

# CICS Tools for CICS TS 6.1 Upgrade



Eric Higgins  
zStack Technical Sales Specialist  
[erichiggins@us.ibm.com](mailto:erichiggins@us.ibm.com)



Louisa Seers  
Product Manager  
[LOUISASE@uk.ibm.com](mailto:LOUISASE@uk.ibm.com)

# Introducing Louisa Seers – Product Manager



- Responsibility for looking after the CICS Tools and Galasa, encompassing CICS Performance Analyzer for z/OS.
- During her time in IBM, she's crossed several business functions and across the software development lifecycle, such as Consulting, Software Development and Acquisitions, specifically auditing third party as part of due-diligence activities pre-acquisition.

# CICS Interdependency Analyzer for z/OS

## What is CICS IA?

- A discovery tool that identifies resource interdependencies and affinities in your CICS systems

## Captures CICS application relationships:

- Resources used by a transaction - Programs, Files, TSQs, TDQs plus DB2, MQ, IMS, Web services, and Natural
- Identifies AG Natural and Adabas relationships
- Identifies non-threadsafe programs
- Transactions with affinities and their type / lifetime
- API changes between CICS versions / releases
- Unused resources
- Load module & CSECT scanner
- Sequencing of transactions within an application
- CICS Explorer plug-in integrates with CICS runtime and other tools

## What's its value?

- Real time documentation of CICS application systems
- Automate Threadsafe Analysis
- Identify and analyze affinities
- Assist in application modernization activities
- Quickly identify application scope
- Verify the application code via call path tracing
- Automatically maintains CPSM rules

## Why is this tool important to users of CICS?

- Reduce both time and resources required in understanding active CICS application inventory for efficient maintenance and reuse. Which typically is a manual and error prone process with out the use of tooling.

**DISCOVERY**

# Use cases for CICS IA

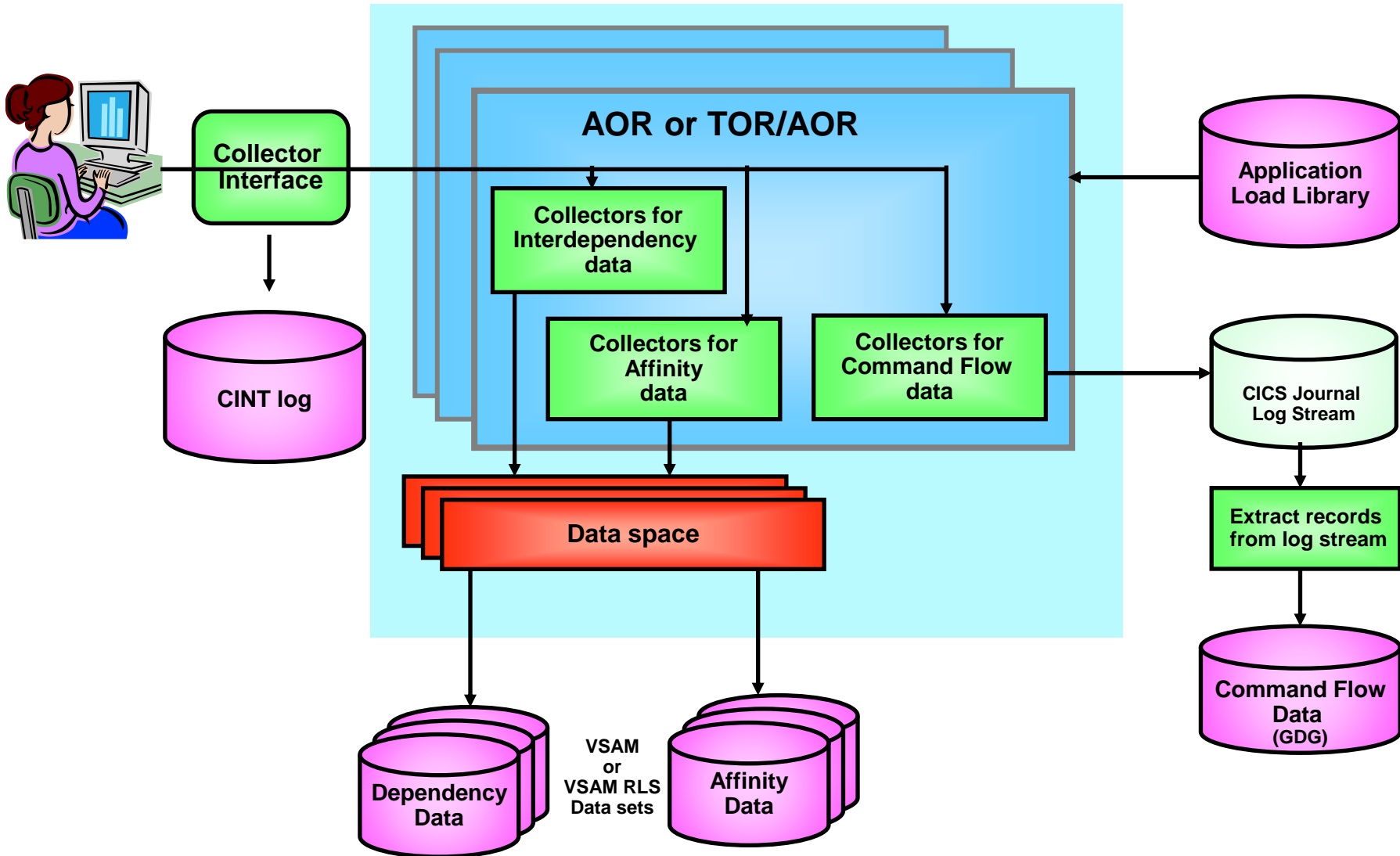
## Projects

- **Workload balancing**
  - Affinity Analysis
  - Resource utilization
- **Application Modernization**
  - Web services
  - Atom services
  - Events deployment
- **CICS TS Upgrade**
  - Understand the use of TRUEs and GLUEs
  - Understand the use of modified or deleted SPIs and APIs
  - Assist with test coverage
- **Threadsafe Analysis**

