- --------
     BASE     0 RLS            0 RLS            0 NULL           0 SG1
      NEW     0 RLS            0 SMS            0 NULL           0 SG1

                        DSN: NB.RLS.TEST1.DATA
                        SIZE: 830
                        VOL: XP0403
                        UNIT: 3390

TESTCASE MEMBER : NB2
                         * * * * E X C E P T I O N * * * * *
             RC DATACLAS      RC STORCLAS      RC MGMTCLAS      RC STORGROP
             -- --------      -- --------      -- --------      -- --------
     BASE     0 RLS            0 RLS            0 NULL           0 SG1
      NEW     0 RLS            0 SMS            0 NULL           0 SG1

                        DSN: NB.RLS.TEST1.INDEX
                        SIZE: 55
                        VOL: XP0403
                        UNIT: 3390
```

ACS Batch Summary

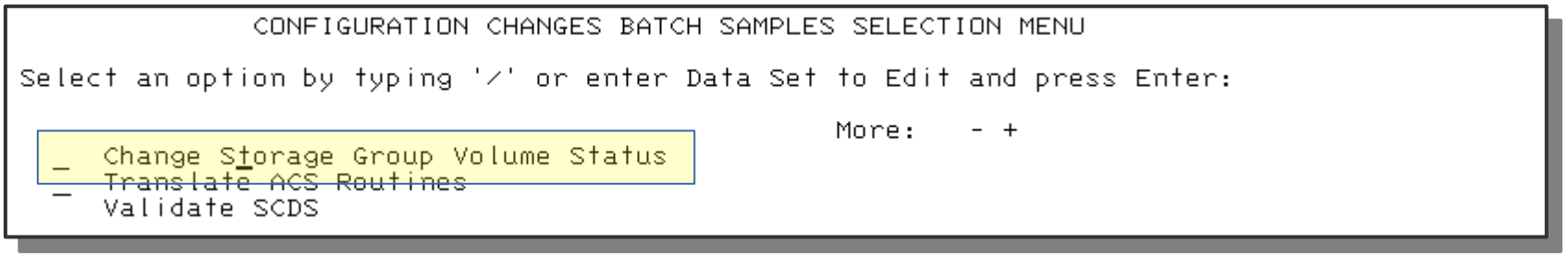
- Find sample JCL in ISMF 11.7
- Change the necessary parameters
- Save / Submit
- Get work done.

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”



- 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:

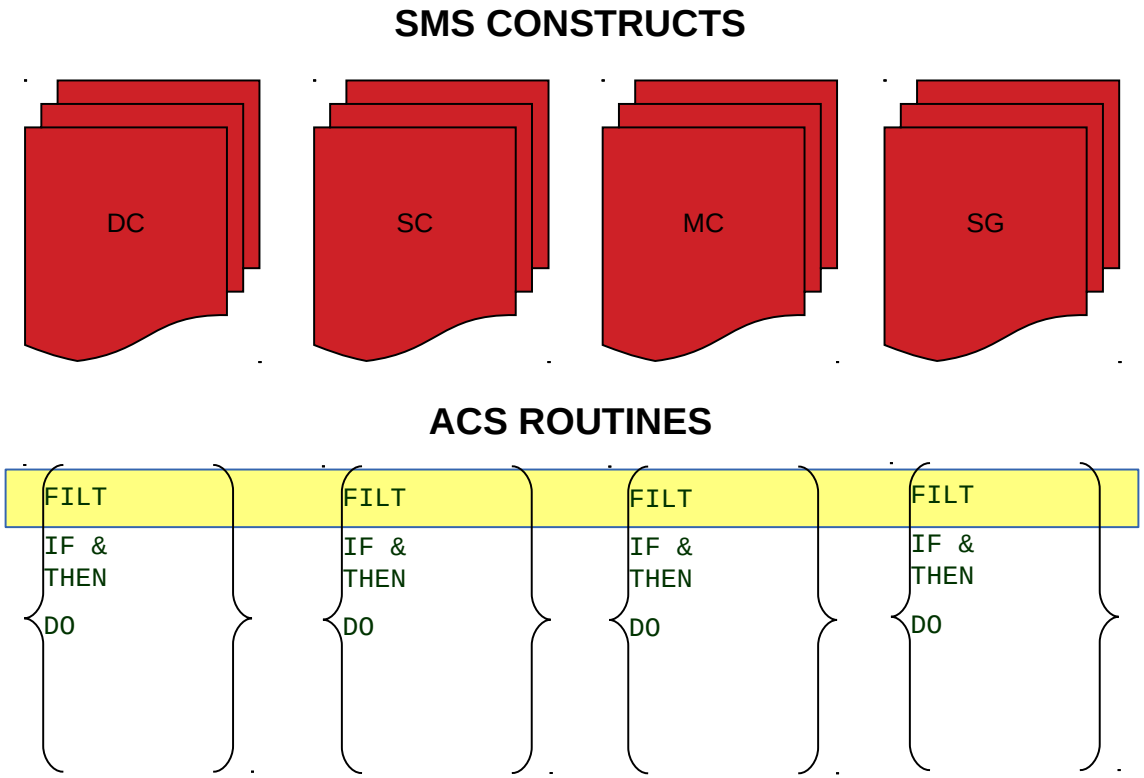
- Enable or Disable CA RECLAIM in a DC:

```
//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:

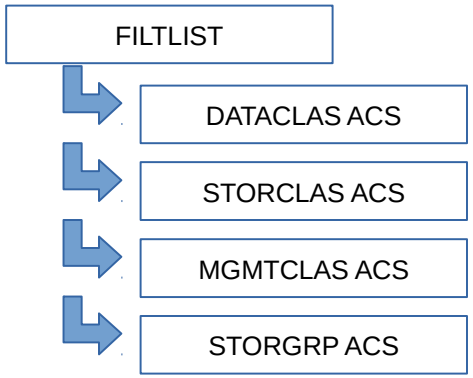
- Collecting Data
- ACS Testing
  - Building test cases
  - Running ACS tests
  - Repeat in Batch
- Batch SMS
  - Add a set of volumes to a Storage Group
  - Generate a new data class
- **Utilities**
  - Using COPYFILT
  - Using model command generation
- Reports
  - Finding fragmented volumes
  - Finding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

COPYFILT - INTRO



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 RLS    INCLUDE('RLS')
FILTLIST RLS64  INCLUDE('RLS64')
FILTLIST SMS    INCLUDE('SMS')
FILTLIST NONSMS INCLUDE('SMSN')
/**_**_**_**_**_**_**_**_**_**_**_**_**_**_**_**_**_**_**/
```

- Update all ACS with the comment headers

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

COPYFILT Example

- Issue COPYFILT command

```
  File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
EDIT       NEAL.SMS.ACS(FILTLIST) - 01.08                    ACS FILTLISTS UPDATED
       ****************************** Top of Data ******************************
       -Warning- The UNDO command is not available until you change
                 your edit profile using the command RECOVERY ON.
000001 /*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*/
000002 FILTLIST RLS    INCLUDE('RLS')
000003 FILTLIST RLS64  INCLUDE('RLS64')
000004 FILTLIST SMS    INCLUDE('SMS')
000005 FILTLIST NONSMS INCLUDE('SMSN')
000006 /**_**_**_**_**_**_**_**_**_**_**/
       ****************************** Bottom of Data ***************************


Command ===> COPYFILT_                                          Scroll ===> HALF
 F1=Help     F2=Split    F3=Exit     F5=Rfind    F6=Rchange  F7=Up       F8=Down
 F9=Swap     F10=Left    F11=Right   F12=Cancel
```

COPYFILT Example

```
  Panel  Help
------------------------------------------------------------------------------
                        COPY FILTLISTS ENTRY PANEL


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

  Member Containing FILTLISTs . . . . FILTLIST

  Data Class ACS Routine Name . . . . DC
  Storage Class ACS Routine Name  . . SC
  Management Class ACS Routine Name   MC
  Storage Group ACS Routine Name  . . SG

  Change Log Entry . . Updated 8/8/13_____________________________________


Use HELP Comman
```

```
'*************************************************************'
'* ACS DATACLAS MEMBER DC UPDATED RC = 0       *   '
'* ACS STORCLAS MEMBER SC UPDATED RC = 0       *   '
'* ACS MGMTCLAS MEMBER MC UPDATED RC = 0       *   '
'* ACS STORGRP MEMBER SG UPDATED RC = 0         *   '
'*************************************************************'
***
```

COPYFILT Example - Result

```
   Menu  Utilities  Compilers  Help
 ------------------------------------------------------------------------------
  BROWSE    NEAL.SMS.ACS(SC) - 01.20                Line 00000000 Col 001 080
****************************** Top of Data ******************************
PROC STORCLAS                                                      00010001
/* UPDATED : USER2 - UPDATE 8/8/13 */                              00020020
/*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*_*/                     00020120
FILTLIST RLS    INCLUDE('RLS')                                     00020220
FILTLIST RLS64  INCLUDE('RLS64')                                   00020320
FILTLIST SMS    INCLUDE('SMS')                                     00020420
FILTLIST NONSMS INCLUDE('SMSN')                                    00020520
/**_**_**_**_**_**_**_**_**_**_**/                                 00020620
SELECT(&DSN(2))                                                    00020714
  WHEN(&RLS) SET &STORCLAS = 'RLS'                                 00020817
  WHEN(&SMS) SET &STORCLAS = 'SMS'                                 00021017
  OTHERWISE SET &STORCLAS = ''                                     00030012
  END                                                              00030116
WRITE 'STORCLAS='&STORCLAS                                         00031005
END                                                                00040003
****************************** Bottom of Data ******************************
```

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 . . . NBFILES   (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

```
EDIT       USERZ.M3.MODELCMD
       ****************************************************************** Top of Data *:
       -Warning- The UNDO command is not available until you change
                 your edit profile using the command RECOVERY ON.
000001 ALTER NB.RLS.TEST1 NEWNAME(NB.RLS.TEST1.BAK)
000002 ALTER NB.RLS.TEST1.DATA NEWNAME(NB.RLS.TEST1.DATA.BAK)
000003 ALTER NB.RLS.TEST1.INDEX NEWNAME(NB.RLS.TEST1.INDEX.BAK)
000004 ALTER NB.SMS.TESTA NEWNAME(NB.SMS.TESTA.BAK)
000005 ALTER NB.SMS.TESTB NEWNAME(NB.SMS.TESTB.BAK)
000006 ALTER NB.SMS.TESTOUT NEWNAME(NB.SMS.TESTOUT.BAK)
000007 ALTER NB.SMSN.TEST1 NEWNAME(NB.SMSN.TEST1.BAK)
000008 ALTER NB.SMSN.TEST2 NEWNAME(NB.SMSN.TEST2.BAK)
       ****************************************************************** Bottom of Data
```

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

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   Invalid DSN - qualifier

To generate report, specify the following information and press Enter:
  Saved ISMF List  . . . . . . . . . . . NBVOL___  (DASD Volume List)
  Data Set to Hold Report
    ===> 'NB.SMS.VOLREPT'_____________________________________________
    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 . . . . . 3   (10)    Device Type  . . . . __    (8)
  % Free . . . . . . . 4    (6)    Dev Number . . . . . 2    (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     NEAL.SMS.DASDVOL.REPT
****************************************************************** Top of Data ******

                                   STATUS OF VOLUMES

 VOLSER DEVNUM FREESPC    %FREE

--------------------------------------------------------------------------------

 APPLPK 0D28    514957K     22
 CATLV2 0F50    231138K      8
 DFPLIB 083E    71881K       3
 DFPTL1 083B    604988K     22
 DFPTL2 083C    7194K        0
 DFPTL3 083D    292284K     11
 DTBASE 0815    8117616K    30
 DUMPDS 0823    1330331K     5
 DUMPD1 08C2    5108503K    19
 HSMLIB 0828    1107K        3
 LIBTST 0280    1735934K    75
 MVSDLB 0802    1046624K    13
 MVSRES 0801    2504173K    30
 MVSSMP 0806    92964K       3
 MVSZFS 080F    906015K     22
 NBPACK 0F61    41336K     100


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

***  TOTAL ALLOC SPACE...KB=160864072  MB=157093  GB=153
***  TOTAL FREE SPACE ...KB=35381789  MB=34552   GB=33
```

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=NEAL.SMS.DASDVOL.REPT,DISP=OLD
//SYSTSIN  DD *
PROFILE PREFIX(USER2)
ISPSTART CMD(ACBQVAR1 NBVOL 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     NEAL.SMS.DASDVOL.REPT
****************************************************************** Top of Data ******

                                   STATUS OF VOLUMES

 VOLSER DEVNUM FREESPC    %FREE

--------------------------------------------------------------------------------

 APPLPK 0D28   514957K     22
 CATLV2 0F50   231138K      8
 DFPLIB 083E   71881K       3
 DFPTL1 083B   604988K     22
 DFPTL2 083C   7194K        0
 DFPTL3 083D   292284K     11
 DTBASE 0815   8117616K    30
 DUMPDS 0823   1330331K     5
 DUMPD1 08C2   5108503K    19
 HSMLIB 0828   1107K        3
 LIBTST 0280   1735934K    75
 MVSDLB 0802   1046624K    13
 MVSRES 0801   2504173K    30
 MVSSMP 0806   92964K       3
 MVSZFS 080F   906015K     22
 NBPACK 0F61   41336K     100


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

***  TOTAL ALLOC SPACE...KB=160864072  MB=157093  GB=153
***  TOTAL FREE SPACE ...KB=35381789  MB=34552   GB=33
```

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 15758 – NaviQuest Lab (Today, 12:25 in room 301)**

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

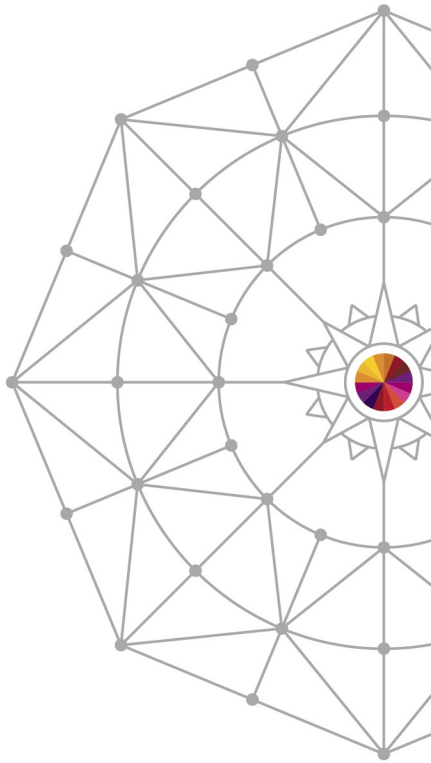
For More Information:

- 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)*

Session 16120 – NaviQuest

Testing ACS and Streamlining SMS Tasks



#SHAREorg

SHARE in Pittsburgh 2014

Notices & Disclaimers

Product information and data has been reviewed for accuracy as of the date of initial publication. Product information and data is subject to change without notice. This document could include technical inaccuracies or typographical errors. IBM may make improvements and/or changes in the products and/or programs described herein at any time without notice.

References in this document to IBM products, programs, or services does not imply that IBM intends to make such products, programs or services available in all countries in which IBM operates or does business. Consult your local IBM representative or IBM Business Partner for information about the product and services available in your area.

Any reference to an IBM Program Product in this document is not intended to state or imply that only that program product may be used. Any functionally equivalent program, that does not infringe IBM's intellectually property rights, may be used instead. It is the user's responsibility to evaluate and verify the operation of any non-IBM product, program or service.

THE INFORMATION PROVIDED IN THIS DOCUMENT IS DISTRIBUTED "AS IS"WITHOUT ANY WARRANTY, EITHER EXPRESS OR IMPLIED. IBM EXPRESSLY DISCLAIMS ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR INFRINGEMENT. IBM shall have no responsibility to update this information. IBM products are warranted according to the terms and conditions of the agreements (e.g., IBM Customer Agreement, Statement of Limited Warranty, International Program License Agreement, etc.) under which they are provided. IBM is not responsible for the performance or interoperability of any non-IBM products discussed herein.

Notices & Disclaimers

The performance data contained herein was obtained in a controlled, isolated environment. Actual results that may be obtained in other operating environments may vary significantly. While IBM has reviewed each item for accuracy in a specific situation, there is no guarantee that the same or similar results will be obtained elsewhere.

The responsibility for use of this information or the implementation of any of these techniques is a customer responsibility and depends on the customer's or user's ability to evaluate and integrate them into their operating environment. Customers or users attempting to adapt these techniques to their own environments do so at their own risk. IN NO EVENT SHALL IBM BE LIABLE FOR ANY DAMAGE ARISING FROM THE USE OF THIS INFORMATION, INCLUDING BUT NOT LIMITED TO,
LOSS OF DATA, BUSINESS INTERRUPTION, LOSS OF PROFIT OR LOSS OF OPPORTUNITY.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not necessarily tested those products in connection with this publication and cannot confirm the accuracy of performance, compatibility or another claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

The provision of the information contained herein is not intended to, and does not, grant any right or license under any IBM patents or copyrights. Inquiries regarding patent or copyright licenses should be made, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A.

Any statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.

Trademarks

DFSMSdfp, DFSMSdss, DFSMShsm, DFSMSrmm, IBM, IMS, MVS, MVS/DFP, MVS/ESA, MVS/SP, MVS/XA, OS/390, SANergy, and SP are trademarks of International Business Machines Corporation in the United States, other countries, or both.

AIX, CICS, DB2, DFSMS/MVS, Parallel Sysplex, OS/390, S/390, Seascape, and z/OS are registered trademarks of International Business Machines Corporation in the United States, other countries, or both.

Domino, Lotus, Lotus Notes, Notes, and SmartSuite are trademarks or registered trademarks of Lotus Development Corporation. Tivoli, TME, Tivoli Enterprise are trademarks of Tivoli Systems Inc. in the United States and/or other countries.

Java and all Java-based trademarks are trademarks of Sun Microsystems, Inc. in the United States, other countries, or both. UNIX is a registered trademark in the United States and other countries licensed exclusively through The Open Group.

Other company, product, and service names may be trademarks or service marks of others.

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 */
```