21CS VSE^n SMDMU

Using your VSE^n Swiss Army knife for VSE^n data

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Agenda

Types of Data You Can Work With

- Physical tape records
- Physical disk records
- Sequential data (BAM or SAM)
- VSAM data
- Library members
- VSE^n POWER List Queue
- Print output
- User storage

Tasks that can be Performed

- Browse data
- Change data
- Locate data
- Copy data
- Print data
- Erase data
- Work with a list of data sets, objects, or members
- Position a tape
- Compare two tapes
- Initialize or erase a tape

Formats for Displaying or Printing Data

- Character format

```
SMDMU for VSEn                    VB - VSAM Browse

CATALOG VSESP.USER.CATALOG
RBA 0              Key 'ANDREW AST'                  Col 1        Format CHAR
VOLSER SYSWK1    Type KSDS    DSNAME TEST.KSDS.CLUSTER


RBA         Len       <===5====>....5...20....5...30....5...40....5...50....5...60
0            80        ANDREW ASTLE * TYRONE DALAIS * GRANT SUTHERLAND * KEITH STEW
```

- Hexadecimal across format (system dump format)

```
RBA 0              Key X'C1D5C4D9C5E640C1E2E3'        Col 1        Format HEX
VOLSER SYSWK1    Type KSDS    DSNAME TEST.KSDS.CLUSTER


RBA         Len       < = = = 5 = = = = > . . . . 5 . . . .20 . . . . 5 . . . .30
0            80        C1D5C4D9C5E640C1E2E3D3C5405C40E3E8D9D6D5C540C4C1D3C1C9E2405C
```

- Hexadecimal updown format (SMDMU dump format)

```
RBA 0              Key 'ANDREW AST'                  Col 1        Format UPDN
VOLSER SYSWK1    Type KSDS    DSNAME TEST.KSDS.CLUSTER

RBA         Len       <===5====>....5...20....5...30....5...40....5...50....5...60
0            80  CHAR ANDREW ASTLE * TYRONE DALAIS * GRANT SUTHERLAND * KEITH STEW
                 ZONE CDCDCE4CEEDC454EEDDDC4CCDCCE454CDCDE4EEECCDDCDC454DCCEC4EECE
                 NUMR 1549560123350C0389655504131920C079153024385931540C02593802356
                      <===5====>....5...20....5...30....5...40....5...50....5...60
```

Full-screen Functions

Browse

- Move in any direction
- Locate a specific string
- Print the current screen image
- Put data into a buffer for later use
- Purge data (in the PB and SPB functions only)

Update

- Move in any direction
- Locate a specific string
- Print the current screen image
- Put data into a buffer for later use
- Get data from the buffer
- Copy data within a record, member, or object

Full-screen Functions cont.

Browse VSE^n Data	
Data	Function
Tape Records	TB
Disk Records	DB
Print Output	APB, PB
User Storage	MB
VSAM Data	VB
Library Members	LB
Spool Files	SPB

Update VSE^n Data	
Data	Function
VSAM Data	VU, VE
Library Member	LU, LE
Single-Record Update	
VSAM Data	VRU
Data Creation	
VSAM Data	BV
Sequential Data	BS, BQ
Rename	
Disk VTOC Entries	PVT
Disk Volume ID	DID
Library Members	LR

Locate Functions

- In most cases, using a full-screen browse function is the easiest way to locate data.

Data	Function
Tape Records	TRS
Disk Records	DRS
Disk Data Set	DSE

Copy Functions

Copy From	Copy To					
	Tape	VSAM	SAM	Library	Cards	REXX
Tape	TT, TTR, TFT, TLT	TV	TS, TQ	TL	TC	TX*
VSAM	VT	VV	VS, VQ	VL	VC	VX*
SAM	ST, QT	SV, QV	SS, QQ	SL	SC, QC	-
Library	LT	LV	LS	LL	LC	LX*
Cards	CT	CV	CS, CQ	CL	CC, II	-
REXX	XT*	XV*	-	XL*	-	-

* Not supported in full-screen mode

Print Functions

Data	Function
Tape Records	TP
Disk Records	DP
Cards	CP
Sequential Data	SP, QP
VSAM Data	VP
Library Member	LP
SYSLST Disk File	SFA, SFD
SYSLST Tape File	TFA, TFD

- You can browse print output using the PB function.

Erase Functions

Data	Function
Tape Records	ERT
Library Member	LDEL
Disk VTOC Entry	PVT

Functions for List of Data Sets, Members or Objects

Data	Function
Disk Contents (VTOC)	DVT
VSAM Data	VDL
Catalog Entries	SCS
Library Members	LDL
Library Status	LSL
Label Area	DLA
POWER Queue Entries	SPL, SPS

Tape Functions

Operation	Function
Space forward by file or record	FSF, FSR
Space backward by file or record	BSF, BSR
Rewind to beginning of tape	REW
Rewind and unload	RUN
Write tape marks	WTM
Compare two tapes	TTC
Print tape labels	TLB
Print a tape map	TMP

Execution Modes

Full-screen Menus or commands to select functions. If a function has parameters, you can enter them on a full-screen panel. Online help is always available

Line Enter commands with or without parameters. If you do not supply parameters, you are prompted for them in "question and answer" style. After a command is executed, you remain in SMDMU and can enter additional commands. You can use line mode at a system console.

Command Enter a single command with all appropriate parameters from outside SMDMU (for example, from a selection list or within a procedure). You can use either the parameter syntax (like line mode) or the keyword syntax (like batch mode). The command invokes SMDMU, and you automatically leave SMDMU after the command is executed.

Batch Code SMDMU commands as part of a batch job. You must be familiar with JCL. Some SMDMU functions, especially those that print the contents of a disk or tape, are ideally suited to batch mode.

Full-Screen Mode

To start SMDMU in full-screen mode, enter:

  DITTO [function] [(options]

from an OLTP terminal, where:

Function	Is an optional function name or menu selection. This lets you skip the Task Selection menu and go directly to the panel for the function that you want.
Options	Override the following default job parameters:

JOBCLASS=c	The job class for SMDMU
ACCOUNT=account	The job account information
WAIT=nnnn	The timeout value (in seconds) to limit waiting for connection to the SMDMU batch partition. The range is 1 to 9999; the default is 120.

Full-Screen Mode cont.

USER=userid	The user ID
PWD=pwd	The password
LSTCLASS=c	The class for SMDMU print output
LSTDISP=d	The disposition for SMDMU print output
TOUSER=user	The destination user ID for SMDMU print output
PUNCLASS=c	The class for SMDMU punch output
PUNDISP=p	The disposition for SMDMU punch output
OPTION=options	Parameters for the OPTION JCL statement separated by commas (no blanks allowed)

Full-Screen Mode cont.

For example, you could invoke full-screen SMDMU under VSE^n in any of the following ways:

DITTO

DITTO SET

DITTO 13 (USER=<userid> PWD=<pwd>

DITTO (JOBCLASS=Z LSTDISP=D TOUSER=<userid>

DITTO (OPTION=PARTDUMP,NOSYSDUMP

The first time you use SMDMU, a copyright panel appears. After reading the panel, press the Cancel function key. In future SMDMU sessions, this panel will not appear.

Full-Screen Mode cont.

If you do not specify an SMDMU function, the Task Selection menu appears.

Full-Screen Mode cont.

If you would prefer to work from a list of functions, select F2 from the Task Selection Menu to display the Primary Function Menu.

```
 Process      View      Options      Help
_____

SMDMU for VSEn                   Primary Function Menu

Select the desired function group or enter a SMDMU function code, then press
Enter. Press F2 (Menu) to get task-oriented guidance to SMDMU functions.

_____     0.  CONTROL          - Control functions and tools
            1.  CARD             - Card functions
            2.  TAPE CONTROL     - Tape control functions
            3.  TAPE             - Tape functions
            4.  DISK             - Disk functions
            5.  SAM and SPOOL    - Sequential data and spool functions
            6.  VSAM             - VSAM functions
            7.  LIBRARY          - Library functions
            8.  FILE CONTROL     - File control functions
            9.  CMS/VSE          - Client/server copy functions
           10.  XXX LISTING      - Print SMDMU function summary
           11.  NEWS             - Display SMDMU release news
           12.  EOJ              - Terminate SMDMU program




Command ===> _
F1=Help   F2=Menu   F3=Exit   F10=Actions   F11=CRetrieve   F12=Cancel
```

Full-Screen Mode cont.

SMDMU's panels are based on the Common User Access (CUA) guidelines. The fundamental objectives of CUA are:

- Usability and consistency within an application

- Consistency between applications

If you have used other CUA products, you should find the SMDMU panels familiar.

An action bar at the top of each CUA panel lets you select various choices. To move the cursor to the action bar, use the tab and arrow keys or press the Actions function key. To select a choice from the action bar, move the cursor to the choice, then press `Enter`.

When you select an action bar choice, a pull-down menu appears below the action bar.

Full-Screen Mode cont.

```
 Process    View    Options    Help

SMDMU for VSEn                    _  1. Help for help...        then press Enter.
                                     2. Extended help...        ction groups.
Select the desired task or           3. Keys help...
Press F2 (Menu) to display           4. Help index...
                                     5. Tutorial...
_____   1. Browse data             6. About...
          2. Edit or update d        7. News about SMDMU...
          3. Work with VTOC o
          4. Work with VSAM catalog
          5. Work with VSEn libraries
          6. Print data
          7. Copy data
          8. Locate data
          9. Change data
         10. Create data
         11. Position a tape
         12. Tape specific functions
         13. Set processing options



Command ===>_____
 F1=Help  F2=Menu  F3=Exit  F10=Actions  F11=CRetrieve  F12=Cancel
```

Full-Screen Mode cont.

Online Help

Field help	Specific help information about the item that the cursor is on. Field help is available for input fields on panels, and for certain highlighted phrases within the help text. To get field help, use the tab key or arrow keys to move the cursor to the appropriate item, then press the `Help` function key.
Help for help	Information about how to use the online help facility.
Extended help	Help information about an entire function or panel. There are three ways to get extended help:

- Select `Extended` help from the `Help` pull-down menu.
- Move the cursor to a position where no field help is available, and press the `Help` function key.
- Press the `Extended` help function key from within field help.

Keys help	A list of the keys that are available in SMDMU, and their functions.
Help index	A list of help information for SMDMU.

Full-Screen Mode cont.

Online Help cont.

Copyright

To get copyright information for this release of SMDMU, select `About` from the `Help` pull-down menu.

News

A list of new features in the current release of SMDMU. To get news, select `News about SMDMU` from the Help pull-down menu.

Message help

More information about a message. To get message help, press the `Help` function key when a message with a number in the form DITnnnnx appears. Message help appears once, regardless of the cursor position. If you later want to redisplay the message help, move the cursor to the message line and press the `Help` function key.

Tutorial

A general introduction to the tasks you can perform in full-screen mode SMDMU. To get the tutorial, press the `Tutorial` function key from within the online help.

Full-Screen Mode cont.

Function Keys

The function keys that are available on an SMDMU panel are listed at the bottom of the panel. The following function keys are available on most SMDMU panels:

F1=Help   Displays help information appropriate for the current cursor position.

F3=Exit   Exits the current function or panel.

F6=Rfind   Repeat the previous `FIND` command.

F7=Bkwd   Moves backward through the displayed data.

F8=Fwd   Moves forward through the displayed data.

F10=Actions   Moves the cursor to the action bar.

F11=CRetrieve   Retrieves the previous command that you entered (if the cursor is on the command line; if not, it returns the cursor to the command line).

F12=Cancel   Ignores anything that you typed on the current panel and leaves the current panel.

Selecting a Function

To select an SMDMU function from the Primary Function menu, you can:

- Move the cursor to the function you require, and press `Enter`. For example, move the cursor to 1 on the Primary Function Menu and press `Enter`, then move the cursor to 3 on the panel that is displayed, and press `Enter` again.

- Enter the function name. For example, enter `VB` on the command line.

- Enter a selection number. For example, enter 1 on the command line, then enter 3 on the command line of the panel that appears.

- Enter a composite selection number. For example, enter `1.3` on the command line.

- Enter a composite selection number with an equal sign in front. For example, enter `=1.3` on the command line.

Full-Screen Mode cont.

Command Line Functions

DX Converts a number from decimal to hexadecimal. For example, `dx 16` displays the value 11.

XD Converts a number from hexadecimal to decimal. For example, `xd 10` displays the value 16.

