

Introducing IBM z/OS Change Tracker for z/OS 2.5

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Generally Available May 13, 2022

IBM z/OS Change Tracker

As IBM continues to provide a suite of robust tools to help system programmers manage z/OS, IBM has added a new priced feature to z/OS V2.5, IBM z/OS Change Tracker. This feature is a comprehensive configuration change management tool for tracking, controlling, and managing software changes intended for the z/OS systems programmer.

The GA of IBM z/OS Change Tracker after the GA of z/OS V2.5 might mean that your z/OS V2.5 ServerPac does not include it. If you want to use IBM z/OS Change Tracker and you have not received it with your z/OS V2.5 ServerPac, the easiest method is to order a z/OS V2.5 CBPDO, indicating on Shopz that you wish to be entitled to IBM z/OS Change Tracker. The installation of the IBM z/OS Change Tracker FMIDs are straightforward.

(You can easily check your z/OS V2.5 ServerPac to see if it has been installed by seeing if SMP/E FMID HCYG100 is installed.)

Links: [GA Announcement](#) , [IBM z/OS Change Tracker Content Solution](#) (including newly added FAQs!)

Agenda

- Overview of IBM z/OS Change Tracker
- Monitoring and protecting
- Recovery
- Audit
- Snapshots
- Setting up IBM z/OS Change Tracker

Includes planned future deliverables

Statements regarding IBM future direction and intent are subject to change or withdrawal, and represent goals and objectives only

IBM z/OS Change Tracker

The Problem

What challenges is the customer facing?

- Customers have no auditable tracking mechanism to know when changes are made to critical z/OS system, ISV software or application libraries, putting them at risk for application failures, or in worst case, a system outage.
- System changes can be performed by authorized users, intentionally or not, at any time and may or may not be logged.

Personas

Who are the primary stakeholders?

- z/OS System Programmer – “I need to have a consistent way to monitor who’s making changes to libraries, and when, in case we have a problem, I also need to provide a means for backout for all the products I’m managing”
- Risk and Compliance – “I need to provide the auditors with proof that we’re only allowing authorized users to change critical libraries in our environments, and that any changes are tracked”

Customer Value

How does the solution solve the problem?

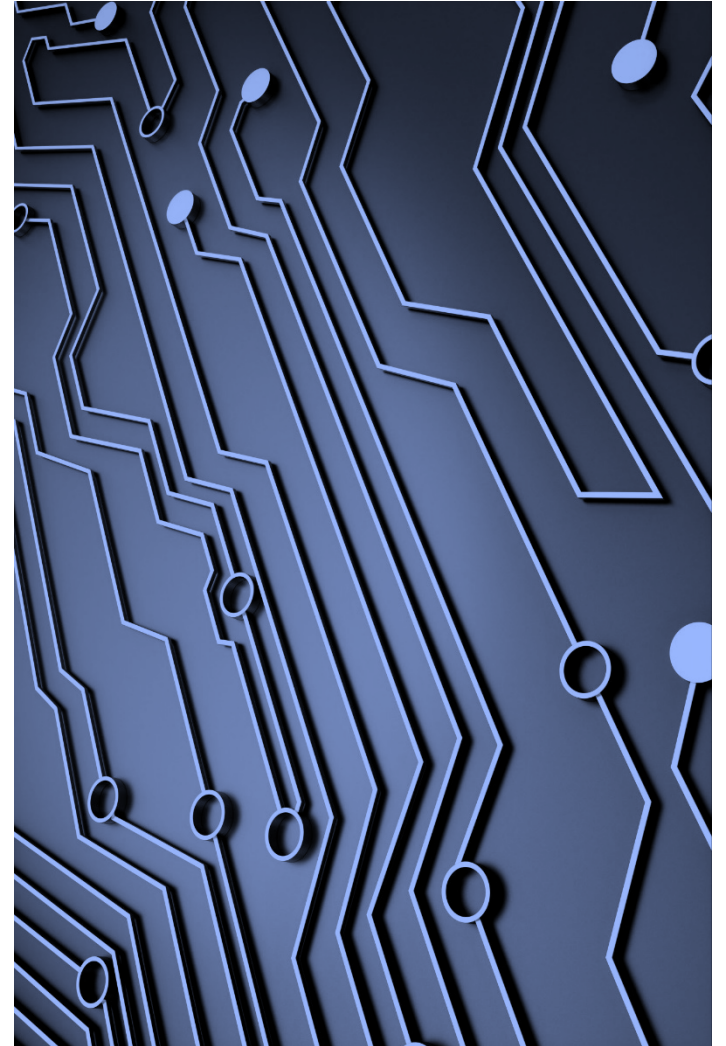
- Real-time, system-wide change tracking and control for systems libraries
- Member-level recovery of real-time changes
- Fingerprinted members provide integrity verification for changes

Compliance and Auditability

- Addresses regulations and industry standards such as Sarbanes-Oxley, COBIT, ISO and ITIL
- Provides regulatory compliance by automatically creating member backups when protected libraries are updated
- Changes at the member level are recorded for auditing purposes

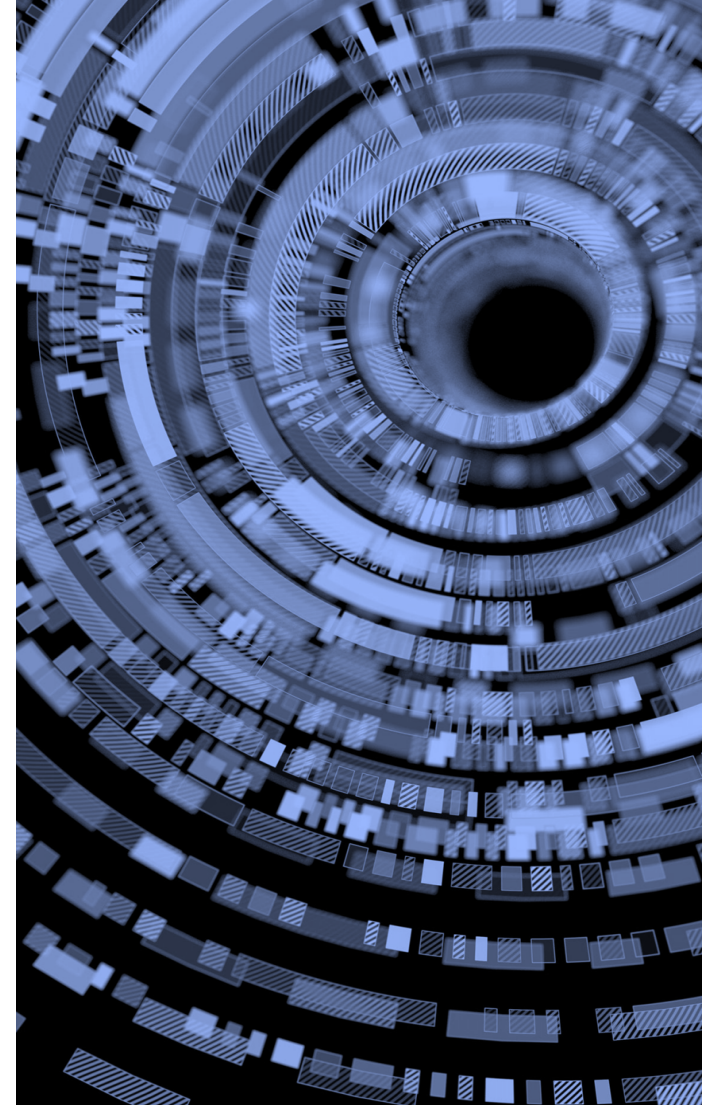
Why IBM z/OS Change Tracker?

- To create a more secured z/OS and resilient IT environment
- To bring an automated process and transparency to system software change control and management (z/OS, IMS, Db2, CICS and vendors' software) in SYSPLEX environments
- To reduce the costs and complexities of meeting auditing and compliance requirements by providing a process and a control structure
- To improve quality and reliability by quickly ascertaining what has changed in software environments, and to reduce system or application outages
- To create an environment that promotes software integrity, added security, and reliability



Top uses of IBM z/OS Change Tracker

- Change tracking and control for systems libraries
- Member-level recovery of real-time changes
- On-line documentation of changed members at the time of edit/save
- Exclusive member-level ownership, and source library management
- Detect system-wide changes for z/OS and USS environments
- Local or remote compare of software environments (z/OS and USS)
- Regularly validate DR software with the production software
- Rollback capabilities to undo the effect of unplanned/undesired changes
- Provide auditable evidence for compliance



IBM z/OS Change Tracker

z/OS Change Tracker is a change management tool for tracking, controlling, and managing changes in software, intending to enhance the security, resiliency, and compliance of z/OS operating environments.

Key Features

Automatic, real-time monitoring of change activities

- Limits library changes to select user groups
- Establishes base versions for protected library members and automatically generates member versions as users introduce changes

Detection and recording of key elements of changes:

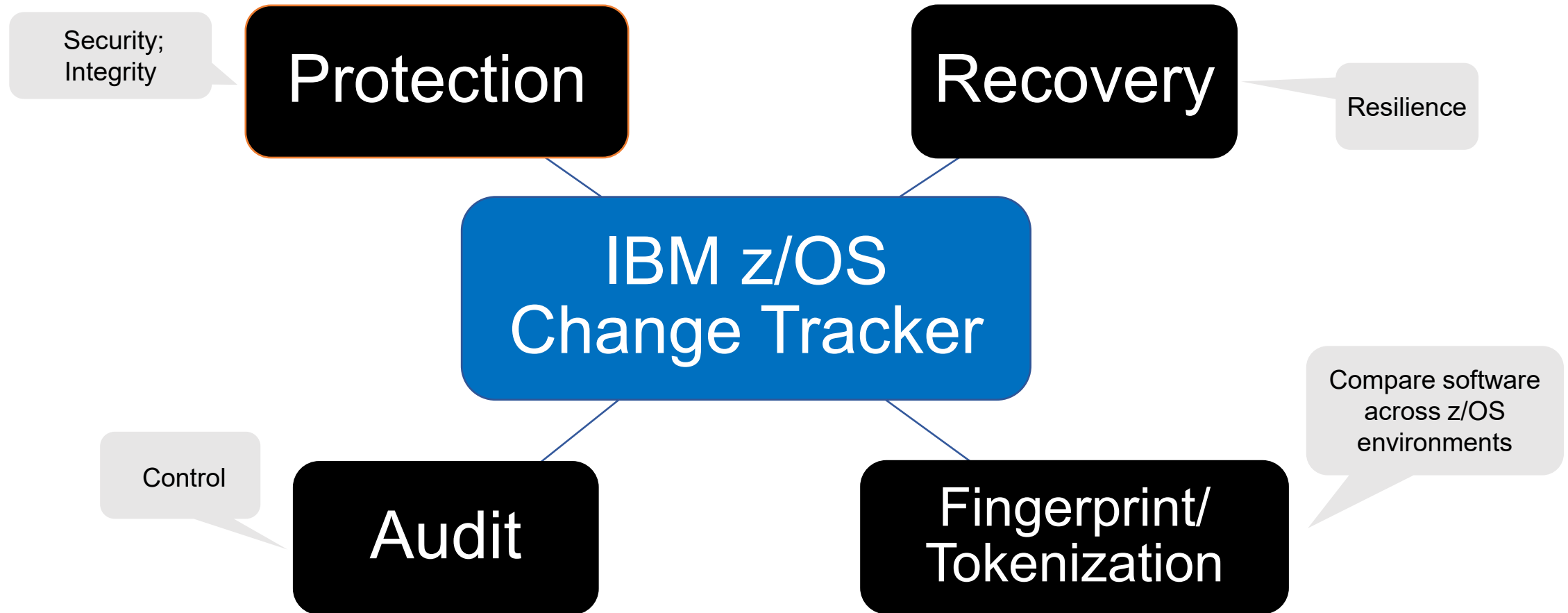
- Who made the change?
- What was changed? (Compares multiple environments for configuration and/or content changes)
- How was the change made? (With what utility?)
- When was the change made?
- Why was the change made? (Enforces change documentation)

Automated member-level backup for protected resources

Member-level recoverability with a view of previous member versions and their changes

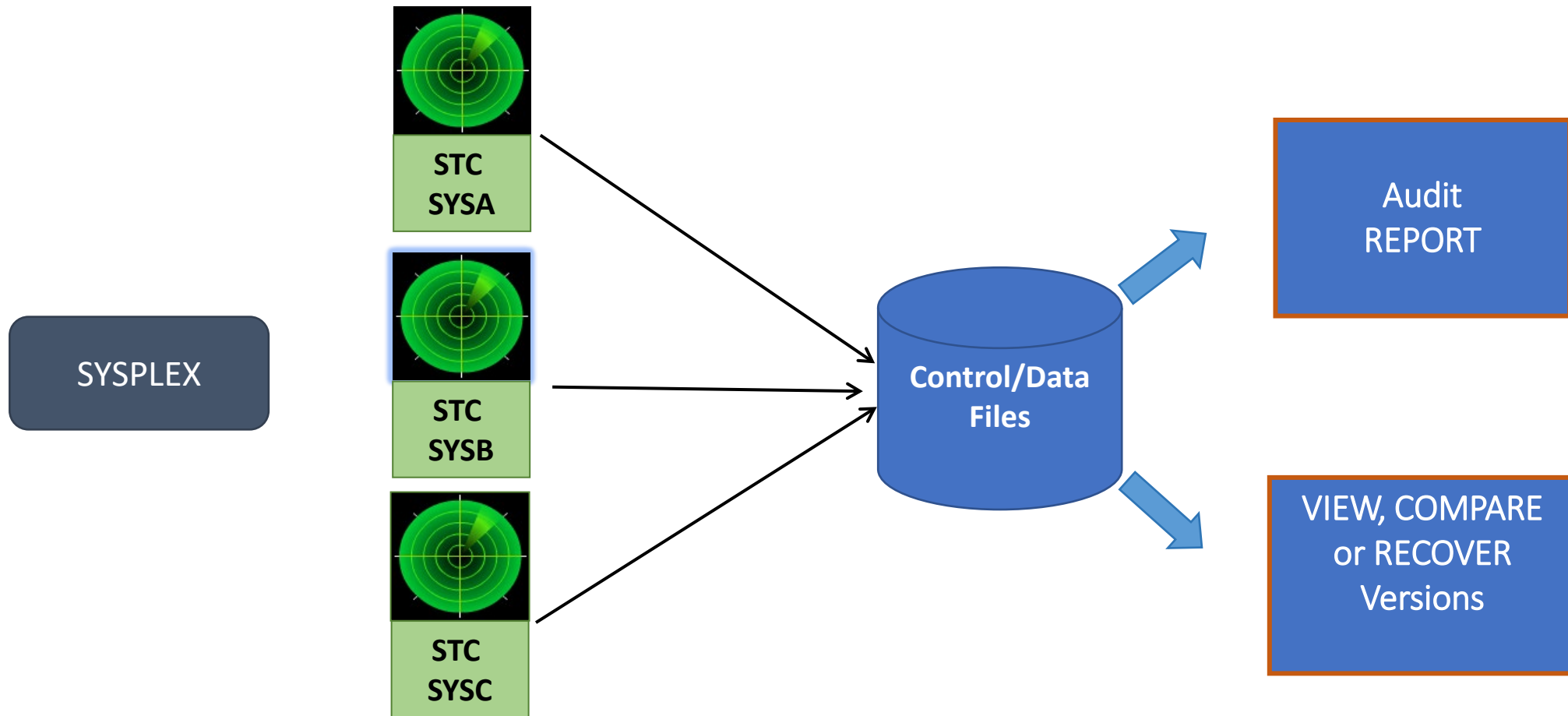
IBM z/OS Change Tracker core functions

Comprehensive software configuration management (SCM) tool for tracking, controlling, and managing changes in software



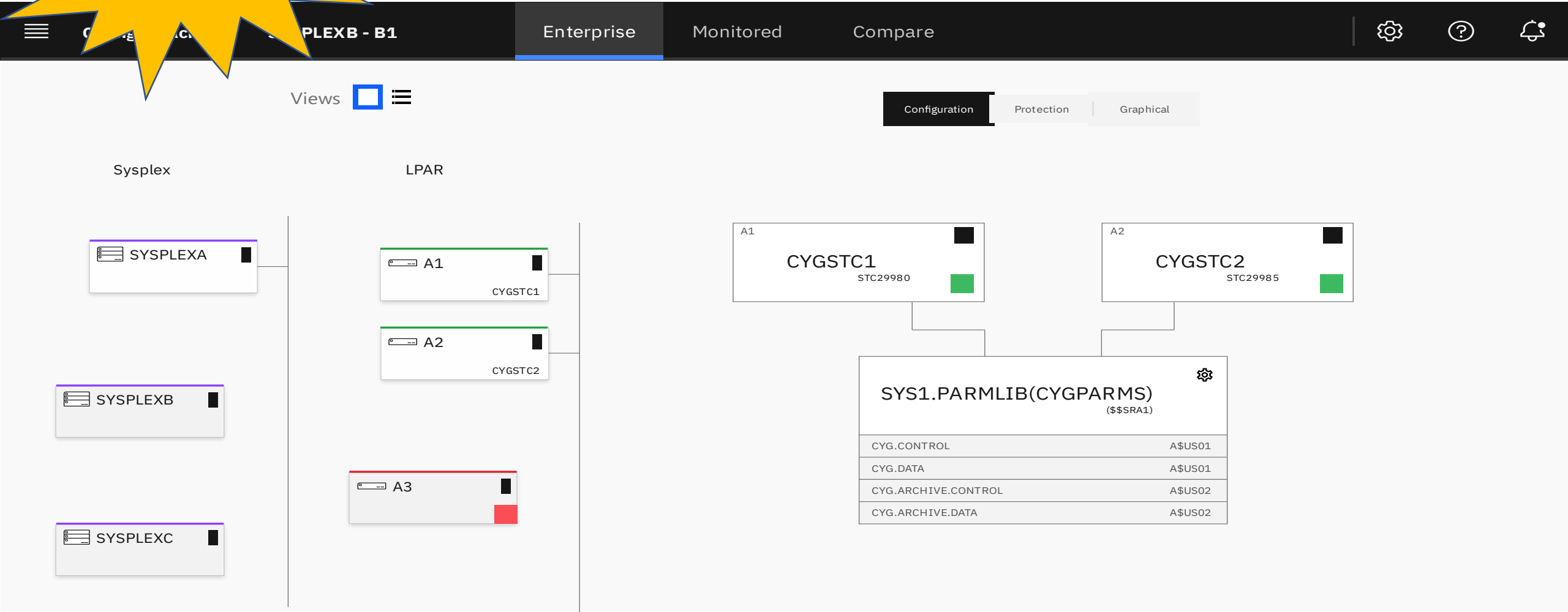
Fundamental capabilities:

The IBM z/OS Change Tracker Started Task (STC)



**z/OSMF
Planned Vision**

Multiple Sysplex configuration



Multiple Sysplex configuration

z/OSMF
Planned Vision

The screenshot displays the z/OSMF interface for Sysplex configuration. The top navigation bar includes 'Enterprise', 'Monitored', and 'Compare' tabs. The main content area is divided into three sections: Sysplex, LPAR, and Graphical.

