Interactive System Productivity Facility (ISPF)

ISPF Hidden Treasures and New Features

SHARE 117
Sessions 9694 & 9695

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Hidden Treasures and New Features in ISPF

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Hidden Treasures and New Features in ISPF…

- Multiple Screen Support
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- Display System & User Id
- ISPF in a Web Browser (Using z/OSMF)
- ISPF Client Gateway – ISPF from the Internet
- ISRDDN Utility
- User Command Tables
  - ISPF Table Utility
- ISRDTLCV macro

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DSLIST

- **DSLIST *personal_list_name | pattern***
  - If a list name exists by that name, a data set list will be built based on the entries in the list
  - If a list name does not exist, the parameter is treated as a pattern
- **APPEND** command from within Data Set List
  - Adds entries to the displayed list
  - specify a personal list name or a pattern
- **REFRESH** command from within Data Set List
  - Refreshes display to original list filter criteria
- **EXCLUDE** command and X line command from within Data Set List
  - Excludes data sets displayed in list
  - Shadow line displayed

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New Data Set List Commands - z/OS 1.2

- **MEMBER command**
  - allows the partitioned data sets in the list to be searched for a specific member name or pattern
  - Syntax: `Member string [X|EX|NX][RECALL1|RECALL2]`
  - Message field identifies data sets containing the member(s)

- **SRCHFOR command**
  - Invokes SuperC to search the listed data sets for strings
  - Syntax: `SRCHFOR [string]`
  - Displays panel used to specifying options for SuperC
  - Message field identifies data sets containing the string
  - SuperC output written to data set (default: `userid.SRCHDSL.LIST`)

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Data Set List Enhancements

- **Enhanced SORT command (z/OS 1.7)**
  - Provides ability to sort a data set list in ascending or descending order
  - Syntax: `SORT major-field [A|D] [minor-field] [A|D]`

- **Display Total Tracks Value (z/OS 1.9)**
  - New **Display Total Tracks** option added to the Data Set List Utility entry panel
  - If selected, an additional header line showing the total tracks used by the data sets is displayed with the **Space** and **Total** views
  - Pop-up window showing data collection progress displayed when calculating total tracks for a list of 50 or more data sets

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Data Set List Enhancements. . .

- **Block Line Commands (z/OS 1.10)**
  - Allows Data Set List line commands to be entered in blocks
  - A block of line commands is marked by entering two forward slash characters (***//***) at the start and end of the block
  - The required line command is entered on the first or last line of the block, immediately following the two forward slash characters
  - All line commands, including TSO commands, Clists and REXX execs can be executed as block commands
- **Include PREFIX in Dsname Level (z/OS 1.11)**
  - New **Prefix Dsname Level** option added to the Data Set List Utility entry panel
  - If selected, ISPF will add the TSO prefix (if the user's TSO profile has PREFIX defined) as the first qualifier if the Dsname Level entered is not enclosed in quotes

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Data Set List Enhancements. . .

- **Allocate Line Command (z/OS 1.13)**
  - New **AL** line command can be used to allocate a new data set
  - New data set name can be specified with the AL line command
  - If AL is entered against a deleted data set and a name is not specified ISPF will use the name of the deleted data set
  - When AL is entered against an existing data set the user has the option to:
    - Create the data set using the attributes of the existing data set
    - Specify the attributes of the data set on the Allocate New Data Set panel

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New Member List Commands - z/OS 1.5

- **SRCHFOR command**
  - Invokes SuperC to search the listed members for strings
  - Syntax: **`SRCHFOR [string]`**
  - Displays panel used to specifying options for SuperC
  - PROMPT column identifies members containing the string
  - SuperC output written to data set
    (default: ***`userid`*`.SRCHML.LIST`**)

- **SORT PROMPT command**
  - Sorts members with messages in the PROMPT column to the top of the member list
  - Use after SRCHFOR command to group all members containing *string* at the top of the member list

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Member List Enhancements

- **Enhanced SORT command (z/OS 1.7)**
  - Provides ability to sort a data set list in ascending or descending order
  - Syntax: **`SORT major-field [A|D] [minor-field] [A|D]`**

- **New FILTER command (z/OS 1.8)**
  - Used to display only those members having an attribute matching a specified value
  - Syntax: **`FILTER [field operator value]`**

`field`	member list column name
`operator`	EQ, NE, LE, LT, GE, or GT
`value`	the comparison value

  - Member List SRCHFOR command also enhanced to optionally display only those members containing the SRCHFOR string

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Member List Enhancements. . .

