MVS

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Agenda

- Why this pitch ?
- What are 'Toys' ?
- 'Toys' from the Internet
  - ➜ TASID
  - ➜ SHOWMVS
  - ➜ Misc.
  - ➜ Some URL's
- 'Toys' from IBM
  - ➜ MVS
  - ➜ ISPF
  - ➜ SDSF

Why this pitch?

- Itinerant work record, movement from site to site
- All sites are different
- Inconsistent tool sets from site to site
- I use 'Toys' all the time, but noticed over time that many of my peers don't
- Maybe because they don't know about them, hence this pitch
- Assumption that not everyone knows about the 'Toys' is based on my experience, nothing else, so apologies to those who are already 'users'
- Views expressed are the authors only

What are 'Toys'?

- 'Toys' are the tools of the trade that make us more productive
- We used to have time to create our own
- We used to even 'maintain' them
- The times they are a changin'
  - ➜ No time to write 'Toys'
  - ➜ Not part of the job
  - ➜ More movement from site to site
  - ➜ Lost the skills to create 'Toys' ?
  - ➜ Lost the ideas ?
- Help is at hand, from the Internet and from IBM

'Toys' from the Internet

- **How?**
  - ➜ The Web provides an easy vehicle for delivery of 'Toys'
  - ➜ A easy way for our peers to express their individualism
- **Who ?**
  - ➜ Community minded sysprogs who have still got the time, skill and ideas
  - ➜ Toymakers or just anoraks ?
  - ➜ Probably a bit of both, bless them
  - ➜ Mostly ‘working’ sysprogs, occasionally vendor related (so not real ‘working’ sysprogs ?)
- **What are they ?**
  - ➜ Mixed bag, from fantastic to dross
  - ➜ Usage from universal or generic to incredibly specific
  - ➜ From highly relevant to totally irrelevant

TASID

- All purpose ISPF based Monitor for MVS bits
- Written for IBM internal use
- Provided on an As-is basis, by Doug Nadel, part of IBM's ISPF team
- Not all options will work on all MVSes
- Original home for ISRDDN (see later)
- Frequently updated

TASID

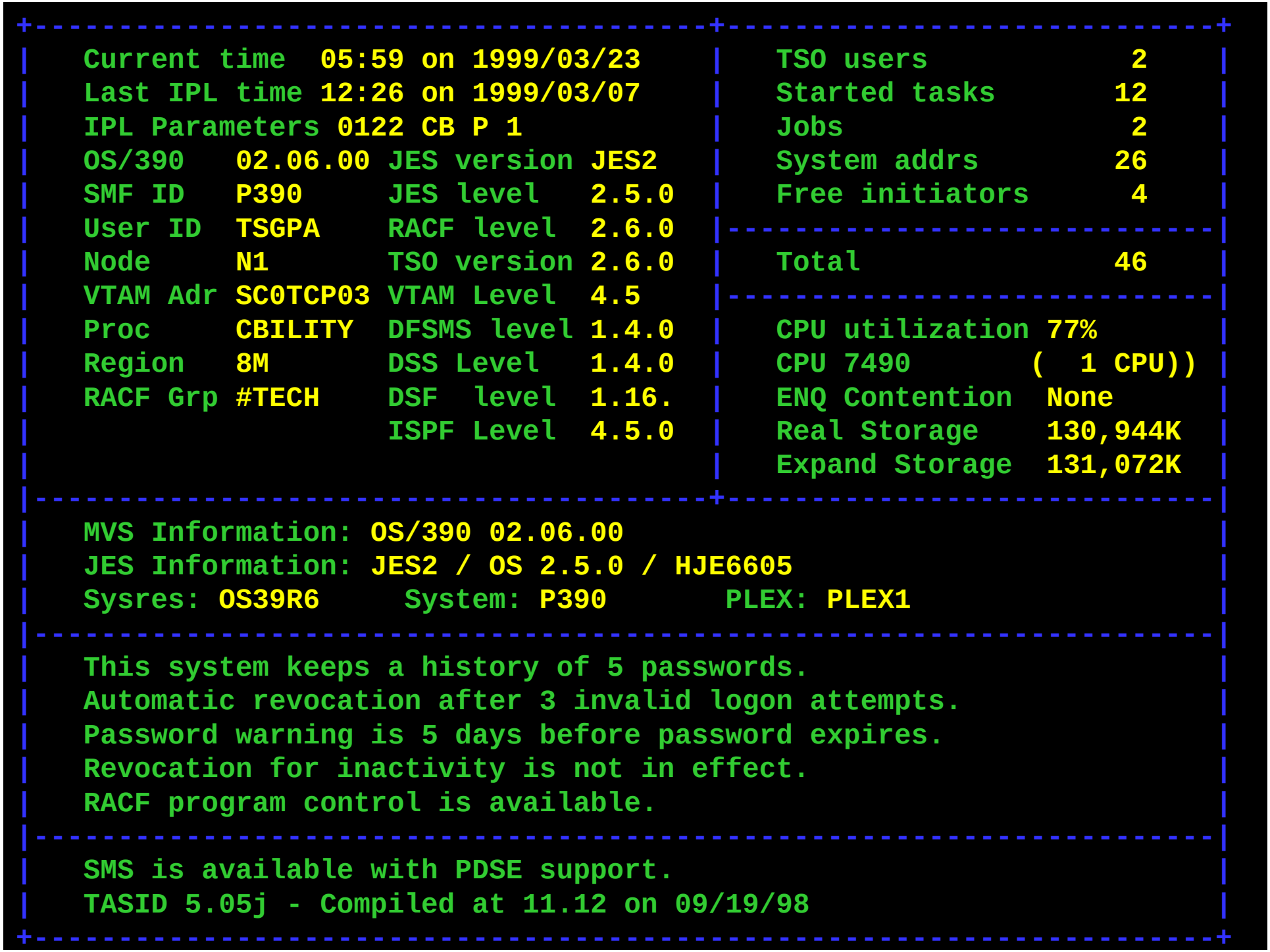
- **Shows:**
  - ➜ **Address space List**
  - ➜ **System enqueue contention**
  - ➜ **Initiator status**
  - ➜ **TSO TIOT**
  - ➜ **View Storage**
  - ➜ **Snapshot current info to dataset**
  - ➜ **LPAR information**
  - ➜ **Nucleus Map**
  - ➜ **DASD free space**
  - ➜ **SVC list**
  - ➜ **Active devices**
  - ➜ **....etc.**

TASID

```
File  Navigate  Settings
------------------------------------------------------------
                          TASID option menu
Option  ===>

   Select one of the following options:        Version 5.05j

1 - Address space list        5 - Miscellaneous displays
2 - System ENQ contention     6 - Current dataset allocations
3 - Total system ENQ status   7 - Storage View Facility
4 - Initiator Status List     8 - Snapshot
```


Current time 05:59 on 1999/03/23
Last IPL time 12:26 on 1999/03/07
IPL Parameters 0122 CB P 1
OS/390 02.06.00 JES version JES2
SMF ID P390 JES level 2.5.0
User ID TSGPA RACF level 2.6.0
Node N1 TSO version 2.6.0
VTAM Adr SC0TCP03 VTAM Level 4.5
Proc CBILITY DFSMS level 1.4.0
Region 8M DSS Level 1.4.0
RACF Grp #TECH DSF level 1.16.
ISPF Level 4.5.0
TSO users 2
Started tasks 12
Jobs 2
System addrs 26
Free initiators 4
Total 46
CPU utilization 77%
CPU 7490 (1 CPU))
ENQ Contention None
Real Storage 130,944K
Expand Storage 131,072K
MVS Information: OS/390 02.06.00
JES Information: JES2 / OS 2.5.0 / HJE6605
Sysres: OS39R6 System: P390 PLEX: PLEX1
This system keeps a history of 5 passwords.
Automatic revocation after 3 invalid logon attempts.
Password warning is 5 days before password expires.
Revocation for inactivity is not in effect.
RACF program control is available.
SMS is available with PDSE support.
TASID 5.05j - Compiled at 11.12 on 09/19/98

TASID - Address Spaces

Jobname	Procname	Stepname	CPU Time	Storage	% CPU
- CATALOG	CATALOG	IEFPROC	32.31	554	4.85
- TCPIP	TCPIP	TCPIP	34.20	1055	1.94
- SMS	SMS	IEFPROC	16.26	667	1.43
- IMWEBSRV	IMWEBSRV	WEBSRV	34.16	10116	1.25
- JES2	JES2	IEFPROC	39.94	877	0.90
- WLM	WLM	IEFPROC	11.57	452	0.45
- XCFAS	XCFAS	IEFPROC	13.92	602	0.43
- *MASTER*			14.33	561	0.25
- VTAM	VTAM	VTAM	11.53	68	0.14
- SYSBMAS	SYSBMAS		0.88	90	0.07
- JESXCF	JESXCF	IEFPROC	3.52	876	0.05
- RACF	RACF	RACF	1.05	566	0.03
- VLF	VLF	VLF	1.09	980	0.01
- ALLOCAS	ALLOCAS		0.07	----	----

TASID

- **Hopefully an online demo**

SHOWMVS

- Batch program to snapshot MVS related information
- Can be run as TSO command processor
- Written by Gilbert Saint-flour
- Frequent updates, normally about the same time TASID gets a new feature (competition ?)
- What's changed is always the first question after a failure
- Good practice to run before and after every IPL
- That way, you can tell what has changed

SHOWMVS

- **Shows:**
  - ➜ **Software levels**
  - ➜ **Runtime language modules and their dataset location**
  - ➜ **SMF Data, SMS Config, Master JCL, Initiator status**
  - ➜ **GRS status including listing all Locks**
  - ➜ **Hardware config, for I/O devices and CPU**
    - **Provides a MIPS measurement for CPU, tested using BCTR loop**
  - ➜ **ICF Catalogs open**
  - ➜ **Virtual Storage Map**
  - ➜ **Exit modules and load points**
  - ➜ **APF, Linklist, LPA listing, including APF status, Catalog status, Volser, Creation Date, number of Extents**
  - ➜ **Active LPA Queue: - attributes, load points, PLPA, etc**
  - ➜ **SVC Table, Command Prefix Table.....and many more**

SHOWMVS - example

GSF Utilities - ShowMVS R621f 1998-10-28 17.43

Operating System:

OS/390 01.02.00 CVTOSLVL: FF FB 00 00 00 00 00 00

DFSMS/MVS 1.3.0

JES2 Level: OS 1.1.0 NJE Node: JESTNT3

Last IPL:

Date: Tuesday 1998-10-27 (Yesterday) Time: 16.33 Julian: 1998.300

From: OS3TA1/0884 NUC Id: 1 Type: Cold Start CVTUSER: 00000000

SYSPLEX name: PLEX3 SYSPLEX ID: 30 OpenMVS available: NO

Timezone: W 00.00.00

SHOWMVS - example

GSF Utilities - ShowMVS R621f **1998-10-28 17.43**

Hardware Configuration:
Central Processing Complex Node Description:
Type(009000) Model(720) Manfctr(HTC) Plant(02) Seqno(000000066055) Id(00)
On-line Processors:
CPU 0 Serial: 031265 Version: D7 Model: 9021-972
CPU 1 Serial: 131265 Version: D7 Model: 9021-972
CPU 5 Serial: 531265 Version: D7 Model: 9021-972
CPU 6 Serial: 631265 Version: D7 Model: 9021-972
This system can deliver 5310 service units per second
Processor Speed: 165.2 MIPS (Estimated using a BCTR loop)
CVTFLAGS: 7E E0 00 00 SVPRC CUSE MVPG OVER CSTR CMPSC CMPSH SOPF
Relative-and-Immediate Instruction Set is not available.

On-line Real Storage: 49152K **Highest Real Storage Address:** 49152K
Expanded Storage: 65536K

SHOWMVS - example

[redacted]

Area	Start(hex)-End(hex)	Size(K)	Size(M)	Used(K)
PSA+System	00000000 00005000	20K	.0M	
Region V=R	00005000 00024FFF	128K	.1M	
Region V=V	00005000 008FFFFF	9196K	8.9M	
CSA	00900000 00CD3FFF	3920K	3.8M	496K
MLPA	00000000 00000000	0K	.0M	
FLPA	00CD4000 00CDCFFF	36K	.0M	
PLPA	00CDD000 00E73FFF	1628K	1.5M	
SQA	00E74000 00FCAFFF	1372K	1.3M	451K
Nucleus	00FCB000 00FFFFFF	212K	.2M	
16M-line	----------			
Nucl. Ext.	01000000 015CDFFF	5944K	5.8M	
SQA EXT.	015CE000 02425FFF	14688K	14.3M	7226K
PLPA Ext.	02426000 048D2FFF	37556K	36.6M	
FLPA Ext.	00000000 00000000	0K	.0M	
MLPA Ext.	00000000 00000000	0K	.0M	
CSA Ext.	048D3000 05CFFFFF	20660K	20.1M	13811K
Reg. Ext.	05D00000 7FFFFFFF	2001920K	1955.0M	

Misc.

- **ISPF EDIT Macros**
  - ➜ Cut and Paste,
  - ➜ Checksum figure outer
  - ➜ Delete duplicate lines
  - ➜ ..a cast of thousands...
- **Rexx on your Rexx**
  - ➜ Linklist checker and Display Linklist/LPA
  - ➜ Tape stacker for CA/1
  - ➜ ...etc...etc
- **BALR**
  - ➜ DASD scanners
  - ➜ Dataset Contention displays
  - ➜ ICF Catalog cleanup
  - ➜ ....and so on...

MVS URL's

- **Bruce Baumgaba, OS/390 page - includes SAS catalog parser.**
  - ➜ **http://www.srv.net/~bruceb/bpages/os390.html**
- **Chuck Hopf - MXG, SCUBA, Cooking, Other Misc Stuff**
  - ➜ **http://www.chopf.com/**
- **Home of the dinos web ring - Links on Links**
  - ➜ **http://www.chopf.com/dinoring.shtml**
- **Mark Zelden - MVS utilities, ISPF Edit Macros and misc REXX code**
  - ➜ **http://www.flash.net/~mzelden/mvsutil.html**
- **Gilbert Saint-flour - includes SHOWMVS**
  - ➜ **http://members.home.net/gsf/**

MVS URL's

- **Michael J. Cleary - MVS Freeware includes LPA analysis tool**
  - ➜ **http://home.pacbell.net/mcleary/freeware.html**
- **David McRitchie - The REXX Macros Toolbox**
  - ➜ **http://members.aol.com/dmcritchie/nclist.htm**
- **Mike Newell - PDSMATCH, a PDS Matching Utility**
  - ➜ **http://wb4huc.home.texas.net/pdsmatch**
- **David Cole -Miscellaneous Utilities**
  - ➜ **http://www.colesoft.com/filexfer.htm#misc**
- **Leonard D. Woren - Queue, Tapemap and others**
  - ➜ **http://www.best.com/~ldw/mvs/mvs.html**

MVS URL's

- **Michael Stack - MVSBATCH which submits jobs from MS/DOS or OS/2 to MVS**
  - ