

Take the Leap to IMS Pervasive Encryption

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Several of the largest Data Breaches

- **Yahoo (2013)**
- **First American Financial (2019)**
- **T-Mobile (2021)**
- **Marriott Hotels (2018)**

[*https://www.techopedia.com/10-biggest-data-breaches-of-all-time-and-how-to-prevent-them/2/34863](https://www.techopedia.com/10-biggest-data-breaches-of-all-time-and-how-to-prevent-them/2/34863)



Top data breach stats for 2023

- **Number of data breaches in July 2023:** 87
- **Breached records in July 2023:** 146,290,598
- **Number of data breaches in 2023:** 694
- **Number of breached records in 2023:** 612,368,642
- **Biggest data breach of 2023 so far:** Twitter (220 million breached records)
- **Biggest data breach in the UK:** JD Sports (10 million breached records)
- **Most breached sectors:** Healthcare (199), education (119), public (88)

*<https://www.itgovernance.co.uk/blog/list-of-data-breaches-and-cyber-attacks-in-2023>



Remember this guy?

- Eric Snowden
- Contractor for National Security Agency
- Released millions of classified documents
- Most significant data leak in U.S. history

Not All Threats are from the OUTSIDE!!



No where to hide anymore!



FERPA
Family Educational
Rights & Privacy Act



IMS data sets that support z/OS encryption

- VSAM (HALDB, non-HALDB)
- OSAM
- Fast Path DEDB area data sets (ADS)
- GSAM
- Online log data sets (OLDS)
- Batch log data sets
- SLDS
- RLDS
- Change Accum data sets
- Image copy data sets
- RECON data sets
- Write-ahead data sets (WADS)
- IMS external trace data sets
- z/OS log stream offload and staging data sets
- IMS Connect Recorder data sets
- CQS SRDS data sets

Data set encryption support for IMS

- Available in z/OS 2.3 and later
- z/OS 2.2 after APAR OA50569
- IBM Enterprise z196 or later
- Crypto Express3 Coprocessor or later



Creating an encrypted data set

- Define a Key label
- SMS-managed extended format data set
- Must be assigned to data set
 - JCL allocation – DSKEYLBL parameter
 - IDCAMS DEFINE – KEYLABEL parameter
 - DATACLAS with associated key label



Converting VSAM Databases



Basic Steps for implementing encryption

- Take database offline
- Unload database
- Delete or rename original database data sets
- Allocate target database data sets with key labels
- Reload database into the new encrypted data sets
- Bring the database online

Challenges

- **Lack of skills**
- **Database outages**
- **Volume of changes**
- **Tracking progress**
- **Backout**



Efficient Workflows for Change

Change Manager for IMS Database Advisor for IMS System Administration for IMS Energizer for IMS Connect

Dashboard Apps

Pinned Objects

- + Manage Objects Save List
- MVSGLT1.GT15.RECON1 RECON
- A GROUP DBGROUP MVSGLT1.GT15.RECON1
- C GROUP DBGROUP MVSGLT1.GT15.RECON1
- FASTPATH DBGROUP MVSGLT1.GT15.RECON1
- PTGRP DBGROUP MVSGLT1.GT15.RECON1
- RCU.BRI15IMS.RECON1 RECON
- A0GRP DBGROUP RCU.BRI15IMS.RECON1
- ICM DBGROUP RCU.BRI15IMS.RECON1
- IMSCAT DBGROUP RCU.BRI15IMS.RECON1
- PTGRP DBGROUP RCU.BRI15IMS.RECON1
- MIGRATE DBGROUP RCU.BRI15IMS.RECON1

Database List Exceptions

Fetch Exceptions on Select

Filter database prefix

OK Status (0) Warning Status (9) Critical Status (5) Error Status (0) Not Analyzed Status (2) Only Owned by this DBGroup

DB Group C GROUP Open DBD Dashboard Details for C3HVDP

Database	Type	#Area/#Parts	Access Method	ESDS
C0FOX1	INDEX	N/A	Last Change By	MVSGLT1
C0FOXP	HIDAM	N/A	Last Change Date	2021/09/03
C1FVDP	HDAM	N/A	Last Change Time	14:36:29.653
C2FODP	HDAM	N/A	Owned by DBGroup	C GROUP
C3HVDP	PHDAM	4 partitions	# Secondary Indexes	0
C4HVXP	PHIDAM	4 partitions	Registered for Collect	Y
C5FVZP	HISAM	N/A	Last Purge Date	2022/04/20
C6FVXI	INDEX	N/A	Last Purge Time	15:42:34.000
C6FVXP	HIDAM	N/A	Last Collect Date	0000/00/00
C7HODP	PHDAM	4 partitions	Last Collect Time	00:00:00.000
C8FOX1	INDEX	N/A	Last Collect Utility	
C8FOXP	HIDAM	N/A	Randomizer	DFSHDC40

Quick Access Menu

C3HVDP

Config/Preferences

- Maintain Environment
- Register Database

Exceptions

- Exception List
- Exception Forecast
- Run Data Collection (Full Function)

Utilities

- Generate JCL
- Partition Rebalance
- Partition Selection Exit Validation
- Tune or Convert Database
- Manage Workflows
- Extract Command

Tuning/LDS Conversion Workflow

New Tune/LDS Conversion Workflow

Workflow Name

Workflow Description

Workflow DSN Prefix

Convert OSAM To LDS ☒

Tune Databases ☒

New DB STORCLAS (optional):

New DB DATACLAS (optional):

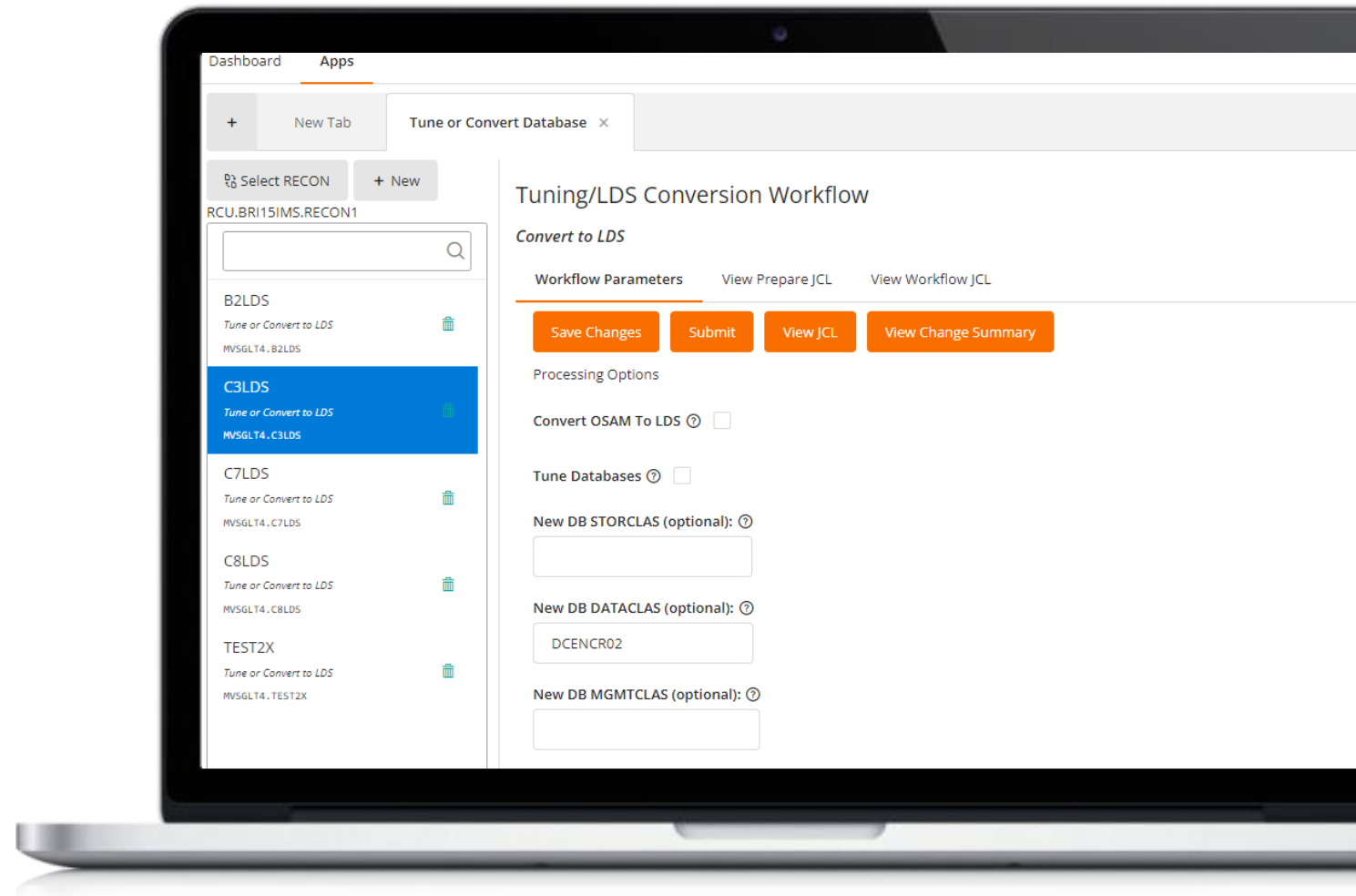
New DB MGMTCLAS (optional):

Selected Databases/Masks

- Workflows provide audit trail of change activity
- Custom workflow data sets
- Change SMS
- Convert OSAM to VSAM Linear
- Database Tuning

View/Submit Prepare JCL

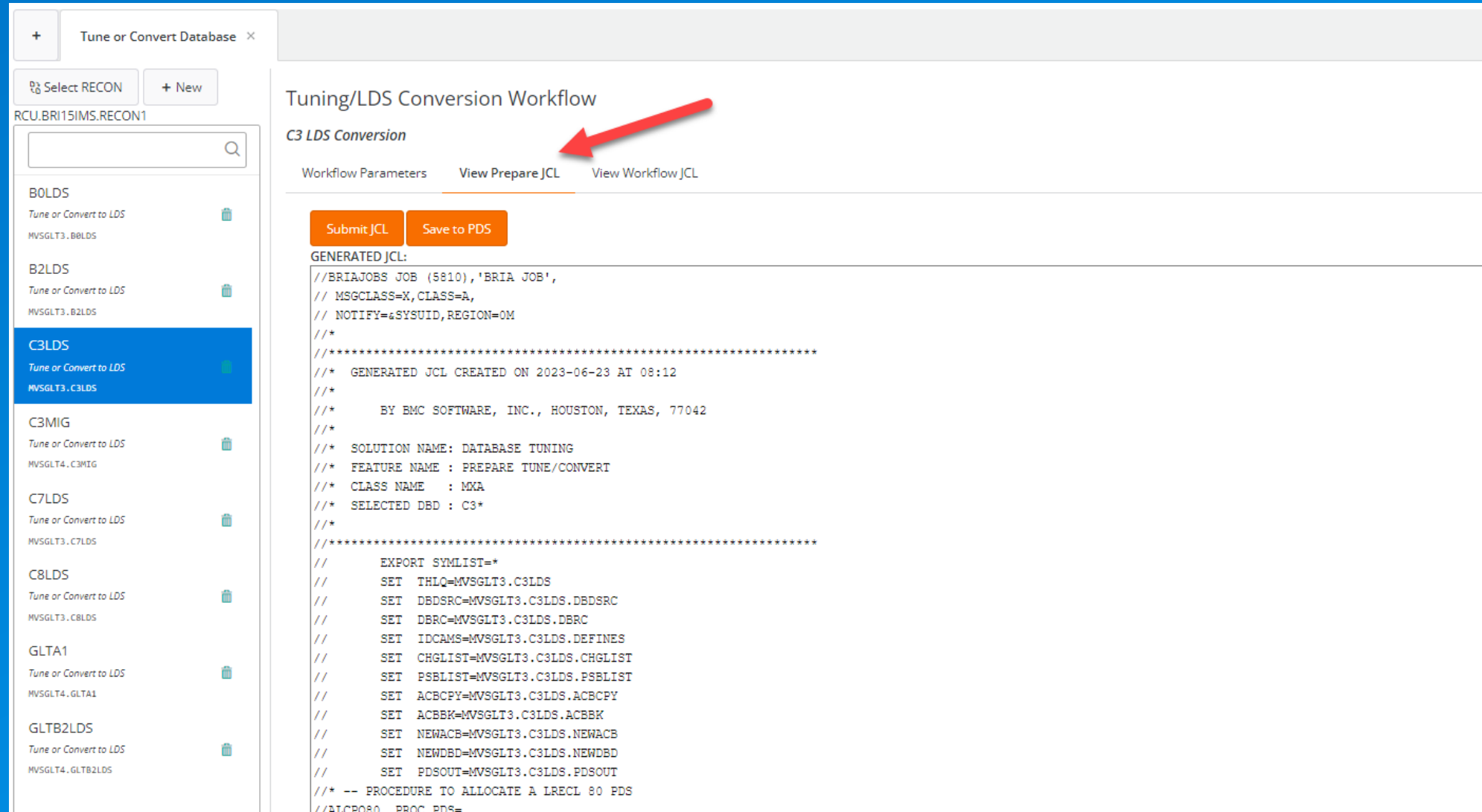
- Make any changes
- Save current ACBLIB and DBDLIB
- DBRC commands
- IDCAMS
- Reorg JCL



Workflow Data sets

```
.      .      .      .      .      .      .      .      .      .      .      .      .      .      .      .
.  _Menu_ _Options_ _View_ _Utilities_ _Compilers_ _Help_
.
.  DSLIST - Data Sets Matching MVSGLT4.C3LDS                                Row 1 of 10
.  Command ==> _____ Scroll ==> CSR
.
.  Command - Enter "/" to select action                                Message                                Volume
.  -----
.      MVSGLT4.C3LDS.ACBBK                                                DEVSIM
.      MVSGLT4.C3LDS.ACBCPY                                              DEVSIB
.      MVSGLT4.C3LDS.CHGLIST                                             DEVSID
.      MVSGLT4.C3LDS.DBDSRC                                              DEVS9Y
.      MVSGLT4.C3LDS.DBRC                                                DEVSIR
.      MVSGLT4.C3LDS.DEFINES                                             DEVSIH
.      MVSGLT4.C3LDS.NEWACB                                              DEVSIK
.      MVSGLT4.C3LDS.NEWDBD                                              DEVSOU
.      MVSGLT4.C3LDS.PDSOUT                                              DEVSID
.      MVSGLT4.C3LDS.PSBLIST                                             DEVSIC
.  ***** End of Data Set list *****
.
.  .
```