- **New I line command for enhanced member list (z/OS 1.13)**
  - Used to display panel showing the ISPF statistics for a member
  - Introduced to provide a display of extended line count statistics for a member with extended statistics
    - –is not restricted to members that have extended line count statistics

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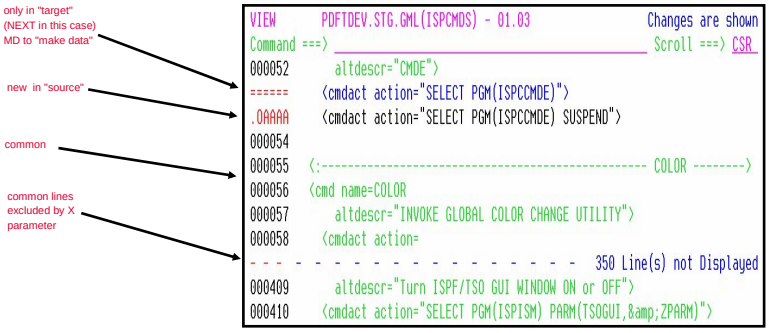
Edit COMPARE Command

- Syntax: **`COMPARE [member|data_set_name|NEXT|* [X] [SYSIN]]`**
- Uses SuperC APIs to compare to data sets or members
- Changes are highlighted depending on if the change is new to the source (member or data set where COMPARE command was issued), only in the target, or common
- **NEXT** compares next member in hierarchy of ISPF library
- **X** excludes common lines except for a few around differences
- SYSIN DD has additional SuperC Process Statements



Edit COMPARE Enhancement (z/OS 1.11)

- The SYSIN keyword on the COMPARE command is enhanced to support a sub-parameter
  - User can specify the SuperC process statements data set name as a sub-parameter of the SYSIN keyword

    Syntax: **`SYSIN(dsn)`**
  - Alternatively, the user can request the display of a pop-up panel where the SuperC process statements data set name can be entered

    Syntax: **`SYSIN(/)`**

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New Edit Primary Commands - z/OS 1.6

- **HIDE command**
  - Removes excluded line messages from the Edit/View display
  - Line number underscored to indicate "hidden" line(s)
  - Syntax: **`HIDE X`**
  - **RESET** primary command has **HIDE** option to allow redisplay of excluded line messages
    - Syntax: **`RESET HIDE`**
- **COLS command**
  - Causes a columns line to be displayed at the top of each Edit/View data screen (i.e. stays with the Edit/View display)
  - Syntax: **`COLS [ON|OFF]`**

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Other Edit Enhancements

- **UNDO after SAVE (z/OS 1.9)**
  - Allows reversal of edit changes made prior to SAVE commands during the current edit session
  - New KEEP option added to the edit SETUNDO command
    - Syntax:

```
                    +-STORAGE-+
>>----SETUNDO----+---------+---------------><
    +-SETU----+   +-RECOVER-|
                  +-ON------|
                  +-OFF-----|
                  +-KEEP----+
```

    - Where:

KEEP Has the same effect as STORAGE and also prevents the SAVE command from clearing the UNDO buffers in storage

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Other Edit Enhancements. . .

- **Multiple Targets for MOVE/COPY (z/OS 1.10)**
  - Suffix of K (keep) can now be used with MOVE/COPY destination line commands A, B, O and OO
    - –Enter **AK**, **BK**, **OK**, or **OOK** line commands to indicate a multiple target MOVE/COPY command
    - –Enter 'final' destination line command (A, B, O or OO) to initiate the 'multiple target' MOVE/COPY
    - –'Final' destination must be after the line where the AK, BK, OK, or OOK command was entered

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Other Edit Enhancements. . .

- **New Edit Line Commands for HEX Display (z/OS 1.11)**
  - New edit line commands to display selected lines in hexadecimal format:

HX	display a single line in hexadecimal format
HXX	display a block of lines in hexadecimal format

  - The **HX** and **HXX** line commands act as a toggle by switching a line's display format between normal and hexadecimal format

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Other Edit Enhancements. . .