Sysplex: Shows three Sysplex instances: SYSPLEXA, SYSPLEXB, and SYSPLEXC.

LPAR: Shows three LPARs: A1 (CYGSTC1), A2 (CYGSTC2), and A3.

Graphical: Contains three charts and a settings panel.

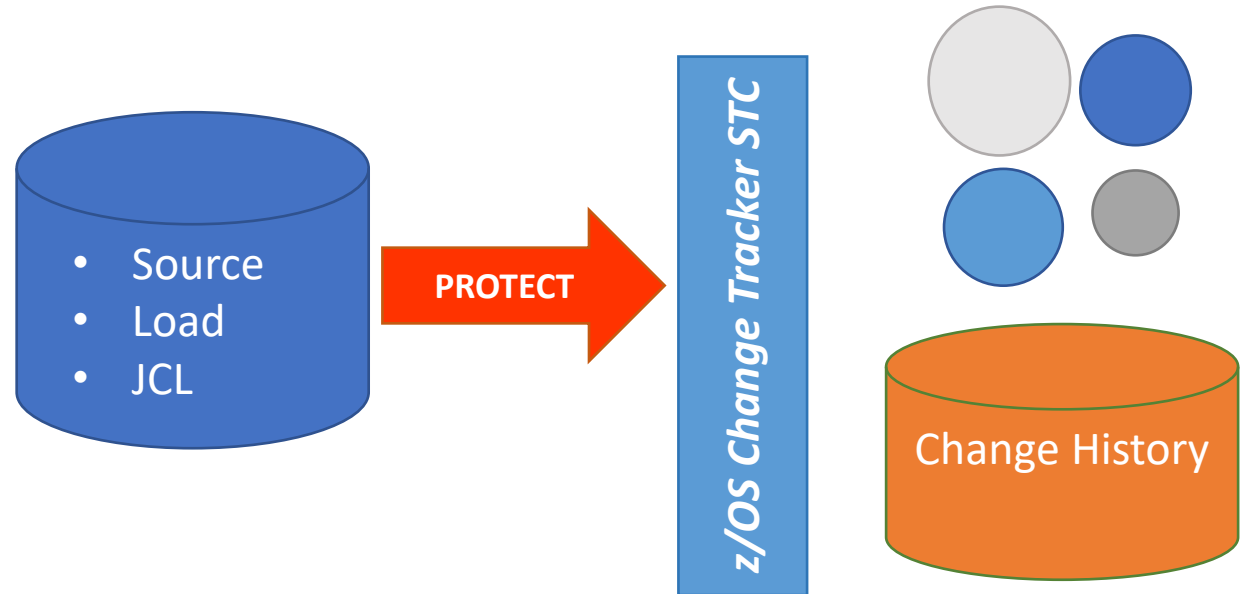
- Events by File:** A bar chart showing event counts for five file types. The y-axis ranges from 0 to 30.
- Events by User:** A pie chart showing the distribution of events by user: DYLANF (blue), BENH (orange), CJENKINS (grey), and ROBH (yellow).
- Events by Sysplex:** A pie chart showing event distribution across Sysplex A, B, and C, with a detailed view of Sysplex B showing sub-categories B1, B2, B3, and B4.
- Visualisation Options:** A settings panel with the following options:
 - Display events for last: 12h
 - System: A2
 - Label options:
 - Names:
 - Values:
 - Legends:

Protect critical system libraries

- PROTECT your critical system libraries to achieve auditability, version control, and exclusive component ownership.

- LOCK=YES or NO
- INITIAL=YES or NO

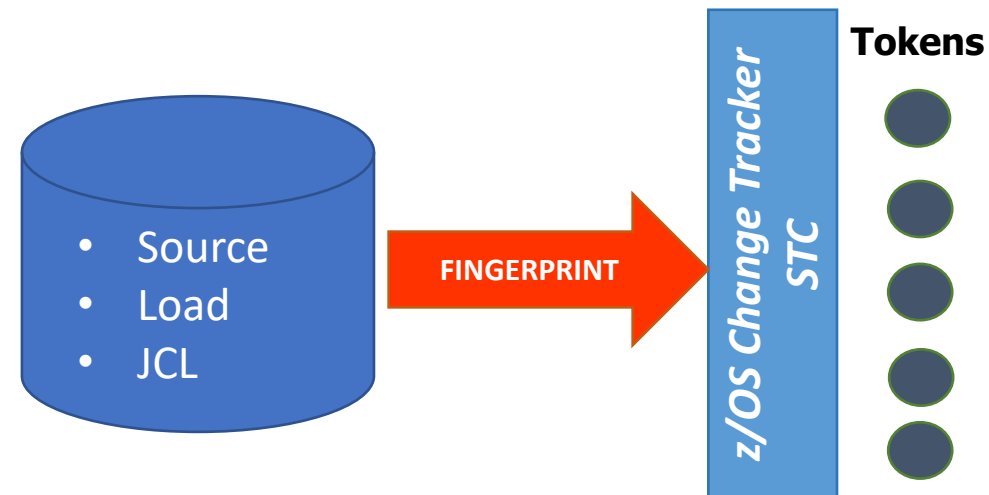
```
//JOB1  
PROTECT=(DSN=SYS1.PARMLIB,  
          LOCK=YES,  
          INITIAL=Y,  
          COPIES=30)  
  
/**
```



Fingerprint your software environment

- The powerful z/OS Change Tracker fingerprint technology establishes “content” reference tokens for files
- A token represents the content of a file: PS or DA files, members of a PDS or PDS/E, files in USS, or zFS paths
- Tokens are stored in the z/OS Change Tracker Control File, or optionally to an external file
- Prior to change, snapshot your software environments of any size and configuration to establish the reference tokens
- Use the z/OS Change Tracker MODS identification function to automatically identify and report on the changed components

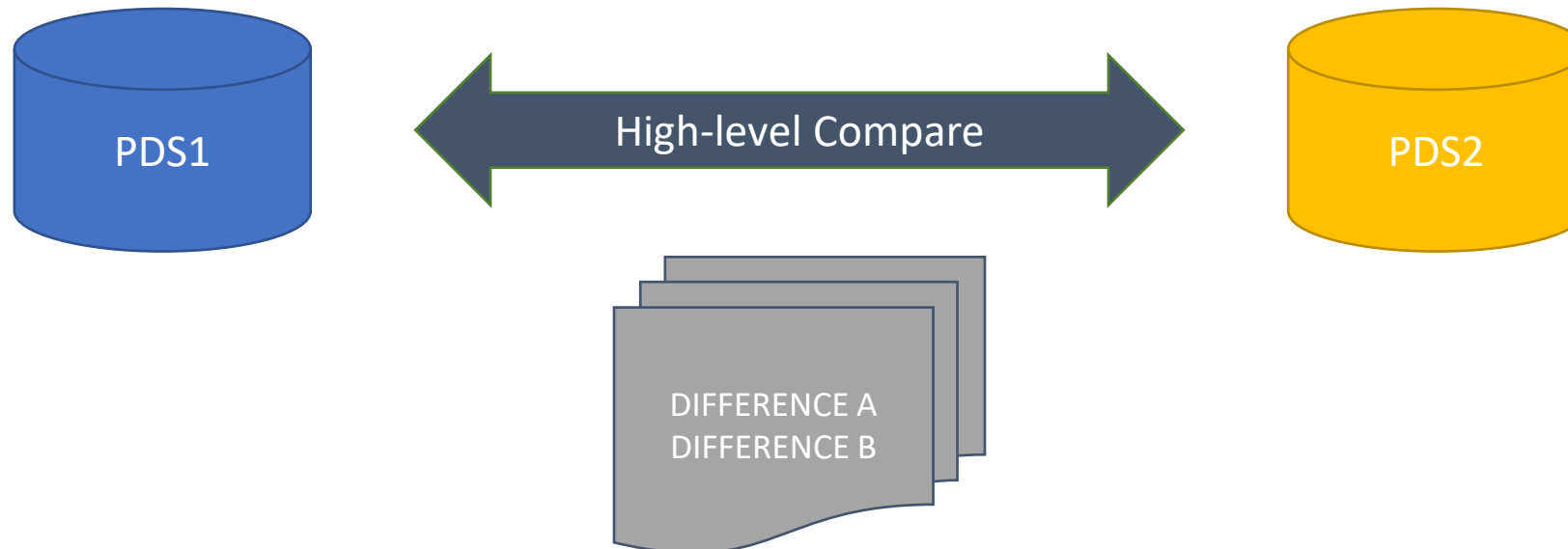
```
//JOB  
  PATTERN=DEV.LIBRARY.*  
  ...  
  SHOW=LIST  
  TOKEN=(LIST)  
/*
```



z/OS Change Tracker high-level compare

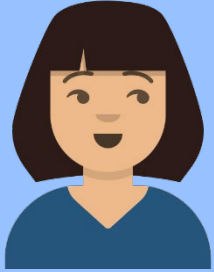
(local/remote)

- High-level compare of two libraries, two groups of libraries, two DASD volumes, or two groups of DASD volumes (local or remote)
 - Missing data sets
 - Member-level report: SAME, DIFF, MATCH, MISMATCH and MODS



Monitoring and protecting

Monitoring and protecting



Alice

Mid-level System Programmer

Alice is responsible for running the mainframe IT environment, including installing, configuring, and maintaining z/OS systems in test and production.



- I need to know my A1 and A2 systems in Sysplex A are monitoring and protecting the same critical resources.
- I want to see what has changed in two collections of data sets, between Sysplex A and Sysplex B. (Something might have deployed incorrectly or become corrupted.)



Monitoring and protecting

24/7 Real-time monitoring

- Automatic backups whenever a monitored PDS member is changed
- Optional e-mail notification

Protect critical libraries

- Locked members cannot be changed without permission granted by administrator

Member-level management

- Administrator can grant/revoke update access of members to specific users
- PDS and PDSE member-level management

Delight Point



As an IBM Change Tracker for z/OS administrator:

- I can see, at a glance, that A1 and A2 are in sync for monitoring and taking automatic backups of my critical configuration data sets.
- It was easy to see the differences in data set collections between two different sysplexes in a snap.

IBM z/OS Change Tracker

No data sets protected

```
IBM z/OS Change Tracker                                00001
Version 2.5.003

Wed 2022/08/10 12:17:46  CPU:6A28-8562  z/OS V2R5 COE2

CYG101I CYGPARM DSN          : SYS1.PARMLIB.SYSPLEXE(CYGPARMS)
Current User      : CYGSTC is an Administrator
LINKLIB (APF)    : ZOSCHTRK.V250.SCYGLNK
Print Utility     : VPSPRINT
USS Token File HLQ : CYGUSS
USS target dir    : /apc/tzoschtrk250/usr/lpp/cyg
Options Settings  : MASSCOPY
Panel National Lang : ENU
Email file data set : CYGV250.CONFIG.EMAILCNF
Protection List   : To be built

CYG102I Control File       : CYGV250.REPO.CONTROL
Data File        : CYGV250.REPO.DATA
Archive Control File : CYGV250.REPO.ARCHIVE.CONTROL
Archive Data File  : CYGV250.REPO.ARCHIVE.DATA
Files Access Level : FULL ACCESS

CYG116I Opened successfully : CYGV250.REPO.CONTROL

CYG866I Numbers reset in REC 0:
OBJECTs: 9  CHECKOUTs: 0

CYG116I Opened successfully : CYGV250.REPO.ARCHIVE.CONTROL
CYG802I Opened successfully : CYGV250.REPO.DATA
CYG410I z/OS Change Tracker is being initialized

00000000 RC-from-ADD: IGGPRE00_EXIT      CYGMLPG      80C7E130  LOADPT
00000000 RC-from-ADD: IGG_STOW_START    CYGMLPST     84D48478  LOADPT
00000000 RC-from-ADD: IFG_OPEN_START    CYGMLPOP     86ABD618  LOADPT
00000000 RC-from-ADD: IFG_CLOSE_START   CYGMLPCL     847488A8  LOADPT

CYG414I z/OS Change Tracker has been initialized

Protection List is Refreshed: 2022/08/10 12:17:55
Legend: A(Alert) N(Notify/CSAVE) L(Lock) I(Initial) V(Never) Q(Quick)
Dsname..... Vol Stat  ATTRIBUTES  Member  Checker RACF
```

IBM z/OS Change Tracker

Protection added to key data sets

```
Protection List is Refreshed: 2022/08/10 12:17:55
Legend: A(Alert) N(Notify/CSAVE) L(Lock) I(Initial) V(Never) Q(Quick)
Dsname..... Vol Stat  ATTRIBUTES  Member  Checker  RACF
CTAYLOR.DEV.DEMO.CNTL      E$US01 C    - - - - I -
CTAYLOR.DEV.DEMO.INSTALL  E$US02 C    - - L - I -
CTAYLOR.DEV.DEMO.JCL      E$US01 C    - - L - I -
CTAYLOR.DEV.DEMO.LINKLIB  E$US02 C    - - - - I -
CTAYLOR.DEV.DEMO.MAC      E$US01 C    - - - - I -
CTAYLOR.DEV.DEMO.PANELS   E$US01 C    - - - - I -
CTAYLOR.DEV.DEMO.PARMLIB  E$US01 C    - N L - I -
CTAYLOR.DEV.DEMO.PDSE     E$US02 C E  - - - - I -
CTAYLOR.JCL.CNTL          E$US01 C E  A - - - I -
```

IBM z/OS Change Tracker

Protecting a resource using ISPF

```
COE2                               IBM z/OS Change Tracker - (Ver 2.5.003)
Option ==> 1_

0  Options           Set processing options and review the PARMs
1  Administration   Manage the protected resources
2  Audit            Audit change activities in protected resources
3  Recover          Browse, edit and recover backups
4  Disaster Recovery Tokenize and compare PROD and DR environments
5  Utilities        Perform utility functions

                               Split Session ID: 1
```

IBM z/OS Change Tracker

Protecting a resource using ISPF

```
COE2 Administration
Option ==> 3_
1  Check Out          Grant ownership of a set of members
2  Check In          Check in members previously checked out
3  Protect a Resource Protect a PDS or PDSE
4  Modify Protection Change the LOCK status of a resource
5  Remove Protection Remove protection from a resource
6  Backup            Backup members of a protected resource
7  Delete or Archive Backups Delete or archive member backups
8  Checked Out Resources Display checked out members
9  Show Archive Reports Show archived backups or actions
10 Show Logs         Show logged Administrator activities
11 Recover Archived Backups Recover an archived member backup
12 Prepare Tokens    Reference Tokens to identify MODS
13 Identify MODS     MODS since Reference Tokens generated
```

IBM z/OS Change Tracker

Protecting a resource using ISPF

```
COE2                                                    Protect (1 of 3)
Command ==> _____

Cataloged or uncataloged data set
1  1. Cataloged
    2. Uncataloged
```


IBM z/OS Change Tracker

Protecting a resource using ISPF

```
COE2                                     Protect (3 of 3)
Command ==> _____

Protection Options:
  Enter "/" to select option
  _ CSAVE Notify at Edit                Locking
                                         1 1. None
                                         2 2. Lock

  Email Alert NONE

Processing Options:
  Comment . . Add Additional Demo Data Set
  Job Name   PROTECT

Backup Options:
  Backups
  2 1. Suppress initial versions
    2. Generate initial versions
    3. None
  Keep backups
  1 1. Max copies 30
    2. Max days 0
    3. Always

X Data Set Name                               Prompt
_ CTAYLOR.DEV.DEMO.SOURCE
```

IBM z/OS Change Tracker

Protecting a resource using ISPF

```
//*  
//* PROTECT A RESOURCE  
//* -----  
//STEP1      EXEC PGM=CYGMAIN,REGION=0M                SKEL CYGPRO  
//* The default CYGPARMs member will be used. Tailor and uncomment  
//* the following statement if a different one is required.  
//*CYGPARM    DD DISP=SHR,DSN=@_parm_dsn(CYGPARMs)  
//STEPLIB    DD DISP=SHR,DSN=ZOSCHTRK.V250.SCYGLNK  
//SYSPRINT   DD SYSOUT=*  
//SYSUDUMP   DD SYSOUT=*  
//CYGIN      DD *  
LOGCOMMENT='Add Additional Demo Data Set'  
PROTECT=(NOTIFY=N,  
          EMAIL=NONE,  
          LOCK=N,  
          INITIAL=Y,  
          DSN=CTAYLOR.DEV.DEMO.SOURCE,  
          COPIES=30,  
          DAYS=0)  
*
```

IBM z/OS Change Tracker

Protecting a resource using ISPF

```
Protection List is Refreshed: 2022/08/11 02:01:38
Legend: A(Alert) N(Notify/CSAVE) L(Lock) I(Initial) V(Never) Q(Quick)

Dsname..... Vol Stat  ATTRIBUTES  Member  Checker  RACF
CTAYLOR.DEV.DEMO.CNTL      E$US01 C    - - - - I -
CTAYLOR.DEV.DEMO.INSTALL  E$US02 C    - - L - I -
CTAYLOR.DEV.DEMO.JCL      E$US01 C    - - L - I -
CTAYLOR.DEV.DEMO.LINKLIB  E$US02 C    - - - - I -
CTAYLOR.DEV.DEMO.MAC      E$US01 C    - - - - I -
CTAYLOR.DEV.DEMO.PANELS  E$US01 C    - - - - I -
CTAYLOR.DEV.DEMO.PARMLIB  E$US01 C    - N L - I -
CTAYLOR.DEV.DEMO.PDSE     E$US02 C    E - - - I -
CTAYLOR.DEV.DEMO.SOURCE  E$US02 C    - - - - I -
CTAYLOR.JCL.CNTL         E$US01 C    E A - - I -
-----
```

Monitored Resources

- SCB1
- SCB2
- SCB3
- SCB4

Quickly see where IBM z/OS Change Tracker STC is running in this sysplex.



Refreshed Mon Aug 15 2022 08:48

Search, Settings, Refresh icons and an 'Add +' button.

