Recent Functional Enhancements
The Control Editor (TCE)
Release 16

Contact us for additional information:

NewEra Software Technical Support

800-421-5035 or 408-520-7100
Or text support requests to 669-888-5061

support@newera.com
www.newera.com

Rev: 2020-1-14

1 Table of Contents

1 Table of Contents **2**
2 Overview **3**
3 New/Enhanced Category Definition Syntax **4**
3.1 Category Type 4
3.2 Category Access Control 4
3.2.1 Journal Event Selection - Legacy View 5
3.2.2 Journal Event Selection - Extended View 5
3.2.3 Control Journal Entry - An Example: 5
3.2.4 3.4 Denial - Journal Entry Heading Text 5
3.2.5 3.2 Warning - Journal Entry Heading Text 5
3.2.6 Steps Necessary to Implement 3.4/3.2 Event Intercept 6
3.3 Auto Detect Changes 6
4 TCE Configuration Dialogs **7**
4.1 Permit/Exclude UserIds 8
4.1.1 When CNTL(ON) is set User may be Permitted access 9
4.1.2 When CNTL(OFF) is set Users may be Excluded/Denied Access 9
5 Category Overview Worksheet **10**
5.1 Category Prompting 10
6 Monitoring Controlled Category List **11**
6.1 Monitoring for Control List Changes and/or Errors 11
6.1.1 Journal Event Selection - Legacy View 11
6.1.2 Journal Event Selection - Extended View 11
6.1.3 Notification Email - Control List Changes and/or Errors 12
6.2 Monitoring for Module Changes within a Controlled Library 13
6.2.1 Journal Event Selection - Legacy View 13
6.2.2 Journal Event Selection - Extended View 13
6.2.3 Module Change Journal Entry -Typical 14
6.2.4 Module Change Notification Email -Typical 14
6.2.5 Module No Change Notification Email -Typical 14
6.3 Monitor Interface - Libraries and Modules 15
6.3.1 Background Vs. Foreground Operations 15
6.3.2 Building a User Defined Control List 15
7 TCE/ISPF Panel - Dynamic Intercept API **17**
7.1 An overview of NSISEUX1 - On entry: 17
7.2 An overview of NSISEUX1 - LINKEDIT 17
7.3 One Example 17
8 Conforming TSO/ISPF - Support for the 3.4/3.2 Event Intercept **18**

2 Overview

The purpose of this document is to describe certain 'Mid Release' functional enhancements to The Integrity Controls Environment, specifically The Control Editor. They include:

- Control Options that ensure the integrity of the NSECTLxx Parmlib Member and the Boundaries established by the Control Categories contained therein.

- An Interval Monitor Application that provides Notice/Alert of Changes and/or Errors in the Active TCE Category Control List. Where Errors could include: Uncataloged entries, Duplicate entries and/or the Misclassification of a Dataset/Library within Category Type - EDIT/LOAD.

- The addition of Load Libraries and the Modules they contain as a valid, supported TCE Control Boundary Type.

- Support for defining and controlling the use of TSO/ISPF options 3.4/3.2 for Renaming, Deleting and/or Uncataloging Datasets and Libraries defined within a Control Category.

- Extension of the TCE Edit Control structures to include - Renaming, Deleting, Copying - of Modules in Controlled Categories composed of Load Libraries. Including Padlock Control and Controlled Event Notification support.

- Additions to the TCE Auto Change Detection Function such that change in Modules within defined TCE Managed Load Libraries are detected and recorded in the TCE Control Journal.

- An Application Programming Interface (API) that allows for the dynamic configuring and subsequent presentation of the Member/Module TSO/ISPF Display - Panel Header.

- Several new/updated Application Panels, Reports, Worksheets and Help Panels designed to support the functions described herein.

- Extended TSO/ISPF Stats are now supported as are 8 character Job/UserIds.

3 New/Enhanced Category Definition Syntax

In this release of The Control Editor, Category Definition Syntax has been enhanced to provide better control over the scope of a Controlled Category Boundary.

- The required TYPE Keyword allows for the definition of Control Category Boundaries that exclusively contain Formatted Datasets (EDIT) or Unformatted Libraries (LOAD). Mixed Categories are not supported.

- The optional CNTL Keyword allows for the definition of specific Control over either (EDIT) or (LOAD) TYPE Categories to prevent Delete, Rename or Uncatalog actions against a Dataset or Library defined with a Category Control Boundary.

- The optional CHNG Keyword can be used to turn OFF the TCE legacy process, Auto Change Detection for Categories defined as TYPE(EDIT).

3.1 Category Type

In the SYNTAX example shown below, the Category TYPE is defined as (EDIT) to indicate that the Category Control Boundary will include only Partitioned or Sequential Datasets with Define Dataset Formats. If unspecified, a system error will be reported upon initialization or dynamic activation of the TCE Primary Task.

CATEGORY GHB.PARMLIB TYPE(EDIT) CNTL(ON) CHNG(ON)

Use TYPE(LOAD) when the Category Boundary is to include Partitioned Libraries that contain LOAD MODULES.

This Keyword(Value) pair must be specified for each Controlled Category, however it is not used/not valid in defining UNIX Categories.

3.2 Category Access Control

In the SYNTAX example shown below, the Category Control Option CNTL is shown as (ON). If unspecified, this value, by default is set to (OFF).

CATEGORY GHB.PARMLIB TYPE(EDIT) CNTL(ON) CHNG(ON)

This control setting is applied to Datasets or Libraries within a Category and will prevent them from being Renamed, Deleted or Uncataloged when the attempt is made via TSO/ISPF 3.4. If the attempt is made via TSO/ISPF 3.2, a warning is displayed stating that the action will alter the scope of a Category Control Boundary.

When such events are detected, they are recorded along with available descriptive text in the TCE Control Journal as shown below.

3.2.1 Journal Event Selection - Legacy View

```
       TCE 16.0 Administration: Journal Entry Selecti Row 25 to 39 of 311

    Line Commands: S - Select (View the contents of the Entry)
                   R - Restore

LINE --- Category ---    -- Entry --      -------------- Stored ---------------
CMD                      TYPE  NAME       USERID      DATE       TIME     RESULT
..    PAUL.PLAYLOAD       AE   -REN3.4-   PHARL3    07/19/2019 09:32:55  SUCCESS
```

3.2.2 Journal Event Selection - Extended View

```
              TCE 16.0 - Journaled Event Selection      Row 25 to 38 of 311
 NSIMJLY:0428                                                -Journal Entries-
-------- 311 Journal Entries in DSN:IFO.TEST.JOURNAL.D2016200.T1645026 --------
Selection Options: Show_Journal_Event_Detail Restore_a_Selected_Member
--- To Sort select a Sub-Head, To Query enter above Sub-Head, PFK1 for Help ---
- Line ----Category---- ------Event Identification------ --Date and Time-- Post
_ ____ _______________ __ _____ _____ ________ ________ ________ ________ ____
S Numb ------Name------ JF Flag1 Flag2 -JrlMbr- EventIds yy/mm/dd hh:mm:ss Rslt
_ 0026 PAUL.PLAYLOAD    AE ATMPT PLOCK -REN3.4-   PHARL3 19/07/20 09:32:55 PASS
```

3.2.3 Control Journal Entry - An Example:

Both Legacy and Extended View provide access to the same Control Journal Entry.

```
01C|-SRC: -REN3.4--------------THE CONTROL EDITOR------------- CNTLdeny(R) -
02C|SYSPLX:LOCAL    SYSNM:CPAC     USRID:ESSJDL1     TM:10:22:01 DT:05/13/19
03C|-DSN: ESSJDL1.TEST.LOAD2-----------------------------------VOL: ESPR0
04P|
05P| Change request # : 4455 Implementor: JIM
06P| Project # : 6677
07P| Implementation date: 2019/06/04 Authority: JL  08P| (yyyy/mm/dd)
09P|
```

Depending on the Method of access, 3.4 or 3.2, and the Action taken, delete, rename or uncatalog, the Journal Entry header text will dynamically change as described below:

3.2.4 3.4 Denial - Journal Entry Heading Text

```
CNTLdeny(D) - an ISPF 3.4 dataset delete event when CATEGORY CNTL(ON) specified
CNTLdeny(R) - an ISPF 3.4 dataset rename event when CATEGORY CNTL(ON) specified
CNTLdeny(U) - an ISPF 3.4 dataset uncatalog event when CATEGORY CNTL(ON) specified
```

3.2.5 3.2 Warning - Journal Entry Heading Text

```
CNTLwarn(D) - an ISPF 3.2 dataset delete event when CATEGORY CNTL(ON) specified
CNTLwarn(R) - an ISPF 3.2 dataset rename event when CATEGORY CNTL(ON) specified
CNTLwarn(U) - an ISPF 3.2 dataset uncatalog event when CATEGORY CNTL(ON) specified
```

3.2.6 Steps Necessary to Implement 3.4/3.2 Event Intercept

Use of the 3.4/3.2 Event Intercept requires that the ISPF configuration settings be updated to include the following:

```
DATA_SET_LIST_LINE_COMMAND_PROGRAM_EXIT     = NSWDLCX
ACTIVITY_MONITORING_PROGRAM_EXIT            = NSWDUSX
MEMBER_LIST_LINE_COMMAND_COMMAND_EXIT       = NSIMLSTD
SITE_WIDE_INITIAL_MACRO                     = NSIMLSTM
```

A description of the steps necessary to set up the setting can be found in a later chapter titled - Conforming TSO/ISPF - Support for the 3.4/3.2 Event Intercept.