- **Support for User Defined Line Commands (z/OS 1.13)**
  - Support has previously been available by using the unsupported LMAC tool
  - User defined line commands and the edit macros they invoke are defined in an ISPF table
    - The ISPF Table Utility (ISPF option 3.16) is modified to assist with defining the user line command table
  - New line command table input field on the edit and view entry panels
    - When the line command table is specified the line commands defined in the table are able to be used during the edit session
  - The EDIT and VIEW services also allow a line command table to be passed by the caller

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Connect Without GUI

- **SETTINGS**
  - Workstation pulldown (or **GUIINIT**)
    - Workstation connection
    - Without GUI display
  - Allows workstation commands
    - **FILEXFER**
    - Edit on workstation
    - **SELECT WSCMD**

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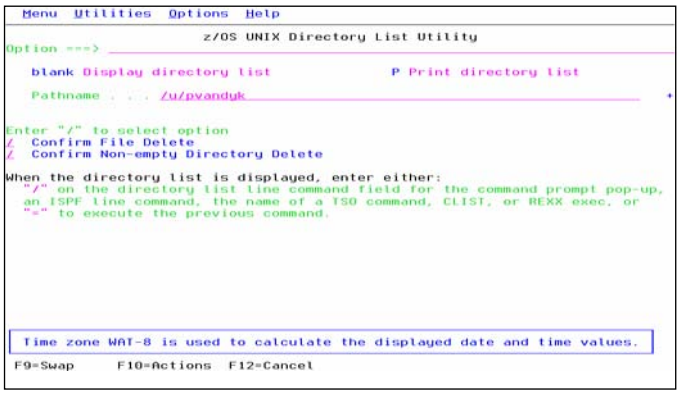
z/OS UNIX Directory List Utility (z/OS 1.8)

- Available as ISPF option 3.17
- Provides most of the functions supported by the ISHELL utility



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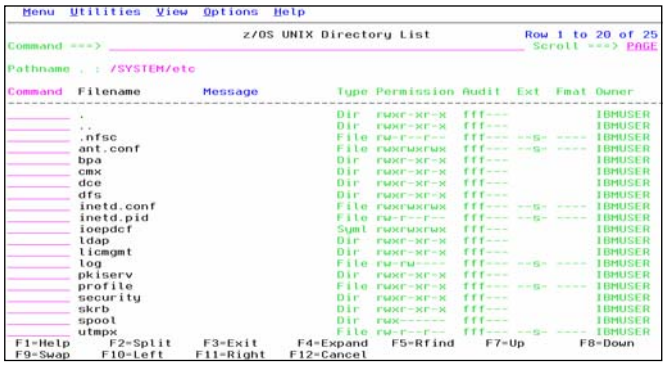
z/OS UNIX Directory List Utility. . .

- Horizontal scrolling via the RIGHT and LEFT primary commands
- Column order and size can be customized via Options pull-down



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z/OS UNIX Directory List Utility. . .

- Primary commands available:
  - **EDIT** - edit a file in the current directory
  - **FIND** - find a string within a filename
  - **LEFT** - scroll the directory list columns to the left
  - **LOCATE** - locate a directory list entry based on the sort order
  - **REFRESH** - redisplay directory list with any changes that have occurred
  - **RESET** - redisplay list removing line commands and messages
  - **RIGHT** - scroll the directory list columns to the right
  - **SAVE** - write the directory list data to a data set
  - **SORT** - sort the directory list by the specified fields

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z/OS UNIX Directory List Utility. . .

- Line commands available:
  - **E** - edit a file
  - **B** - browse a file
  - **N** - create a new file
  - **L** - list a directory
  - **D** - delete a file
  - **R** - rename a file
  - **V** - view a file (z/OS 1.9)
  - **EA** - ASCII edit (z/OS 1.9)
  - **VA** - ASCII view (z/OS 1.9)
  - **RA** - REFLIST Add (z/OS 1.10)
  - **FS** - File System (z/OS 1.11)
  - **MA** - Modify ACLs (z/OS 1.13)
  - **CO** - copy data out
  - **CI** - copy data in
  - **I** - display attributes
  - **MM** - modify mode fields
  - **MX** - modify extended attributes
  - **X** - execute a command
  - **MO** - Modify Owner (z/OS 1.11)
  - **MG** - Modify Group (z/OS 1.11)
  - **MF** - Modify Format (z/OS 1.11)
  - **UA** - User Auditing (z/OS 1.11)
  - **AA** - Auditor Auditing (z/OS 1.11)

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z/OS UNIX Support Enhancements. . .

