Getting Started with ICE/OPER and its Applications

16.0

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1 Getting Ready to Use ICE/OPER and Its Applications

Before the ICE/OPER Application: Command Logging, OPER/MVS and OPER/RACF can be used, the Integrity Controls Environment must be installed and the ICE Administrator empowered. In turn, the empowered ICE Administrator must perform one or all of the following tasks: enable the OPER Extended Master Console, Authorize Operator Commands for logging and Console use, and finally, Permit individual users access to OPER Applications, the OPER Console and supported MVS and/or RACF Command Sets.

2 Installing the Integrity Controls Environment

Before you can use an ICE Application, you must first Download and Install the Integrity Controls Environment (ICE). If you do not already have the ICE download, you may request it by sending an email to support@newera.com. The returned "Download Link" email will contain both product and documentation links. We recommend you first download and carefully read the ICE Installation Guide as it explains the steps necessary to complete a successful ICE Installation.

2.1 Getting ICE Application License Keys

If you are licensed for either IMAGE Focus or The Control Editor (the ICE Viewer does not require a license key), you may download the Integrity Controls Environment from the "Download Link" email one of two ways: "Fully Authorized" or "Self Authorized". Downloading from the "Fully Authorized" link, the applications are licensed automatically. Downloading from the "Self-Authorization" link will require you to add the license keys, which are provided in the "Download Link" email, to the NSEPRMxx Member in ICE Parmlib, following installation.

If you are licensed for either ICE/OPER or ICE/RACF, you will receive a separate, unique set of license keys for these applications, via email. These license keys must be placed, as members, in the ICE USERLIB Dataset created during system installation. ICE/OPER and ICE/RACF license keys may be added at any time to a running instance of ICE and do not require re-initialization of the ICE Master Address Space. To request an ICE/OPER or ICE/RACF license key, send an email to support@newera.com with the requested product as the email subject.

2.2 Installing an Application License Key

This is an example of an ICE/OPER/MVS License Key. The ICE/OPER/RACF key looks similar but varies with application specific content.

```
COMPANY= NEWERA_SOFTWARE,_INC.
LICAREA= DAOFXFSB_TPG%XBS (UPDATE BY:12/31/18)
APPAUTH= DA12C8FCP$FSOFXF (APPLICATION:OPER)
TRMAUTH= DA1*12:$$XFSBDN! (TERM:PERPETUAL)
```

These keys must be placed, as members, into the ICE USERLIB Dataset in order for their related applications to become operational.

The member name of the ICE/OPER key must be $OPERKEY.
The member name of the ICE/RACF key must be $RACFKEY.

2.3 ICE/OPER Application Requirements

ICE is enabled, "Out of the Box", with program elements that allow users, of either IMAGE Focus or The Control Editor, to define and monitor the occurrence of MVS and RACF Operator Commands, recording them as detected, in the Command Log that was defined during ICE installation. When either the ICE/OPER or ICE/RACF applications are licensed, these ICE program elements expand, allowing for the creation and deployment of an Extended Master Console subsystem accessible only by authorized and permitted users of either application.

2.4 Logging on to the ICE Primary Menu

Now that the ICE Environment is installed, it is time to logon to the Primary Menu. To do this, you will need to know the APPLID of the VTAM Application that controls access to all ICE Applications. The system programmer that installed ICE will know the correct name.

With the correct application_name in hand, launch a 3270 session just as you would when logging on to TSO/ISPF. The logon syntax will vary from site to site but might look something like this:

LOGON APPLID=application_name

A shorthand variation might look like this:

L application_name

Consult your system programmer for the correct form of the command. You will know that you are using the correct form if the UserId / Password confirmation panel is displayed.

In the UserId / Password confirmation panel, enter your UserId and Password just as you would if logging on to TSO/ISPF. With this information, the ICE Application

will make a RACRoute call to the External Security Manager to determine if you should be granted access to TSO and the ICE Primary Menu. If access is granted, the ICE Primary Menu is displayed.

2.5 The ICE Primary Menu

The ICE Primary Menu, shown below, lists access options for Image FOCUS, The Control Editor, and the ICE Viewer. Depending on your licensing status, certain options may be highlighted in white to indicate that they are available for use. Those options highlighted in yellow require additional licensing.

```
                    ICE 16.0 - The Integrity Control Environment

   P    ProdView  .. - Image Focus Production Views        Userid  - PROBI1
                                                            Time    - 12:11
   W    WorkView  .. - Image Focus Workbench Views          Terminal - 3278
                                                            System  - ADCD113
   R    DRecView  .. - Image Focus Recovery Views           Applid  - TEST
                                                            Image Focus 16.0
   C    Controls  .. - Controls Environment Settings         Patch Level R00

   V    ICEViews  .. - IPLCheck Results Focal Point

   D    Defining  .. - IFO Definitions and Settings

                        ****************************
                        * Background Task: RUNNING *
                        * No/TSO Recovery: DOWN     *
                        ****************************

   X    Exit        - Terminate

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   Option  ===>
```

2.6 Product Evaluation Keys

Evaluation keys for these additional options may be requested at any time by sending an email to support@newera.com. The option to be used in this exercise, "Defining", is always available for use.

2.7 When Neither Image FOCUS/The Control Editor is Licensed

Note that when neither IMAGE Focus nor The Control Editor is licensed, access to the "Defining" Option is provided for initially Permitting Users to access the ICE/OPER Applications. If access is permitted, both ICE/OPER Administrators and Users will access both MVS and RACF Applications via the Primary Command Line.

3 Empowering the ICE Administrator

It is considered a "Best Practice" to designate trusted ICE users as ICE System Administrators. In this role, they will be allowed access to critical ICE configuration settings, for example, the establishment of Dataset and Command Boundaries, the permitting of user access to configuration members and operator commands, Activity Monitors, and Audit Reports.

Even though it is a "Best Practice" to designate ICE System Administrators, the "Default State" of ICE, as it relates to Image FOCUS, The Control Editor, and the ICE Viewer, does not require an Administrator. ICE/OPER and ICE/RACF Applications, however, do require oversight by someone (or more than one person) acting in the role of ICE System Administrator.

Defining ICE Administrators and permitting user access is a Five Step process. In Step One, you will define the Administrators. In Step Two, you will permit users to access the "Use Functions" of all, or selected, ICE applications. In Step Three, you will learn how to create an optional "Secondary Password". In Step Four, you will set the ICE Padlock Global Control Default Value: NONE, WARN or DENY. Any settings updates made in the previous four steps will only become effective when activated, as described in Step Five.

The ICE Administrator/User Control Panel shown below supports all the options used in the various steps described.

```
                ICE 16.0 - ICE Administrator/User Controls

    I   SetAdmin  .. - Authorize ICE Administrators         Userid   - PROBI1
                                                            Time     - 11:22
    N   NSEParms  .. - Set NSEParms Category Boundary        Sysplex  - ADCDPL
                                                            System   - ADCD113
    G   Padlocks  .. - Global Padlock Access Controls        ApplId   - TEST
                                                            Image Focus 16.0
    U   UserMode  .. - ICE User/Application Controls          Patch Level R00

    P   Password  .. - Set Password Prompting Controls

    L   UserLogs  .. - ICE User/Application Audit Log

    A   Activate  .. - Dynamically Activate Controls




    X   Exit         - Return to the TCE Primary Menu

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    Option  ===>
```

3.1 Step One: Defining ICE System Administrators

To select the Defining option from the ICE Primary Menu, do one of the following:

Place the cursor under the option and press enter, enter an "S" or "D" on the entry-point shown after the option name, and press enter, or enter "D" on the primary menu command line and press enter.

Note that for a more detailed description of each option that appears in a menu's selection list, press PFK1.

From the menu that is displayed, select the ICEAdmin option. This will display the ICE Administrator/User Controls Panel, pictured above.   From this menu, select the SetAdmin option. This action will bring up the ICE Administrator Assignment Panel.

Use the ICE Administrator Assignment Panel to name one Primary and up to six Supplemental ICE Administrators, using their respective TSO UserIds. Only those named in this panel will be afforded access to ICE/OPER and/or ICE/RACF Administration Functions. These functions include naming commands to be logged, permitting user access to ICE Extended Master Console functions, supported by either product, and setting command Audit Intervals.

Primary and Supplemental authorities differ in only one specific way. The Primary Administrator may, when needed, display Application Access Passwords in Clear Text. This is a privilege not enjoyed by other Supplemental Administrators.

When you are finished assigning Administrators, select PFK3 to save your updates and return to the prior menu. From here, you will now select the UserMode option and proceed to Step Two.

Note that these new or updated settings will not be in effect until they are activated. The Activation process is described in Step Five.

3.2 Step Two: Permitting Application Access

Users of ICE/OPER/MVS and/or ICE/OPER/RACF must be specifically permitted access by the ICE Administrator. To permit access to a user, select the UserMode option from the menu. This will display a listing of all authorized ICE Users, related applications, access rights, and access windows, if any. For a detail description of the listing, its column headings, and selection options, use PFK1.

To add a new user, use the "Add_User_Rule" option. To do this, place an "A" on the entry point preceding any row and press enter. This action will display the Add ICE User Pop-Up as shown below:

```
◊─────────────────────────────────────────────────────────────────◊
◊                    ICE 16.0 - Adding ICE User Access Rules        ◊
◊                                                                   ◊
◊ --User-- -----Application Access Rule----- ----FreeForm Comment---- ◊
◊ ---Id--- --Rules-- ---Start--- ---Stops--- ----------Text--------- ◊
◊ -------- Prod Mode yymmdd hhmm yymmdd hhmm ----------------------- ◊
◊ -USERID- ---- ---- ------ ---- ------ ---- 19/09/25_10:33_PROBI1   ◊
◊─────────────────────────────────────────────────────────────────◊
```

This panel consists of several entry points (fields), two of which are mandatory: User Id and Prod.

In the "User Id" field, enter the TSO UserId of the individual to whom you wish to permit access. In the "Rules Prod" field, enter the ICE Product Code, in this case either OPER or RACF.

Optionally, in the "Rules Mode" field, enter the action to be taken when a user attempts to issue a command outside of a defined "Access Window". The choices are: NONE, WARN, or DENY. When WARN or DENY is specified, the named "User Id" will be allowed full application access to the named Product Code, but will be WARNED or DENIED access to the ICE Extended Master Console for issuing Commands.

The "Starts" and "Stops" date(yymmdd) and time(hhmm) values are used to create an "Access Window" that opens and closes as defined.

Use PFK1 for a detailed description of these functions. When you are done making changes, press PFK3 to exit and save your work.

3.3 Step Three: Creating a Secondary Password

ICE/OPER/MVS and ICE/OPER/RACF are powerful z/OS System Utilities. As such, it is considered a "Best Practice" to further control user access to them by making use of the "Secondary Password" option.

To define a password, select the Password option from the menu. This action will display the TCE OPER Prompt (Password) Control Options Listing.

The options of interest, within this current context of Command Sets, are: MVSCOMMDS, RACFCMDS and SETCOMMDS. When set, the user will be prompted for the assigned password, and granted access only if the correct application password is entered. If not, they are DENIED or WARNED. There is no limit as to how many times a user may attempt a new password following a failed attempt.

To assign a password to a Command Set, place an "A" on the Entry Point preceding the targeted Command Set, and press enter. The following Prompt Pop-up will appear.

```
◊────────────────────────────────────────────────────────────────◊
◊                  ICE 16.0 - Adding a TCE/OPER Prompt             ◊
◊                                                                  ◊
◊  ---Password--- Mode ---Start--- ---Stops--- ---This-Addition--- ◊
◊  -------------- ---- yymmdd hhmm yymmdd hhmm yymmdd-hhmm-UserIds  ◊
◊  ENTER_PASSWORD ---- ------ ---- ------ ---- 190925_1147_PROBI1   ◊
◊────────────────────────────────────────────────────────────────◊
```

This panel supports a number of entry points (fields), two of which are mandatory: Password and Mode. Passwords must be at least 6 and no more than 16 alphabetic characters. A password is encoded as a "One-Way Cipher" and stored in association with its related Command Set. Passwords are never shown in "Clear Text" except to the TCE Administrators, when they are using special "Admin-Helper" (±) Functions.

The Mode setting, NONE, WARN, or DENY, denotes the action to be taken by ICE if the user enters an incorrect password.

The password applies 24X7 unless the "Starts" and "Stops" date(yymmdd) and time(hhmm) values are used to create an "Access Window" that opens and closes as defined.

Use PFK1 for a detailed description of these functions. When you are done making changes, press PFK3 to save your work and exit.

3.4 Step Four: Setting the ICE Padlock Global Control Value

The Padlock Global Settings are the "Overlords" of access to ICE defined resources. By default, all Padlock Controls are set to "WARN". To update these Global Settings, select the "Padlocks" option from the menu. This action will display the Padlock Access Controls Features Panel.

Change the Global Settings focus on the upper part of the panel as shown below:

```
----------------------Padlock Access Controls----------------------

TCE Padlock Mode of Controlling Access:   .. Deny   /. Warn   .. None

Mode - WARN - Users without Padlock Access Rights Warned of Denials.
```

Note, the Default Setting "Warn" is checked "/". To change this, place the check "/" beside the desired Global Setting and press enter to update the panel.

The lower part of the panel, seen below, shows the control settings for each of the Boundaries Classifications supported within the Integrity Controls Environment.

```
----Current Definition---- Cm ---Boundaries--- Cm ----Updated Definition----

                       ON .. Control Category .. ON                        .
                       ON .. Control Datasets .. ON                        .
                      OFF .. Control Commands .. ON                        .
                      OFF .. Control WrkGroup .. OFF                       .
                      OFF .. Control RoleBase .. OFF                       .
                      OFF .. Control IFOUsers .. ON                        .
```

As it relates to ICE/OPER/MVS and ICE/OPER/RACF, you will need to turn on the specific Padlock Controls, "Commands" and "IFOUsers", which are by default turned OFF. To do this, type the word "ON" to the right of both "Control Commands" and "Control IFOUsers" and press enter. The panel will update showing your selections.

When you are done making changes, press PFK3 to save your work and exit.

3.5 Step Five: Activating ICE Settings

Once you have completed Step One through Step Four, you will need to activate your settings. To do this, select "Activate" from the menu and press enter. The following message will appear on the screen to confirm that Activation has completed successfully:

```
◊─────── NSEJRNxx and NSESELxx have been Successfully Activated. ───────◊
```

4 Duties of the ICE/OPER Administrator

The named ICE/OPER Administrator is responsible for the following tasks:

1. If using ICE/OPER only with a Licensed Application:
   - Permit Commands to be logged to the OPER Command Log.
   - Enable Interval Command Usage Notification and Reporting.

2. If using the ICE/OPER/MVS and/or ICE/OPER/RACF:
   - Define and Name the active ICE/OPER Console.
   - Authorize Commands for use with the ICE/OPER Console.
   - Permit User access to selected Authorized Commands.
   - Permit User access to Console Application.
   - Establish optional Secondary Passwords.

4.1 Admin Access Without Image FOCUS/The Control Editor

When neither Image FOCUS nor The Control Editor is licensed, the functions needed to administer OPER and its applications are accessed from the ICE and/or TSO Command Line by entering one of the following Command Strings:

```
@@OPER ADMIN or ##RACF ADMIN or $$MVSA ADMIN
```

4.2 Admin Access With Image FOCUS/The Control Editor

When Image FOCUS is licensed, from the ICE Primary menu, select the "WorkView" option to display the Image FOCUS Workbench Primary Menu. From the list of Workbench options, select "ICE/Oper" to display the ICE/OPER Settings and Selection Menu, described in a section below.

When The Control Editor is licensed, from the ICE Primary menu, select the "Controls" option to display The Control Editor Primary Menu. Next, Select "Boundary", then select "Commands", and then select "ICE/Oper" to display the ICE/OPER Settings and Selection Menu, described in a section below.

4.3 The ICE/OPER Settings and Selection Menu

Depending on the level of licensing of ICE/OPER, certain limitations will apply. However, in any event, the following menu will be displayed. Unlicensed options will be highlighted in yellow.

```
              ICE 16.0 - ICE/OPER Settings and Selection

  S   CmmdSets  .. - Show OPER Command Set Selection        Userid   - PROBI1
                                                            Time     - 13:22
  O   OperCntl  .. - Show OPER Command Access Controls      Sysplex  - ADCDPL
                                                            System   - ADCD113
  P   Password  .. - Set the Password Prompting Controls    ApplId   - TEST
                                                            ICE 16.0 - TCE 16.0
  C   Consoles  .. - Defines Unique OPER Command Console     Patch Level R00

  A   Activate  .. - Dynamically Activates OPER Settings

  L   CmmdLogs  .. - Shows Logged Command Event Interface

  D   Detector  .. - Shows Command Audit Event Detectors




  X   Exit         - Return to the TCE Primary Menu

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 Option ===>
```

If you are prompted for the OPER (or other) secondary password, it must be entered correctly BEFORE the menu will be displayed.

5 If using ICE/OPER Stand Alone

ICE/OPER can be access and used, on a "Stand Alone" basis, by either IMAGE Focus or Control Editor Licensees, via either the Image FOCUS Workbench or the Control Boundary Definition Panels.

ICE/OPER is an enabling ICE function that, when used on a "Stand Alone" basis, will only record "Log Permitted" MVS and RACF Operator Commands to the Command Log "Notepad" Dataset, that was defined during ICE Installation. Command Events, defined and logged, are available for display in real-time via the OPER/ADMIN Interface.

When either ICE/OPER/MVS or ICE/OPER/RACF are licensed, events captured in the log can be formatted into Audit Reports, to be created at defined intervals, stored in a report inventory, and/or sent via email to named recipients.

5.1 Permitting Commands to be recorded to the Command Log

To permit a Command to be logged, select "CmmdSets" from the Setting Menu. This will display the following list of the available Command Sets:

- M   MVSCmmds .. - Show MVS Command Interface Settings
- D   MODCmmds .. - Show MODIFY Command Interface Settings
- S   SETCmmds .. - Show SET Command Interface Settings
- R   RACFcmds .. - Show RACF Command Interface Settings

If OPER/RACF is not licensed, this option will be highlighted in yellow.

Selecting a Command displays its Command Table. In this case, the MVS Command Table, in ADMIN/VIEW Format, is shown below:

```
                 TCE 16.0 - MVS Command Activation Settings

    /. All MVS Commands may be Activated - UnCheck to DeActivate them All
    -------------Use '/' to Permit Selected MVS Operator Commands-----------
    Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name--
    -- -------- -- -------- -- -------- -- -------- -- -------- -- --------
    /. ACTIVATE .. CANCEL   .. CHNGDUMP .. CMDS     .. CONFIG   .. CONTROL
    .. DEVSERV  /. DISPLAY  .. DUMP     .. DUMPDS   .. FORCE    .. HALT
    .. IOACTION .. LIBRARY  /. LOG      .. LOGOFF   .. LOGON    .. MODE

    .. MODIFY   .. MONITOR  .. MOUNT    /. PAGEADD  .. PAGEDEL  .. QUIESCE
    .. REPLY    /. RESET    .. ROUTE    .. SEND     /. SET      .. SLIP
    .. START    .. STOP     .. STOPMN   .. SWAP     .. SWITCH   .. TRACE

    .. UNLOAD   .. VARY     /. WRITELOG ..          ..          ..
    ..          ..          ..          ..          ..          ..
    ..          ..          ..          ..          ..          ..


            .. Permit Command Log   .. Permit User Access
```

Using this multi-function panel, the ICE/OPER Administrator can:

- Proceed to functions that allow for the Permitting of Commands
  And/or when ICE/OPER/MVS is licensed:
- Enable/Activate all, or specific, MVS Commands for Console use,
- Proceed to Functions that Permit Users access to Activated Commands.

When ICE/OPER/MVS and/or ICE/OPER/RACF are licensed, authorized users who are permitted access will see a similar Command Set Table in USERS/VIEW Format. Their individual, unique USER/VIEW allows them to select and use authorized, permitted commands only, and will not allow them to perform OPER/ADMIN functions.

Selecting the "Update Log Settings" option, shown at the bottom of the panel, will display the Command Log Setting Table for the MVS Command Set.

```
              TCE 16.0 - MVS Command Event - Log Settings

   .. Check to Activate Logging of the Full MVS Command Set
   ---------------Use '/' to Activate MVS Command Logging------------------
   Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name--
   -- -------- -- -------- -- -------- -- -------- -- -------- -- --------
   .. ACTIVATE .. CANCEL   .. CHNGDUMP .. CMDS     .. CONFIG   .. CONTROL
   .. DEVSERV  .. DISPLAY  .. DUMP     .. DUMPDS   .. FORCE    .. HALT
   .. IOACTION .. LIBRARY  .. LOG      .. LOGOFF   .. LOGON    .. MODE

   .. MODIFY   .. MONITOR  .. MOUNT    .. PAGEADD  .. PAGEDEL  .. QUIESCE
   .. REPLY    .. RESET    .. ROUTE    .. SEND     .. SET      .. SLIP
   .. START    .. STOP     .. STOPMN   .. SWAP     .. SWITCH   .. TRACE

   .. UNLOAD   .. VARY     .. WRITELOG ..          ..          ..


          .. Update Log Settings  .. Turn Logging On/Off On
```

Use the check "/" to mark those commands that are to be logged.

The configuration of commands to be logged is stored in the NSEJRNxx ICE Parmlib Member. The panel interacts directly with that member, updating with revised settings when you exit (PFK3) back to the prior panel. For example, using the "/" to indicate you want to log the Full MVS Command Set, the following Control Card entries would be added to NSEJRNxx, upon exiting the panel:

```
CMDLOG MODCMD(ALL)
CMDLOG SETCMD(ALL)
CMDLOG MISCCMD(ALL)
```

If you only want START and STOP to be logged, uncheck the Full MVS Command Set to remove the Control Cards shown above, and then check only START and STOP. The following Control Card entries would then be added to NSEJRNxx, upon exiting the panel:

```
CMDLOG MISCCMD(START)
CMDLOG MISCCMD(STOP)
```

The MODIFY and SET Commands are special cases. Though this panel may be used to set logging of all MODIFY and all SET Commands, each has its own Command Set Interface. It is a recommended "better practice" to return to the Command Set Selection Panel, where you may select either MODIFY or SET in order to use their specific Interfaces.

Note that at the bottom of the Command Set panel, you will find the status of the Command Logging Process, "Turn Logging On/Off". In order for logging to take place, this setting MUST be set "ON". When logging is "ON", the following Control Card Entry will appear in NSEJRNxx:

```
CMDLOGGING ON
```

If changes are made, the settings are automatically updated in NSEJRNxx, as you exit (PFK3) from the panel.

5.2 Accessing the OPER Command Log

Image FOCUS and Control Editor users can immediately use the Command Logging functions of OPER, to log and display named Operator Commands, without having to license the additional OPER application.

5.2.1 The Command Log Display

Once MVS and/or RACF Commands of interest are defined and activated, command logging begins, immediately capturing and recording targeted commands in the OPER Command Log defined during ICE Installation. A sample extracted from the MVS Commands Log is shown below in a fully interactive, point-and-shoot ISPF Table.

```
                ICE 16.0 - ALL MVS Command Event Records     Row 1 to 14 of 24
  --NSIMPHX 0325--                                        -Command Records-
  ------------- Controls Environment - IFO.TEST - 24 Command Events ------------
  Row Selections: Shows_Command_Log
  To Sort select a Sub-Head, To Query enter above Sub-Head, PFK1 for Help
  - Rows ------Command Actions------ ---------------------MVS------------------
  ____ _____ _____ _____ _____ ___ _____
  S Numb yy/mm/dd hh:mm -UserId- Fnd ---------------Command String-------------
  _ 0001 19/03/31 11.03 PROBI1    AOK LNKLST,UNDEFINE,NAME=PROBI1150891608
  _ 0002 19/03/31 10.54 PROBI1    AOK APF,ADD,DSNAME=IFO.PLAY.LOAD,VOLUME=LVWRKD
  _ 0003 19/03/31 10.52 PROBI1    AOK LNKLST,ACTIVATE,NAME=PROBI1150901048
  _ 0004 19/03/31 10.52 PROBI1    AOK LNKLST,ADD,NAME=PROBI1150901048,DSNAME=IFO.T
  _ 0005 19/03/31 10.52 PROBI1    AOK LNKLST,DEFINE,NAME=PROBI1150901048,COPYFROM=
  _ 0006 19/03/30 18.38 PROBI1    AOK APF,ADD,DSNAME=IFO.PLAY.LOAD,VOLUME=LVWRKD
  _ 0007 19/03/30 18.20 PROBI1    AOK LNKLST,ACTIVATE,NAME=PROBI1150891819
  _ 0008 19/03/30 18.20 PROBI1    AOK LNKLST,ADD,NAME=PROBI1150891819,DSNAME=IFO.P
  _ 0009 19/03/30 18.19 PROBI1    AOK LNKLST,DEFINE,NAME=PROBI1150891819,COPYFROM=
  _ 0010 19/03/30 16.17 PROBI1    AOK LNKLST,ACTIVATE,NAME=PROBI1150891616
```

```
_ 0011 19/03/30 16.16 PROBI1   AOK LNKLST,DELETE,NAME=PROBI1150891616,DSNAME=IF
_ 0012 19/03/30 16.16 PROBI1   AOK LNKLST,DEFINE,NAME=PROBI1150891616,COPYFROM=
_ 0013 19/03/30 16.09 PROBI1   AOK LNKLST,DELETE,NAME=PROBI1150891608,DSNAME=IF
_ 0014 19/03/30 16.09 PROBI1   AOK LNKLST,DEFINE,NAME=PROBI1150891608,COPYFROM=

Option ===>                                              Scroll ===> CSR
```

To display this view of the Command Log, do one of the following:

- From the OPER Setting and Selection Menu, select "CmmdLogs". Next, from the Commands Log Options Panel, select the "MVSCmmds" options.

```
A    ALLCmmds  .. - Interval Audit of All Command Usage
M    MVSCmmds  .. - Interval Audit of MVS Command Usage
R    RACFcmds  .. - Interval Audit of RACF Command Usage
```

- From the ICE/ISPF or TSO/ISPF Primary Menu Command, enter this Command String and press enter.

```
TSO $$MVSA CMLOG
```

If ICE/OPER/RACF is licensed, enter:

```
TSO ##RACF CMLOG
```

To display the Full Command Log from the Command Line, enter:

```
TSO @@OPER CMLOG
```

To display the Command Log "Dashboard" from the Command Line, enter:

```
TSO @@OPER XCMLG


          ICE 16.0 - ICE/OPER - LPAR Command Events          Update

 -----------------------ICE/OPER Command Monitors-----------------------
 Cm --LPAR-- Cm --LPAR-- Cm --LPAR-- Cm --LPAR-- Cm --LPAR-- Cm --LPAR--
 /. ADCD113_ .. BDCD113_ .. CDCD113_ .. _____ .. _____ .. _____
 .. 19/04/24 .. _____ .. _____ .. _____ .. _____ .. _____
 .. _____ .. _____ .. _____ .. _____ .. _____ .. _____
 .. _____ .. _____ .. _____ .. _____ .. _____ .. _____
 .. _____ .. _____ .. _____ .. _____ .. _____ .. _____
 .. _____ .. _____ .. _____ .. _____ .. _____ .. _____
 Cm yy/mm/dd Cm yy/mm/dd Cm yy/mm/dd Cm yy/mm/dd Cm yy/mm/dd Cm yy/mm/dd

          -----------------Selected LPAR-----------------
          Cm --Name-- yy/mm/dd hh:mm -UserId- -New- Total
          .. ADCD113_ 19/05/01 12.16 PROBI1__   0    230
          == ======== ======== ===== ======== ===== =====
          -------------Command Log Summary-------------
          Cm --RACF-- -New- Total Cm --z/OS-- -New- Total
          .. SETROPTS   0    25 .. MVS/SETS   0    150
          .. RACDCERT   0    15 .. MVS/MODS   0     5
          .. HELPDESK   0    20 .. MVS/MISC   0    15
          == ======== ===== ===== == ======== ===== =====
```

To shift the "Dashboard" View from LPAR to LPAR, place "S" before an LPAR name and press enter. To Filter an LPAR by Date or UserId, enter the value below the

LPAR name and press enter. The value will persist from session to session. Values shown in the -New- columns are those that have occurred since YOU last viewed the LPAR. Cursor under "Update" and press enter to refresh the view. Select specific RACF or z/OS Elements to show their related Command Log Entries.

6 The ICE/OPER Console

The ICE/OPER Console is available for use only when either ICE/OPER/MVS or ICE/OPER/RACF is licensed and the Console is functionally configured and authorized, within the ICE Environment. The Console operates from the ICE Master Address Space and issues commands under ICE Address Space Authority. For this reason, care must be taken to permit only "Trusted" users access to an ICE/OPER console, its applications, and by association, only to those commands it is authorized to issue, on the behalf of a uniquely permitted user.

By default, ICE/OPER may not issue an operator command on the behalf of a direct user request, inside or outside of the Integrity Controls Environment. Each command, within a selected command set, must be authorized for Console use. Command authorization is the responsibility of the OPER Administrator. Commands can be authorized either individually, as a group, or as complete sets. Only such authorized commands may be permitted to individual users, or groups, by the OPER Administrator, on a case-by-case basis. Once permitted, each user and/or group will, very likely, have a unique OPER Command Profile, fitting his or her unique, individual requirements.

To name an OPER Console, Authorize Commands for its use, Permit users to use defined Authorized commands, and optionally create a Command Password boundary, follow the steps described below.

6.1 Define and Name of the active ICE/OPER Console.

To name an OPER Console, select the "Consoles" option from the menu, and press enter. This action will display the OPER Console settings Pop-Up, as shown below.

```
◊───────────────────────────────────────────────────────────────◊
◊              TCE 16.0 – OPER Console - Character/Name           ◊
◊        --------Name the TCE/OPER Extended Master Console------   ◊
◊        Use Console Character .. @ > or use Full Name ..          ◊
◊              Next Select > .. Yes > Then Press Enter             ◊
◊───────────────────────────────────────────────────────────────◊
```

The Pop-Up presents two console naming options: assign a console character, or a full console name. Whichever option is selected, both the Console Name and the Console User's Id will appear in the Console Log, the OPER Command Log, System log, and related SMF Records.

6.1.1 Console Character

The Console Character is a single, valid MVS member-naming character that will be appended to a user's TSO UserId at the moment an OPER Console is created, on the user's behalf. This combination of UserId and defined Console Character is the EMCS Console Name. If you select this option using, for example, the '@' as the

Console Character, a single control entry will be automatically written in the NSEJRNxx member, as shown below, when you "Select" and press enter.

```
CONSCHAR @
```

6.1.2 Full Console Name

An alternative to the Console Character is to use a character string to specifically name the OPER console. To do this, enter 4 to 8 valid, MVS member-naming characters to be associated with the OPER Console. If you select this option using the character string "OPERCONS", for example, a single control entry will be automatically written in the NSEJRNxx member, as shown below, when you "Select" and press enter.

```
CONSNAME OPERCONS
```

6.2 Authorize Commands for use with the ICE/OPER Console.

Once the OPER Console has been named, the next step is to authorize/enable the Console to issue commands. By default, the OPER Console cannot issue a Command, at the direction of a user, unless the Console is named, the specific command is authorized/enabled, and that user is permitted to use the console and the command.

To Authorize Commands, select the "CmmdSets" option from the Setting and Selection Menu. This will display a list of Command Sets. The Commands Sets listed that are highlighted in yellow are not accessible and require additional license key(s). Select an available Command Set to display the Command Set Table. The Table below is the MVS Command Set, shown in the ADMIN/VIEW.

```
                TCE 16.0 - MVS Command Activation Settings

  /. All MVS Commands may be Activated - UnCheck to DeActivate them All
  -------------Use '/' to Permit Selected MVS Operator Commands------------
  Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name--
  -- -------- -- -------- -- -------- -- -------- -- -------- -- --------
  /. ACTIVATE .. CANCEL   .. CHNGDUMP .. CMDS     .. CONFIG   .. CONTROL
  .. DEVSERV  /. DISPLAY  .. DUMP     .. DUMPDS   .. FORCE    .. HALT
  .. IOACTION .. LIBRARY  /. LOG      .. LOGOFF   .. LOGON    .. MODE

  .. MODIFY   .. MONITOR  .. MOUNT    /. PAGEADD  .. PAGEDEL  .. QUIESCE
  .. REPLY    /. RESET    .. ROUTE    .. SEND     /. SET      .. SLIP
  .. START    .. STOP     .. STOPMN   .. SWAP     .. SWITCH   .. TRACE

  .. UNLOAD   .. VARY     /. WRITELOG ..          ..          ..
  ..          ..          ..          ..          ..          ..
  ..          ..          ..          ..          ..          ..

             .. Permit Command Log   .. Permit User Access
```

Note that a specific MVS Command, or All MVS Commands, are activated/enabled for use, from a configured OPER Console, by a permitted user, when a check "/" appears before a specific command name of the statement "All MVS Commands may be

Activated". Altering these settings, and exiting (PFK3) back to the prior menu, updates an automatically allocated, persistent, sequential dataset. In this updated dataset, the following naming conventions are used:

- For MVS Commands - your_hlq'.$TCEOPER.$ALLMVS.@'system_name
- For MVS MODIFY   - your_hlq'.$TCEOPER.$ALLMOD.@'system_name
- For MVS SET   - your_hlq'.$TCEOPER.$ALLSET.@'system_name
- For RACF Commands - your_hlq'.$TCEOPER.$ALLRCF.@'system_name

A snippet of the matching MVS Command Dataset is shown below:

```
/*****************************************************************************/
/*                                                                           */
/*          The Control Editor - Active TCE/OPER MVS Operator Commands       */
/*                Date:2019/09/25 - Time:13:50:58 - User:PROBI1              */
/*                                                                           */
/*****************************************************************************/
ALLMVS,POS_XM= ALLMVS /
ALLMVS,POS_A1= ACTIVATE /
ALLMVS,POS_L1= CANCEL
ALLMVS,POS_S1= CHNGDUMP
ALLMVS,POS_E1= CMDS
ALLMVS,POS_T1= CONFIG
ALLMVS,POS_A2= CONTROL
ALLMVS,POS_L2= DEVSERV
ALLMVS,POS_S2= DISPLAY /
ALLMVS,POS_E2= DUMP
ALLMVS,POS_T2= DUMPDS
ALLMVS,POS_A3= FORCE
ALLMVS,POS_L3= HALT
```

While it is possible, it is not recommended that you attempt to alter the content of this dataset manually.

6.3 Giving Users Access to the OPER Console and Commands

For a user to gain access to any ICE/OPER Application, that user must be permitted/authorized to use the Application. When you "Defined" the ICE Administrators, and authorized them access to ICE/OPER, you "Created" OPER/Administrators. These OPER/Administrators are now permitted to authorize additional users to use OPER Applications and to permit authorized users to access the OPER Console and issue authorized commands that have been permitted to them for use.

6.3.1   Authorize a User's access to OPER Applications.

To authorize a user, select the "OperCntl" option from the menu and press enter. This action will display the current standing of OPER Application Access Rights.

```
                TCE 16.0 - TCE\OPER Application Access Rights  Row 1 to 8 of 8
  --NSIMSLX 0103--                                       -ICEAccess Rules-
  -------------------- 8 Controlled Application AccessIds --------------------
  Row Selections: Add_User_Rule Delete_User_Rule Updates_User_Rule Copy_User_Rule
  --- Select Sub-Head to Sort, Query above Sub-Head, Enter Saves a Row Update ---
  - Row -------User State------- ---Start--- ---Stops--- --User Record Comments--
  _ ___ _____ _____ ____ ____ _____ ____ _____ ____ _____
  S Num -UserId- Admin Apps Mode yymmdd hhmm yymmdd hhmm ------Freeform Text-----
  _ 001 RFAUL1   Admin OPER DENY ------ ---- ------ ---- 19/08/04 09:04 PROBI1
  _ 002 RFAUL1   Admin RACF DENY ------ ---- ------ ---- 19/08/04 09:04 PROBI1
  _ 003 GBAGS1   Admin OPER WARN ------ 0800 ------ 1600 19/08/04 09:04 PROBI1
  _ 004 PHARL2   Admin RACF WARN 150201 ---- ------ ---- 19/08/04 09:06 PROBI1
  _ 005 PHARL2   Admin OPER NONE ------ ---- ------ ---- 19/08/04 09:06 PROBI1
  _ 006 PROBI1   Prime MVSX NONE ------ ---- ------ ---- 19/08/09 14:03 PROBI1
  _ 007 PROBI1   Prime OPER DENY ------ ---- ------ ---- 19/09/25 10:53 PROBI1
  _ 008 PROBI1   Prime RACF NONE ------ ---- ------ ---- 19/09/25 11:24 PROBI1
  ***************************** Bottom of data *****************************
```

To add a new user to the list, and grant them access rights to OPER Applications, place an "A" on a row entry-point and press enter. This will display the "User Access Rules" Pop-Up.

```
  ◊─────────────────────────────────────────────────────────────────◊
  ◊                TCE 16.0 - Adding ICE User Access Rules            ◊
  ◊                     ICE - Select Application                      ◊
  ◊ --User-- -----Application Access Rule----- ----FreeForm Comment---- ◊
  ◊ ---Id--- --Rules-- ---Start--- ---Stops--- ----------Text---------- ◊
  ◊ -------- Prod Mode yymmdd hhmm yymmdd hhmm ---------------------- ◊
  ◊ -USERID- ---- ---- ------ ---- ------ ---- 19/09/25_14:36_PROBI1   ◊
  ◊─────────────────────────────────────────────────────────────────◊
```

Enter the TSO UserId, of the user to be permitted, in the UserId Field. In the field that follows, the Prod Rule Field, enter either:

- `OPER = Permits access to MVS and RACF Command Functions.`
- `MVSX = Permits access to MVS Command functions only.`
- `RACF = Permits access to RACF Command functions only.`

By default, permitting Application Access results in "24X7" access rights. However, if you wish to create a "Window-of-Opportunity", in which the application may be accessed, and deny access outside of the window, use the remaining fields to do so. In the Mode Rule Field, enter either:

- `DENY = User denied access outside of the access Window.`
- `WARN = User warned of usage is outside the access Window.`
- `NONE = User neither warned/denied access during Window.`

Enter the yymmdd and hhmm that represent the Start and Stop times of the Window. If you want to open the window and leave it open, enter just the Start

date/time values. If you want to close the window at some time in the future, enter just the Stop date/time values.

When you exit (PFK3) from the Pop-Up, a single Control Card in the NSESELxx Parmlib member is automatically updated with an entry. Examples of such entries appear below:

```
IFOUMODE GBAGS1  WARN    OPER STM(0800) ETM(1600)
```
* Allows access only between 0800 and 1600. Issues Warning at all others.

```
IFOUMODE PHARL2  WARN    RACF SDT(150201)
```
* Allows access beginning February 15, 2015 and thereafter. Warns before.

```
IFOUMODE PHARL2  NONE    OPER
```
* Allows access 24X7 with exclusion, based on date or time.

6.3.2 Permit User access to Authorized Commands.

To permit users to use Authorized Commands, select the "CmmdSets" option from the Setting and Selection Menu. This will display a list of Command Sets. The Commands Sets shown in the list that are highlighted in yellow are not accessible and require additional license key(s). Select an available Command Set to return to the Command Set Table used to Activate Commands. The Table below is the MVS Command Set shown in the ADMIN/VIEW – (a portion only).

```
              TCE 16.0 - MVS Command Activation Settings


        .. Permit Command Log    .. Permit User Access
```

Note the "Permit User Access" option at the bottom of the panel. Place "S" on the entry-point that precedes the option and press enter. This action will display the Permit MVS Commands to Users Panel, a portion of which is shown below:

```
              ICE 16.0 - Permit MVS Command to Users

  /. Allows Commands Permitted to Users - UnCheck Disallows All Permits
  --------------Use '/' to Permit User Access to MVS Commands---------------
  Cm -UserId- Cm -UserId- Cm -UserId- Cm -UserId- Cm -UserId- Cm -UserId-
  -- -------- -- -------- -- -------- -- -------- -- -------- -- --------
  /. PROBI1   /. PHARL2   .. GBAGS1   ..          ..          ..
  ..          ..          ..          ..          ..          ..
  ..          ..          ..          ..          ..          ..

  ..          ..          ..          ..          ..          ..
  ..          ..          ..          ..          ..          ..
  ..          ..          ..          ..          ..          ..
```

Overall, users are Permitted to use the selected OPER Command Set when a "/" appears before "Allows Commands Permitted to Users". When the "/" is not present, all users are disallowed.

Below the heading, the panel shows the current list of Command Set users and their permission states. Those users with "/" preceding their UserId are permitted to use a selected set of commands. Those without the "/" are NOT permitted to use any commands in the selected set.

To view the commands with the selected command set that a user is permitted to use, place the cursor under the "/", or the user's Id, and press enter. This set of actions will display the User's Permitted Command Set, a sample of which is shown below:

```
              TCE 16.0 - Permit MVS Operator Command  - GBAGS1

   /. User is Permitted to use MVS - UnCheck to Disallows All Usage
  ------------Use '/' to Permit Selected MVS Operator Commands-----------
  Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name--
  -- -------- -- -------- -- -------- -- -------- -- -------- -- --------
  /. ACTIVATE .. CANCEL   .. CHNGDUMP .. CMDS     /. CONFIG   /. CONTROL
  .. DEVSERV  .. DISPLAY  .. DUMP     /. DUMPDS   /. FORCE    .. HALT
  .. IOACTION .. LIBRARY  .. LOG      .. LOGOFF   .. LOGON    .. MODE

  .. MODIFY   .. MONITOR  .. MOUNT    .. PAGEADD  .. PAGEDEL  .. QUIESCE
  .. REPLY    .. RESET    .. ROUTE    .. SEND     /. SET      .. SLIP
  .. START    .. STOP     .. STOPMN   .. SWAP     .. SWITCH   /. TRACE

  .. UNLOAD   .. VARY     .. WRITELOG ..          ..          ..
  ..          ..          ..          ..          ..          ..
  ..          ..          ..          ..          ..          ..
```

Color-coding plays an important role in understanding this panel and its content. The commands that were authorized/enabled in the previous example are now shown in turquoise/light-blue text. Those that are unauthorized are shown in green text. Only commands authorized may be permitted. To permit a command for the selected user, place "/" before one or more authorized command entries. It is possible that a "/" might appear before an unauthorized command. This is likely the result of an authorized and permitted command which was subsequently unauthorized by the OPER Administrator. While a user may be permitted to use a command, the OPER Console cannot issue a command that is not authorized for use.

Altering these settings, and exiting (PFK3) back to the prior menu, updates a member of an automatically allocated, persistent, partitioned dataset. In this updated member, the following naming conventions are used create the individual User Permission Dataset:

- MVS Commands   - your_hlq'.$TCEPOST.$OPERCMD($'user_id')'
- SET Commands   - your_hlq'.$TCEPOST.$OPERCMD(@'user_id')'
- PROG Wizards   - your_hlq'.$TCEPOST.$OPERCMD(P'user_id')'
- LOAD Wizards   - your_hlq'.$TCEPOST.$OPERCMD(L'user_id')'
- OMVS Wizards   - your_hlq'.$TCEPOST.$OPERCMD(O'user_id')'
- MODIFY Cmmds   - your_hlq'.$TCEPOST.$OPERCMD(M'user_id')'
- RACF Commands - your_hlq'.$TCEPOST.$OPERCMD(#'user_id')'

A snippet of a User's MVS Command Member is shown below:

```
/******************************************************************************/
/*        The Control Editor - Permitted MVS Operator Commands - UserId       */
/******************************************************************************/
PMTMVS,POS_XP= ALLMVS /
PMTMVS,POS_A1= ACTIVATE /
PMTMVS,POS_L1= CANCEL
PMTMVS,POS_S1= CHNGDUMP
PMTMVS,POS_E1= CMDS
PMTMVS,POS_T1= CONFIG /
PMTMVS,POS_A2= CONTROL /
```

While it is possible to update these members manually, it is not a recommended practice. Manual coding may lead to conflicts with the automated update process.

6.4 Creating an OPER Application Secondary Passwords.

It is advisable to place a "Second-Level" Password "Prompt" over the use of OPER Application Functions. This additional control is to ensure that only users with the need to use OPER functions are allowed access and all others are denied. To define a password, select the "Password" option from the menu and press enter. This action will display the Prompt Controls List, as shown below.

```
                TCE 16.0 - TCEOPER Prompt Control Definitions  Row 1 to 5 of 5
  --NSIMRBX 1209--                                        --Access Control--
  ------------------- 2 TCE/OPER Access Controls are Defined ------------------
  Row Selection: Add_Prompt_Controls Update_Prompt_Control Remove_Prompt_Controls
  --- To Sort select a Sub-Head, To Query enter above Sub-Head, PFK1 for Help ---
  - Line -------Command Access Controls------ -----Access Window----- --Updated--
  _ ____ _____ _____ _____ _____ ____ ____ _____ ____ _____ ____ _ _____ _
  S Numb Commands ------Prompt------ Eml Mode yymmdd hhmm yymmdd hhmm A/UserIds +
  _ 0001 MVSCMMDS -Prompt_is_Active- --- DENY ------ ---- ------ ---- U/PROBI1  +
  _ 0002 SETCMMDS -Prompt_Not_Coded- --- ---- ------ ---- ------ ---- -/------- +
  _ 0003 RACFCMMD -Prompt_is_Active- --- DENY ------ ---- ------ ---- -/------- +
  _ 0004 CMDWIZRD -Prompt_Not_Coded- --- ---- ------ ---- ------ ---- -/------- +
  **************************** Bottom of data *****************************
```

Depending on your target, select either MVSCMMDS or RACFCMMD by placing "A" on the entry-point preceding the row and press enter. This will display the following pop-up.

```
◊───────────────────────────────────────────────────────────────◊
◊              TCE 16.0 - Adding a TCE/OPER Prompt              ◊
◊                  Command Set - ???CMMDS  Notifications       ◊
◊  ---Password--- Mode ---Start--- ---Stops--- ---This-Addition---  ◊
◊  -------------- ---- yymmdd hhmm yymmdd hhmm yymmdd-hhmm-UserIds  ◊
◊  ENTER_PASSWORD DENY ------ ---- ------ ---- 190925_1037_PROBI1   ◊
◊───────────────────────────────────────────────────────────────◊
```

In the Password field, enter an ALPHANUMERIC Password String, with a minimum of 6 and a maximum of 14 characters. Next, set the MODE: DENY | WARN | NONE. If set to DENY, user are denied access at all times. If you alternatively elect to create a "Password Window", enter the Start and Stop Date (yymmdd) and Time (hhmm). The Password remains active 24X7, but reverts to the Global Mode setting during the

"Window". Using the "Window", you could WARN users that enter the wrong password outside of the "Window" and DENY them during the "Window".

When you exit to the prior panel (PFK3), the supplied password is encoded and stored in the NSESELxx member as a single Control Card, as shown below:

```
IFOUMODE RACFCMMD DENY    PMT(CCSBDGDPNNBO!T?:)
```

In order to update/change a Password, you will need to know the Current Password. To begin the update/change process, return to the Prompt Control List. This time, select your target by placing "U" on the entry-point preceding the target's row and press enter. This will display the Prompt Update Pop-Up.

```
◊─────────────────────────────────────────────────────◊
◊              ICE 16.0 – TCE/OPER Prompt for Update        ◊
◊                    Command Set - ???CMMDS                 ◊
◊                                                           ◊
◊              Enter Prompt Password_____ +      ◊
◊─────────────────────────────────────────────────────◊
```

Enter the current password and press enter. In the Pop-Up that follows, overtype the current password. When you exit to the prior panel, the new password will be stored and become effective immediately.

If you are the ICE Primary Administrator and don't remember the current password, place the cursor under the "+" and press enter. This will fill the password for you. This service is available only to the Prime Admin and is the only time that a password, once set, is shown in "Clear Text".

6.5 Activating OPER Setting Updates.

Changes made to ICE/OPER setting will become fully effective following activation. To activate new or updated settings, select "Activate" from the menu and press enter. This will immediately begin the activation process. When activation is complete, the following message will be displayed.

```
◊───────── All Members have been Successfully Activated. ──────────◊
```

7 Using ICE/OPER/MVS

7.1 OPER/ADMIN Considerations

When OPER/MVS is licensed and configured, the OPER Administrator may exclusively use the following Line Commands:

```
TSO $$MVSA ADMIN - Displays the OPER Settings and Selection Panel
TSO $$MVSA CMLOG - Displays the MVS Command Log
TSO $$MVSA AUDIT - Displays the OPER MVS Command Monitor Interface
TSO $$MVSA TABLE - Displays the MVS Command Set in ADMIN/VIEW
TSO $MVSALU user_id - Displays users Permitted MVS Command Table
TSO $SETALU user_id - Displays users Permitted SET Command Table
```

7.2 Using the Command Line

There are basically two ways that an authorized and permitted user can access an OPER Console and have the Console issue MVS commands at their request:

- By using an OPER Command Line Command or
- By using an OPER Command Table.

Entering the following "Stand Alone" Line Commands, from either the ICE/ISPF or TSO/ISPF primary menu command line, will display the related interface.

```
TSO $APFADD – displays the Add AFP Dataset Interface
TSO $APFDEL – displays the Delete APF Dataset Interface
TSO $APFLST – displays the APF List with various functions
TSO $LNKADD – displays the Add LNKLIST Dataset Interface
TSO $LNKDEL – displays the Delete LNKLIST Dataset Interface
TSO $LNKLST – displays the LNKLIST with various functions
TSO $LPAADD – displays the Add LPA Module Interface
TSO $LPALST – displays Full LPALIST with various functions
TSO $EXTADD – displays the Add Module to EXIT Interface
TSO $EXTLST – displays List of EXITS with various functions
TSO $PRMUPD – displays SETLOAD XX,PARMLIB Update Interface
TSO $PRMLST – displays All LOADxx Members, various functions
TSO $SYMUPD – displays SETLOAD XX,IEASYM Update Interface
TSO $SYMLST - displays All LOADxx Members, various functions
TSO $OMVUPD – displays BPXPRM Parameter Update Interface
TSO $OMVLST – displays Current BPXPRM Parameters with update
TSO $ZSFUPD – displays OMVS File System Update Interface
TSO $ZSFLST – displays OMVS File System Settings with update
```

Each of these commands is explained in the section that follows.

7.3 Using an OPER Command Table

Entering one of the following "Table" command strings, from either the ICE/ISPF or TSO/ISPF primary menu command line, will display a Command Table.

```
TSO $MVSALL TABLE | TSO $SETALL TABLE | TSO #ESMALL TABLE
```

By example, when a user (USERABC) enters the TSO $MVSALL TABLE command string, the table that supports MVS Commands is displayed. The display is specific to the requesting user, allowing access only to those commands that are both authorized for console use and those specifically permitted to USERABC. A portion of a sample table follows.

```
              TCE 16.0 - Permit MVS Operator Command  - USERABC

   <> You are Permitted to use These Activated MVS Command
   ------------'/' Denotes Your Permitted MVS Operator Commands-----------
   Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name--
   -- -------- -- -------- -- -------- -- -------- -- -------- -- --------
   /. ACTIVATE .. CANCEL   .. CHNGDUMP .. CMDS     .. CONFIG   .. CONTROL
   .. DEVSERV  .. DISPLAY  .. DUMP     .. DUMPDS   .. FORCE    .. HALT
   .. IOACTION .. LIBRARY  .. LOG      .. LOGOFF   .. LOGON    .. MODE

   .. MODIFY   .. MONITOR  .. MOUNT    .. PAGEADD  .. PAGEDEL  .. QUIESCE
   .. REPLY    .. RESET    .. ROUTE    /. SEND     /. SET      .. SLIP
   .. START    .. STOP     .. STOPMN   .. SWAP     .. SWITCH   .. TRACE

   .. UNLOAD   .. VARY     .. WRITELOG ..          ..          ..
```

The color-coding of individual commands is helpful for understanding each command's "State". By default, ALL commands are shown in green text, indicating they are not authorized/enabled for console use.   However, if the OPER Administrator has authorized/enabled a command for use, it will be shown in turquoise text. If the command has been permitted to the individual user, in this case "USERABC", a check "/" will appear before the command. A user may access and use only authorized/enabled/permitted commands.

Attempts by a user to select an unauthorized or unpermitted command will result in one of the warning messages shown below:

```
   ◊─────── Selected MVS Command - DUMP - Has NOT Been Activated. ───────◊
   or
   ◊─────── You are not Permitted to use the MVS MOUNT Command. ───────◊
```

Depending on the command selected, a user will be presented with either a "Generic" or "Specific" command interface.

7.3.1 The Generic Command Interface

By example, if the users selects the ACTIVATE command, the "Generic" interface is presented:

```
              ICE 16.0 - MVS Command Interface - ACTIVATE

-- ----------------Command Structure----------------   Userid   - PROBI1
01 ACTIVATE _____     Time     - 07:25
02 _____  Sysplex  - ADCDPL
03 _____  System   - ADCD113
04 _____  ApplId   - TEST
05 _____  ICE 16.0 - TCE 16.0
06 _____   Patch Level R00
07 _____
08 _____

-- ------------------------Action Descriptor------------------------
01 _____
02 _____
03 _____
04 _____
05 _____
06 _____
07 _____
08 _____

         .. Shows History   .. Issue Command   .. Abort Process
```

"Generic" interfaces, such as this one, require the user to supply the complete command structure. Note the space between the command and the start of the parameter portion of line 01. The complete command structure must be entered after this space and may continue through line 08.

The parameters that make up MVS commands are separated by commas. Therefore, when entering a command that requires more than one line, break it before the next comma by continuing to the next line. OPER will insert the comma automatically when it constructs the complete command string, prior to sending the command string to the system for execution. A warning will be issued if the total length of the command exceeds the 126-character system limitation. If you find your command is exceeding that limit, consider the possible alternative of using parameter keyword abbreviations.

As it turns out, the system is really, really smart. It will check the syntax and references of a command's parameters during processing. Its findings, good or bad, will be displayed on the screen for review. If the command cannot be processed as constructed, the user may simply reconstruct the command, following the system's instructions, and try again. Unprocessed commands have no adverse impact on the system. Processed commands with bad parameter values often do have an adverse impact. Therefore, users should take care when using the "Generic" interface, as it offers NO parameter checking prior to submitting the command string.

The lower segment of the panel is called the "Descriptor". It is intended to give the user "Voice", at the moment the command is submitted. Completing the "Descriptor" is a requirement that must be fulfilled, before a command can be issued from an OPER Console. Attempts to issue a command without fulfilling the "Descriptor" requirement results in the following warning:

◊────── Documentation of Command Events is an Audit Requirement. ──────◊

Whether you think of it as "The Users Voice" or "Audit Documentation", the true value of the "Descriptor" is that it creates an "Institutional Memory" of command events, recorded in the ICE Control Journals and linked to its related Command Event recorded in the OPER Command Log. This "Institutional Memory", a documentation of command events, offers answers to all the elusive "whys" in Configuration Change Management. This is a truly unique feature of the Integrity Controls Environment.

At the bottom of the panel are three selectable options: Show History, Issue Command, and Abort Process.

- Select <u>Show History</u> (Use "S" for ISPF/Browse, "V" for ISPF/View) to display the "Locally" recorded history of a command issued via the interface. These "Locally" recorded command events should not be confused with command events as recorded in the Command Log or the Control Journal. This local command event capture process is always "ON", regardless of the OPER Command Log or Control Journal settings, and it serves only as a "Basic Record" of events. This Local log is automatically allocated when the "Generic" Interface is first used to issue a command. The dataset is named as:

  `your_hlq'.$TCEOPER.$GENLOG.@'system_name`

  For Command Auditing and Forensic Analysis, it is best practice to use the Command Log Interface described elsewhere in this document.

- Select <u>Issue Command</u> to issue the constructed command. The reply from the system will appear on the screen immediately following the command issue. It is best practice to study the reply to determine if the command executed as expected. If errors in syntax or reference are reported, try again. Note that if the Command Log is configured to capture the command, it will be recorded whether it has failed or not. If the Control Journals are configured, a failed attempt will be recorded, along with the system reply.

- Select <u>Abort Process</u> to end the Command process and return to the Command Table.

7.3.2 The Specific Command Interface

As the name implies, "Specific" Command Interfaces are designed to support the unique processes associated with a selected command. We sometimes refer to these Specific Command Interfaces as "Command Wizards".

By example, if the user selects the SET command from the MVS Command Set Table, the "Specific" Set Command Table will be displayed. In this case, the user entered TSO $SETALL TABLE on the command line and pressed enter, which displayed the following panel.

```
              ICE 16.0 - Permitted SET Commands - PROBI1

     <> You are Permitted to use These Activated SET parm Commands
     -------------'/' Denoted Your Permitted SET parm Commands--------------
     Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name--
     .. APPC     .. ASCH     .. AUTOR    .. CEE      .. CLOCK    .. CNGRP
     .. CON      .. DAE      .. DATE     .. DEVSUP   .. DIAG     .. EXS
     .. GRSRNL   .. GTZ      /. IKJTSO   .. IOS      .. IXGCNF   .. MMS
     .. MPF      .. MSGFLD   /. OMVS     .. OPT      .. PFK      .. PROD
     /. PROG     .. RESET    .. SCH      .. SLIP     /. SMF      .. SMS
     .. TIMEZONE .. UNI      ..          ..          ..          ..

     <> You are Permitted to use These Activated SETparm Commands
     -------------'/' Denotes Your Permitted SETparm Commands---------------
     Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name--
     /. SETAPPC  .. SETALLOC .. SETAUTOR .. SETCEE   /. SETCON   .. SETETR
     .. SETGRS   .. SETGTZ   .. SETHS    .. SETIOS   /. SETLOAD  .. SETLOGR
     .. SETLOGRC .. SETMF    /. SETOMVS  /. SETPROG  .. SETRRS   .. SETSMF
     .. SETSMS   /. SETSSI   /. SETUNI   /. SETXCF   ..          ..
     ..          ..          ..          ..          ..          ..
     ..          ..          ..          ..          ..          ..
```

This panel is divided into two sections. The upper section contains the bifurcated Set Commands, meaning Two-Word commands, in the form – SET, a blank and then a parm. An example of this is "SET PROG". The lower section contains the fully-formed Sets, meaning One-Word SET commands. An example of this is "SETPROG".

7.3.3 Two-Word SET Command Wizards

When the user selects a command from the "Two-Word Set", OPER first asks the system to return the Currently Active Pamlib Concatenation for the "Running System", which is the system the user is logged on to. OPER then examines the Concatenation and extracts member names that are related to the selected command. Next, OPER determines which members, from the extracted list, were actually used during the most recent IPL of the system (again, the "Running System"). This information is then formatted and displayed as an interactive ISPF Worksheet.

A sample worksheet, created following the selection of the "SET PROG" command from the "Two-Word Set", is shown below:

```
                ICE 16.0 - Parmlib Member Selection List    Row 1 to 14 of 18
  --NSIMPRX 0326--                                        --Member Listing--
  --------------------- 18 PROGxx Members - System:ADCD113 --------------------
  Row Selection: Show_SET_CMMD_Wizard Update_Parm_Member Display_SET_CMMD_History
  --- To Sort select a Sub-Head, To Query enter above Sub-Head, PFK1 for Help ---
  - Line -----------Available Parmlib Members----------- ------Last Update------
  _ ____ ___ _____ _____ _____ _____ _____ _____
  S Numb IPL -Member- -------Source Datasets------ Volume -UserId- yy/mm/dd hh:mm
  _ 0001 --- PROGPH   USER.PARMLIB                 ZDSYS1 PHARL2   19/09/24 08:19
  _ 0002 YES PROG01   USER.PARMLIB                 ZDSYS1 PHARL2   19/09/26 11:59
  _ 0003 --- PROGAL   ADCD.Z113.PARMLIB            ZDRES1 IBMUSER  18/12/04 22:38
  _ 0004 --- PROGBB   ADCD.Z113.PARMLIB            ZDRES1 IBMUSER  18/12/04 22:38
  _ 0005 --- PROGCI   ADCD.Z113.PARMLIB            ZDRES1 IBMUSER  18/12/04 22:38
  _ 0006 --- PROGDA   ADCD.Z113.PARMLIB            ZDRES1 IBMUSER  18/12/04 22:38
  _ 0007 --- PROGDB   ADCD.Z113.PARMLIB            ZDRES1 IBMUSER  18/12/04 22:38
  _ 0008 --- PROGD8   ADCD.Z113.PARMLIB            ZDRES1 IBMUSER  18/12/04 22:38
  _ 0009 --- PROGD9   ADCD.Z113.PARMLIB            ZDRES1 IBMUSER  18/12/04 22:38
  _ 0010 --- PROGIM   ADCD.Z113.PARMLIB            ZDRES1 IBMUSER  18/12/04 22:38
  _ 0011 --- PROGJ3   ADCD.Z113.PARMLIB            ZDRES1 IBMUSER  18/12/04 22:38
  _ 0012 --- PROGLQ   ADCD.Z113.PARMLIB            ZDRES1 IBMUSER  18/12/04 22:38
  _ 0013 --- PROG00   ADCD.Z113.PARMLIB            ZDRES1 IBMUSER  18/12/04 22:38
  _ 0014 --- PROG01   ADCD.Z113.PARMLIB            ZDRES1 IBMUSER  18/12/04 22:38

  Option ===>                                             Scroll ===> CSR
```

The Parmlib Members are shown in the order they would be processed by the system during an IPL. A "YES" value, in the column headed IPL, indicates which member was used during the most recent IPL. In the case above, it is the PROG01 member.

While a complete tutorial on the use of "Two-Word Sets" far exceeds the scope of this document, the following should be helpful.

"Two-Word Sets" are intended as a way for settings, derived from Parmlib Members during an IPL, to be dynamically updated without the need for a new IPL. The relatively simple process involves updating the member, which may or may not be the one used during the last IPL, and issuing the command string. In the case above, we are using "PROG01" and issuing the command string "SET PROG=01". This results in the content of PROG01 being reprocessed and related "In Memory" settings being updated immediately.

The advantage of the "Two-Word Sets" is that, when used correctly and carefully, the settings updated within Parmlib Members will always match the "In Memory" settings. This ensures a very high likelihood that, in the event of a necessary IPL, that newly IPLed system, and its settings, will match the old system. That's a good thing!

Available panel options are Show, Update, and Display. To select either, place the cursor on the entry-point preceding a Member, and press enter. The Show and Update options are member specific. Display, however, is not. Placing "D" on any entry-point, and pressing enter, will result in the display of Set Command History.

Select <u>Show SET CMMD Wizard</u> to display the Command Interface Pop-Up as shown below. In this case, PROG01 was selected.

```
◊─────────────────────────────────────────────────◊
◊              ICE 16.0 - Dynamically Updating - PROG          ◊
◊                                                              ◊
◊    -/d---Rank One or More of the Available Suffix Values------ ◊
◊    PH 01 AL BB CI DA DB D8 D9 IM J3 LQ 00 01 42 65 67 7W    ◊
◊                                                              ◊
◊                                                              ◊
◊              Select > .. To Issue > Then Press Return        ◊
◊─────────────────────────────────────────────────◊
```

Note that the suffixes, shown left to right in this panel, are in the same order as the members appeared the worksheet. The selected member's suffix is shown ranked in position one (left-most). This positioning is critical to the dynamic update process. When more than one member is involved, designate the order in which those members are to appear in the command string by placing a number (1, 2, 3, 4, etc…) below each member suffix. By example, such a command string might look like SET PROG=(01,PH,AL) when suffix 01 is defined to position 1, suffix PH is defined to position 2 and suffix AL is defined to position 3. The resulting panel is shown below.

```
               ICE 16.0 - Update Description - SET PROG

-- ----------------Command Structure---------------    Userid   - PROBI1
01 SET PROG=(01,PH,AL)                                  Time     - 07:25
02 _____   Sysplex  - ADCDPL
03 _____   System   - ADCD113
04 _____   ApplId   - TEST
05 _____   ICE 16.0 - TCE 16.0
06 _____    Patch Level R00
07 _____
08 _____

-- ------------------------Action Descriptor------------------------
01 _____
02 _____
03 _____
04 _____
05 _____
06 _____
07 _____
08 _____

      .. Shows History   .. Issue Command   .. Abort Process
```

Unlike the "Generic" Command Structure (as described previously), this panel's Command Structure Section is "LOCKED", meaning the command string as it was constructed and appears will be the command string passed to the system when (or if) the command is issued.