<input type="checkbox"/>	Data Set	Volume	Attributes	Checkout Count	Actions
<input type="checkbox"/>	CYG.PLUGIN	B\$US02	🔒 📄 1 🚀 ✉️	-	⋮
<input type="checkbox"/>	DYLANF.CLIST	B\$US01	🔒 📄 1 🚀 ✉️	-	⋮
<input type="checkbox"/>	DYLANF.JCL	B\$US01	🔒 📄 1 🚀 ✉️	2	⋮
<input type="checkbox"/>	DYLANF.REXX	B\$US01	🔒 📄 1 🚀 ✉️	-	⋮
<input type="checkbox"/>	EARLEC.JCL	B\$US01	🔒 📄 1 🚀 ✉️	-	⋮
<input type="checkbox"/>	EARLEC.JCL2	B\$US02	🔒 📄 1 🚀 ✉️	-	⋮
<input type="checkbox"/>	EARLEC.TESTDATA	B\$US02	🔒 📄 1 🚀 ✉️	-	⋮
<input type="checkbox"/>	ROBH.CNTL2	B\$US01	🔒 📄 1 🚀 ✉️	-	⋮

Items per page: 10 ▾ 1-8 of 8 items

1 ▾ of 1 page

Quick view icons for:

- Locked
- Notification
- Initialize a backup version
- Quick mode: do not save PDS member content
- Alert

Statements regarding IBM future direction and intent are subject to change or withdrawal, and represent goals and objectives only



Monitored Resources

Monitored List ×

Add a Dataset

Data Set:

Volume:

Email Alerts (optional):

Attributes

Lock Notify Quick Mode

Backup Settings

Enable Initial Archival Policy: Keep for:

Buttons: Cancel Add

Count	Actions
	⋮
	⋮
	⋮
	⋮
	⋮
	⋮
	⋮
	⋮
	⋮
	⋮
	⋮
	⋮
	⋮
	⋮
	⋮
	⋮

monitored /

Browse Resources



1 dataset: CTAYLOR.DEV.DEMO.INSTALL ⓘ

1 item selected

Check out → | Cancel

<input type="checkbox"/>	Member	Data Set	VV:MM	User	Checked out	Date Created	Last Changed	Actions
<input type="checkbox"/>	CYGARC	CTAYLOR.DEV.DEMO.INSTALL	48:13			2022/10/20	2022/10/20	⋮
<input checked="" type="checkbox"/>	CYGCHECK	CTAYLOR.DEV.DEMO.INSTALL	1:11			2022/10/20	2022/10/20	⋮
<input type="checkbox"/>	CYGCOPY	CTAYLOR.DEV.DEMO.INSTALL	1:22			2022/10/20	2022/10/20	⋮
<input type="checkbox"/>	CYGCOPY2	CTAYLOR.DEV.DEMO.INSTALL	1:22			2022/10/20	2022/10/20	⋮
<input type="checkbox"/>	CYGCSAVE	CTAYLOR.DEV.DEMO.INSTALL	1:23			2022/10/20	2022/10/20	⋮
<input type="checkbox"/>	CYGCSAVM	CTAYLOR.DEV.DEMO.INSTALL	47:4			2022/10/20	2022/10/20	⋮
<input type="checkbox"/>	CYGCSAV1	CTAYLOR.DEV.DEMO.INSTALL	47:5			2022/10/20	2022/10/20	⋮
<input type="checkbox"/>	CYGDROP1	CTAYLOR.DEV.DEMO.INSTALL	26:7			2022/10/20	2022/10/20	⋮
<input type="checkbox"/>	CYGDROP2	CTAYLOR.DEV.DEMO.INSTALL	13:9			2022/10/20	2022/10/20	⋮

- Check out
- Audit
- Edit

```

CTAYLOR.DEV.DEMO.INSTALL(CYGCHECK)
-----1-----2-----3-----4-----5-----6-----7---
1  /**JOB CARD JOB
2  /** Proprietary Statement *****
3  /** Licensed Materials - Property of Teracloud S.A.
4  /** 5650-ZOS © Copyright Teracloud S.A. 2021
5  /** All Rights Reserved.
6  /**
7  /** US Government Users Restricted Rights - Use, duplication or
8  /** disclosure restricted by GSA ADP Schedule Contract with IBM Co
9  /**
10 /** End Proprietary Statement *****
11 /**SEARCH JCLLIB ORDER=(TGTHLO.INSTALL)
12 /**
13 /**
14 /**
15 /** PROCEDURE: CYGCHECK
16 /**
17 /** FUNCTION:
18 /** THIS JOB EXAMINES ALL PROTECTED DATA SETS AND IDENTIFIES
19 /** ANY STRUCTURAL ERRORS IN THE Z/OS CHANGE TRACKER CONTROL
20 /** FILE. IF THE JOB ENDS WITH NO ERRORS OR WARNINGS, THAT'S
21 /** AN INDICATION THAT THE Z/OS CHANGE TRACKER CONTROL FILE
22 /** IS IN GOOD CONDITION.

```

<input type="checkbox"/>	CYGCSAVE	CTAYLOR.DEV.DEMO.INSTALL	1:23	2022/10/20	2022/10/20	:
<input type="checkbox"/>	CYGCSAVM	CTAYLOR.DEV.DEMO.INSTALL	47:4	2022/10/20	2022/10/20	:
<input type="checkbox"/>	CYGCSAV1	CTAYLOR.DEV.DEMO.INSTALL	47:5	2022/10/20	2022/10/20	:
<input type="checkbox"/>	CYGDROP1	CTAYLOR.DEV.DEMO.INSTALL	26:7	2022/10/20	2022/10/20	:
<input type="checkbox"/>	CYGDROP2	CTAYLOR.DEV.DEMO.INSTALL	13:9	2022/10/20	2022/10/20	:

IBM z/OS Change Tracker

1 dataset: CTAYLOR.DEV.DEMO.INSTALL ⓘ

Check out → | Cancel

User	Checked out	Date Created	Last Changed	Actions
		2022/10/20	2022/10/20	:
		2022/10/20	2022/10/20	:
		2022/10/20	2022/10/20	:
		2022/10/20	2022/10/20	:
		2022/10/20	2022/10/20	:
		2022/10/20	2022/10/20	:



IBM z/OS Change Tracker

Editing a member in a protected data set

```
COE2      EDIT      CTAYLOR.DEV.DEMO.SOURCE      Row 0000001 of 0000006
Command ==>                                     Scroll ==> CSR
          Name      Prompt      Size      Created      Changed      ID
E_____ SYCUCOPY      237      2016/11/09  2016/11/09  18:41:10  IBMUSER
_____ SYCUCPU      348      2016/11/09  2016/11/09  18:41:10  IBMUSER
_____ SYCUDIR      237      2016/11/09  2016/11/09  18:41:10  IBMUSER
_____ SYCUDR      237      2016/11/09  2016/11/09  18:41:10  IBMUSER
_____ SYCUFBVB     237      2016/11/09  2016/11/09  18:41:10  IBMUSER
_____ SYCUPARM     237      2016/11/09  2016/11/09  18:41:10  IBMUSER
          **End**
```

IBM z/OS Change Tracker

Editing a protected member

```
COE2          CTAYLOR.DEV.DEMO.SOURCE(SYCUCOPY) - 01.01          Columns 00001 00080
Command ==>                  Scroll ==> CSR
***** Top of Data *****
000001 Inserted Line 1
000002 Inserted Line 2
000003 Inserted Line 3
000004 * *****
000005 *          Copyright of PRISTINE Software          *
000006 *          licensed material -- SYSchange          *
000007 * *****
000008 *
000009 * (SYCUCOPY)          m a i n t e n a n c e   l o g
000010 *
000011 *
000012 * *****
000013 * FUNCTION:          copies from a VB reproed file into another one
000014 * *****
000015 *
000016 SYCUCOPY CSECT
000017 SYCUCOPY AMODE ANY          AMODE=31 ADDRESSABILITY
000018          COPY COPYRITE
000019          SAVE (14,12),T,'&SYSDATE &SYSTIME SYCUCOPY'
000020          USING SYCUCOPY,R12
000021          LR          R12,R15          pgm addressability
000022          LA          R0,DYNLEN          dynamic memory len
000023          GETMAIN R,LV=(0)          get the dynamic memory
000024          ST          R1,8(,R13)          set forward save ptr
```

IBM z/OS Change Tracker

Editing a protected member

```
CYG8807W Protected by z/OS Change Tracker:  
***
```

IBM z/OS Change Tracker

Editing a member in a protected data set

Dsname	Vol	Stat	ATTRIBUTES	Member	Checker	RACF
CTAYLOR.DEV.DEMO.CNTL	E\$US01	C	- - - - I -			
CTAYLOR.DEV.DEMO.INSTALL	E\$US02	C	- - L - I -			
CTAYLOR.DEV.DEMO.JCL	E\$US01	C	- - L - I -			
CTAYLOR.DEV.DEMO.LINKLIB	E\$US02	C	- - - - I -			
CTAYLOR.DEV.DEMO.MAC	E\$US01	C	- - - - I -			
CTAYLOR.DEV.DEMO.PANELS	E\$US01	C	- - - - I -			
CTAYLOR.DEV.DEMO.PARMLIB	E\$US01	C	- N L - I -			
CTAYLOR.DEV.DEMO.PDSE	E\$US02	C E	- - - - I -			
CTAYLOR.DEV.DEMO.SOURCE	E\$US02	C	- - - - I -			
CTAYLOR.JCL.CNTL	E\$US01	C E A	- - - - I -			

2022/08/11 02:11:54	SYCUCOPY	UPD	CTAYLOR	COE2	IKJEFT01	-	CTAYLOR.DEV.DEMO.SOURCE	E\$US02
---------------------	----------	-----	---------	------	----------	---	-------------------------	---------

IBM z/OS Change Tracker

Editing a member in a locked protected data set

```
Protection List is Refreshed: 2022/08/11 02:01:38
Legend: A(Alert) N(Notify/CSAVE) L(Lock) I(Initial) V(Never) Q(Quick)
```

Dsname.....	Vol	Stat	ATTRIBUTES				Member	Checker	RACF
CTAYLOR.DEV.DEMO.CNTL	E\$US01	C	-	-	-	I	-		
CTAYLOR.DEV.DEMO.INSTALL	E\$US02	C	-	L	-	I	-		
CTAYLOR.DEV.DEMO.JCL	E\$US01	C	-	L	-	I	-		
CTAYLOR.DEV.DEMO.LINKLIB	E\$US02	C	-	-	-	I	-		
CTAYLOR.DEV.DEMO.MAC	E\$US01	C	-	-	-	I	-		
CTAYLOR.DEV.DEMO.PANELS	E\$US01	C	-	-	-	I	-		
CTAYLOR.DEV.DEMO.PARMLIB	E\$US01	C	-	N	L	I	-		
CTAYLOR.DEV.DEMO.PDSE	E\$US02	C	E	-	-	I	-		
CTAYLOR.DEV.DEMO.SOURCE	E\$US02	C	-	-	-	I	-		
CTAYLOR.JCL.CNTL	E\$US01	C	E	A	-	I	-		

IBM z/OS Change Tracker

Editing a member in a locked protected data set

```
COE2 T - Data Sets Matching CTAYLOR.DEV                               Row 1 of 9
Command ==> _____ Scroll ==> CSR
Command - Enter "/" to select action                                Message                                Volume
-----
      CTAYLOR.DEV.DEMO.CNTL                                         E$US01
      CTAYLOR.DEV.DEMO.INSTALL                                       E$US02
      CTAYLOR.DEV.DEMO.JCL                                           E$US01
      CTAYLOR.DEV.DEMO.LINKLIB                                       E$US02
      CTAYLOR.DEV.DEMO.MAC                                           E$US01
      CTAYLOR.DEV.DEMO.PANELS                                        E$US01
E_    CTAYLOR.DEV.DEMO.PARMLIB                                       E$US01
      CTAYLOR.DEV.DEMO.PDSE                                         E$US02
      CTAYLOR.DEV.DEMO.SOURCE                                       E$US02
```

IBM z/OS Change Tracker

Editing a member in a locked protected data set

```
CYG8803W This is a locked resource and you may not change any members.  
CYG8801W EDIT/BROWSE in progress. Document and SAVE your changes using CSAVE.  
CYG8803W This is a locked resource and you may not change any members.  
CYG8801W EDIT/BROWSE in progress. Document and SAVE your changes using CSAVE.  
*** _
```

IBM z/OS Change Tracker

Editing a member in a locked protected data set

```
CYG8803W This is a locked resource and you may not change any members.  
CYG8801W EDIT/BROWSE in progress. Document and SAVE your changes using CSAVE.  
CYG8803W This is a locked resource and you may not change any members.  
CYG8801W EDIT/BROWSE in progress. Document and SAVE your changes using CSAVE.  
*** _
```

- This message also is written to the syslog, if configured
 - [STCPRINTOFF](#) in [CYGPARM](#)S will stop messages being issued to syslog

IBM z/OS Change Tracker

Add members to protected data set

```
COE2 T - Data Sets Matching CTAYLOR.DEV                               Row 1 of 9
Command ==> _____ Scroll ==> CSR
Command - Enter "/" to select action                                Message                                Volume
-----
CO_ CTAYLOR.DEV.DEMO.CNTL                                           E$US01
    CTAYLOR.DEV.DEMO.INSTALL                                       E$US02
    CTAYLOR.DEV.DEMO.JCL                                           E$US01
    CTAYLOR.DEV.DEMO.LINKLIB                                       E$US02
    CTAYLOR.DEV.DEMO.MAC                                           E$US01
    CTAYLOR.DEV.DEMO.PANELS                                       E$US01
    CTAYLOR.DEV.DEMO.PARMLIB                                       E$US01
    CTAYLOR.DEV.DEMO.PDSE                                          E$US02
    CTAYLOR.DEV.DEMO.SOURCE                                       E$US02
```

IBM z/OS Change Tracker

Add members to protected data set

```
COE2      COPY      GTAYLOR.DEV.DEMO.JCL      Row 0000001 of 0000006
Command ==>                                     Scroll ==> CSR
```

	Name	Prompt	Size	Created	Changed	CSR	ID
S	_____	CMPUCOPY	7	2016/11/09	2016/11/10 00:34:52		IBMUSER
S	_____	CMPUCPU	7	2016/11/09	2016/11/10 00:35:14		IBMUSER
S	_____	CMPUDIR	7	2016/11/09	2016/11/10 00:35:33		IBMUSER
	_____	CMPUDR	7	2016/11/09	2016/11/10 00:35:55		IBMUSER
	_____	CMPUFBVB	7	2016/11/09	2016/11/10 00:36:22		IBMUSER
	_____	CMPUPARM	7	2016/11/09	2016/11/10 00:36:51		IBMUSER
		End					

IBM z/OS Change Tracker

Add members to protected data set

```
COE2                                COPY Entry Panel
Command ==> _____

CURRENT from data set: 'CTAYLOR.DEV.DEMO.JCL(CMPUCOPY)'
Multiple Move/Copy actions will be processed.
To Library                          Options:
  Project . . . _____          Enter "/" to select option
  Group . . . _____            _ Replace like-named members
  Type . . . _____            / Process member aliases

To Other Data Set Name
Name . . . _____ DEV.DEMO.CNTL_____
Volume Serial . . . _____ (If not cataloged)

NEW member name . . . _____ (Blank unless member to be renamed)

Options
Sequential Disposition              Pack Option                      SCLM Setting
  2  1. Mod                          3  1. Yes                          3  1. SCLM
    2. Old                          2. No                             2. Non-SCLM
                                       3. Default                         3. As is

Press ENTER to perform action.  Press CANCEL to cancel action.
```

IBM z/OS Change Tracker

Add members to protected data set

```
CYG8803W This is a locked resource and you may not change any members.  
CYG8803W This is a locked resource and you may not change any members.  
CYG8807W Protected by z/OS Change Tracker:  
***
```

- CTAYLOR.DEV.DEMO.CNTL is the target data set and is not a locked resource.
 - Locked resource refers to source data set, in this case.

IBM z/OS Change Tracker

Delete member from protected data set

```
COE2      BROWSE      CTAYLOR.DEV.DEMO.CNTL      Row 0000001 of 0000004
Command ==> _____      Scroll ==> CSR
          Name      Prompt      Size      Created      Changed      ID
D_____ ASMUTL      32      2016/11/09  2016/11/10  00:34:07  IBMUSER
_____  CMPUCOPY      7      2016/11/09  2016/11/10  00:34:52  IBMUSER
_____  CMPUCPU      7      2016/11/09  2016/11/10  00:35:14  IBMUSER
_____  CMPUDIR      7      2016/11/09  2016/11/10  00:35:33  IBMUSER
          **End**
```

IBM z/OS Change Tracker

Add/delete/rename members in protected data set

```
Protection List is Refreshed: 2022/08/11 02:01:38
Legend: A(Alert) N(Notify/CSAVE) L(Lock) I(Initial) V(Never) Q(Quick)

Dsname..... Vol Stat  ATTRIBUTES  Member  Checker RACF
CTAYLOR.DEV.DEMO.CNTL      E$US01 C  - - - - I -
CTAYLOR.DEV.DEMO.INSTALL  E$US02 C  - - L - I -
CTAYLOR.DEV.DEMO.JCL      E$US01 C  - - L - I -
CTAYLOR.DEV.DEMO.LINKLIB  E$US02 C  - - - - I -
CTAYLOR.DEV.DEMO.MAC      E$US01 C  - - - - I -
CTAYLOR.DEV.DEMO.PANELS   E$US01 C  - - - - I -
CTAYLOR.DEV.DEMO.PARMLIB  E$US01 C  - N L - I -
CTAYLOR.DEV.DEMO.PDSE     E$US02 C E - - - - I -
CTAYLOR.DEV.DEMO.SOURCE   E$US02 C  - - - - I -
CTAYLOR.JCL.CNTL          E$US01 C E A - - - I -
-----
2022/08/11 02:11:54 SYCUCOPY UPD CTAYLOR COE2 IKJEFT01 - CTAYLOR.DEV.DEMO.SOURCE E$US02
2022/08/11 07:18:26 CMPUCOPY ADD CTAYLOR COE2 IKJEFT01 - CTAYLOR.DEV.DEMO.CNTL E$US01
2022/08/11 07:18:26 CMPUCPU ADD CTAYLOR COE2 IKJEFT01 - CTAYLOR.DEV.DEMO.CNTL E$US01
2022/08/11 07:18:26 CMPUDIR ADD CTAYLOR COE2 IKJEFT01 - CTAYLOR.DEV.DEMO.CNTL E$US01
2022/08/12 06:21:14 ASMUTL DEL CTAYLOR COE2 IKJEFT01 - CTAYLOR.DEV.DEMO.CNTL E$US01
```

IBM z/OS Change Tracker

Batch updates to protected data set

```
COE2          CTAYLOR.DEMO.JCL(CYGT6UPD) - 11.10          Columns 00001 00080
Command ==>          Scroll ==> CSR
*****
000001 //CHRISUPD JOB (),CLASS=A,MSGCLASS=H,NOTIFY=&SYSUID
000002 //*
000003 //*****
000004 //*****
000005 //**      PROCEDURE:  CYGT6UPD      **
000006 //**      **
000007 //**      FUNCTION:      **
000008 //**      **
000009 //**      THIS JOB UPDATES THREE PROTECTED RESOURCES IN BATCH.      **
000010 //**      THE INTENTION IS TO SHOW HOW BATCH UPDATES OF      **
000011 //**      PROTECTED RESOURCES ARE RECORDED BY THE STC.      **
000012 //**      **
000013 //**      **
000014 //**      EXPECTED COND CODE: 0000      **
000015 //**      ACTIVITY: TESTED ON FEB 16, 2022      **
000016 //**      **
000017 //*****
000018 //STEP1 EXEC PGM=IEBCOPY
000019 //SYSPRINT DD SYSOUT=*
000020 //IN      DD DISP=SHR,DSN=CTAYLOR.JCL.CNTL
000021 //OUT     DD DISP=SHR,DSN=CTAYLOR.DEV.DEMO.PDSE      <== PROTECTED
000022 //SYSIN DD *
000023 COPY INDD=IN,OUTDD=OUT
000024 SELECT MEMBER=((ALLOC,,R))
000025 //*
000026 //STEP2 EXEC PGM=IEBCOPY
000027 //SYSPRINT DD SYSOUT=*
000028 //IN      DD DISP=SHR,DSN=CTAYLOR.JCL.CNTL
000029 //OUT     DD DISP=SHR,DSN=CTAYLOR.DEV.DEMO.MAC      <== PROTECTED
000030 //SYSIN DD *
000031 COPY INDD=IN,OUTDD=OUT
000032 SELECT MEMBER=((ALLOC,,R))
000033 //*
000034 //STEP3 EXEC PGM=IDCAMS,REGION=0M
000035 //SYSPRINT DD SYSOUT=*
000036 //SYSIN DD *
000037 DELETE CTAYLOR.DEV.DEMO.CNTL(CMPUGPU)
000038 DELETE CTAYLOR.DEV.DEMO.CNTL(CMPUDIR)
000039 //*
```

IBM z/OS Change Tracker

Batch updates to protected data set

```
2022/08/11 02:11:54 SYCUCOPY UPD CTAYLOR COE2 IKJEFT01 - CTAYLOR.DEV.DEMO.SOURCE E$US02
2022/08/11 07:18:26 CMPUCOPY ADD CTAYLOR COE2 IKJEFT01 - CTAYLOR.DEV.DEMO.CNTL E$US01
2022/08/11 07:18:26 CMPUCPU ADD CTAYLOR COE2 IKJEFT01 - CTAYLOR.DEV.DEMO.CNTL E$US01
2022/08/11 07:18:26 CMPUDIR ADD CTAYLOR COE2 IKJEFT01 - CTAYLOR.DEV.DEMO.CNTL E$US01
2022/08/12 06:21:14 ASMUTL DEL CTAYLOR COE2 IKJEFT01 - CTAYLOR.DEV.DEMO.CNTL E$US01
2022/08/12 06:27:05 ALLOC ADD CTAYLOR COE2 IKJEFT01 - CTAYLOR.JCL.CNTL E$US01
2022/08/12 06:28:05 ADRDIZB UPD CHRISUP COE2 IEBCOPY - CTAYLOR.JCL.CNTL E$US01
2022/08/12 06:28:06 ALLOC ADD CHRISUP COE2 IEBCOPY - CTAYLOR.DEV.DEMO.MAC E$US01
2022/08/12 06:28:07 CMPUCPU DEL CHRISUP COE2 IDCAMS - CTAYLOR.DEV.DEMO.CNTL E$US01
2022/08/12 06:28:07 CMPUDIR DEL CHRISUP COE2 IDCAMS - CTAYLOR.DEV.DEMO.CNTL E$US01
```


IBM z/OS Change Tracker

Check out process for locked protected data sets

- The Check out process allows the Administrator to assign access to a user or group for a protected and locked resource.
- This is usually performed on the member level or on a list of members.
- Comments can also be added to explain the reason for the Check out.

IBM z/OS Change Tracker

Batch updates to protected data set

```
COE2          CTAYLOR.DEMO.JCL(CYGT6UPD) - 11.10          Columns 00001 00080
Command ==>          Scroll ==> CSR
*****
000001 //CHRISUPD JOB (),CLASS=A,MSGCLASS=H,NOTIFY=&SYSUID
000002 //*
000003 //*****
000004 //*****
000005 //**      PROCEDURE:  CYGT6UPD      **
000006 //**      **
000007 //**      FUNCTION:      **
000008 //**      **
000009 //**      THIS JOB UPDATES THREE PROTECTED RESOURCES IN BATCH.      **
000010 //**      THE INTENTION IS TO SHOW HOW BATCH UPDATES OF      **
000011 //**      PROTECTED RESOURCES ARE RECORDED BY THE STC.      **
000012 //**      **
000013 //**      **
000014 //**      EXPECTED COND CODE: 0000      **
000015 //**      ACTIVITY: TESTED ON FEB 16, 2022      **
000016 //**      **
000017 //*****
000018 //STEP1 EXEC PGM=IEBCOPY
000019 //SYSPRINT DD SYSOUT=*
000020 //IN      DD DISP=SHR,DSN=CTAYLOR.JCL.CNTL
000021 //OUT     DD DISP=SHR,DSN=CTAYLOR.DEV.DEMO.PDSE      <== PROTECTED
000022 //SYSIN DD *
000023 COPY INDD=IN,OUTDD=OUT
000024 SELECT MEMBER=((ALLOC,,R))
000025 //*
000026 //STEP2 EXEC PGM=IEBCOPY
000027 //SYSPRINT DD SYSOUT=*
000028 //IN      DD DISP=SHR,DSN=CTAYLOR.JCL.CNTL
000029 //OUT     DD DISP=SHR,DSN=CTAYLOR.DEV.DEMO.MAC      <== PROTECTED
000030 //SYSIN DD *
000031 COPY INDD=IN,OUTDD=OUT
000032 SELECT MEMBER=((ALLOC,,R))
000033 //*
000034 //STEP3 EXEC PGM=IDCAMS,REGION=0M
000035 //SYSPRINT DD SYSOUT=*
000036 //SYSIN DD *
000037 DELETE CTAYLOR.DEV.DEMO.CNTL(CMPUGPU)
000038 DELETE CTAYLOR.DEV.DEMO.CNTL(CMPUDIR)
000039 //*
```

Monitored Resources



Refreshed Wed Oct 19 2022 08:52

1 item selected

Remove

Members

Cancel

Data Set	Volume	Attributes	Checkout Count	Actions
<input type="checkbox"/> CJENKIN.DEV.DEMO.INSTALL	BSUS01		1	
<input type="checkbox"/> CJENKIN.TEST.DEMO.INSTALL	BSUS01		-	
<input type="checkbox"/> CJENKIN.TEST.DEMO.PANELS	BSUS01		-	
<input type="checkbox"/> CJENKIN.TEST.DEMO.SOURCE	BSUS01		-	
<input type="checkbox"/> CJENKIN.TEST.PNLENU	BSUS01		-	
<input checked="" type="checkbox"/> CTAYLOR.DEMO.JCL	BSUS02		-	
<input type="checkbox"/> DYLANF.CLIST	BSUS01		-	
<input type="checkbox"/> DYLANF.JCL	BSUS01		2	
<input type="checkbox"/> DYLANF.REXX	BSUS01		-	
<input type="checkbox"/> EARLEG.ECONOMIC.BROCHUR	BSUS01		1	

- Modify
- Members
- Audit
- Remove



IBM z/OS Change Tracker SYSPLX SCB1 **Monitored** Compare Enterprise History

Monitored Resources

Refreshed Wed Oct 19 2022 09:51

1 item selected Remove Members | Cancel

<input type="checkbox"/>	Data Set	Volume	Attributes	Checkout Count	Actions
<input type="checkbox"/>	CJENKIN.DEV.DEMO.INSTALL	B\$US01		1	
<input type="checkbox"/>	CJENKIN.TEST.DEMO.INSTALL	B\$US01		-	
<input type="checkbox"/>	CJENKIN.TEST.DEMO.PANELS	B\$US01		-	
<input type="checkbox"/>	CJENKIN.TEST.DEMO.SOURCE	B\$US01		-	
<input type="checkbox"/>	CJENKIN.TEST.PNLNU	B\$US01		-	
<input type="checkbox"/>	CTAYLOR.DEMO.JCL	B\$US02		1	
<input checked="" type="checkbox"/>	CTAYLOR.DEV.DEMO.INSTALL	B\$US01		-	
<input type="checkbox"/>	DYLANF.CLIST	B\$US01		-	
<input type="checkbox"/>	DYLANF.JCL	B\$US01		2	
<input type="checkbox"/>	DYLANF.DEV	B\$US01		-	





**z/OSMF Planned
Vision**

monitored /

Browse Resources

1 dataset: CTAYLOR.DEV.DEMO.INSTALL ⓘ

1 item selected

Check out → | Cancel

<input type="checkbox"/>	Member	Data Set	VV:MM	User	Checked out	Date Created	Last Changed	Actions
<input checked="" type="checkbox"/>	CYGARC	CTAYLOR.DEV.DEMO.INSTALL	48:12			2015/06/18	2022/03/29	:
<input type="checkbox"/>	CYGCHECK	CTAYLOR.DEV.DEMO.INSTALL	1:11			2015/06/18	2021/03/04	:
<input type="checkbox"/>	CYGCOPY	CTAYLOR.DEV.DEMO.INSTALL	1:21			2015/06/18	2021/07/15	:
<input type="checkbox"/>	CYGCOPY2	CTAYLOR.DEV.DEMO.INSTALL	1:22			2015/06/18	2021/07/15	:
<input type="checkbox"/>	CYGCSAVE	CTAYLOR.DEV.DEMO.INSTALL	1:23			2015/06/18	2021/06/17	:
<input type="checkbox"/>	CYGCSAVM	CTAYLOR.DEV.DEMO.INSTALL	47:4			2015/06/18	2021/03/04	:
<input type="checkbox"/>	CYGCSAV1	CTAYLOR.DEV.DEMO.INSTALL	47:5			2015/06/18	2021/03/04	:
<input type="checkbox"/>	CYGDROP1	CTAYLOR.DEV.DEMO.INSTALL	26:7			2018/08/08	2020/12/17	:
<input type="checkbox"/>	CYGDROP2	CTAYLOR.DEV.DEMO.INSTALL	13:9			2017/05/28	2020/12/17	:



z/OSMF Planned Vision

monitored / Browse Resources

1 dataset: CTAYLOR.DEV.DEMO.INSTALL ⓘ

1 item selected Check out → | Cancel

Member	Data Set	Last Changed	Actions		
<input checked="" type="checkbox"/> CYGARC	CTAYLOR.DEV.DEMO.INSTALL	2022/03/29	⋮		
<input type="checkbox"/> CYGCHECK	CTAYLOR.DEV.DEMO.INSTALL	2021/03/04	⋮		
<input type="checkbox"/> CYGCOPY	CTAYLOR.DEV.DEMO.INSTALL	2021/07/15	⋮		
<input type="checkbox"/> CYGCOPY2	CTAYLOR.DEV.DEMO.INSTALL	2021/07/15	⋮		
<input type="checkbox"/> CYGCSAVE	CTAYLOR.DEV.DEMO.INSTALL	1:23	2015/06/18	2021/06/17	⋮
<input type="checkbox"/> CYGCSAVM	CTAYLOR.DEV.DEMO.INSTALL	47:4	2015/06/18	2021/03/04	⋮
<input type="checkbox"/> CYGCSAV1	CTAYLOR.DEV.DEMO.INSTALL	47:5	2015/06/18	2021/03/04	⋮
<input type="checkbox"/> CYGDROP1	CTAYLOR.DEV.DEMO.INSTALL	26:7	2018/08/08	2020/12/17	⋮
<input type="checkbox"/> CYGDROP2	CTAYLOR.DEV.DEMO.INSTALL	13:9	2017/05/28	2020/12/17	⋮

Check Out Item

CYGARC

Check out to:

Comment:



Request for checkout
Request checkout member/s pending.
10/19/2022, 10:00:20 AM

monitored /
Browse Resources

1 dataset: CTAYLOR.DEV.DEMO.INSTALL ⓘ

1 item selected Check out → | Cancel

Member	Data Set	VV:MM	User	Checked out	Date Created	Last Changed	Actions
<input checked="" type="checkbox"/> CYGARC	CTAYLOR.DEV.DEMO.INSTALL	48:12			2015/06/18	2022/03/29	⋮
<input type="checkbox"/> CYGCHECK	CTAYLOR.DEV.DEMO.INSTALL	1:11			2015/06/18	2021/03/04	⋮
<input type="checkbox"/> CYGCOPY	CTAYLOR.DEV.DEMO.INSTALL	1:21			2015/06/18	2021/07/15	⋮
<input type="checkbox"/> CYGCOPY2	CTAYLOR.DEV.DEMO.INSTALL	1:22			2015/06/18	2021/07/15	⋮
<input type="checkbox"/> CYGCSAVE	CTAYLOR.DEV.DEMO.INSTALL	1:23			2015/06/18	2021/06/17	⋮
<input type="checkbox"/> CYGCSAVM	CTAYLOR.DEV.DEMO.INSTALL	47:4			2015/06/18	2021/03/04	⋮
<input type="checkbox"/> CYGCSAV1	CTAYLOR.DEV.DEMO.INSTALL	47:5			2015/06/18	2021/03/04	⋮
<input type="checkbox"/> CYGDROP1	CTAYLOR.DEV.DEMO.INSTALL	26:7			2018/08/08	2020/12/17	⋮
<input type="checkbox"/> CYGDROP2	CTAYLOR.DEV.DEMO.INSTALL	13:9			2017/05/28	2020/12/17	⋮

monitored /

Browse Resources



**z/OSMF Planned
Vision**

1 dataset: CTAYLOR.DEV.DEMO.INSTALL ⓘ



Show Checkouts



<input type="checkbox"/>	Member	Data Set	VV:MM	User	Checked out	Date Created	Last Changed	Actions
✓ <input type="checkbox"/>	CYGARC	CTAYLOR.DEV.DEMO.INSTALL	48:12		Y	2015/06/18	2022/03/29	⋮
<input type="checkbox"/>	CYGCHECK	CTAYLOR.DEV.DEMO.INSTALL	1:11			2015/06/18	2021/03/04	⋮
<input type="checkbox"/>	CYGCOPY	CTAYLOR.DEV.DEMO.INSTALL	1:21			2015/06/18	2021/07/15	⋮
<input type="checkbox"/>	CYGCOPY2	CTAYLOR.DEV.DEMO.INSTALL	1:22			2015/06/18	2021/07/15	⋮
<input type="checkbox"/>	CYGCSAVE	CTAYLOR.DEV.DEMO.INSTALL	1:23			2015/06/18	2021/06/17	⋮
<input type="checkbox"/>	CYGCSAVM	CTAYLOR.DEV.DEMO.INSTALL	47:4			2015/06/18	2021/03/04	⋮
<input type="checkbox"/>	CYGCSAV1	CTAYLOR.DEV.DEMO.INSTALL	47:5			2015/06/18	2021/03/04	⋮
<input type="checkbox"/>	CYGDROP1	CTAYLOR.DEV.DEMO.INSTALL	26:7			2018/08/08	2020/12/17	⋮
<input type="checkbox"/>	CYGDROP2	CTAYLOR.DEV.DEMO.INSTALL	13:9			2017/05/28	2020/12/17	⋮

[monitored](#) / [members](#) /

Checkout List



1 dataset: CTAYLOR.DEV.DEMO.INSTALL ⓘ

<input type="checkbox"/>	DSN	Member	Checker	Actions
<input type="checkbox"/>	CTAYLOR.DEV.DEMO.INSTALL	CYGARC	CTAYLOR	⋮
<input type="checkbox"/>	CTAYLOR.DEV.DEMO.INSTALL	CYGCOPY	CTAYLOR	⋮
<input type="checkbox"/>	CTAYLOR.DEV.DEMO.INSTALL	CYGCSAVE	CTAYLOR	⋮

IBM z/OS Change Tracker

Accessing checked out members

```
COE2      EDIT      CTAYLOR.DEV.DEMO.INSTALL      Row 0000001 of 0000107
Command ==>                                     Scroll ==> CSR
```

	Name	Prompt	Size	Created	Changed	ID
	CYGARC		54	2015/06/18	2021/03/04 12:43:05	ROBH
S	CYGCHECK		37	2015/06/18	2021/03/04 12:30:28	ROBH
	CYGCOPY		135	2015/06/18	2021/07/15 11:57:46	ROBH
	CYGCOPY2		141	2015/06/18	2021/07/15 11:58:22	ROBH
	CYGCSAVE		259	2015/06/18	2021/06/17 13:27:52	ROBH
	CYGCSAVM		65	2015/06/18	2021/03/04 14:56:40	ROBH
	CYGCSAV1		110	2015/06/18	2021/03/04 14:58:08	ROBH
	CYGDROP1		48	2018/08/08	2020/12/17 07:41:56	ROBH
	CYGDROP2		64	2017/05/28	2020/12/17 07:42:01	ROBH
	CYGDROP3		50	2016/09/09	2020/12/17 07:42:07	ROBH
	CYGDYNAM		119	2015/06/18	2020/12/17 07:49:20	ROBH
	CYGEMDAT		31	2015/06/18	2020/12/02 08:26:32	ROBH
	CYGEMDOC		186	2016/09/09	2021/09/09 14:36:16	ROBH
	CYGEMJCL		58	2015/06/18	2021/09/09 14:36:42	ROBH

IBM z/OS Change Tracker

Accessing checked out members

```
GOE2          CTAYLOR.DEV.DEMO.INSTALL(CYGCHECK) - 01.11          Columns 00001 00080
Command ==> SAVE          Scroll ==> CSR
***** Top of Data *****
000001 //**JOB CARD JOB
000002 //** Proprietary Statement *****
000003 //** Licensed Materials - Property of Teracloud S.A.          **
000004 //** 5650-ZOS @ Copyright Teracloud S.A. 2021          **
000005 //** All Rights Reserved.          **
000006 //**          **
000007 //** US Government Users Restricted Rights - Use, duplication or          **
000008 //** disclosure restricted by GSA ADP Schedule Contract with IBM Corp.**
000009 //**          **
000010 //** End Proprietary Statement *****
000011 //SEARCH JCLLIB ORDER=(TGTHLQ.INSTALL)
000012 //*****
000013 //*****
000014 //**          **
000015 //**      PROCEDURE:  CYGCHECK          **
000016 //**          **
000017 //**      FUNCTION:          **
000018 //**      THIS JOB EXAMINES ALL PROTECTED DATA SETS AND IDENTIFIES          **
000019 //**      ANY STRUCTURAL ERRORS IN THE Z/OS CHANGE TRACKER CONTROL          **
000020 //**      FILE. IF THE JOB ENDS WITH NO ERRORS OR WARNINGS, THAT'S          **
000021 //**      AN INDICATION THAT THE Z/OS CHANGE TRACKER CONTROL FILE          **
000022 //**      IS IN GOOD CONDITION.          **
000023 //**      YOU MAY RUN THIS JOB BEFORE STARTING THE Z/OS CHANGE          **
000024 //**      TRACKER STC ONLY ON ONE OF THE LPARS.          **
000025 //**          **
000026 //**      NOTE:          **
000027 //**      MODIFY YOUR SEARCH LIBRARY AT THE TOP AND SUBMIT THE JOB.          **
000028 //**          **
000029 //**      EXPECTED COND CODE: 0000          **
000030 //**          **
000031 //*****
000032 //STEP1      EXEC PGM=CYGMAIN,REGION=0M
000033 //INCL      INCLUDE MEMBER=CYGINCL
000034 //CYGIN      DD      *
000035      SHOW=PROTECTIONS
000036      VERIFY=LIST
000037 //**
```

IBM z/OS Change Tracker

Accessing checked out members

```
CYG8802W This protected library has Checked-out members. Only owners may edit.  
CYG8807W Protected by z/OS Change Tracker:  
          CTAYLOR.DEV.DEMO.INSTALL          E$US02  
          MEMBER (CYGCHECK) is NOT saved.  
*** _
```

IBM z/OS Change Tracker

Accessing checked out members

```
COE2          CTAYLOR.DEV.DEMO.INSTALL(CYGARC) - 48.11          Columns 00001 00080
Command ==> SAVE          Scroll ==> GSR
*****
***** Top of Data *****
000001 //*JOB CARD JOB
000002 //** Proprietary Statement *****
000003 //** Licensed Materials - Property of Teracloud S.A. **
000004 //** 5650-ZOS @ Copyright Teracloud S.A. 2021 **
000005 //** All Rights Reserved. **
000006 //** **
000007 //** US Government Users Restricted Rights - Use, duplication or **
000008 //** disclosure restricted by GSA ADP Schedule Contract with IBM Corp.**
000009 //** **
000010 //** End Proprietary Statement *****
000011 //SEARCH JCLLIB ORDER=(TGTHLQ.INSTALL)
000012 //**
000013 //*****
000014 //*****
000015 //** **
000016 //** PROCEDURE: CYGARC **
000017 //** **
000018 //** FUNCTION: **
000019 //** THIS JOB PERFORMS AN AUTO-ARCHIVE FUNCTION. IT EXAMINES THE **
000020 //** RETENTION PERIOD OR THE NUMBER-OF-COPIES-TO-KEEP VALUES **
000021 //** PRESET FOR PROTECTED LIBRARIES, AND ARCHIVES ANY EXTRA **
000022 //** VERSIONS TO THE Z/OS CHANGE TRACKER ARCHIVE SYSTEM. **
000023 //** **
000024 //** IT IS RECOMMENDED TO RUN THIS JOB WEEKLY BEFORE RUNNING **
000025 //** YOUR REGULAR BACKUP/RESTORE JOB TO ORGANIZE THE VSAM **
000026 //** CLUSTERS. PLEASE READ THE NOTE BELOW: **
000027 //** **
000028 //** NOTE-1: **
000029 //** ** THIS JOB MUST RUN WHEN THE STC IS STOPPED ON ALL SYSTEMS. **
000030 //** TO STOP THE STC ON ONE SYSTEM, THE DEACTIVATESTC COMMAND **
000031 //** MAY BE USED AS SHOWN IN THIS JOB. **
```

IBM z/OS Change Tracker

Accessing checked out members

```
CYG8802W This protected library has Checked-out members. Only owners may edit.  
CYG8807W Protected by z/OS Change Tracker:  
*** _
```

monitored /
Browse Resources



1 dataset: CTAYLOR.DEV.DEMO.INSTALL ⓘ

1 item selected Check in ↻ | Cancel

Member	Data Set	Last Changed	Actions
<input checked="" type="checkbox"/> CYGARC	CTAYLOR.DEV.DEMO.INSTALL	2022/03/29	⋮
<input type="checkbox"/> CYGCHECK	CTAYLOR.DEV.DEMO.INSTALL	2021/03/04	⋮
<input type="checkbox"/> CYGCOPY	CTAYLOR.DEV.DEMO.INSTALL	2021/07/15	⋮
<input type="checkbox"/> CYGCOPY2	CTAYLOR.DEV.DEMO.INSTALL	2021/07/15	⋮
<input type="checkbox"/> CYGCSAVE	CTAYLOR.DEV.DEMO.INSTALL	2021/06/17	⋮
<input type="checkbox"/> CYGCSAVM	CTAYLOR.DEV.DEMO.INSTALL	2021/03/04	⋮
<input type="checkbox"/> CYGCSAV1	CTAYLOR.DEV.DEMO.INSTALL	2021/03/04	⋮
<input type="checkbox"/> CYGDROP1	CTAYLOR.DEV.DEMO.INSTALL	2020/12/17	⋮
<input type="checkbox"/> CYGDROP2	CTAYLOR.DEV.DEMO.INSTALL	2020/12/17	⋮

Check In Item

CYGARC

Checked out to: CTAYLOR ✕

Comment: Remove access to CYGARC

Cancel Check In

Browse Resources



Request for checkin
Request checkin member/s pending.
10/19/2022, 10:10:40 AM

1 dataset: CTAYLOR.DEV.DEMO.INSTALL ⓘ

1 item selected

Check in ↻ | Cancel

<input type="checkbox"/>	Member	Data Set	VV:MM	User	Checked out	Date Created	Last Changed	Actions
<input checked="" type="checkbox"/>	CYGARC	CTAYLOR.DEV.DEMO.INSTALL	48:12		Y	2015/06/18	2022/03/29	⋮
<input type="checkbox"/>	CYGCHECK	CTAYLOR.DEV.DEMO.INSTALL	1:11			2015/06/18	2021/03/04	⋮
<input type="checkbox"/>	CYGCOPY	CTAYLOR.DEV.DEMO.INSTALL	1:21			2015/06/18	2021/07/15	⋮
<input type="checkbox"/>	CYGCOPY2	CTAYLOR.DEV.DEMO.INSTALL	1:22			2015/06/18	2021/07/15	⋮
<input type="checkbox"/>	CYGCSAVE	CTAYLOR.DEV.DEMO.INSTALL	1:23			2015/06/18	2021/06/17	⋮
<input type="checkbox"/>	CYGCSAVM	CTAYLOR.DEV.DEMO.INSTALL	47:4			2015/06/18	2021/03/04	⋮
<input type="checkbox"/>	CYGCSAV1	CTAYLOR.DEV.DEMO.INSTALL	47:5			2015/06/18	2021/03/04	⋮
<input type="checkbox"/>	CYGDROP1	CTAYLOR.DEV.DEMO.INSTALL	26:7			2018/08/08	2020/12/17	⋮
<input type="checkbox"/>	CYGDROP2	CTAYLOR.DEV.DEMO.INSTALL	13:9			2017/05/28	2020/12/17	⋮

monitored /

Browse Resources



✓ **Checkin member/s**
 CYG893I Member is successfully backed up. CYG900I Member is checked in: Counted=1 CYG947I Action is logged. CYG227I Waiting for the ENDCHECK command to complete. CYG228I Waiting approximately 30 seconds for the STC protection list to be refreshed. CYG803I WARNINGS: 0

10/19/2022, 10:11:42 AM

<input type="checkbox"/>	Member	Data Set	VV:MM	User	Checked out	Date Created	
▼ <input type="checkbox"/>	CYGARC	CTAYLOR.DEV.DEMO.INSTALL	48:12		Y	2015/06/18	2022/03/29
<input type="checkbox"/>	CYGCHECK	CTAYLOR.DEV.DEMO.INSTALL	1:11			2015/06/18	2021/03/04
<input type="checkbox"/>	CYGCOPY	CTAYLOR.DEV.DEMO.INSTALL	1:21			2015/06/18	2021/07/15
<input type="checkbox"/>	CYGCOPY2	CTAYLOR.DEV.DEMO.INSTALL	1:22			2015/06/18	2021/07/15
<input type="checkbox"/>	CYGCSAVE	CTAYLOR.DEV.DEMO.INSTALL	1:23			2015/06/18	2021/06/17
<input type="checkbox"/>	CYGCSAVM	CTAYLOR.DEV.DEMO.INSTALL	47:4			2015/06/18	2021/03/04
<input type="checkbox"/>	CYGCSAV1	CTAYLOR.DEV.DEMO.INSTALL	47:5			2015/06/18	2021/03/04
<input type="checkbox"/>	CYGDROP1	CTAYLOR.DEV.DEMO.INSTALL	26:7			2018/08/08	2020/12/17
<input type="checkbox"/>	CYGDROP2	CTAYLOR.DEV.DEMO.INSTALL	13:9			2017/05/28	2020/12/17

Monitored Resources



Refreshed Wed Oct 19 2022 10:13



Add

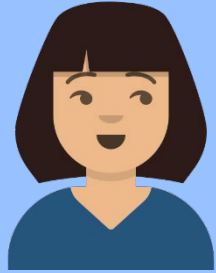


<input type="checkbox"/> Data Set	Volume	Attributes	Checkout Count	Actions
<input type="checkbox"/> CJENKIN.DEV.DEMO.INSTALL	B\$US01		1	⋮
<input type="checkbox"/> CJENKIN.TEST.DEMO.INSTALL	B\$US01		-	⋮
<input type="checkbox"/> CJENKIN.TEST.DEMO.PANELS	B\$US01		-	⋮
<input type="checkbox"/> CJENKIN.TEST.DEMO.SOURCE	B\$US01		-	⋮
<input type="checkbox"/> CJENKIN.TEST.PNLENU	B\$US01		-	⋮
<input type="checkbox"/> CTAYLOR.DEMO.JCL	B\$US02		1	⋮
<input type="checkbox"/> CTAYLOR.DEV.DEMO.INSTALL	B\$US01		-	⋮
<input type="checkbox"/> DYLANF.CLIST	B\$US01		-	⋮
<input type="checkbox"/> DYLANF.JCL	B\$US01		2	⋮
<input type="checkbox"/> DYLANF.DEV	B\$US01		-	⋮



Recovery

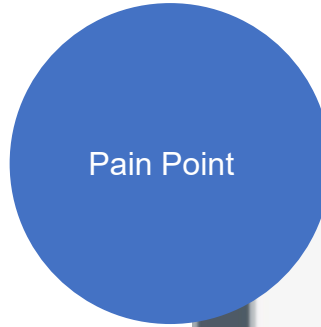
Recovery



Alice

*Mid-level System
Programmer*

Alice is responsible for running the mainframe IT environment, including installing, configuring, and maintaining z/OS systems in test and production.



- That last change that Christina, the early-tenure system programmer, did was a problem.
- I want to look back one or two versions, to see what she did.



Recovery

Members in monitored data sets can be restored to previous versions.

Backed up versions can be viewed and compared side-by-side to review changes before restoring.



As an IBM Change Tracker for z/OS administrator:

- Ah! I see what Christina did, and when it happened.
- I'll need Zach to help out, so I'll let him do the changes without any interference.
- Or I could simply revert back to the level I know was correct.



IBM z/OS Change Tracker

Backup recovery

```
COE2                                     IBM z/OS Change Tracker - (Ver 2.5.003)
Option ==> 3_

0  Options          Set processing options and review the PARMs
1  Administration  Manage the protected resources
2  Audit           Audit change activities in protected resources
3  Recover         Browse, edit and recover backups
4  Disaster Recovery Tokenize and compare PROD and DR environments
5  Utilities       Perform utility functions

                               Split Session ID: 1
```

IBM z/OS Change Tracker Recovery

COE2

Recover (1 of 3)

Command ==>

S	Protected Resource	Volume	Protection	Attributes	Check Out	Y/N	Count	
—	CTAYLOR.DEV.DEMO.INSTALL	E\$US02	-	-	L	I	N	-
—	CTAYLOR.DEV.DEMO.JCL	E\$US01	-	-	L	I	N	-
—	CTAYLOR.DEV.DEMO.LINKLIB	E\$US02	-	-	-	I	N	-
—	CTAYLOR.DEV.DEMO.MAC	E\$US01	-	-	-	I	N	-
—	CTAYLOR.DEV.DEMO.PANELS	E\$US01	-	-	-	I	N	-
—	CTAYLOR.DEV.DEMO.PARMLIB	E\$US01	-	N	L	I	N	-
—	CTAYLOR.DEV.DEMO.PDSE	E\$US02	-	-	-	I	N	-
<u>S</u>	CTAYLOR.DEV.DEMO.SOURCE	E\$US02	-	-	-	I	N	-
—	CTAYLOR.JCL.CNTL	E\$US01	-	-	-	I	N	-

IBM z/OS Change Tracker Recovery

```
COE2 Recover or View Member Versions Online (2 of 3)
Command ==> _____

Protected Resource CTAYLOR.DEV.DEMO.SOURCE
Volume . . . . . : E$US02      ("- " indicates cataloged)
Member . . . . . : *_____

Show versions in the following date range
From . . . . . : _____ (YYYY/MM/DD)
To . . . . . : _____ (YYYY/MM/DD)

Select the mode
1 1. List backups
   2. Detailed report of backups
```

IBM z/OS Change Tracker Recovery

```
COE2 Backup Versions of Member (*)
Command ==> _____

Change Reporting:
Job Name RECOVER_

Enter "/" to select option
_ Batch execution

Name      Version  VV MM Created      Changed      Size  Init  Mod ID
_ SYCUCOPY  0        01.01 16/11/09 2022/08/11 02:11    240   237   0 CTAYLOR
_ SYCUCOPY -1        01.00 16/11/09 2022/08/11 02:01    237   237   0 IBMUSER
_ SYCUCPU  0        01.00 16/11/09 2022/08/11 02:01    348   348   0 IBMUSER
_ SYCUDIR  0        01.00 16/11/09 2022/08/11 02:01    237   237   0 IBMUSER
_ SYCUDR   0        01.00 16/11/09 2022/08/11 02:01    237   237   0 IBMUSER
_ SYCUFBVB 0        01.00 16/11/09 2022/08/11 02:01    237   237   0 IBMUSER
_ SYCUPARM 0        01.00 16/11/09 2022/08/11 02:01    237   237   0 IBMUSER
***** Bottom of data *****
```

IBM z/OS Change Tracker Recovery

```

          10      20      30      40      50      60
    .....+.....+.....+.....+.....+.....+.....+.....+.....+
    *
    *
1-1  SHOW=BACKUPS=(MEM=*,
-2   DSN=CTAYLOR.DEV.DEMO.SOURCE)
    *
    *
    *

```

Backups for: VOL= catlg DSN=CTAYLOR.DEV.DEMO.SOURCE

Name/Ver	VV	MM	Created	Changed	Size	Init	Mod	ID	Date/Time-of-Backup
SYCUCOPY	01	01	16/11/09	22/08/11 02:11	240	237	0	CTAYLOR	2022/08/11 02:11:54 STC: -UPD IKJEFT01 CTAYLOR
-1	01	00	16/11/09	16/11/09 18:41	237	237	0	IBMUSER	2022/08/11 02:01:20 SYS: -Initial Version
SYCUCPU	01	00	16/11/09	16/11/09 18:41	348	348	0	IBMUSER	2022/08/11 02:01:20 SYS: -Initial Version
SYCUDIR	01	00	16/11/09	16/11/09 18:41	237	237	0	IBMUSER	2022/08/11 02:01:20 SYS: -Initial Version
SYCUDR	01	00	16/11/09	16/11/09 18:41	237	237	0	IBMUSER	2022/08/11 02:01:20 SYS: -Initial Version
SYCUFBVB	01	00	16/11/09	16/11/09 18:41	237	237	0	IBMUSER	2022/08/11 02:01:20 SYS: -Initial Version
SYCUPARM	01	00	16/11/09	16/11/09 18:41	237	237	0	IBMUSER	2022/08/11 02:01:20 SYS: -Initial Version

CYG254I Number of backups where TOKENS is specified: 7

IBM z/OS Change Tracker Recovery

```
COE2 Recover or View Member Versions Online (2 of 3)
Command ==> _____

Protected Resource CTAYLOR.DEV.DEMO.SOURCE
Volume . . . . . : E$US02      ("- " indicates cataloged)
Member . . . . . : SYCUCOPY_

Show versions in the following date range
From . . . . . : _____ (YYYY/MM/DD)
To . . . . . : _____ (YYYY/MM/DD)

Select the mode
1 1. List backups
   2. Detailed report of backups
```

IBM z/OS Change Tracker Recovery

```
COE2                                     Backup Versions of Member (SYCUCOPY)
Command ==> _____

Versions for the Date Range: not specified

Change Reporting:
  Job Name RECOVER

  Enter "/" to select option
  _ Batch execution

Name      Ver   Changed          ID      Backup Comment
_ SYCUCOPY  0    2022/08/11 02:11 CTAYLOR  STC: -UPD IKJEFT01 CTAYLOR
V SYCUCOPY -1    2022/08/11 02:01 IBMUSER  SYS: -Initial Version
```

IBM z/OS Change Tracker Recovery

```
COE2          CTAYLOR.RECOVERY.CYG22225.T0447042(SYCUCOPY) - 01.00      Columns 00001 00080
Command ==>          Scroll ==> CSR
*****
000001 * ***** Top of Data *****
000002 * Copyright of PRISTINE Software *
000003 * licensed material -- SYSchange *
000004 * *****
000005 *
000006 * (SYCUCOPY)      m a i n t e n a n c e   l o g
000007 *
000008 *
000009 * *****
000010 * FUNCTION:      copies from a VB reproed file into another one
000011 * *****
000012 *
000013 SYCUCOPY CSECT
000014 SYCUCOPY AMODE ANY          AMODE=31 ADDRESSABILITY
000015          COPY COPYRITE
000016          SAVE (14,12) T '&SYSDATE &SYSTEME SYCUCOPY'
```

