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creating intelligent software

Audit Trail/400

Product Information

Version 1.9.0

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Cosyn Software Limited

Preface

This document contains a general discussion of Audit Trail/400 and its application at iSeries / AS/400 sites.

Cosyn products

Audit Trail/400 works with and is complemented by our other products. These include:

Powerpage/400 — Systems automation and wireless messaging for IBM AS/400 and iSeries

Spool Manager/400 — Spool Automation for IBM AS/400 and iSeries

BCD Products — Award winning products from BCD Software including ProGen WebSmart, Catapult and EZ-Pickin's

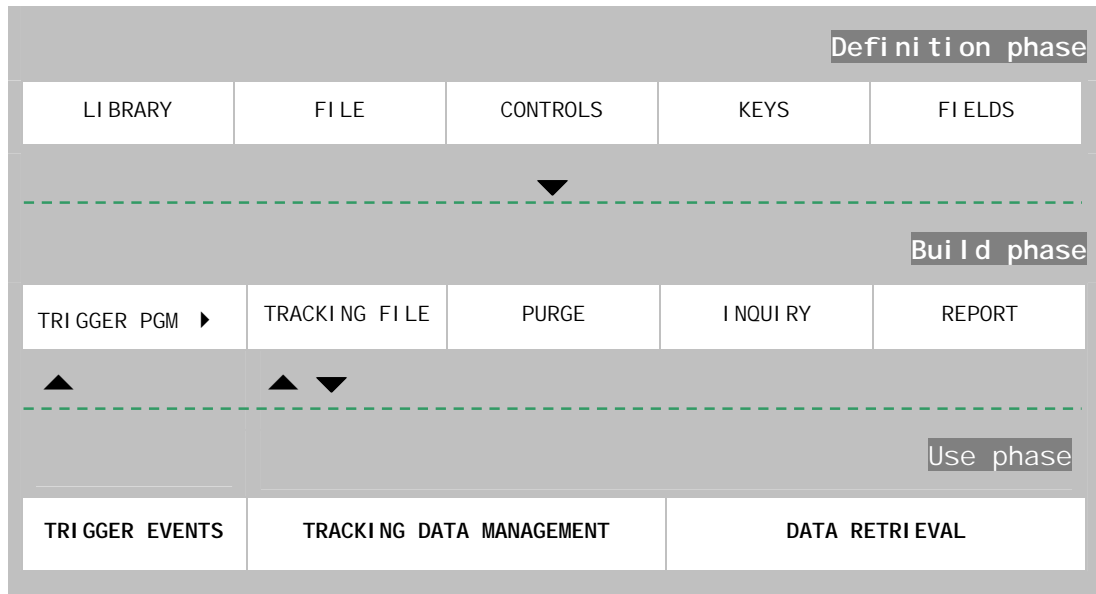You can find more information about these automation solutions on our website http://www.cosynsoftware.com/

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What is Cosyn Audit Trail/400?

Cosyn Audit Trail/400 is an application independent utility that allows you to quickly create, manage and retrieve audit trails of changes made to DB2 UDB physical file data records on the AS/400 / iSeries. It uses trigger functionality to track data record changes.

Where traditionally various types of audit trail may be built into applications on a piecemeal basis, Audit Trail/400 is a centralized, flexible and comprehensive application entirely dedicated to the task of tracking data changes across all enterprise databases.

				Definition phase
LIBRARY	FILE	CONTROLS	KEYS	FIELDS

▼

				Build phase
TRIGGER PGM ▶	TRACKING FILE	PURGE	INQUIRY	REPORT

▲   ▲ ▼

		Use phase
TRIGGER EVENTS	TRACKING DATA MANAGEMENT	DATA RETRIEVAL

1. Audit trail life cycle schematic

Audit Trail/400 consists of three main component areas available from the product menu:

- Creating the tracking definitions

- Building the objects

- Audit trail inquiry, reporting and management

What files can I track?

You can track any DB2 UDB externally described physical file with two or more fields. Good candidates for tracking are master files. For our purposes we can define a master file as containing a list of distinct items that applications access to retrieve control information. Some common examples include a product master, customer master, vendor master, employee master, bill of materials master.

There is nothing to stop you tracking transaction file changes if it is useful. Generally there are many transaction records for each master file record. Examples of transaction files are invoices and their detail lines, purchase order headers and details, general ledger journals, sales and other history files.

Tracking a transaction file can make sense if, for example, an order is created and goes through several changes during its life cycle. Naturally if volumes of input records and subsequent changes are high more data will be written to the tracking database. So downstream management of the tracking database requires some thought. Audit Trail/400 provides two ways of managing the tracking data.

How is Audit Trail/400 used?

The most common use is to track changes to data fields that control business critical interconnected processes in ERP applications. Here are just a few examples:

- Tracking changes to debtor credit limits

- Monitoring insertion of entries into, for example, a vendor master file that could conceivably be created to produce fraudulent payments

- Tracking changes to codes that control downstream manufacturing processes

- Changes made to payroll, banking and other financial applications can be far reaching and often require strict controls

- Tracking changes to recipes, bills of materials, manufacturing routings, forecasts or any other critical enterprise control data

- Creation of a master 'net change' file that can be used at a later time to synchronize secondary databases in disparate computer systems

How can Audit Trail/400 help with Quality Improvement?

Gaining visibility of changes pinpoints training issues. Integrated ERP applications are by nature complex. It is common for temporary and permanent staff to not fully understand the impact a particular change may have. The problem is exacerbated when the application has been modified and/or the documentation is not available or out of date.

Identifying and interviewing the user concerned is crucial in determining why a value was changed. Quite often there are secondary considerations that need to be factored in to the recovery effort. There may be other users involved in the decision to change a data value. Discussing it with the person directly concerned often reveals a complex tapestry of procedural, political, timing and education issues.

Prevention is naturally better than cure. When the problem is fully understood follow up measures can help ensure it does not recur. Measures can include training, documentation and tightening up of maintenance program validation routines and access.

We have also seen Audit Trail/400 used by programmers to trace production batch processing bugs and during development testing to check that programs are updating fields correctly.

Who can use Audit Trail/400 in the organization?

As an IT professional how many times have you been asked these questions?

- Who changed this field's value, and why?
- For this to happen what's wrong with our training and/or documentation?
- Who is supposed to be keeping an eye on this?
- How long has the data been like this?
- Which program / utility did they use?
- What was its value before it was changed?
- What else has been affected?
- Which backup do we need to go to?
- How can we stop it happening again?

Responsibility for Database Administration ultimately stops at the CIO's desk. It is essential to be able to demonstrate and implement effective visibility and control over database changes irrespective of where they originated. Audit Trail/400 provides the visibility that most ERP applications lack in one comprehensive package.

Using Audit Trail/400 IT staff can respond quickly to requests for the creation of audit trails and once these are in place to retain overview and control. Also from an IT perspective Audit Trail/400 can be used in recovery efforts. Pinpointing the exact date and time a data

record was changed can often be crucial in understanding the extent of a problem before formulating a total recovery plan.

From a reporting and inquiry perspective Audit Trail/400 is useful for Financial Controllers and others charged with ensuring critical data audit trails are in place and available for review. Departmental Heads can use Audit Trail/400 reports and inquiries to supervise keying and quickly identify training issues.

Audit Trail/400 is useful for Quality Controllers and those within the organization charged with any aspect of corporate and regulatory standards compliance. For example in the United States from the beginning of 2002 the Food & Drug Administration under Article 21 CFR has determined that data audit logging shall be mandatory in some sectors.

Who should administer Cosyn Audit Trail/400?

Cosyn Audit Trail/400's tracking definition routines require that the user understands in general database fundamental concepts, and in particular the database they wish to track. So the actual setting up of tracking definitions is the domain of IT professionals, not end users.

Once tracking has been defined and is underway administrators can safely distribute the inquiry and print routines that access the resulting tracking data to end users as appropriate. Included in the package are commands to facilitate the inclusion of audit trail inquiry and report functionality in local menus and programs.