KEYS Lets you define the settings of function keys 13 to 24, or specify that you are using a Katakana terminal.

PRINT Prints the current screen image.

PFSHOW Turns on or off the display of function keys at the bottom of the screen. By default, function keys are displayed.

PANELID Turns on or off the display of panel names at the top of the screen. By default, panel names are not displayed.

CMDLINE Sets the position of the command line (top or bottom of the panel).

Full-Screen Mode cont.

Switching between Full-Screen Mode and Line Mode

You can switch back and forth between full-screen mode and line mode. Simple operations may be quicker in line mode than in full-screen mode, whereas more complex operations are best suited to full-screen mode.

To switch from full-screen mode to line mode, enter **FSN** on the command line of an SMDMU panel.

To switch from line mode back to full-screen mode, enter **FSY** in response to the SMDMU function? prompt.

Full-Screen Mode cont.

Handling Errors

If an error is detected in full-screen mode, SMDMU issues an error message and the function ends. If the message has a number, you can get help information by pressing the `Help` function key.

If an error causes the system to cancel the task (for example, a file open error), SMDMU tries to recover from the cancel condition and close any files left open. If recovery is not possible, or if you explicitly request cancel, SMDMU is terminated.

Full-Screen Mode cont.

Demo

1. Enter `DITTO` from an OLTP terminal. The SMDMU Task Selection menu appears.
2. Enter `13` on the command line to invoke the SET function. The SET entry panel appears.
3. Check `PRINTOUT` parameter is `PRINTER`.
4. Press the `Exit` function key to leave the SET function and return to the Task Selection menu.
5. Enter `NEWS` on the command line.
6. Use the `Fwd` and `Bkwd` function keys to move forward and backward through the News text.

Full-Screen Mode cont.

Demo cont.

7. Enter PRINT on the command line to print the current panel.

8. Press the `Exit` function key to exit the News function.

9. Enter `PB` (Print Browse) on the command line.

10. Browse through the print output created (a screen of data from the News function). Press the `Purge` function key to delete the output.

11. Type EOJ on the command line to end your SMDMU session.

Line Mode

In line mode, you can enter SMDMU commands and parameters in a "question-and-answer" format. When you enter an SMDMU command, SMDMU prompts for more information as required.

Line mode is particularly useful if you are working at a system console where full-screen mode is not available.

Line Mode cont.

Starting Line Mode

To start SMDMU in line mode, enter:

```
DITTO FSN
```

from an OLTP terminal.

To start SMDMU at a VSE^n system console, enter EXEC DITTO. SMDMU responds with this message:

```
*** SMDMU active ***
When prompted, enter GO to skip optional prompts, or U to exit from function
SMDMU function ?
```

Line Mode cont.

Entering Commands in Line Mode

In response to the `SMDMU function ?` prompt, enter an SMDMU command. SMDMU prompts you for the parameters needed.
You can enter a command and its parameters on one line. The parameters must be entered in the correct order, separated by commas or blanks. To accept default values, you can type a comma with no value. For example, each of these line mode commands print 5 files from the tape at address 480:

```
TP 480 CHAR U ALL 5
TP 480,CHAR,U,ALL,5
TP,480,,,,5
```

Line Mode cont.

Entering Commands in Line Mode cont.

To skip prompting for optional parameters, enter the required parameters followed by GO. For example, to print one file from the tape at address 480 you could enter any of the following:

```
TP 480 CHAR U ALL 1
TP 480,CHAR,U,ALL,1
TP 480 GO
TP,480,GO
```

If SMDMU cannot interpret a parameter, it prompts again for that parameter and for subsequent parameters.

Line Mode cont.

Entering Commands in Line Mode cont.

Some parameters are not always prompted for. For example, SAM input parameters are not prompted for, if a DLBL statement is provided.

In cases where SMDMU would not prompt for a parameter, SMDMU does not look for the parameter in a single-line command.

Line Mode cont.

Handling Errors

If an error is detected in line mode, SMDMU issues an error message and the function ends.

If an error causes the system to cancel the task (for example, a file open error), SMDMU tries to recover from the cancel condition and close any files left open. If recovery is not possible, or if you explicitly request cancel, SMDMU is terminated.