IBM z/OS Change Tracker

Recovery

```
COE2                                     Backup Versions of Member (SYCUCOPY)
Command ==> _____

Versions for the Date Range: not specified

Change Reporting:
  Job Name RECOVER

  Enter "/" to select option
  _ Batch execution

  Name      Ver  Changed          ID      Backup Comment
v SYCUCOPY  0   2022/08/11 02:11 CTAYLOR  STC: -UPD IKJEFT01 CTAYLOR
_ SYCUCOPY -1   2022/08/11 02:01 IBMUSER  SYS: -Initial Version
```

IBM z/OS Change Tracker Recovery

```
COE2          CTAYLOR.RECOVERY.CYG22225.T0448501(SYCUCOPY) - 01.01      Columns 00001 00080
Command ==>   _____ Scroll ==> CSR
***** Top of Data *****
000001  Inserted Line 1
000002  Inserted Line 2
000003  Inserted Line 3
000004  *****
000005  *          Copyright of PRISTINE Software          *
000006  *          licensed material -- SYSchange            *
000007  * *****
000008  *
000009  * (SYCUCOPY)          m a i n t e n a n c e   l o g
000010  *
000011  *
000012  * *****
000013  * FUNCTION:          copies from a VB reproed file into another one
000014  * *****
000015  *
000016  SYCUCOPY CSECT
000017  SYCUCOPY AMODE ANY          AMODE=31 ADDRESSABILITY
000018  COPY COPYRITE
000019  SAVE (14,12),T,'&SYSDATE &SYSTIME SYCUCOPY'
000020  USING SYCUCOPY,R12
000021  LR R12,R15          pgm addressability
000022  LA R0,DYNLEN        dynamic memory len
000023  GETMAIN R,LV=(0)    get the dynamic memory
```


IBM z/OS Change Tracker Recovery

```
COE2                                     Backup Versions of Member (SYCUCOPY)
Command ==> _____

Versions for the Date Range: not specified

Change Reporting:
  Job Name RECOVER

  Enter "/" to select option
  _ Batch execution

  Name      Ver  Changed          ID      Backup Comment
  S SYCUCOPY  0   2022/08/11 02:11 CTAYLOR  STC: -UPD IKJEFT01 CTAYLOR
  S SYCUCOPY -1   2022/08/11 02:01 IBMUSER  SYS: -Initial Version
```

IBM z/OS Change Tracker Recovery

```
COE2                                     Backup Versions of Member (SYCUCOPY)
Command ==>
Versions for the Date Range: not specified
Change Reporting:
Job Name RECOVER
Enter "/" to select option
- Batch execution

Name      Ver    Changed          ID      Backup Comment
_ SYCUCOPY -1    2022/08/11 02:01  IBMUSER  SYS: -Initial Version
***** Bottom of data *****

CYG007 Version SYCUCOPY recovered to PDS: CTAYLOR.RECOVERY.CYG22225.T0451124
```

IBM z/OS Change Tracker Recovery

```
COE2      BROWSE      CTAYLOR.RECOVERY.CYG22225.T0451124      Row 0000001 of 0000001
Command ==> _____      Scroll ==> CSR
          Name      Prompt      Size      Created      Changed      ID
S_____ SYCUCOPY      237      2016/11/09  2016/11/09 18:41:10  IBMUSER
          **End**
```

IBM z/OS Change Tracker Recovery

```
COE2 E      CTAYLOR.RECOVERY.CYG22225.T0451124(SYCUC Line 0000000000 Col 001 080
Command ==> _____ Scroll ==> CSR
***** Top of Data *****
* *****
* Copyright of PRISTINE Software *
* licensed material -- SYSchange *
* *****
* (SYCUCOPY)      m a i n t e n a n c e   l o g
*
* *****
* FUNCTION:      copies from a VB reproed file into another one
* *****
*
SYCUCOPY CSECT
SYCUCOPY AMODE ANY          AMODE=31 ADDRESSABILITY
        COPY COPYRITE
        SAVE (14,12),T, '&SYSDATE &SYSTIME SYCUCOPY'
        USING SYCUCOPY,R12
        LR      R12,R15          pgm addressability
        LA      R0,DYNLEN        dynamic memory len
```

IBM z/OS Change Tracker

Real-life example

- Parmlib subsystem initialization member was being shared between Prod and Test environments.
- Change was made to the initialization for Test, and the Production environment failed to come up.
- A backup copy of the data set and member were eventually found at a remote site location
 - This took a number of hours to find.
- IBM z/OS Change Tracker could have restored to the previous version within minutes.
- It can be used for key system components, not just IBM z/OS products.
 - ISV products libraries can also be protected.

monitored /

Browse Resources



1 dataset: CTAYLOR.DEMO.JCL ⓘ

1 item selected

Check out → | Cancel

<input type="checkbox"/>	Member	Data Set	VV:MM	User	Checked out	Date Created	Last Changed	Actions
<input type="checkbox"/>	\$RECAT	CTAYLOR.DEMO.JCL	1:0	CTAYLOR		2022/03/25	2022/03/25	⋮
<input checked="" type="checkbox"/>	ADRCOPY	CTAYLOR.DEMO.JCL	1:1	CTAYLOR		2022/03/01	2022/03/21	⋮
<input type="checkbox"/>	ADRCOPY2	CTAYLOR.DEMO.JCL	1:1	CTAYLOR		2022/03/01	2022/03/18	⋮
<input type="checkbox"/>	ADRCOPY3	CTAYLOR.DEMO.JCL	1:0	CTAYLOR		2022/03/21	2022/03/21	⋮
<input type="checkbox"/>	ADRCOPY4	CTAYLOR.DEMO.JCL	1:0	CTAYLOR		2022/05/13	2022/05/13	⋮
<input type="checkbox"/>	ADRDEL	CTAYLOR.DEMO.JCL	1:0	CTAYLOR		2022/03/25	2022/03/25	⋮



1 dataset: CTAYLOR.DEMO.JCL ⓘ

1 item selected Check out → Backup 🔄 | Cancel

<input type="checkbox"/>	Member	Data Set	VV:MM	User	Checked out	Date Created	Last Changed	Actions
<input type="checkbox"/>	\$RECAT	CTAYLOR.DEMO.JCL	1:0	CTAYLOR		2022/03/25	2022/03/25	:
<input checked="" type="checkbox"/>	ADRCOPY	CTAYLOR.DEMO.JCL	1:1	CTAYLOR		2022/03/01	2022/03/21	:
<input type="checkbox"/>	ADRCOPY2	CTAYLOR.DEMO.JCL	1:1	CTAYLOR		2022/03/01	2022/03/01	:
<input type="checkbox"/>	ADRCOPY3	CTAYLOR.DEMO.JCL	1:0	CTAYLOR		2022/03/21	2022/03/21	:
<input type="checkbox"/>	ADRCOPY4	CTAYLOR.DEMO.JCL	1:0	CTAYLOR		2022/05/13	2022/05/13	:
<input type="checkbox"/>	ADRDEL	CTAYLOR.DEMO.JCL	1:0	CTAYLOR		2022/03/25	2022/03/25	:
<input type="checkbox"/>	ADRDMP	CTAYLOR.DEMO.JCL	1:0	CTAYLOR		2022/03/01	2022/03/01	:

- Check out
- Audit
- Backup
- Recover**
- Edit

[monitored](#) / [members](#) /

Recover

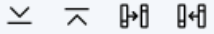


Backups of Resource: CTAYLOR.DEMO.JCL(ADRCOPY)

Version	VV:MM	User ID	Last Modified	Time of backup	Comment	Actions
Current	01.01	CTAYLOR	22/03/21 21:49	2022/10/27 00:35:19	Checked back in	
-1	01.01	CTAYLOR	22/03/21 21:49	2022/10/20 00:30:27	Make changes for DSS Copy	
-2	01.01	CTAYLOR	22/03/21 21:49	2022/10/20 00:26:09	CKI: Check DSS copy back in	
-3	01.01	CTAYLOR	22/03/21 21:49	2022/10/20 00:18:05	Make changes for DSS copy	
-4	01.01	CTAYLOR	22/03/21 21:49	2022/10/19 23:47:11	SYS: -Initial Version	

Action icons for:

- Compare
- Recover



CTAYLOR.DEV.DEMO.INSTALL(CYGARC)



```

1  /**JOB CARD JOB
2  /** Proprietary Statement *****
3  /** Licensed Materials - Property of Teracloud S.A.          **
4  /** 5650-ZOS © Copyright Teracloud S.A. 2021                **
5  /** All Rights Reserved.                                     **
6  /**                                                         **
7  /** US Government Users Restricted Rights - Use, duplication or
8  /** disclosure restricted by GSA ADP Schedule Contract with IBM Corp.**
9  /**                                                         **
10 /** End Proprietary Statement *****
11 //SEARCH JCLLIB ORDER=(TGTHLO.INSTALL)
12 /**
13 /*******
14 /*******
15 /****
16 /****      PROCEDURE:  CYGARC                                **
17 /****
18 /****      FUNCTION:
19 /****      THIS JOB PERFORMS AN AUTO-ARCHIVE FUNCTION. IT EXAMINES THE **
20 /****      RETENTION PERIOD OR THE NUMBER-OF-COPIES-TO-KEEP VALUES **
21 /****      PRESET FOR PROTECTED LIBRARIES, AND ARCHIVES ANY EXTRA **
22 /****      VERSIONS TO THE Z/OS CHANGE TRACKER ARCHIVE SYSTEM.      **
23 /****
24 /****      IT IS RECOMMENDED TO RUN THIS JOB WEEKLY BEFORE RUNNING **
25 /****      YOUR REGULAR BACKUP/RESTORE JOB TO ORGANIZE THE VSAM **
26 /****      CLUSTERS. PLEASE READ THE NOTE BELOW:                   **
27 /****
28 /****      NOTE-1:
29 /****      ** THIS JOB MUST RUN WHEN THE STC IS STOPPED ON ALL SYSTEMS. **
30 /****      TO STOP THE STC ON ONE SYSTEM, THE DEACTIVATESTC COMMAND **
31 /****      MAY BE USED AS SHOWN IN THIS JOB.                        **
    
```

CTAYLOR.CYGRECVR.D221122.T150431(CYGARC)

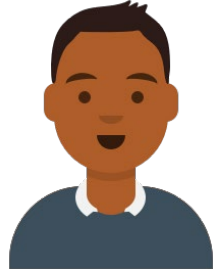


```

1  /**JOB CARD JOB
2+//added extra line 1
3+//added extra line 2
4  /** Proprietary Statement *****
5  /** Licensed Materials - Property of Teracloud S.A.          **
6  /** 5650-ZOS © Copyright Teracloud S.A. 2021                **
7  /** All Rights Reserved.                                     **
8  /**                                                         **
9  /** US Government Users Restricted Rights - Use, duplication or
10 /** disclosure restricted by GSA ADP Schedule Contract with IBM Corp.**
11 /**                                                         **
12 /** End Proprietary Statement *****
13 //SEARCH JCLLIB ORDER=(TGTHLO.INSTALL)
14 /**
15 /*******
16 /*******
17 /****
18 /****      PROCEDURE:  CYGARC                                **
19 /****
20 /****      FUNCTION:
21 /****      THIS JOB PERFORMS AN AUTO-ARCHIVE FUNCTION. IT EXAMINES THE **
22 /****      RETENTION PERIOD OR THE NUMBER-OF-COPIES-TO-KEEP VALUES **
23 /****      PRESET FOR PROTECTED LIBRARIES, AND ARCHIVES ANY EXTRA **
24 /****      VERSIONS TO THE Z/OS CHANGE TRACKER ARCHIVE SYSTEM.      **
25 /****
26 /****      IT IS RECOMMENDED TO RUN THIS JOB WEEKLY BEFORE RUNNING **
27 /****      YOUR REGULAR BACKUP/RESTORE JOB TO ORGANIZE THE VSAM **
28 /****      CLUSTERS. PLEASE READ THE NOTE BELOW:                   **
29 /****
30 /****      NOTE-1:
31 /****      ** THIS JOB MUST RUN WHEN THE STC IS STOPPED ON ALL SYSTEMS. **
32 /****      TO STOP THE STC ON ONE SYSTEM, THE DEACTIVATESTC COMMAND **
33 /****      MAY BE USED AS SHOWN IN THIS JOB.                        **
    
```

Auditing activities

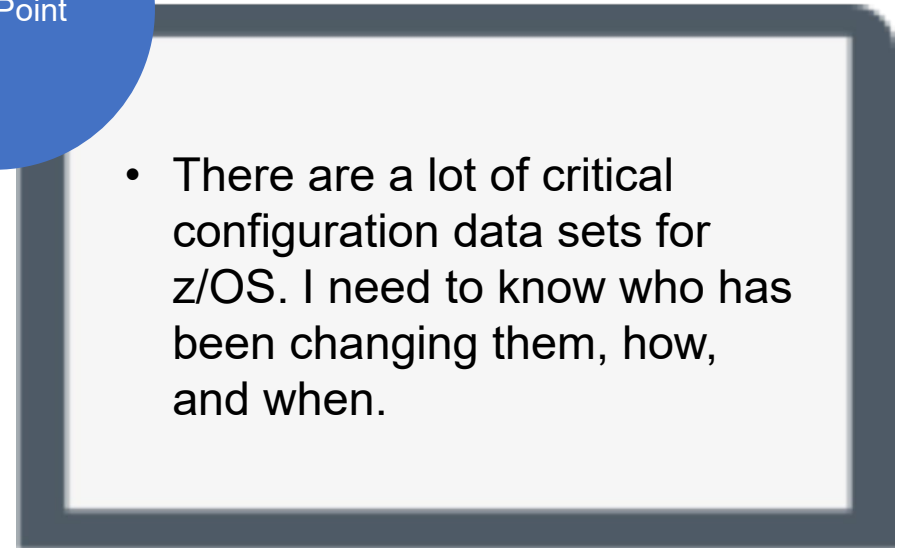
Audit



Derek

*Compliance
Evidence Provider*

Derek is a security engineer. He spends a lot of time looking after access management



- There are a lot of critical configuration data sets for z/OS. I need to know who has been changing them, how, and when.

Audit

Out-of-the-box audit reports of monitored datasets.

List all changes to specified library, member, or name pattern

Filtering options:

- Event type (ADD, UPDATE, DELETE, RENAME, ZAP)
- Date and time range
- Member-level of dataset-level
- Specific libraries or all protected libraries

Delight Point

As an IBM Change Tracker for z/OS auditor:

- Wow! I can clearly see what critical configuration data sets have been updated.
- I know who made the change, how, and when, in just one click. My job is so much easier!



IBM z/OS Change Tracker

Auditing change activities in protected data sets

```
COE2                               IBM z/OS Change Tracker - (Ver 2.5.003)
Option ==> 2_

0  Options          Set processing options and review the PARMs
1  Administration  Manage the protected resources
2  Audit           Audit change activities in protected resources
3  Recover         Browse, edit and recover backups
4  Disaster Recovery Tokenize and compare PROD and DR environments
5  Utilities       Perform utility functions

                               Split Session ID: 1
```

IBM z/OS Change Tracker

Auditing change activities in a protected data set

```
COE2                               IBM z/OS Change Tracker - (Ver 2.5.003)
Option ==>

0  Options          Set processing options and review the PARMs
1  Administration  Manage the protected resources
2  Audit           Audit change activities in protected resources
3  Recover        Browse, edit and recover backups
4  Disaster Recovery Tokenize and compare PROD and DR environments
5  Utilities       Perform utility functions

                               Split Session ID: 1

CYG374 Option is available to Auditors only.
```

IBM z/OS Change Tracker

Auditing change activities in a protected data set

```
COE2                                     Audit
Command ==> _____

Member  * _____

Actions
1  1. ALL
    2. ADD
    3. DEL
    4. REN
    5. UPD

S Protected Resource                      Volume  Protection  Check Out
S CTAYLOR.DEV.DEMO.CNTL                   -        - - - I      N      -
- CTAYLOR.DEV.DEMO.INSTALL                 -        - - L I      N      -
- CTAYLOR.DEV.DEMO.JCL                     -        - - L I      N      -
- CTAYLOR.DEV.DEMO.LINKLIB                 -        - - - I      N      -
- CTAYLOR.DEV.DEMO.MAC                     -        - - - I      N      -
- CTAYLOR.DEV.DEMO.PANELS                  -        - - - I      N      -
- CTAYLOR.DEV.DEMO.PARMLIB                 -        - N L I      N      -
- CTAYLOR.DEV.DEMO.PDSE                    -        - - - I      N      -
- CTAYLOR.DEV.DEMO.SOURCE                  -        - - - I      N      -
- CTAYLOR.JCL.CNTL                         -        - - - I      N      -
```

IBM z/OS Change Tracker

Auditing change activities in a protected data set

```
COE2 E      CTAYLOR.CYG22227.T2114086.SYSPRINT                               Line 0000000000 Col 001 120
Command ==> _____ Scroll ==> CSR
***** Top of Data *****
          10      20      30      40      50      60
          . . . . + . . . . + . . . . + . . . . + . . . . + . . . . +
1         OPTIONS=ALL
2-1      SHOW=ACT=(MEM=*,
-2       DSN=CTAYLOR.DEV.DEMO.CNTL)
          *
          *
          *
          *
          *

          DSN=CTAYLOR.DEV.DEMO.CNTL
ASMUTL   CTAYLOR   DEL   2022/08/12 06:21   COE2       IKJEFT01   STC: -DEL IKJEFT01 CTAYLOR   -
CMPUCOPY CTAYLOR   ADD   2022/08/11 07:18   COE2       IKJEFT01   STC: -UPD IKJEFT01 CTAYLOR   -
CMPUCPU  CHRISUP  DEL   2022/08/12 06:28   COE2       IDCAMS     STC: -ADD IDCAMS  CHRISUP   -
CMPUCPU  CTAYLOR  ADD   2022/08/11 07:18   COE2       IKJEFT01   STC: -UPD IKJEFT01 CTAYLOR   -
CMPUDIR  CHRISUP  DEL   2022/08/12 06:28   COE2       IDCAMS     STC: -ADD IDCAMS  CHRISUP   -
CMPUDIR  CTAYLOR  ADD   2022/08/11 07:18   COE2       IKJEFT01   STC: -UPD IKJEFT01 CTAYLOR   -
```


