

z/OS 3.1 IBM Education Assistant

Solution Name: z/OS Change Tracker- z/OSMF plugin

Solution Element(s): z/OS Change Tracker

July 2023



Agenda

- Trademarks
- Objectives
- Overview
- Usage & Invocation
- Interactions & Dependencies
- Upgrade & Coexistence Considerations
- Installation & Configuration
- Summary
- Appendix

Trademarks

- See url <http://www.ibm.com/legal/copytrade.shtml> for a list of trademarks.
- Additional Trademarks:
 - None

Objectives

- IBM z/OS Change Tracker is a change management tool for tracking, controlling, managing, and recovering changes in software in order to enhance the security, resiliency, and compliance of z/OS operating environments. Through the z/OSMF plugin, z/OS Change Tracker delivers a browser-based graphical UI for various administrative tasks, data set actions, and more.
- Key features include:
 - Automatic, real-time monitoring of change activities
 - Detection and recording of key elements of changes
 - Automated member-level backup for protected resources
 - Member-level recoverability with a view of previous member versions and their changes

Overview

- Who (Audience)

System programmers, Risk and Compliance Auditors,

- What (Solution)

z/OS Change Tracker is a system software change control and management solution that provides data protection, data recovery, and audit support for real-time, system-wide change tracking and control of systems libraries

- Wow (Benefit / Value, Need Addressed)

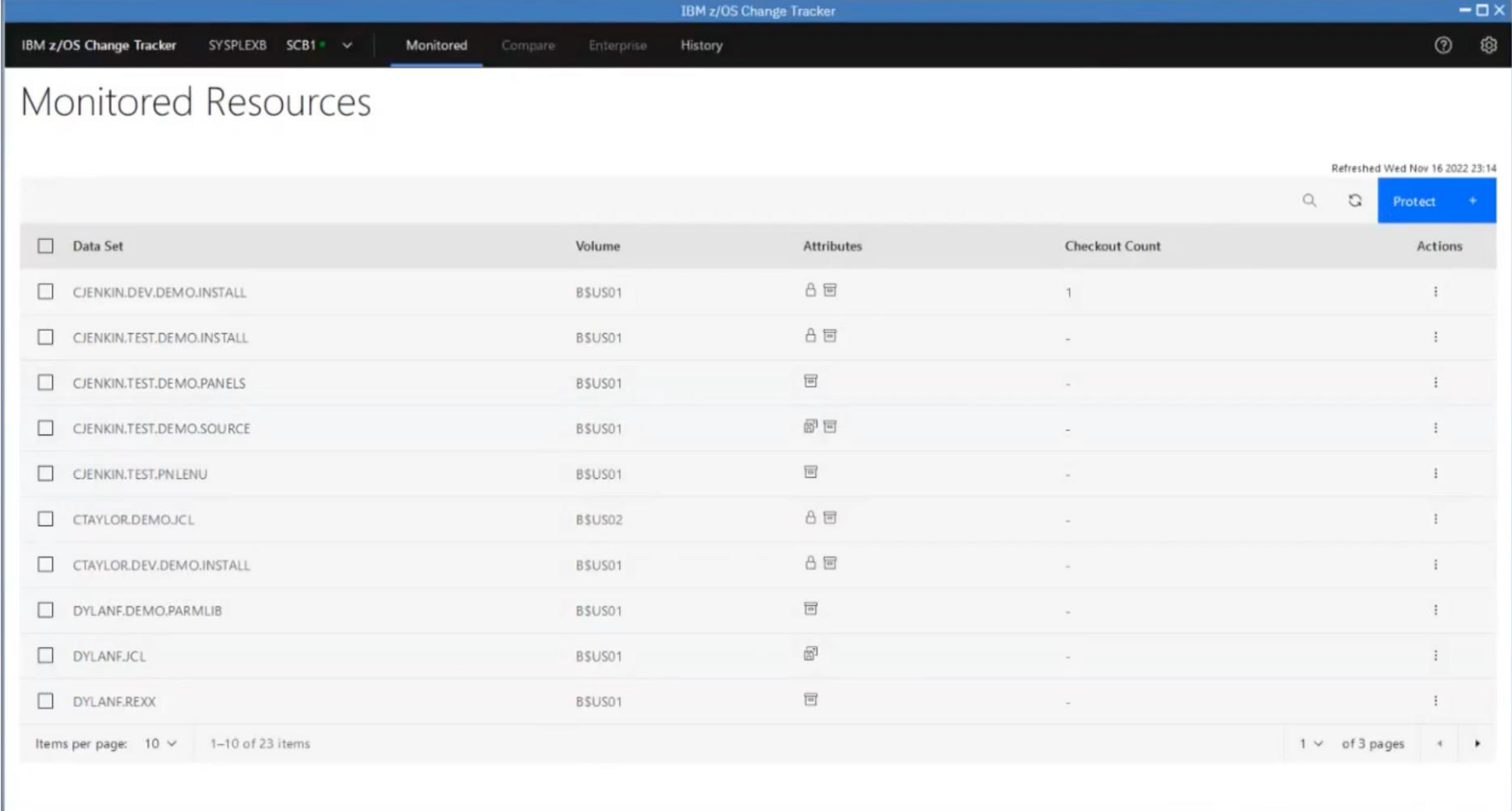
Customers often have no auditable tracking mechanism to know when changes are made to critical z/OS system, ISV software or application libraries, putting them at risk for application failures, or in worst case, a system outage. System changes can be performed by authorized users, intentionally or not,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