Downstream management of the resulting tracking data files is also in the IT domain. Audit Trail/400 provides two different methods of managing the output. Firstly you can physically purge data records. Where this is not appropriate Audit Trail/400 provides the ability to 'detach', or supersede, the current tracking file version and attach a new, empty version of the file to be used for subsequent data output. Once detached, older, superseded, versions of the file can be either saved and deleted or retained on the system for legacy reporting and inquiry. This function is available from an easy to use version selection display.

Why Cosyn Audit Trail/400?

Traditionally adding an audit trail to a file involves making application program changes. All programs that could potentially update one or more of the tracked fields need to be modified. Output is sent to a spool file or a database. If the output is to a database, end-user reporting and inquiry methods need to be developed. The output requires ongoing management to ensure the audit trail is there when you need to refer to it.

This approach has all the usual ongoing development cycle costs, ties up resources and consumes precious development time. Furthermore it complicates future upgrades to standard package software when these local modifications need to be re-applied. From an end user perspective paper audit trails have to be firstly located and then searched through manually, a daunting task where volumes of changes are high. Audit Trail/400 eliminates all these issues.

Another problem arises when data is updated discretely from outside the modified application via Interactive SQL, DFU or OEM database utilities such as DBU, WRKDBF or Surveyor/400. In these cases no logging would be done. Audit Trail/400 automatically tracks data changes from <u>all</u> sources.

Another way to create audit trails is to use DB2 UDB journaling. This incurs significant overhead since the full before– and after image of every field in every changed record is written to disk, whether the fields changed are of interest or not. Because journaling stores full 'before' and 'after' images, even if you are only tracking one field, it is very disk-hungry.

Journaling has associated performance impacts and the journals need ongoing management separately from the journaled file. While the data available is comprehensive retrieving it in an easy to use format is not a trivial task. For these and other reasons many midrange sites have tended to develop a culture of 'journal avoidance' unless absolutely necessary. Contrast this with Audit Trail/400's easy installation, definition, 'net change' running view of only specific fields that you have selected for tracking, built-in downstream file management and ready-made inquiry and reporting.

Finally, few, if any, Disaster Recovery Plans that we have seen over the years include provision for the meaningful save, recovery and availability-testing of audit trail information. Audit Trail/400 makes it easy to incorporate this in your plan.

What are the advantages of Audit Trail/400?

- Cosyn Audit Trail/400 allows you to add audit tracking to any application without making program changes.

- You can create comprehensive and efficient audit trails in two minutes, not two days.

- Audit trails are created complete with fully functional inquiries and reports for distribution to end users. Even the purge program is created for you.

- Once the audit trail is defined all existing and new processes that update any of the tracked fields create audit trail records.

- ALL updates are tracked, including ad hoc changes performed using DFU, DDM, Interactive SQL, or OEM database utilities (client or green screen).

- You can manage all your audit trails across all applications from a single central control point, the Audit Trail/400 menu

- Audit trails are defined down to field level. Only changes that affect the fields you specified for tracking are written to disk.

- End user reporting and inquiry allows you to quickly identify by whom, when and from where changes were made, as well as the fields' values before and after the change.

- You can produce reports that show the complete running change history by field, grouped under specified keys.

- The audit trail physical tracking files reside in the tracked files' data libraries so are backed up and available for restore at the same time as the tracked data file.

- The tracking files are DB2 UDB physical files and can be used like any other externally described file on the system. The output data format is documented in the Advanced Topics section of this manual.

- Inquiries and reports can be easily distributed to end user menus and embedded within existing applications using the supplied commands

- Automation of data management functions purge and supersession is facilitated by additional commands.

Where is the tracking data stored?

Audit Trail/400 creates a unique DB2 UDB physical file to hold the tracking data for each file being tracked. This object building approach ensures maximum efficiency and flexibility. The output file record format contains only the change details and exact images of the tracked fields. Since the output files are DB2 UDB physical files you can write your own queries or programs to inquire on them.