IBM z/OS Change Tracker

Showing changes in protected data sets (Batch)

```
//CHRISACT JOB (),CLASS=A,MSGCLASS=H,NOTIFY=&SYSUID
//*
//*****
//*****
//**      PROCEDURE:  CYGT7ACT      **
//**                                          **
//**      FUNCTION:                                          **
//**                                          **
//**      THIS JOB SHOWS THE REAL-TIME ACTIVITIES IN ALL PROTECTED **
//**      LIBRARIES. A DATE RANGE CAN BE SPECIFIED TO LIMIT THE  **
//**      REPORTING OF THE ACTIVITIES ONLY FOR A DESIRED RANGE.  **
//**                                          **
//**      THE FORMAT OF THE DATE RANGE IS:                    **
//**      BEGDATE=YYYY/MM/DD_HH:MM (00:00 INDICATES START OF DAY) **
//**      ENDDATE=YYYY/MM/DD_HH:MM (23:59 INDICATES MIDNIGHT)  **
//**                                          **
//**      NOTE:                                              **
//**      MODIFY THE JOB CARD AND SUBMIT IT                  **
//**                                          **
//**      EXPECTED COND CODE: 0000                            **
//**      ACTIVITY: TESTED ON FEB 15, 2022                    **
//**                                          **
//*****
//STEP1 EXEC PGM=CYGMMAIN,REGION=4096K
//STEPLIB DD DISP=SHR,DSN=ZOSCHTRK.V250.SCYGLNK
//CYGPARM DD DISP=SHR,DSN=CYGV250.CONFIG.PARMLIB(CYGPARMS)
//SYSPRINT DD SYSOUT=*
//SYSUDUMP DD SYSOUT=*
//OUTFILE DD DUMMY
//CYGIN DD *
*OPTION=FOREIGNDATA /* IN CASE THE STC IS OPERATING WITH */
* /* ANOTHER CONTROL FILE */
*DATE=TODAY /* DATE MUST PRECEDE ALL COMMANDS */
*
  BEGDATE=2022/08/11_00:00 DATE RANGE (AUG 11, 2022)
  ENDDATE=2022/08/12_23:59 DATE RANGE (AUG 12, 2022 MIDNIGHT)
*OPTION=DEL
*
  SHOW=PROTECTIONS
  SHOW=ACTIONS=LIST
/*
```

IBM z/OS Change Tracker

Showing changes in protected data sets (Batch)

```
CYGG00DOC CTAYLOR UPD 2022/08/12 07:03 COE2 IKJEFT01 STC: -UPD IKJEFT01 CTAYLOR -
CYGG00PRM CTAYLOR UPD 2022/08/12 07:03 COE2 IKJEFT01 STC: -UPD IKJEFT01 CTAYLOR -
CYGG00UPA CTAYLOR UPD 2022/08/12 07:03 COE2 IKJEFT01 STC: -UPD IKJEFT01 CTAYLOR -
CYGG01INI CTAYLOR UPD 2022/08/12 07:03 COE2 IKJEFT01 STC: -UPD IKJEFT01 CTAYLOR -
CYGG02STC CTAYLOR UPD 2022/08/12 07:03 COE2 IKJEFT01 STC: -UPD IKJEFT01 CTAYLOR -
CYGG03CR CTAYLOR UPD 2022/08/12 07:03 COE2 IKJEFT01 STC: -UPD IKJEFT01 CTAYLOR -
CYGG03TST CTAYLOR UPD 2022/08/12 07:03 COE2 IKJEFT01 STC: -UPD IKJEFT01 CTAYLOR -
CYGG04BKP CTAYLOR UPD 2022/08/12 07:03 COE2 IKJEFT01 STC: -UPD IKJEFT01 CTAYLOR -
CYGG04OTH CTAYLOR UPD 2022/08/12 07:03 COE2 IKJEFT01 STC: -UPD IKJEFT01 CTAYLOR -

      DSN=CTAYLOR.DEV.DEMO.JCL -
      ** NOC ** -

      DSN=CTAYLOR.DEV.DEMO.LINKLIB -
      ** NOC ** -

ALLOC CHRISUP ADD DSN=CTAYLOR.DEV.DEMO.MAC 2022/08/12 06:28 COE2 IEBCOPY STC: -ADD IEBCOPY CHRISUP -
      DSN=CTAYLOR.DEV.DEMO.PANELS -
      ** NOC ** -

      DSN=CTAYLOR.DEV.DEMO.PARMLIB -
      ** NOC ** -

      DSN=CTAYLOR.DEV.DEMO.PDSE -
      ** NOC ** -

SYCUCOPY CTAYLOR UPD DSN=CTAYLOR.DEV.DEMO.SOURCE 2022/08/11 02:11 COE2 IKJEFT01 STC: -UPD IKJEFT01 CTAYLOR -
      DSN=CTAYLOR.JCL.CNTL -

ADDRIZB CHRISUP UPD 2022/08/12 06:28 COE2 IEBCOPY STC: -ADD IEBCOPY CHRISUP -
ALLOC CTAYLOR ADD 2022/08/12 06:27 COE2 IKJEFT01 STC: -UPD IKJEFT01 CTAYLOR -
CHECKIN CTAYLOR UPD 2022/08/12 07:16 COE2 IKJEFT01 STC: -UPD IKJEFT01 CTAYLOR -
CHECKIN CTAYLOR ADD 2022/08/12 07:05 COE2 IKJEFT01 STC: -UPD IKJEFT01 CTAYLOR -
CHECKOUT CTAYLOR ADD 2022/08/12 06:38 COE2 IKJEFT01 STC: -UPD IKJEFT01 CTAYLOR -
PROTECT CTAYLOR UPD 2022/08/11 02:00 COE2 IKJEFT01 STC: -UPD IKJEFT01 CTAYLOR -
REPROTCT CTAYLOR UPD 2022/08/12 07:03 COE2 IKJEFT01 STC: -UPD IKJEFT01 CTAYLOR -
REPROTCT CTAYLOR UPD 2022/08/12 07:01 COE2 IKJEFT01 STC: -UPD IKJEFT01 CTAYLOR -
REPROTCT CTAYLOR UPD 2022/08/12 06:59 COE2 IKJEFT01 STC: -UPD IKJEFT01 CTAYLOR -

CYG238I 10 DSNs checked for activities
        5 DSNs determined to have no activities
        5 DSNs determined to have activities

        0 DSNs failed the VIEW function

CYG803I WARNINGS: 0
        ERRORS: 0
```



Monitored Resources

Refreshed Wed Oct 19 2022 11:06

1 item selected					Remove [trash icon]	Members [list icon]	Cancel
<input type="checkbox"/>	Data Set	Volume	Attributes	Checkout Count	Actions		
<input type="checkbox"/>	CJENKIN.DEV.DEMO.INSTALL	B\$US01	[lock icon] [trash icon]	1	⋮		
<input type="checkbox"/>	CJENKIN.TEST.DEMO.INSTALL	B\$US01	[lock icon] [trash icon]	-	⋮		
<input type="checkbox"/>	CJENKIN.TEST.DEMO.PANELS	B\$US01	[trash icon]	-	⋮		
<input type="checkbox"/>	CJENKIN.TEST.DEMO.SOURCE	B\$US01	[lock icon] [trash icon]	-	⋮		
<input type="checkbox"/>	CJENKIN.TEST.PNLENU	B\$US01	[trash icon]	-	⋮		
<input type="checkbox"/>	CTAYLOR.DEMO.JCL	B\$US02	[lock icon] [trash icon]	1	⋮		
<input checked="" type="checkbox"/>	CTAYLOR.DEV.DEMO.INSTALL	B\$US01	[trash icon]	-	⋮		
<input type="checkbox"/>	DYLANF.CLIST	B\$US01	[lock icon] [trash icon]	-	⋮		
<input type="checkbox"/>	DYLANF.JCL	B\$US01	[lock icon] [trash icon]	2	⋮		
<input type="checkbox"/>	DYLANF.DEV	B\$US01	[trash icon]	-	⋮		

- Modify
- Members
- Audit**



Monitored Resources

- Data Set
- CJENKIN.DEV.DEMO.INSTALL
- CJENKIN.TEST.DEMO.INSTALL
- CJENKIN.TEST.DEMO.PANELS
- CJENKIN.TEST.DEMO.SOURCE
- CJENKIN.TEST.PNLENU
- CTAYLOR.DEMO.JCL
- CTAYLOR.DEV.DEMO.INSTALL
- DYLANF.CLIST
- DYLANF.JCL
- DYLANF.DEV...

Audit Log

Member	DSN	User	Date	System	Program
CYGARC	CTAYLOR.DEV.DEMO.INSTALL	CTAYLOR	2022/10/20 02:07	SCB1	IKJEFT01
CYGARC	CTAYLOR.DEV.DEMO.INSTALL	CTAYLOR	2022/10/20 02:07	SCB1	IKJEFT01
CYGCHECK	CTAYLOR.DEV.DEMO.INSTALL	CTAYLOR	2022/10/20 02:10	SCB1	IKJEFT01
CYGCOPY	CTAYLOR.DEV.DEMO.INSTALL	CTAYLOR	2022/10/20 02:10	SCB1	IKJEFT01
CYGCOPY2	CTAYLOR.DEV.DEMO.INSTALL	CTAYLOR	2022/10/20 02:10	SCB1	IKJEFT01
CYGCSAVE	CTAYLOR.DEV.DEMO.INSTALL	CTAYLOR	2022/10/20 02:10	SCB1	IKJEFT01
CYGCSAVM	CTAYLOR.DEV.DEMO.INSTALL	CTAYLOR	2022/10/20 02:10	SCB1	IKJEFT01
CYGCSAV1	CTAYLOR.DEV.DEMO.INSTALL	CTAYLOR	2022/10/20 02:10	SCB1	IKJEFT01
CYGDROP1	CTAYLOR.DEV.DEMO.INSTALL	CTAYLOR	2022/10/20 02:10	SCB1	IKJEFT01
CYGDROP2	CTAYLOR.DEV.DEMO.INSTALL	CTAYLOR	2022/10/20 02:10	SCB1	IKJEFT01

Refreshed Wed Oct 19 2022 11:06

Add +

Count Actions

Snapshots

What are IBM z/OS Change Tracker snapshots*?

* “snapshot” is the newer term we are gradually moving to, especially in z/OSMF. You might see “fingerprint” or “tokenization” meanwhile.

Snapshots are collections of data sets

- From a single file to an entire DASD volume

Each member of each data set in the snapshot is fingerprinted when the snapshot is created.

Snapshots can be compared against a live system, or against each other.

Very high-speed comparison for large collections of data

- Provides information on what, how and when modifications have been made
- At the dataset-level and the member-level

IBM z/OS Change Tracker

Snapshots/Fingerprinting/Tokenizing data sets

```
//CHRISTOK JOB ( ),CLASS=A,MSGCLASS=H,NOTIFY=&SYSUID
/**
/**
/*******
/**      PROCEDURE:  SYCT5TOK                               **
/**      FUNCTION:   **
/**      THIS JOB TOKENIZES THE DEV ENVIRONMENT BEFORE WE START **
/**      THE DEMO.   **
/**      NOTE:      **
/**      ARROWS "<=" POINT TO LINES WHICH REQUIRE CUSTOMIZATION. **
/**      1. HLQ OF THE APF LINKLIB                             **
/**      2. HLQ OF THE PARMLIB DATA SET                       **
/**      EXPECTED COND CODE: 0000                             **
/**      ACTIVITY: TESTED ON FEB 15, 2022                     **
/*******
/**
/**      _____
/**      *   CREATES THE REFERENCE TOKENS
/**      *   -----
/**STEP1      EXEC PGM=CYGMAIN,REGION=6796K
/**STEPLIB    DD DISP=SHR,DSN=ZOSCHTRK.V250.SCYGLNK
/**SYSPRINT   DD SYSOUT=*
/**SYSUDUMP   DD SYSOUT=*
/**CYGIN      DD *
            PATTERN=CTAYLOR.DEV.DEMO.*
            SHOW=LIST
*
            TOKEN=(LIST)
```

IBM z/OS Change Tracker

Snapshots/Fingerprinting/Tokenizing data sets

```
          10      20      30      40      50      60
1      . . . . + . . . . + . . . . + . . . . + . . . . + . . . . +
2      PATTERN=CTAYLOR.DEV.DEMO.*
3      SHOW=LIST
4      *
5      TOKEN=(LIST)
6
CYG200I  COMMANDS PROCESSED: 3
7
8      SEQ List of resolved data sets or USS paths
9
10     1 CTAYLOR.DEV.DEMO.CNTL
11     2 CTAYLOR.DEV.DEMO.INSTALL
12     3 CTAYLOR.DEV.DEMO.JCL
13     4 CTAYLOR.DEV.DEMO.LINKLIB
14     5 CTAYLOR.DEV.DEMO.MAC
15     6 CTAYLOR.DEV.DEMO.PANELS
16     7 CTAYLOR.DEV.DEMO.PARMLIB
17     8 CTAYLOR.DEV.DEMO.PDSE
18     9 CTAYLOR.DEV.DEMO.SOURCE
19
CYG828I Reference tokens generated successfully; RC: 0
20     VOL:  catlg  DSN:  CTAYLOR.DEV.DEMO.CNTL
21
CYG947I Action is logged.
22
CYG828I Reference tokens generated successfully; RC: 0
23     VOL:  catlg  DSN:  CTAYLOR.DEV.DEMO.INSTALL
24
CYG947I Action is logged.
25
CYG828I Reference tokens generated successfully; RC: 0
26     VOL:  catlg  DSN:  CTAYLOR.DEV.DEMO.JCL
27
CYG947I Action is logged.
28
CYG828I Reference tokens generated successfully; RC: 0
29     VOL:  catlg  DSN:  CTAYLOR.DEV.DEMO.LINKLIB
30
CYG947I Action is logged.
31
CYG828I Reference tokens generated successfully; RC: 0
32     VOL:  catlg  DSN:  CTAYLOR.DEV.DEMO.MAC
33
CYG947I Action is logged.
34
CYG828I Reference tokens generated successfully; RC: 0
35     VOL:  catlg  DSN:  CTAYLOR.DEV.DEMO.PANELS
36
CYG947I Action is logged.
37
CYG828I Reference tokens generated successfully; RC: 0
38     VOL:  catlg  DSN:  CTAYLOR.DEV.DEMO.PARMLIB
39
CYG947I Action is logged.
```


IBM z/OS Change Tracker

Snapshots/Fingerprinting/Tokenizing data sets

```

      10      20      30      40      50      60
1      . . . . + . . . + . . . . + . . . . + . . . . + . . . . + . . . . +
      *      *
      *      *  COMPARES DEV WITH PROD; MUST SPECIFY SHOW=LIST AFTER EACH SET
      *      *  -----
2      *      *  PATTERN=CTAYLOR.DEV.DEMO.*
3      *      *  SHOW=LIST
4      *      *  PATTERN=CTAYLOR.TEST.DEMO.*
5      *      *  SHOW=LIST
6      *      *  STRREP=('DEV.', 'TEST.')
7      *      *  GROUPCOMPARE
CYG200I  COMMANDS PROCESSED: 7
      SEQ List of resolved data sets or USS paths
1      CTAYLOR.DEV.DEMO.CNTL
2      CTAYLOR.DEV.DEMO.INSTALL
3      CTAYLOR.DEV.DEMO.JCL
4      CTAYLOR.DEV.DEMO.LINKLIB
5      CTAYLOR.DEV.DEMO.MAC
6      CTAYLOR.DEV.DEMO.PANELS
7      CTAYLOR.DEV.DEMO.PARMLIB
8      CTAYLOR.DEV.DEMO.PDSE
9      CTAYLOR.DEV.DEMO.SOURCE
      SEQ List of resolved data sets or USS paths
1      CTAYLOR.TEST.DEMO.CNTL
2      CTAYLOR.TEST.DEMO.INSTALL
3      CTAYLOR.TEST.DEMO.JCL
4      CTAYLOR.TEST.DEMO.LINKLIB
5      CTAYLOR.TEST.DEMO.MAC
6      CTAYLOR.TEST.DEMO.PANELS
7      CTAYLOR.TEST.DEMO.PARMLIB
8      CTAYLOR.TEST.DEMO.PDSE
9      CTAYLOR.TEST.DEMO.SOURCE
      Original-dsn:      CTAYLOR.DEV.DEMO.CNTL
      Transformed :      CTAYLOR.TEST.DEMO.CNTL
CYG213I  Processed: VOL=E$US01      DSN=CTAYLOR.DEV.DEMO.CNTL
CYG213I  Processed: VOL=E$US01      DSN=CTAYLOR.TEST.DEMO.CNTL
NEW: CTAYLOR.DEV.DEMO.CNTL      OLD: CTAYLOR.TEST.DEMO.CNTL
CYG857W  COMPARE statistics for:
      - DSN1: CTAYLOR.DEV.DEMO.CNTL
      - DSN2: CTAYLOR.TEST.DEMO.CNTL
      0 TOTAL MEMBER NAMES PAIRED
CYGGSTC  DSLIST -DSLIST *SDSF
```

IBM z/OS Change Tracker

Fingerprinting/Tokenizing data sets

```
Original-dsn: CTAYLOR.DEV.DEMO.SOURCE
Transformed : CTAYLOR.TEST.DEMO.SOURCE

CYG213I Processed: VOL=E$US02 DSN=CTAYLOR.DEV.DEMO.SOURCE
CYG213I Processed: VOL=E$US01 DSN=CTAYLOR.TEST.DEMO.SOURCE

NEW: CTAYLOR.DEV.DEMO.SOURCE OLD: CTAYLOR.TEST.DEMO.SOURCE
      Member      DSN1-Update-Date  DSN2-Update-Date  OPTIONS= DIFF
DIFF      SYCUCOPY  2022/08/11 02:11  2016/11/09 18:41

CYG857W COMPARE statistics for:
      - DSN1: CTAYLOR.DEV.DEMO.SOURCE
      - DSN2: CTAYLOR.TEST.DEMO.SOURCE

      6 TOTAL MEMBER NAMES PAIRED
      5 MEMBER(S) HAD NO CHANGES
      1 MEMBER(S) HAD CHANGES
**      0 NEW FILE MEMBER(S) NOT PAIRED
      0 OLD FILE MEMBER(S) NOT PAIRED
```