View/Submit Prepare JCL



Tuning/LDS Conversion Workflow

C3 LDS Conversion

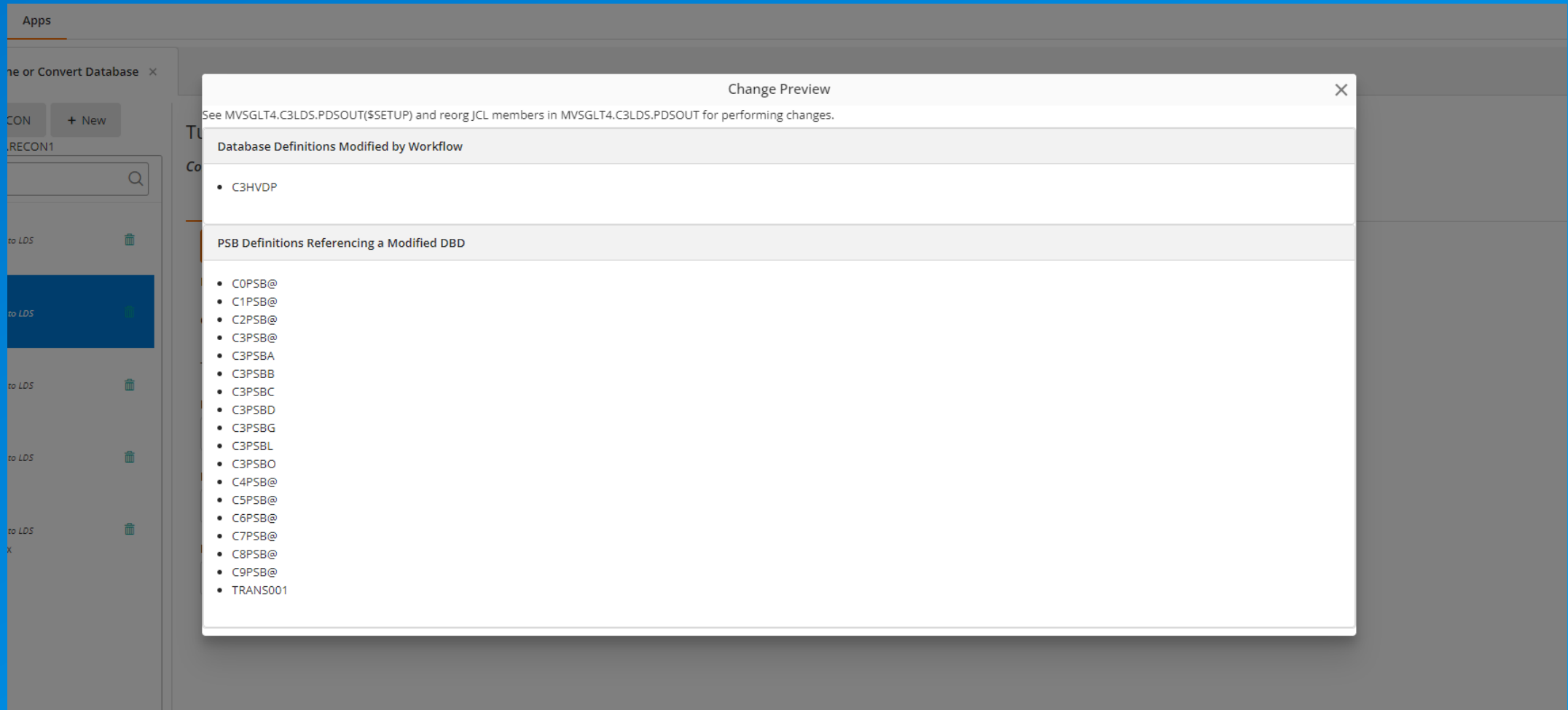
Workflow Parameters | **View Prepare JCL** | View Workflow JCL

Submit JCL **Save to PDS**

GENERATED JCL:

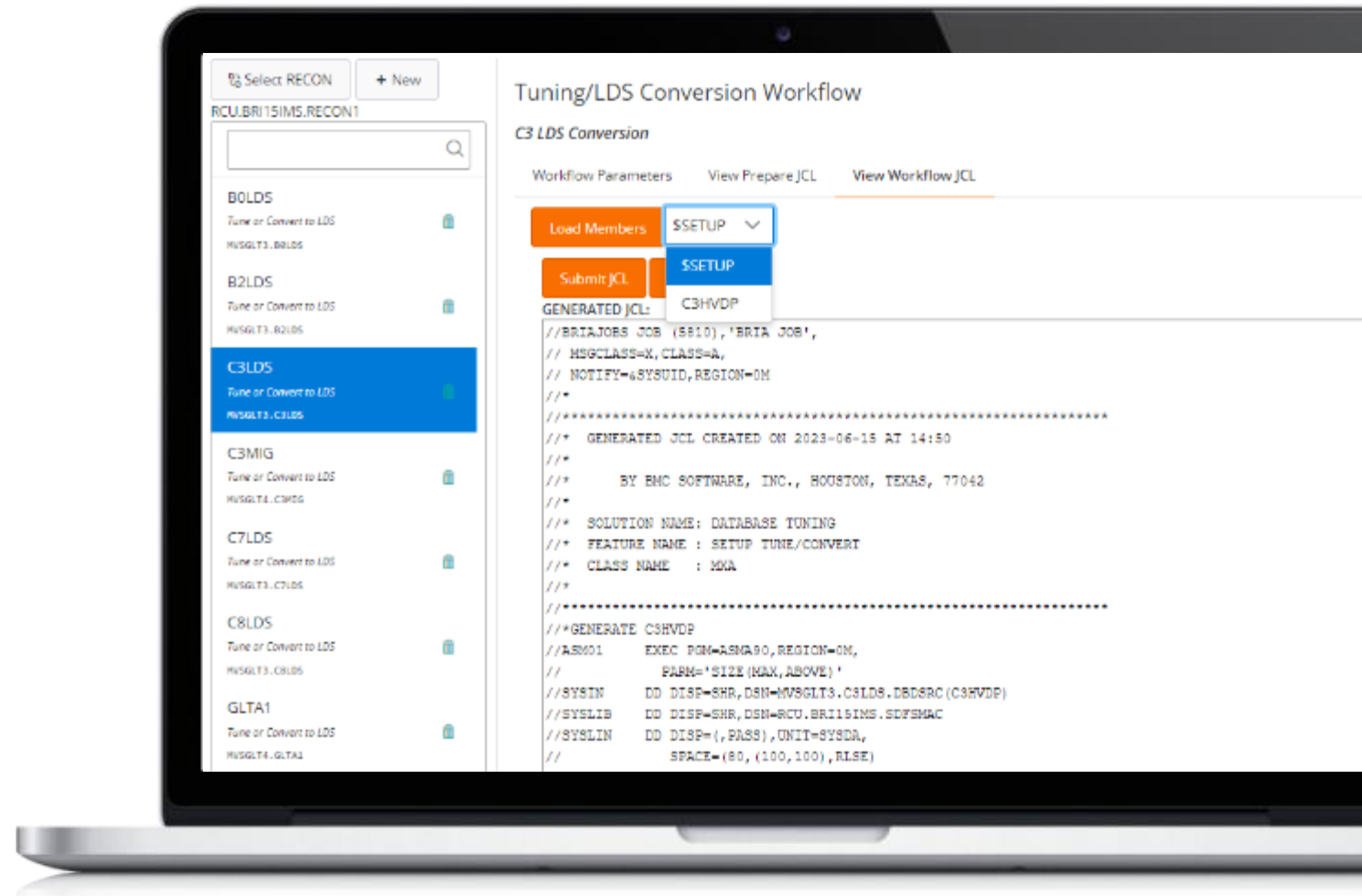
```
//BRIAJOB JOB (5810),'BRIA JOB',  
// MSGCLASS=X, CLASS=A,  
// NOTIFY=&SYSUID, REGION=0M  
//*  
//*****  
//*   GENERATED JCL CREATED ON 2023-06-23 AT 08:12  
//*  
//*   BY BMC SOFTWARE, INC., HOUSTON, TEXAS, 77042  
//*  
//*   SOLUTION NAME: DATABASE TUNING  
//*   FEATURE NAME : PREPARE TUNE/CONVERT  
//*   CLASS NAME   : MXA  
//*   SELECTED DBD : C3*  
//*  
//*****  
//      EXPORT SYMLIST=*  
//      SET  THLQ=MVSGLT3.C3LDS  
//      SET  DBDSRC=MVSGLT3.C3LDS.DBDSRC  
//      SET  DBRC=MVSGLT3.C3LDS.DBRC  
//      SET  IDCAMS=MVSGLT3.C3LDS.DEFINES  
//      SET  CHGLIST=MVSGLT3.C3LDS.CHGLIST  
//      SET  PSBLIST=MVSGLT3.C3LDS.PSBLIST  
//      SET  ACBCPY=MVSGLT3.C3LDS.ACBCPY  
//      SET  ACBBK=MVSGLT3.C3LDS.ACBBK  
//      SET  NEWACB=MVSGLT3.C3LDS.NEWACB  
//      SET  NEWDBD=MVSGLT3.C3LDS.NEWDBD  
//      SET  PDSOUT=MVSGLT3.C3LDS.PDSOUT  
//* -- PROCEDURE TO ALLOCATE A LRECL 80 PDS  
//ALCP080 PROC PDS=
```

View Change Summary



View/Submit Workflow JCL

- Load members
- \$SETUP for DBD/ACB
- Submit jobs from GUI or save to PDS



Generated Reorg JCL

```
BROWSE      MVSGLT3.C3LDS.PDSOUT(C3HVDP) - 01.00      Line 0000000046 C
Command ==>                                         Scroll
//BMCPRINT  DD SYSOUT=*
//BMCTRACE  DD SYSOUT=*
//PLUSIN    DD *
REORG
  SHARE(Y,UPDATE) IDCAMS(*,BMCIDPRT) -
  SWAP(D) DBRCUPDT(Y) CREORG(N) -
  ICP(Y) OLDDBD(OLDDBD) -
  LOGDSN(RCU.BRI15.&DBD.&DATE.&TIME.&LOGDD,SINGLE) -
  LOGUNIT(SYSDA) -
  LOGSPACE(3,1) -
  ICNEEDED(OFF) HDSORT(Y) -
  DYNALLOC(Y,Y,Z) -
  SIUSORT(E) -
  DBRC(Y)
//ACBLIB    DD DISP=SHR,DSN=MVSGLT3.C3LDS.NEWACB
//ACBSYSIN  DD *
BOTH
ACBLIB(MVSGLT3.C3LDS.NEWACB,15) -
ACBLIBA(RCU.BRIA@IMS.ACBLIBA) -
ACBLIBB(RCU.BRIA@IMS.ACBLIBB) -
MODSTAT(RCU.BRIA@IMS.MODSTAT)
//SUMMARY   DD SYSOUT=*
```

Converting OSAM Databases



OSAM encryption support for IMS

- **IMS 15.2 with PH16682/UI67505**
- **z/OS 2.3 and later**
- **z/OS 2.2 after APAR OA50569**
- **IBM Enterprise z196 or later**
- **Crypto Express3 Coprocessor or later**
- **All OSAM LDS-related APARs are flagged with FIXCAT keyword IMSOSAMLDS/K**



Efficient Workflows for Change

The screenshot displays the BMC Database Explorer interface. The main window shows a list of databases on the left and detailed information for the selected database, C3HVDP, on the right. A red circle highlights the 'Utilities' section in the right-hand menu, with a red arrow pointing to the 'Tune or Convert Database' option.

Database List

Fetch Exceptions on Select

Filter database prefix

☒ OK Status (0) ☒ Warning Status (2) ☒ Critical Status (3) ☒ Error Status (0) ☒ Not Analyzed Status (0) ☐ Only Owned by this DBGroup

DB Group MIGRATE **Open DB Dashboard** **Details for C3HVDP**

Database	Type	#Area/#Parts	Access Method	ESDS
B0FOXP	HIDAM	N/A	Last Change By	MVSGLT1
B2FOXP	HDAM	N/A	Last Change Date	2023/04/06
C3HVDP	PHDAM	4 partitions	Last Change Time	18:29:11.169
C7HODP	PHDAM	4 partitions	Owned by DBGroup	MIGRATE
C8HODP	PHDAM	4 partitions	# Secondary Indexes	0