- **Use ISPF Edit and Browse for z/OS UNIX Files (z/OS 1.9)**
  - Edit/View/Browse **"Other"** Data Set Name fields support entry of z/OS UNIX pathnames
    - z/OS UNIX Directory List displayed when pathname for directory entered in the **"Other"** Data Set Name field
  - z/OS UNIX pathname can be specified as an operand with the following edit primary and macro commands
    - **COMPARE**
    - **COPY**
    - **CREATE**
    - **MOVE**
    - **REPLACE**
  - **BROWSE**, **EDIT**, and **VIEW** services enhanced to support processing of z/OS UNIX files
  - **FILEXFER** service enhanced to support the upload and download of z/OS UNIX regular files
  - Personal data set lists enhanced to support the saving and retrieval of z/OS UNIX pathnames

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z/OS UNIX Support Enhancements. . .

- **Support for Editing ASCII Data (z/OS 1.9)**
  - ASCII edit automatically invoked for z/OS UNIX files tagged with CCSID 819 (US ASCII)
  - ASCII edit can be selected for z/OS UNIX files not tagged by either:
    - –Selecting the **Edit ASCII data** option on the Edit/View Entry panel
    - –Using the z/OS UNIX Directory List Utility (option 3.17) **EA** line command
  - File tagged with CCSID of 819 when saved
  - ASCII edit available with the EDIT and VIEW services by using the new **ASCII** keyword parameter

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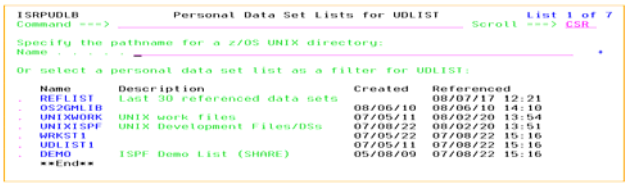
New UDLIST Command – z/OS 1.10

- Used to display a z/OS UNIX Directory List (option 3.17) from any command line
  Syntax: **UDLIST [*personal_list_name* | *pathname*]**
  - If a personal list name is provided, a directory list will be built based on the pathname entries in the list
  - Alternatively, the pathname for a directory can be specified
    - –but most command lines are CAPS(ON) – cannot enter mixed-case pathnames
  - If no parameter is specified with the **UDLIST** command a popup displays:



  - Popup allows user to:
    - –enter a mixed-case pathname
    - –select a personal list

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Directory List Enhancements – z/OS 1.11

- z/OS UNIX commands can be entered in the command field on the z/OS UNIX Directory List panel
  - Requires option **"Enter z/OS UNIX commands in Command field"** to be selected on the directory list options panel
  - Entering a **/** (forward slash) in the command field displays a panel with a command field 255 characters in length

- Default line commands can be defined for different file types
  - Default line command is processed when the cursor is placed in the line command field and the ENTER key is pressed
  - IBM-supplied default line commands:

Directory	**L (List)**
Regular file	**B (Browse)**
Character special	**I**
FIFO	**I**
Symbolic link	**I**

  - User can change default line commands on the **"z/OS UNIX Directory List Default Line Commands"** panel available from the Options pull-down

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Using Multiple Screens

- ISPF allows up to 32 synchronously multi-tasking screens under one ISPF session

- Create new logical screens using:
  - **SPLIT [NEW]** command
    - –reposition horizontal line separating 2 screens on 3270 display
    - –new logical screen created when **NEW** specified
  - **START** command
    - –creates new logical screen with different "initial dialog"

```
START PANEL(panel)|PGM(program)|CMD(command)
        [select_parameters]
      | ISPF_command
      | primary_option_menu_option
```

- Navigate screens using:
  - **SWAP [LIST | PREV | NEXT | *screen name* | *n*]** command
  - ISPF Task List panel (invoked using **SWAP LIST** command)