3.3 Auto Detect Changes

In the SYNTAX example shown below, the Detected Change Option CHNG is shown as (ON). If unspecified, this value, by default, is set to (ON).

CATEGORY GHB.PARMLIB TYPE(EDIT) CNTL(ON) CHNG(ON)

This control setting applies to Categories of the (EDIT) TYPE only. Detecting changes in (LOAD) TYPE Categories is an optional process discussed later in this document.

Discovering unrecorded changes in (EDIT) TYPE Categories is a legacy process that can now be turned ON/OFF.

4 TCE Configuration Dialogs

In order to support these enhancements, the TCE Configuration Dialogs have been updated.

First, the Dataset and UNIX File boundary definition selections options have been brought forward and now appear on the Boundary Selection Panel.

Second, as a result of new support for LOAD Libraries, the Library option has been added and now appears on the Boundary Selection Panel.

The updated panel appears below:

```
                    TCE 16.0 - Control Boundary Selection

D   Datasets  .. - Dataset Categories - .. Padlock On    Userid   - PROBI1
                                                        Time     - 15:42
L   LoadLibs  .. - LoadLib Categories - .. Padlock On    Sysplex  - ADCDPL
                                                        System   - ADCD113
U   USSFiles  .. - USSFile Categories - .. Padlock On    ApplId   - TEST
                                                        ICE 16.0 - TCE 16.0
C   Commands  .. - Command Categories - .. Padlock On     Patch Level GA

M   Messages  .. - Message Categories - .. Padlock On

                +----------Global Settings---------+
                | .. Padlock Control Modes .. Warn |
                | .. External Notification .. Send |
                | .. SysMonitor Intercepts .. On   |
                | .. Command Event Logging .. On   |
                +----------------------------------+

X   Exit         - Return to the TCE Primary Menu
```

Selecting either Dataset, LoadLibs or USSFiles will display the related Category Selection Panel. The Load Library panel is shown below as an example:

```
Vers(2)       TCE 16.0 - Category Selection - LOAD Libraries  .. OverView

--------TCE Parameter Settings------- ---CTLxx--- ------Last Update------
L  ADCD113 IFO.TEST.PARMLIB        SA 00 Yes    5   PROBI1 19/07/15 04:53
P --LPAR-- ---ParmDsn Qualifier--- Sf Sf Act Ctls -UserId- yy/mm/dd hh:mm

-------------------- Controlled LoadLib Categories --------------------
Cm ----Category---- Lib Cm ----Category---- Lib Cm ----Category---- Lib
.. GHB.LOADMON        2 ..                     ..
.. PATS.PLAYLOAD      2 ..                     ..
.. PAUL.PLAYLOAD      1 ..                     ..
..                      ..                     ..
..                      ..                     ..
..                      ..                     ..
..                      ..                     ..
..                      ..                     ..
..                      ..                     ..
..                      ..                     ..
..                      ..                     ..
..                      ..                     ..

.. LoadLib  .. Prompts  .. PadLock  .. EmlNote  .. On-View  .. DesCript
```

Note that LoadLib is highlighted. Selecting any of the defined Categories in this mode will display the Controlled Library Selection Panel. In this example GHB.LOADMON was selected.

This panel is used to define the names of the LOAD Libraries that will be included with the scope of the Controlled Category, Padlock Controls, Notification Settings and information display of modules within a Library.

```
            TCE 16.0 - Controlled Library Selection       Row 1 to 2 of 2
--NSIMCLX 0704--                                            -Library Control-
----------------- 2 Control Libraries in Category:GHB.LOADMON -----------------
Category Rules: AutoDetect Cng On  Prevent Del/Ren/UCat On  Permits UserIds 002
Row Selections: Add_New Delete Update Shows_Padlock Journal Notices Module_List
--- Select Sub-Head to Sort, Query above Sub-Head, Enter Saves a Row Update ---
- Row -----Counts----- -------------------Control Boundaries-------------------

_ ___ ___ ___ ___ ____ __________________________________________ ______ ________
S Num Pad Jrl Not Mods ----------Controlled Libraries---------- Volume -System-
_ 001 000 000 000 0368 IFO.GHB.LOAD                             ------ --------
_ 002 000 000 000 0372 IFO.PAT.LOAD                             ------ --------
****************************** Bottom of data ********************************
```

The enhancements CNTL(ON/OFF) and CHNG(ON/OFF) are shown at the top of the panel, in this example highlighted in yellow.

- If no changes to the default settings have been made, 'AutoDetect Cng' will be set to 'On'. To turn it to 'Off' place the cursor under the 'On' and press enter. This action will turn the option 'Off'.

- If no changes to the default settings have been made, 'Prevent Del/Ren/UCat will be set to 'Off'. To turn it to 'On' place the cursor under the 'Off' and press enter. This action will turn the option 'On'.

Any changes made using this panel are automatically saved upon exit by updating the currently active NSECTLxx ICE Parmlib Member.

4.1 Permit/Exclude UserIds

The use of the optional CNTL(ON) control is on. It applies globally to all UserIds but may be qualified by UserId such that, when the control is in effect, users may be exempted from the control and therefore PERMITTED to (from 3.4) Delete, Rename or Uncatalog a controlled Library or (from 3.2) receive a WARNING, when such action is attempted.

On the other hand when the option CNTL(OFF) control is off, it applies globally to all UserIds but may be qualified by UserId such that, when the control is in effect, users may be EXCLUDED by the control and therefore prevented (from 3.4) Delete, Rename or Uncatalog a controlled Library or (from 3.2) receive a WARNING, when such action is attempted.

Note that the panel wording shown for this option changes dynamically, as does the supporting UserId worksheet, depending on the setting of the CNTL Keyword.

Examples of the UserId 'Permit/Exclude' Worksheet are shown below:

4.1.1 When CNTL(ON) is set User may be Permitted access

```
                TCE 16.0 - Permit LOAD Category - GHB.LOADMON

--------TCE Controlled Target-------- ---SELxx--- ------Last Update------
L  ADCD113 IFO.TEST.PARMLIB        SA 00 Yes    1   PROBI1 19/07/18 15:36
P --LPAR-- ---ParmDsn Qualifier--- Sf Sf Act Ctls -UserId- yy/mm/dd hh:mm

--------- UserIds Denied Del/Ren/UCat of Libraries in Category --------
Cm -UserId- Cm -UserId- Cm -UserId- Cm -UserId- Cm -UserId- Cm -UserId-
.. PATONE__ .. ________ .. ________ .. ________ .. ________ .. ________
.. ________ .. ________ .. ________ .. ________ .. ________ .. ________
.. ________ .. ________ .. ________ .. ________ .. ________ .. ________
.. ________ .. ________ .. ________ .. ________ .. ________ .. ________
```

4.1.2 When CNTL(OFF) is set Users may be Excluded/Denied Access

```
                TCE 16.0 - Exclude LOAD Category - GHB.LOADMON

--------TCE Controlled Target-------- ---SELxx--- ------Last Update------
L  ADCD113 IFO.TEST.PARMLIB        SA 00 Yes    2   PROBI1 19/07/18 15:36
P --LPAR-- ---ParmDsn Qualifier--- Sf Sf Act Ctls -UserId- yy/mm/dd hh:mm

------- UserIds Permitted to Del/Ren/UCat Libraries in Category --------
Cm -UserId- Cm -UserId- Cm -UserId- Cm -UserId- Cm -UserId- Cm -UserId-
.. PATTWO__ .. PATCAKE_ .. ________ .. ________ .. ________ .. ________
.. ________ .. ________ .. ________ .. ________ .. ________ .. ________
.. ________ .. ________ .. ________ .. ________ .. ________ .. ________
.. ________ .. ________ .. ________ .. ________ .. ________ .. ________
```

5 Category Overview Worksheet

The addition of the new Controls Options - CNTL and CHNG and the requirement to define specific Boundary Types - EDIT(ED), LOAD(LD) and UNIX(EF) is supported by 'Overview' option shown to the top right of the Category Selection Panel. The contents of this worksheet have been described above except for the indicator shown in the 'P' prompt column.

```
         ICE 16.0 - All Category Overview Worksheet   Row 1 to 14 of 15
NSIMLDX:0426                                            Category Controls
---------------------- 15 TCE Category Control Records -----------------------
Row Selections: Show_Category_Settings_Interface
To Sort select a Sub-Head, To Query enter above Sub-Head, PFK1 for Help
- Row ---Controlled--- TY -----------Category Includes----------- ---Setting---

_ ___ _______________ __ _____________________________ ______ ___ ___ ___ _
S -#- ---Categories--- PE ----------DSN/LIB/USS----------- Volume Ctl Det IEx P
_ 001 PATS.DIR5        EF /u/pat/tes1.txt                  -File- ON  ON  CTL -
_ 002 SYSTEM.PARMLIB   ED USER.PARMLIB                     ZDSYS1 OFF ON  000 Y
_ 003 ''               '' ADCD.Z113.PARMLIB                ZDRES1 OFF ON  ''  Y
_ 004 ''               '' SYS1.PARMLIB                     ZDRES1 OFF ON  ''  Y
_ 005 ''               '' PHARL2.PARMLIB                   LVWRKB OFF ON  ''  Y
_ 006 PAT.TEST1        '' PHARL2.PARMLIB                   LVWRKB OFF ON  000 -
_ 007 ''               '' PROBI1.TESTDSN                   LVWRKB OFF ON  ''  -
_ 008 GHB.PARMLIB      '' GBAGS1.PARMLIB                   ZDSYS1 ON  ON  000 -
_ 009 ''               '' GBAGS1.PARMLIB2                  ZDSYS1 ON  ON  ''  -
_ 010 NSEPARM.CONTROL  '' IFO.TEST.PARMLIB                 LVWRKD ON  ON  000 -
_ 011 GHB.LOADMON      LD IFO.PAT.LOAD                     LVWRKA ON  ON  002 -
_ 012 ''               '' IFO.GHB.LOAD                     LVWRKA ON  ON  ''  -
_ 013 PATS.PLAYLOAD    '' IFO.DEVL.LOAD                    LVWRKD ON  OFF 000 Y
_ 014 ''               '' IFO.PAT.LOAD                     LVWRKA ON  OFF ''  Y
```

5.1 Category Prompting

Category Prompting is a legacy feature of TCE set up as a secondary control over access to Datasets, and now libraries, that fall within a Control Category Boundary. When this control feature is used, users are prompted to provide a 'Pass Token' in order to gain access to members, modules or sequential content. The token can be unique to each Control Boundary and may be changed as frequently as needed.

In the report shown above, the 'Y' appears in the prompt column. It means that prompting for the Dataset or Libraries within the Category is in effect.

6 Monitoring Controlled Category List

The Control Journal Review Options Panel has been updated with new functions that allow access to a new set of Category Change Monitors. One for EDIT type Categories and the other for LOAD type Categories. The Updated panel is shown below.

```
                TCE 16.0 - Control Journal Review Options

J   ListJrnl  .. - List all Available Control Journals   Userid   - PROBI1
                                                        Time     - 10:28
C   ShowCats  .. - Show only Active Control Categories   Sysplex  - ADCDPL
                                                        System   - ADCD113
V   ViewJrnl  .. - View Recorded TCE Controlled Events   ApplId   - TEST
                                                        ICE 16.0 - TCE 16.0
D   EditCngs  .. - Detects & Records Unrecorded 'EDIT'    Patch Level GA

M   LoadCngs  .. - Detects & Records Unrecorded 'LOAD'

C   ClseOpen  .. - Force 'Close' Open Journal Dataset
```

6.1 Monitoring for Control List Changes and/or Errors

Each monitors for changes and errors in the Category Control List, without regard for Category Type (EDIT, LOAD, UNIX). When changes or errors are detected each is noted in the TCE Control Journal, accessed as shown below, and an optional Email Notification, as shown on the following page, is sent.

6.1.1 Journal Event Selection - Legacy View

```
      TCE 16.0 Administration: Journal Entry Selectio Row 1 to 15 of 335

      Line Commands: S - Select (View the contents of the Entry)
      R - Restore

LINE --- Category ---   -- Entry --     -------------- Stored ---------------
CMD                     TYPE  NAME      USERID      DATE      TIME     RESULT
..    TCE.DET.LISTERR    MG  DSLSTERR   DETCNGS   07/19/2019 10:45:07  SUCCESS
..    TCE.DET.LISTCNG    MG  DSLSTCNG   DETCNGS   07/19/2019 10:45:07  SUCCESS
..    TCE.DET.LIBDEL     MG  DELETED    DETCNGS   07/19/2019 11:57:23  SUCCESS
..    TCE.DET.LIBADD     MG  DSADDED    DETCNGS   07/19/2019 11:57:23  SUCCESS
```

6.1.2 Journal Event Selection - Extended View

```
         TCE 16.0 - Journalled Event Selection       Row 1 to 14 of 335
NSIMJLY:0428                                          -Journal Entries-
-------- 335 Journal Entries in DSN:IFO.TEST.JOURNAL.D2019200.T1645026 --------
Selection Options: Show_Journal_Event_Detail Restore_a_Selected_Member
--- To Sort select a Sub-Head, To Query enter above Sub-Head, PFK1 for Help ---
- Line ----Category---- ------Event Itentification------ --Date and Time-- Post
_ ____ _______________ __ _____ _____ ________ ________ ________ ________ ____
S Numb ------Name------ JF Flag1 Flag2 -JrlMbr- EventIds yy/mm/dd hh:mm:ss Rslt
_ 0002 TCE.DET.LISTERR  MG OTHER AUDIT DSLSTERR  DETCNGS 19/07/20 10:45:07 PASS
_ 0003 TCE.DET.LISTCNG  MG OTHER AUDIT DSLSTCNG  DETCNGS 19/07/20 10:45:07 PASS
_ 0002 TCE.DET.LIBDEL   MG OTHER AUDIT  DELETED  DETCNGS 19/07/20 11:57:23 PASS
_ 0003 TCE.DET.LIBADD   MG OTHER AUDIT  DSADDED  DETCNGS 19/07/20 11:57:23 PASS
```

6.1.3 Notification Email - Control List Changes and/or Errors

```
/*******************************************************************************/
/*            ICE/DETECTOR - Dataset/Library - Active Control List             */
/*            Report Date:07/19/2019 - Time:10:45:04 - User:START2             */
/*******************************************************************************/

- ---Categories--- TY ----------Dataset/Library---------- Volume CNG CTL EXC P
- ---------------- -- ---------------------------------- ------ --- --- --- -
- PATS.DIR5        EF /u/pat/tes1.txt                    -File- ON  ON  CTLUSE
- SYSTEM.PARMLIB   ED USER.PARMLIB                       ZDSYS1 OFF ON  000 Y
-        ''        '' ADCD.Z113.PARMLIB                  ZDRES1 OFF ON   '' Y
-        ''        '' SYS1.PARMLIB                       ZDRES1 OFF ON   '' Y
-        ''        '' PHARL2.PARMLIB                     LVWRKB OFF ON   '' Y
- PAT.TEST1        '' PHARL2.PARMLIB                     LVWRKB OFF ON  000 -
-        ''        '' PROBI1.TESTDSN                     LVWRKB OFF ON   '' -
- GHB.PARMLIB      '' GBAGS1.PARMLIB                     ZDSYS1 ON  ON  000 -
-        ''        '' GBAGS1.PARMLIB2                    ZDSYS1 ON  ON   '' -
- NSEPARM.CONTROL  '' IFO.TEST.PARMLIB                   LVWRKD ON  ON  000 -
- GHB.LOADMON      LD IFO.PAT.LOAD                       LVWRKA ON  ON  002 -
-        ''        '' IFO.GHB.LOAD                       LVWRKA ON  ON   '' -
- PATS.PLAYLOAD    '' IFO.DEVL.LOAD                      LVWRKD ON  OFF 000 Y
-        ''        '' IFO.PAT.LOAD                       LVWRKA ON  OFF  '' Y
- PAUL.PLAYLOAD    '' IFO.TEST.LOAD                      LVWRKB OFF ON  000 -
-        ''        '' IFO.TEST.DEMO                      ------ OFF ON   '' -
= ================ == ================================== ====== === === === =

/*******************************************************************************/
/*            RPTDSN:IFO.TEST.$ICELDXX.@ADCD113.LOADRPTS($ACTLIST)             */
/*******************************************************************************/
/*          ICE/DETECTOR - Dataset/Library - New/Old List Comparison           */
/*         New Baseline Date:07/19/2019 - Time:10:45:06 - User:START2          */
/*         Old Baseline Date:07/19/2019 - Time:09:36:02 - User:START2          */
/*******************************************************************************/

TCE0000N THE ACTIVE TCE CATEGORY CONTROL LIST HAS CHANGED.

- ---Categories--- TY ----------Dataset/Library---------- Volume CNG CTL EXC P
- ---------------- -- ---------------------------------- ------ --- --- --- -
A PAUL.PLAYLOAD    LD IFO.TEST.DEMO                      ------ OFF ON  000 -
= ================ == ================================== ====== === === === =

LEDGEND: A=ADDED, D=DELETED, N=NEW CONTROL , O=OLD CONTROL

/*******************************************************************************/
/*            RPTDSN:IFO.TEST.$ICELDXX.@ADCD113.LOADRPTS($LSTCHNG)             */
/*******************************************************************************/
/*            ICE/DETECTOR - Dataset/Library - Control List Errors             */
/*            Report Date:07/19/2019 - Time:10:45:07 - User:START2             */
/*******************************************************************************/

TCE0000E THE ACTIVE TCE CATEGORY CONTROL LIST HAS ERRORS.

- ---Categories--- TY ----------Dataset/Library---------- Volume CNG CTL EXC P
- ---------------- -- ---------------------------------- ------ --- --- --- -
D PAT.TEST1        ED PHARL2.PARMLIB                     LVWRKB OFF ON  000 -
D PATS.PLAYLOAD    LD IFO.PAT.LOAD                       LVWRKA ON  OFF 000 Y
U PAUL.PLAYLOAD    LD IFO.TEST.DEMO                      ------ OFF ON  000 -
= ================ == ================================== ====== === === === =

LEDGEND: D=DUPLICATE, U=UNCATALOGED, M=MISCLASSIFIED

/*******************************************************************************/
/*            RPTDSN:IFO.TEST.$ICELDXX.@ADCD113.LOADRPTS($LSTERRS)             */
/*******************************************************************************/
```

Note that the Notification shown above contains the full Content of the Control Category Worksheet, previously discussed, a Change Report as well as an Errors Report.