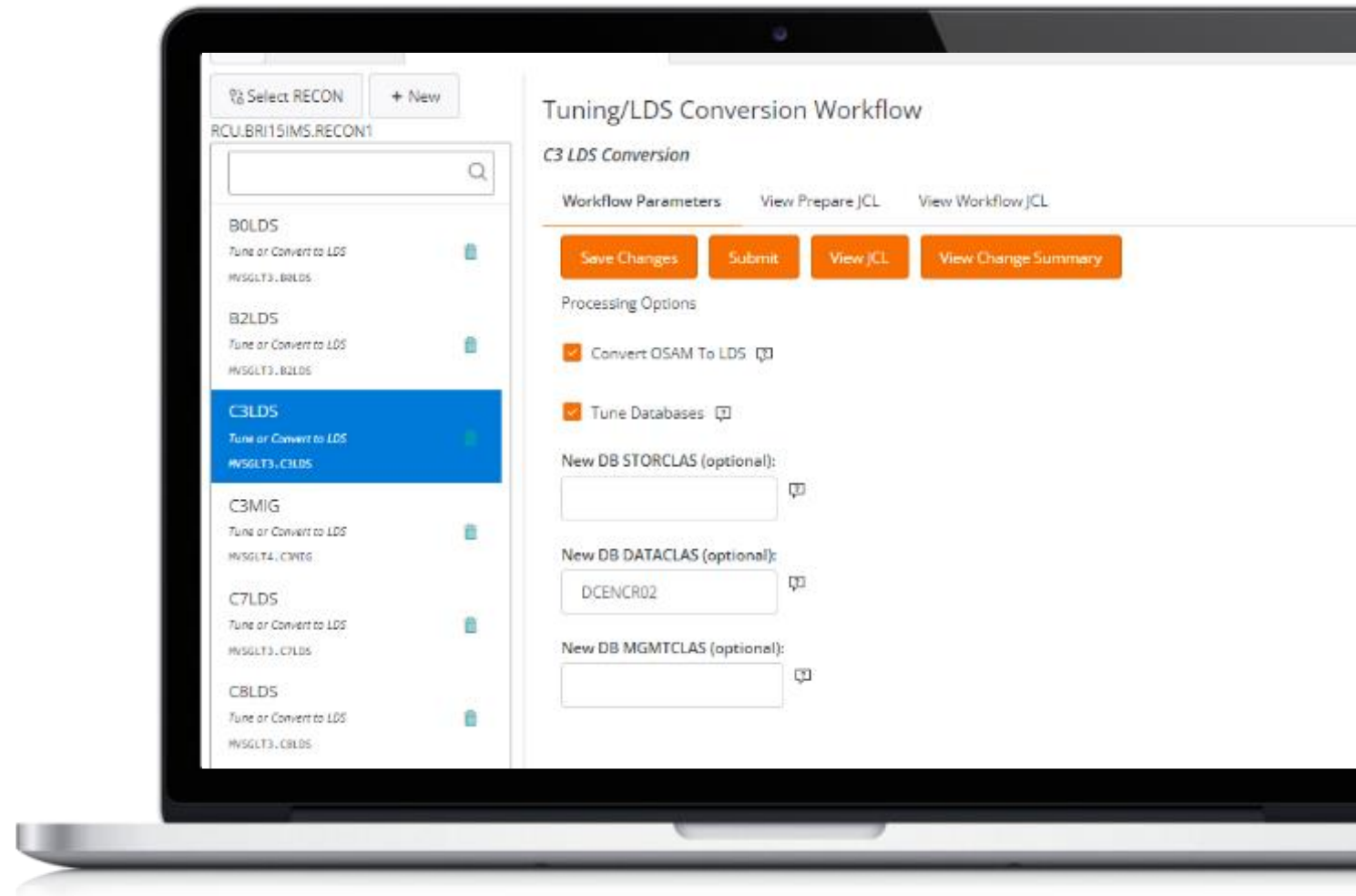
Utilities

- Generate JCL
- Partition Rebalance
- Partition Selection Exit Validation
- Tune or Convert Database
- Manage Workflows
- Extract Command

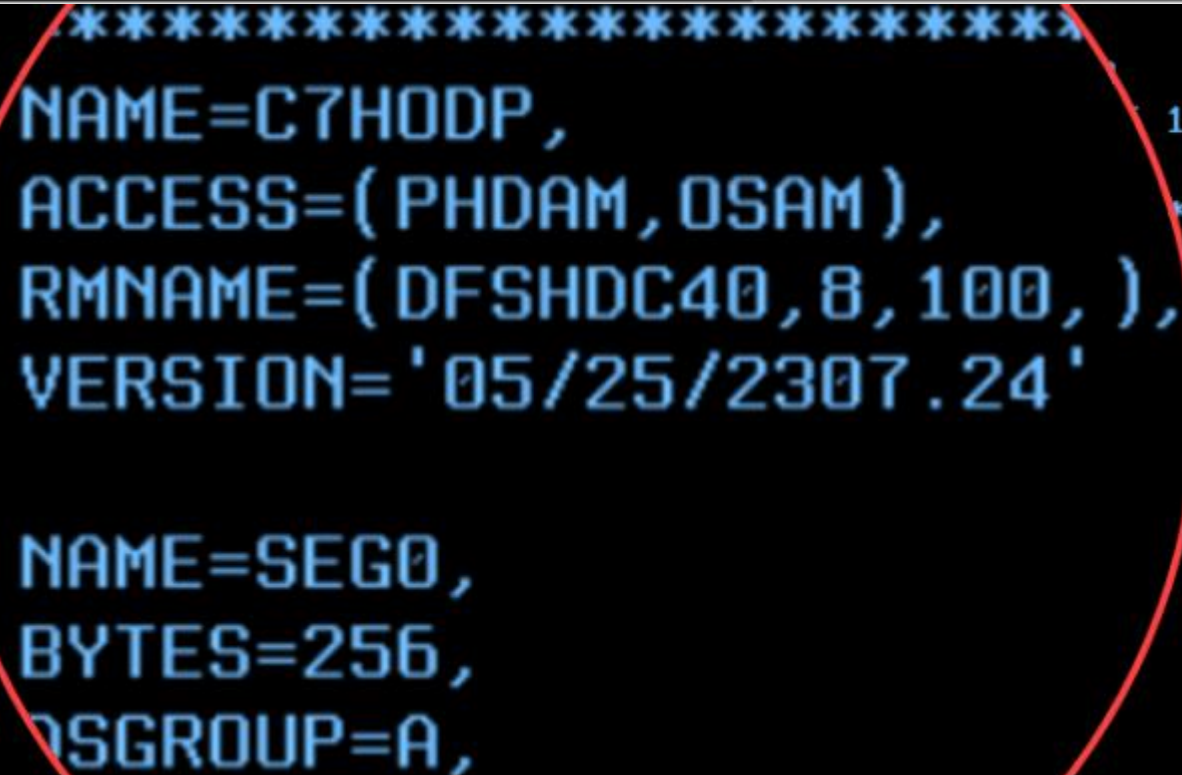
Recovery

View/Submit Prepare JCL

- Convert OSAM to LDS
- Tune Databases
- DBRC commands
- IDCAMS



Tuning HDAM during the conversion



```
*****  
NAME=C7HODP,  
ACCESS=( PHDAM, OSAM ),  
RMNAME=( DFSHDC40, 8, 100, ),  
VERSION= '05/25/2307.24'  
  
NAME=SEG0,  
BYTES=256,  
DSGROUP=A,
```

- Based on latest database statistics in Advisor
- Randomizer blocks
- (RBN)
- RAPS in root-addressable area (RAA)

Generated DBRC Commands

```

Menu Utilities Compilers Help
-----
BROWSE      MVSGLT3.C7LDS.DBRC(C7HODP) - 01.00          Line 0000000000 Col 001 080
Command ==> _____ Scroll ==> CSR
***** Top of Data *****
CHANGE.PART DBD(C7HODP) PART(C7DD1) +
HIBLOCK(5996) BYTES(252) ANCHOR(4)
CHANGE.PART DBD(C7HODP) PART(C7DD2) +
HIBLOCK(2996) BYTES(252) ANCHOR(4)
CHANGE.PART DBD(C7HODP) PART(C7DD3) +
HIBLOCK(2996) BYTES(252) ANCHOR(4)
CHANGE.PART DBD(C7HODP) PART(C7DD4) +
HIBLOCK(14996) BYTES(252) ANCHOR(4)
***** Bottom of Data *****
```


Generated IDCAMS for VSAM Linear data sets

BROWSE MVSGLT3.C7LDS.DEFINES(C7DD1A)

Line 0000000000 Col 001 080

Command ==>

Scroll ==> CSR

***** Top of Data *****

DELETE 'RCU.BRI15IMS.C7DDN.Z.A00001'

SET MAXCC=0

DEFINE CLUSTER (NAME(RCU.BRI15IMS.C7DDN.Z.A00001) -

LINEAR -

CISZ(4096) -

CYL(150,50) -

SHR(1,3) -

STORCLAS(SMSCCLASS) -

MGMTCLAS(MIG14) -

DATACLAS(DCENCR02) -

)

***** Bottom of Data *****

Generated Reorg JCL - OSAM

```
MVSGLT3.C7LDS.PDSOUT(C7HODP) - 01.01 Columns 00001
==> Scroll ==>
//OLDDBD DD DISP=SHR,DSN=RCU.BRI15IMS.DBDLIB
//IMS DD DISP=SHR,DSN=MVSGLT3.C7LDS.NEWDDBD
// DD DISP=SHR,DSN=RCU.BRI15IMS.DBDLIB
//BMC$DBRC DD DISP=SHR,DSN=MVSGLT3.C7LDS.DBRC(C7HODP)
//AMSPDS DD DISP=SHR,DSN=MVSGLT3.C7LDS.DEFINES
//BMCPRINT DD SYSOUT=*
//PLUSIN DD *
REORG -
  SHARE(Y,UPDATE) IDCAMS(*,BMCIDPRT) -
  SWAP(D) DBRCUPDT(Y) CREORG(N) -
  ICP(Y) OLDDBD(OLDDBD) -
  LOGDSN(RCU.BRI15.&DBD.&DATE.&TIME.&LOGDD,SINGLE) -
  LOGUNIT(SYSDA) -
  LOGSPACE(180,18) -
  ICNEEDED(OFF) -
  DYNALLOC(Y,Y,Z) -
  SIUSORT(E) -
  DBRC(Y) HDSORT(Y)
//ACBLIB DD DISP=SHR,DSN=MVSGLT3.C7LDS.NEWACB
//ACBSYSIN DD *
BOTH
ACBLIB(MVSGLT3.C7LDS.NEWACB,15) -
COPY TO ACBLIB DBRC(C7HODP) -
```

