

# IMS Backup & Recovery Insurance – Are you covered?

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Session Number : 10816



# Agenda



- Backup and Recovery Solution for IMS from BMC Software
  - Bundling functionality provides complete coverage
    - Image Copy Plus
    - Change Accumulation Plus
    - Recovery Plus
    - Recovery Manager
    - Recovery Advisor
  - Customer recovery situations
    - Remember- 80% of recovery due people & process issues
    - Mayhem is everywhere
    - Mayhem is coming
    - Are you prepared?

# Database Backup – Are you covered?



- Typically still taken via an Image Copy
  - Most critical component of a Backup & Recovery
  - Several different types depending on availability requirements
    - Batch, Incremental, Concurrent (Online), Snapshot
- Image Copy is the most frequently run IMS utility
  - Are you SURE it executed successfully?
  - Are you SURE you have a useable backup?

# Image Copy – Are you protected against mayhem?

- Client Backup Strategy
  - Online image copies Monday-Friday
  - Weekly Sunday post Reorg image copies
- Scenario
  - Job Scheduler issue-daily image copy jobs not submitting
  - Mayhem strikes & recovery needed
  - Recovery JCL generated & submitted
  - Realized by the amount of log input something wrong
    - Databases already deleted -oops

# Recovery Assets – Ensuring coverage



- How do you REALLY know recovery assets are available?
  - DBRC
    - Register your databases
    - Check RECONS for assets
  - Verify assets are cataloged
    - Just because DBRC knows about it doesn't mean the dataset still exists!
  - Develop procedures which validate in both the DBRC RECONS & MVS Catalog that your recovery assets will be available when/if you need them
  - OR.....

# BMC Backup and Recovery Solution for IMS Recovery Advisor component



- Ensures Recovery Assets are available when needed
- Checks for several exceptions such as
  - IC Dataset not cataloged
  - IC Dataset in error
  - Min # of IC's not available
    - GENMAX value or specified parameter value
  - No IC within time range
    - User specified time range of hours or days
- Pro-active notification
  - Recovery Advisor lets you know if there's any problem with image copy so you're better prepared for mayhem

# False sense of security - Do you have enough coverage?

- Problem scenario – Too much log input not enough sort work space
  - Mayhem occurs mid-week
    - Recovery needed
  - Recovery input - weekend image copy + 3 days of log input
    - 700+ logs
    - Recovery failed
      - *Change accumulation of 700+ logs unable to complete*
      - *No method to limit log input*

# BMC Software BRI Solution –



- Change Accumulation flexibility
  - Optional SYSIN keywords cards limit log input
    - CATIME
      - *Time after which no logs included in the change accum run*
      - *Includes logs with start time less than or equal to CATIME*
      - *Additional logs may be included if incomplete DB updates*
    - MAXLOGS & MINLOGS
      - *Indicate maximum/minimum number of logs to include*
      - *Additional logs may be included if the specified logs contain incomplete database updates*



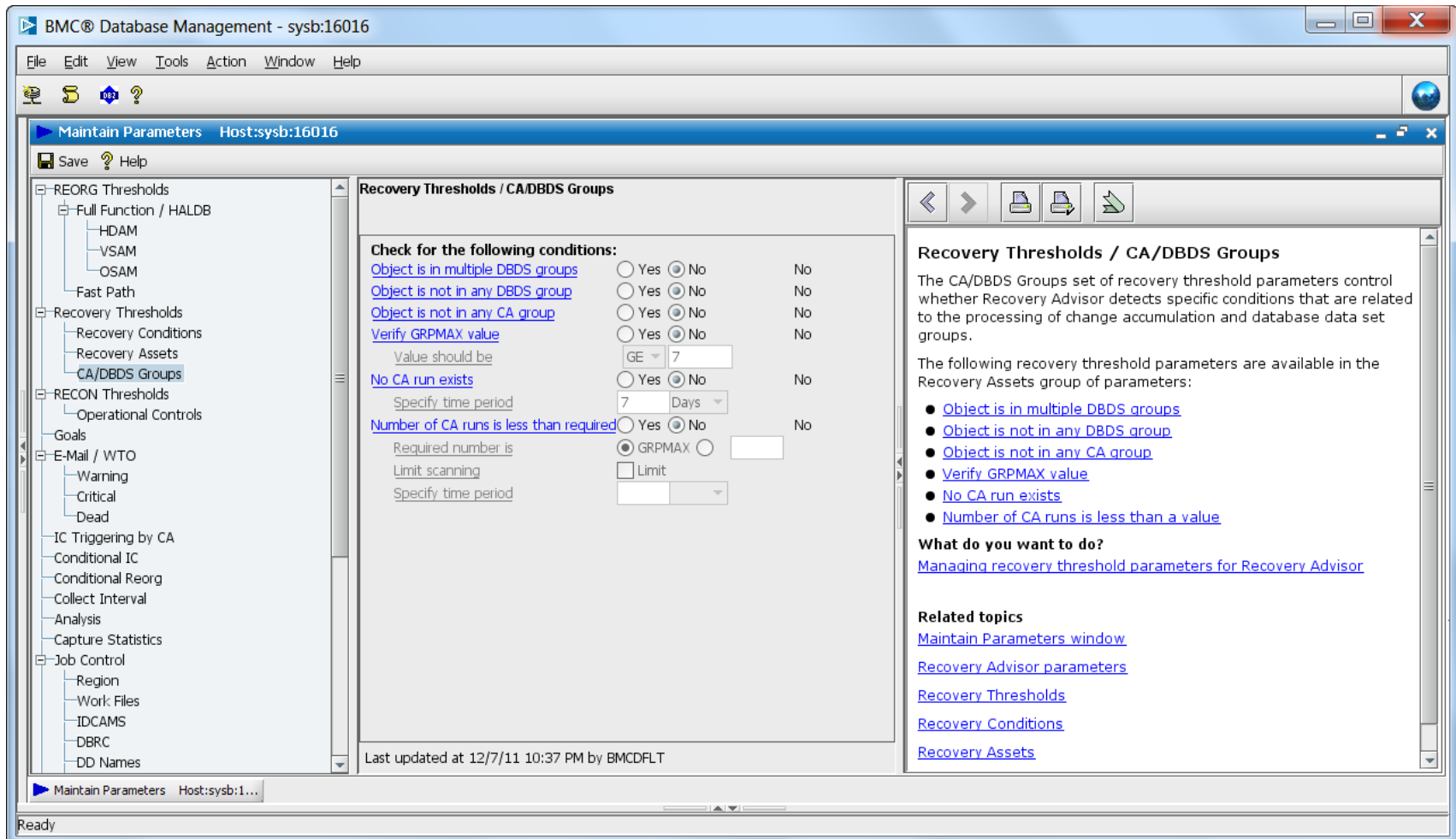
# BMC Backup and Recovery Solution for IMS Recovery Advisor component



- Recovery Advisor verifies change accumulation datasets are available if needed
- Checks for several exceptions such as
  - CA Dataset not cataloged
  - CA run in error
  - Min # of CA's not available
    - GRPMAX value or specified parameter value
  - No CA within time range
    - User specified time range of hours or days
  - DBDS not in a change accum group

# BMC Backup and Recovery Solution for IMS Recovery Advisor component

- CA/DBDS Thresholds



The screenshot displays the BMC Database Management interface for host sysb:16016. The main window is titled 'Maintain Parameters Host:sysb:16016' and shows the configuration for 'Recovery Thresholds / CA/DBDS Groups'. The left-hand navigation pane lists various system parameters, with 'CA/DBDS Groups' selected under the 'Recovery Thresholds' category. The main content area is divided into two panes. The left pane, titled 'Check for the following conditions:', lists several conditions with radio buttons for 'Yes' and 'No' and associated values:

Condition	Yes	No	Value
<a href="#">Object is in multiple DBDS groups</a>	<input type="radio"/>	<input checked="" type="radio"/>	No
<a href="#">Object is not in any DBDS group</a>	<input type="radio"/>	<input checked="" type="radio"/>	No
<a href="#">Object is not in any CA group</a>	<input type="radio"/>	<input checked="" type="radio"/>	No
<a href="#">Verify GRPMAX value</a>	<input type="radio"/>	<input checked="" type="radio"/>	No
Value should be			GE 7
<a href="#">No CA run exists</a>	<input type="radio"/>	<input checked="" type="radio"/>	No
Specify time period			7 Days
<a href="#">Number of CA runs is less than required</a>	<input type="radio"/>	<input checked="" type="radio"/>	No
Required number is			<input checked="" type="radio"/> GRPMAX <input type="radio"/> <input type="text"/>
Limit scanning			<input type="checkbox"/> Limit
Specify time period			<input type="text"/>

The right pane, titled 'Recovery Thresholds / CA/DBDS Groups', contains explanatory text and a list of available parameters:

The CA/DBDS Groups set of recovery threshold parameters control whether Recovery Advisor detects specific conditions that are related to the processing of change accumulation and database data set groups.

