



HORIZONT

IWS/Audit

The Audit System for IWS for z/OS (aka TWS for z/OS)

What is IWS/Audit?

IWS/Audit is a change documentation system for IWS z/OS:

- IWS/Audit tracks and documents all user modifications made to
 - The definition database
(WS, Calendar, Period, AD, OI, Specres, ETT, JCLVAR, RunCycle)
 - The LTP (long term plan)
 - The CP (current plan)
 - The JS file (JCL)
- IWS/Audit tracks and keep versions
- IWS/Audit allows to compare versions
- IWS/Audit allows to restore old versions

How does it work?

- IWS/Audit consists of
 - VSAM database
 - ISPF Dialog
 - Set of Batch Jobs for reporting, housekeeping and maintenance.
- IWS/Audit is reading the IWS job tracking log files
(JT-Files and/or the daily EQQTROUT file)
- IWS/Audit detects what happened and writes the change information to the VSAM file.
- IWS/Audit automatically creates (old) versions of all IWSz definition objects and keeps them as long as you want
- The ISPF Dialog enables you to search for these changes
(see next slides)

IWS/Audit - Main Panel

```
Sitzung C - [32 x 80]
----- TWS/AUDIT V7R3M0: Start Panel -----
Option ==> _

TWS/Audit database                               Subsystem: TXGC
 1  Workstations                                  Last recorded Update:
 2  Calendars                                     24.03.2016 at 11.56.31
 3  Periods                                       Last processed record:
 4  Applications                                  24.03.2016 at 17.07.02
 5  Operator Instructions
 6  Special Resources
 7  Event Triggered Criterias
 8  JCL Variable Tables
 9  JS Changes (JCL)
10  LTP Changes
11  Run Cycle Groups
 A  All Types

Current Plan
CP  Start program
MCP Audit of MCP

                                Last recorded MCP Update:
                                24.03.2016 at 12.38.58

0  Options
```

This is the main panel of IWS/Audit.
Select the desired option.

MA C 02/014

IWS/Audit - Applications

```
Sitzung C - [32 x 80]
----- Search Arguments for Applications -----
Command ==>

Name          ==> HOR*
Type          ==> (A - Application G - Group)
Jobname       ==>
Status        ==> (H - Pending P - Pending)
Description   ==>
Owner ID      ==>
Owner Text    ==>
Auth. Group   ==>
Group Def.    ==>

Criteria for the Change Action

Action        ==> (D - Delete I - Insert U - Update B - Browse)
User          ==>

Interval      ==> (Hours) (Leave blank to specify dates)
Date from     ==> (DD.MM.YYYY)   Time from     ==> (HH.MM)
Date to       ==> (DD.MM.YYYY)   Time to       ==> (HH.MM)

MA C 05/026
```

Option 4 offers the search panel for application descriptions, e.g. search for changes on applications "HOR*"