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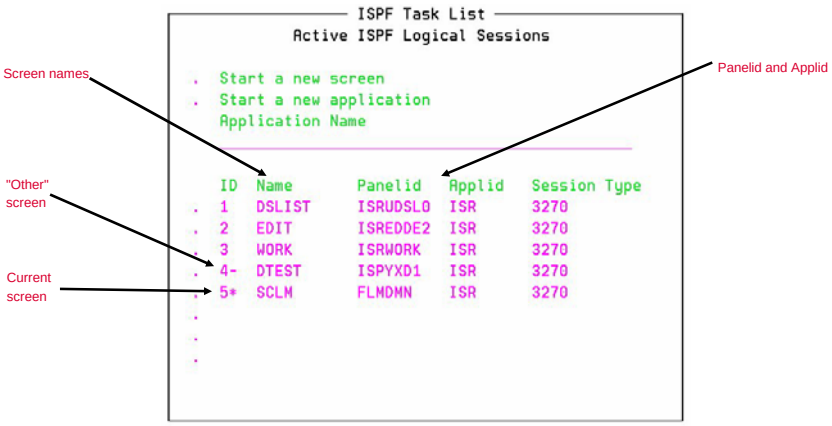
ISPF Task List - Swap List Command



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SWAPBAR – z/OS 1.10

- Simplifies the task of swapping between ISPF logical screens
- Displays at the bottom of the physical screen point-and-shoot fields associated with each logical screen for the session
  - Use the point-and-shoot field to invoke the associated logical screen
    Tip: Customize your terminal emulator to make the action of clicking the mouse to simulate:
    1) placing the cursor
    2) Pressing the ENTER key
- Enabled using the new SWAPBAR system command

  Syntax: **`SWAPBAR [ON|OFF]`**

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Display System and User Id – z/OS 1.7

- New ISPF command provided which allow the system name and/or user ID to be displayed on all ISPF panels
  - **SYSNAME [ON|OFF]** - Display | Remove system name
  - **USERID [ON|OFF]** - Display | Remove user ID

```
 Menu  RefList  RefMode  Utilities  Workstation  Help
ISD1 VANDYKE                  Edit Entry Panel
Command ===> _

ISPF Library:
   Project . . . PDFIDEV
   Group . . . . INT      . . . SVT      . . .          . . .
   Type  . . . . GML
   Member  . . .          (Blank or pattern for member selection list)

Other Partitioned, Sequential or VSAM Data Set:
   Data Set Name . . .
   Volume Serial . . .    (If not cataloged)

Workstation File:
   File Name . . . . .

                                  Options
Initial Macro  . . . .           _ Confirm Cancel/Move/Replace
Profile Name . . . . .           _ Mixed Mode
Format Name  . . . . .           _ Edit on Workstation
Data Set Password  . .           / Preserve VB record length
```


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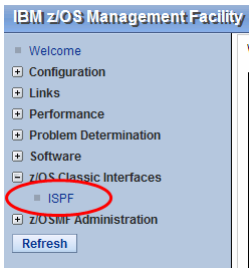
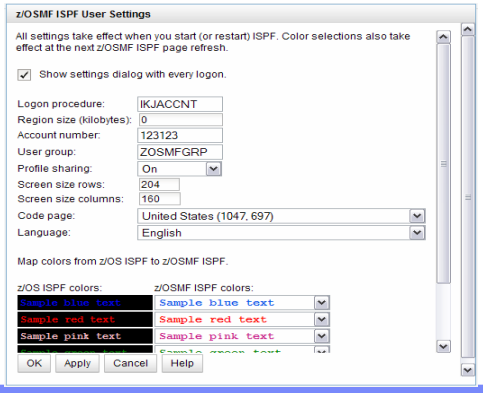
ISPF in a Web Browser (Using z/OSMF)

- With z/OS 1.13, z/OSMF users can invoke ISPF in a web browser
- New ISPF task under z/OS Classic Interfaces category
  - Used to launch a “classic” ISPF session in the browser
  - Existing TSO logon procedure is used to define TSO/ISPF environment