The tracking output files are created in the tracked files' libraries. This is for reasons of data security. If you ever need to restore from backup you can be sure the saved tracked- and tracking-files will be in sync.

This approach also minimizes the possibility of a trigger firing while the tracking file is being saved since in all likelihood the entire data library is being backed up and application programs are locked-out from accessing the database. So the backed-up tracking file will reflect the respective backed-up tracked file's data exactly.

What if the tracking files become too large?

Cosyn Audit Trail/400 provides two ways of managing high volume tracking databases. Firstly you can use the supersession function available within tracking data management. This allows you to 'park' blocks of data after they have reached a certain size or age, either leaving them online for legacy reporting or, if required, saving them and removing from disk. Tracking continues into a new, empty version of the tracking file. For automation purposes there is a command available. SUPRCATVSN (supersede Cosyn Audit Trail tracking file version) can run from a scheduler or be included in a local program.

Alternatively, purging is available. Where you wish the system to physically delete tracking records when they reach a certain age you can specify the number of days to retain data. You can then start the Audit Trail/400 server perform the purges automatically or select the purge manually from the data management display. In addition the RUNCATPRG (run Cosyn Audit Trail purge) command is available which can be invoked by a scheduler or embedded in a local HLL program.

In many environments physically deleting tracking records automatically is not appropriate; for example where regulations stipulate certain archiving requirements. This is why we provide the facility to split tracking data into manageable segments using supersession.

How does Audit Trail/400 work?

Audit Trail/400 is a file– and program–generator that utilizes the DB2 UDB/400 trigger interface. After you create a tracking definition the Audit Trail/400 server creates the new tracking physical file object and its required output and inquiry objects. It also adds triggers to the tracked file either in real time interactively or by submitting a request to the server if the file is in use.

Pick the right time — The OS/400 ADDPFTRG (Add Physical File Trigger) command requires that no other process can have the file open or otherwise allocated. It is a good idea to set up or remove tracking definitions when no other application jobs are active on the system. We advise you to regard the audit trail creation phase as a system maintenance task and schedule it accordingly.

From that point on when the tracked file is updated the trigger fires. If any of the tracked fields were affected the changed or new data along with job control details is written to the tracking database file. You can then retrieve the tracking information quickly and easily using the generated inquiry and print functions.

Should you wish to suspend tracking either temporarily or permanently those options are available within the various definition screens or as command APIs that can be included in your housekeeping routines.

Integrating Audit Trail/400 with ERP applications

We have included command APIs with the product that you can use to provide access to Audit Trail/400 functionality from within local programs. For example you may wish to add function keys to call the audit trail inquiry and/or report programs from within a master file maintenance program, or place audit trail inquiry and reporting options on user menus.

In addition you may need to suspend the audit trail while scheduled maintenance is being performed on a file and functions are provided to do this.

Walk through

This section walks through the basic steps required to track changes to database files on your system.

Prerequisites and assumptions

1. It is advisable to regard the audit trail creation phase as a system maintenance task and schedule it accordingly. Creating definitions is best done after hours or at a time when the application is not being used. To attach the required triggers immediately no other job may have a lock on the file, though if the file is locked the server will remain active and try to add the trigger when the file becomes available.

2. You must know in which library the file you wish to track resides and that library should be in your library list.

3. You should be generally familiar with the layout of the file's record format and how the file is used within its application.

4. The file is (usually) a master file and not a transaction file, though you can track any DB2 UDB physical file that contains two or more fields (one key and one tracked field minimum).

5. You should know which fields you will be selecting as keys, e.g. the product code field in a product master file.

6. You should also know which other data fields you will be selecting for tracking.

Creating the definition

1. Access the Audit Trail/400 menu. Make sure the product library COSYN is in your library list. Then type 'GO CAT'

2. Take the menu option Work with tracking definitions

3. Library selection. You will see a list of the libraries in your library list. If the library you want to use is not there press F21=Command prompt and add it to your library list. Select the library containing the file using option 2 and press Enter.