IWS/Audit - Applications

```
Sitzung C - [32 x 80]
TWS/Audit:Applications ----- ROW 001 TO 024 OF 100
Command ==>                               SCROLL ==> CSR

Command: ALL SORT Report
LnCmd  : S Select B Browse C Comp. O Comp. to TWS  G Gen. Batchl.  P Print
         R Restore with TWS/BatchAD

L Application      T S Valid from Valid to   A Date      Time      Userid      Ow>
- HOR1111          A A 30.04.2012 31.12.2071 D 25.03.2016 11.24.59 P390K      BRI
- HOR1111          A A 30.04.2012 31.12.2071 U 25.03.2016 11.24.52 P390K      BRI
S HOR94DEMO        A A 21.03.2016 31.12.2071 U 24.03.2016 10.54.01 P390K      P39
- HOR94DEMO        A A 21.03.2016 31.12.2071 U 22.03.2016 17.40.50 P390K      P39
- HOR94DEMO        A A 21.03.2071 31.12.2071 B 21.03.2016 11.24.53 P390K      P39
- HOR94DEMO        A A 21.03.2071 31.12.2071 I 21.03.2016 11.24.53 P390K      P39
- HOR94DEMO        A A 21.03.2016 31.12.2071 I 21.03.2016 11.21.44 P390K      P39
- HOR94DEMO        A A 21.03.2016 31.12.2071 U 19.03.2016 13.59.06 P390K      HOR
- HOR94DEMO        A A 21.03.2016 31.12.2071 U 19.03.2016 13.47.41 P390K      HOR
- HOR94DEMO        A A 21.03.2016 31.12.2071 U 19.03.2016 13.39.33 P390K      HOR
- HOR94DEMO        A A 21.03.2016 31.12.2071 U 19.03.2016 13.39.05 P390K      HOR
- HOR94DEMO        A A 21.03.2016 31.12.2071 U 19.03.2016 13.38.31 P390K      HOR
- HOR94DEMO        A A 21.03.2016 31.12.2071 U 19.03.2016 13.25.31 P390K      HOR
- HOR94DEMO        A A 21.03.2016 31.12.2071 U 19.03.2016 13.24.38 P390K      HOR
- HOR94DEMO        A A 21.03.2016 31.12.2071 U 19.03.2016 13.22.54 P390K      HOR
- HOR94DEMO        A A 21.03.2016 31.12.2071 I 19.03.2016 13.20.48 P390K      HOR
- HOR95DEMO        A A 15.01.2016 31.12.2071 B 14.03.2016 08.39.50 P390K      P39
- HOR95DEMO        A A 15.01.2016 31.12.2071 I 14.03.2016 08.39.50 P390K      P39
- HOR95DEMO        A A 15.01.2016 31.12.2071 U 11.03.2016 18.40.04 P390K      P39
- HOR95DEMO        A A 15.01.2016 31.12.2071 U 25.02.2016 13.00.02 P390K      P39
- HOR90DEMO        A A 01.07.2011 31.12.2071 B 05.02.2016 12.03.53 P390K      P39
- HOR90DEMO        A A 01.07.2011 31.12.2071 I 05.02.2016 12.03.53 P390K      P39
- HOR95DEMO        A A 15.01.2016 31.12.2071 B 16.01.2016 11.38.38 P390K      P39
- HOR95DEMO        A A 15.01.2016 31.12.2071 I 16.01.2016 11.38.38 P390K      P39
MA C 12/002
```

Use line commands to e.g. Browse or Compare Versions, Select compares with the previous version

IWS/Audit – Applications, compare

```
Sitzung C - [32 x 80]
Menu Utilities Compilers Help
BROWSE SYS16085.T124452.RA000.P390K.R0180109 Line 00000000 Col 001 080
Command ==> f > Scroll ==> CSR
***** Top of Data *****
=====
A P P L I C A T I O N - U P D A T E
=====
Application ID      : HOR94DEMO      : HOR94DEMO
Type                : Application    : Application
Status              : A              : A
Valid to            : 31.12.2071    : 31.12.2071
Valid from          : 21.03.2016    : 21.03.2016
Descriptive Text    : Demo Application : Demo Application
Authority Group Name :                :
Owner ID            : P390K          : P390K
Owner Text          : TEST           : TEST
Last Update User    : P390K          : P390K
Last Update Date    > 22.03.2016 > 24.03.2016
Last Update Time    > 17:40       > 10:54
Priority            : 6              : 6
No. of Run Cycles   : 2              : 2
No. of Operations   : 5              : 5
Calendar Identity   : DEFAULT        : DEFAULT
Group Definition     :                :
Appl. Smoothing Factor :                :
Appl. Limit for Feedback :                :
=====
O P E R A T I O N - U P D A T E
=====
Operation Number    : 01             : 01
Workstation         : CP             : CP
MA C
```