The following recovery threshold parameters are available in the Recovery Assets group of parameters:

- [Object is in multiple DBDS groups](#)
- [Object is not in any DBDS group](#)
- [Object is not in any CA group](#)
- [Verify GRPMAX value](#)
- [No CA run exists](#)
- [Number of CA runs is less than a value](#)

**What do you want to do?**  
[Managing recovery threshold parameters for Recovery Advisor](#)

**Related topics**  
[Maintain Parameters window](#)  
[Recovery Advisor parameters](#)  
[Recovery Thresholds](#)  
[Recovery Conditions](#)  
[Recovery Assets](#)

At the bottom of the window, it states 'Last updated at 12/7/11 10:37 PM by BMCDFLT'. The status bar at the very bottom shows 'Ready'.

# BMC Backup and Recovery Solution for IMS Recovery Advisor component



- Recovery Advisor IC Trigger by CA Feature
  - Automation to ensure CA data set does not grow too large to be processed effectively during database recovery
  - Manages the size of the CA data set for a CA group through automated IC processing of the objects
  - User defines what “too big” means

# Recovery Advisor – IC trigger by CA Feature

BMC® Database Management - sysb:16016

File Edit View Tools Action Window Help

Navigation

- Enterprise Data
  - Connections
    - HOU-QA system
    - R&D System
    - SC Demo system
    - sysb:16016
      - DB2 Subsystem
      - IMS Connects
      - IMS Database
        - DBQP DIS
        - PCP 1206
        - RCNSYE.C
        - RCNSYE.C
        - RCNSYE.II
        - RCNSYE.R
        - TGW PRI
        - IMS Subsystem

Maintain Parameters Host:sysb:16016

Save Help

REORG Thresholds
 

- Full Function / HALDB
  - HDAM
  - VSAM
  - OSAM
- Fast Path
- Recovery Thresholds
  - Recovery Conditions
  - Recovery Assets
  - CA/DBDS Groups
- RECON Thresholds
  - Operational Controls
- Goals
- E-Mail / WTO
  - Warning
  - Critical
  - Dead
- IC Triggering by CA
- Conditional IC
- Conditional Reorg
- Collect Interval
- Analysis
- Capture Statistics
- Job Control
  - Region
  - Work File

IC Triggering by CA

Analyze CA Group to Trigger ICs  Yes  No

CA File Size Threshold

When CA file size threshold is exceeded:

Select top "nn" members of CA group for IC after ranking by size

Select top "nn" members of CA group for IC after ranking by # records

Select any member of CA group for IC with more than "nn" bytes

Select any member of CA group for IC if "nn" days since last IC

Select members of the CA group by DBD or Part  Yes  No

Last updated at 12/7/11 10:37 PM by BMCDFLT

IC Triggering by CA parameters

You can set parameter values to control the IC Triggering by CA feature of the BMC Image Copy utility, the BMC Change Accumulation utility, and Recovery Advisor.

The following parameters are included in this category:

- Analyze CA Group to Trigger ICs
- CA File Size Threshold
- When CA file size threshold is exceeded
- Select any member of CA group for IC if "nn" days since last IC
- Select members of the CA group by DBD or Partition

What do you want to do?  
[Set IC triggering by CA parameters](#)

Messages

Severity	When	Message	Source
Warning	Wed Mar 14 05:47:26 AM	BMC DNA27442RW: Pub/Sub server did not respond to start monitor request for svsh:16016	System

Ready

# Multiple damages under one claim – Recovering several databases in one job

- Typically recovery involves multiple databases
- For Disaster Recovery, it's a set game plan
- For Local Recovery, each situation is unique
- How flexible is your recovery solution in creating recovery groups?
  - BMC Software BRI solution provides
    - Multiple methods to create recovery groups
      - *Adhoc groups*
      - *Groups built from information in DBRC*
      - *Groups built based on how we typically recover*
        - *PSB name, CA Group, DBDS Group, IMS ID, etc.*
    - Provides group validation process

# Multiple damages under one claim – Recovering several databases in one job

- Scenario:
  - Entire application must be recovered
  - Attempting to recover large number of databases -a few very large databases along with several small ones
  - Lots of log data
  - Not enough resources to complete recovery – several resubmissions, elongating the outage & wasting processing resources

# Don't let recovery of multiple databases be a disaster!

- BMC BRI Solution – Automatic Restart Feature
  - Tracks completed tasks during a utility job step execution
  - If job step fails & is resubmitted, completed tasks not repeated
  - No JCL or control statements changes required prior to resubmitting
  - Saves elapsed time & processing resources by preventing reprocessing of completed work
  - Especially useful in recovery scenarios where large numbers of databases are being recovered
    - Local or disaster recovery

# I don't own a lake house – I don't need flood insurance

- Don't think backup & recovery solutions are needed, think again..
- Scenario:
  - Client has mirrored DASD
  - Application change caused data corruption
  - Point-in-time recovery required
  - IMS recovery utility has no PIT recovery
  - Database was corrected programmatically but with considerable customer impact



# When recovery to current is not appropriate- Things to think about



- DB Quiesce
  - Creates a valid timestamp
    - Intended use is to create a coordinated disaster recovery point
  - Needs to be executed
    - When & how often?
    - Will you have the opportunity to obtain as needed?
  - Allows for timestamp recovery NOT point-in-time recovery

# When recovery to current is not appropriate- Things to think about



- Point-in-time recovery
  - Does your solution provide PIT recovery capability?
  - How do you identify a common, consistent recovery point for a group of databases?
  - How do you evaluate the impact of any data loss?

# BMC Software BRI Solution

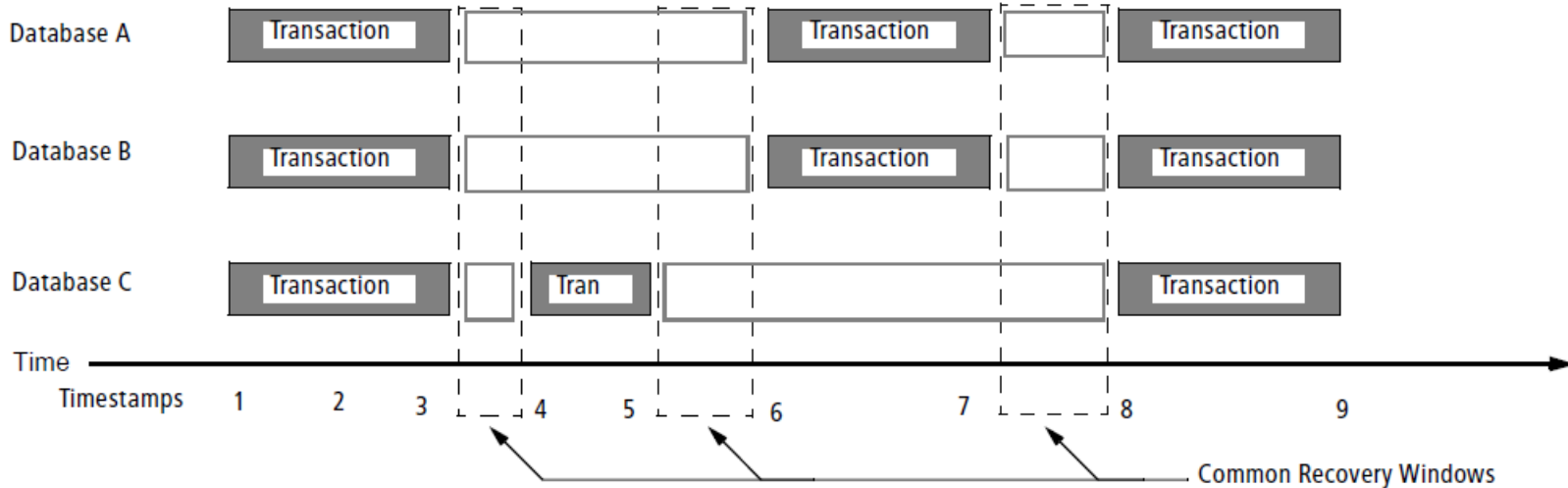
## Recovery Manager – Log Analysis Feature



- Recovery points & windows from IMS SLDSs
  - IMS SLDSs & RECON PRILOG records contain information about
    - Online transactions
    - Batch message processing programs (BMPs)
    - Online reorganization (OLR) BMPs
  - Analysis indicates time ranges when updates were occurring & time ranges when updates were not occurring
  - A time range when no updates were occurring indicates the presence of a recovery window
  - Recovery windows can be selected for recovery by the BMC Recovery Utility (PIT recovery)

# Recovery Manager – Log Analysis Feature (LGA)

- Finding common database recovery windows
- LGA function is executed for databases A,B,C



# The person who hit you has no insurance – What do you do?



- How do you analyze the impact of the recovery you are about to perform?
- LGA Function from BMC BRI Solution can help
  - Scans log data sets gathering update activity data
    - Full-function : reports statistics about DL/I call activities, such as the number of insert, delete, and replace operations performed.
    - For Fast Path areas: reports statistics about DEDB control interval (CI) updates.
  - Reports transaction counts for each type of transaction.
    - Use to analyze the impact of the transactions in the recovery window

# Log Analysis

```

LUI_SYSP - EXTRA! for Windows 98 / Windows NT
File Edit View Tools Session Options Help
Log Analysis Display Criteria for IRMQFIM0

Group name . . . : CGFIM0-ALL          Task ID . . . : 0008

select a reporting option to display data in the log analysis summary file.
Optionally modify display criteria. Then press Enter.
  Reporting option . . . . . 2 1. By Transaction
                                2. By Object
                                3. Recovery Windows

Original Range
  Start      Date: 11 / 03 / 2010      Start      Time: 14 : 49 : 00 . 0
  End        Date: 11 / 03 / 2010      End        Time: 14 : 53 : 00 . 0

Current Range      (End Date/Time must be blank if PIT Date/Time requested.)
  Start/PIT Date: 11 / 03 / 2010      Start/PIT Time: 14 : 49 : 00 . 0
  End          Date: 11 / 03 / 2010      End          Time: 14 : 53 : 00 . 0

Type an action code and transaction names or masks to limit data.
(Options 1 and 2 only.)
Act I=Include all in row      X=Exclude all in row
_ Transactions : _____

Command ==> _____
F1=HELP      F2=SPLIT      F3=END      F4=RETURN      F5=RFIND      F6=RCHANGE
F7=UP        F8=DOWN       F9=SWAP     F10=LEFT      F11=RIGHT     F12=RETRIEVE

4|B| :00.1 07/34
Connected to host sysp.bmc.com [172.24.49.101] (SYSP0005) | NUM | 10:35 AM
  
```

# Log Analysis



```
Log Analysis Object Summary for IRMQFIMO Row 1 to 5 of 5
Start: 11/03/2010 14:49:00.0 End: 11/03/2010 14:53:00.0 Commands: SORT
Find
Locate

Type an action code. Then press Enter.
T=Transaction subset R=Related objects

Act DBD DSG/Area Data Set Name Updating Trans
T DI21PART DI21PART BMCIRM.QA.DB.DI21PART.DI21PART 4
= IVPDB1 DFSIVD1 BMCIRM.QA.DB.IVPDB1.DFSIVD1 2
_ IVPDB2 DFSIVD2 BMCIRM.QA.DB.IVPDB2.DFSIVD2 1
_ IVPDB3 DFSIVD3A BMCIRM.QA.DB.IVPDB3.DFSIVD31 1
_ IVPDB3 DFSIVD3B BMCIRM.QA.DB.IVPDB3.DFSIVD33 1
***** Bottom of data *****

Command ==> Scro1l ==> PAGE
F1=HELP F2=SPLIT F3=END F4=RETURN F5=RFIND F6=RCHANGE
F7=UP F8=DOWN F9=SWAP F10=LEFT F11=RIGHT F12=RETRIEVE
4B :00.1 09/03
```

# Log Analysis



```
Log Analysis Transaction Subset for IRMQFIMO Row 1 to 4 of 4
Start: 11/03/2010 14:49:00.0 End: 11/03/2010 14:53:00.0  Commands: SORT
Find, Locate
For Object: DI21PART DI21PART BMCIRM.QA.DB.DI21PART.DI21PART
Type an action code. Then press Enter.
T=Transaction occurrence list  0=Object subset

Act  Transaction  Occurrences  Updated Objects
T    ADDINV       259          1
-    ADDPART      260          1
-    DLETINV      259          1
-    DLETPART     259          1
***** Bottom of data *****

Command ==>
F1=HELP      F2=SPLIT     F3=END       F4=RETURN    F5=RFIND     F6=RCHANGE
F7=UP        F8=DOWN      F9=SWAP      F10=LEFT     F11=RIGHT    F12=RETRIEVE

4B  :00.1 02/64
```



# Log Analysis



```

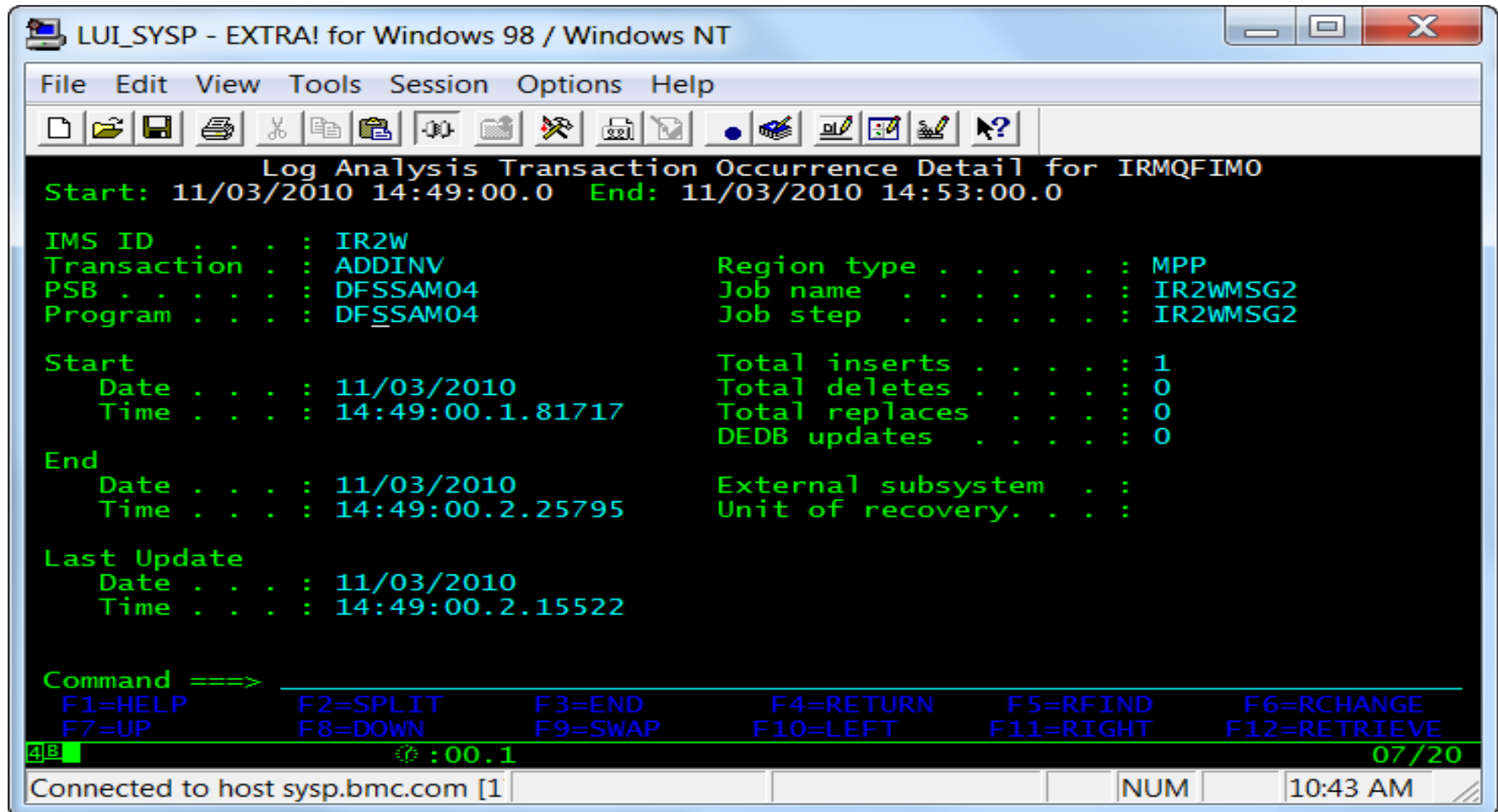
Log Analysis Transaction Occurrence List for IRM Row 1 to 11 of 259
Start: 11/03/2010 14:49:00.0 End: 11/03/2010 14:53:00.0 Commands: SORT
Find
Locate
Transaction: ADDINV
Select a transaction occurrence to display detail. Then press Enter.
S=Select

  Sel  Start      Start      End        End        DL/I      DEDB      IMS
      Date      Time      Date      Time      Calls    Updates   ID
  ---  ---      ---      ---      ---      ---      ---      ---
s     11/03/2010 14:49:00.1 11/03/2010 14:49:00.2 1 0 IR2W
=     11/03/2010 14:49:00.1 11/03/2010 14:49:00.1 1 0 IR2V
_     11/03/2010 14:49:00.4 11/03/2010 14:49:00.5 1 0 IR2W
_     11/03/2010 14:49:00.4 11/03/2010 14:49:00.5 1 0 IR2V
_     11/03/2010 14:49:00.8 11/03/2010 14:49:00.9 1 0 IR2W
_     11/03/2010 14:49:00.8 11/03/2010 14:49:00.8 1 0 IR2W
_     11/03/2010 14:49:00.8 11/03/2010 14:49:00.8 1 0 IR2V
_     11/03/2010 14:49:01.2 11/03/2010 14:49:01.2 1 0 IR2V
_     11/03/2010 14:49:01.3 11/03/2010 14:49:01.4 1 0 IR2W
_     11/03/2010 14:49:01.4 11/03/2010 14:49:01.4 1 0 IR2V
_     11/03/2010 14:49:01.7 11/03/2010 14:49:01.8 1 0 IR2W

Command ==> _____ Scroll ==> PAGE
F1=HELP      F2=SPLIT     F3=END       F4=RETURN    F5=RFIND     F6=RCHANGE
F7=UP        F8=DOWN     F9=SWAP     F10=LEFT    F11=RIGHT    F12=RETRIEVE

4B :00.3 11/02
  
```

# Log Analysis



LUI\_SYSP - EXTRA! for Windows 98 / Windows NT

File Edit View Tools Session Options Help

Log Analysis Transaction Occurrence Detail for IRMQFIMO

Start: 11/03/2010 14:49:00.0 End: 11/03/2010 14:53:00.0

IMS ID . . . . .	IR2W	Region type . . . . .	MPP
Transaction . . . . .	ADDINV	Job name . . . . .	IR2WMSG2
PSB . . . . .	DFSSAM04	Job step . . . . .	IR2WMSG2
Program . . . . .	DFSSAM04		

Start	Total inserts . . . . .	1
Date . . . . .	Total deletes . . . . .	0
Time . . . . .	Total replaces . . . . .	0
	DEDB updates . . . . .	0

End	External subsystem . . . . .	
Date . . . . .	Unit of recovery . . . . .	
Time . . . . .		

Last Update		
Date . . . . .		
Time . . . . .		

Command ==>

F1=HELP	F2=SPLIT	F3=END	F4=RETURN	F5=RFIND	F6=RCHANGE
F7=UP	F8=DOWN	F9=SWAP	F10=LEFT	F11=RIGHT	F12=RETRIEVE

4B :00.1 07/20

Connected to host sypb.bmc.com [1] NUM 10:43 AM

# Environmental changes – May require additional coverage

- DR system level sync points
  - BMC Software BRI – DR PIT
    - Created by RECON Cleanup Utility
    - Earliest close time of all open PRILOG records
  - What about IMSPLEX environments?
    - BMC Software BRI – Log Sync Function
      - *Establishes a consistent disaster recovery point by synchronizing log switches for multiple IMS systems*
      - *Issues /SWI OLDS CHKPT to all IMS in the sharegroup*
      - *Checks for DL/I batch updates & you control if you want to start the function*
      - *Specify timeout value which stops function if log archival not completed*

# Not filing a claim – just want to review my coverage

- Does your recovery solution allow you to create test database using production assets?
- BMC BRI Recover to Alternate Database Name Feature
  - No need to stop the original databases to build recovery JCL
  - Utility to create AMSPDS members with alternate data set, volume, and SMS class values.
  - Resulting alternate databases used for testing or other purposes.

# Are you ready for recovery?

- Disaster Recovery procedures typically tested but how about local recovery?
- Do you have a way to test local recovery procedures?
- BMC Software BRI Solution – Recovery Simulation Function
  - Practice generating recovery JCL
  - No /DBR commands created in simulation JCL
  - All recovery input files read but no output files created
  - Allows verification of recovery results without updating any elements in the environment

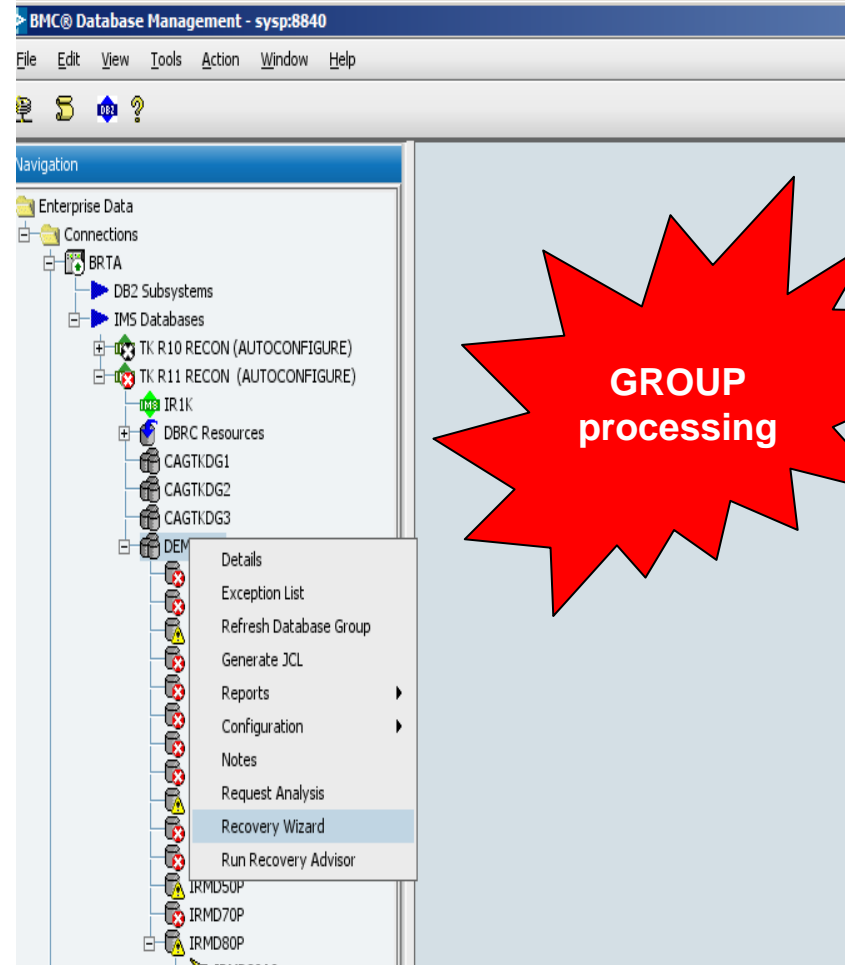
# Preparing for Recovery - Recovery Wizard



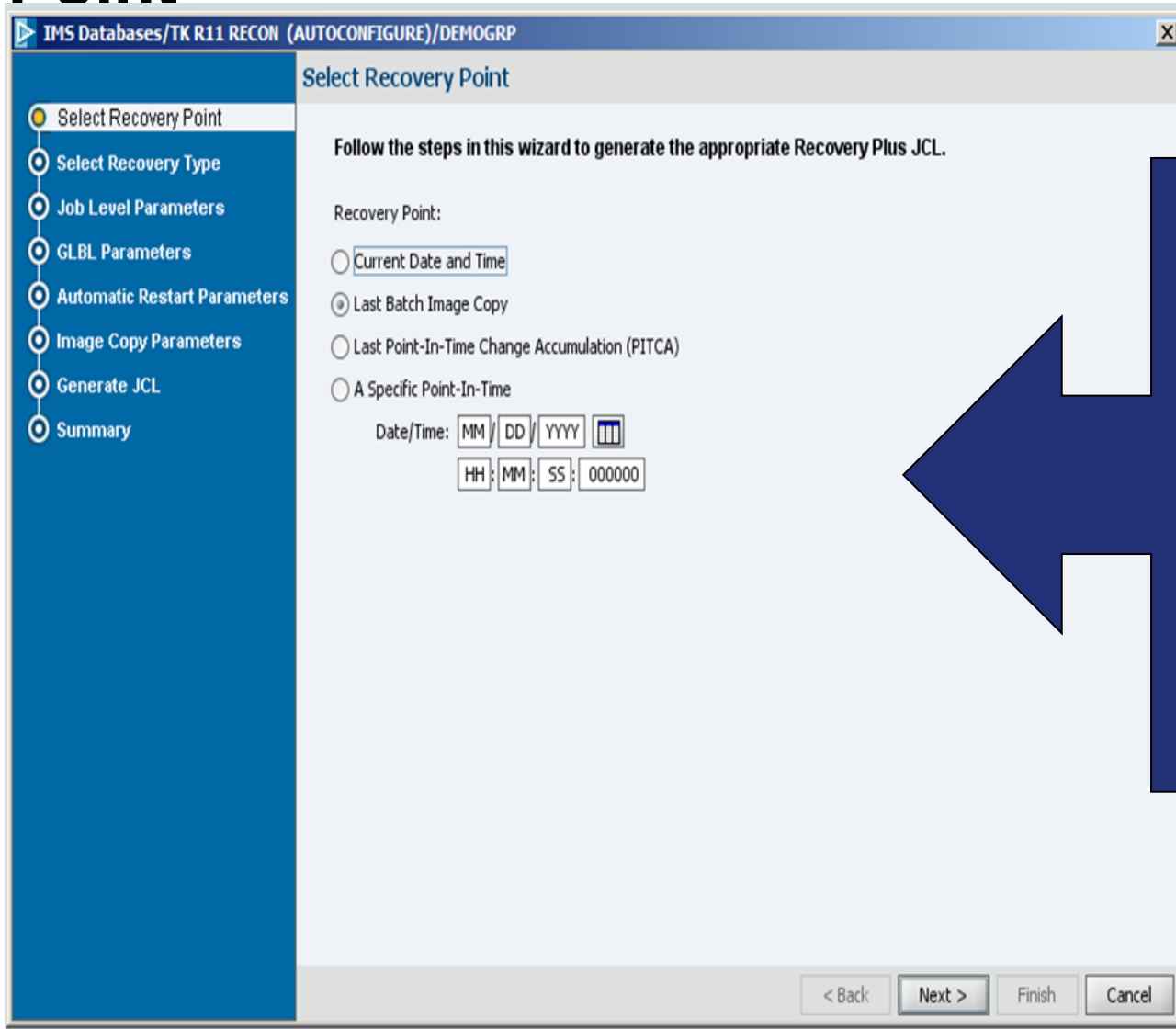
- BMC BRI Solution – Recovery Wizard
- Purpose:
  - A wizard that not only generates recovery JCL, but also:
    - Asks the right questions
      - *Because each recovery is unique*
    - Allows for overrides
      - *Because each customer environment is unique*
    - Retains JCL
      - *Because each execution is unique*

# Recovery Wizard – Action Command

1. Select or create a group
2. Right-click
3. Choose “Recovery Wizard”



# Recovery Wizard – Select a Recovery Point




IMS Databases/TK R11 RECON (AUTOCONFIGURE)/DEMOGRP

### Select Recovery Point

Follow the steps in this wizard to generate the appropriate Recovery Plus JCL.

Recovery Point:

- Current Date and Time
- Last Batch Image Copy
- Last Point-In-Time Change Accumulation (PITCA)
- A Specific Point-In-Time

Date/Time: MM / DD / YYYY 

HH : MM : SS : 000000

< Back   Next >   Finish   Cancel

- 
1. Current
  2. Batch IC
  3. PIT CA
  4. Any PIT



# Recovery Wizard – Recovery Type

IMS Databases/TK R11 RECON (AUTOCONFIGURE)/DEMOGRP

## Select Recovery Type

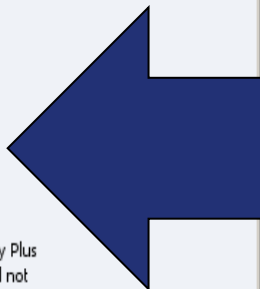
Select the Type of Recovery Job to Create

Create Recovery JCL

Create Simulated Recovery JCL\*

\* Create Recovery JCL using the TYPERUN(SIMULATE) keyword so that Recovery Plus will read all input data sets (logs, change accumulations, and image copies), but will not write to any database nor obtain authorization for registered databases.

< Back   Next >   Finish   Cancel

- 
1. Recovery JCL
  2. Simulate JCL

# Recovery Wizard – Job Level Parameters

IMS Databases/TK R11 RECON (AUTOCONFIGURE)/DEMOGRP

## Job Level Parameters

To override the following Job Level parameters, select the User Profile option.

Inherit value from:

Job Control

Job Card 1

Job Card 2

Job Card 3

Job Card 4

RCUPARMS DSN:

IDCAMS Define Control Statements

IDCAMS Delete Control Statements

1. Job Card  
2. PARMLIB  
3. IDCAMS  
Delete/Define

# Recovery Wizard – G L B L Parameters

IMS Databases/TK R11 RECON (AUTOCONFIGURE)/DEMOGRP

## GLBL Parameters

To override the following GBL parameters, select the User Profile option.

Inherit value from:

RVP Global Options

Build Index

Build ILDS

< Back   Next >   Finish   Cancel

1. Global Options
2. Build Index
3. Build ILDS

# Recovery Wizard – Automatic Restart

IMS Databases/TK R11 RECON (AUTOCONFIGURE)/DEMOGRP

### Automatic Restart Parameters

To override the following Automatic Restart parameters, select the User Profile option.

Inherit value from:

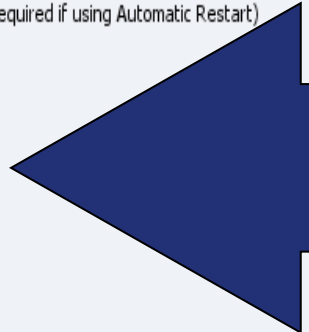
Use Automatic Restart: User profile  Yes  No

Checkpoint Model: User profile  (Required if using Automatic Restart)

CA Extract Model: Current DBGroup

Log Extract Model: Current DBGroup

< Back   Next >   Finish   Cancel

- 
1. Checkpoint Model
  2. CA Extract Model
  3. Log Extract Model

# Recovery Wizard – Image Copy Parameters

IMS Databases/TK R11 RECON (AUTOCONFIGURE)/DEMOGRP

## Image Copy Parameters

To override the following Image Copy parameters, select the User Profile option.

Inherit value from:

Number of Image Copies	Current DBGroup	<input type="radio"/> Single	<input checked="" type="radio"/> Dual	Current DBGroup Values* Single
IC1 Model	Current DBGroup	<input type="text"/>		
IC2 Model	Current DBGroup	<input type="text"/>		

\* When the owning DBGroup is selected, the Image Copy parameters will be retrieved from the individual DBD-level values.

< Back   Next >   Finish   Cancel

1. Number of copies
2. IC1 Model
3. IC2 Model

# Recovery Wizard – Generate JCL

IMS Databases/TK R11 RECON (AUTOCONFIGURE)/DEMOGRP

## Generate JCL

Press Next to generate Recovery JCL

Output Data Set Name:

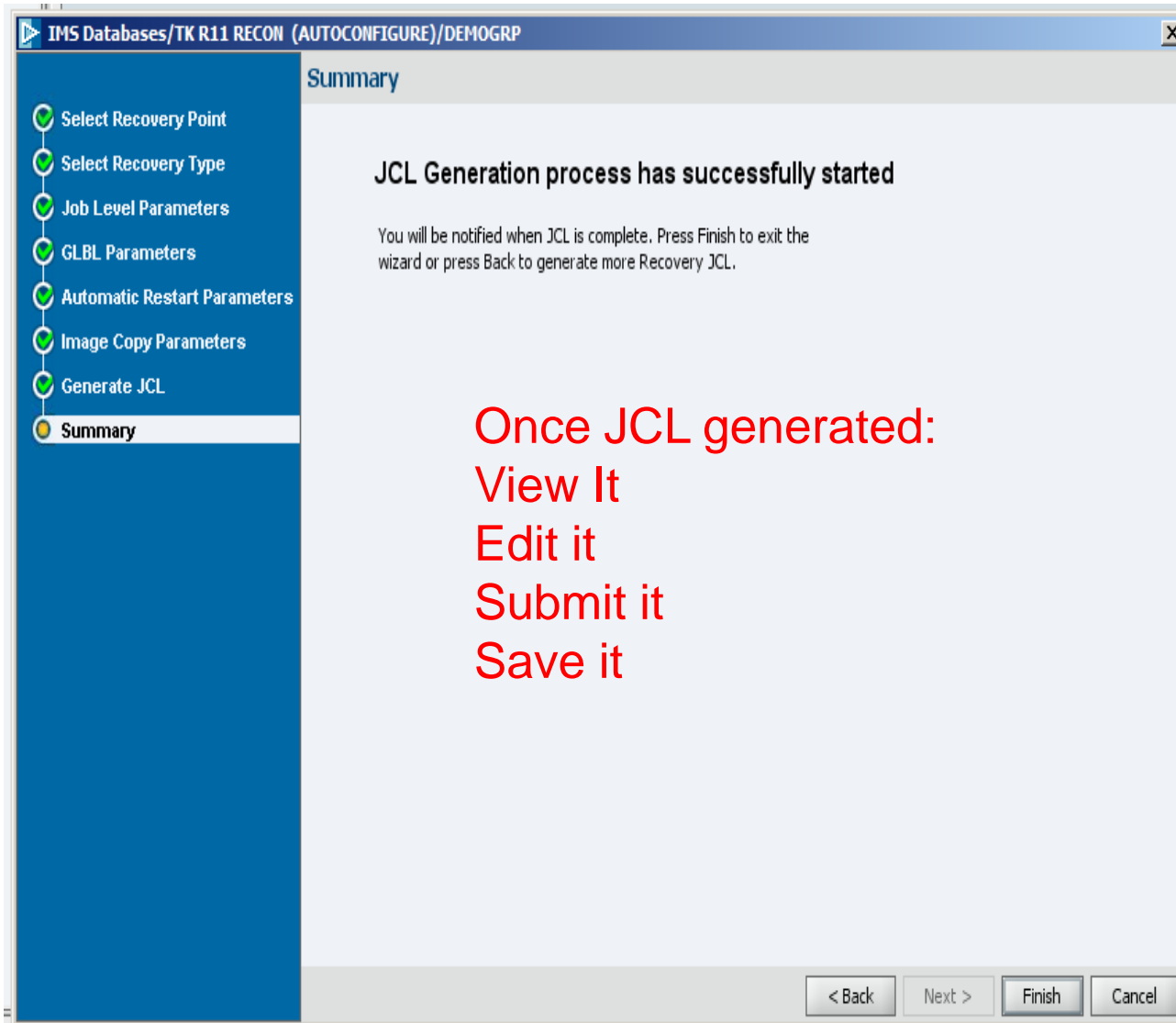
Member Name:  
  Overwrite

Optional Description:

< Back   Next >   Finish   Cancel

1. Output PDS
2. Member name
3. Description

# Recovery Wizard - Summary



The screenshot shows a software window titled "IMS Databases/TK R11 RECON (AUTOCONFIGURE)/DEMOGRP". The window is divided into a left sidebar and a main content area. The sidebar contains a vertical list of steps, each with a green checkmark icon, indicating they are completed. The steps are: "Select Recovery Point", "Select Recovery Type", "Job Level Parameters", "GLBL Parameters", "Automatic Restart Parameters", "Image Copy Parameters", "Generate JCL", and "Summary". The "Summary" step is highlighted with a yellow background. The main content area has a title bar "Summary" and contains the following text: "JCL Generation process has successfully started" in bold, followed by "You will be notified when JCL is complete. Press Finish to exit the wizard or press Back to generate more Recovery JCL." At the bottom of the window, there are four buttons: "< Back", "Next >", "Finish", and "Cancel".

Once JCL generated:  
View It  
Edit it  
Submit it  
Save it

# Simplifying access to useful RECON information



- Using DBRC in recovery can be challenging but it increases reliability of recovery
- LOTS of useful information in List.History but difficult to interpret
- BMC Software BRI Solution provides access to List.History data from a Graphical User Interface (GUI)



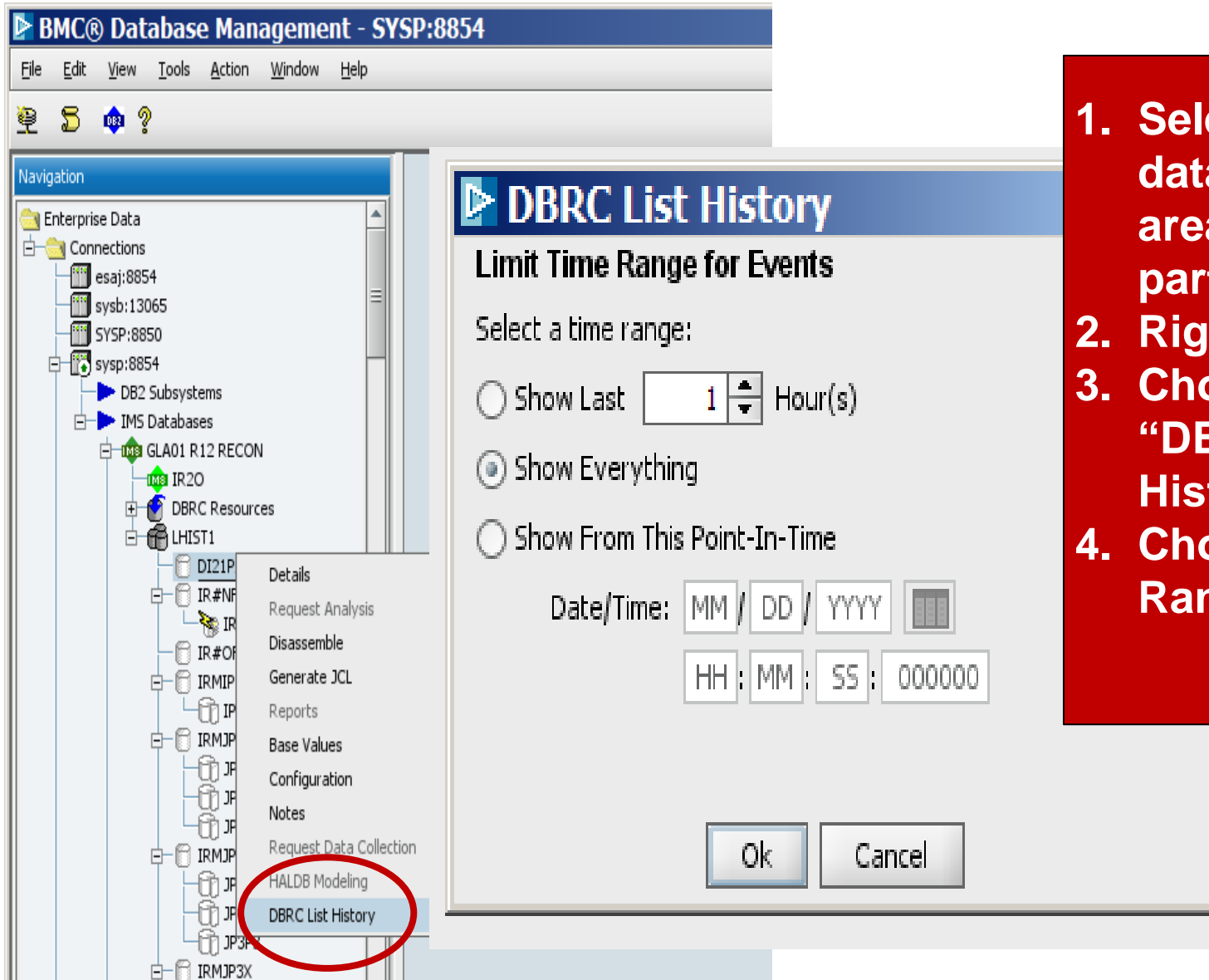
# Why improve on List History?

- Graphical User Interface (GUI) allows for:
  - Enlightening timeline display
  - Filtering of pertinent events
    - Image copy and Change accum
    - Recovery and Reorgs
    - Prilogs and Allocs
- Event command processing allows for:
  - Easy manipulation of database, image copy, and change accum status
- Event JCL generation allows for:
  - Duplication of image copies
  - Point-in-time recovery
  - Pointer verification

# List History - Views

- Event driven
  - Database alloc/dealloc
  - IC and Change Accum
  - Reorg and Recov
  - Prilog open, switch, and close
- Horizontal or Vertical
- Local or GMT timestamps
- Event filtering

# List History – Action Command

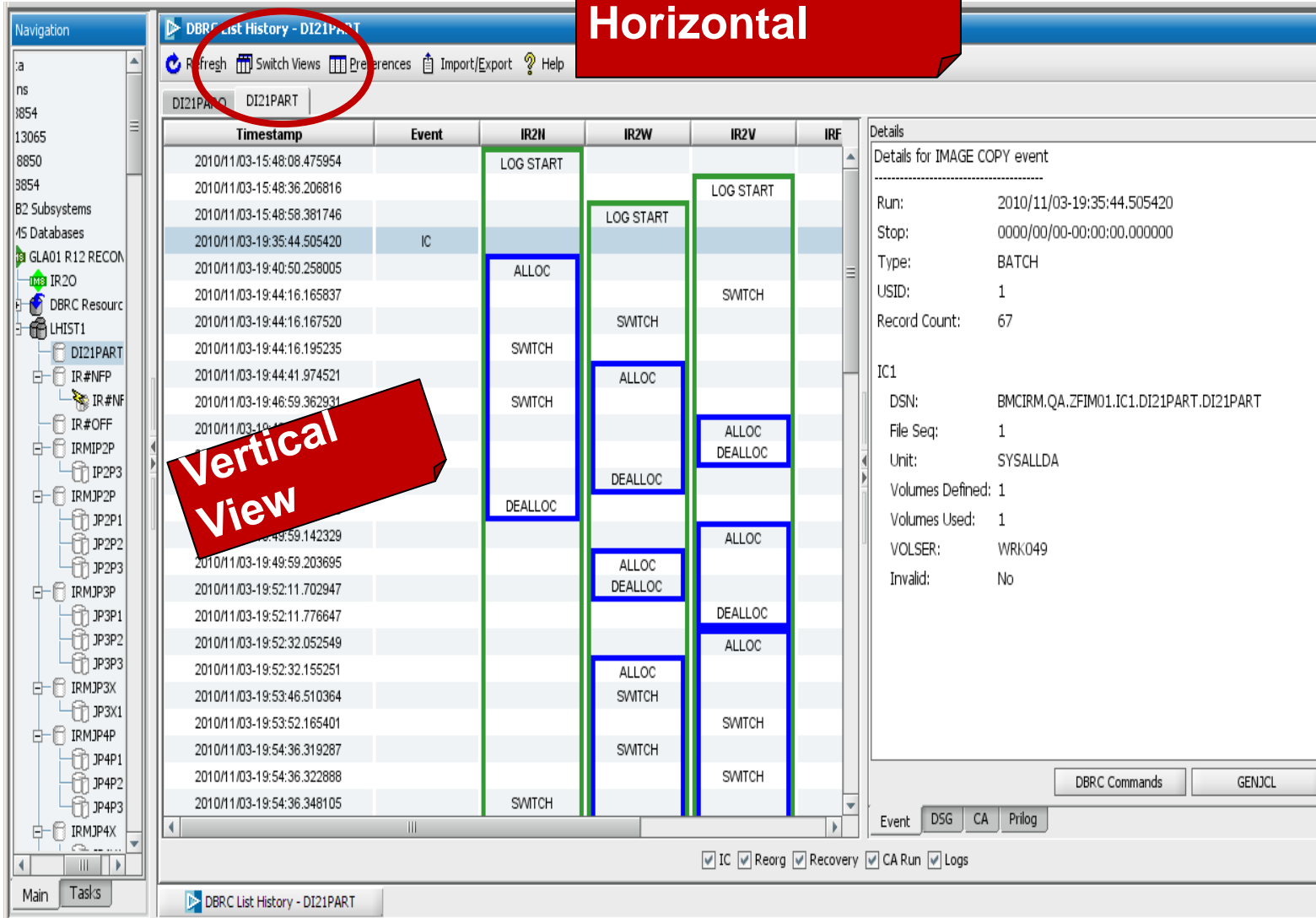


The screenshot shows the BMC Database Management interface. The main window title is "BMC® Database Management - SYSP:8854". The menu bar includes File, Edit, View, Tools, Action, Window, and Help. The left navigation pane shows a tree structure under "Enterprise Data" with "Connections" expanded to show "esaj:8854", "sysb:13065", "SYSP:8850", and "sysp:8854". Under "sysp:8854", "DB2 Subsystems" and "IMS Databases" are visible. "IMS Databases" is expanded to show "GLA01 R12 RECON", "IR20", "DBRC Resources", and "LHIST1". Under "LHIST1", a context menu is open with "DBRC List History" highlighted in blue and circled in red. The "DBRC List History" dialog box is open in the foreground, titled "DBRC List History". It has a "Limit Time Range for Events" section with the text "Select a time range:". There are three radio button options: "Show Last" (with a spinner box set to "1" and "Hour(s)" next to it), "Show Everything" (which is selected), and "Show From This Point-In-Time". Below these is a "Date/Time:" label followed by input fields for "MM / DD / YYYY" and "HH : MM : SS : 000000". At the bottom of the dialog are "Ok" and "Cancel" buttons.

1. Select a database, area, or partition
2. Right-click
3. Choose “DBRC List History”
4. Choose Time Range

# List History – Vertical View

**Switch to  
Horizontal**



The screenshot shows the DBRC List History - DI21PART interface. The main window displays a table of events with columns for Timestamp, Event, IR2H, IR2W, IR2V, and IRF. The table is currently in a vertical view. A red callout box points to the 'Switch Views' button in the top toolbar. Another red callout box points to the text 'Vertical View' overlaid on the table. The right-hand pane shows details for an IMAGE COPY event.

Timestamp	Event	IR2H	IR2W	IR2V	IRF
2010/11/03-15:48:08.475954		LOG START			
2010/11/03-15:48:36.206816				LOG START	
2010/11/03-15:48:58.381746			LOG START		
2010/11/03-19:35:44.505420	IC				
2010/11/03-19:40:50.258005		ALLOC			
2010/11/03-19:44:16.165837				SWITCH	
2010/11/03-19:44:16.167520		SWITCH			
2010/11/03-19:44:16.195235					
2010/11/03-19:44:41.974521		SWITCH			
2010/11/03-19:46:59.362931		ALLOC			
2010/11/03-19:46:59.362931		SWITCH			
2010/11/03-19:46:59.362931				ALLOC	
2010/11/03-19:46:59.362931				DEALLOC	
2010/11/03-19:46:59.142329		DEALLOC			
2010/11/03-19:49:59.203695					
2010/11/03-19:52:11.702947					
2010/11/03-19:52:11.776647					
2010/11/03-19:52:32.052549					
2010/11/03-19:52:32.155251					
2010/11/03-19:53:46.510364					
2010/11/03-19:53:52.165401					
2010/11/03-19:54:36.319287					
2010/11/03-19:54:36.322888					
2010/11/03-19:54:36.348105					
2010/11/03-19:54:36.348105		SWITCH			

Details for IMAGE COPY event

Run: 2010/11/03-19:35:44.505420  
 Stop: 0000/00/00-00:00:00.000000  
 Type: BATCH  
 USID: 1  
 Record Count: 67

IC1

DSN: BMCIRM.QA.ZFIM01.IC1.DI21PART.DI21PART  
 File Seq: 1  
 Unit: SYSALLDA  
 Volumes Defined: 1  
 Volumes Used: 1  
 VOLSER: WRK049  
 Invalid: No

DBRC Commands GENJCL

Event DSG CA Prilog

IC  Reorg  Recovery  CA Run  Logs

# List History – Horizontal View

DBRC List History - PP3P3

Refresh Switch Views Preferences Import/Export Help

PP3P3A

2010/10/12-12:48:24.215736  
 2010/10/12-12:48:58.228593  
 2010/10/12-12:52:18.153685  
 2010/10/12-12:52:19.938107  
 2010/10/12-13:07:22.566027  
 2010/10/12-13:13:31.995859  
 2010/10/12-13:14:53.926848  
 2010/10/12-13:18:44.066988  
 2010/10/12-13:19:13.168619  
 2010/10/12-13:19:13.185398  
 2010/10/12-13:20:09.815069  
 2010/10/12-13:21:15.312123  
 2010/10/12-13:21:15.540766  
 2010/10/12-13:22:01.653797  
 2010/10/12-13:22:01.878539  
 2010/10/12-13:26:35.844812

Events

IR20 LOG SWITCH ALLOC SWITCH ALLOC SWITCH

IR2V LOG SWITCH ALLOC SWITCH SWITCH SWITCH

IC REC

Details

Details for DSG PP3P3A

DBORG: PHDAM  
 Partition ID: 3  
 OLR Active: No  
 Active DBDS: A-J  
 OLR IMSID: \*\*NULL\*\*