z/OS Change provides:



























- Member-level recovery of real-time changes with rollback capabilities to undo the effect of unplanned/undesired changes
- The ability to quickly ascertain who/ what has changed in the software environments
- Reductions in system or application outages to create a more reliable, secured, and resilient z/OS environment
- Reduces the complexities of meeting auditing and compliance requirements by providing a standardized process and control structure

Usage & Invocation

- Identify and view monitored resources in a sortable table
 - (Data set, Volume, Attributes, Checkout Count, Actions)



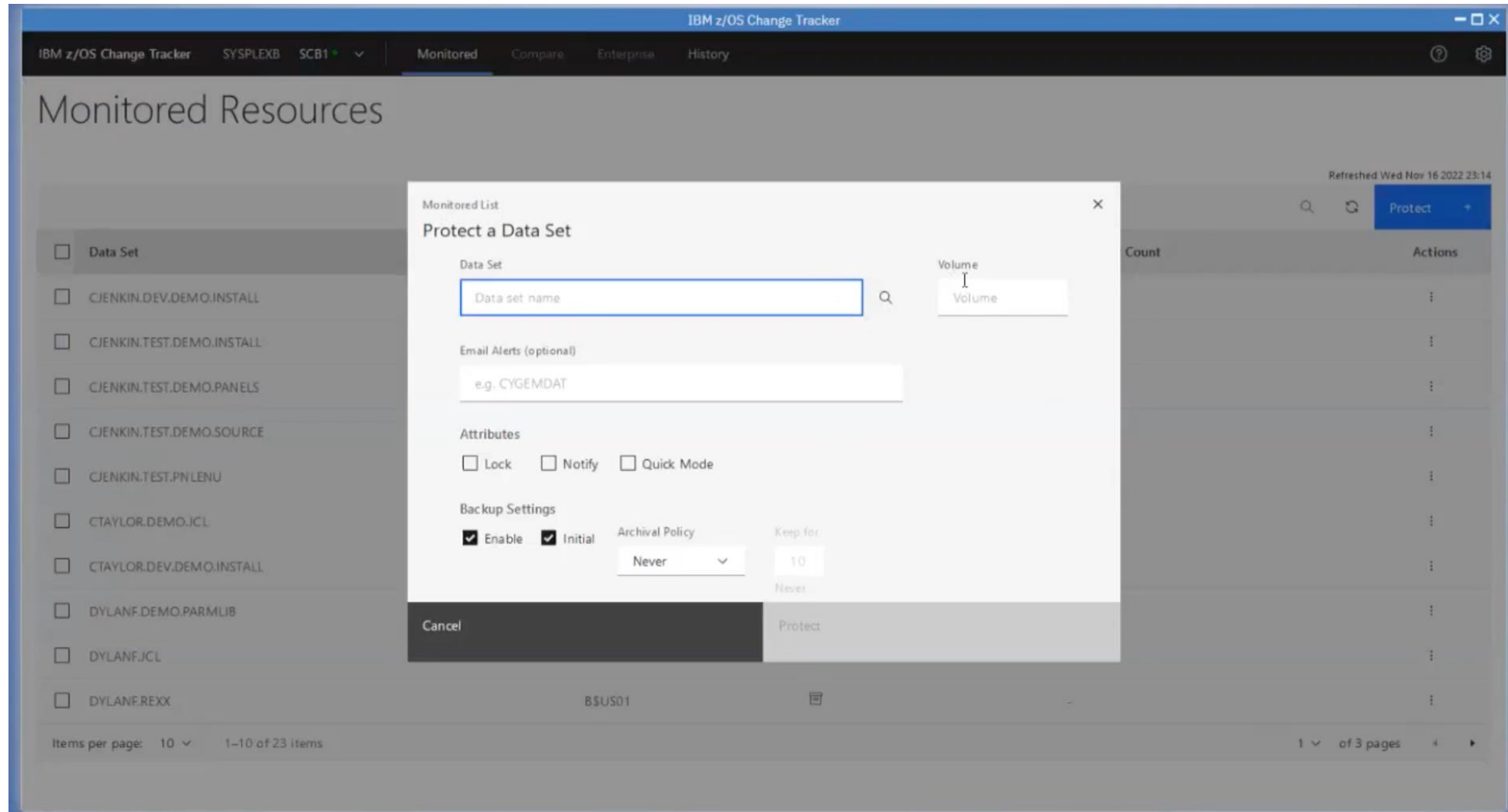
The screenshot displays the 'IBM z/OS Change Tracker' application interface. The top navigation bar includes the title 'IBM z/OS Change Tracker', a dropdown menu for 'SYSPLEXB SCB1', and tabs for 'Monitored', 'Compare', 'Enterprise', and 'History'. The main heading is 'Monitored Resources'. On the right, it indicates 'Refreshed Wed Nov 16 2022 23:14' and features a 'Protect' button with a plus icon. The table below lists monitored resources with columns for 'Data Set', 'Volume', 'Attributes', 'Checkout Count', and 'Actions'. Each row includes a checkbox for selection. The 'Attributes' column contains icons representing different resource types. The 'Checkout Count' column shows the current count for each resource. The 'Actions' column provides a menu of options for each resource. At the bottom, there is a pagination control showing 'Items per page: 10' and '1-10 of 23 items', along with a page indicator '1 of 3 pages' and navigation arrows.

