


# Assembler Skills Exiting? Let zOSEM Eliminate Your Exit Needs



**Bob Rogers  
for Trident Services, Inc.  
February 6, 2013  
Session Number 13164**

# Overview

## This presentation will:

- Show that zOSEM can replace most or all of your custom installation exits
  - and make it easier to manage the custom exits that remain
- Show that it greatly eases migration to new releases of system software like z/OS 2.1 and associated elements.
- Touch upon how it facilitates migration from JES3 to JES2
- Briefly overview other zOSEM functions that help you meet IT business challenges

***Some of the charts are very busy just listing the many capabilities of the different functional elements of zOSEM***

# Business Challenges

- Managing workloads - particularly difficult when merging disparate environments
  - Data center consolidation
  - Corporate acquisitions / mergers
- Keeping up to date with z/OS releases
- Monitoring and controlling DFSMSHsm resource usage
- Controlling escalating ISV licensing costs

# What Is zOSEM ?

- A suite of z/OS tools to enhance the management of the environment
  - Replaces system modifications with rule-based controls
  - Enforces JCL standards
  - Routes jobs within and between MAS environments
    - *Functional replacement for SHARE JES2 mods*
  - Augments DFSMSHsm with optimization and reporting functions

***Trident Services has the experience needed to create a product that solves real problems.***



# Got exits?

- Installations create and maintain a multitude of user exits to customize Allocation, TSO, DFSMS, etc.
- Maintaining these exits is becoming more problematic.
  - Expensive to maintain
  - Skills are lessening
  - Delay upgrades to latest releases with enhanced functions
- Most of the things that an installation wants exits to do can be done conveniently, efficiently and economically by zOSEM
- zOSEM lets you specify your policy on ISPF panels so you can get rid of your exit programs.

# Job Control

- zOSEM is made up of a number of functional areas. One of them is called Job Control
- The many capability of zOSEM Job Control can be group into capabilities that
  - Manage
  - Secure
  - Communicate
  - and Report

*How many of the following functions do you need your exits to handle?*

# Job Control: Manage

- Correction of NOT CATALOGED 2 conditions (by JOBCCLASS)
  - Uncatalog and delete the improper dataset and catalog the new dataset
  - Uncatalog the improper dataset and catalog the new dataset
  - Cancel the JOB with a JCL error
- Limit the number of concurrently running jobs by user ID
- Limit the number of concurrently running jobs executing a specific program
- Allow SYSOUT lines extensions

# Job Control: Secure

- Surrogate Password processing provides
  - Password insertion in JOB card for NJE processed Jobs for TSO Users
  - Password insertion in the JOB card for JOBS submitted by authorized Jobs, STCs and/or Users that may submit Jobs for other Users
- Enforce that TSO submitted jobs have jobnames starting with the USERID of the User submitting
- Control submission of MVS and JES2 Commands imbedded in jobs by TSO Users
- Ensure that the submitter of a job is defined to RACF



# Job Control: Communicate

- Issue a message to submitter when job actually starts
- Add Notify to TSO submitted Jobs (by JOBCLASS)
- Job end WTO in JESLOG for highest step end cond code
- Step end WTO in JESLOG with step condition code
- Force operator reason for cancelling job (by JOBCLASS)
- Highlighted WTO option for ABENDED Jobs (by JOBCLASS)

# Job Control: Report

- Step end statistics including I/Os by DDNAME in JES Messages
- Job end statistics in JES Messages
- Customization of step end statistics flower box including Customer Description
- Terminal display of TSO usage statistics at logoff

# Of Course There's More

- zOSEM also provides other customization and management capability that can replace your user exits:
  - JCL control, include STEPLIB and PROCLIB controls
  - Job Timing Controls
  - Tape Sharing Controls
- There is also the HSM Optimizer that provides significant control and optimization capabilities that augment the functions provided by DFSMSHsm.
- Plus powerful Job routing controls that can reduce your software bills by limiting the number of systems with licenses and routing the work to them.

# JCL Control

Eliminate your exits or enhance your control with these capabilities provided by zOSEM JCL Control:

- Account Number Controls
- Convert EZ-Proclib<sub>(R)</sub> to JCLLIB
- Jobclass/Jobname Controls
- Force Open Controls
- STEPLIB Controls
- Sysout Class/Parameters
- Tape Usage Controls
- Virtual Storage Controls

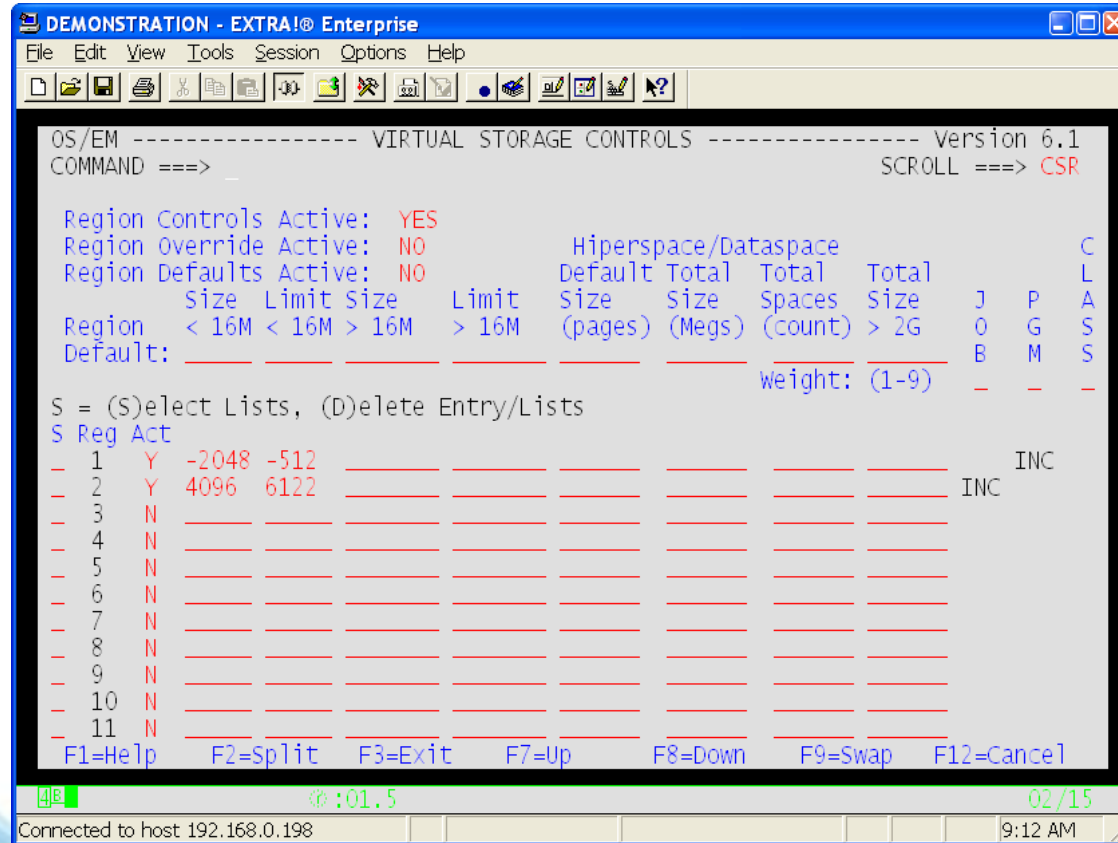


# Here's an Example

## Virtual Storage Control:

- Obviates need for user-written IEFUSI
- Overrides JCL REGION= specification
- Rules applied based on job attributes
  - Job name
  - Program name
  - Job class (includes TSU & STC)
- Controls all types of virtual storage
  - Below the line
  - Above the line
  - Above the bar
  - Hiperspace / Dataspace

# Virtual Storage Control Panel



DEMONSTRATION - EXTRA!® Enterprise

File Edit View Tools Session Options Help

OS/EM ----- VIRTUAL STORAGE CONTROLS ----- Version 6.1  
COMMAND ===> SCROLL ===> CSR

Region Controls Active: YES  
Region Override Active: NO  
Region Defaults Active: NO

Region	Size	Limit	Size	Limit	Default	Total	Total	Total	J	P	A
	< 16M	< 16M	> 16M	> 16M	(pages)	(Megs)	(count)	> 2G			
Default:									B	M	S