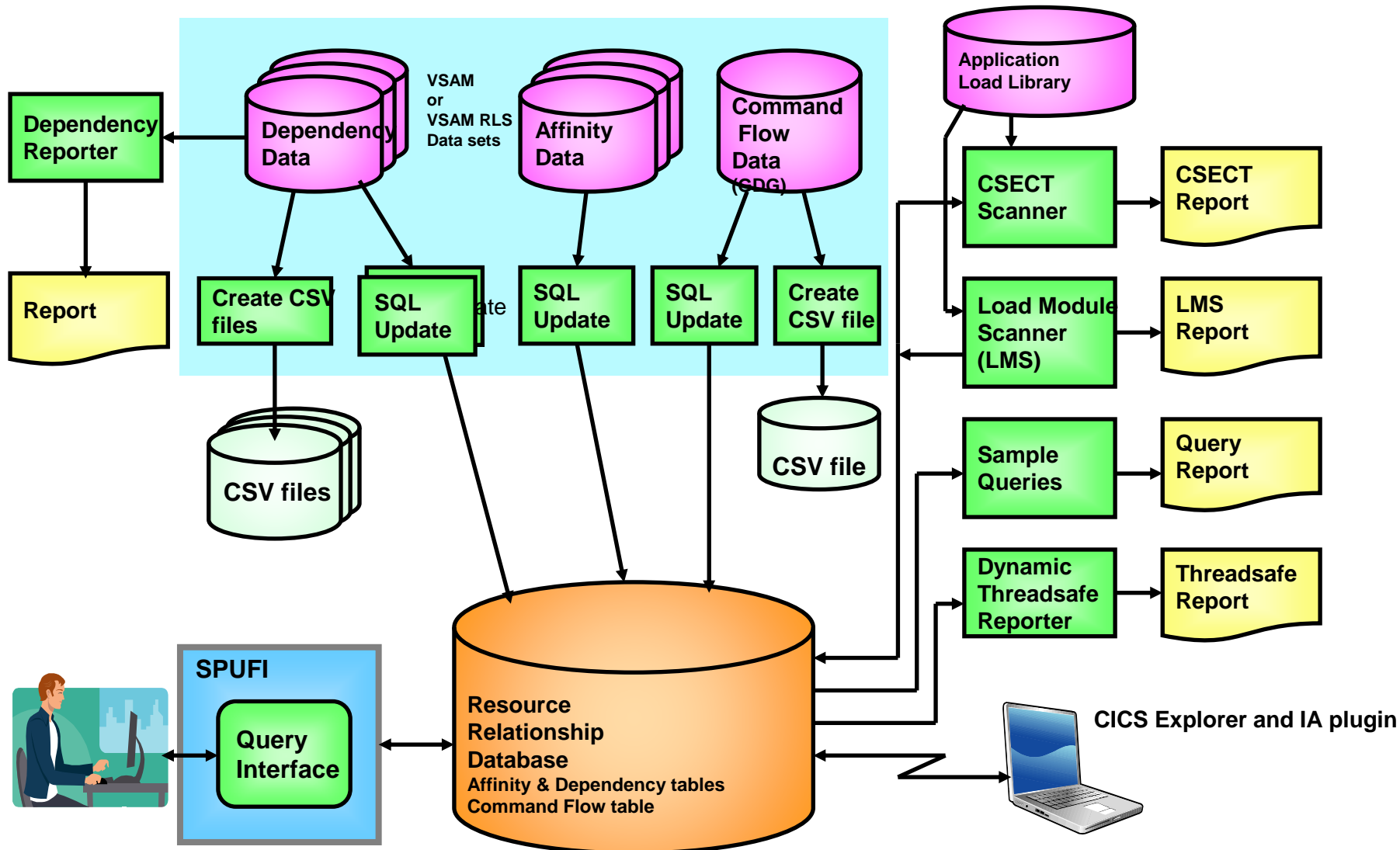
## Day to Day usage

- **Application changes**
  - Which programs uses a given resource
- **Application deployment**
  - Governance – check for Affinities , Threadsafe commands , site rules
- **Problem determination**
  - What new commands have been added to a given program using the First\_used timestamp column
- **Resource recovery**
  - Disable all programs that use this file

# IA Collector Architecture



# IA Data Architecture



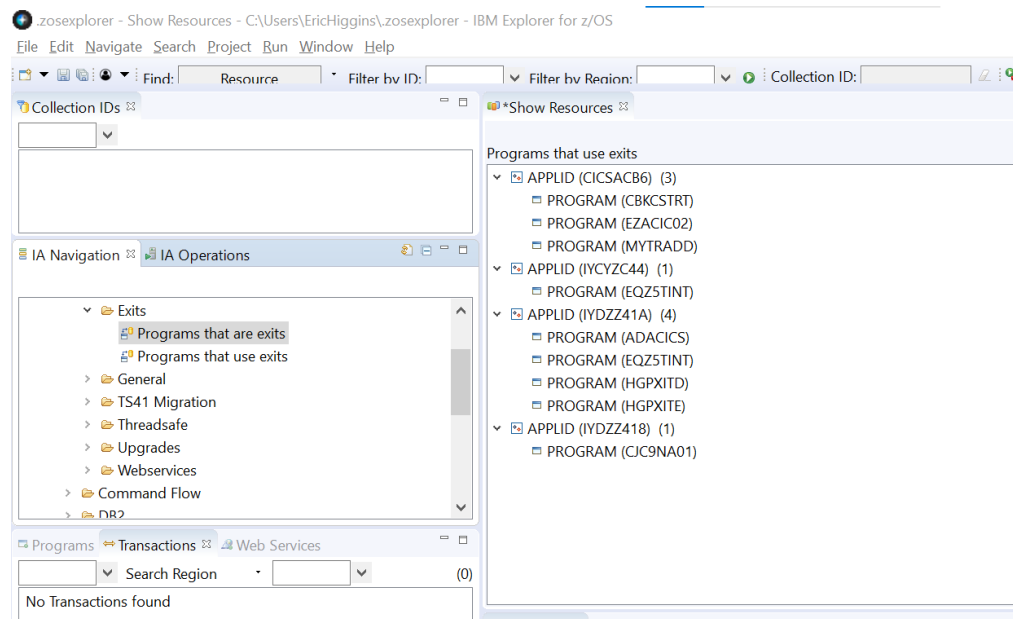
# Finding Resources Affected a CICS Upgrade

## Problem

- When a new release of CICS is introduced, how do you ensure the applications will function correctly?
- A number of APIs and SPIs may have been modified with the upgrade. What programs are using those API/SPIs? .
- Exits may need to be reassembled and tested. What are the Exit programs? Where are the exits used?
- How do you prove that the application programs were exercised in the upgraded test environment?

## Solution

- Supplied Explorer queries
  - Identify programs using APIs and SPIs that have changed over the release levels for the upgrade.
  - Identify Exit programs and the programs that use them.
  - Identify Obsolete commands and options
- IA's timestamp feature can be used to show which programs were exercised in the test environment, and which ones were not.



## Value

- Reduce risk associated to the applications when upgrading to a new release of CICS TS.
- Ensure that modules directly impacted by the upgrade get tested
- Speed up the upgrade process by focussing on key application modules.

# CICS Exit and usage

IA Navigation IA Operations

- ▼ CICS
  - > Affinities
  - ▼ Exits
    - Programs that are exits
    - Programs that use exits
  - > General
  - > TS41 Migration

## Programs that are exits

- ▼ Resource type (EXIT) (37)
  - > ADACICT (1)
  - > CBKFSX65 (2)
  - > CBKSPX65 (1)
  - > DFHQSTRU (1)
  - > EQZ1ADDP (1)
  - > EQZ1ALTR (1)
  - > EQZ1ANSR (1)
  - > EQZ1CONF (1)
  - > EQZ1DEL (1)
  - > EQZ1DISC (1)
  - > EQZ1HOLD (1)
  - > EQZ1IDEN (1)
  - > EQZ1IMMT (1)
  - > EQZ1INIT (1)
  - > EQZ1INVK (1)
  - > FO71IPGV (1)

## Programs that use exits

- ▼ APPLID (CICSACB6) (3)
  - PROGRAM (CBKCSTRT)
  - PROGRAM (EZACIC02)
  - PROGRAM (MYTRADD)
- ▼ APPLID (IYCYZC44) (1)
  - PROGRAM (EQZ5TINT)
- ▼ APPLID (IYDZZ41A) (4)
  - PROGRAM (ADACICS)
  - PROGRAM (EQZ5TINT)
  - PROGRAM (HGPXITD)
  - PROGRAM (HGPXITE)
- ▼ APPLID (IYDZZ418) (1)
  - PROGRAM (CJC9NA01)



# Changes to CICS APIs and SPIs

← → ↻ 🏠 ☆ 🔒 📄 🔍 https://www.ibm.com/docs/en/cics-ts/6.1?topic=new-changes-extern

Getting Started 🌩️ https://ibmsc.lightnin...

**IBM** | Documentation Search in CICS Transaction Server for z/OS 6.1 🔍

**CICS Transaction Server for z/OS**

Change version

6.1

Show full table of contents

Filter on titles

**Changes to externals in this release**

- What is CICS Transaction Server for z/OS?
- What documentation is available?
- CICS fundamentals
- Installing
- Upgrading
- Developing applications
- Configuring
- Securing CICS
- Administering
- Developing system programs
- Monitoring
- Improving performance
- Troubleshooting
- Reference
- CICS TS Feature Pack for Dynamic Scripting V2.0
- CICS Service Flow Runtime
- Scenarios