Converting DEDB Databases



Data set encryption support for IMS

- Available in z/OS 2.3 and later
- z/OS 2.2 after APAR OA50569
- IBM Enterprise z196 or later
- Crypto Express3 Coprocessor or later
- APAR PH12671 – Areas > 2048



Fast Path Restructure Wizard

☑ OK Status (7) ☑ Warning Status (7) ☑ Critical Status (1) ☑ Error Status (0) ☑ Not Analyzed Status (2) ☐ Only Owned by this DBGroup

DB Group GLTGRP [Open DBD Dashboard](#) Details for GLT08D

Database	Type	#Area/#Parts
GLT08D	DEDB	3 areas

Access Method	ESDS
Last Change By	\$106DBRC
Last Change Date	2023/06/26
Last Change Time	09:46:07.369
Owned by DBGroup	GLTGRP
# Secondary Indexes	0
Registered for Collect	Y
Last Purge Date	????/??/??
Last Purge Time	??:??:??
Last Collect Date	2023/06/26
Last Collect Time	09:46:46.260
Last Collect Utility	FASTPATH
Randomizer	DBFHDC40

Maintain Environment
Register Database

Exceptions

Exception List
Exception Forecast
Run Data Collection (Fast Path)
Find Solutions

Utilities

Extract Command
Generate JCL
Fast Path Restructure
JES Viewer

Recovery

Getting started with Phase 1 (PREPARE)

Dashboard Apps

+ New Tab Fast Path Restructure x

IMS.Q159.RECON1 / GLTGRP / GLT08D
DEDB

Overview New DEDB Structure Check For New Areas Shadow Data Sets

Back Cancel Next

This wizard will guide you through the workflow for generating Fast Path Restructure JCL to make changes to this DEDB.

The workflow is split into two parts: the Prepare Phase and the Restructure Phase. The wizard will start with the Prepare Phase.

The following is an overview of the Prepare Phase.

- Specify the changes to the DEDB by supplying a new ACBLIB, IMS RESLIB, and/or PFXLIB that you want the DEDB to use.
- Set shadow data set parameters.
- Specify job cards for the Prepare Job JCL.
- Specify a name, description, and output data set prefix for this workflow.
- Set the JCL generation options:
 - Generate JCL only. This gives you a chance to review the JCL before submitting.
 - Generate JCL without reviewing it and automatically submit it.
- Either wait for the notification and click the link in it to go to the Workflow Status or go there directly from the IMS Databases or RECON level.
- Click on the status and follow the directions to continue.

New DEDB Structure (PREPARE)

Dashboard

Apps

+

New Tab

Fast Path Restructure ×

IMS.Q159.RECON1 / GLTGRP / GLT08D

DEDB

⚙️

➕ New DEDB Structure

📍 Check For New Areas

📊 Shadow Data Sets

📄 Job Card

?

Back

Cancel

Next

Specify the new structure of the DEDB by providing the new ACB Library containing new database definitions ,the new IMS for changes to the randomizer or compression routines and the new PFXLIB if you have modify index.

IMS Subsystem (required)

Q159

New ACBLIB

Add Data Set

Remove Data Set

New ACBLIB Data Set Name

⬆️

⬆️

⬆️

⬆️

BMSCC.DEMO.ACBLIB.STAGE

New RESLIB

Check for New Areas (PREPARE)

Dashboard

Apps

+

New Tab

Fast Path Restructure x

IMS.Q159.RECON1 / GLTGRP / GLT08D
DEDB

⚙️

➕

New DEDB Structure

📍

Check For New Areas

📄

Shadow Data Sets

📋

Job Card

⚙️

?

Back

Cancel

Next

If you are adding areas, press the Check for New Areas button to scan the ACBLIB for new Areas. If this is a re-run of the Prepare Phase, you can skip this step.

Check For New Areas

DBRC Register Options (applies to all new Areas)

<div>FULLSEG</div> <div>No</div>	<div>GSG Name</div> <div></div>	<div>GENMAX</div> <div></div>
<div>Remote Site Recovery Tracking</div> <div>None</div>	<div>PREOPEN</div> <div>No</div>	<div>Virtual Storage Option (VSO)</div> <div>No</div>
<div>RECOVPD</div> <div></div>	<div>Primary Cache Structure (CFSTR1)</div> <div></div>	<div>REUSE</div> <div>No</div>
<div>Secondary Cache Structure (CFSTR2)</div> <div></div>	<div>Default JCL Member</div> <div></div>	<div>Buffer Lookaside (LKASID)</div> <div>Yes</div>
<div>IC JCL Member</div> <div></div>	<div>Multi-Area Structure (MAS)</div> <div>Yes</div>	<div>Recovery JCL Member</div> <div></div>

Shadow Data Sets (PREPARE)

Dashboard

Apps

+

New Tab

Fast Path Restructure ×

IMS.Q159.RECON1 / GLTGRP / GLT08D

DEDB

⚙️

➕

New DEDB Structure

📍

Check For New Areas

📁

Shadow Data Sets

📋

Job Card

?

Back

Cancel

Next

Set the new suffix for the Original Area Data Set and allocation parameters for the Shadow Data Set. the Primary Shadow is required as it will become the online area data set. you may create a Secondary Shadow for backup and recovery purpose.

New Suffix for Original Area Data Set **(required)**

Primary Shadow

Secondary Shadow

Primary Shadow Data set Suffix

Allocate by:

☒ SMS Data, Management, and Storage Classes

Inherit value from:

SMS Data Class	User Profile ▼	DCENCR02
SMS Management Class	User Profile ▼	
SMS Storage Class	User Profile ▼	DEVSMS

☐ Override Volume Serial

Job Card (PREPARE)

Dashboard

Apps

+

New Tab

Fast Path Restructure x

IMS.Q159.RECON1 / GLTGRP / GLT08D

DEDB

⚙️

New DEDB Structure

📍

Check For New Areas

📄

Shadow Data Sets

📄

Job Card

?

Back

Cancel

Next

Set the Job Card to be used when generating the Prepare Job JCL

Inherit value from:

User Profile ▾

Job Card 1

//\$302PREP JOB (5810),'GLT08D',

Job Card 2

// CLASS=A,MSGCLASS=X,

Job Card 3

// NOTIFY=&&SYSUID

Job Card 4

//*

Workflow Properties (PREPARE)

Dashboard

Apps

+

New Tab

Fast Path Restructure x

IMS.Q159.RECON1 / GLTGRP / GLT08D
DEDB

Check For New Areas

Shadow Data Sets

Job Card

Work Flow Properties

Back

Cancel

Next

Define the Workflow Properties. The Workflow Name and Description are identifiers you can use to identify the status entry in of the Workflow Status. The Output Dataset Prefix will be use to name the PDS that will hold the generated JCL and the PDS that will Hold the Plan File.