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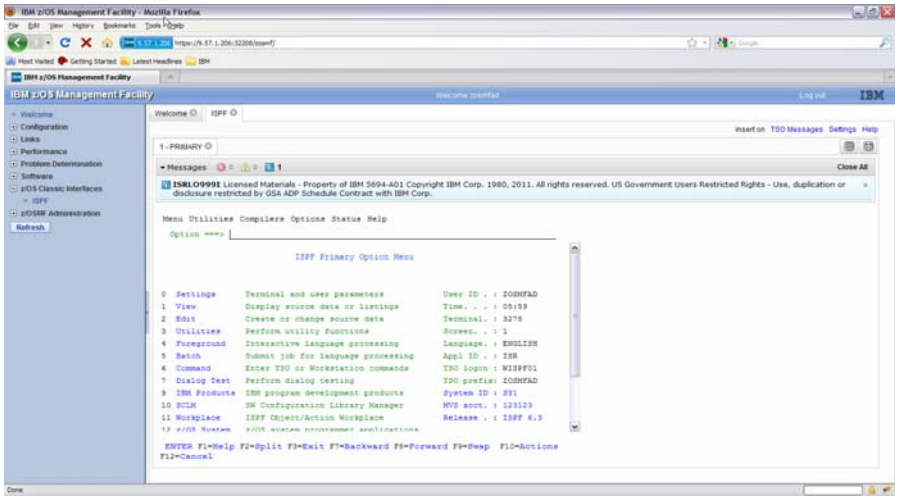
ISPF in a Web Browser (Using z/OSMF). . .

- Panels appear similar to TN3270 ISPF layout



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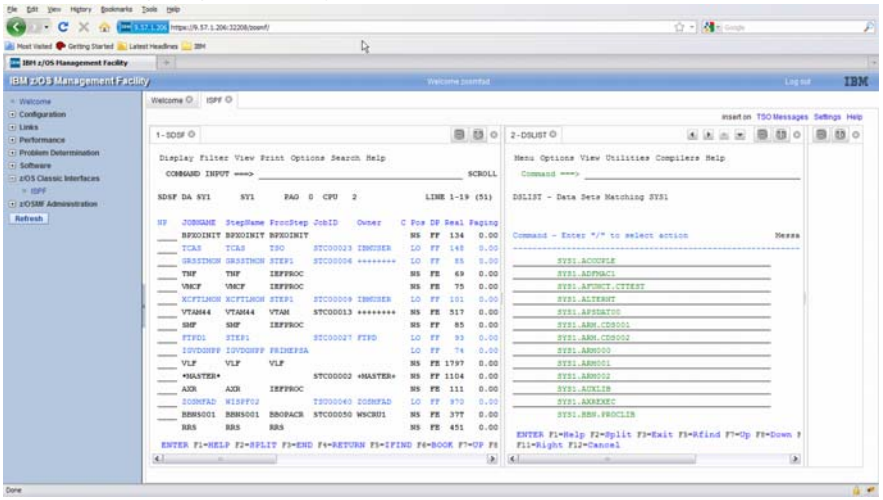
ISPF in a Web Browser (Using z/OSMF). . .

- Can display up to 4 ISPF logical screen in the same browser tab



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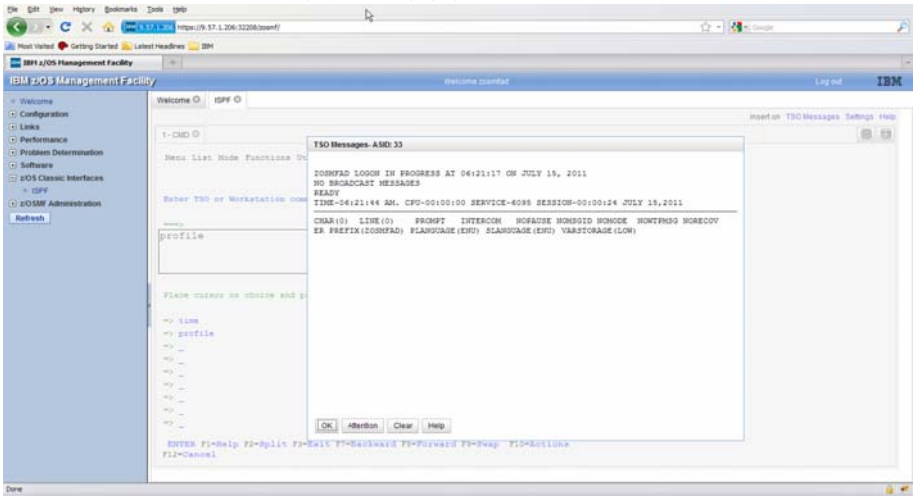
ISPF in a Web Browser (Using z/OSMF). . .