S = (S)elect Lists, (D)eleate Entry/Lists  
S Reg Act

1	Y	-2048	-512								INC
2	Y	4096	6122								INC
3	N										
4	N										
5	N										
6	N										
7	N										
8	N										
9	N										
10	N										
11	N										

F1=Help F2=Split F3=Exit F7=Up F8=Down F9=Swap F12=Cancel

Connected to host 192.168.0.198 9:12 AM

***You just fill in an ISPF panel and don't need to write any assembler language programs***

# Here's another Example

## Job Classing:

- Implements or Enforces Standards
- Overrides CLASS and/or PRTY JCL specification
- Rule selection based on attributes of the job
  - Job name, Job class, Account code, Job time
  - User id, RACF group
  - Program name, PARM=
  - Service class, Scheduling environment
  - Dataset name, DDNAME, Unit, Member name
  - Submission source

# Job Classing Panel

DEMONSTRATION - EXTRA!® Enterprise

File Edit View Tools Session Options Help

OS/EM ----- JOBCLASS/PRIORITY CHANGE GROUPS - JES2 ----- VERSION 6.1  
COMMAND ==> SCROLL ==> CSR

Line Cmds: (S)elect for update, (D)eleate group, (C)opy, (M)ove, (O)ver

Sel	Group	Active	Class	Priority	Change Description
1		Y	7		SAS Jobs
2		Y	A	15	Hot batch job
3		-	-	-	
4		-	-	-	
5		-	-	-	
6		-	-	-	
7		-	-	-	
8		-	-	-	
9		-	-	-	
10		-	-	-	
11		-	-	-	
12		-	-	-	
13		-	-	-	
14		-	-	-	
15		-	-	-	

F1=Help F2=Split F3=Exit F7=Up F8=Down F9=Swap F12=Cancel

02/15

Connected to host 192.168.0.198 9:42 AM



# Job Status Summary Display

*New as part of zOSEM 6.2*

*.... constantly being enhanced to  
.... solve customer problems*

```

OS/EM ----- JOB STATUS SUMMARY ----- Version 6.2
Option ==>

Job Queues:
    7    Awaiting execution
    0    Awaiting spin
    0    Awaiting output
   89    Awaiting hardcopy
    0    Awaiting transmission

TOTAL JOBS 81-BATCH 22-STC 15-TSO 8-APPC

Resources:
    11    Resources Active / Defined
    4    Jobs need 2 resources

Jobs Waiting:
  A = 3    B =      C =      D =      E =      F =      G =
  H =      I =      J =      K =      L =      M =      N =
  O =      P =      Q =      R = 3    S = 1    T =      U =
  V =      W =      X =      Y =      Z =      0 =      1 =
  2 =      3 =      4 =      5 =      6 =      7 =      8 =

F1=Help    F2=SplitNew F3=Exit    F7=Up      F8=Down    F9=SwapNext
F12=Cancel
  
```

**Displays overall view of jobs currently in the system.**

**Users can ‘drill down’ for specific categories.**

# Maintaining z/OS Currency

- System modifications and user exits can pose barriers to timely upgrades of the operating system
  - Can lead to environment being unsupported
  - Could be in violation of regulatory requirements
- zOSEM provides functions that eliminate most standard z/OS & JES2 exits
  - No code development & maintenance

*“....for the first time in about 25 years both zOS (MVS) and JES2 were successfully upgraded at the same time (thanks to OSEM).”*

zOSEM Customer

# Simplify Your Next z/OS Upgrade

- Transfer your existing exit functionality to zOSEM functions
  - Tailor via ISPF instead of Assembler
- Eliminate (or significantly reduce) your custom exits
- Next z/OS upgrade, just install zOSEM !
  - All of your customizations are preserved
  - zOSEM support new z/OS releases at GA
  - Leave exit recoding to zOSEM

# Use zOSEM to move to JES2

- Enable advanced job flow controls
- Insure jobs are not released into the system for execution until
  - existing data set enqueues are released
  - pending HSM recalls are complete



# Powerful Resource Routing

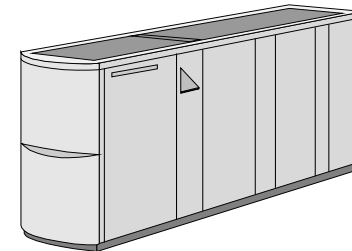
Job Resource Routing is enhanced to allow automatic routing of jobs based on:

- DDNAME
- Dataset Name
- Job Class
- Job Name
- Program Name
- RACF Group
- Unit Name
- TSO User ID
- WLM Service Class
- Execution Parm Value

# Resource Routing Example

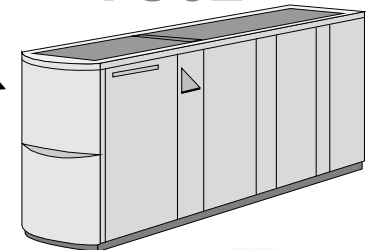
- Use ISPF panels to identify abstract resources needed by jobs based on jobname, program name, job class, etc.
- Use a command to identify the systems on which each resource is available.
- In this example, the resource is a license for an ISV product. That resource is available on system TC02.
- Jobs that execute that product are dynamically routed to system TC02 which is licensed to run it, even if the job originally would have run on system TC01
- System TCO1 now does not need to have a license.

TC01



VDRSWEEP  
DBT2  
NVDM

TC02



ISVPRD  
DBT2

# Resource Management Display

*New as part of zOSEM 6.2*

*.... constantly being enhanced to  
.... solve customer problems*

```

DS/EM ----- RESOURCE MANAGEMENT ----- Row 1 to 19 of 52
Command ==> _ Scroll ==> CSA
  
```

RESOURCE NAMES	CAPA	CAPB	CAP1	CAP2
ACCT	ON	OFF	OFF	OFF
BBMODE	OFF	OFF	ON	OFF
BIND	OFF	OFF	OFF	OFF
BOGUS	OFF	OFF	OFF	OFF
BRAD1	OFF	OFF	ON	OFF
BRAD3	OFF	OFF	ON	ON
BY.DSN	OFF	OFF	ON	ON
CAPA	ON	OFF	OFF	OFF
CAPB	OFF	OFF	OFF	OFF
CAPX	OFF	OFF	ON	ON
CAP1	OFF	OFF	ON	OFF
CAP2	OFF	OFF	OFF	ON
DB2P	ON	OFF	ON	OFF
DB2T	OFF	OFF	ON	OFF
DEV2	OFF	OFF	OFF	OFF
ENVIRO	OFF	OFF	OFF	OFF
EXCLUDE.RESOURCE	OFF	OFF	OFF	OFF
EZTREIVE	OFF	OFF	OFF	OFF
FOCUS	OFF	OFF	OFF	OFF

```

F1=Help  F2=Split  F3=Exit  F7=Up  F8=Down  F9=Swap  F12=Cancel
  
```

**Display all defined resources and their status for each MAS member.**

**List all jobs that currently require a resource.**

# Get Help Managing DFSMShsm

- Use zOSEM to implement more granular migration rules
- Use zOSEM DFSMShsm reports to better optimize and manage your DFSMShsm environment
- Insure Valid DSORG on data sets so DFSMShsm can manage them



# Enhanced Control of DFSMShsm

## Backup Control

specify datasets which should not be backed up.

## Defragmentation

specify datasets which should not be backed up.

## Delete-by-Age Control

datasets size is factored into decision

## Delete-if-Backed-Up Control

datasets size and other factors are used

## Direct-to-Level-2 Control

Direct to ML2 based size and dataset name

## Early Batch Recall

Recall while job is in input queue

## Force DSORG to PS

Enables DFSMShsm to process the data set

## Migration Control (ML0-ML1)

Considers data set size and time on Level 0

## Migration Level-2 Control

datasets can be held for a time or indefinitely

## Prioritize Recall/Recover Reqs

Based on batch vs online and tape vs disk

## Reblocking Control

Full through eighth blocks

## Recall/Recover Volume Selection

Selection based on definitions to zOSEM

*zOSEM enhances control of DFSMShsm space, availability, and tape mount management functions....*

*....and provides extensive reporting*

# zOSEM Demonstration & Trial

**Individual customer  
demonstrations and trials  
are available upon request.**

**CONTACT US  
YOU'LL BE GLAD YOU DID!**

**osem@triserv.com 800-887-4336**  
**International +1+831-465-7661**

# Thank you for your attention.

## Do you have any questions?