4. File selection. You will see a list of the physical files in the selected library. Select the file you wish to track using option 2 and press enter.

5. Control field selection. You will see a list of the control fields available for selection. These include time, date, user, job and calling program name. Select the control information you wish to track using option 1 and press Enter.

6. Key selection. You will see a list of the fields in the file. Select the field(s) that represent the primary, distinct key for the file. If there is more than one key you can type numbers from 1 to 9 to sequence them hierarchically, 1 being the most significant and 9 the least.

> **Know your keys** — The resulting key combination represents the primary entity and overall purpose of the file. It is the unique, distinct identifier used for tracking and tracing the historical chain of events. So there should only be one record for each distinct key in the file if the tracking history is to be totally meaningful. The system does not (cannot) enforce any rules on this so you have to know how the file is used in your application.

7. Field selection. You will then see a list of the remaining fields available. Select the fields you wish to track with option 1

8. Review your selection and press Enter to create the definition.

Audit Trail/400 stores the definition and adds triggers to the file. It then automatically submits the Audit Trail/400 build server to create the physical file repository and other required objects.

Tracking

Once the triggers are added and the server has created the necessary objects tracking is active for the file. The next time the tracked file is updated the trigger will fire. If any of the tracked fields were updated the system will write a new record to the tracking database file recording the change. If none of the tracked fields were actually affected by the update no entry is written to the tracking database.

When should the server be active? The server does <u>not</u> have to be active for tracking to work. The server's task is to build objects after you create or modify a definition and to attach (or remove, after definition deletion) any remaining triggers that interactive sessions could not due to object locks. It does not update the tracking database.

Tracking data management

Administration tasks are available from the Tracking data management menu option. Administrators can view audit trail definitions, manage multiple tracking file versions, purge old data, and detach and supersede the current version.

Inquiry and reports

Once the system has begun logging tracking data you can access the reporting and inquiry functions from the menu. If you wish to distribute inquiry and reporting to end users by adding options to menus and/or calling them from application programs there are commands available to do this.

Inquiry displays

```
COSYNSW1                      Tracking Inquiry          Library . : ERPPRDF
                                                           File . : ERPPROD
Type option, key values or press function keys to scroll
  Options: 5=Show detail    8=Work with job
Current: Product number . . . MEDPAK_SMALL

Opt   Date      Time     User        Job           Jobnbr  Program    Type
 5    8/08/01  18:28:51  RILEYGE     QPADEV0006    189297  PRD0001    *UPDATE
 _    8/08/01  12:04:33  QPGMR       QPADEV0003    189296  *DFU       *UPDATE
 _    8/07/01  10:36:22  JONESRA     QPADEV0016    189201  PRD0001    *UPDATE
 _    8/07/01   8:08:16  WILSONTA    QPADEV0045    188897  PRD0001    *UPDATE
 _    8/06/01  12:19:47  QSECOFR     QPADEV0001    187797  *INTSQL    *UPDATE
 _    8/04/01  16:03:58  QPGMR       QPADEV0003    186497  *INTSQL    *UPDATE
 _    8/03/01  13:01:52  QPGMR       QPADEV0003    186102  *DFU       *UPDATE
 _    8/01/01  12:57:29  QSECOFR     DSP01         185897  *INTSQL    *UPDATE
 _    7/31/01  20:15:07  JONESRA     QPADEV0016    185594  BIL7004    *UPDATE
 _    7/21/01  10:04:51  JONESRA     QPADEV0016    183502  PRD0001    *UPDATE
 _    7/19/01  14:41:22  WILSONTA    QPADEV0045    183141  PRD0001    *UPDATE
 _    7/18/01  10:00:49  WILSONTA    QPADEV0045    182701  PRD0001    *UPDATE
 _    7/15/01  10:33:21  TEMPUSR1    QPADEV0028    182585  PRD0001    *UPDATE
 _    7/14/01  19:07:51  JONESRA     ADMGENPC01    182585  BIL7004    *UPDATE
                                                                      More...
F3=Exit  F5=Refresh  F11=Fields  F19=Prev. key  F20=Next  F21=Print  F23=Filter
Newest tracked updates are at the top of the list.
```

Running the inquiry for an audit trail lists the newest updates for the first key value. You can jump forward or back to other keys by typing the required key value into the key fields at the head of the screen, or scroll to the next key using F20, or back using F19

Pressing F11 will reveal a list of the fields that were affected by each entry.

Placing a 5=Detail alongside an entry drills down to show full details of the changes made. On the detail display you can see before and after values by scrolling to the previous record. In addition if you are only trying to find changes to a particular field you can press F23 and select only entries where that field was changed.

Typing another key into the input field(s) at the top of the screen and pressing Enter will take you to the header selection list for that key, or, if no exact match was found, the nearest key to it.

Inquiry display showing affected fields

Pressing F11=Fields displays an additional line listing the fields that were affected:

```
COSYNSW1                          Tracking Inquiry              Library . : ERPPRDF
                                                                   File . : ERPPROD
 Type option, key values or press function keys to scroll
   Options: 5=Show detail    8=Work with job
 Current: Product number . . .  MEDPAK_SMALL

 Opt   Date       Time     User        Job           Jobnbr  Program      Type
  5    8/08/01  18:28:51  RILEYGE     QPADEVO006    189297  PRD0001     *UPDATE
       PLIST
  _    8/08/01  12:04:33  QPGMR       QPADEVO003    189296  *DFU        *UPDATE
       PSALC
  _    8/07/01  10:36:22  JONESRA     QPADEVO016    189201  PRD0001     *UPDATE
       PCLAS PSALC PLIST
  _    8/07/01   8:08:16  WILSONTA    QPADEVO045    188897  PRD0001     *UPDATE
       PLIST
  _    8/06/01  12:19:47  QSECOFR     QPADEVO001    187797  *INTSQL     *UPDATE
       PCLAS PLIST
  _    8/04/01  16:03:58  QPGMR       QPADEVO003    186497  *INTSQL     *UPDATE
       PLIST
  _    8/03/01  13:01:52  QPGMR       QPADEVO003    186102  *DFU        *UPDATE
       PLIST
                                                                        More...
 F3=Exit  F5=Refresh  F11=Fields  F19=Prev. key  F20=Next  F21=Print  F23=Filter
  Newest tracked updates are at the top of the list.
```

F23=Filter

Allows you to filter out updates that did not affect a field that you are interested in. Press F23 and a window appears prompting you to select the fields you require. Only entries where the selected fields were affected will appear on the list display:

```
COSYNSW1                          Tracking Inquiry              Library . : ERPPRDF
                                                                   File . : ERPPROD
  ┌─────────────────────────────────────────────────────────────────────┐
  │                        Field Filter Selection                        │
  │   Type option, press Enter.                                          │
  │     Options:  1=Show entries where this field was changed            │
  │                                                                      │
  │   Opt  Field        Description                                      │
  │    _   PROD         Product number                                   │
  │    _   PID          ID – PR/PZ                                       │
  │    _   PCLAS        Product class                                    │
  │    _   PSALC        Sales code                                       │
  │    1   PLIST        List price                                       │
  │                                                                      │
  │                                                                      │
  │                                                                      │
  │                                                            Bottom    │
  │   F3=Exit    F6=Select All    F7=Deselect All    F12=Previous        │
  │  Please deselect any fields outside the scope of your inquiry.       │ om
  └─────────────────────────────────────────────────────────────────────┘ ter
```

The example filter selection above will restrict the header selection view to show only audit trail entries where the field named PLIST was affected.

Inquiry detail display

The detail display shows full details of the tracked change. In addition to the date/time/user/job/program control information the actual tracked field data values are shown.