To interrupt an SMDMU function, enter `U`, `END`, or `QUIT` in response to a SMDMU prompt. The `SMDMU function ?` prompt appears. You can now enter the name of a new SMDMU function or end the session by entering `EOJ`.

Demo

1. Enter DITTO FSN from an OLTP terminal.

2. To request a reference summary of SMDMU functions, type:
   XXX
   The reference summary is printed. The print destination is determined by the current value of the PRINTOUT parameter of the SET function.

3. To end the SMDMU session, type:
   EOJ

Under VSE^n, command mode is available only within a REXX procedure. Before the first SMDMU command, specify:

CALL 'DITSETUP'

ADDRESS DITTO

You can use either **Parameter** or **Keyword** syntax. In Keyword syntax you enter DITTO followed by the command name prefixed by a dollar sign ($).

This command:

```
DITTO $TP INPUT=181,NLRECS=ALL,NFILES=5
```

is much easier to understand than this command:

```
DITTO TP 181,,,,ALL,5
```

```
/* TITLE: LISTCAT.PROC */
parse upper source environment .

IF environment='VSE' THEN
DO
  CALL 'DITSETUP'
  ADDRESS DITTO
END

DITTO '$SCS'
SAY 'SCS return code:' RC

DITTO '$SET PRINTLEN=80,PRINTOUT=REXX'
SAY 'SET return code:' RC

ditto.0=0
DITTO '$SCS
CATALOG=VSESP.USER.CATALOG,DSNAME=VSE.**,SORTBY=DATE'
SAY 'SCS return code:' RC

SAY '>>> SCS output:'
DO i=1 to ditto.0
  SAY ditto.i
END
```

```
// JOB LISTCAT REXX LIST CATALOG
// SETPARM USER='<USERID>'
// SETPARM PWD='<PASSWORD>'
// ID USER=&USER,PWD=&PWD
// LIBDEF PROC,SEARCH=(PRD2.REXXLIB)
// EXEC REXX=LISTCAT
/*
/&
```

Batch Mode

To indicate that SMDMU control statements are to be processed in a batch job, include the following information in your job control:

```
// UPSI 1                                    /* Batch Operation */
<input and output assignments>
// EXEC DITTO
```

The rules for coding SMDMU control statements are:

- Each control statement begins with $$DITTO in columns 1 to 7, followed by a blank in column 8, followed by the command name, followed by the first keyword and parameter (if any).

- Parameters must be specified with a keyword and an equal sign, like this:
  KEYWORD=*parameter*.

- Each parameter, except the last parameter, is followed immediately by a comma.

- To continue a command onto the next line, you do not need a continuation character; simply end the first line with a comma and begin the next line with `$$DITTO` and a blank.

Batch Mode cont.

```
// JOB FUNCTS PRINT LIST OF SMDMU COMMANDS
// UPSI 1
// EXEC DITTO
$$DITTO XXX
$$DITTO EOJ
/&
```

Batch Mode cont.

You can also use the ADDRESS LINK command environment to invoke SMDMU.

```
/* TITLE: T2T.PROC */
ARG in out nfiles .
input.1 = '$$DITTO TT INPUT='in',OUTPUT='out',NFILES='nfiles
input.2 = '$$DITTO REW OUTPUT='in
input.3 = '$$DITTO REW OUTPUT='out
input.4 = '$$DITTO TTC INPUT='in',OUTPUT='out',NFILES='nfiles
input.5 = '$$DITTO REW OUTPUT='in
input.6 = '$$DITTO REW OUTPUT='out
input.7 = '$$DITTO RUN OUTPUT='out
input.8 = '$$DITTO EOJ'
input.0 = 8
CALL REXXIPT input.
ADDRESS JCL '// UPSI 1'
ADDRESS LINK 'DITTO'
EXIT
```

```
// JOB T2T COPY TAPE TO TAPE
// SETPARM USER='<USERID>'
// SETPARM PWD='<PASSWORD>'
// SETPARM TAPE1='480'
// SETPARM TAPE2='224'
// SETPARM FILES='99'
// ID USER=&USER,PWD=&PWD
// LIBDEF PROC,SEARCH=(<Lib.Sublib>)
// EXEC REXX=T2T,PARM='&TAPE1 &TAPE2 &FILES'
/*
/&
```

Conclusion

Thank you for your attention ;-)