The old version

The new version

IWS/Audit – Applications, compare

```
Sitzung C - [32 x 80]
Menu Utilities Compilers
BROWSE SYS16085.T124452.PF 00000000 Col 001 080
Command ==> f > Scroll ==> CSR
*****
=====
A P P L I C A T I O N   -   U P D A T E
=====
Application ID          : HOR94DEMO          : HOR94DEMO
Type                   : Application        : Application
Status                 : A                      : A
Valid to               : 31.12.2071         : 31.12.2071
Valid from             : 21.03.2016         : 21.03.2016
Descriptive Text       : Demo Application    : Demo Application
Authority Group Name   :                      :
Owner ID               : P390K              : P390K
Owner Text             : TEST               : TEST
Last Update User       : P390K              : P390K
Last Update Date       > 22.03.2016         > 24.03.2016
Last Update Time       > 17:40             > 10:54
Priority                : 6                   : 6
No. of Run Cycles      : 2                   : 2
No. of Operations      : 5                   : 5
Calendar Identity      : DEFAULT             : DEFAULT
Group Definition       :                      :
Appl. Smoothing Factor :                      :
Appl. Limit for Feedback :                      :
=====
O P E R A T I O N   -   U P D A T E
=====
Operation Number       : 011                 : 011
Workstation            : CPU                 : CPU
MA C                                                           04/018
```

F > guides you to the changed values



IWS/Audit – Applications, find changes

```
Sitzung C - [32 x 80]
Menu Utilities Compilers Help
BROWSE SYS16085.T124452.RA000.P390K.R0180109 Line 0000 CHARS '>' found
Command ==> _____ Scroll ==> CSR
-----
O P E R A T I O N   -   U P D A T E
-----
Operation Number      : 012                : 012
Workstation           > CPU                  > DMY
Operation Description : Report              : Report
Duration              > 00:03:00             > 00:01:30
Smoothing Factor     :
Limit for Feedback   :
Automatic Error Completion : Y                : Y
Job Name             : AHZ00012         : AHZ00012
Job Class            :
Highest RC not in Error : 0000
Print Class          :
Form Number         :
Earliest Start Relative Day :
Earliest Start Time  :
Deadline Relative Day :
Deadline Start Time  :
Automatic CPU Release : Y                : Y
Cancel if Late & Time Job : N                : N
Submit Job on Time   : N                : N
Automatic Submit     : Y                : Y
Highest Return Code Set : Y                : Y
Deadline WTO         : N                : N
WS Res. 1 Amount Required : 00              : 00
WS Res. 2 Amount Required : 00              : 00
No. of Servers Used   : 01              : 01
MA C
```

Here for example, operation 012 was changed:
WS CPU to DMY and Duration to 00:01:30

IWS/Audit – Applications, restore to IWS

```
Sitzung C - [32 x 80]
File Edit Edit_Settings Menu Utilities Compilers Test Help
EDIT      P390K.S0W1.SPFTEMP1.CNTL          Columns 00001 00072
Command ==> _____ Scroll ==> CSR
***** Top of Data *****
000001 //P390KA   JOB  , 'HORIZONT' ,MSGCLASS=T,CLASS=A,
000002 //      NOTIFY=&SYSUID
000003 //*
000004 //*
000005 //S1      EXEC PGM=EQQYLTOP,REGION=2M
000006 //STEPLIB DD DISP=SHR,DSN=SYSH.TWS920.SEQQLMD0
000007 //EQQLIB  DD DISP=SHR,DSN=SYSH.TWS920.SEQQMSG0
000008 //EQQDUMP DD SYSOUT=*
000009 //EQQLOG  DD SYSOUT=*
000010 //SYSPRINT DD SYSOUT=*
000011 //SYSUDUMP DD SYSOUT=*
000012 //SYSIN   DD *
000013 OPTIONS
000014 ACTION(ADD)
000015 SUBSYS(TXGC)
000016 CHECK(Y)
000017 ADID(EBCDIC)
000018 OWNER(EBCDIC)
000019 MSGLEVEL(2)
000020 DURUNIT(SECONDS)
000021 ADSTART
000022 ADID(HOR1111      )
000023 ADSTAT(A)
000024 ADTYPE(A)
000025 ADVALFROM(120430)
000026 DESCR('asap demo      ' )
000027 OWNER('BRIAN      ' )
MA C 04/015
```