Define Workflow

Workflow Name (required)

GLT08ENC

Workflow Description

GLT08D Encryption change

Output Data Set Prefix (for Plan File and JCL PDS) (required)

TDE.MVSGLT1

☒ Overwrite existing data sets

Allocate output data set by:

☒ SMS Data, Management, and Storage Classes

Inherit value from:

SMS Data Class User Profile

SMS Management Class User Profile

SMS Storage Class User Profile DEV590

☐ Volume Serial/Unit TST90W , SYSDA

Generate JCL (PREPARE)

Dashboard

Apps

+

New Tab

Fast Path Restructure x

IMS.Q159.RECON1 / GLTGRP / GLT08D
DEDB

Shadow Data Sets

Job Card

Work Flow Properties

Generate JCL

Back

Cancel

Generate JCL

JCL Generation Option

☒ GENERATE Prepare Job JCL ONLY

Select this option to only generate the Prepare Job JCL. You can edit and submit the JCL via the Restructure Status.

☐ GENERATE Prepare Job JCL and SUBMIT Prepare Job

Select this option to generate and automatically submit the Prepare Job JCL. The Workflow is still viewable via the Restructure Status, but we will automatically submit the Prepare Job when the JCL generation completes.

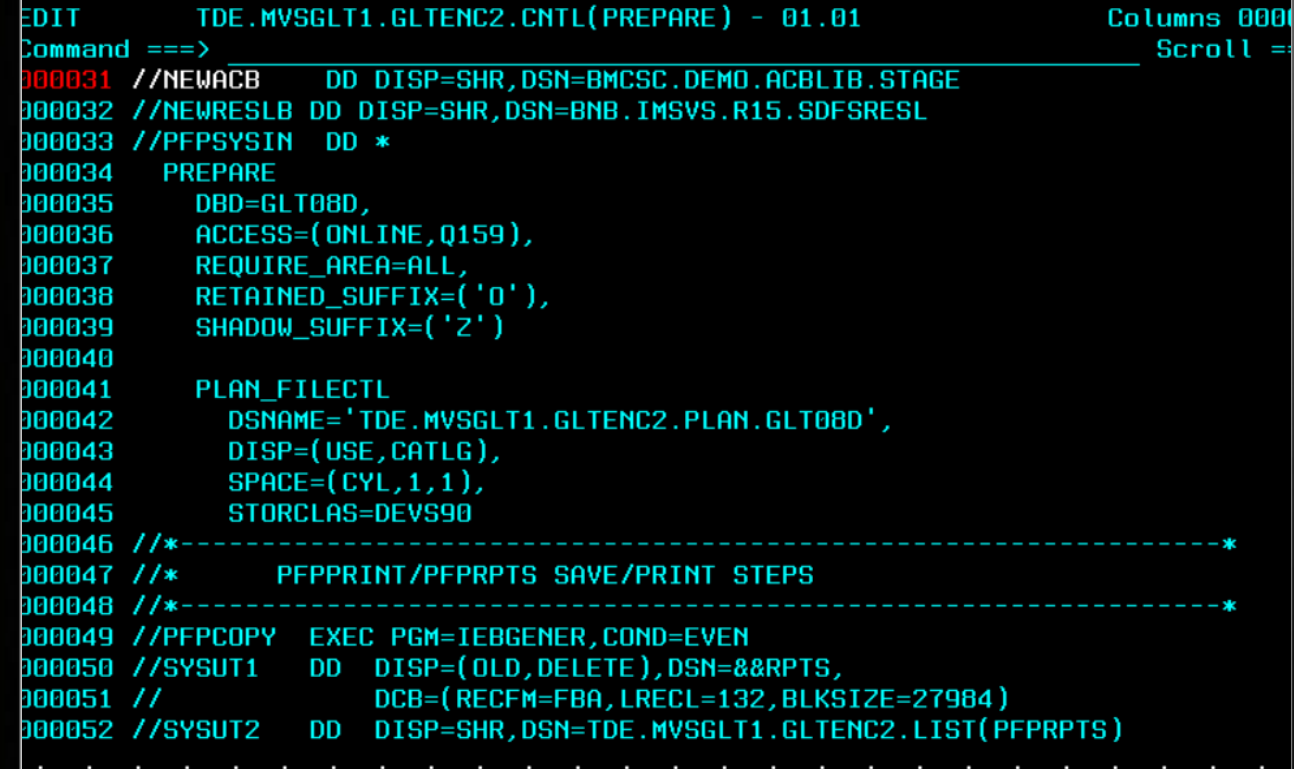
PREPARE Workflow

The screenshot displays the 'Fast Path Restructure' application window. The left sidebar shows a tree view with 'GLT08ENC' selected, indicating the 'PREPARE' phase. The main content area is divided into several sections:

- Restructure Job Details:** Displays job information including Current Status (GENER'D), Target DBD (GLT08D), Output Data Set Name (TDE.MVSGLT1.GLT08ENC.CNTL), Member (PREPARE), and Timestamp (2023/09/12 16:31:26.743).
- Generate JCL:** Includes a green checkmark icon and instructions to generate the JCL. It features buttons for 'Edit JCL' and 'Re-Run Prepare Phase'.
- Submit JCL to Create Plan File:** Includes an orange triangle icon and instructions to click the 'Create Plan File' button. A red arrow points to the 'Create Plan File' button.
- Creating Plan File:** Includes instructions on how to check for job errors and a 'Check Job' button.
- Plan File Created. Ready for Restructure Phase:** A status message at the bottom of the workflow.

PREPARE JCL

- PREPARE commands generated based on inputs from the wizard
- Creates plan and activity data sets used as input to RESTRUCTURE
- Zero outage in this stage of the process



```
EDIT      TDE.MVSGLT1.GLTENC2.CNTL(PREPARE) - 01.01      Columns 0000
Command ==>      Scroll ==>
000031 //NEWACB      DD DISP=SHR,DSN=BMCSC.DEMO.ACBLIB.STAGE
000032 //NEWRESLB DD DISP=SHR,DSN=BNB.IMSVS.R15.SDFSRESL
000033 //PFPSYSIN DD *
000034     PREPARE
000035         DBD=GLT08D,
000036         ACCESS=(ONLINE,Q159),
000037         REQUIRE_AREA=ALL,
000038         RETAINED_SUFFIX=('0'),
000039         SHADOW_SUFFIX=('Z')
000040
000041     PLAN_FILECTL
000042         DSNNAME='TDE.MVSGLT1.GLTENC2.PLAN.GLT08D',
000043         DISP=(USE,CATLG),
000044         SPACE=(CYL,1,1),
000045         STORCLAS=DEVS90
000046 /*-----*
000047 /*      PFPPRINT/PFPRPTS SAVE/PRINT STEPS
000048 /*-----*
000049 //PFPCOPY EXEC PGM=IEBGENER,COND=EVEN
000050 //SYSUT1 DD DISP=(OLD,DELETE),DSN=8&RPTS,
000051 //      DCB=(RECFM=FBA,LRECL=132,BLKSIZE=27984)
000052 //SYSUT2 DD DISP=SHR,DSN=TDE.MVSGLT1.GLTENC2.LIST(PFPRPTS)
```

Continue to Restructure

The screenshot displays the 'Fast Path Restructure' application window. On the left sidebar, a list of jobs is shown, with 'GLTENC2' highlighted in green and labeled 'COMPLETE'. The main panel, titled 'Restructure Job Details', shows the current status as 'COMPLETE' and provides a timeline of steps: 'Generate JCL', 'Submit JCL to Create Plan File', and 'Creating Plan File'. The 'Continue to Restructure' button is located at the bottom of the main panel, highlighted with a red arrow. The interface also includes a search bar, a settings icon, and a help icon.

