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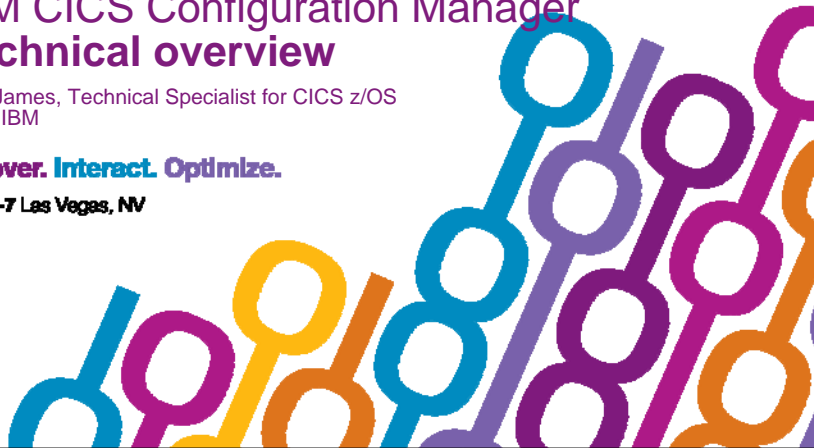


IBM CICS Configuration Manager Technical overview

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Discover. Interact. Optimize.

MAY 2-7 Las Vegas, NV



Agenda CICS administration problems and solutions

- Editing CSD files
- Working with CSD files and CPSM DRs
- Migrating changes between environments
- Delegating and approving changes
- Changes across LPAR boundaries
- Backout & Recover
- Audit compliance
- Cleanup and analysis
- Comparisons and exception analysis
- Cold start analysis

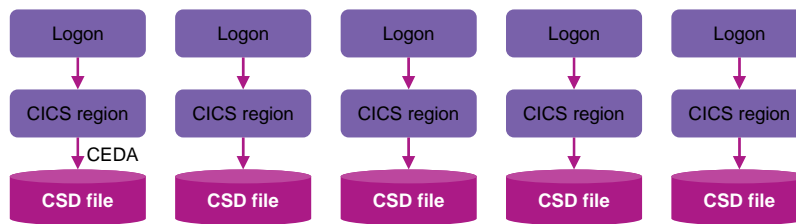
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Problem

Editing CSD files

- Logon or route to each CSD's maintenance point
- CICS regions must be running
- No audit trail or easy backout



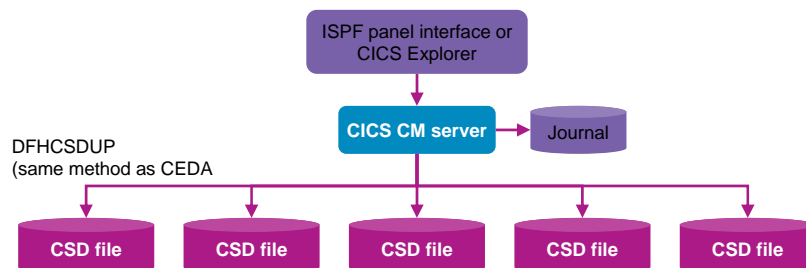
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Solution

Editing CSD files

- Single point of control (via the CICS CM Server)
- Application CICS regions may be inactive
- Audit trail
- Easy backout



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Solution

Editing CSD files

Reports CICS Configurations Row 1 to 6 of 6
 Command ==> Scroll ==> CSR

Select one or more CICS configurations and press Enter

Filter DEMO*

Name	Context	CSD File
DEMO		CCVCICS.DEMO.DFHCSO
DEMOCPSM	CCVPLEXF	
DEMODEVT		CCVCICS.DEMODEVT.DFHCSO
DEMOPROD		CCVCICS.DEMOPROD.DFHCSO
DEMOTEST		CCVCICS.DEMOTEST.DFHCSO

Select multiple

Resources Multiple Configuration Resources Row 1 to 24 of 43
 Command ==> Scroll ==> CSR