6.2 Monitoring for Module Changes within a Controlled Library

What truly differentiates one Monitor from the other is how they detect unrecorded changes within its Boundary Type at the Member, File or Module level.

- Unrecorded member or file changes in EDIT and UNIX Type Control Boundaries are monitored by TCE on an hourly basis. Changes, discovered by comparing the journal content of the last stored member or file to the current member or file, are recorded in the TCE Control Journals and Notification set as directed.

- Unrecorded changes in LOAD Type Control Boundaries are monitored by TCE on a Date/Day/Time schedule as defined in the Monitor Settings Panel and NOT hourly as with EDIT or UNIX. Changes, discovered by comparing a separately maintained Baseline as TCE DOES NOT Journal Module Content, are recorded in the TCE Control Journals and Notification set as directed.

A sample of a module change Event is shown below

6.2.1 Journal Event Selection - Legacy View

```
      TCE 16.0 Administration: Journal Entry Selectio Row 1 to 15 of 394

      Line Commands: S - Select (View the contents of the Entry)
                     R - Restore

LINE --- Category ---    -- Entry --      -------------- Stored ---------------
CMD                     TYPE  NAME       USERID      DATE       TIME     RESULT
..    TCE.DET.MODDEL     MG  CALLDEMO    DETCNGS   07/19/2019 12:06:11  SUCCESS
..    TCE.DET.MODADD     MG  CALL        DETCNGS   07/19/2019 12:06:11  SUCCESS
```

6.2.2 Journal Event Selection - Extended View

```
           TCE 16.0 - Journalled Event Selection       Row 1 to 14 of 392
NSIMJLY:0428                                                -Journal Entries-
-------- 392 Journal Entries in DSN:IFO.TEST.JOURNAL.D2019200.T1645026 --------
Selection Options: Show_Journal_Event_Detail Restore_a_Selected_Member
--- To Sort select a Sub-Head, To Query enter above Sub-Head, PFK1 for Help ---
- Line ----Category---- ------Event Itentification------ --Date and Time-- Post

_ ____ _______________ __ _____ _____ ________ ________ ________ ________ ____
S Numb ------Name------ JF Flag1 Flag2 -JrlMbr- EventIds yy/mm/dd hh:mm:ss Rslt
_ 0002 TCE.DET.MODDEL   MG OTHER AUDIT CALLDEMO  DETCNGS 19/07/20 12:06:11 PASS
_ 0003 TCE.DET.MODADD   MG OTHER AUDIT     CALL  DETCNGS 19/07/20 12:06:11 PASS
```

6.2.3 Module Change Journal Entry -Typical

```
-SRC: DETCNGS--------------THE CONTROL EDITOR---------------- Detector -
SYSPLX:ADCDPL   SYSNM:ADCD113  USRID:DETCNGS TIME:12:06:11 DATE:07/19/16
-DSN: IFO.TEST.$ICELDXX.@ADCD113.LOADPOST(CALLDEMO)---------VOL: LVWRKD-
|DTL: ------------------------CHANGE DETAIL----------------------------
MODULE DELETED FROM LIBRARY:IFO.PAT.LOAD
  State-:-Module- -Alias-- --Size-- -TTRs- AC AMO RMO
  OLDMOD:CALLDEMO NSECCAL  00000898 008510 00  31  24
```

6.2.4 Module Change Notification Email -Typical

```
/*************************************************************************/
/*                                                                       */
/*              ICE/DETECTOR - Library - Module Profile Changes          */
/*            Report Date:07/19/2019 - Time:12:06:11 - User:START2       */
/*                                                                       */
/*************************************************************************/
TCE0000N MODULE WITHIN CONTROLLED LIBRARY HAS CHANGED.
|
ICE0000I MODULE ADDED TO LIBRARY:IFO.PAT.LOAD
ICE0000I  State-:-Module- -Alias-- --Size-- -TTRs- AC AMO RMO
ICE0000I  NEWMOD:CALL     NSECCAL  00000898 008510 00  31  24
|
ICE0000I MODULE DELETED FROM LIBRARY:IFO.PAT.LOAD
ICE0000I  State-:-Module- -Alias-- --Size-- -TTRs- AC AMO RMO
ICE0000I  OLDMOD:CALLDEMO NSECCAL  00000898 008510 00  31  24

/*************************************************************************/
/*            RPTDSN:IFO.TEST.$ICELDXX.@ADCD113.LOADRPTS($MODCNGS)       */
/*************************************************************************/
```

6.2.5 Module No Change Notification Email -Typical

```
/*************************************************************************/
/*                                                                       */
/*              ICE/DETECTOR - Library - Module Profile Changes          */
/*            Report Date:07/19/2019 - Time:14:06:13 - User:START2       */
/*                                                                       */
/*************************************************************************/

TCE0000I NO MODULE CHANGES IN ACTIVE TCE CONTROL LISTS.

/*************************************************************************/
/*            RPTDSN:IFO.TEST.$ICELDXX.@ADCD113.LOADRPTS($MODCNGS)       */
/*************************************************************************/
```

6.3 Monitor Interface - Libraries and Modules

The Monitor Interface Panel is used to control the Scope and Timing of Monitor Activity and to provide a path to Monitor Reports and the Control List Worksheet.

```
                ICE 16.0 - Library and/or Module Change Monitor

/. LOADMODDETC Library And Module Changes .. Reports .. Update .. CtlList

<> /. NSE - Only Edit .. USR Only Edit .. BTH All View Lst .. RUN Now <>
      Report Library/Module Chngs: /. Addition /. Deletion /. StatCng

   /. Day - Set Time 12 : 06 and Interval 2_ Specify Hourly Interval
                     hh : mm       Values 1|2|3|4|6|8|12
   .. Wks - Set Time __ : __ and Interval ____________________________
                     hh : mm       Values SUN,MON,TUE,WED,THR,FRI,SAT
   .. Mth - Set Time __ : __ and Interval ____________________________
                     hh : mm       Values 1,2,3,10,15,20,25,EOM

/. EMAILREPORT Subject LIBRARY/MODULE_CHANGES_____________________________

   /. 1-To PRR@NEWERA.COM_____________________________________________
   .. 2-To ____________________________________________________________
   .. 3-To ____________________________________________________________
   .. From ____________________________________________________________

.. AltHLQ IFO.TEST_____________ /. JrlPost Ok /. CngOnly Ok /. ErrOnly Ok
.. PROC Name TESTDTA_ .. Email Method Yes .. Email Note On_ .. Retain _10
```

As can be seen there are many optional settings available to control the monitor and access its reports. Each is described when you place the cursor under any “underlined” descriptive text and press enter. In addition, PFK1 Help is available.

6.3.1 Background Vs. Foreground Operations

The Monitor may be run in the Foreground by selecting ‘RUN’. This differs from Background/Detector operation in that a ‘User’ provided list of Datasets/Libraries may be exclusively included and/or merged with the NSECTL Control List in the Change Detection process.

6.3.2 Building a User Defined Control List

To build the User Defined Control List, position the cursor under the word ‘Edit’ following USR and press enter. If no list is present, a blank Member will be presented in TSO/ISPF Edit with the DSN(MBR) name:

```
ifo_prefix.$ICELDXX.@system_namr.LOADBASE($MODCTLX)
```

A working member sample is shown below:

```
EDIT       IFO.TEST.$ICELDXX.@ADCD113.LOADBASE($MODCTLX) - Columns 00001 00072
****** ***************************** Top of Data ******************************
000001 CATEGORY LOAD.LIBRARY.TEST
000002 LIB IFO.TEST.LOAD
000003 LIB SYS1.LPALIB
000004 LIB SYS2.LPALIB
000005 LIB SYS3.LPALIB
000006 LIB GBAGS1.PARMLIB3
000007 CATEGORY .END
000008 CATEGORY SYSTEM.LNKLST
000009 *AUTO*
000010 CATEGORY .END
000011 CATEGORY SYSTEM.LPALST
000012 *AUTO*
000013 CATEGORY .END
000014 CATEGORY SYSTEM.APFLST
000015 *AUTO*
000016 CATEGORY .END
****** **************************** Bottom of Data ****************************
```

Note the Auto Action Indicator '*AUTO*' associated with the Category Names SYSTEM.LNKLST, SYSTEM.LPALST AND SYSTEM.APFLST. When the User List is constructed this way, TCE will automatically resolve the names of the Libraries associated with each and display their names in a fully resolved list, when you Exit.