Submit the generated Job to load it back to IWS

IWS/Audit - Main Panel

```
Sitzung C - [32 x 80]
----- TWS/AUDIT V7R3M0: Start Panel -----
Option ==> _

TWS/Audit database                               Subsystem: TXGC
 1  Workstations                                  Last recorded Update:
 2  Calendars                                     24.03.2016 at 11.56.31
 3  Periods                                       Last processed record:
 4  Applications                                  24.03.2016 at 17.07.02
 5  Operator Instructions
 6  Special Resources
 7  Event Triggered Criterias
 8  JCL Variable Tables
 9  JS Changes (JCL)
10  LTP Changes
11  Run Cycle Groups
 A  All Types

Current Plan
CP  Start program
MCP Audit of MCP
                                Last recorded MCP Update:
                                24.03.2016 at 12.38.58
0  Options

MA C 02/014
```

It's basically the same for all these objects, except JS and LTP, they have no restore function and for CP there is an extra report to show all details.

IWS/Audit - MCP

```
Sitzung A - [32 x 80]
----- Search Arguments for MCP -----
Command ==> _

Occurrence      ==> H*
Oper. Number    ==>
Workstation     ==>
Jobname        ==>
Group          ==>

Action          ==>
Modified via    ==> (A:Auto-Rec. D:Dialog E:ETT P:PIF O:OPSTAT)
User           ==>

Medium         ==> (EB: equal blank)
Order-Person   ==>
Text-Lines     ==> (Number of Free-Text lines)

Interval       ==> (Hours) (Leave blank to specify dates)
Date from      ==> 24.03.2015 (DD.MM.YYYY)   Time from      ==> (HH.MM)
Date to        ==> 25.03.2016 (DD.MM.YYYY)   Time to         ==> (HH.MM)

MA  A  02/015
```

MCP allows to search for manual changes (Modifications) in the CP, e.g. in a specific time range and done via Dialog, or PIF or other special functions.

IWS/Audit - MCP

```
Sitzung C - [32 x 80]
TWS/Audit: ----- ROW 001 TO 017 OF 017
Command ==> _          SCROLL ==> CSR

Command: SORT Report REfresh
LnCmd  : S Select T TWS update record C Copy P Paste
Medium : 0 None 1 Mail 2 Phone 3 ProcMan 0 Other

Application      Op  JobName  LC-Date  LC-Time  Userid  Action  M Order->
HOR94DEMO        012 AHZ00012
HOR94DEMO        012 AHZ00012
HOR94DEMO        012
HOR95DEMO        005 HOR95005
HOR95DEMO        005 HOR95005
HOR99DAY         255 HOR99END
HOR99DAY         005
HOR99DAY
HOR85DAY
HOR35DAY
HOR25DAY
HOR01DAY         001
HOR01DAY         010 HOR01010
HOR01DAY         010 HOR01010
HOR90DEMO        012 AHZ00012
HOR90DEMO        012 AHZ00012
HOR00DAY         001
*****
BOTTOM OF DATA *****
```

The result list shows the Application id, Op no., Jobname ...

... and the action, e.g. ADD-AD (add appl), MOD-OP (modify oper), RER-OP (rerun/restart oper) etc., scroll right to see the timestamp, IA-Date/time end more

IWS/Audit - MCP

```
Sitzung C - [32 x 80]
Menu Utilities Compilers Help
BROWSE SYS16085.T124452.RA000.P390K.R0180109 Line 00000000 Col 001 080
Command ==> _____ Scroll ==> CSR
***** Top of Data *****
=====
J C L - B R O W S E
=====
Application Name          : HOR94DEMO
Occ Input Arrival Date    : 24.03.2016
Occ Input Arrival Time    : 06:00
Operation Number         : 12
Jobname                   : AHZ00012
Workstation               : CPU
Last Update User         : P390K
Last Update Date         : 24.03.2016
Last Update Time         : 10:53
Updating Function        : MCP
Operation Status         : Saved
Number of JCL Lines      : 11
Number of Variables      : 0
-----
J C L T E X T
-----
//AHZ00012 JOB CLASS=A,MSGCLASS=T,REGION=5M,NOTIFY=P390K
//*
//* TESTJOB VON SYSH.TXGC.JOBLIB
//*
/**>OPC SCAN
//* OADID      = HOR94DEMO
//* OYMD1     = 160324 OHHMM = 0600
//* OJOBNAME  = AHZ00012
MA C
```