Filter * PROGRAM + DEMOGRP1

Name	Type	Group	Prompt	Config
DEMOCOPY	PROGRAM	DEMOGRP1		DEMOCPSM
DEMOCOPY	PROGRAM	DEMOGRP1		DEMODEVT
DEMOCOPY	PROGRAM	DEMOGRP1		DEMOTEST
DEMAMG10	PROGRAM	DEMOGRP1		DEMOCPSM
DEMAMG10	PROGRAM	DEMOGRP1		DEMODEVT
DEMAMG10	PROGRAM	DEMOGRP1		DEMOTEST
DEMAMG20	PROGRAM	DEMOGRP1		DEMOCPSM

Display multiple

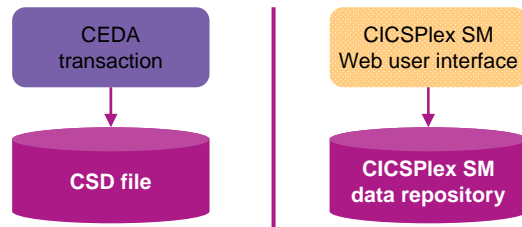
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Problem

Working with CSD files and CPSM DRs

- Different interfaces: CEDA or CPSM WUI
- No method for moving from CPSM repository to CSD file



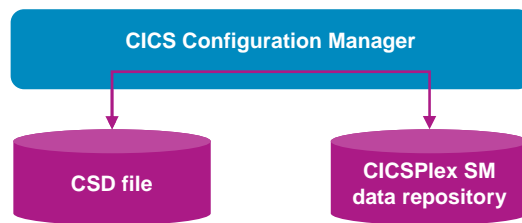
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Solution

Working with CSD files and CPSM DRs

- ✓ Single user interface
- ✓ Seamless across CSD files and CPSM repositories
- ✓ Copy resource definitions *in either direction*



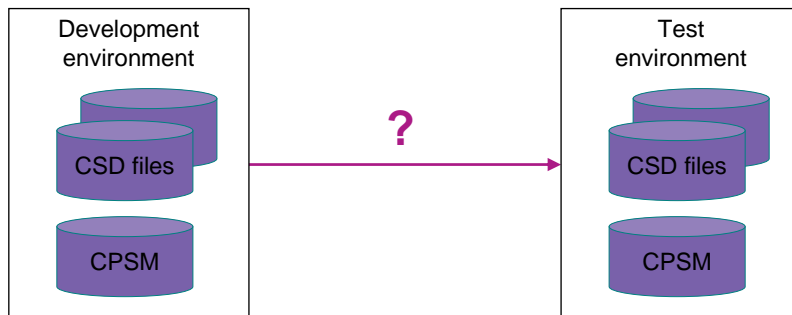
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Problem

Migrating changes between environments

- How do you systematically promote resource definition changes?
 - Collecting sets of definitions
 - Tailoring definition attributes (like data set names in Files)
 - Identifying and updating target CSD files or CPSM repositories



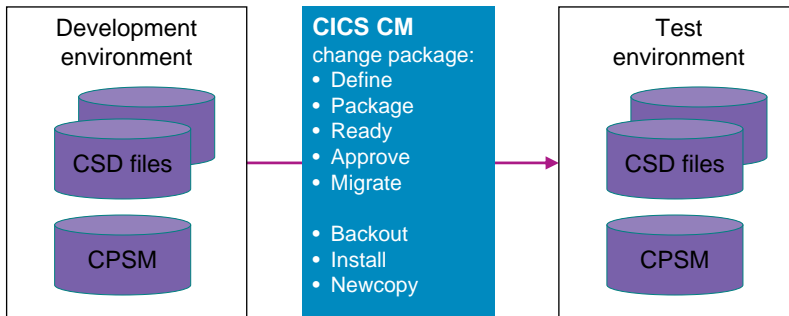
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Solution

Migrating changes between environments

- ☑ Group changes into a CICS CM **change package**
- ☑ Manage the package as a single unit
- ☑ Supports Ready, Approve and Backout processing
- ☑ APIs and exit-points for integration to change-control products



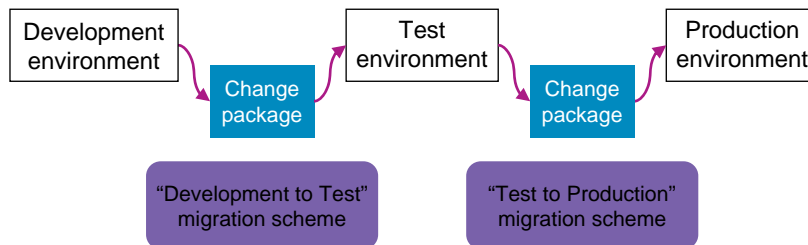
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Solution

Migrating changes between environments

- ☑ Migration **schemes** identify source and target repositories
- ☑ Different schemes to progressively migrate a change package



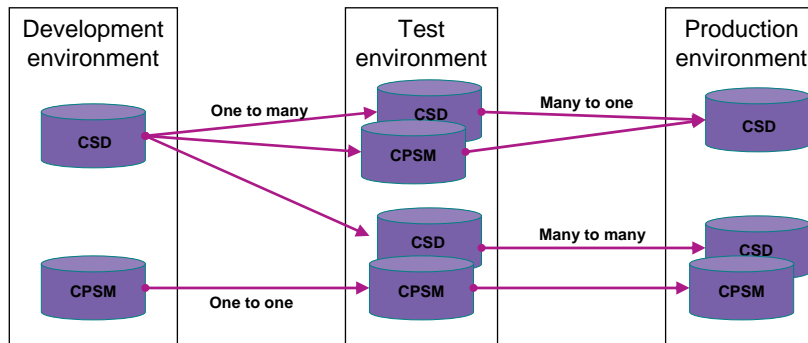
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Solution

Migrating changes between environments

- ✓ **Schemes** can intermix CSD files or CPSM repositories
- ✓ Supports one or many source/target pairs in any combination



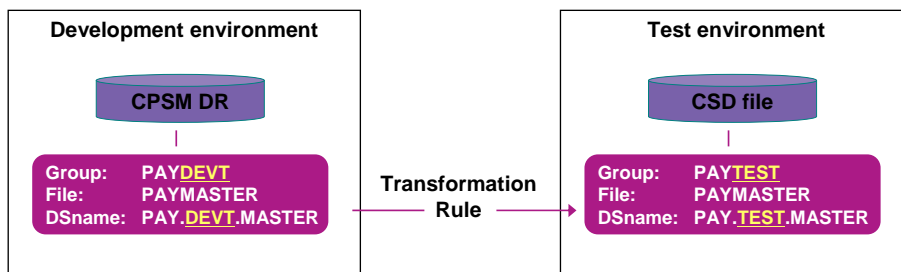
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Solution

Migrating changes between environments

- ✓ **Transformation rules** tailor definitions for each target:
 - ✓ No manual editing – it's automatic
 - ✓ Change Group names, attribute values, or resource definition names
 - ✓ Value masking is supported (e.g. change File DSNAME *DEV* to *TEST*)
 - ✓ Qualification criteria may be specified



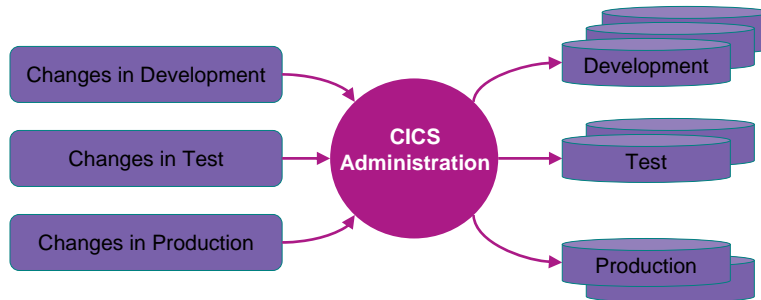
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Problem

Delegating responsibilities

- Administration bottlenecks for resource definition changes
- CICS support personnel are overworked and scarce
- Complexity and 'tribal knowledge' makes delegation risky



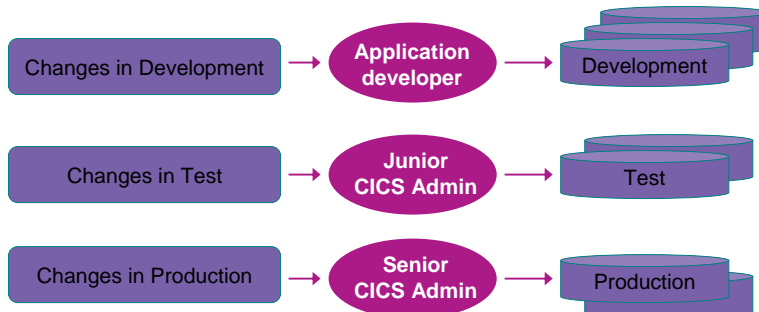
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Solution

Delegating responsibilities

- ☑ Security controls by repository, Group, type and name
- ☑ Standards enforcement for attribute values
- ☑ Approve change packages before migration
- ☑ Audit trail with easy backout



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Solution

Delegating responsibilities

```

File Menu Settings Help
Edit Program
Command ==> SAVE

Program . . . : DEMACOPY
ResGroup . . . : DEMOGRP1
Location . . . : CCVPLEXF
Change Date . . : 2008/06/13 13:09:52
Description . . : Demonstration - COPY API Handler - changed

Language . . . : COBOL + Default Alternative Values
                  N_A ASSEMBLER C COBOL LE370 PLI
Reload . . . . : NO + NO YES
Resident . . . . : NO + NO YES
Usage . . . . . : NORMAL + NORMAL TRANSIENT
UseLPACopy . . . : NO + NO YES
Status . . . . . : ENABLED + ENABLED DISABLED
CEDF . . . . . : no + YES NO
DataLocation . . : ANY + BELOW ANY
ExecKey . . . . : USER + USER CICS
Concurrency . . . : QUASIRENT + QUASIRENT THREADSAFE N_A
API . . . . . : CICSAPI + CICSAPI OPENAPI
    
```

1. Set CEDF(NO) which violates standards, then SAVE.



Solution

Delegating responsibilities

```

File Menu Settings Help Exception Messages
Command ==> [ ] Row 1 to 3 of 3
                  Scroll ==> CSR

Messages
XPRA: Create/Update of this resource was rejected by a site Exit. Rule
      details: PGM_0001-A- 1
XPRA: Attribute CEDF must have value YES
***** Bottom of data *****
    
```

Standards enforced

RULE NAME	ATTRIBUTE	CONDITION	ACTION
PGM_0001	Q PROGDEF_GROUP	EQ DEMOGRP1	
PGM_0001	Q PROGDEF_NAME	EQM DEMA*	
PGM_0001	A PROGDEF_CEDF	NE YES	REJECT



Solution

Delegating responsibilities

```
File Menu Settings Help
Exception Messages
SAVERS Confirmation Authorization failed

Enter details and press Enter to save new PROGRAM

Name . . . . . DEMACOPY
ResGroup . . . . . PAYROLL +
CICS Configuration . . . . . DEMODEVT +

CCVE173 You are not authorized to perform the requested function.
Security failure details are logged in the CICS Configuration Manager
server job output, using a message prefix DFHXS.

CEDF . . . . . YES +
DataLocation ANY +
ExecKey . . . . . USER +
Concurrency . . . . . QUASIRENT +
API . . . . . CICSAPI +

RACF PFX CONFIG GROUP TYPE NAME
PERMIT CCV,DEMODEVT.PAYROLL.PROGDEF.*
CLASS(FACILITY)
ID(RJA2) ACC(NONE)
```

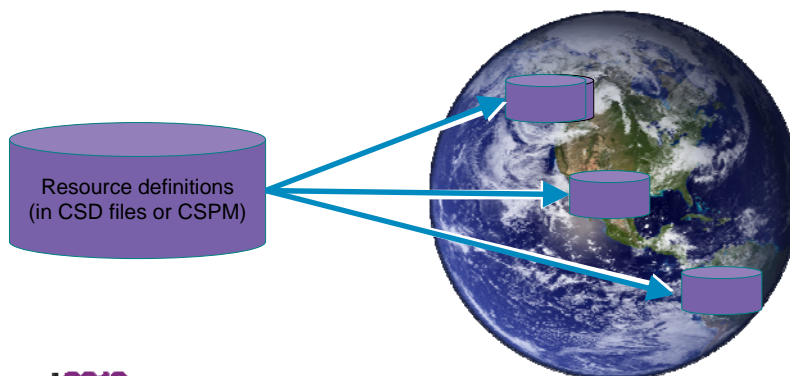
Secure definitions by repository, Group, Type and Name



Problem

Changes across LPAR boundaries

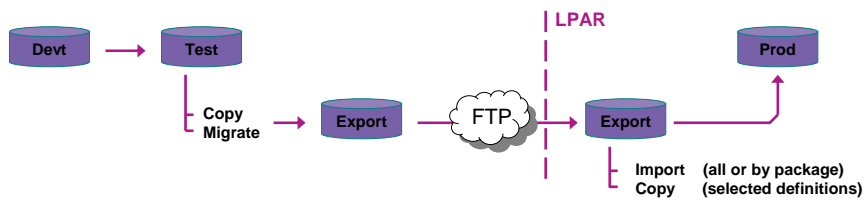
- Need to distribute resource definition changes to remote CICS sites across LPAR boundaries



Solution

Changes across LPAR boundaries

- ☑ Export definitions selectively by **Copy** or via change package **Migrate**
- ☑ Samples illustrate automated file transfer to remote sites
- ☑ Import definitions with auto-register of change packages



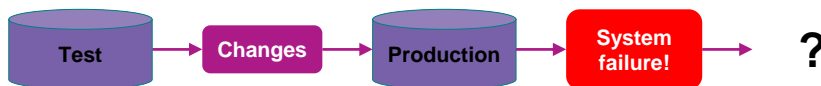
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Problem

Backout

- CICS failures start occurring. What's changed?
- How do you reverse individual changes?
- How can you backout a set of changes?
- No audit trail!



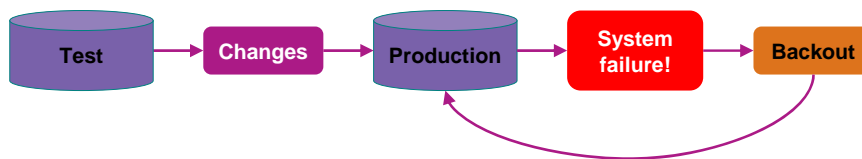
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Solution

Backout

- ☑ All changes logged to a journal file
- ☑ Backout entire change package
- ☑ Recover individual resource definitions
- ☑ View resource definition histories on screen



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Solution

Recover

```
File Menu Settings Help
CICS changes CICS Resources Row 1 to 7 of 7
Command ==> REC * Scroll ==> CSR
Filter * * + XPA* More: < >
/ Name Type Group Command --- Changed --- ID
REC XMLA TRANSACTION XPA110 DELETE 2010/07/08 14:59 RJA2
REC XMLC TRANSACTION XPA110 DELETE 2010/07/08 14:59 RJA2
REC XPA1 TRANSACTION XPA110 UPDATE 2010/07/09 08:56 RJA2
REC XPA1 TRANSACTION XPA110 UPDATE 2010/07/08 14:55 RJA2
REC XP
REC XP
REC XP
*****
CICS Definitions
Recover Parameters
Specify options and press Enter to recover objects.
Press End or Cancel to cancel the request.
Choose what Choose the recovery image
2 1. After-Image Recover to the state after the change
2. Before-Image Recover to the state before the change
Choose how Before-image recovery options
Enter "/" to select option
/ Rollback option Ensure recovery rolls back from the current state
```

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Problem

Audit Compliance

- Requirement to collect audit data
 - **Who** made changes?
 - **What** did they change?
 - **When** did they make the changes?
 - **Where** did the change occur?
 - **How** did they make the change?
- Are manual records accurate?
- Searching and reporting results is cumbersome and time consuming

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Solution

Audit Compliance

- All changes logged to a journal file
- Online histories and journal-event views
- Batch journal audit reporting

```
CICS Resource Definition Changes Report
Resource View, Resource Level
Sorted by CONFIGURATION, DATE, NAME, TYPE, GROUP
```

Name	Type	Group	Config	Date	User	API Command Func P
DEMAMG30	PROGRAM	DEMOGRP1	DEMOTEST	2009/03/30 14:04	RJA2	← Resource level
DEMAMG40	PROGRAM	DEMOGRP1	DEMOTEST	2009/03/30 14:04	RJA2	
DEMAMG50	PROGRAM	DEMOGRP1	DEMOTEST	2009/03/30 14:04	RJA2	COPY Cre
DEMAMG50	PROGRAM	DEMOGRP1	DEMOTEST	2009/03/30 14:05	RJA2	UPDATE Upd
STATUS				Before:	ENABLED	
				After :	DISABLED	
DATALOCATION				Before:	ANY	← Attribute level
				After :	BELOW	

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Problem

Cleanup and analysis

- Do I have:
 - Orphan Groups (Groups unrelated to any Lists)
 - Duplicated definitions (Same name, maybe different attribute values)
 - Redundant definitions (Same attribute values, but different names)
- How do I find ... a needle in a haystack?
 - All PAY files using LSRpoolID(1)
 - All programs using DataLocation(BELOW)

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Solution

Cleanup and analysis

```
File Menu Settings Help
Reporting Menu
Option ==>
CICS Resource Reports
1 Multiple Configs List resources across multiple CICS configurations
2 Find Find resources using relationship criteria
Historical Reports
3 CICS changes List CICS resource changes using search criteria
CICS Resource Analysis Reports
4 Orphan Groups List all Groups not related to a List or ResDesc
5 Matching names List duplicate resources based on name and type
6 Matching checksums List redundant resources based on Checksum values
7 Shared resources List CPSM resources related to multiple ResGroups
8 Orphan resources List CPSM resources unrelated to any ResGroups
```

Specialized reports for environment clean-up

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Solution

Cleanup and analysis

```

File Menu Settings Hilite Help
Program Search Criteria
Command ==>

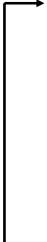
Enter Search options. Press End to continue, or Cancel to cancel the request.

Choose the search method
1. New search (Search all CICS resources)
2. Search within results (Search the 2678 CICS resources already listed)

Enter "/" to select one or more sets of Search Criteria (Boolean OR)

/ Search Criteria Set 1 Attribute + Op + Value +
  Condition 1 . . . . . DATALOCATION EQ BELOW
  AND 2 . . . . . RESIDENT EQ YES
  AND 3 . . . . .
  AND 4 . . . . .

_ Search Criteria Set 2 Attribute + Op + Value +
  Condition 1 . . . . . DATALOCATION EQ BELOW
  AND 2 . . . . .
  AND 3 . . . . .
  AND 4 . . . . .
    
```



Search by attribute values with AND/OR combinations



Solution

Cleanup and analysis

```

File Menu Settings Checksum Search Show Help
Search Resources CCVT23M CICS Resources Row 1 to 9 of 9
Command ==> Scroll ==> CSR

Filter * PROGRAM + *

/ Name Type Group DataLocatio Resident
DFHDBP2$ PROGRAM DFHCOMP5 BELOW YES
DFHDLG PROGRAM DFHCOMP3 BELOW YES
DFHDLG PROGRAM DFHCOMP5 BELOW YES
DFHDL5 PROGRAM DFHCOMP3 BELOW YES
DFHDL5 PROGRAM DFHCOMP5 BELOW YES
DFHDMP PROGRAM DFHCOMP1 BELOW YES
DFHEDP PROGRAM DFHEDP BELOW YES
DFHJCO PROGRAM DFHCOMP5 BELOW YES
DFHTACP PROGRAM DFHSTAND BELOW YES
***** Bottom of data *****

CCVI051 2669 rows excluded by Search criteria.
    
```



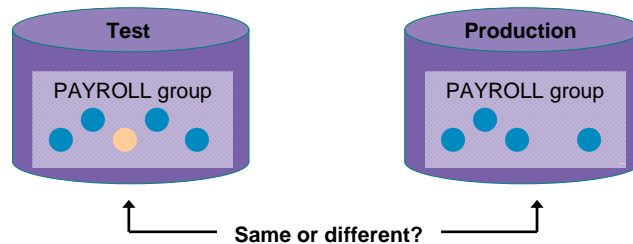
Search results with counts of exclusions



Problem

Comparisons and exception analysis

- Is Group(PAYROLL) the same in TEST and PRODUCTION?
- What definitions are missing?
- What definitions are different?
- Are the FILEs the same, except for DSNAME?
- How can I compare two resource definitions?



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Solution

Comparisons and exception analysis

- ☑ Side-by-side compare of Lists, Groups or Resources
- ☑ Compare across CSDs, CPSM DRs or history views
- ☑ 'Checksum' analysis (hash-value used as a compare indicator)
 - ✓ Predefined attribute lists for checksum calculation
 - ✓ User selectable attributes for checksum calculation
 - ✓ n-Way analysis across 2, 3, 4 or multiple repositories
 - ✓ 'Show' exception analysis to highlight anomalies

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Solution

Comparisons and exception analysis

```

File Menu Settings Checksum Help
Groups Multiple Configuration Resources Row 1 to 2 of 2
Command ==> | Scroll ==> CSR
Filter DEMOGR*
/ Group Prompt Config
CM DEMOGRP1 DEMODEVT
CM DEMOGRP1 DEMOTEST
***** Bottom of data *****
    
```

Compare the same Group across two Configurations (CSDs/CPSM DRs)



Solution

Comparisons and exception analysis

```

Compare - All Resources Group Row 1 to 14 of 15
Command ==> | Scroll ==> CSR
Scroll right (NextPage) to view other reports
Group . . . : DEMOGRP1 DEMOGRP1
Location . . : CCVCICS.DEMODEVT.DFHCSO CCVCICS.DEMOTEST.DFHCSO
Change Date . : 2008/09/06 08:20 2009/03/30 14:04
Anomaly flags : Missing, Checksum
All Group Resources
Filter * PROGRAM +
/ Name Type Group Checksum Full Flags Checksum Group /
DEMACOPY PROGRAM DEMOGRP1 CBDD6CCF M C CBDD6CCF DEMOGRP1
DEMAMG10 PROGRAM DEMOGRP1 47F41E0A M *Missing
DEMAMG20 PROGRAM DEMOGRP1 B5553BA6 M *Missing
DEMAMG30 PROGRAM DEMOGRP1 8E7D1AA1 8E7D1AA1 DEMOGRP1
DEMAMG40 PROGRAM DEMOGRP1 5701B8E3 5701B8E3 DEMOGRP1
DEMAMG50 PROGRAM DEMOGRP1 B04E5788 9DF76A7F DEMOGRP1 CM
DEMAMJNL PROGRAM DEMOGRP1 FDDF30EA FDDF30EA DEMOGRP1
    
```

M identifies missing definitions
C identifies different definitions



Solution

Comparisons and exception analysis

```
File Menu Settings Hilite Help
Compare Program
Command ==>

Program . . . : DEMAMG50          DEMAMG50
Group . . . . : DEMOGRP1         DEMOGRP1
=> Location . . : CCVCICS.DEMODEV.DFHCSO  CCVCICS.DEMOTEST.DFHCSO
=> Change Date . : 2006/09/06 08:20:53    2009/03/30 14:05:19
Description . . : Demonstration - MIGRATE AP > Demonstration - MIGRATE AP >
                                          More: +
Language . . . : LE370           LE370
Reload . . . . : NO              NO
Resident . . . : NO              NO
Usage . . . . . : NORMAL         NORMAL
UseLPACopy . . : NO             NO
=> Status . . . : ENABLED        DISABLED
CEDF . . . . . : YES            YES
=> DataLocation : ANY            BELOW
ExecKey . . . . : USER          USER
Concurrency . . : QUASIRENT      QUASIRENT
API . . . . . . : CICSAPI        CICSAPI
```