DBRC Commands GENJCL

Event DSG CA Prilog

IC  Reorg  Recovery  CA Run  Logs

Tasks

DBRC List History - DI21PART DBRC List History - PP3P3

# List History – Filter Events

DBRC List History - PP3P3

Refresh Switch Views Preferences Import/Export Help

PP3P3A

82943	2010/10/13-17:49:08.635049	2010/10/13-18:35:42.429863	2010/10/13-19:59:13.446252	2010/10/19-14:55:38.993773	2010/10/19-14:56:06.117150	2010/10/19-15:32:45.011619	2010/10/19-18:21:42.970413	2010/10/20-19:10:41.211858	2010/10/20-19:10:45.397911	2010/10/20-19:13:22.414351	2010/10/20-19:42:18.953974	2010/10/22-05:00:00.100000	2010/10/22-15:06:38.666822	2010/10/22-15:06:46.744981	2010/10/22-15:10:38.191522	2010/10/22-15:24:28.285182	2010/10/22-15:24:32.675230	2010/10/22-15:28:05.429522	2010/10/22-15:36:23.658743
G	IC	REC	REORG	REORG	IC	REC	REORG	REORG	IC	REC	IC	REORG	REORG	IC	REORG	REORG	IC	CA	

Details

Details for CA RUN event

CA Group: CAGRPP01  
DSN: BMCIRM.QA.RPA01.CA1.CAGRPP01  
File Seq: 1  
Stop: 2010/10/22-15:36:23.658743

DBRC Commands GENJCL

Event DSG CA Prilog

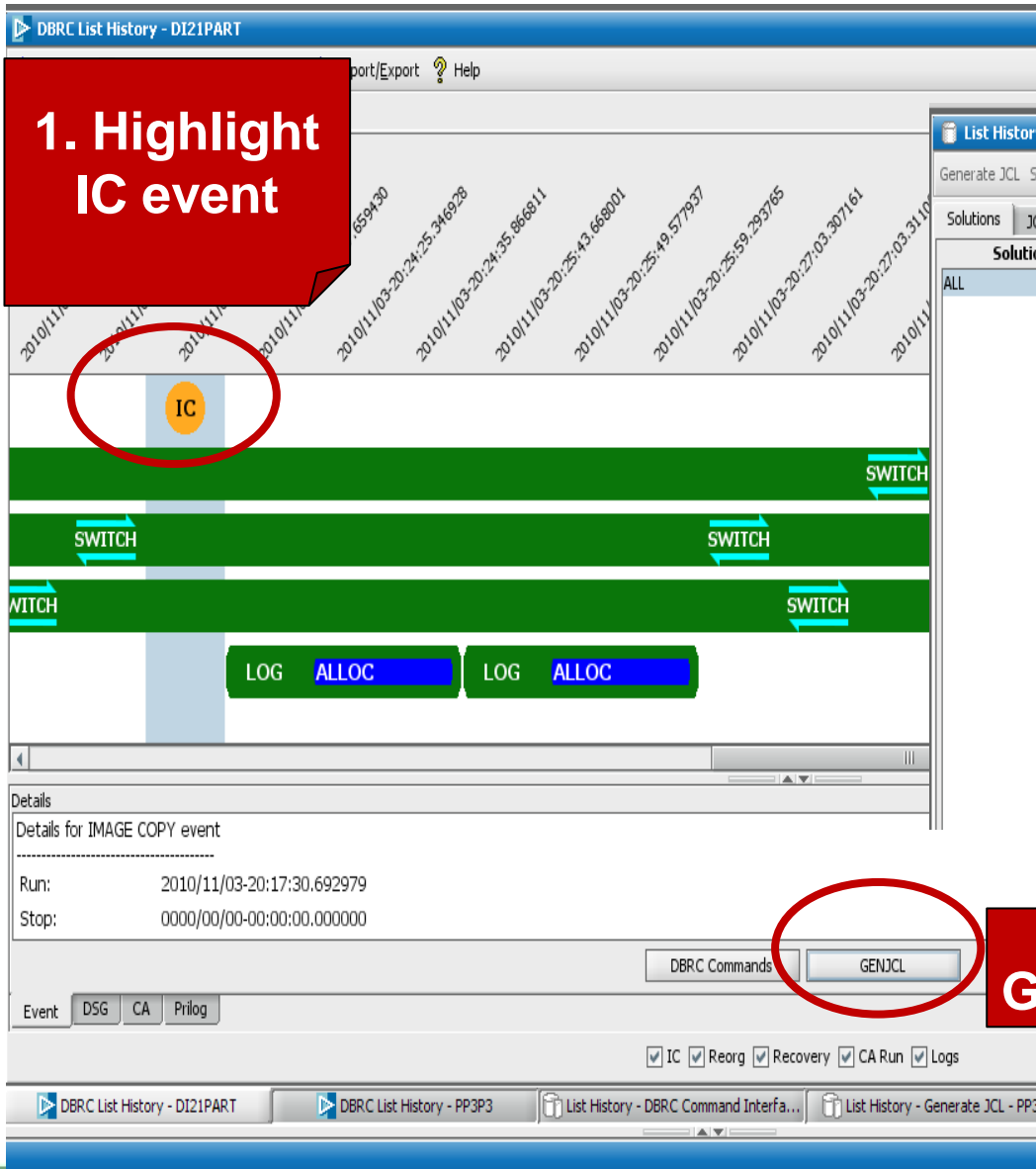
IC  Reorg  Recovery  CA Run  Logs

DBRC List History - DI21PART DBRC List History - PP3P3

**Filter out log events**



# List History – Generate JCL



1. Highlight IC event

2. GENJCL

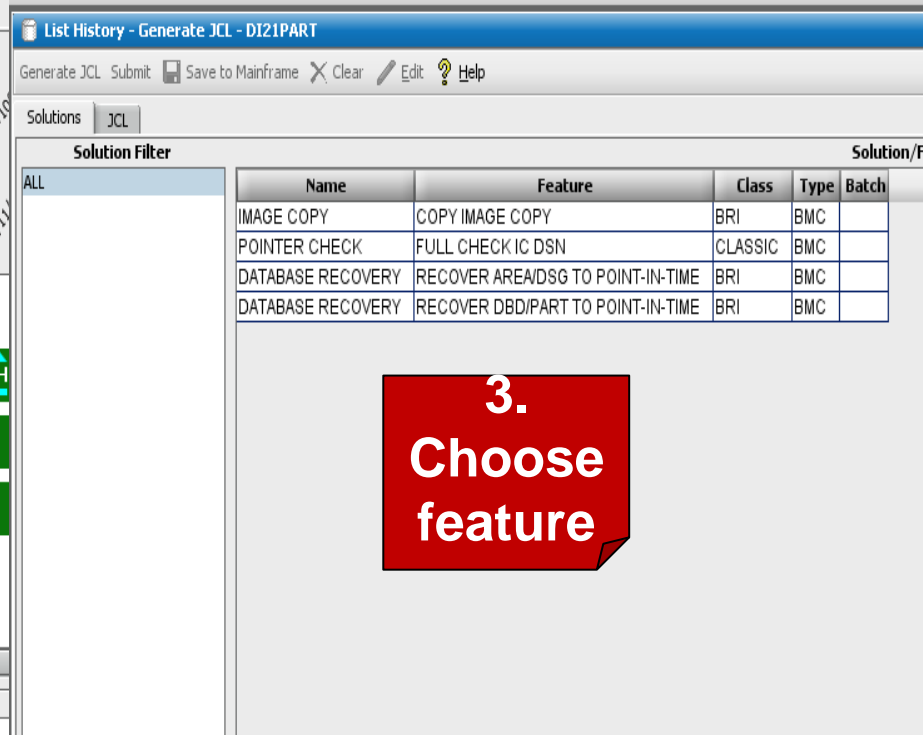
Details for IMAGE COPY event

Run: 2010/11/03-20:17:30.692979  
Stop: 0000/00/00-00:00:00.000000

DBRC Commands GENJCL

Event DSG CA Prilog

IC  Reorg  Recovery  CA Run  Logs



3. Choose feature

Name	Feature	Class	Type	Batch
IMAGE COPY	COPY IMAGE COPY	BRI	BMC	
POINTER CHECK	FULL CHECK IC DSN	CLASSIC	BMC	
DATABASE RECOVERY	RECOVER AREA/DSG TO POINT-IN-TIME	BRI	BMC	
DATABASE RECOVERY	RECOVER DBD/PART TO POINT-IN-TIME	BRI	BMC	

# Summary



- Recovery
  - Plan for it
  - Hope you never need to perform it
  - Be better prepared for it with

## Backup and Recovery Solution for IMS from BMC Software