- TSO/E messages are displayed in a popup window



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ISPF Client Gateway - ISPF from the Internet

- The Gateway provides an interface for client (and z/OS UNIX) applications to run TSO and ISPF commands and services
- Runs in z/OS UNIX and is invoked upon a request for a TSO or ISPF command
  - TSO address space established
  - If an ISPF command is requested
    - ISPF data sets are allocated and an ISPF session is established
- Command requests and command output in XML format
- Gateway IVP provides a web page for entering TSO and ISPF commands
  - `/usr/lpp/ispf/bin/ISPZIVP.html`
  - `/usr/lpp/ispf/bin/ISPZIVP.cgi`
- Shipped with z/OS 1.10
  - Backfitted to z/OS 1.8 and 1.9 (APAR OA27190)

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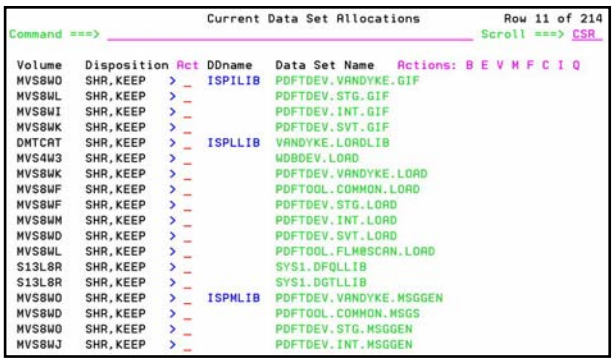
ISRDDN Utility

- Fullscreen display of DD allocations
- Build a member list based on a DD
- Invocation: **SELECT PGM(ISRDDN)** - DDLIST command



```
                          Current Data Set Allocations          Row 11 of 214
Command ===> _____________________________________________ Scroll ===> CSR

 Volume   Disposition Act DDname   Data Set Name    Actions: B E V M F C I Q
 MVS8WO   SHR,KEEP   > _ ISPILIB  PDFTDEV.VANDYKE.GIF
 MVS8WL   SHR,KEEP   > _          PDFTDEV.STG.GIF
 MVS8WI   SHR,KEEP   > _          PDFTDEV.INT.GIF
 MVS8WK   SHR,KEEP   > _          PDFTDEV.SVT.GIF
 DMTCAT   SHR,KEEP   > _ ISPLLIB  VANDYKE.LOADLIB
 MVS4W3   SHR,KEEP   > _          WDBDEV.LOAD
 MVS8WK   SHR,KEEP   > _          PDFTDEV.VANDYKE.LOAD
 MVS8WF   SHR,KEEP   > _          PDFTOOL.COMMON.LOAD
 MVS8WF   SHR,KEEP   > _          PDFTDEV.STG.LOAD
 MVS8WM   SHR,KEEP   > _          PDFTDEV.INT.LOAD
 MVS8WD   SHR,KEEP   > _          PDFTDEV.SVT.LOAD
 MVS8WL   SHR,KEEP   > _          PDFTOOL.FLM@SCAN.LOAD
 S13L8R   SHR,KEEP   > _          SYS1.DFQLLIB
 S13L8R   SHR,KEEP   > _          SYS1.DGTLLIB
 MVS8WO   SHR,KEEP   > _ ISPMLIB  PDFTDEV.VANDYKE.MSGGEN
 MVS8WD   SHR,KEEP   > _          PDFTOOL.COMMON.MSGS
 MVS8WO   SHR,KEEP   > _          PDFTDEV.STG.MSGGEN
 MVS8WJ   SHR,KEEP   > _          PDFTDEV.INT.MSGGEN
```

- Browse (B), Edit (E), View (V), Free the entire DD (F), Compress a PDS (C), Provide additional data set information (I), Display list of users of jobs using a data set (Q)

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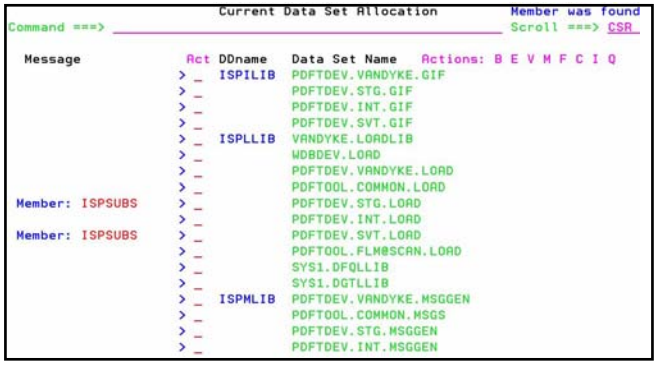
ISRDDN - Primary Commands