| <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 |   | - |  |
| <input type="checkbox"/> CTAYLOR.DEV.DEMO.INSTALL | B\$US01 |   | - |  |
| <input type="checkbox"/> DYLANF.DEMO.PARMLIB | B\$US01 |  | - |  |
| <input type="checkbox"/> DYLANF.JCL | B\$US01 |   | - |  |
| <input type="checkbox"/> DYLANF.REXX | B\$US01 |  | - |  |

Items per page: 10 1-10 of 23 items 1 of 3 pages

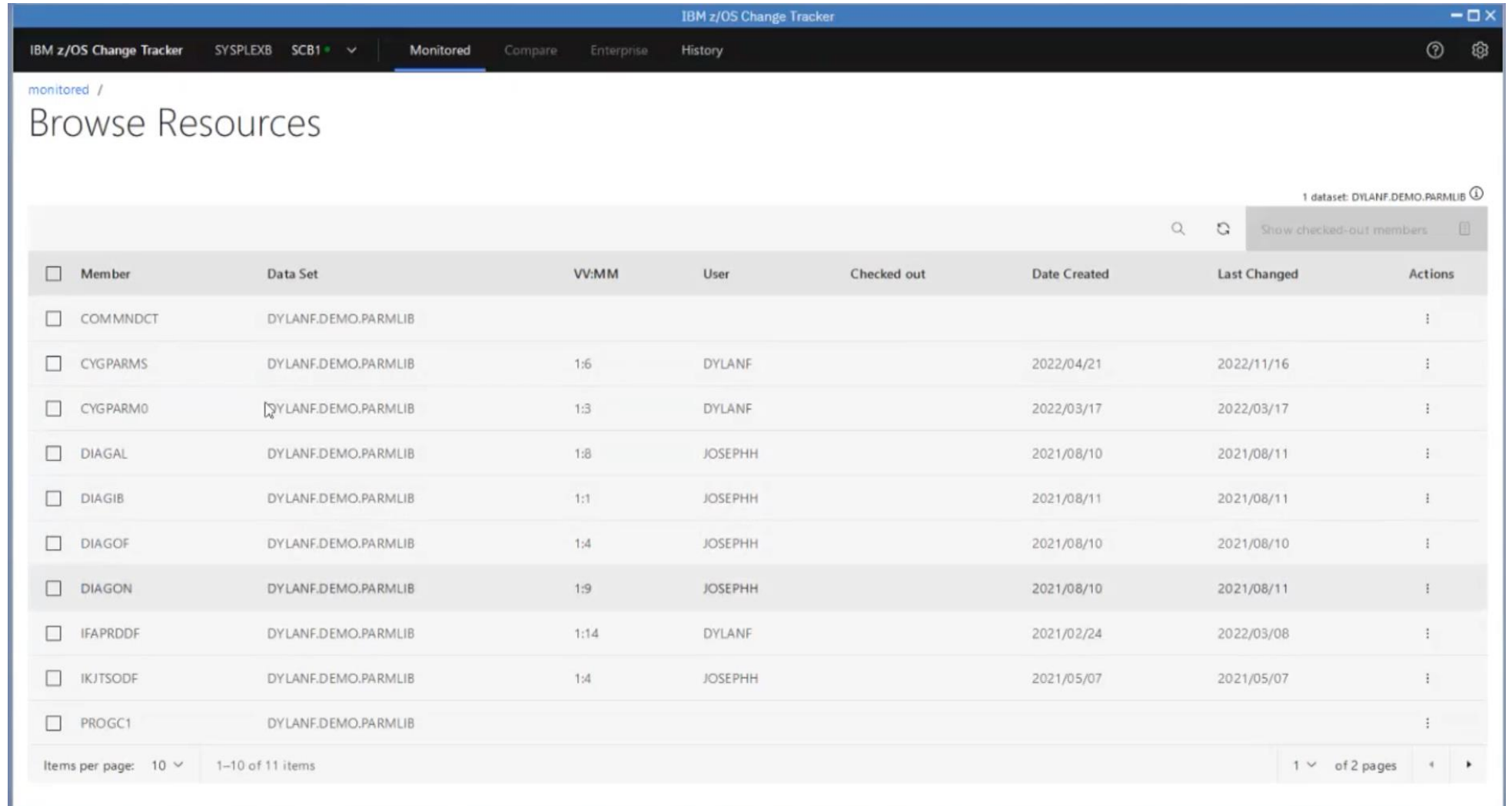
Usage & Invocation

- Add new data sets to the 'protected' list
 - Edit email preferences for an email template (if desired)
- Set desired attributes, backup settings, and archival policy



Usage & Invocation

- View detailed information for selected members
 - (Member, Data Set, Volume, User, Checked out, Data created, Last Changed, Actions)



IBM z/OS Change Tracker

monitored / Browse Resources

1 dataset: DYLANF.DEMO.PARMLIB

| <input type="checkbox"/> | Member | Data Set | VV:MM | User | Checked out | Date Created | Last Changed | Actions |
|--------------------------|----------|---------------------|-------|---------|-------------|--------------|--------------|---------|
| <input type="checkbox"/> | COMMNDCT | DYLANF.DEMO.PARMLIB | | | | | | ⋮ |
| <input type="checkbox"/> | CYGPAMS | DYLANF.DEMO.PARMLIB | 1:6 | DYLANF | | 2022/04/21 | 2022/11/16 | ⋮ |
| <input type="checkbox"/> | CYGPAM0 | DYLANF.DEMO.PARMLIB | 1:3 | DYLANF | | 2022/03/17 | 2022/03/17 | ⋮ |
| <input type="checkbox"/> | DIAGAL | DYLANF.DEMO.PARMLIB | 1:8 | JOSEPHH | | 2021/08/10 | 2021/08/11 | ⋮ |
| <input type="checkbox"/> | DIAGIB | DYLANF.DEMO.PARMLIB | 1:1 | JOSEPHH | | 2021/08/11 | 2021/08/11 | ⋮ |
| <input type="checkbox"/> | DIAGOF | DYLANF.DEMO.PARMLIB | 1:4 | JOSEPHH | | 2021/08/10 | 2021/08/10 | ⋮ |
| <input type="checkbox"/> | DIAGON | DYLANF.DEMO.PARMLIB | 1:9 | JOSEPHH | | 2021/08/10 | 2021/08/11 | ⋮ |
| <input type="checkbox"/> | IFAPRDDF | DYLANF.DEMO.PARMLIB | 1:14 | DYLANF | | 2021/02/24 | 2022/03/08 | ⋮ |
| <input type="checkbox"/> | IKJTSODF | DYLANF.DEMO.PARMLIB | 1:4 | JOSEPHH | | 2021/05/07 | 2021/05/07 | ⋮ |
| <input type="checkbox"/> | PROGC1 | DYLANF.DEMO.PARMLIB | | | | | | ⋮ |

Items per page: 10 1–10 of 11 items 1 of 2 pages

Usage & Invocation

- Browse the Audit Log of a Monitored resource to view actions that have been taken for all member across a dataset
 - (Who, What, When, How)