Linecommand T shows the IWS update record, in case of "Modify-JCL" also the JCL, stored in the JS (compare with "S")

IWS/Audit - CP Report

```
Sitzung C - [32 x 80]
----- TWS/AUDIT V7R3M0: Start Panel -----
Option ==> CP_

TWS/Audit database                               Subsystem: TXGC
 1 Workstations                                  Last recorded Update:
 2 Calendars                                     25.03.2016 at 11.24.59
 3 Periods                                       Last processed record:
 4 Applications                                  25.03.2016 at 11.24.59
 5 Operator Instructions
 6 Special Resources
 7 Event Triggered Criterias
 8 JCL Variable Tables
 9 JS Changes (JCL)
10 LTP Changes
11 Run Cycle Groups
 A All Types

Current Plan
CP Start program
MCP Audit of MCP                               Last recorded MCP Update:
                                           24.03.2016 at 12.38.58
0 Options

MA C 02/016
```

While IWS/Audit "MCP" keeps only key data, you can use option "CP" to create a detailed report

IWS/Audit - CP Report

```
Sitzung C - [32 x 80]
----- TWS/AUDIT for Current Plan -----
Command ==> 1_
Please select
1 - Actual Changes since Replan/Extend (JT Files)
2 - Also older Changes (Tracklog)
3 - Show Result

Data set names
NCP      : SYSH.TXGC.NCP
Tracklog : SYSH.TXGC.EQQTROUT
Output   : P390K.TWSAUDIT.CPREPORT

MA C 02/016
```

Specify the tracklog to be read, JT-Files or older EQQTROUT files (GDGs)

IWS/Audit - CP Report

```
Sitzung C - [32 x 80]
----- TWS/AUDIT for CP: Specify Parameters for Actual Changes -----
Command ==>

Jobname      ==>
Occurrence   ==> *
User ID      ==>
Owner ID     ==>

Search for status or open interval changes on workstations:
Workstation  ==>

Search string ==>
Interval     ==> 1      (Hours) (Leave blank to specify dates)
Date from    ==>      (DD.MM.YYYY)  Time from    ==>      (HH.MM)
Date to      ==>      (DD.MM.YYYY)  Time to      ==>      (HH.MM)
Modified via ==> D _    (A:Auto-Rec. D:Dialog E:ETT P:PIF,
                        does not work for changes on special resources)

MA  C  16/024
```

For example: List all jobs that were changed manually (=Dialog) in the last hour

IWS/Audit - CP Report

```
Sitzung C - [32 x 80]
----- TWS/AUDIT for CP -----
Command ==> _

Specify Output DSN (quotes are allowed)
Output DSN   ==> 'P390K.TWSAUDIT.CPREPORT'
Generic UNIT ==>

Specify Temporary VSAM DSN (quotes are allowed)
VSAM Cluster ==> 'P390K.TWSAUDIT.NCP'
Num. of cyl. ==> 20

Jobcards
==> //P390KA JOB , 'HORIZONT', MSGCLASS=T, CLASS=A,
==> // NOTIFY=&SYSUID
==> //*
==> //*

Submit/Edit Job   ==> E      S to submit Job, E to edit Job

MA C 02/015
```