See the "Generic" Command Interface section for a full explanation of the Action Descriptor and the Panel Commands: Show History, Issue Commands, and Abort Process.

- Select Update_Parm_Member to display the Member in ISPF/EDIT

If appropriately configured during the installation of the Integrity Controls Environment, OPER shares the full function of TCE/EDIT without the need for additional licensing. When so configured, a member selected using "U" will be displayed in ISPF, under the control of TCE/EDIT. If not, the member is displayed in native ISPF.

See the TCE/EDIT Documentation for a complete explanation of the features and functions available to a user when a member is displayed for edit under the control of TCE/EDIT.

- Select Display_SET_CMMD_History using a "D" to display the Local History Report in ISPF/Browse or a "V" to display in ISPF/VIEW. A sample report appears below:

```
/*******************************************************************************/
/*                                                                             */
/*                  The Control Editor - SET CMD Update Log                    */
/*                      Sysplex:ADCDPL - System:ADCD113                        */
/*                   Last IPL Was:Saturday_09.07.2017_7:30                     */
/*                  Date:2019/09/15 - Time:00:51:18 - User:PROBI1              */
/*                                                                             */
/*******************************************************************************/
Line --Date-- --Time-- -UserId- --------------------SET CMD Operator Command----
0001 09/15/19 00:51:18 PROBI1    SET SMF=00
0002 09/15/19 00:43:14 PROBI1    SET SMF=00
0003 09/15/19 00:05:02 PROBI1    SET SMF=00 ADCD113
0004 09/07/19 07:30:00 NEWIPL    ADCD113
/*******************************************************************************/
****************************** Bottom of Data ******************************
```

7.3.4 One-Word SET Command Wizards

"One-Word" Set Commands are supported by both Generic and Command Wizard interfaces. Those supported by Wizard interfaces include: SETPROG, SETLOAD, and SETOMVS. The example below shows the elements of the SETPROG Wizard interface as displayed when SETPROG is Authorized/Permitted and selected from the full MVS Command Set.

```
        <> You are Permitted to use These Activated SETPROG Wizards
        -----------'/' Denotes Your Permitted SETPROG Command Wizards------------
        Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name--
        /. $APFADD  /. $APFDEL  /. $APFLST  /. $LNKADD  /. $LNKDEL  /. $LNKLST
        /. $LPAADD  /. $LPADEL  /. $LPALST  /. $EXTADD  /. $EXTDEL  /. $EXTLST
        ..          ..          ..          ..          ..          ..
```

These Wizards are arranged in sets - one for adding, one for deleting, and finally one for seeing the "Whole Picture" relative to a specific element of the SETPROG process: APFLIST, LNKLIST, LPALIST, and System EXITS. Shown below are a progression of pop-ups and panels that show the LNKLIST Wizards. Only Wizards that are both enabled and permitted to a user may be accessed from this panel.

$APFADD

```
◊━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━◊
◊              ICE 16.0 - Adding a New APF Dataset            ◊
◊                                                            ◊
◊        ---------Full Qualified Dataset Name-------- Volume ◊
◊        _____ _____       ◊
◊              To Add Select > .. Yes > Then Press Return    ◊
◊━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━◊
```

$APFDEL

```
◊━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━◊
◊              ICE 16.0 - Deleting an APF Dataset            ◊
◊                                                            ◊
◊        ---------Full Qualified Dataset Name-------- Volume ◊
◊        _____ _____       ◊
◊              To Add Select > .. Yes > Then Press Return    ◊
◊━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━◊
```

$APFLST

This Wizard shows the "Whole" APF Dataset picture, including the display of individual modules and their related AC Codes.

```
              ICE 16.0 - Active APF Dataset Selection      Row 1 to 14 of 38
--NSIMPRX 0326--                                      ---APF Datasets---
---------------- 38 Datasets - System:ADCD113 - Format:DYNAMIC ---------------
Row Selection: Add_APF_Dataset Delete_APF_Dataset Change_APF_Format Module_List
--- To Sort select a Sub-Head, To Query enter above Sub-Head, PFK1 for Help ---
- Line ------------------Authorized Program Facility Table------------------

S Numb -------------Active APF Dataset------------ Cat Type Volume SMSVol Count
_ 0001 SYS1.LINKLIB                               YES PDS   ZDRES1 ------ 04075
_ 0002 SYS1.SVCLIB                                YES PDS   ZDRES1 ------ 00004
_ 0003 SYS1.SHASLNKE                              YES PLIB  SMS    ZDRES1 00052
_ 0004 SYS1.SIEAMIGE                              YES PLIB  SMS    ZDRES1 00007
_ 0005 SYS1.MIGLIB                                YES PDS   ZDRES1 ------ 01975
```

The command options, Add_APF_Dataset and Delete_APF_Dataset, are the same as discussed above, with the exception that selecting a Dataset with the "D" option will automatically populate the $APFDEL panel with the selected Dataset and Volume values. To Select the Change Format option, place "C" on any Row Entry Point and press enter. This will display the Changing The APF Format Pop-Up.

```
◊━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━◊
◊              ICE 16.0 - Changing The APF Format            ◊
◊                                                            ◊
◊         Old Current Format      New Possible Format        ◊
◊             DYNAMIC                 STATIC                 ◊
◊         To Change Select > .. Yes > Then Press Return      ◊
◊━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━◊
```

Note that, as suggested by the content of this panel, the command to change the format from Dynamic to Static could be formulated and issued. Doing so, however, would result in the following reply from the system:

```
CSV411I APF FORMAT CANNOT BE CHANGED FROM DYNAMIC TO STATIC.
```

This indicates that the attempted update was processed but failed. The system is really, really smart.

Selecting a Dataset with "M" will display a listing of modules within the selected Dataset. A portion of a listing containing 4,075 modules in SYS1.LINKLIB is shown below:

```
              ICE 16.0 - Module in Dataset Select List Row 1 to 14 of 4,075
--NSIMPRX 0326--                                         --Module Listing--
----------------- 4075 Program Modules - Dataset:SYS1.LINKLIB -----------------
Row Selection: AMBLISTing_of_Module_Content
--- To Sort select a Sub-Head, To Query enter above Sub-Head, PFK1 for Help ---
- Rows -------------------Modules in the Selected Dataset-------------------
_ ____ _____ _____ _____ __ _____ _____
S Numb ----------Selected Dataset--------- Volume -Module- AC -MAlias- --Size--
_ 0001 SYS1.LINKLIB                        ZDRES1 ABA      00 ARCABA  00004140
_ 0002 SYS1.LINKLIB                        ZDRES1 ACCOUNT  00 IKJEFA00 000013E0
_ 0003 SYS1.LINKLIB                        ZDRES1 AD       01 IRRENV00 0004D2F8
_ 0004 SYS1.LINKLIB                        ZDRES1 ADDGROUP 01 IRRENV00 0004D2F8
_ 0005 SYS1.LINKLIB                        ZDRES1 ADDSD    01 IRRENV00 0004D2F8
_ 0006 SYS1.LINKLIB                        ZDRES1 ADDUSER  01 IRRENV00 0004D2F8
_ 0007 SYS1.LINKLIB                        ZDRES1 ADFGLUET 00 ADFMDF01 000003C8
```

Selecting a module with "A" displays the AMBList output in ISPF/VIEW. Selecting a module with "B" displays the same output in ISPF/BROWSE, a sample of which is shown below:

```
/*****************************************************************************/
/*                                                                           */
/*                   TCE AMBLISTing of Module Content                        */
/*          Selected Dataset:SYS1.LINKLIB - Selected Module:ACCOUNT          */
/*                Date:2019/04/01 - Time:14:19:48 - User:PROBI1              */
/*                                                                           */
/*****************************************************************************/

      LISTIDR DDN=LOADLIB,MEMBER=ACCOUNT
                   *****  M O D U L E   S U M M A R Y  *****
      MEMBER NAME:  IKJEFA00
      LIBRARY:      LOADLIB
            ** ALIASES **      ENTRY POINT    AMODE
            ** ACCOUNT           00000000      24
-------------------------------------------------------------------------------
         ****          ATTRIBUTES OF MODULE         ****
      **  BIT  STATUS        BIT  STATUS        BIT  STATUS
          0  RENT           1  REUS           2  NOT-OVLY
          4  NOT-OL         5  BLOCK          6  EXEC
          8  NOT-DC         9  ZERO-ORG      10  EP-ZERO
         12  EDIT          13  NO-SYMS       14  F-LEVEL
-------------------------------------------------------------------------------
              MODULE SSI:        NONE
                  APFCODE:          00000000
                    RMODE:            24


  *****LOAD MODULE PROCESSED EITHER BY VS LINKAGE EDITOR OR BINDER
```

$LNKADD
```
◊─────────────────────────────────────────────────────────────◊
◊              TCE 16.0 - FastPath New LNKLST and Dataset        ◊
◊                  New LNKLST Name: PROBI1150911307              ◊
◊                    Copying From: PROBI1150901048              ◊
◊           --------Full Qualified Dataset Name--- + --- Volume  ◊
◊           _____ _____  ◊
◊           Position Dataset > .. Above > S. Below > or .. After This ◊
◊              Dataset: ACTIVE LNKLST                            ◊
◊                Optionally Select Either > .. Check > .. No Check ◊
◊                   To Finish Select > .. Yes > Then Press Return ◊
◊─────────────────────────────────────────────────────────────◊
```

The first step in adding a new dataset to an existing LNKLST is to define a new list.
Defining a new list requires a new list name. As this panel is displayed, a default
list name is entered as the value of the New LNKLST Name. This default name is
composed of the following elements: UserId, Year, Julian Date, Hour, and Second.
This reflects the requesting user by ID and the date and time when the name was
actually formulated. New LNKLSTs created via this Wizard are named in this way
and no other way of naming is possible.

$LNKDEL
```
◊─────────────────────────────────────────────────────────────◊
◊              TCE 16.0 - FastPath New LNKLST Delete DSN         ◊
◊                  New LNKLST Name: PROBI1150911332             ◊
◊                    Copying From: PROBI1150901048             ◊
◊           --------Full Qualified Dataset Name--- + ---        ◊
◊           ACTIVE LNKLST                                       ◊
◊                   To Finish Select > .. Yes > Then Press Enter ◊
◊─────────────────────────────────────────────────────────────◊
```

Deleting a LNKLST Dataset, similar to adding one, requires the formulation of a
new list name. See $LNKADD for details.

$LNKLST

This Wizard does it all. It shows the Current Active LNKLST in the panel heading
and a listing of ALL other Active (but not the Current) LNKLSTs in the panel body.
A sample of this panel is shown below.

```
              ICE 16.0 - LNKLST Selection - Current .. PROBI1150901048


        ---------------------- Active LNKLST Sets ----------------------
        Cm ------Name------    Cm ------Name------    Cm ------Name------
        .. LNKLST00            ..                     ..
        .. PROBI1150891605     ..                     ..
        .. PROBI1150891616     ..                     ..
        .. PROBI1150891819     ..                     ..

        S = ShowLNKLST D = Defines U = UnDefine A = Activate T = TestModule

         .. Update .. Allocate .. UnAlloc .. FastAdd .. FastDel .. History
```

$LPAADD

```
◊————————————————————————————————————————————————————————————————◊
◊ ADD57            ICE 16.0 - Adding New LPALST Module            ◊
◊                                                                 ◊
◊  -----------------New LPALST Module Description------------------  ◊
◊   Module(,s): _____  or > Mask: _____  ◊
◊     Source Dataset: _____  ◊
◊        or Set > .. Fetch Module from the Active System LNKLST    ◊
◊  > Set .. SVC Entry ___ or .. > Entry, plus Route Code ___ , ___  ◊
◊            > Set .. Fixed > and/or > Set .. PAGEPROTPAGE         ◊
◊            > Set .. Add Alias or > Set .. No Added Alias         ◊
◊                                                                 ◊
◊            To AddNew Select > .. Yes > Then Press Return         ◊
◊————————————————————————————————————————————————————————————————◊
```

$LPADEL

```
◊————————————————————————————————————————————————————————————————◊
◊ ADD29            ICE 16.0 - Deleting a LPALST Module            ◊
◊                                                                 ◊
◊    ------------------Delete Existing LPA Module----------------    ◊
◊    Enter Module Name(,s) _____         ◊
◊                  > Then must check .. FORCE=YES                   ◊
◊                > Next check either .. Current | .. Oldest        ◊
◊                                                                 ◊
◊            To Delete Select > .. Yes > Then Press Return         ◊
◊————————————————————————————————————————————————————————————————◊
```

$LPALST

This Wizard does it all. It shows the Current Active LPALST by Module. When possible, OPER attempts to match a Module with its source dataset. Modules with 00 or 01 entries in the AC (Authorization Code) column are those with a Dataset Match. Those that show "--" were not identified by Dataset. (In addition to not displaying an AC value, these Modules' AMBLists cannot be shown).

```
                ICE 16.0 - Active LPA Module Selection  Row 71 to 84 of 2,143
--NSIMPRX 0326--                              -LPA Modules List-
----------------- 2143 Available LPA Modules - System:ADCD113 ----------------
Row Selection: Add_LPA_Module Delete_LPA_Module Set_CSA/ECSA_Size Views_AMBLIST
--- To Sort select a Sub-Head, To Query enter above Sub-Head, PFK1 for Help ---
- Rows ------------------Modules in the Link Pack Area (LPA)------------------
_ _____ _____ __ ___ ____ _____ ____ ____ _____ _____ _____ _____
S Numb -Module- AC Dup Type -MAlias- Page Page -EntyPt- -LoadPt- -Lenght- ARMod
_ 0071 IGG0102F 00 --- PLPA IGC0002F PROT ---- 83A4301A 03A43000 000044D8 31ANY
_ 0072 IFG0194J 00 --- PLPA -------- PROT ---- 83A26000 03A26000 00007718 31ANY
_ 0073 IOSVSPFR 00 --- PLPA -------- PROT ---- 843FA000 043FA000 00002628 31ANY
_ 0074 DWW1RARR 00 --- PLPA DWW1VS00 PROT ---- 83498000 03498000 00005D68 31ANY
_ 0075 IKJEFF02 00 --- PLPA IKJTSLAR PROT ---- 80CD4A2A 00CD49F0 00000610 ANY24
_ 0076 IEAVTSDS 00 --- PLPA IGC0005A PROT ---- 83AABCC0 03A59000 0005D4E8 31ANY
```

The command options, Add_LPA_Module and Delete_LPA_Module, are the same as discussed above, with the exception that selecting a Module with the "D" option will automatically populate the $LPADEL panel with the selected Module.

Place an "S" on any row entry-point and press enter to show the Set CSA/ECSA Pop-Up.

```
◊————————————————————————————————————————————————————————◊
◊ UPD743          ICE 16.0 - Updating Minimum CSA/ECSA          ◊
◊                                                              ◊
◊     -------Specifies the minimum amounts of CSA and ECSA------- ◊
◊            CSAMIN= below-16M CSA __0 , above-16M CSA __0      ◊
◊                                                              ◊
◊            To Update Select > .. Yes > Then Press Return     ◊
◊————————————————————————————————————————————————————————◊
```

The values shown in the Pop-Up are the current CSAMIN below and above the 16 megabyte line that should remain after a new module is added to LPA. Overtype these values to set new ones, select using "S", and press enter to continue.

To display a MODULE's AMBList in ISPF/VIEW, select it with a "V". To show the same list in ISPF/BROWSE, select the MODULE with a "B". The AMBList of MODULES, that have no identified source Dataset, display the following notification when selected.

```
◊———————— The Module Source Dataset and Volume not Identified. ————————◊
```

$EXTADD

```
◊————————————————————————————————————————————————————————◊
◊                ICE 16.0 - Adding a New System Exit            ◊
◊                                                              ◊
◊        ----------------Add a New System Exit------------      ◊
◊        Exit Name _____ Module Name _____        ◊
◊        Exit Routine State > .. Active or > .. Inactive        ◊
◊        Dataset _____        ◊
◊        JobName _____ ABENDNUM _____ > .. Consec        ◊
◊        > .. First or > .. Last with > Param _____        ◊
◊                                                              ◊
◊         To AddNew Select > .. Yes > Then Press Return         ◊
◊————————————————————————————————————————————————————————◊
```

$EXTDEL

```
◊————————————————————————————————————————————————————————◊
◊                ICE 16.0 - Deleting a System Exit             ◊
◊                                                              ◊
◊        --------------Detete a System Exit---------------     ◊
◊        Exit Name _____ Module Name _____        ◊
◊               > Set FORCE > .. Yes or > .. No               ◊
◊                                                              ◊
◊         To AddNew Select > .. Yes > Then Press Return         ◊
◊————————————————————————————————————————————————————————◊
```

$EXTLST

This Wizard does it all. It shows the Current Active System EXITs in an ISPF Table. The Table may be paged UP/DOWN and supports selection, but does not support filtering or sorting.

```
              ICE 16.0 - Active System Exit Selection      Row 1 to 14 of 20
--NSIMPRX 0326--                                          ---Active Exits---
---------------------- 59 Active Exits - System:ADCD113 --------------------
Row Selection: Add_New_Exit To_Update_an_Existing_Exit_Cursor_Under_Press_Enter
--- To Sort select a Sub-Head, To Query enter above Sub-Head, PFK1 for Help ---
------------------------------Active System Exits---------------------------
_  ____  _____  ___  ____  _____  ___  ____  _____  ___
S Numb ------Name------ Def Numb ------Name------ Def Numb ------Name------ Def
_ 0001 CSVDYLPA         E  0002 CSVDYNEX         E  0003 HZSADDCHECK      E
_ 0004 IEASDUMP.QUERY   E  0005 IEASDUMP.GLOBAL  E  0006 IEASDUMP.LOCAL   E
_ 0007 IEASDUMP.SERVER  E  0008 IEASDUMP.POSTDMP E  0009 IXC_ELEM_RESTART E
_ 0010 IXC_WORK_RESTART E  0011 ISGNQXIT         E  0012 ISGNQXITFAST     E
_ 0013 ISGCNFXITSYSTEM  E  0014 ISGCNFXITSYSPLEX E  0015 ISGNQXITBATCH    E
_ 0016 ISGNQXITQUEUED1  E  0017 ISGNQXITQUEUED2  E  0018 ISGENDOFLQCB     E
_ 0019 ISGNQXITPREBATCH E  0020 ISGNQXITBATCHCND E  0021 ISGDGRSRES       E
_ 0022 CNZ_MSGTOSYSLOG  E  0023 IGGPRE00_EXIT    E  0024 IGGPOST0_EXIT    E
_ 0025 IEHINITT_EXIT    E  0026 REKEY_EXIT       E  0027 IEF_ALLC_OFFLN   E
_ 0028 IEF_SPEC_WAIT    E  0029 IEF_VOLUME_ENQ   E  0030 IEF_VOLUME_MNT   E
_ 0031 IEFDB401         E  0032 IEF_ALLC_MOD     E  0033 IEF_ALLC_EVENT   E
_ 0034 IEF_ALLC_UNLOAD  E  0035 CEE_ABEND_EXIT   E  0036 CNZ_WTOMDBEXIT   E
_ 0037 IEFJFRQ          E  0038 SYSIEASLIPAEXIT  E  0039 SYSSTC.IEFUSO    E
_ 0040 SYSSTC.IEFUJP    E  0041 SYSSTC.IEFU84    E  0042 SYSSTC.IEFU83    E
```

The command option, Add_New_Exit, is the same as discussed above. To Update an existing Exit, cursor in the worksheet under an exit name and press enter. The "Module Association" panel displays modules associated with the selected EXIT, in this case the HZSADDCHECK EXIT, as shown in the panel heading.

```
              ICE 16.0 - Modules Associated with - .. HZSADDCHECK

      A. = Alter Attribute  U. = UnDefine Exit  E. = Entry Points

   -------------------------- Modules in Exit ------------------------
   Cm -Module- Sta    Cm -Module- Sta   Cm -Module- Sta   Cm -Module- Sta
   .. IARHCADC A__    .. CNZHCADC A__    .. _____ ___    .. _____ ___
   .. IGVHCADC A__    .. IEFHCADC A__    .. _____ ___    .. _____ ___
   .. ILRHCADC A__    .. IDAHCADD A__    .. _____ ___    .. _____ ___
   .. IEATCADC A__    .. IKJHCA00 A__    .. _____ ___    .. _____ ___

   .. IEAVTSHI A__    .. IEAVTRHA A__    .. _____ ___    .. _____ ___
   .. ADYHCADC A__    .. IRRHCA00 A__    .. _____ ___    .. _____ ___
   .. BLWHCADC A__    .. IEAVEHAD A__    .. _____ ___    .. _____ ___
   .. IXCHCADC A__    .. IOSHCADC A__    .. _____ ___    .. _____ ___

   .. ISGHCADC A__    .. DMOHCADD A__    .. _____ ___    .. _____ ___
   .. CSVHCADC A__    .. IGG0CLHX A__    .. _____ ___    .. _____ ___
   .. IGWHCPD1 A__    .. IXGHC1DE A__    .. _____ ___    .. _____ ___
   .. CELSHADD A__    .. ISTHCAC1 A__    .. _____ ___    .. _____ ___

        M. = Modify      D. = Delete      R. = Replace      U. = InUseBy
```

The Selected EXIT is selectable using the options shown immediately below the heading.

Placing an "A" on the entry-point in the header, before the selected EXIT, and pressing enter, will display the "Alter Attributes" Pop-Up.

```
◊───────────────────────────────────────────────────────────────◊
◊                                                                 ◊
◊                  ICE 16.0 - Alter Exit Attributes               ◊
◊                                                                 ◊
◊            ----------------Alter System Exit----------------    ◊
◊                      Named Exit HZSADDCHECK                      ◊
◊                 > Compare __  > Return Code _____            ◊
◊                                                                 ◊
◊              To Alter Select > .. Yes > Then Press Return       ◊
◊───────────────────────────────────────────────────────────────◊
```

Placing a "U" on the entry-point in the header, before the selected EXIT, and pressing enter, will display the "Undefine EXIT" Pop-Up.

```
◊───────────────────────────────────────────────────────────────◊
◊ UND0            ICE 16.0 - Undefine System Exit                 ◊
◊                                                                 ◊
◊            --------------Undefine System Exit--------------     ◊
◊                 Undefine this Exit Name HZSADDCHECK             ◊
◊                                                                 ◊
◊             To Undefine Select > .. Yes > Then Press Return     ◊
◊───────────────────────────────────────────────────────────────◊
```

To show a listing of EXIT Modules, the same modules listed in the body of the panel, including Entry Points, place "E" before the EXIT name, and press enter. A portion of the resulting report is shown below:

```
********************************* Top of Data *********************************

COMMAND ISSUED:
'D PROG,EXIT,EXITNAME=HZSADDCHECK,DIAG'

SYSTEM ADCD113 REPLY:
ADCD113 0201509116212971
CSV464I 16.21.29 PROG,EXIT DISPLAY 815.
EXIT HZSADDCHECK.
MODULE     STATE EPADDR    LOADPT    LENGTH    JOBNAME    PARAM.
IARHCADC   A     9194B888  1194B888  00000678  *.
IGVHCADC   A     91885240  11885240  00000898  *.
ILRHCADC   A     9194B1B0  1194B1B0  000006D8  *.
IEATCADC   A     9194F130  1194F130  000001C0  *.
IEAVTSHI   A     91949028  11949028  00000370  *.
ADYHCADC   A     91861BD8  11861BD8  00000328  *.
```

In the body of the panel, under the Sub-Heading "Modules in EXIT", is a listing of exit modules, each of which is selectable using the commands shown at the bottom of the panel.

Use "M" to select a Module and display the "Modify a System Exit" Pop-Up. In this case, the IARHCADC module used to support the selected EXIT.

```
◊───────────────────────────────────────────────────────────────◊
◊                                                                 ◊
◊                  ICE 16.0 - Modify a System Exit                ◊
◊                                                                 ◊
◊            --------------Modify a System Exit--------------     ◊
◊            Exit Name HZSADDCHECK_____  Module Name IARHCADC     ◊
◊            > .. Active > .. NotActive > JobName____             ◊
◊                                                                 ◊
```

```
◊                     To Modify Select > .. Yes > Then Press Return           ◊
◊────────────────────────────────────────────────────────────────────────────◊
```

Use the "D" to select a Module and display the "Delete an Exit Module" Pop-Up. In
this case, the IARHCADC module would be deleted from the selected EXIT.

```
◊────────────────────────────────────────────────────────────────────────────◊
◊                    ICE 16.0 - Deleting an Exit Module                        ◊
◊                                                                              ◊
◊          --------------Detete a System Exit--------------                    ◊
◊          Exit Name HZSADDCHECK         Module Name IARHCADC                  ◊
◊                   > Set FORCE > .. Yes or > .. No                            ◊
◊                                                                              ◊
◊             To AddNew Select > .. Yes > Then Press Return                    ◊
◊────────────────────────────────────────────────────────────────────────────◊
```

Use the "R" to select a Module and display the "Replacing an Exit Module" Pop-Up.
In this case, the IARHCADC module will be replaced with a like-named module from
a dataset to be named.

```
◊────────────────────────────────────────────────────────────────────────────◊
◊                    ICE 16.0 - Replacing an Exit Module                       ◊
◊                                                                              ◊
◊          --------------Replace a System Exit--------------                   ◊
◊          Exit Name HZSADDCHECK         Module Name IARHCADC                  ◊
◊          Exit Routine State > .. Active or > .. Inactive                     ◊
◊          Dataset _____                   ◊
◊                                                                              ◊
◊             To AddNew Select > .. Yes > Then Press Return                    ◊
◊────────────────────────────────────────────────────────────────────────────◊
```

To display a listing of other programs and/or exits that may reference an exit
module, place "U" on the entry-point, before the module name, and press enter. A
sample report is shown below:

```
******************************** Top of Data ********************************

COMMAND ISSUED:
DISPLAY PROG,EXIT,MODNAME=IARHCADC

SYSTEM ADCD113 REPLY:
ADCD113 0201509116132815
CSV462I 16.13.28 PROG,EXIT DISPLAY 804.
MODULE  IARHCADC.
EXIT(S) HZSADDCHECK.
```

8 Using ICE/OPER/RACF

OPER/RACF is based on the same underlying services that support OPER/MVS: Command Logging, OPER Console Access, Audit Reporting, and Email Notification. In addition, OPER/RACF makes use of the ICE interface to the IBM Health Checker for z/OS, in support of the NewEra Software Health Check "NEZ_SETR_INSPECTION". This Health Check monitors the RACF/SETROPTS Configuration settings for compliance with established "Setting Rules" routing "Out of Compliance Findings" directly to the IBM Health Checker for z/OS for inclusion in its message stream. These are ultimately shown as "Alerts" by the receiving Operator Console.

8.1 OPER/ADMIN Considerations

When OPER/RACF is licensed and configured, the OPER Administrator may exclusively use the following Line Commands:

```
TSO ##RACF ADMIN - Displays the OPER Settings and Selection Panel
TSO ##RACF CMLOG - Displays the MVS Command Log
TSO ##RACF AUDIT - Displays the OPER MVS Command Monitor Interface
TSO ##RACF TABLE - Displays the RACF Command Set in ADMIN/VIEW
TSO #ESMALU user_id - Displays Users Authorized RACF Command Set
```

In addition, OPER/ADMIN, and permitted users, may issue the following SETROPTS specific Health Check Related Line Commands:

```
TSO #SETRL HLCKR - Updates Check and Displays Findings
TSO #SETRL XHLCK - Interface to all systems running Check
TSO #SETRL XCOMP - Identifies variations across all systems
```

8.2 Using the Command Line

There are basically two ways that an authorized and permitted user can access an OPER Console and have the Console issue RACF commands at their request.

- By using an OPER/RACF Command Line Command or
- By using an OPER/RACF Command Table.

Entering the following "Stand Alone" Line Command, from either the ICE/ISPF or TSO/ISPF primary menu command line, will display the related interface.

```
TSO $APFDEL – displays the Delete APF Dataset
TSO $APFLST – displays the APF List with various function
TSO $LNKADD – displays the Add LNKLIST Dataset Interface
TSO $LNKDEL – displays the Delete LNKLIST Dataset Interface
```

Each of these commands is explained in the section that follows.

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8.3 Using an OPER Command Table

Entering one of the following "Table" command strings, from either the ICE/ISPF or TSO/ISPF primary menu command line, will display a Command Table.

```
TSO $MVSALL TABLE | TSO $SETALL TABLE | TSO #ESMALL TABLE
```

By example, when a user (USERXYZ) enters the TSO $ESMALL TABLE Command String, the Table that Supports RACF Commands is displayed. The display is specific to the requesting user, allowing access only to those commands that are both authorized for console use and those specifically permitted to USERXYZ. A portion of a sample table follows.

```
                    ICE 16.0 - Permitted RACF Commands - USERXYZ

<> You are Permitted to use Activated RACF Commands
------------'/' Denotes Your Permitted RACF Operator Commands-----------
Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name-- Cm --Name--
-- -------- -- -------- -- -------- -- -------- -- -------- -- --------
.. ALTDSD   .. ALTGROUP .. ALTUSER  .. ADDSD    .. ADDGROUP .. ADDUSER
.. CONNECT  .. DELDSD   .. DELGROUP .. DELUSER  .. LISTDSD  .. LISTGRP
.. LISTUSER .. PASSWORD /. PERMIT   .. RALTER   .. RDEFINE  .. RDELETE

.. REMOVE   .. RLIST    .. SEARCH   /. SETROPTS ..          ..
..          ..          ..          ..          ..          ..
..          ..          ..          ..          ..          ..
```

The color-coding of individual commands is helpful to understanding each command's "State". By default, ALL commands are shown in green text, indicating they are not authorized/enabled for console use. However, if the OPER Administrator has authorized/enabled a command for use, it will be shown in turquoise text. If the command has been permitted to the individual user, in this case "USERXYZ", a check "/" will appear before the command. A user may access and use only authorized/enabled/permitted commands.

Attempts by a user to select an unauthorized or unpermitted command will display warning messages as shown below:

```
◊───────  Selected RACF Command - PERMIT - Has NOT Been Activated. ───────◊
or
◊───────  You are not Permitted to use the RACF PERMIT Command. ───────◊
```

8.3.1 The Generic Command Interface

By example, if the users select the ALTDSD command, the "Generic" interface shown below is presented:

```
                ICE 16.0 - RACF Command Interface - RACF/ALTDSD

  -- ----------------Command Structure----------------   Userid   - PROBI1
  01 ALTDSD                                               Time     - 07:25
  02 _____   Sysplex  - ADCDPL
  03 _____   System   - ADCD113
  04 _____   ApplId   - TEST
  05 _____   ICE 16.0 - TCE 16.0
  06 _____    Patch Level 00
  07 _____
  08 _____

  -- ------------------------Action Descriptor------------------------
  01 _____
  02 _____
  03 _____
  04 _____
  05 _____
  06 _____
  07 _____
  08 _____


        .. Shows History   .. Issue Command   .. Abort Process
```

For a detailed description of Generic Command Interface functions, see the section of this document titled "Using ICE/OPER/MVS".

8.3.2 The Specific Command Interface

As the name implies, Specific Command Interfaces uniquely support selected commands. By example, selecting the SETROPTS command from the RACF Command Set will show the SETROPTS Control Element Selection Panel.

```
                TCE 16.0 - SETROPTS Control Element Selection +
                           Compliance Level ONE
  ------------------Discovered RACF:SETROPTS Class Elements------------------
  Cm Cn Fn -----Element Descriptor----- Cm Cn Fn -----Element Descriptor-----
  .. -- :( STATISTICS                    .. -- Nr GENLIST CLASSES
  .. -- 65 ACTIVE CLASSES                .. -- 71 SETR RACLIST CLASSES
  .. -- 83 GENERIC PROFILE CLASSES       .. -- 83 GENERIC COMMAND CLASSES
  .. -- :) GLOBAL CHECKING CLASSES       .. -- :( GLOBAL RACLIST ONLY CLASSES
  .. -- :( AUDIT CLASSES                 .. -- :( LOGOPTS "ALWAYS" CLASSES
  .. -- :( LOGOPTS "NEVER" CLASSES       .. -- Nr LOGOPTS "SUCCESSES" CLASSES
  .. -- :( LOGOPTS "FAILURES" CLASSES    .. -- 88 LOGOPTS "DEFAULT" CLASSES

  .. Class Settings   .. Class Changes  .. Class Findings   .. Class RuleSets

  -----------------Discovered RACF:SETROPTS Control Elements-----------------
  Cm Cn Fn -----Element Descriptor----- Cm Cn Fn -----Element Descriptor-----
  .. -- 66 CONFIGURATION ATTRIBUTES     .. Cg 71 DATASET PROCESSING OPTIONS
  .. Cg 66 PASSWORD PROCESSING OPTIONS  .. Cg 87 OTHER PROCESSING OPTIONS

  -----------------------------Application Settings--------------------------
  .. Active Baseline PROBI1   15/02/26 .. Active Rule Set PROBI1   19/02/26
     SETROPTS_BASELINE_INITIALIZATION     DEFAULT_RULE_SET_INITIALIZATION
```

8.3.3 Enable Interval Command Audits, Notification and Reporting

Whenever either OPER/MVS or OPER/RACF is licensed, Interval Auditing functions become available, as described below.

Before this interval reporting process can become active, the controlling procedure (PROC), found in your_hlq.PROCLIB, under the member name IFODET, must be configured and moved to an active PROCLIB Dataset (likely SYS1.PROCLIB). Check with the System Programmer that installed ICE to determine its status and the ACTUAL name that was assigned to the member, when it was moved to PROCLIB. The ACTUAL name assigned must match the "Monitor PROC" value shown at the bottom-center of the panel described below.

As commands are captured and recorded in the Command Log, they become immediately available for reporting and notification purposes. To activate command reporting, select the "Detector" option from the panel and press enter. This action will display the three Event Detector Options, as shown below:

```
              ICE 16.0 - TCE/OPER Event Detector Options

   A    ALLCmmds  .. - Detect and Report All Command Usage   Userid   - PROBI1
                                                             Time     - 08:37
   M    MVSCmmds  .. - Detect and Report MVS Command Usage   Sysplex  - ADCDPL
                                                             System   - ADCD113
   R    RACFcmds  .. - Detect and Report RACF Command Usage  ApplId   - TEST
```

The "ALLCmmds" Option is available when either OPER/MVS and/or OPER/RACF are licensed. The other options, when highlighted in yellow, require additional licensing. The "ALLCmmds" Detector Panel is shown here:

```
              ICE 16.0 - OPER/All/Cmds - Event Activity Monitor

/. TCECTCEOPER TCE Operator Command Monitor /. Detail .. Report Inventory

    /. Day - Set Time 10 : 06 and Interval 1_ __ (Specify One 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: OPER/AUDIT_____

    /. 1-To PAT@NEWERA.COM_____
    /. 2-To PRR@NEWERA.COM_____
    /. From SUPPORT@NEWERA.COM_____

.. AltHLQ IFO.TEST_____ .. JrlPost NO .. CngOnly NO .. Retain _10

.. Notice Method Yes .. Monitor PROC TESTDET_ .. Notice Active On_

Option ===>
```

The Detector Panel is composed of three Control and Setting Categories, each of which act independently of the other, but collectively comprise the full Detector configuration. These Categories are described below.

8.4 Interval Reporting Options

The programmatic name of the Detector appears on the second line of the panel. In the case shown above, it is "TCECTCEOPER". Note that the entry-point preceding the name MUST be checked with "/" in order to turn the Detector "ON". By default, Detectors will create Summary Reports. When Detail is checked with "/", the "Detail Report" will include the Summary and related event detail. To display a list of available Interval/Audit Reports created by the Detector, place "S" on the entry point before "Report Inventory" and press enter.

If needed, use PFK1 for additional help. You may also cursor under white highlighted text and press enter, for a field specific explanation.

When a Detector is turned "ON", and its operational interval is defined, the following controls cards will be automatically written to NSEDETxx, when you exit (PFK3) the panel.

```
TCECTCEOPER ON
TCECTCEOPER CYCLE(DAILY)  TIME(10:06)  INTERVAL(1)
```

8.5 Interval Email Notification

To use Email Notification you will need to:

Permit the ICE Sent Mail Client to use TCP/IP, by configuring the ICE Master Address with a Security Profile that includes an OMVS Segment.

Configure the ICE Email Server Method Block, accessed by selecting the "Notice Method" Option, shown at the bottom of the panel.

Turn the Global Notification Setting to "ON". The status of Notification is shown at the bottom of the panel as "Notice Active". If the state is not "ON", place an "S" on the entry-point and press enter to turn it "ON". When you exit (PFK3) to the prior panel, the setting will be automatically updated. When Global Notification is "ON", the following Control Card will appear in NSEJRNxx:

```
EXTERNALNOTIFICATION ON
```

Once the reporting intervals are set and the ICE Sent Mail Client is correctly configured, you must turn on the "EMAILREPORT" function and complete the email header information. Place a check "/" on the entry point preceding "EMAILREPORT",

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fill in all necessary email subject, recipient(s) and sender fields, and ensure that each of these fields is active by placing a check "/" in each respective entry point. When this is complete, Audit Reports will be emailed as they are created.

When Email Notification is turned "ON" and its operational elements have been defined, the following controls card "Action Block" will be automatically written to NSEENSxx, when you exit (PFK3) to the prior panel.

```
ACTION DET(TCECTCEOPER) METHOD(EMAIL) SCOPE(REPORT)
TO PAT@NEWERA.COM
TO PRR@NEWERA.COM
FROM SUPPORT@NEWERA.COM
SUBJECT 'OPER/AUDIT'
ACTION .END
```

8.6 Detector Default Overrides

By default, certain values are automatically assigned to the configuration of each detector: Working Dataset HLQ, Journal Posting, Report only on Changes, and Report Retention. You can override these defaults by checking with "/" one or more of these values and entering the required information. If these options' entry points are checked with "/", these updated, optional settings will appear in NSEDETxx, using one or more of the following Control Cards:

```
OAX JPOST(YES)
OAX EMAIL(DETAIL)
OAX CONLY(YES)
OAX SAVER(YES,20)
OAX ALTDS IFO.TEST
```

Note that we do not recommend coding these Control Cards manually. If you do attempt manual coding, ensure that the override cards prefix (which in the example above is "OAX") begins in column 2.

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