## Changes to CICS API

Table 2. Changes to **EXEC CICS** commands in this release

API	This release
<a href="#">ASSIGN</a>	<p><b>CHANGED:</b> New parameters</p> <ul style="list-style-type: none"> <li>– <b>GMEXITOPT</b> returns the terminal session behavior option set for the SIT parameter GMTRAN.</li> </ul>
<a href="#">CHANGE PASSWORD</a>	<p><b>CHANGED:</b></p> <ul style="list-style-type: none"> <li>– New NOTAUTH with RESP2 value of 1, indicating that the PASSWORD field, the NEWPASSWORD field, or both are blank.</li> <li>– New NOTAUTH with RESP2 value of 17, indicating that the USERID is not authorized to use the application.</li> </ul>
<a href="#">CHANGE PHRASE</a>	<p><b>CHANGED:</b></p> <ul style="list-style-type: none"> <li>– New NOTAUTH with RESP2 value of 1, indicating that the PHRASE field, the NEWPHRASE field, or both are blank.</li> <li>– New NOTAUTH with RESP2 value of 17, indicating that the USERID is not authorized to use the application.</li> </ul>
<a href="#">GETMAIN</a>	<b>CHANGED:</b> New option EXECUTABLE in support of Instruction Execution Protection
<a href="#">GETMAIN64</a>	<b>CHANGED:</b> New option EXECUTABLE in support of Instruction Execution Protection
<a href="#">START CHANNEL</a>	<b>CHANGED:</b> New options NOCHECK and PROTECT.
<a href="#">WEB OPEN</a>	<p><b>CHANGED:</b> WEB OPEN URIMAP uses the cached IP address and HTTP information obtained with the initial connection, for subsequent outbound web requests that use the same URIMAP.</p> <p><b>DEPRECATED:</b> Numeric CIPHERS deprecated. Use XML cipher suite files as the replacement.</p>
<a href="#">WRITE OPERATOR</a>	<p><b>CHANGED:</b> New option CONSNM, to specify a specific console to which messages are sent. With the addition of CONSNM, the following conditions are introduced:</p> <ul style="list-style-type: none"> <li>– New INVREQs with RESP2 values of 7 and 8, indicating that the specified CONSNM value is not valid</li> <li>– New ERROR with RESP2 value of 1, indicating that the MVS™ WTO command issued by CICS for the <b>WRITE OPERATOR</b> request has returned an error.</li> </ul>

# Changes to CICS APIs and SPIs

The screenshot displays the IBM IA Operations interface with the following components:

- IA Navigation** and **IA Operations** tabs at the top.
- Upgrades** tree view:
  - Changed in TS41
  - Changed in TS42
  - Changed in TS51
  - Changed in TS52
- Changed** tree view:
  - Changed
    - DE
    - QU **FORMATTIME** (3)
      - PROGRAM (ASMIMSM) (1)
        - FORMATTIME (1)
      - PROGRAM (LGACVS01) (1)**
        - FORMATTIME (1)
      - PROGRAM (ZXIMSMMA) (1)
        - FORMATTIME (1)
    - START REQID INTERVAL
    - START TRANSACTION
  - Changed SPI commands
    - ENABLE CWA24

- \*Show Resources** window:
- FORMATTIME (3)
- PROGRAM (ASMIMSM) (1)
  - FORMATTIME (1)
- PROGRAM (LGACVS01) (1)**
  - FORMATTIME (1)
- PROGRAM (ZXIMSMMA) (1)
  - FORMATTIME (1)
- Used By** window:
- Transactions Invoked by Program(LGACVS01) in all regions
  - LGACVS01**
    - SSC1

# Check what workload has been exercised

Edit CICS query

**Edit query "Transactions run after Jan 01 2021"**

Add, remove or change criteria for which resources to include or exclude

Name:

Show  Transaction  Program

Filter results  Time of last observation is after 01/0...

\*Show Resources

Transactions run after Jan 01 2021

- TRANSID (SSC1) (2)
  - PROGRAM (LGICUS01)
  - PROGRAM (LGTESTC1)
- TRANSID (SSEH) (1)
  - PROGRAM (EWICUS01)
- TRANSID (SSEW) (1)
  - PROGRAM (LGICUS01)
- >  TRANSID (SSP1) (3)
- >  TRANSID (SSP2) (3)
- >  TRANSID (SSP3) (3)
- >  TRANSID (SSP4) (3)

Edit CICS query

**Edit query "Transactions run all time"**

Add, remove or change criteria for which resources to include or exclude

Name:

\*Show Resources

Show  Transaction  Program

Transactions run all time

- TRANSID (EGUI) (4)
  - PROGRAM (NSM0XCMN)
  - PROGRAM (NSM0XGUI)
  - PROGRAM (NSM0XVDS)
  - PROGRAM (NSM0XWOD)
- >  TRANSID (LGCF) (1)
- >  TRANSID (NSM4) (3)
- >  TRANSID (SSC1) (9)
- TRANSID (SSEH) (1)
  - PROGRAM (EWICUS01)
- >  TRANSID (SSEW) (1)
- >  TRANSID (SSP1) (12)
- >  TRANSID (SSP2) (12)
- >  TRANSID (SSP3) (12)
- >  TRANSID (SSP4) (6)
- >  TRANSID (ZXAS) (1)

# Check what workload has been exercised

Compare search results

**Combine search results together**

Select results from search history to create combined result

Show resources in and not in

<input checked="" type="checkbox"/> Transactions run all time (65) <input type="checkbox"/> Transactions run after Jan 01 2021 (16)	<input type="checkbox"/> Transactions run all time (65) <input checked="" type="checkbox"/> Transactions run after Jan 01 2021 (16)
--	--

Show Resources

Comparison of search results

In: {Transactions run all time}

Not in: {Transactions run after Jan 01 2021}

- > ⇔ TRANSID (EGUI) (4)
- > ⇔ TRANSID (LGCF) (1)
- > ⇔ TRANSID (NSM4) (3)
- > ⇔ TRANSID (SSC1) (7)
- > ⇔ TRANSID (SSP1) (9)
- > ⇔ TRANSID (SSP2) (9)
- > ⇔ TRANSID (SSP3) (9)
- > ⇔ TRANSID (SSP4) (3)
- > ⇔ TRANSID (ZXAS) (1)
- > ⇔ TRANSID (ZXMM) (1)
- > ⇔ TRANSID (ZXPL) (1)
- > ⇔ TRANSID (ZX18) (1)

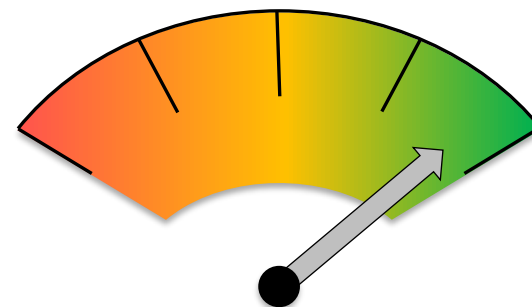
# CICS Performance Analyzer

## What can it do?

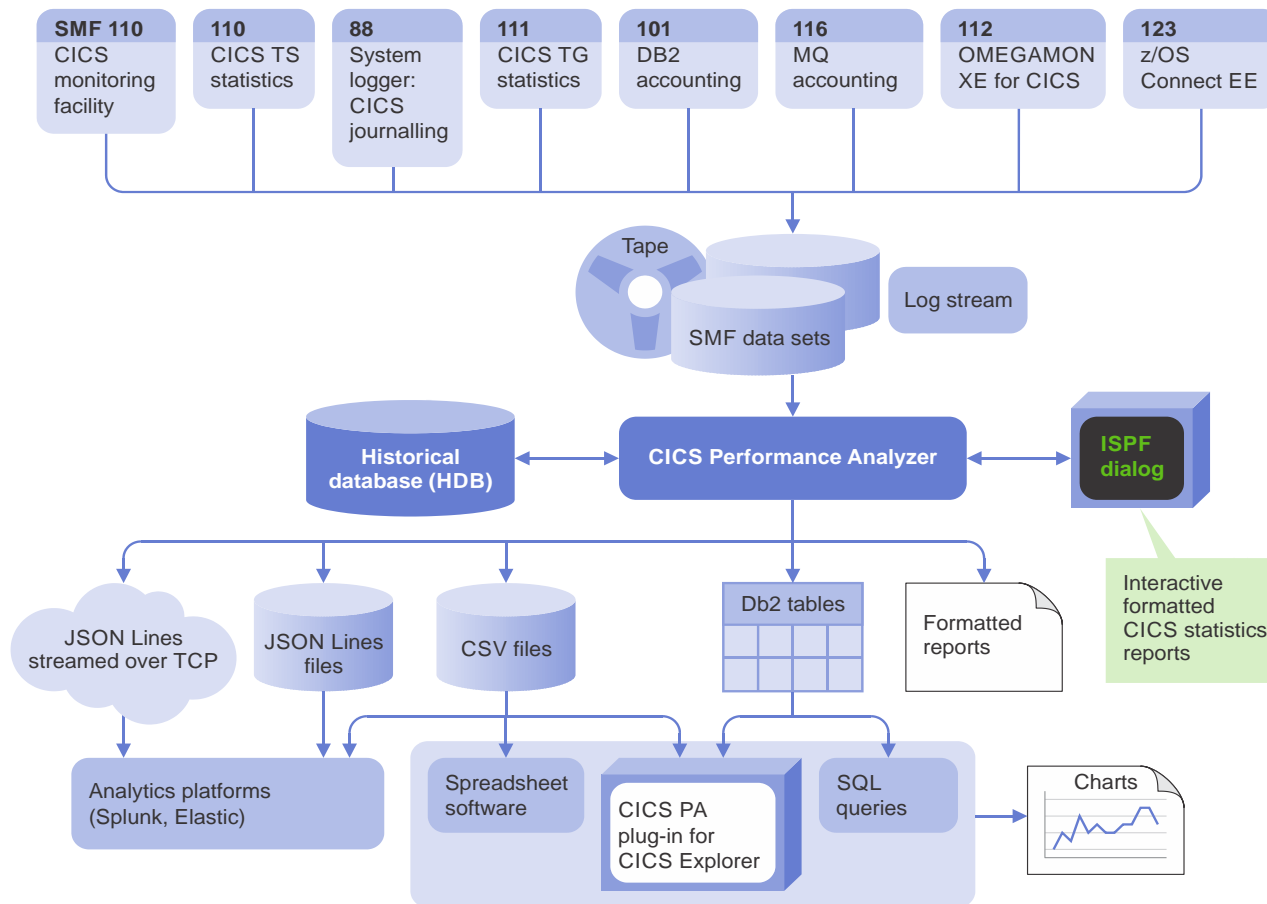
- Analyze CICS application performance
- Improve CICS resource usage
- Evaluate the effects of CICS tuning efforts
- Improve transaction response time
- Provide ongoing system management and measurement reports
- Increase availability of resources
- Increase the productivity of system and application programmers
- Provide awareness of usage trends

## Why is it important?

- Reduce time and resource required to analyze offline performance data
- Enables deep-dive CICS performance analysis and understanding of usage trends
- Aids capacity planning and tuning
- Help quickly identify trends, anticipate and prevent online performance problems



# CICS Performance Analyzer for z/OS Architecture



# Report forms

- Allow you to tailor the output and format of your reports and data extracts
- Over 250 sample report forms provided with CICS PA, covering every aspect of CICS transaction activity and resource usage

```
Sample Form Search
Command ===> _____
Specify searching criteria then press Enter.
Search String:
_____
_____
Performance:
- List
- List Extended
- Summary
Categories:
- Transaction Overview
- Transaction Tracking
- Channels and Containers Usage
- Transaction Storage Usage
- Top Lists and Distributions
- Transaction Resource Usage
- Miscellaneous
- CPU Usage and Analysis
- Platforms, Applications and Policy
- Transaction Communications Activity
- Transaction Data Access
- Web and Web Services
- Java
```

# Transaction Profiling

- Transaction Profiling compares transaction performance between two different time periods, for example ...
  - CICS release migration when you need to ensure transaction performance is not degraded
  - Application changes when you need to determine the impact of change on transaction performance
  - Benchmark from last month when performance was good compared to yesterday when performance was sub-standard
- Use Transaction Profiling to identify ...
  - Changes in application performance behaviour over time
  - Causes for the change in behaviour



# Transaction Profiling ...

V3R2M0

CICS Performance Analyzer  
Transaction Profiling

PROF0001 Printed at 13:54:44 8/02/2020

Report Data from 15:24:42 7/31/2020 to 16:29:59 7/31/2020  
Baseline Data from 16:17:32 5/15/2020 to 16:44:59 5/15/2020

Page 1

Tran		#Tasks	Avg Response Time	Av Dispatch Farm	Avg User CPU Time	Av Suspend Farm	Avg DispWait Time	Av FC Wait Farm	Avg FCAMRq Count	Av IR Wait Time	Avg SC24UHWM Count	Av SC31UHWM Farm
AAAA	Report	1308	.1097	.0532	.0032	.0564	.0009	.0000	0	.0550	2572	159457
AAAA	Baseline	3628	.0888	.0433	.0023	.0455	.0008	.0000	0	.0442	2205	155273
	Delta	-2320	+.0208	+.0099	+.0008	+.0109	+.0000	.0000	0	+.0108	+367	+4184
	Change%	-63.95	+23.52	+23.04	+37.80	+24.00	+10.27	.00	.00	+24.40	+16.64	+2.69
BBBB	Report	12	.0175	.0082	.0017	.0093	.0005	.0000	0	.0086	5008	142952
BBBB	Baseline	44	.0893	.0425	.0038	.0467	.0015	.0000	0	.0444	2588	233438
	Delta	-32	-.0717	-.0343	-.0020	-.0374	-.0009	.0000	0	-.0358	+2419	-90486
	Change%	-72.73	-80.33	-80.69	-53.63	-80.03	-64.50	.00	.00	-80.65	+93.48	-38.76
CCCC	Report	18	.0463	.0221	.0033	.0241	.0008	.0000	0	.0230	2432	271272
CCCC	Baseline	20	.0509	.0239	.0038	.0269	.0011	.0000	0	.0252	2188	257806
	Delta	-2	-.0046	-.0017	-.0005	-.0028	-.0003	.0000	0	-.0022	+243	+13465
	Change%	-10.00	-9.04	-7.33	-13.73	-10.55	-26.20	.00	.00	-8.91	+11.11	+5.22
DDDD	Report	6	.0556	.0275	.0043	.0280	.0003	.0000	0	.0275	2432	301853
EEEE	Report	4	.2208	.1091	.0063	.1117	.0004	.0000	0	.1102	2504	96276
EEEE	Baseline	4	.1482	.0741	.0192	.0740	.0002	.0000	0	.0737	2528	96276
	Delta	0	+.0726	+.0349	-.0129	+.0376	+.0002	.0000	0	+.0364	-24	0
	Change%	.00	+48.99	+47.11	-66.94	+50.90	+102.00	.00	.00	+49.39	-.95	.00

# Statistic alerts

- Help you find potential **tuning opportunities**
- Identify **trends** that could lead to poor CICS performance or even unnecessary CICS system outages
- Can help you focus your analysis efforts on:
  - specific CICS regions
  - a time of day
  - specific types of CICS resources

# Statistic alerts

```

EDIT Statistics Alert Definition - SAMP1      Row 4 of 226 More: >
Command ==> _____ Scroll ==> CSR

Description . . . CICS TS Sample Alerts

Specify the Conditions for this Alert Definition.

- Alert      System dumps requested
  Formula    SYS_DUMPS_TAKEN
  Critical   >5      Warning >0      Info _____ +
  Res       _____ List _____ +
  APPLID    _____

-----

- Alert      Maximum tasks reached
  Formula    XMG TAMXT
  Critical   >10     Warning >0      Info _____ +
  Res       _____ List _____ +
  APPLID    _____

-----

- Alert      Peak tasks (% of maximum tasks)
  Formula    XMG PAT / XMG MXT * 100
  Critical   _____ Warning >=90  Info >=80 +
  Res       _____ List _____ +
  APPLID    _____

-----

```

# Statistic alerts

V5R4M0

CICS Performance Analyzer  
 Statistics Alerts - List by APPLID

STAL0001 Printed at 14:20:12 8/15/2018 Data from 16:15:00 7/27/2018 to 16:55:00 7/27/2018

System: IYCYZC20 Image: MV2E VRM: 710 Type: TS

Sev	Alert	Threshold	Actual	Collection Time	Type
C	File string waits File Name = TRMNALDB	>10	37	2018-07-27 16.15.00	INT
C	File buffer waits LSR Pool Number = 5	>10	280	2018-07-27 16.15.00	INT
C	Maximum tasks reached	>10	12	2018-07-27 16.15.00	INT
C	Temporary storage: buffer waits on DFHTEMP	>10	1233	2018-07-27 16.15.00	INT
C	File string waits File Name = INVENTOR	>10	462	2018-07-27 16.20.00	INT
C	File string waits File Name = PARTS	>10	264	2018-07-27 16.20.00	INT
C	File string waits File Name = TRMNALDB	>10	16	2018-07-27 16.20.00	INT
C	File buffer waits LSR Pool Number = 5	>10	65	2018-07-27 16.20.00	INT

# Output CICS PA reports to JSON lines

- **Requirement from customers:**
  - To use data from CICS PA in analytics platforms. Typically, off z/OS. For example, Splunk, Elastic Stack.
- **Existing CICS PA functionality:**
  - Extract data in CSV format to MVS data sets.
- **New functionality** available in CICS PA V5.4 APAR PH16158 (GA since: 31 January 2020):
  - New output format: JSON Lines
  - New output destinations:
    - TCP port
    - z/OS UNIX (zFS) files
  - Corresponding enhancements to CSV output

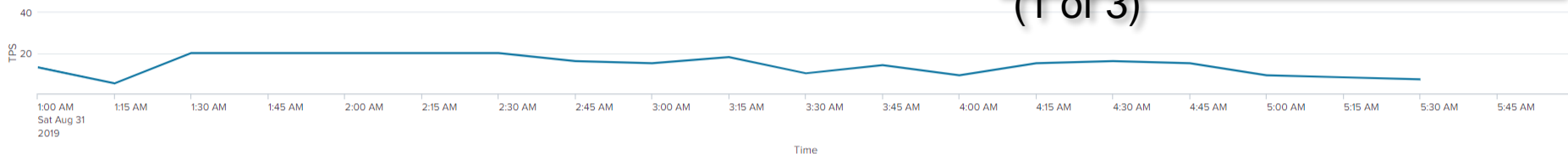
### Transaction overview

Based on CICS monitoring facility performance class data, summarized by CICS Performance Analyzer

Time range: 1:00 AM to 6:00 AM, Aug 31...  
Applid: All x  
CICS transaction: BPMT x  
Top # results: 10  
Extra search filter:

**Sample Splunk app showing performance summary data from CICS PA (1 of 3)**

CICS transactions per second (TPS)



20 events, spanning 4 hours 45 minutes 0 second, from 2019-08-31T01:00:00+00:00 to 2019-08-31T05:45:00+00:00. Local times (times with no zone designator) are in time zone +00:00. Set dashboard to selection

### CICS transaction metrics

**252,815**

Tasks

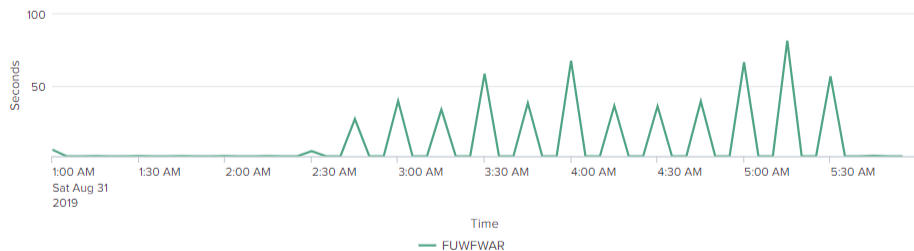
**0.011**

Average User CPU Time

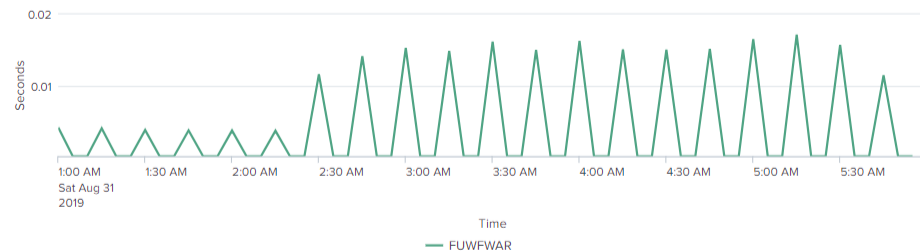
**24.106**

Average Response Time

### Average response time by applid



### Average user CPU time by applid



### Average response time by transaction

### Average user CPU time by transaction

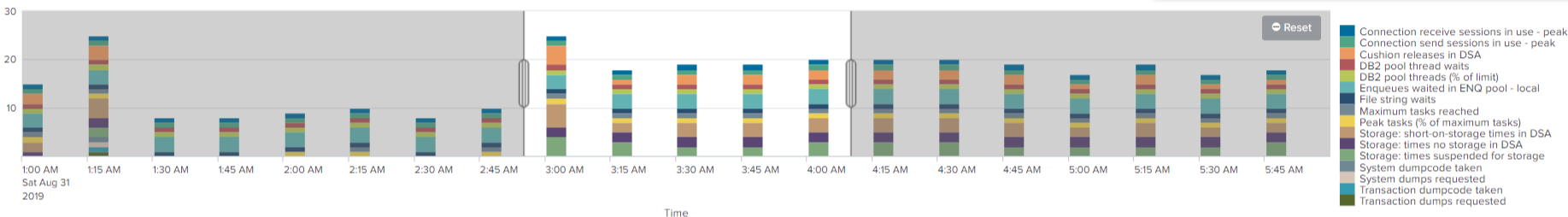
## System alerts

Based on statistics alert definitions in CICS Performance Analyzer

Time range: 1:00 AM to 6:00 AM, Aug 31...  
 Applid: All x  
 Alert: All x  
 Top # results: 10  
 Extra search filter:   
[Hide Filters](#)

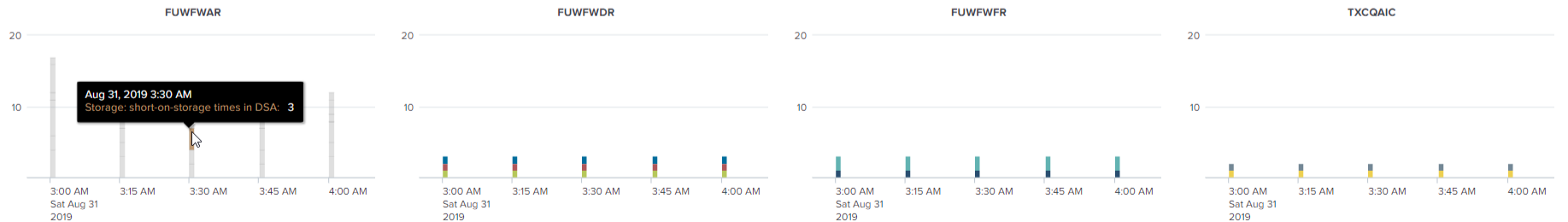
**Sample Splunk app showing statistics alerts from CICS PA**

### Alerts over time



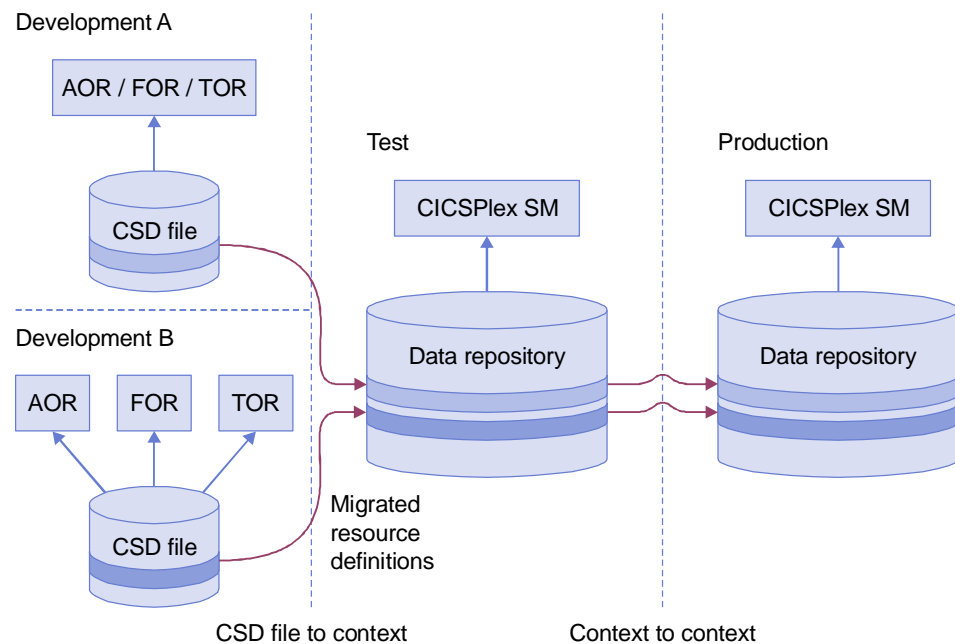
101 events, spanning 0 hour 59 minutes 54 seconds, from 2019-08-31T03:00:10+00:00 to 2019-08-31T04:00:04+00:00. Local times (times with no zone designator) are in time zone +00:00. [Set dashboard to selection](#)

### Alerts by applid



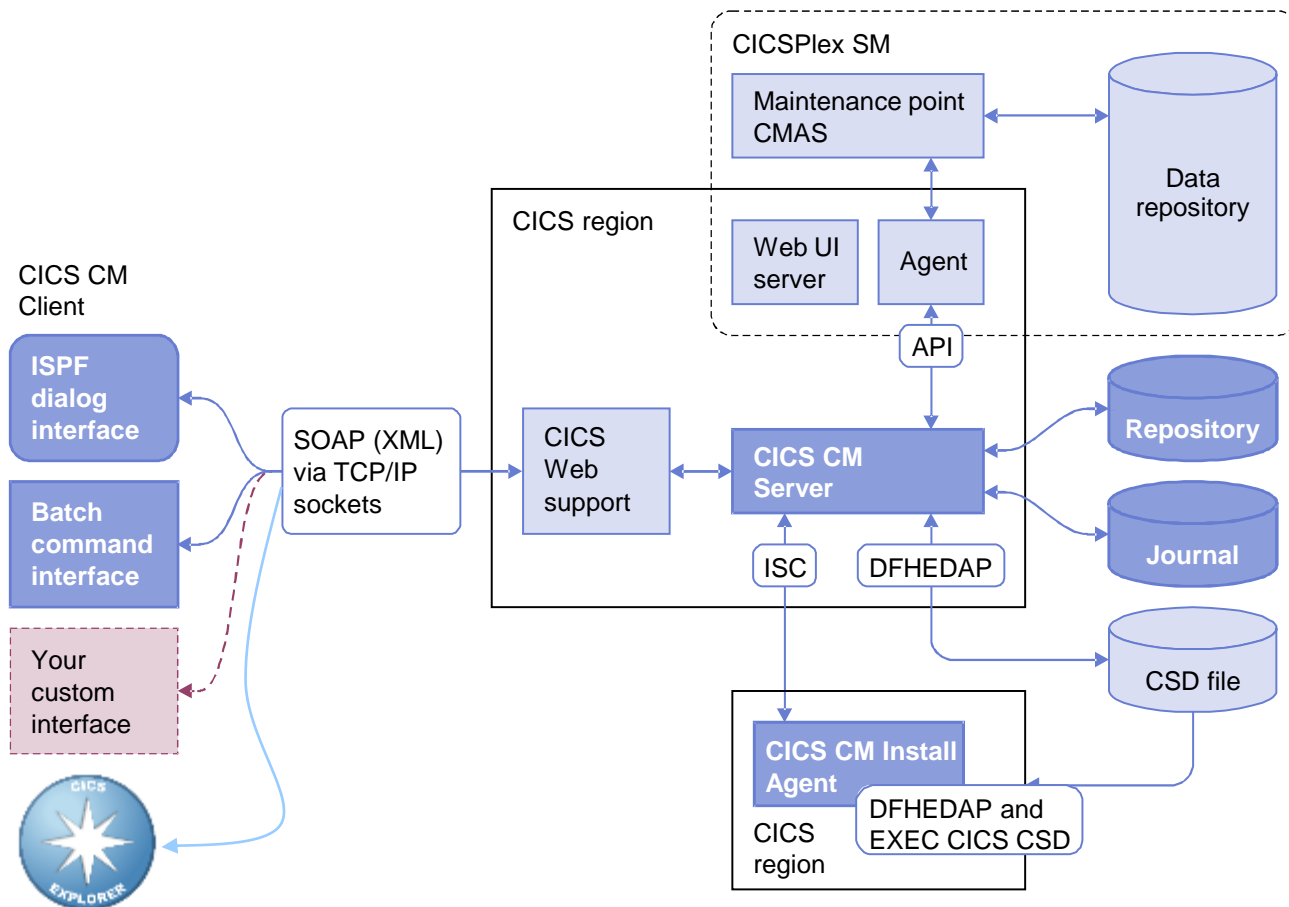
# CICS Configuration Manager

- Manage resource definitions on multiple repositories across diverse environments
- Make rapid and frequent updates to resource definitions to handle new business requirements
- Understand the impact of definition attributes on target environments
- Identify duplicate, redundant, or inconsistent resource definitions





# CICS CM architecture



# CICS administration problems and solutions

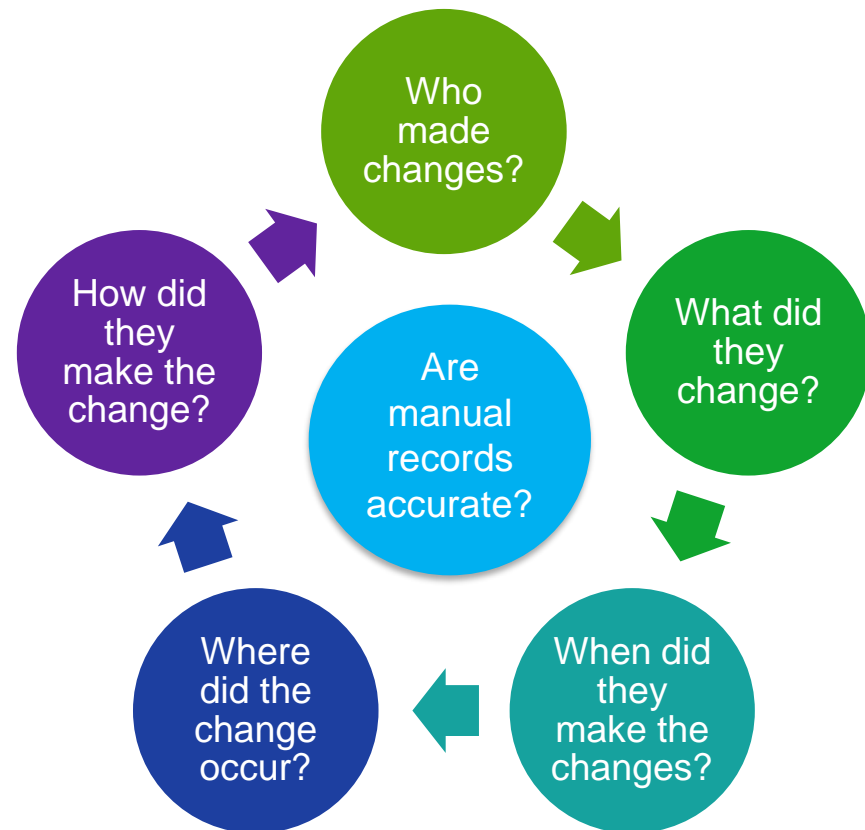
## Sample use cases

- Editing CSD files
- Working with CSD files and CPSM BAS repository
- Migrating changes between environments
- Delegating and approving changes
- Changes across LPAR boundaries
- Backout
- **Audit compliance**
- **Clean-up and analysis**
- **Comparisons and exception analysis**
- **Cold start analysis**
- Control of related zFS files
- Audit of DFHCSDUP changes

# Audit Compliance

## Problem

- Requirement to collect audit data
- Searching and reporting results is cumbersome and time consuming



# Audit Compliance

## Solution

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

History		Properties						
Resource History for CSDAOR6 from 2013/08/14 09:52:30 to latest entry								
Revision	Time	Resource Name/After	Resource Type/Before	Group	User Name	Configuration	Command	
▲	🕒	This Week						
▶	🕒	2013/11/13 15:28:44	STAT	TRANDEF	DFH\$STAT	DDS1964	CSDAOR6	INSTALL
▶	🕒	2013/11/13 15:22:05	STAT	TRANDEF	DFH\$STAT	DDS1964	CSDAOR6	INSTALL
▲	🕒	2013/11/12 14:14:35	TEST	TRANDEF	DEMOGRP	DNET461	CSDAOR6	UPDATE
		🔗	TWASIZE	0	100			
▲	🕒	2013/11/12 14:14:11	TEST	TRANDEF	DEMOGRP	DNET461	CSDAOR6	UPDATE
		🔗	TWASIZE	100	0			
▶	🕒	2013/11/12 14:10:18	TEST	TRANDEF	DEMOGRP	DNET461	CSDAOR6	CREATE
▲	🕒	Older Than This Week						
▶	🕒	2013/11/05 07:45:56	FILE1	FILEDEF	AAA	STANNA	CSDAOR6	DELETE
▶	🕒	2013/11/05 07:45:56	TEST	ATOMDEF	AAA	STANNA	CSDAOR6	DELETE
▶	🕒	2013/11/05 07:45:56	DFH\$W2F1	ATOMDEF	AAA	STANNA	CSDAOR6	DELETE
▶	🕒	2013/11/04 11:31:44	LGTESTC1	PROGDEF	GENASAP	DNET345	CSDAOR6	UPDATE
▶	🕒	2013/11/04 09:07:00	SSC1	TRANDEF	GENASAT	DNET345	CSDAOR6	UPDATE

# Audit Compliance

## Solution

```

Compare
Command ==>> _____ Transaction

Transaction . . : TEST                TEST
ResGroup . . . : DEMOGRP              DEMOGRP
Location . . . : CCVCICS.CICSREG.ABCCSD CCVCICS.CICSREG.ABCCSD
==> Change Date . . : 2017/11/01 08:11:31.10 2017/11/01 08:11:12.47
Description . . :

Program . . . . : GETWIT              GETWIT
==> TWASize . . . . : 0                100
Profile . . . . : DFHCICST            DFHCICST
PartitionSet . . :
Status . . . . . : ENABLED             ENABLED
TaskDataLoc . . : BELOW               BELOW
TaskDataKey . . : USER                USER
StorageClear . . : NO                  NO
Runaway . . . . : SYSTEM               SYSTEM
Shutdown . . . . : DISABLED            DISABLED
Isolate . . . . . : YES                 YES
BRexit . . . . . :
  
```

More: +

# Cleanup and analysis

## Problem

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

# Cleanup and analysis

## Solution

The screenshot displays the IBM CICS Explorer application window. The main interface is divided into several panes:

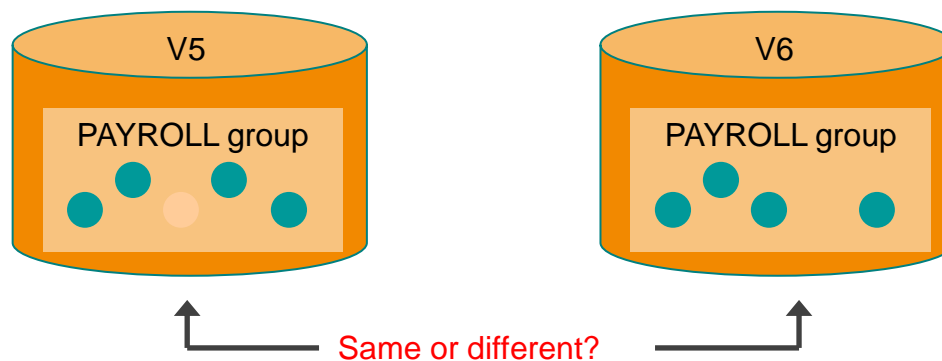
- Configurations:** A table showing resource configurations for CSDAOR6. A context menu is open over this pane, with the 'Clean up' option selected, which has opened a sub-menu with the following options:
  - Show resources with unique names
  - Show duplicate resources by name and type
  - Show orphaned Groups
- Search Results:** A list of orphaned groups for CSDAOR6, including SLY, @JXRMFCT, @2XRPFCT, ABC, ADDMOS, AOR1CONN, AOR1CTG, AOR1SOAP, AOR1TCP, AOR2CONN, AOR2SOAP, AOR2TCP, AOR4CTG, AOR4SOAP, AOR4TCP, and AOR5SOAP.
- Resource Group Definition:** A table showing resource definitions for CSDAOR6, including SLY, @JXRMFCT, @2XRPFCT, AAAAA, ABC, ACCSRV, ADDEMOS, ADDER, ADDMOS, ADLAB, ADLABCLA, ADNARRGP, and ADNPCRGP.
- z/OS Job:** A console window showing Job ID: JOB06380.

The bottom of the screen shows the Windows taskbar with various application icons and the system tray displaying the time as 9:18 AM on 7/1/2014.

# Comparisons and exception analysis

## Problem

- Is Group(PAYROLL) the same in V5 and V6?
- What definitions are missing?
- What definitions are different?
- How can I compare two resource definitions?





# Comparisons and exception analysis

## Solution

- 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

# Comparisons and exception analysis

## Solution

CICS CM - Compare group GRP1 from DEVT with GRP1 from TEST - IBM Explorer for z/OS - C:\Users\jamwil01\zosexplorer

File Edit Navigate Search Project Run Operations Definitions Window Help

Quick Access z/OS Team Synchronizing Resource CICS PA C\Flow CICS CM

Configurations Name:

Connection: CCVWJXC Resource: Configurations. 24 records collected.

Name	Repository
DEVT	CCVCICS.CCVWJ...
DEVTJW	CCVCICS.CCVWJ...
ETH	
JAMCC	CCVCICS.CCVWJ...
TEST	CCVCICS.CCVWJ...
TESTJW	CCVCICS.CCVWJ...

Group List Definitions Name:

CNX02111 Context: DEVT. Resource: CSDLIST. 5 (filtered) records collected at 25 Oct 2017 1:43:30 pm

Name	CICS System
CCM530	N/A
CCM540	N/A
CCVWJXC	N/A

Resource Group Definitions Name:

CNX02111 Context: DEVT. Resource: CSDGROUP. 151 (filtered) records collected at 25 Oct 2017 1:43:30 pm

Name	CICS System
ACCTPAY	N/A
CCV530	N/A
CCV540	N/A
CEE	N/A
DFH\$ACCT	N/A
DFH\$AFLA	N/A
DFH\$AXIS	N/A
DFH\$BABR	N/A
DFH\$BARF	N/A
DFH\$BAT	N/A
DFH\$MCP	N/A

Tran... Pro... File... TD...

CNX02111 Context: DEVT. Resource: TRANDEF. 451 records collected at 25 Oct 2017 1:44:25 pm

Name	Version	Create Ti...	Change Ti...
AP01	0	25/02/2016	25/02/2016
CCVA	0	19/08/2015	19/08/2015
CCVB	0	19/08/2015	19/08/2015
CCVC	0	19/08/2015	19/08/2015
CCVI	0	19/08/2015	19/08/2015
CCVR	0	19/08/2015	19/08/2015
CCVS	0	19/08/2015	19/08/2015
CCVT	0	19/08/2015	19/08/2015
CCVW	0	19/08/2015	19/08/2015
CEDA	0	19/08/2015	19/08/2015
CEDB	0	19/08/2015	19/08/2015
CEDC	0	19/08/2015	19/08/2015
CCVA	0	21/04/2016	21/04/2016
CCVB	0	21/04/2016	21/04/2016

Compare group GRP1 from DEVT with GRP1 from TEST

Compare group GRP1 from DEVT with GRP1 from TEST

No checksum

- PAY
  - Change Time
  - Create Time
  - Wsdfile
  - SCEN2
  - WE5
  - WS01

Name	CICS Name	Value (PAY)	Value (PAY)
Business Application Services			
Version	DEFVER	0	0
Basic			
Description	DESCRIPTION		
Pipeline	PIPELINE	PAYP	PAYP
WSBind File	WSBIND	/AZaz09/_#@	/AZaz09/_#@
Name	NAME	PAY	PAY
Validation	VALIDATION	NO	NO
Archivefile	ARCHIVEFILE		
CSD Group	CSDGROUP	GRP1	GRP1
Wsdfile	WSDLFILE	/wsdl.v5.3	/wsdl.v5.2
Definition Signature			
Change Release	CHANGEAGREL	0700	0700
Change User ID	CHANGEUSRID	JXC	JXC
Create Time	CREATETIME	16/06/2017 2:54:37 PM	19/06/2017 8...
Change Time	CHANGETIME	05/09/2017 1:33:59 PM	19/06/2017 9...
Change Agent	CHANGEAGENT	CSDAPI	CSDAPI

Find: Group Name(s) G\* in DEVT, TEST (6)

- DEVT (2)
  - GPCC
  - GRP1
- TEST (4)
  - GPCC
  - GRP1
  - GRP2
  - GRP3

CCVWJXC

# Comparisons and exception analysis

## Solution

File Menu Settings Checksum Help

Compare - All Resources

Group

Row 1 to 12 of 30

Command ==>

Scroll ==> PAGE

More: < >

Scroll right (NextPage) to view other reports

Group . . . . : DEMOGRP

DEMOGRP

| Compare

Transaction

| Command ==>

Transaction . . : DT00

DT00

Group . . . . : DEMOGRP

DEMOGRP

==> Location . . . : CICSTS.CICSA0R6.DFHCSD

CICSTS.CICSA0R7.DFHCSD

==> Change Date . . : 2011/09/13 09:09:34.82

2005/06/09 16:10:49.00

Description . . :

More: - +

TRprof . . . . : DFHCICSS

DFHCICSS

LocalQ . . . . : N\_A

N\_A

Scheduling

==> Priority . . . : 2

1

TranClass . . . : DFHTCL00

DFHTCL00

Aliases

Alias . . . . :

OISA0000 PROGRAM

DEMOGRP 8AE78356

8AE78356

DEMOGRP

OISA0010 PROGRAM

DEMOGRP 65B535B7

65B535B7

DEMOGRP

OISA0020 PROGRAM

DEMOGRP 8F33E8D5

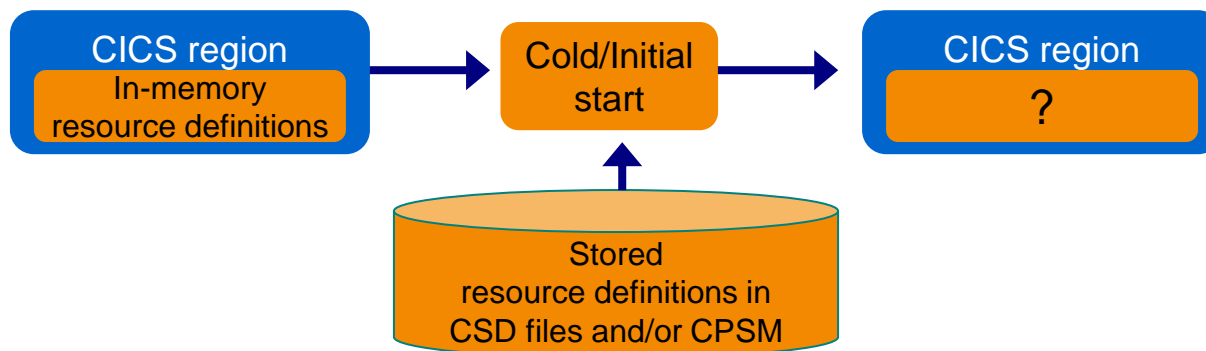
8F33E8D5

DEMOGRP

# Cold/Initial start analysis

## Problem

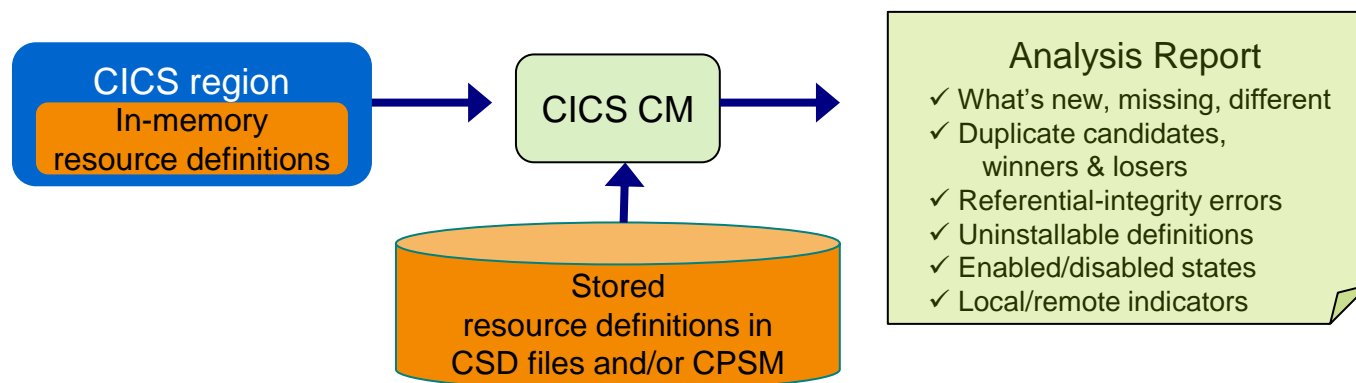
- What will change when I initial start my CICS region after the upgrade?



# Cold/Initial start analysis

## Solution

- 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 ...



# Cold/Initial start analysis

## Solution

CICS Deployment Analysis Report  
Cold Start Compare Report  
Missing Definitions

**Missing**

Report Item	ID Name	Type	Group	List or RESDESC	Code	Condition	Loc Rem	Ena	VV	Deploy Checksum	Collection Type
7	01	CCVR0001	FILE	CCVSRCS	N/A	0200	Missing	LOC	UNE	A028B276	RUNTIME-CCM
8	01	CCVR0002	FILE	CCVSRCS	N/A	0200	Missing	LOC	UNE	CDC28071	RUNTIME-CCM

CICS Deployment Analysis Report  
Cold Start Compare Report  
Mismatched Definitions

**Different**

Report Item	ID Name	Type	Group	List or RESDESC	Code	Condition	Loc Rem	Ena	VV	Deploy Checksum	Collection Type
98	01	T31M	CONNECTION		0300	Checksum Mismatch	LOC	ENA		5136F694	REGION-CCM
			Attribute: ACCESSMETHOD	Value: IRC							
99	02	T31M	CONNECTION	CCVLINKS	CCVT22M	0300	Checksum Mismatch	LOC	ENA	E709BDAA	CANDIDATES-CSD
			Attribute: ACCESSMETHOD	Value: XM							

CICS Deployment Analysis Report  
Cold Start Compare Report  
Referential Integrity Verification

**RI errors**

Report Item	ID Name	Type	Group	List or RESDESC	Code	Condition	Loc Rem	Ena	VV	Deploy Checksum	Collection Type
148	02	CCVBACK	FILE	CCV540	CCM540	0951	CCV5451W	LOC	ENA	4FE7F1CF	CANDIDATES-CSD
			Attribute: LSRPOOLID	Value: 1							

# CICS tooling helps with CICS TS upgrades

## CICS Intendency Analyzer

- Understand the use of TRUEs and GLUEs
- Understand programs using modified or deleted SPIs and APIs
- Identify what has been tested

## CICS Performance Analyzer

- Transaction Profiling - Compare performance between releases
- Statistical reporting and alerts – Identify tuning opportunities
- Use with dashboards to see data over time

## CICS Configuration Manager

- Full audit trail of changes
- Clean up obsolete and duplicate resources
- Consolidate CSDs
- Ensure proper region startup using Cold Start analysis

# Questions?

धन्यवाद

Hindi

多謝

Traditional Chinese

ขอบพระคุณ

Thai

Спасибо

Russian

Gracias

Spanish

**Merci**

French

*Thank You*

English

شكراً

Arabic

Obrigado

Brazilian Portuguese

多谢

Simplified Chinese

Danke

German

Grazie

Italian

DIOLCH

நன்றி

Tamil

ありがとうございました

Japanese

Teşekkürler

turkish

감사합니다

Korean