Generate and submit the job,
the report will be stored in a file

IWS/Audit - CP Report

```
Sitzung C - [32 x 80]
----- TWS/AUDIT for Current Plan -----
Command ==> 3_

Please select
1 - Actual Changes since Replan/Extend (JT Files)
2 - Also older Changes (Tracklog)
3 - Show Result

Data set names
NCP      : SYSH.TXGC.NCP
Tracklog : SYSH.TXGC.EQQTR0UT
Output   : P390K.TWSAUDIT.CPREPORT

MA C 02/016
```

After the job ended, option 3 shows you the result

IWS/Audit - CP Report

```
Sitzung C - [32 x 80]
Menu Utilities Compilers Help
BROWSE      P390K.TWSAUDIT.CPREPORT      Line 00000065 Col 001 080
Command ==>                               Scroll ==> CSR
      215 Δ 24 Δ OPERATION - MODIFY
-----
Application ID      : HOR94DEMO           : HOR94DEMO
Input Arrival Date  : 25.03.2016           : 25.03.2016
Input Arrival Time  : 06:00              : 06:00
Operation Text      : Update DB           : Update DB
Job Name            : AHZ00011           : AHZ00011
Workstation Name    : CPU                 : CPU
Operation Number    : 11                  : 11
Job/Sysout Class    :                    :
Manually Held       : N                  : N
No Operation (NOP)  : N                  : N
Execute Operation   : N                  : N
Operation IA Date   :                    :
Operation IA Time   :                    :
Operation Deadline Date : 29.03.2016           : 29.03.2016
Operation Deadline Time : 05:59              : 05:59
Duration            : 00:00:01,00           : 00:00:01,00
Parallel Servers    : 1                  : 1
WS Resource 1       : 0                  : 0
WS Resource 2       : 0                  : 0
Current Status      > Ended in Error     > Completed
Error Code          : S806                : S806
Automatic Error Tracking : Y              : Y
Number of Predecessors : 1              : 1
Number of Successors   : 1              : 1
Number of Preds. and Sucs. : 2            : 2
Number of Special Resources : 3            : 3
MA C                                                         04/015
```

Somebody set the job to completed

IWS/Audit - CP Report

```
Sitzung C - [32 x 80]
Menu Utilities Compilers Help
BROWSE P390K.TWSAUDIT.CPREPORT Line
Command ==>
Reroutable Operation : N : N
DL WTO Should be Issued : N : N
Highest Return Code : 0 : 0
User Data : :
Use User Sysout : N : N
Use Expanded JCL : N : N
Critical Job : N : N
Job Policy : :
Clean Up Type : N : N
Last Update User > : > P390K
External Monitor : N : N
Centralized Script Used : Y : Y
Extended Op Info exist : N : N
Started on wait workstation : N : N
WLM Service Class : :
Number of Cond. Preds : 0 : 0
Number of Cond. Succs : 0 : 0
Total No. of Conds T/F/U/D : 0 : 0
Number of True Conditions : 0 : 0
Number of False Conds : 0 : 0
Number of Undefined Conds : 0 : 0
Number of Cond. Deps : 0 : 0
Number of Conds with St. X : 0 : 0
Remote Job Info exist : N : N
Shadow Job : N : N
Reset bind information : N : N
Time : 2016-03-25 15:08:41,17 : 2016-03-25 15:08:41,17
Function Calling MCP : Dialog : Dialog
MA C 04/015
```

Scroll down to see all details, the userid and the timestamp of the MCP action

IWS/Audit - Summary

A brief summary of IWS/Audit functions:

- IWS/Audit documents all changes made to definition database of IWSz, to the LTP, the CP and to the JS file
- IWS/Audit tracks all versions
- IWS/Audit allows searching and comparing of all versions
- IWS/Audit allows to restore old versions of application description, workstations, special resources etc.

Thanks for your attention! Do you have any questions?

The logo for 'HORIZONT' features the word in a bold, sans-serif font. The letter 'O' is highlighted in red, while the other letters are in dark grey. The background is light grey with a large red curved shape on the left and several faint, semi-transparent geometric shapes (squares and a triangle) scattered around the text.

HO R I Z O N T

Please feel free to visit us in Munich or send an email to
info@horizont-it.com