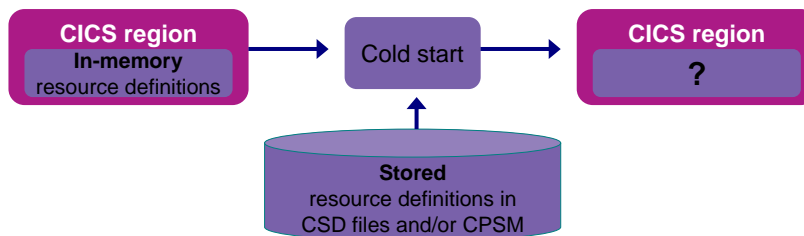
↑ Compare resources ↓



Problem

Cold start analysis

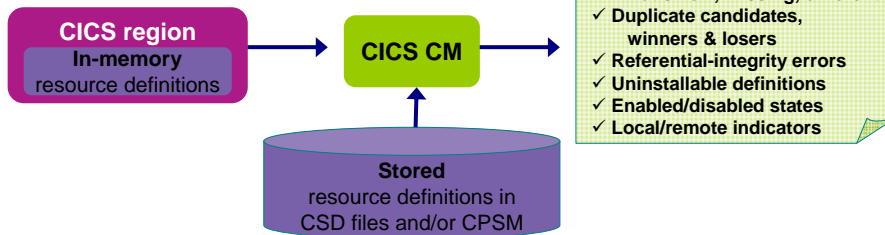
- What will change at the next Cold Start?



Solution

Cold start analysis

- ☑ Immediate analysis – no need to stop/start CICS regions
- ☑ Supports CSD, CPSM, or CSD/CPSM hybrid models
- ☑ Understands ‘order-sequence’ processing and RASGNDEF overrides
- ☑ Provides filtering for auto-install, dynamic resources, known conditions
- ☑ Reports ...



- Analysis Report**
- ✓ What's new, missing, different
 - ✓ Duplicate candidates, winners & losers
 - ✓ Referential-integrity errors
 - ✓ Uninstallable definitions
 - ✓ Enabled/disabled states
 - ✓ Local/remote indicators

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Solution

Cold start analysis

CICS Deployment Analysis Report Region Startup Compare Report Missing Definitions												
Count	ID	Name	Type	Group	List or RESDESC	Code	Error	Loc Rem	Ena Dis	Deploy VV	Checksum	Collection Type
1	01	CCVR0001	FILE			0200	Missing	LUC	DIS		8FE06597	REGION-CCM
2	01	CCVR0002	FILE			0200	Missing	LUC	DIS		D8710E8A	REGION-CCM

CICS Deployment Analysis Report Region Startup Compare Report Mismatched Definitions												
Count	ID	Name	Type	Group	List or RESDESC	Code	Error	Loc Rem	Ena Dis	Deploy VV	Checksum	Collection Type
98	01	T31M	CONNECTION			0300	Checksum Mismatch	LUC	ENA		A301A842	REGION-CCM
		Attribute:	ACCESSMETHOD		Value: IRC							
99	02	T31M	CONNECTION	CCVLINKS	CCV122M	0300	Checksum Mismatch	LUC	ENA		93C08DE4	CANDIDATES-CSD
		Attribute:	ACCESSMETHOD		Value: XM							

CICS Deployment Analysis Report Region Startup Compare Report Referential Integrity Verification												
Count	ID	Name	Type	Group	List or RESDESC	Code	Error	Loc Rem	Ena Dis	Deploy VV	Checksum	Collection Type
142	02	CCVBACK	FILE	CCV210	CCM210	0951	CCV5451W	LUC	ENA		D85D5400	CANDIDATES-CSD
		Attribute:	LSRPOOLID		Value: 1							

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