- **MEMBER *name* [*string*]**
  - scans allocations for a particular member
  - ***string*** restricts the search to DDs with ***string*** in their name.
  - Uses CSVQUERY to locate load modules



```
                          Current Data Set Allocation          Member was found
Command ===> _____________________________________________ Scroll ===> CSR

 Message              Act DDname   Data Set Name    Actions: B E V M F C I Q
                      > _ ISPILIB  PDFTDEV.VANDYKE.GIF
                      > _          PDFTDEV.STG.GIF
                      > _          PDFTDEV.INT.GIF
                      > _          PDFTDEV.SVT.GIF
                      > _ ISPLLIB  VANDYKE.LOADLIB
                      > _          WDBDEV.LOAD
                      > _          PDFTDEV.VANDYKE.LOAD
                      > _          PDFTOOL.COMMON.LOAD
Member: ISPSUBS       > _          PDFTDEV.STG.LOAD
                      > _          PDFTDEV.INT.LOAD
Member: ISPSUBS       > _          PDFTDEV.SVT.LOAD
                      > _          PDFTOOL.FLM@SCAN.LOAD
                      > _          SYS1.DFQLLIB
                      > _          SYS1.DGTLLIB
                      > _ ISPMLIB  PDFTDEV.VANDYKE.MSGGEN
                      > _          PDFTOOL.COMMON.MSGS
                      > _          PDFTDEV.STG.MSGGEN
                      > _          PDFTDEV.INT.MSGGEN
```

- **ONLY *string* | EXCLUDE *string***
  - to show or exclude DDs with ***string*** in their name

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ISRDDN - Primary Commands...

- **SEARCH *name***
  - Same as **MEMBER** but does not search DD's
- **LOAD *name***
  - Explicitly loads a module
  - Uses ISPLLIB if available
  - Browses result
- **APF, LINKLIST (LI), PARMLIB, LPA (LP)**
  - toggle commands to add/remove pseudo-DD names
  - show the defined -
    - –APF data sets
    - –link-list data sets
    - –PARMLIB data sets
    - –LPA data sets

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ISRDDN - Primary Commands...

- **CLIST**
  - creates a allocation CLIST in **'prefix.ISRDDN.CLIST'**
- **COUNT [string]**
  - counts the number of members in PDSs
- **DUP**
  - searches all the PDSs in the displayed list and LPA
  - displays list of duplicate names
- **ENQ**
  - Enqueues on system
- **CON**
  - Enqueue contention

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ISRDDN - Browse of Control Blocks

- BROWSE STORAGE
  - SEQUENTIAL FILE
    - Allocated to DDNAME ISRDDN
    - Fixed or VB
    - Max length of 230
      - First string on line is control block name
    - Second string is locator string
    - Everything else ignored

```
ASCB   CVT?+C?    Addr space control blk
CVT    10.?       Comm Vector Table
TCB    CVT??      Task Control Block
```

- Disassembly support available with z/OS 1.9

NOTE: ISRDDN is now documented in the ISPF User's Guide Volume I

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User Command Tables

- ISPF supports up to 3 user command tables (z/OS 1.5)
  - APPLID for User command tables are defined in the ISPF configuration table
  - Searched before Site and System command tables
- Many sites now define USER as the APPLID for a User command table
  - Speak to your systems programmer if your site does not
  - Allows users to define their own ISPF commands
  - User command table saved in a personal table data set in the ISPTLIB DD concatenation
- Creating and updating user command tables
  - Option 3.9 can be used to create a user command table
    - Requires table data set allocated to the ISPTABL DD
  - Option 3.9 cannot update a user command table if it is open to your ISPF session
    - Copy table to another member; use option 3.9 to update new member; copy updated member back
    - With z/OS 1.9, use option 3.16 (ISPF Table Utility)

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ISRDTLCV Macro

- Shipped in SISPEXEC library
- Converts the non-displayable characters in panel output from the DTL Conversion Utility (ISPDTLC) to editable characters
- Issue **ISRDTLCV** on edit command line of generated panel

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