A sample of a resolved - Found, Missing, Duplicate, Miss-Classified - User List is shown below:

```
000001 TCE0000I EXTRACT FROM:IFO.TEST.$ICELDXX.@ADCD113.LOADBASE($MODCTLX)
000002 |
000003 TCE0000I  USR LIB IFO.TEST.LOAD
000004 TCE0000I  USR LIB SYS1.LPALIB
000005 TCE0000I  *A* APF SYS1.LINKLIB
000006 TCE0000I  *A* APF SYS1.SVCLIB
000007 TCE0000I  *A* APF SYS1.SHASLNKE
000008 TCE0000I  *A* APF SYS1.SIEAMIGE
...
000058 TCE0000I  *A* LPA SYS1.SORTLPA
000059 TCE0000I  *A* LPA SYS1.SDWWDLPA
000060 TCE0000I  *A* LPA SYS1.SICELPA
000061 |
000062 TCE0000I DUPLICATE LIBRARIES IN USER DEFINED LIST.
000063 |
000064 TCE0000I  *A* APF IFO.TEST.LOAD
000065 TCE0000I  *A* LNK SYS1.LINKLIB
000066 TCE0000I  *A* LNK SYS1.MIGLIB
000067 TCE0000I  *A* LNK SYS1.CSSLIB
...
000076 TCE0000I  *A* LNK GIM.SGIMLMD0
000077 TCE0000I  *A* LNK CEE.SCEERUN
000078 TCE0000I  *A* LPA SYS1.LPALIB
000087 |
000088 TCE0000I MISSING LIBRARIES IN USER DEFINED LIST.
000089 |
000090 TCE0000I  USR LIB SYS2.LPALIB
000091 TCE0000I  USR LIB SYS3.LPALIB
000092 TCE0000I  *A* APF IFO.SYSUV.LOAD
000093 |
000094 TCE0000I DATASETS IN LIST MISCLASSIFIED AS LIBRARIES.
000095 |
000096 TCE0000I  USR LIB GBAGS1.PARMLIB3 - FORMAT IS:FB
000095 |
000098 TCE0000I NSIMLDX USER DEFINED LIBRARY CONSOLIDATION ENDED.
```

7 TCE/ISPF Panel - Dynamic Intercept API

A new TCE LOAD Module, NSISEUX1, is provided. Its function is to provide an API driven intercept of calls to the ISPF Member Display Panel such that the Member Information Line Text (highlighted in yellow) may be altered.

A sample panel header is shown below:

```
File  Edit  Edit_Settings  Menu  Utilities  Compilers  Test  Help
-------------------------------------------------------------------------------
EDIT       IFO.TEST.PARMLIB(NSECTL00) - 01.00            Columns 00001 00072
****** ***************************** Top of Data ******************************
```

7.1 An overview of NSISEUX1 - On entry:

```
R1 -   ADDRESS OF A 6-WORD PARAMETER LIST

      WORD 1 - ADDR OF 54-BYTE TITLE AREA
      WORD 2 - ADDR OF DSNAME
      WORD 3 - ADDR OF MEMBER NAME OR BLANKS
      WORD 4 - ADDR OF USERID
      WORD 5 - ADDR OF VOLSER
      WORD 6 - CAT/UNCAT INDICATOR
               - 0 IF UNCATALOGED
               - 1 IF CATALOGED

On exit, R15 contains a return code used as follows:

0   -   TITLE UNMODIFIED BY EXIT
4   -   TITLE MODIFIED BY EXIT

The exit should be re-entrant, not APF authorized; AC(0); AMODE ANY, RMODE 24.

The exit gets invoked key 8, problem state.
```

7.2 An overview of NSISEUX1 - LINKEDIT

```
Requirements are as follows:

THE OBJECT CODE FOR THE EXIT SHOULD BE LINKEDITED INTO THE IMAGE FOCUS LOAD LIBRARY
DATASET WITH THE FOLLOWING LINKEDIT CONTROL

CARD INFORMATION:

INCLUDE object(NSISEUX1)
MODE AMODE(31),RMODE(24)
NAME NSISEUX1(R) RC=0

WHERE 'object' IS THE DDNAME OF THE OBJECT CODE DATASET WHERE THE NSISEUX1 OBJECT
CODE RESIDES.
```

7.3 One Example

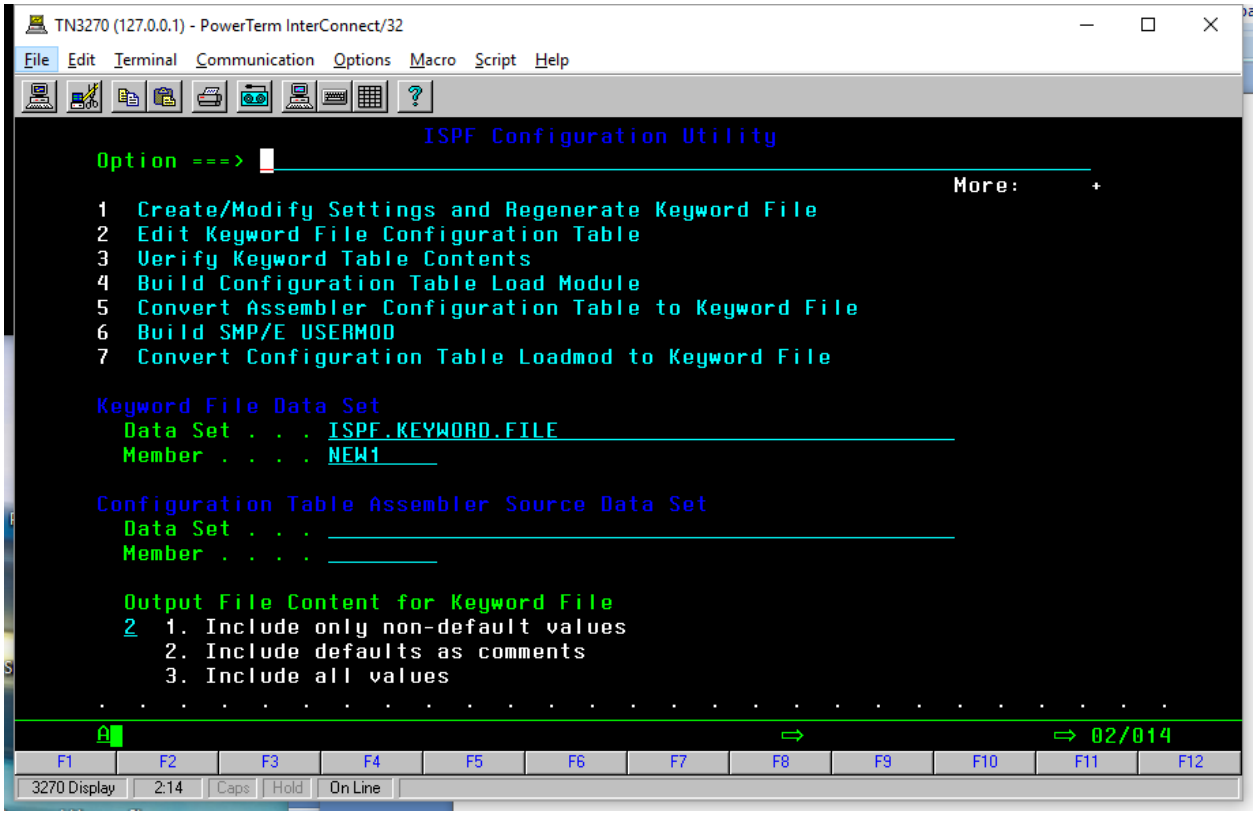
The API, NSISEUX, as found in the Image FOCUS LOAD Library, is an API example that displays the VOLSER of Uncataloged Datasets, when the VOLSER is provided on the TSO/ISPF 3.4 ‘Data Set List Utility’ Panel.