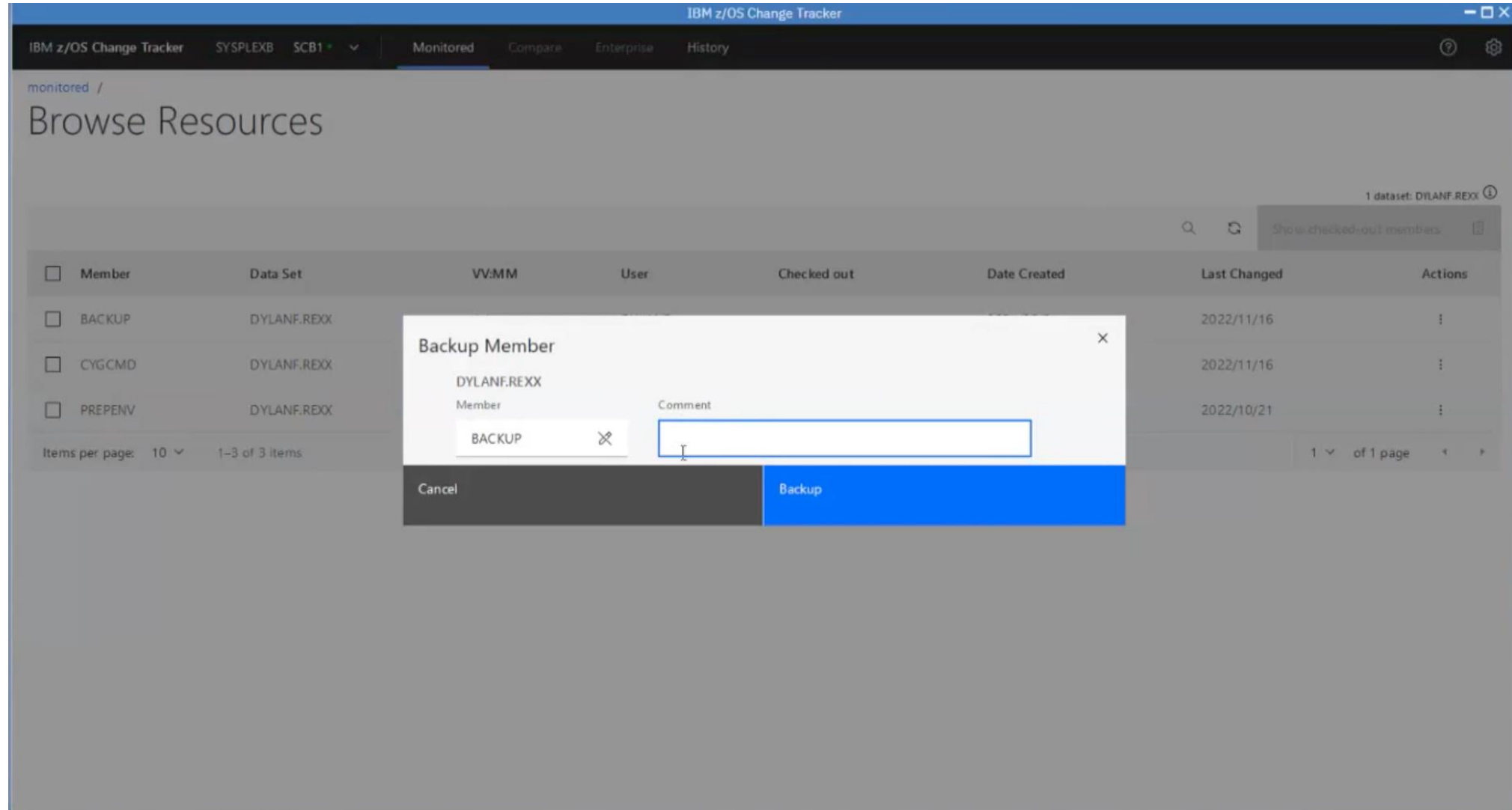
The screenshot displays the IBM z/OS Change Tracker interface. A modal window titled "Audit Log" is open, showing a table of audit entries. A red box highlights the first three rows, which all have the member name "BACKUP". A red arrow points from the text "For example, there has been 3 update actions to the member BACKUP" to the first row of the highlighted section.

For example, there has been 3 update actions to the member BACKUP

| Member | DSN | User | Date | System | Program | Action | Ol |
|----------|------------|--------|------------------|--------|----------|--------|----|
| BACKUP | DYLANF.JCL | DYLANF | 2022/10/19 11:52 | SCB1 | IKJEFT01 | UPD | - |
| BACKUP | DYLANF.JCL | DYLANF | 2022/10/19 11:52 | SCB1 | IKJEFT01 | UPD | - |
| BACKUP | DYLANF.JCL | DYLANF | 2022/10/19 11:51 | SCB1 | SURV | UPD | - |
| PROTECT | DYLANF.JCL | DYLANF | 2022/09/19 10:54 | SCB1 | IKJEFT01 | UPD | - |
| SHOWWACT | DYLANF.JCL | DYLANF | 2022/09/19 10:53 | SCB1 | IKJEFT01 | UPD | - |
| SHOWWACT | DYLANF.JCL | DYLANF | 2022/09/19 10:35 | SCB1 | IKJEFT01 | ADD | - |
| SYSAFF | DYLANF.JCL | DYLANF | 2022/09/19 10:55 | SCB1 | IKJEFT01 | DEL | - |
| ZFSCHG | DYLANF.JCL | DYLANF | 2022/09/19 11:13 | SCB1 | IKJEFT01 | REN | HF |

Usage & Invocation

- Option to manually create a Backup of a member with a comment explaining the reasoning



Usage & Invocation

- View the Backup options that have been created to Recover a given member

IBM z/OS Change Tracker

monitored / members / Recover

Backups of Resource: DYLANF.REXX(BACKUP)

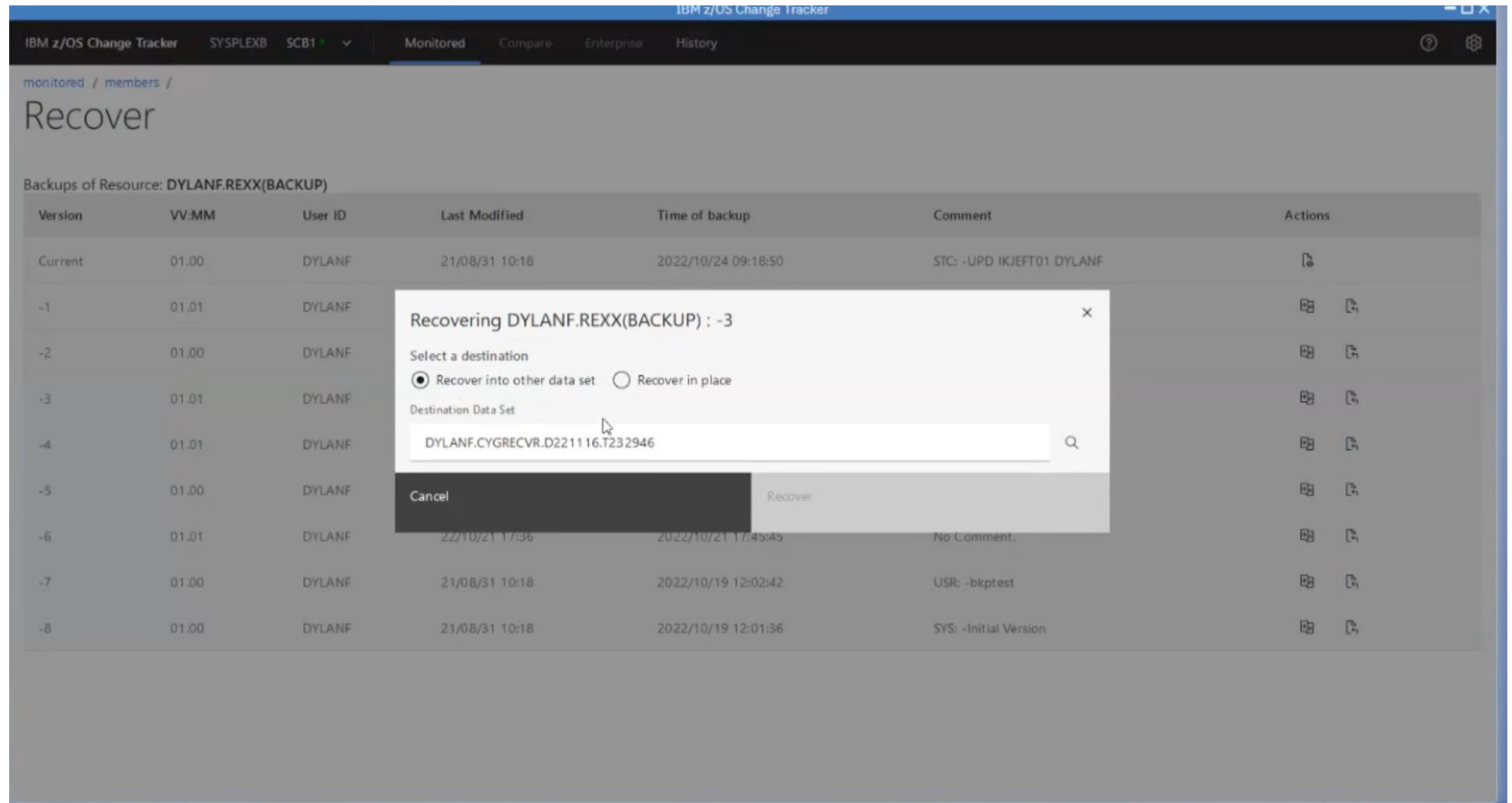
| Version | VV:MM | User ID | Last Modified | Time of backup | Comment | Actions |
|---------|-------|---------|----------------|---------------------|---------------------------|---------|
| Current | 01.00 | DYLANF | 21/08/31 10:18 | 2022/10/24 09:18:50 | STC: -UPD IKJEFT01 DYLANF | |
| -1 | 01.01 | DYLANF | 22/10/21 17:36 | 2022/10/23 17:56:21 | STC: -UPD IKJEFT01 DYLANF | |
| -2 | 01.00 | DYLANF | 21/08/31 10:18 | 2022/10/23 17:55:54 | STC: -UPD IKJEFT01 DYLANF | |
| -3 | 01.01 | DYLANF | 22/10/21 17:36 | 2022/10/22 17:50:19 | Multibackup | |
| -4 | 01.01 | DYLANF | 22/10/21 17:36 | 2022/10/21 19:52:16 | STC: -UPD IKJEFT01 DYLANF | |
| -5 | 01.00 | DYLANF | 21/08/31 10:18 | 2022/10/21 19:48:16 | STC: -UPD IKJEFT01 DYLANF | |
| -6 | 01.01 | DYLANF | 22/10/21 17:36 | 2022/10/21 17:45:45 | No Comment. | |
| -7 | 01.00 | DYLANF | 21/08/31 10:18 | 2022/10/19 12:02:42 | USR: -bkptest | |
| -8 | 01.00 | DYLANF | 21/08/31 10:18 | 2022/10/19 12:01:36 | SYS: -Initial Version | |