Libraries Snapshots Manage Snapshots History

Select Snapshot Select Target Comparison Results

Snapshot Compare

Views

Search, Edit, Settings icons

SYSPLEXA - A2

Import Snapshot +

Create Snapshot +

Snapshot	Description	Snapshot Date
Test1	Test Snapshot 1	January 01, 2021
Test2	Test Snapshot 2	January 01, 2021
Test3	Test Snapshot 3	January 01, 2021
Test4	Test Snapshot 4	January 01, 2021
Alpha1	Snapshot at Alpha1 Checkpoint	March 01, 2021
Alpha2	Snapshot at Alpha2 Checkpoint	March 06, 2021
0.8 Beta	Snapshot of Initial Beta release	April 04, 2021
0.9 Beta	Snapshot of Beta 0.9	April 22, 2021
V1.0	V1.0 Snapshot	May 27, 2021
V1.1	V1.1 Snapshot - plugin added	July 5, 2021
V1.2	V1.2 Snapshot - reworked the plugin	August 13, 2021
V1.3	V1.3 Snapshot - removed the plugin	September 29, 2021

Items per page: 12 1 - 12 of 18 items

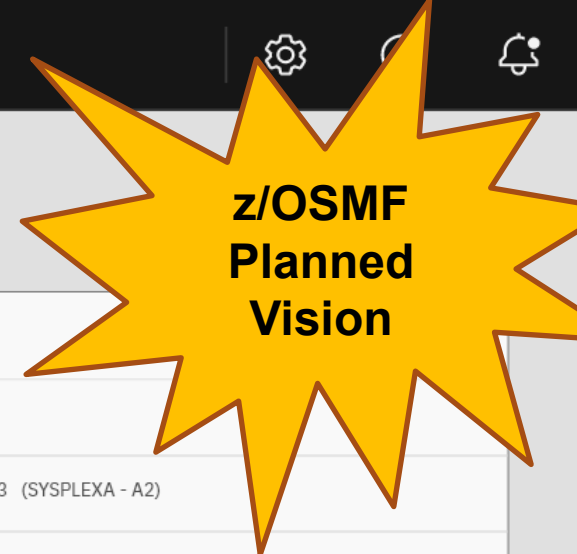
1 of 2 pages

Snapshot Information

Name	V1.3
Location	CYG.SNAPS3 (SYSPLEXA - A2)
Date Created	13:52 -29/09/2021
Description	V1.3 Snapshot - removed the plugin

Snapshot Contents

File	ID	Created
PRJ.DEV.ASM	BENH	21/03/18
PRJ.DEV.CLIST	ROBH	21/03/18
PRJ.DEV.LIB	CJENKINS	21/03/18
PRJ.DEV.RES	CJENKINS	21/03/18
PRJ.DEV.REXX	CJENKINS	21/03/18
PRJ.DEV.JCL	CJENKINS	21/03/18
PRJ.DATA.A	CJENKINS	21/03/18
PRJ.DATA.B	CJENKINS	21/03/18
PRJ.DATA.C	CJENKINS	21/03/18



Cancel

Back

Next

Libraries Snapshots Manage Snapshots History

Select Snapshot Select Target Comparison Results

Snapshot Compare



SYSPLEXA - A2

Import Snapshot +

Create Snapshot +

• **Alpha1 (6)**

Snapshot at Alpha1 Checkpoint

Created Mar 01, 2021, at 04:45pm

• **Alpha 2 (7)**

Snapshot at Alpha2 Checkpoint

Created Mar 06, 2021, at 05:42pm

• **0.9Beta (20)**

Snapshot of Initial Beta release

Created Apr 04, 2021, at 01:17pm

• **0.9Beta (24)**

Snapshot of Beta 0.9

Created Apr 22, 2021, at 01:44pm

• **V1.0 (9)**

V1.0 Snapshot

Created May 27, 2021, at 04:13pm

• **V1.1 (10)**

V1.1 Snapshot - plugin added

Created Jul 05, 2021, at 05:42pm

• **V1.2 (10)**

V1.2 Snapshot - reworked the plugin

Created Aug 13, 2021, at 09:08pm

• **V1.3 (9)**

V1.3 Snapshot - removed the plugin

Created Sep 29, 2021, at 06:13pm



Snapshot Information

Name: V1.3

Location: CYG.SNAPS3 (SYSPLEXA - A2)

Date Created: 13:52 -29/09/2021

Description: V1.3 Snapshot - removed the plugin

Snapshot Contents

File	ID	Created
PRJ.DEV.ASM	BENH	21/03/18
PRJ.DEV.CLIST	ROBH	21/03/18
PRJ.DEV.LIB	CJENKINS	21/03/18
PRJ.DEV.RES	CJENKINS	21/03/18
PRJ.DEV.REXX	CJENKINS	21/03/18
PRJ.DEV.JCL	CJENKINS	21/03/18
PRJ.DATA.A	CJENKINS	21/03/18
PRJ.DATA.B	CJENKINS	21/03/18
PRJ.DATA.C	CJENKINS	21/03/18

Select Snapshot Select Target Comparison Results

Comparison Target

Options

Mapping

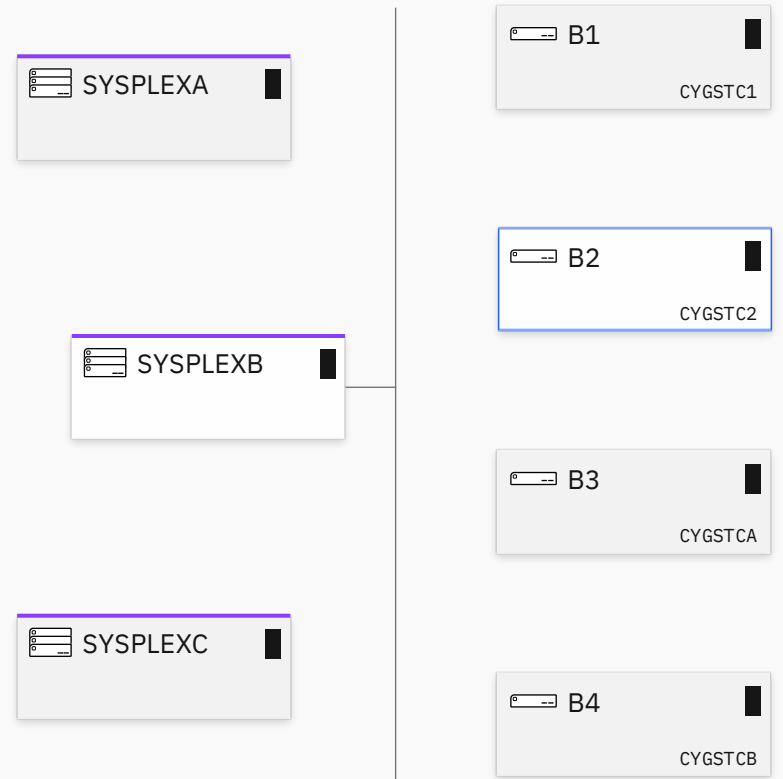
Set Options
Set Mapping

Include Mismatched Members
Partial DSN Mapping

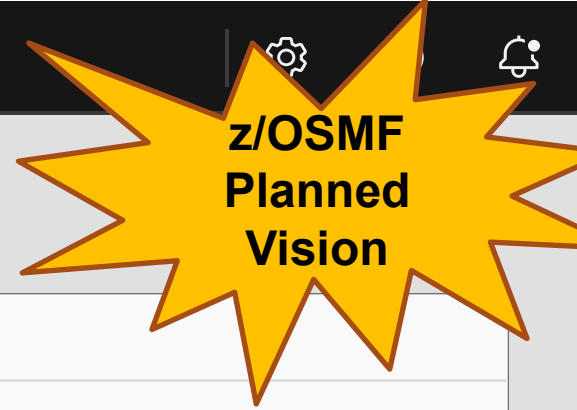
PRJ.DEV -> PROD.V103
PRJ.DATA -> PROD.V103.DATA

Live System
Second Snapshot

Views



Statements regarding IBM future direction and intent are subject to change or withdrawal, and represent goals and objectives only



Snapshot Information

Name: V1.3
Location: CYG.SNAP.S3 (SYSPLEXA - A2)
Date Created: 13:52 -29/09/2021
Description: V1.3 Snapshot - removed the plugin

Snapshot Contents

File	ID	Created
PRJ.DEV.ASM	BENH	21/03/18
PRJ.DEV.CLIST	ROBH	21/03/18
PRJ.DEV.LIB	CJENKINS	21/03/18
PRJ.DEV.RES	CJENKINS	21/03/18
PRJ.DEV.REXX	CJENKINS	21/03/18
PRJ.DEV.JCL	CJENKINS	21/03/18
PRJ.DATA.A	CJENKINS	21/03/18
PRJ.DATA.B	CJENKINS	21/03/18
PRJ.DATA.C	CJENKINS	21/03/18

Cancel Back **Next**



Libraries **Snapshots** Manage Snapshots History

Select Snapshot Select Target Comparison Results

Common Members: 14,251

Unpaired Members: 9



Matched Content



Changed Content



Additions



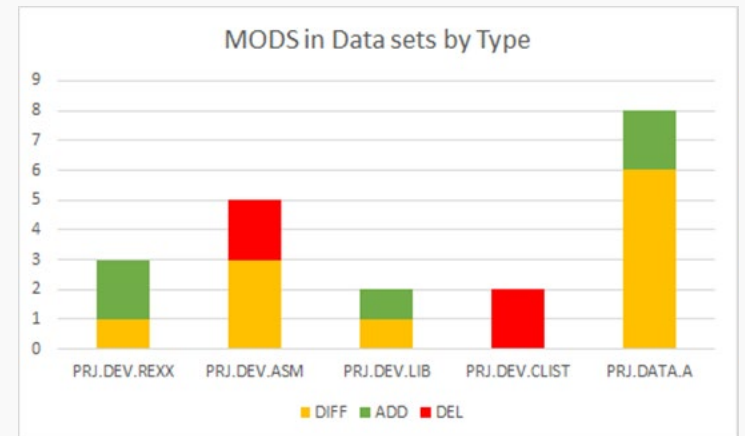
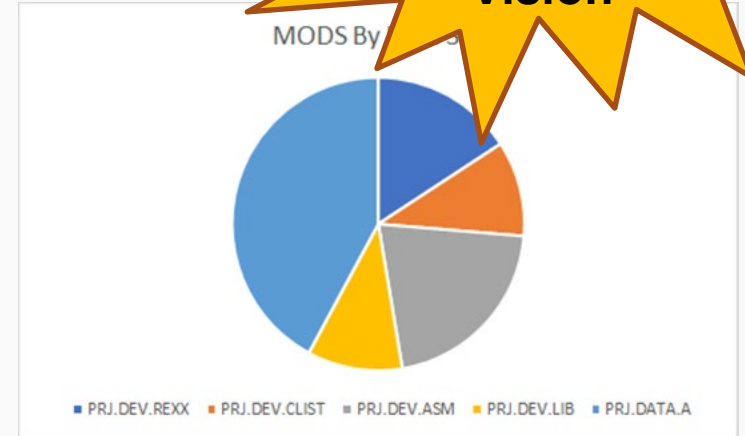
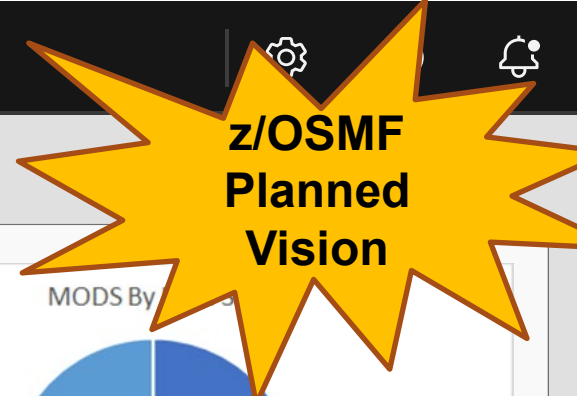
Deletions

Data Sets

Snapshot V1.3 : SYSPLEXB - B2 (Live)

DSN/Member	Result	Last Modified in V1.3	Last Modified on B2
PRJ.DEV.REXX (3)			
BUILD	Changed	10/09/2021 - 10:47	03/04/2021 - 16:32
RESET	Added	-	25/09/2021 - 10:47
FORMAT	Added	-	25/09/2021 - 10:47
PRJ.DEV.CLIST (2)			
EDITMAC	Deleted	4/09/2021 - 13:22	-
SAVEMAC	Deleted	16/04/2021 - 14:42	-
PRJ.DEV.ASM (4)			
PRJ.DEV.LIB (2)			

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Back

OK

Setting up IBM z/OS
Change Tracker:

Workflow examples

Security settings

z/OSMF configuration workflow

Workflows > Configure zOS Change Tracker

Configure zOS Change Tracker

Notes | History

Workflow Details

Workflow Steps

Actions Search All step content ?

↔ No filter applied

<input type="checkbox"/> State Filter	No. Filter	Title Filter	CalledWorkflow Filter	Automated Filter	Owner Filter	Skill Category Filter	Assignees Filter
<input type="checkbox"/> ✓ Complete	1	<input type="checkbox"/> Discovery					
<input type="checkbox"/> ✓ Complete	2	<input type="checkbox"/> (Optional) Security profiles					
<input type="checkbox"/> ✓ Complete	3	<input type="checkbox"/> Allocate required data sets for configuration					
<input type="checkbox"/> ✓ Complete (Override)	4	<input type="checkbox"/> Configure Parameters		Yes	travist	System Programmer	travist
<input type="checkbox"/> ✓ Complete (Override)	5	<input type="checkbox"/> (Optional) Set up email notifications		Yes	travist	System Programmer	travist
<input type="checkbox"/> ✓ Complete	6	<input type="checkbox"/> Configure and run CYGINIT job		Yes	travist	System Programmer	travist
<input type="checkbox"/> ✓ Complete (Override)	7	<input type="checkbox"/> Configure CLIST members					
<input type="checkbox"/> ✓ Complete (Override)	8	<input type="checkbox"/> Create command members		Yes	travist	System Programmer	travist
<input type="checkbox"/> ✓ Complete (Override)	9	<input type="checkbox"/> Prepare the started task		Yes	travist	System Programmer	travist
<input type="checkbox"/> ✓ Complete	10	<input type="checkbox"/> Move tailored members to system libraries					
<input type="checkbox"/> ✓ Complete	11	<input type="checkbox"/> z/OS Change Tracker ISPF Interface					
<input type="checkbox"/> ✓ Complete	12	<input type="checkbox"/> Verify successful installation using CYGIVP job		Yes	travist		travist

Total: 29 Selected: 0

[Return to Workflows](#) [Refresh](#) Last refresh: Aug 15, 2022, 9:55:37 AM local time (Aug 15, 2022, 4:55:37 PM GMT)

z/OSMF configuration workflow

Workflows

Workflows > Configure zOS Change Tracker > 5. Set up email notifications

Properties for Workflow Step 5. Set up email notifications

General Details **Dependencies** Notes Perform Status Input Variables Feedback

Step Dependencies

Description:

Satisfied: Yes

Step Dependencies:

Actions

↔ No filter applied

State Filter	No. Filter	Title Filter	Step Dependencies Filter	Owner Filter	Assignees Filter
✓ Complete	1	Discovery			
✓ Complete (Override)	1.1	Automatic Discovery		travist	travist
✓ Complete	1.2	Confirm volume of SCYGLNK		travist	travist
✓ Complete	3	Allocate required data sets for configuration			
✓ Complete	3.3	Allocate PARMLIB data set	1	travist	travist
✓ Complete	3.6	Allocate EMAILDAT and the EMAILONE data set	1	travist	travist

Total: 6

Conditional Dependencies

Description:
The discovery step must be run to set up the workflow

Satisfied: Yes

Expression:
{discovery.stepState} == "Complete" ? true : false

Step Attribute Values Table

z/OSMF Security Configuration Assistant

Security Configuration Assistant

zOSMF Imported Products

Validate for ID ctaylor Validate selected 1 items selected Import Filters

Category	Passed	Failed	Unknown	Manual
Automated	0	0	2	0
Configurable	0	0	0	0
Manual	0	0	0	0

z/OS Change Tracker

- Automated: 0 ✓, 0 ✗, 2 ?
- Configurable: 0 ✓, 0 ✗, 0 ?
- Manual: 0 ?

z/OSMF Security Configuration Assistant

Security Configuration Assistant

zOSMF Imported Products

Validate for ID: ctaylor

Validate selected 1 items selected

Import Filters

Legend: Passed (Green), Failed (Red), Unknown (Grey), Manual (Blue)

z/OS Change Tracker

Automated: 2 Passed, 0 Failed, 0 Unknown, 0 Manual

Configurable: 0 Passed, 0 Failed, 0 Unknown, 0 Manual

Manual: 0 Passed, 0 Failed, 0 Unknown, 0 Manual

Resources for z/OS Change Tracker Access Level	Description	Class	Who needs the access	Required Access	Validated ID	Validation Result	Action
CYG.ADMIN	Allows the user to perform Administrator tasks in Change Tracker ⓘ	FACILITY	<User of the Service>	READ	CTAYLOR	Passed	ⓘ
CYG.AUDIT	Allows the user to perform Audit tasks in Change Tracker ⓘ	FACILITY	<User of the Service>	READ	CTAYLOR	Passed	ⓘ

IBM z/OS Change Tracker Roles

- **Administrator** (FACILITY class profile CYG.ADMIN)

- Identifies which resources to monitor, with desired attributes (number of versions, if comments must be provided, ...)
- Locks data sets from updating
- Can authorize users to edit data set members by checking them out and checking back in after completion
- Control over IBM z/OS Change Tracker configuration

- **User**

- Users can edit and view data sets, with comments.

- **Auditor** (FACILITY class profile CYG.AUDIT)

- View access to change information of a monitored resource

Ability to change or view a data set still is ultimately determined by your External Security Manager (for example, RACF)!

Summary

- IBM z/OS Change Tracker
 - New z/OS V2.5 priced feature, as of May 13, 2022
 - z/OSMF interface is planned
 - Types of users: Administrator, User, and Auditor
- Monitoring and protecting
 - Administrator can set up monitoring and protecting, lock a data set for check out and check back in.
 - Users can update and view data sets (as the External Security Manager permits).
 - Auditors can only look at monitor information
- Recovery
 - Simple and intuitive comparison, allowing replacement from a version'd monitored resourced
- Audit
 - Fast easy interface for seeing what has changed
- Snapshots
 - Compare a data set member or large amounts of data on entire volume very quickly

Statements regarding IBM future direction and intent are subject to change or withdrawal, and represent goals and objectives only

Thank you

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