8 Conforming TSO/ISPF - Support for the 3.4/3.2 Event Intercept

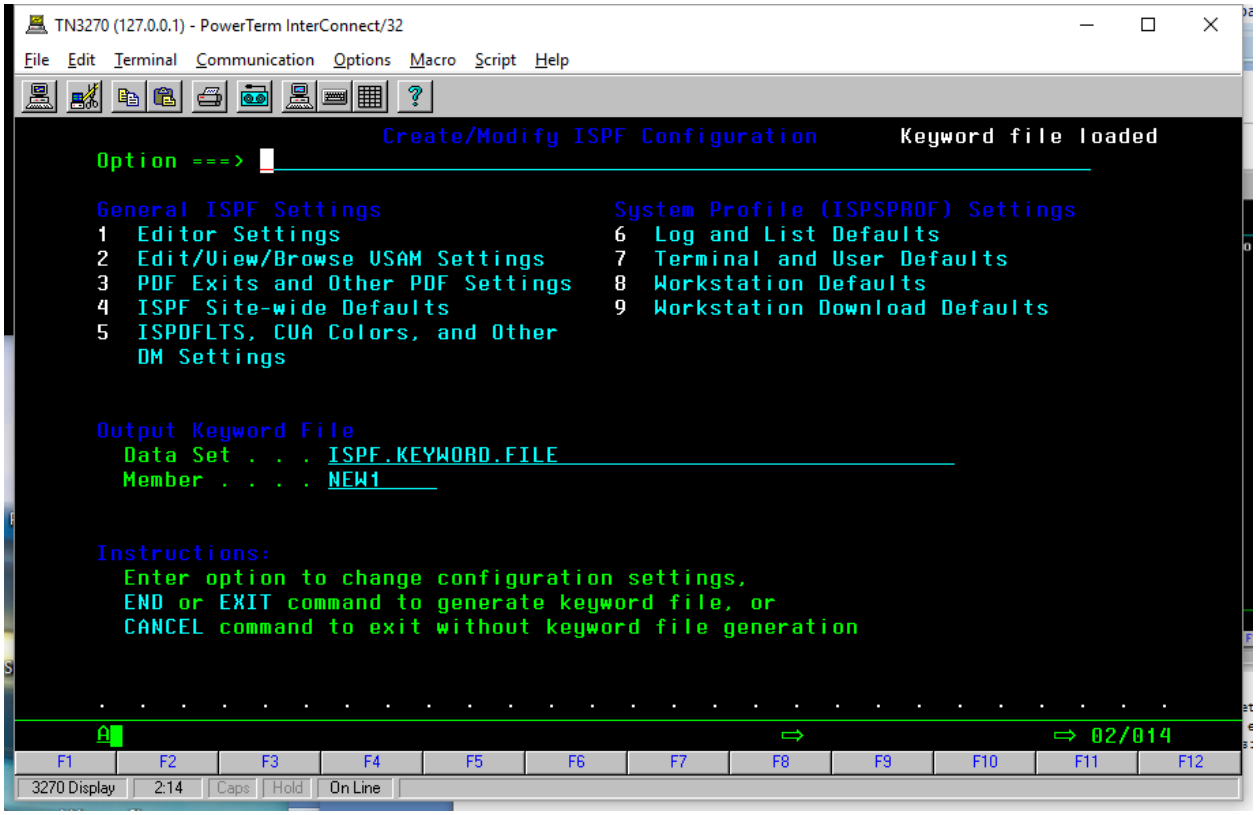
Enter the following on an ISPF primary command line:

TSO ISPCCONF

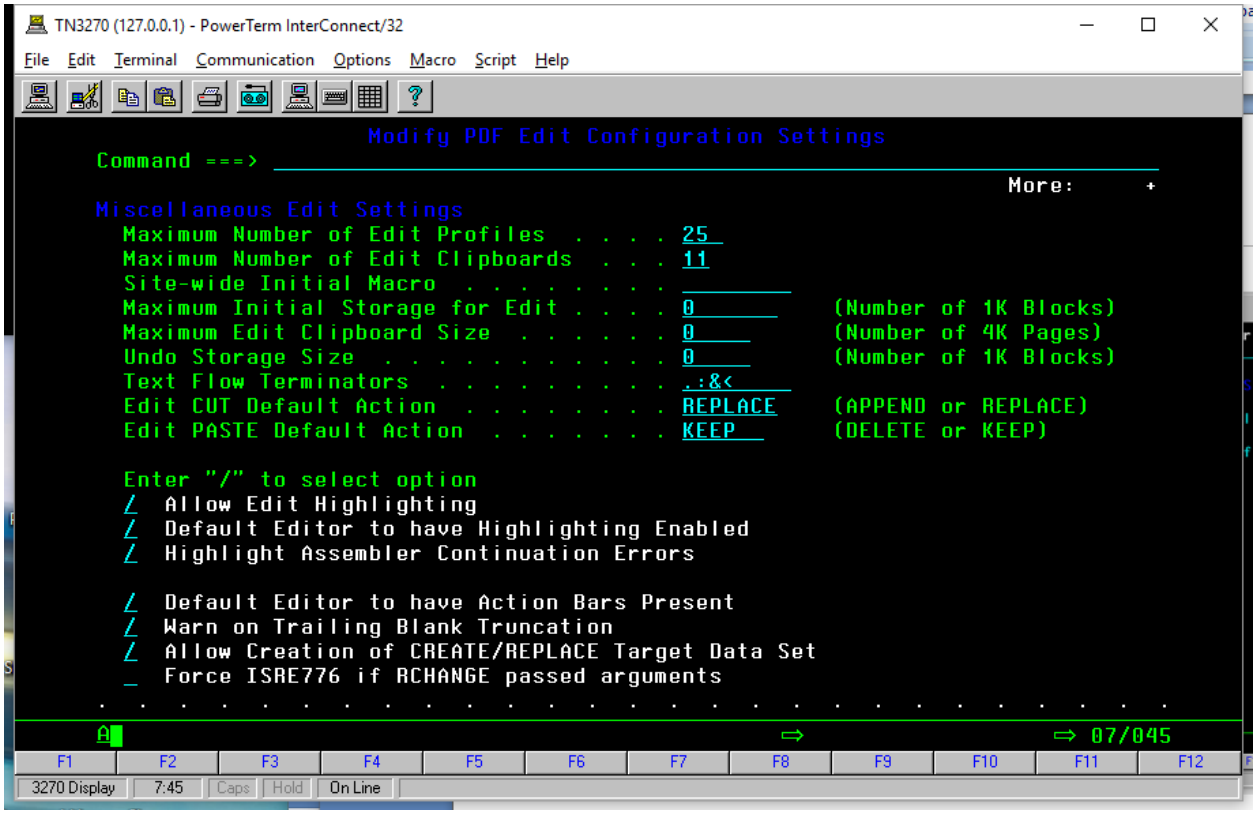
The following ISPF panel will be displayed:



If you have not previously generated ISPF configuration settings, the Data Set and Member fields will be blank. Select an appropriate dataset name and member name and then enter a 1 on the Option line. This will cause the next ISPF panel to be displayed as follows:



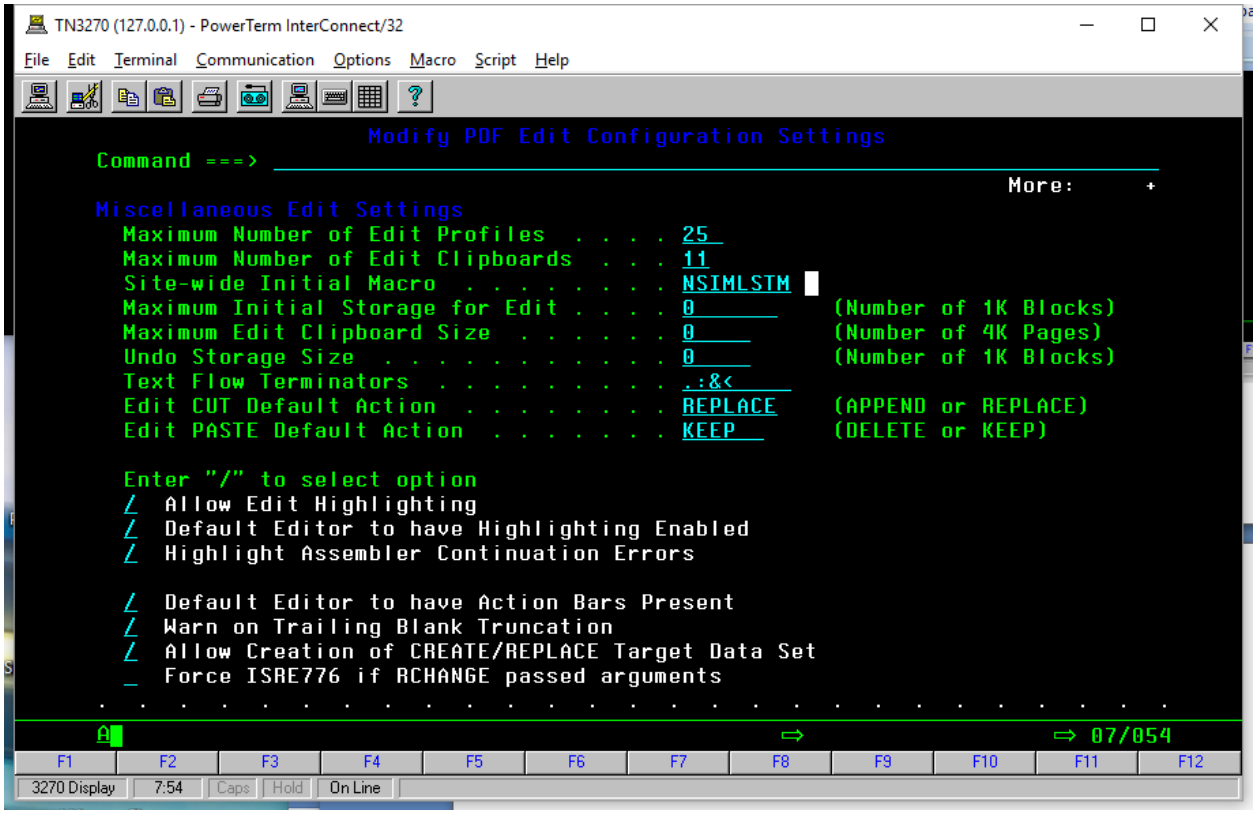
A panel similar to the following will be displayed:



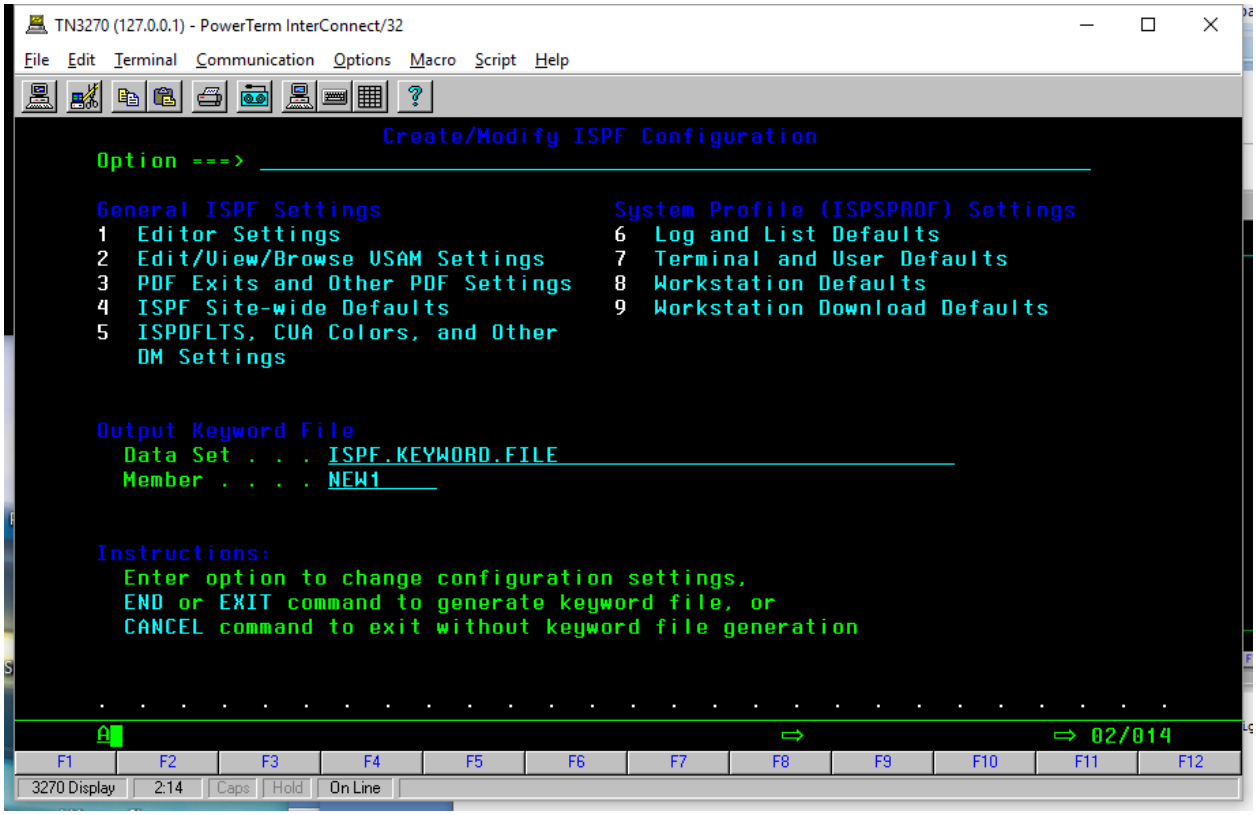
Fill in the Site-wide Initial Macro field with:

NSIMLSTM

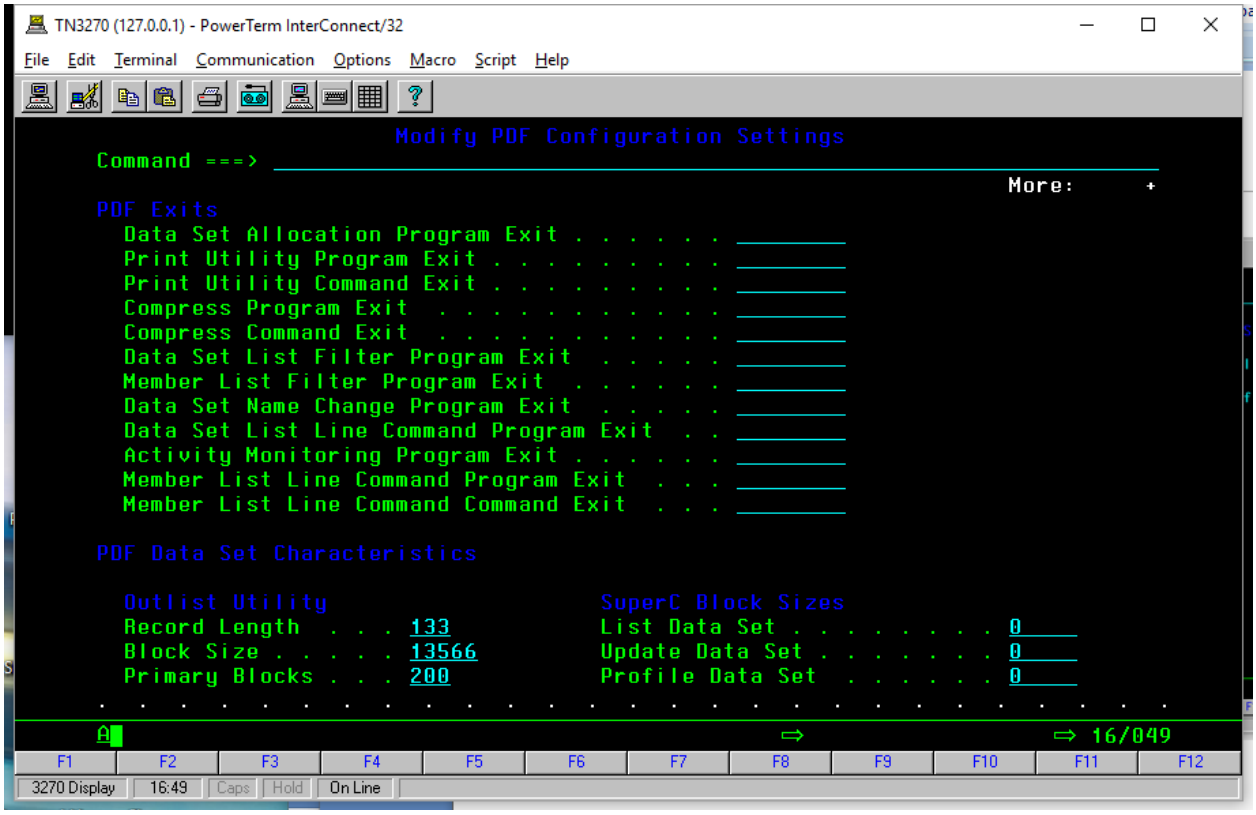
So that the panel now looks like:



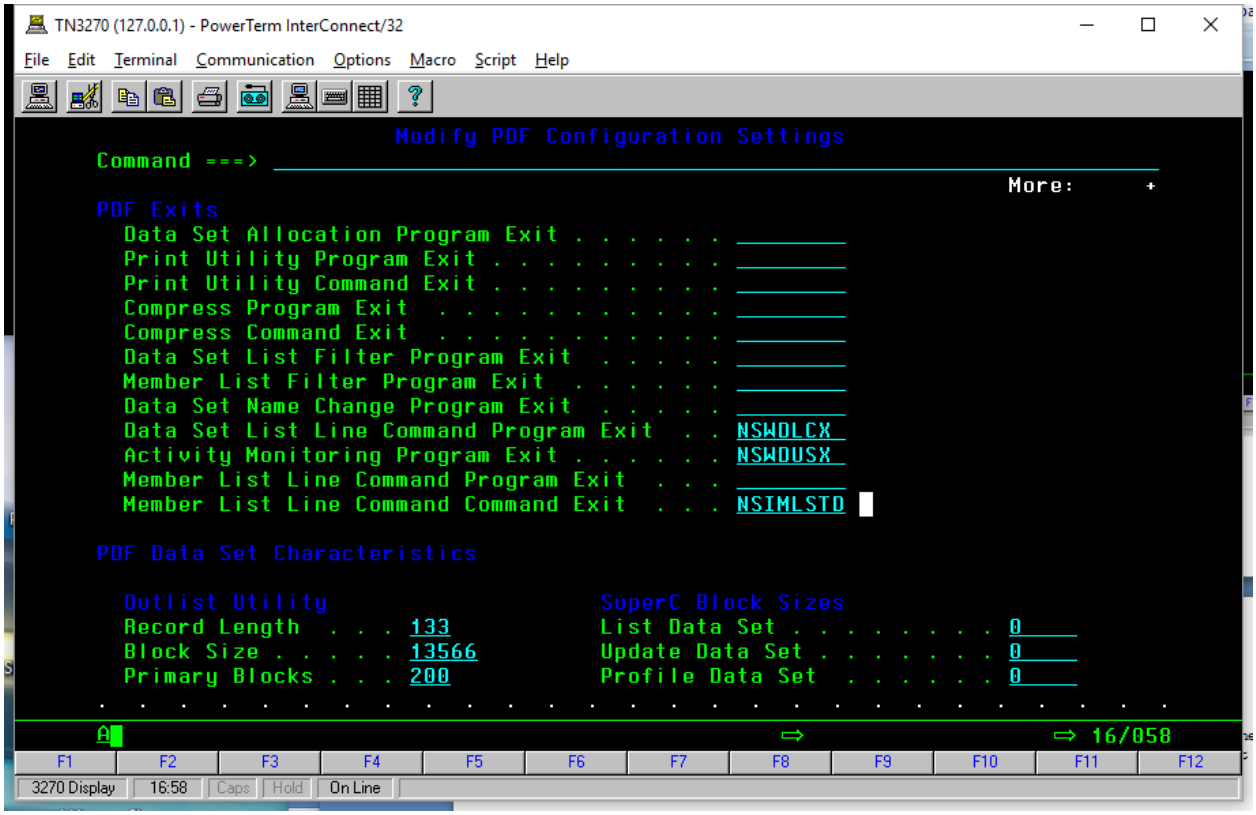
And use the F3 function key. This will return the display to the main configuration panel as follows:



Now select option 3. The following pane should be displayed:



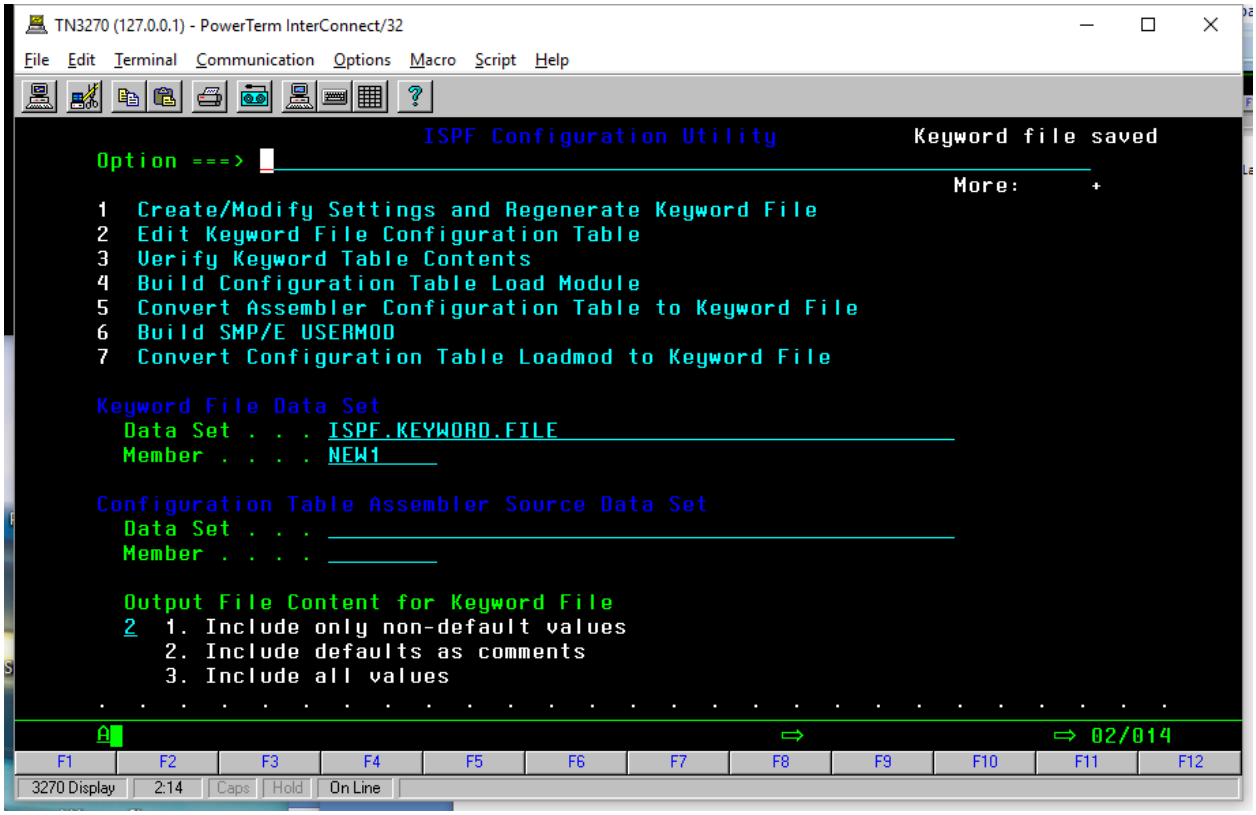
Fill in the Data Set List Line Command Program Exit with NSWDLCX; fill in the Activity Monitoring Program Exit with NSWDUSX; fill in the Member List Line Command Exit with NSIMLSTD so that the panel now looks like this:



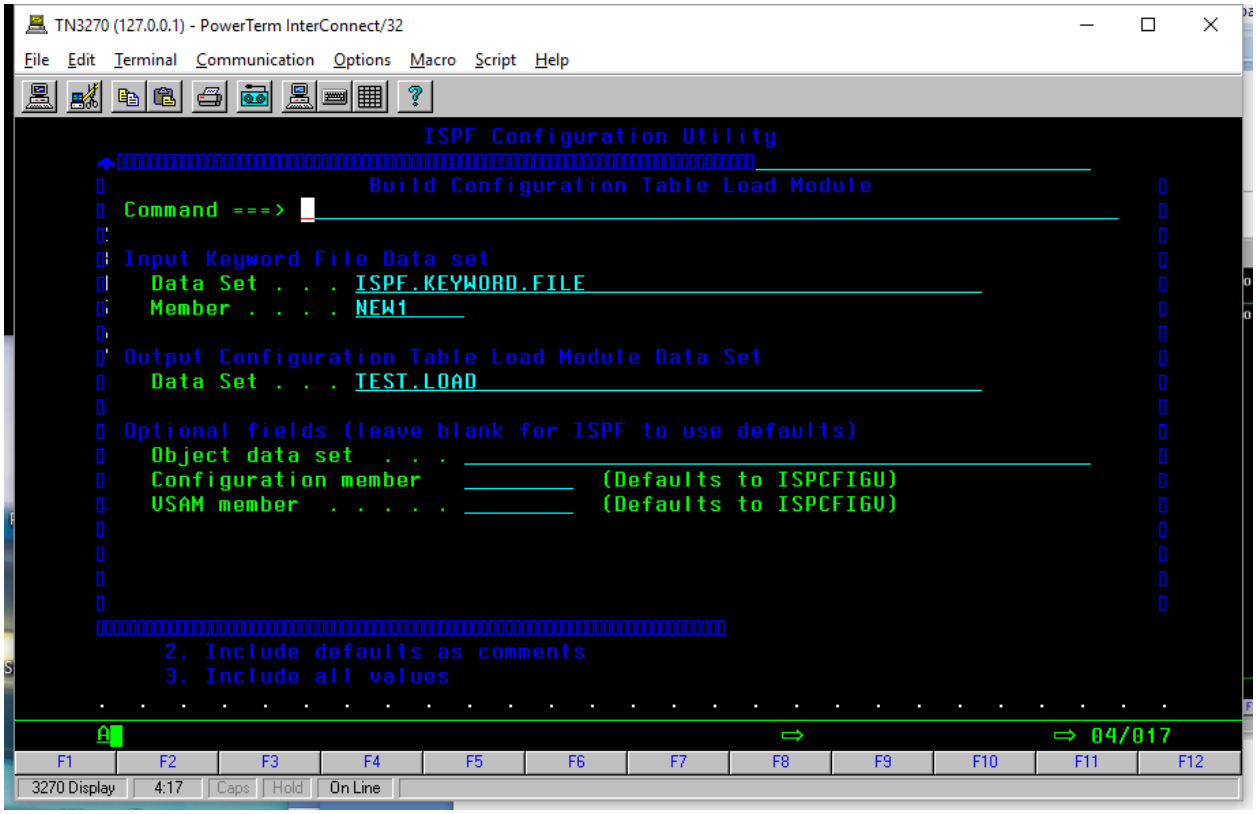
And use the F3 function key twice. This will take you to an ISPF edit display and in that data, you should see the following information:

```
DATA_SET_LIST_LINE_COMMAND_PROGRAM_EXIT      = NSWDLCX
ACTIVITY_MONITORING_PROGRAM_EXIT             = NSWDUSX
MEMBER_LIST_LINE_COMMAND_COMMAND_EXIT        = NSIMLSTD
SITE_WIDE_INITIAL_MACRO                      = NSIMLSTM
```

Use the F3 function key. The following panel will now be displayed:



Select option 4. The following panel will be displayed:



Choose a Data Set name for the Output Configuration Table Load Module Data Set. In the panel displayed above, the chosen dataset name is 'tsoprfx.TEST.LOAD'. After entering the F3 function key, member ISPCFIGU will be generated in the specified load module data set.

To make these new ISPF configuration options are available to an active TSO session, ensure that the generated ISPCFIGU load module is available in the system linklist, or more appropriately, in the STEPLIB or ISPLLIB dataset concatenations of a TSO logon proc.

For use in The Control Editor environment, the ISPCFIGU member is probably best located in both the Image FOCUS load library dataset Image FOCUS CETSO Load library. Following this, the recommended approach, ensures that support for the intercept is available both within the Integrity Controls Environment(ICE) and native TSO/ISPF.

NewEra Software, Inc.

Mailing Address:

18625 Sutter Blvd, Suite 950
Morgan Hill, CA 95037

Phone:

(408) 520-7100
(800) 421-5035

Text:

(669) 888-5061

FAX:

(888) 939-7099

Email Address:

support@newera.com

Web Site:

http://www.newera.com

Technical Support:

24 hours a day, 7 days a week
1-800-421-5035
support@newera.com