Dashboard Apps

Fast Path Restructure

IMS.Q159.RECON1 / GLTGRP / GLT08D
DEDB

Auto Refresh is On Turn off

GLTENC2 COMPLETE
PREPARE
GLTGRP / GLT08D
2023/06/26 10:48:57.339

Restructure Job Details

Current Status: COMPLETE
Target DBD: GLT08D
Output Data Set Name: TDE/MVS/SLT1/SLTENC2/NTL
Member: PREPARE
Timestamp: 2023/06/26 10:48:57.339

Generate JCL

Generate Prepare Job JCL. To regenerate the JCL click the Re-Run Prepare Phase button. Click the Edit JCL to make any changes to the JCL before submitting the JCL.

Edit JCL Re-Run Prepare Phase

Submit JCL to Create Plan File

Click the Create Plan File button below to submit the JCL.

Create Plan File

Creating Plan File

This status will automatically update when the Plan File is finished. If this status does not update, use the button below to check for any job errors. If there are job errors, correct them and re-submit the job.

Check Job

Plan File Created. Ready for Restructure Phase

The job successfully created your Plan File. click the Continue to Restructure button to move on to the restructure phase

Continue to Restructure

Getting started with Phase 2 (Restructure)

The screenshot shows the 'Fast Path Restructure' wizard in the BMC Software interface. The top navigation bar includes 'Dashboard' and 'Apps'. Below it, a tab labeled 'Fast Path Restructure' is active. The main content area displays the process steps: 'Overview' (selected), 'Calculate space', 'Confirm New DEDB Structure', and 'Confirm Shadow Data Set'. A progress bar indicates the current step is 'Overview'. Below the progress bar, there are three buttons: 'Back', 'Cancel', and 'Next'. The main text area provides instructions for the 'Restructure' phase, stating that the wizard will guide the user through completing the phase and generating the Restructure Job JCL. It lists the following steps:

- Set the number of SDEPs you want for each affected Area to calculate the space for each Area
- Review the information gathered so far and take any changes as necessary
- Set the JCL generation options:
 - Generate JCL only. This gives you a chance to review the JCL before submitting.
 - Generate JCL without reviewing it and automatically submit it.
- Either wait for the notification and click the link in it to go to the Workflow Status or go there directly from the IMS Databases or RECON level.
- Click on the status and follow the directions to continue.

Submit Restructure

The screenshot displays the BMC Software interface for managing database restructures. The top navigation bar shows 'Dashboard' and 'Apps'. Below this, a tab labeled 'Fast Path Restructure' is active. The main content area is divided into two sections: a left sidebar and a right main panel.

Left Sidebar:

- Top: 'IMS.Q159.RECON1 / GLTGRP / GLT08D DEDB'
- Buttons: '+ New', 'Refresh', 'Delete', and 'Auto Refresh is On Turn off'.
- Job List:

Job Name	Status
GLTENC2	GENER'D
RESTRUCT	
GLTGRP / GLT08D	
2023/06/26 11:03:16.203	
GLTENC2	COMPLETE
PREPARE	
GLTGRP / GLT08D	
2023/06/26 10:48:57.339	

Right Main Panel:

- Restructure Job Details:**

Current Status:	GENER'D
Target DBD:	GLT08D
Output Data Set Name:	TDE.MV5GLT1.GLTENC2.CNTL
Member:	RESTRUCT
Timestamp:	2023/06/26 11:03:16.203
- Generate JCL:**

Generate the JCL to create the final Restructure Job. To re-generate the JCL click on Re-Run Restructure Phase button.

[Re-Run Restructure Phase](#)
- Restructure JCL is Ready:**

The JCL to execute the Restructure is ready for use.

Click the Edit JCL button to make any changes to the JCL. If you are ready to execute the Restructure now, click the Submit JCL button.

[Edit JCL](#) [Submit JCL](#)

A red arrow points to the 'Submit JCL' button.

RESTRUCTURE JCL

- SHADOW_INIT commands to generate new area data sets
- RESTRUCTURE executed based on inputs generating in PREPARE
- Short outage to ALTER new data set names

```
BROWSE      TDE.MVSGLT1.GLTENC2.CNTL(RESTRUCT) - 01. Line 0000000055 Col 00:
Command ==>                                     Scroll ==>
//RESTRUCT  EXEC  PGM=PFCMAIN,
//          REGION=OM,COND=(8,LT)
//STEPLIB   DD  DISP=SHR,DSN=BMCSC.DEMO.BRI.MODELS
//          DD  DISP=SHR,DSN=IMS.Q159.OZI.RTE.UBMCLIB
//          DD  DISP=SHR,DSN=IMS.Q159.OZI.RTE.BMCLIB
//          DD  DISP=SHR,DSN=IMS.Q159.OZI.RTE.BMCPWD
//          DD  DISP=SHR,DSN=BNB.IMSVS.R15.SDFSRESL
//NEWACB    DD  DISP=SHR,DSN=BMCSC.DEMO.ACBLIB.STAGE
//NEWRESLB  DD  DISP=SHR,DSN=BNB.IMSVS.R15.SDFSRESL
//AMSOUT    DD  DISP=SHR,DSN=TDE.MVSGLT1.GLTENC2.AMSOUT
//PFPSYSIN  DD  *
              RESTRUCTURE
              DBD=GLT08D,
              ACCESS=(ONLINE,Q159)
              PLAN DSNNAME='TDE.MVSGLT1.GLTENC2.PLAN.GLT08D',
              DISP=SHR
//*-----*
//*      ADVISOR NOTIFICATION STEP
//*-----*
//NOTIFY    EXEC  PGM=DLIAWFLS,COND=EVEN,REGION=1024K,
//          PARM='MVSGLT1,2023/06/26,11:03:16.203,MAXRC(4)'
//STEPLIB   DD  DISP=SHR,DSN=BMCSC.DEMO.BRI.MODELS
```

Mission Complete!!

The screenshot displays the 'Fast Path Restructure' application interface. The top navigation bar shows 'Dashboard' and 'Apps'. The main content area is divided into a left sidebar and a main panel. The sidebar contains a search bar and a list of jobs. The main panel displays the details of a specific job, including its status, target DBD, output data set name, member, and timestamp. It also includes buttons for 'Generate JCL', 'Re-Run Restructure Phase', 'Edit JCL', and 'Submit JCL'.

Fast Path Restructure

IMS.Q159.RECON1 / GLTGRP / GLT08D
DEDB

Now Refresh Delete

Auto Refresh is On Turn off

GLTENC2 COMPLETE
RESTRUCT
GLTGRP / GLT08D
2023/05/26 11:03:16.203

GLTENC2 COMPLETE
PREPARE
GLTGRP / GLT08D
2023/05/26 10:48:57.339

Restructure Job Details

Current Status: COMPLETE
Target DBD: GLT08D
Output Data Set Name: TDE.MVSGLT1.GLTENC2.CNTL
Member: RESTRUCT
Timestamp: 2023/05/26 11:03:16.203

✓ Generate JCL

Generate the JCL to create the final Restructure job. To re-generate the JCL click on Re-Run Restructure Phase button.

Re-Run Restructure Phase

✓ Restructure JCL is Ready

The JCL to execute the Restructure is ready for use.
Click the Edit JCL button to make any changes to the JCL. If you are ready to execute the Restructure now, click the Submit JCL button.

Edit JCL Submit JCL

Summary

- **Encrypt your IMS databases with z/OS data set encryption (VSAM or OSAM)**
- **Transparent to your applications**
- **Provides an additional layer of security to data at-rest and in-flight**
- **Graphical interfaces make it easier to implement and track progress with guided workflows**