Fields that had their values changed are displayed using reverse image and are easy to see. You can see their values before the change by pressing F19 to scroll back to the previous entry.

```
 COSYNSW1                     Tracking Inquiry - Detail        Library . : ERPPRDF
                                                               File . : ERPPROD
 Type Enter to return or press function keys F19 / F20 to scroll

 Current: Product number . . .  MEDPAK_SMALL

        Date      Time    User        Job        Jobnbr  Program      Type
      8/08/01  18:28:51  RILEYGE     QPADEV0006  189297  PRD0001      *UPDATE
      ----------------------------------------------------------------------
   K  Product number . . :  MEDPAK_SMALL
      ID - PR/PZ . . . . :  PR
      Product class . . :  FS
      Sales code . . . . :  FBS
      List price . . . . :       310.950_




                                                                        Bottom
 F3=Exit  F11=Show fields  F12=Cancel  F19=Prev. record  F20=Next record
 Values that were changed are highlighted. Press F19 to see the Before value.
```

Following the changes — Pressing F19 and F20 alternately will toggle between the previous and current entries. This allows you to easily see how the field values change. Pressing F19 continually scrolls you back in time; F20 scrolls you forward.

Tracking print

Tracking print allows you to print detailed reports of changes made to tracked files. You can optionally display the report on the screen which gives this function added utility as an inquiry display with text search capabilities.

As an alternative to this interactive report selection function you can produce the same reports by using the supplied command RUNCATRPT

The first screen prompts for the fields you wish to include in the report. After you have selected the fields a second screen prompts you for more aspects of the report.

First screen – field selection

```
 COSYNSW1                  Print Audit Tracking Report      Library . : ERPPRDF
                                                               File . : ERPPROD
 Select columns for report, Option 1=Select               Product master file

   Tracking file version . : ERPPRDF/Z#00000390
   Current record count  . :        882
   Date/time activated . . : 06/06/01   7:44:57
   Date/time last used . . : 08/08/01  18:03:22
   Date/time superseded  . : *ACTIVE


   Opt  Field        Type    Description
    1   Date          8P0    Date
    1   Time          6P0    Time
    1   User         10A     User profile
    _   Job name     10A     Job name
    _   Jobnbr        6P0    Job number
    1   Program      10A     Program
    1   Type          1A     (O)rig (I)ns (U)pd (D)el (K)eyupd
    1   PROD         15A     Product number
    1   PID           2A     ID - PR/PZ
    1   PCLAS         2A     Product class
                                                                    More...
 F3=Exit   F5=Refresh   F12=Cancel   F21=Command prompt
 Type option 1=Select alongside the fields to appear in the report.
```

Option 1=Select

Selects the field for inclusion in the report. Maximum width of the report is 198 columns so if the fields you select would occupy more positions than can fit across the page you will receive a message to that effect so you can de-select any fields not absolutely necessary.

Depending on which control fields were selected when the audit trail was created fields available may include date, time, type of update, user profile, job name and number and program name. The job name will be a workstation ID for interactive jobs or, for batch jobs, the name of the batch job that was running. Press Enter and the second screen prompts you for further report options.

Second screen – other report selections

```
COSYNSW1                    Print Audit Tracking Report      Library . : ERPPRDF
                                                             File . : ERPPROD
Type other options for report, press Enter.                  Product master file

  Tracking file version . : ERPPRDF/Z#00000390
  Output type . . . . . . . *DISPLAY                    *DISPLAY  *PRINT  *BOTH

  Transaction type to print *ALL            *ALL  *1ST  *INS  *UPD  *DEL  *KEY
  Print values not changed  *NO                                       *NO  *YES
  Mark changes w/character  >                                         character
  New page on key change  . *NO                                       *YES  *NO
  Date/time sequence  . . . *DESCEND                    *DESCEND  *ASCEND
  Date range, from  . . . .  6/06/01                                  date
            to  . . . . . 99/99/99

  Output queue  . . . . . . *JOB                        (if *PRINT or *BOTH)
    Library   . . . . . . .
  Hold  . . . . . . . . . . *NO                                       *NO  *YES
  Save  . . . . . . . . . . *NO                                       *NO  *YES
  User data . . . . . . . .                                           text
  Print text  . . . . . . . Sample Audit Trail/400 Report            text

 F3=Exit   F5=Refresh   F12=Cancel   F21=Command prompt
 Type other selections required for report, press Enter.
```

A sample of the report format is reproduced overleaf.