View the contents of a given member

Backups start at the current version and go down in negative numbers to indicate previous Backup versions

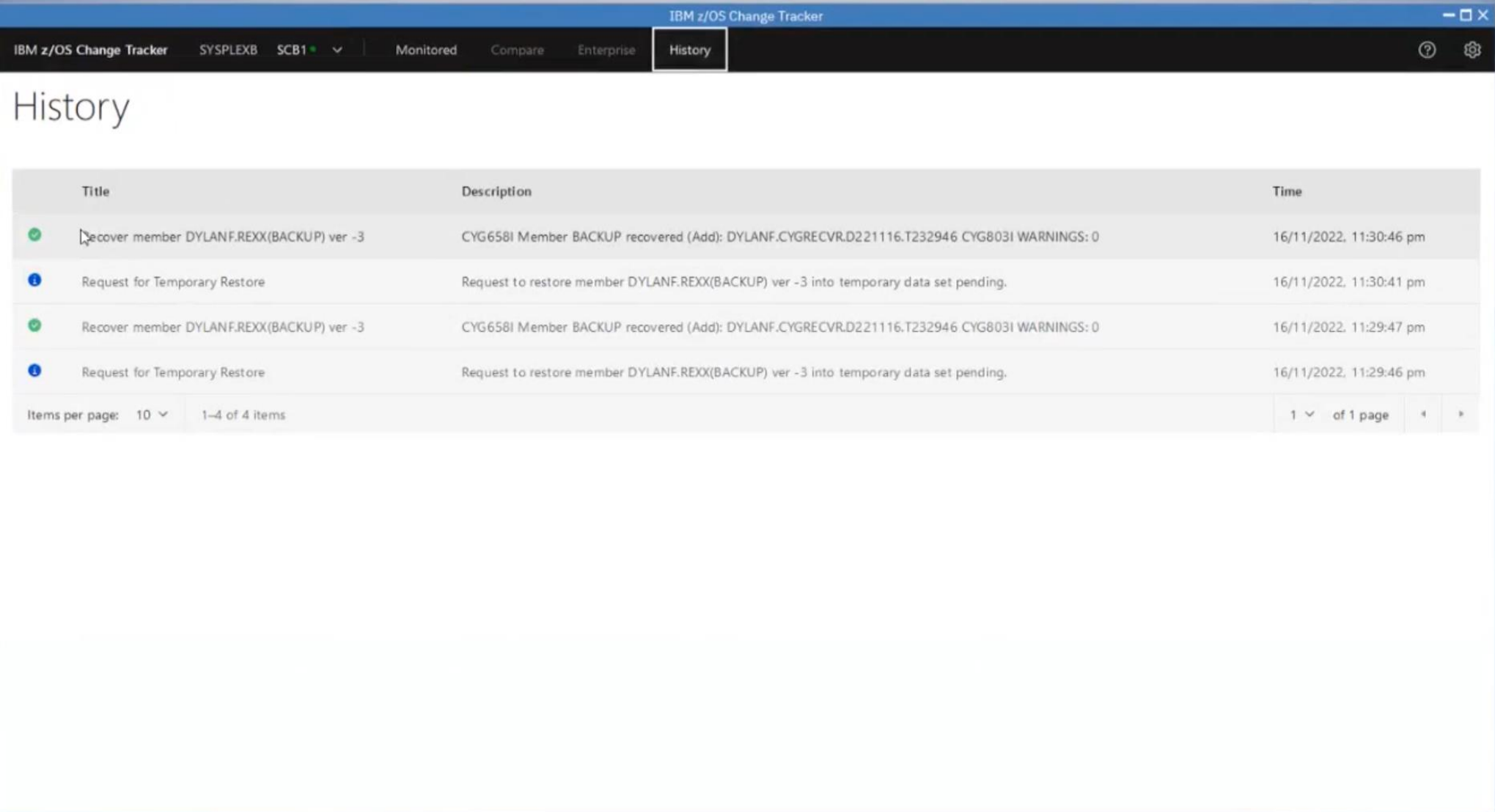
Usage & Invocation





- Restore previous Member versions
 - Recover in place or into another data set



Usage & Invocation

- Browse the History of previous actions taken in previous sessions



| IBM z/OS Change Tracker | | | History |
|---|--|-------------------------|---------|
| History | | | |
| Title | Description | Time | |
|  Recover member DYLANF.REXX(BACKUP) ver -3 | CYG658I Member BACKUP recovered (Add): DYLANF.CYGRECVR.D221116.T232946 CYG803I WARNINGS: 0 | 16/11/2022, 11:30:46 pm | |
|  Request for Temporary Restore | Request to restore member DYLANF.REXX(BACKUP) ver -3 into temporary data set pending. | 16/11/2022, 11:30:41 pm | |
|  Recover member DYLANF.REXX(BACKUP) ver -3 | CYG658I Member BACKUP recovered (Add): DYLANF.CYGRECVR.D221116.T232946 CYG803I WARNINGS: 0 | 16/11/2022, 11:29:47 pm | |
|  Request for Temporary Restore | Request to restore member DYLANF.REXX(BACKUP) ver -3 into temporary data set pending. | 16/11/2022, 11:29:46 pm | |
| Items per page: 10 ▾ 1-4 of 4 items | | 1 ▾ of 1 page ◀ ▶ | |

Interactions & Dependencies

- Software Dependencies
 - z/OS Change Tracker is a priced z/OS feature.
 - Use enablement in IFAPRDxx as FEATURENAME('CHANGE TRACKER'), or for a 90-day self-service trial use FEATURENAME('CHNGTRKR_TRIAL90').
 - z/OSMF must be enabled on the system and Change Tracker should be used as a z/OSMF plugin (via APAR [PH49337](#))
 - ISPF interface is also available, for full z/OS Change Tracker functions too.
- Hardware Dependencies
 - None
- Exploiters
 - None

* [\(Subject to normal hardware and software consumption on z/OS\)](#)

Upgrade & Coexistence Considerations

- None

Installation & Configuration

- IBM z/OS Change Tracker provides a workflow that performs the configuration of the product and the definition of the correct configuration data sets. This workflow also contains details on installing the z/OS Change Tracker z/OSMF plugin.
- To configure IBM z/OS Change Tracker, run the z/OSMF Configuration Workflow:
`/usr/lpp/cyg/zosmf/workflows/cygwflw.xml`

Summary

- The following enhancement for z/OS Change Tracker has been explained:
 - z/OS Change Tracker z/OSMF plugin

Appendix

- Learn more on the z/OS Change Tracker content solution page:
<https://www.ibm.com/support/z-content-solutions/zos-change-tracker/>