Sample report layout

```
COSYNSW1                        COSYN AUDIT TRAIL/400 REPORT                      QSECOFR        2/01/02 18:22:54   PAGE       1
Tracked file . . . . . . :      ERPPRDF/ERPPROD  ERP production data library / Product master file
Tracking file . . . . . :       ERPPRDF/Z#00000039O
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
     Date        Time      User          Program        Type    PID   PCLAS    PSALC         PLIST
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
Key:  PROD: MEDPAK_SMALL
-----------------------
    2/01/02    17:00:15    QSECOFR        PRD0001        *UPD                               >    399.500
    2/01/02    15:53:39    QSECOFR        *INTSQL        *UPD                               >    397.000
    2/01/02    12:18:06    QSECOFR        *DFU           *UPD                               >    398.000
    2/01/02    10:52:15    QSECOFR        PRD0001        *INS    PR    FB       FS                399.000
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
                          --------- DATA END ---------
                                       Sample Audit Trail/400 Report
```

1 Key: PROD: MEDPAK_SMALL

2 2/01/02 17:00:15 QSECOFR

3 > 399.500

```
COSYNSW1                        COSYN AUDIT TRAIL/400 REPORT                      QSECOFR        2/01/02 18:22:54   PAGE       2
Tracked file . . . . . . :      ERPPRDF/ERPPROD  ERP production data library / Product master file
Tracking file . . . . . :       ERPPRDF/Z#00000039O
Records selected . . . . :      4
Output type . . . . . . :       *PRINT
Print fields . . . . . . :      Z#DATE Z#TIME Z#USER Z#PGM Z#UPTP PID PCLAS PSALC PLIST
Print transaction type . :      *ALL
Print values not changed :      *NO
Change marker character  :      >
Date/time sequence . . . :      *DESCEND
Date range, from . . . . :       8/08/01
          to . . . . . :        99/99/99
Page break on key change :      *NO
Output queue . . . . . . :      *JOB
Hold . . . . . . . . . . :      *NO
Save . . . . . . . . . . :      *NO
USRDTA . . . . . . . . . :
Print text . . . . . . . :      Sample Audit Trail/400 Report
                          -------- REPORT END --------
                                       Sample Audit Trail/400 Report
```

4 COSYNSW1

5 Print values not changed : *NO

1. Tracking entries are grouped under their respective key.

2. The latest tracked entry is at the top. This default descending date/time sequence can be overridden.

3. Fields that were changed are marked with a right arrow by default, or any other printable character.

4. The last page shows the actual selection values used to produce the report.

5. Field values are suppressed if they were unchanged and not needed to show a 'before' value. You can print all values if you wish.

Commands

The Cosyn Audit Trail/400 commands enable you to add reports and inquiries to user menus and embed Cosyn Audit Trail/400 functionality within other applications. For example instead of manually selecting a report to print each day's audit trail you can set up the RUNCATRPT report print command to run on a job scheduler. The commands available are:

- **RUNCATINQ** (Run Cosyn Audit Trail Inquiry) — Runs the inquiry program for a tracking file version

- **RUNCATRPT** (Run Cosyn Audit Trail Report) — Runs the report program for a tracking file version

- **RUNCATPRG** (Run Cosyn Audit Trail Purge) — Runs the purge program for a tracking file version

- **SUPRCATVSN** (Supersede Cosyn Audit Trail Tracking File Version) — Supersedes the current tracking file version and resumes tracking into a new version of the file

- **HLDCATTRG** (Hold Cosyn Audit Trail Trigger) — Temporarily suspends logging without removing triggers

- **RLSCATTRG** (Release Cosyn Audit Trail Trigger) — Resumes logging

- **STRCATSRV** (Start Cosyn Audit Trail Server) — Starts the build server and purge processing

- **ENDCATSRV** (End Cosyn Audit Trail Server) — Ends the build server

Contact

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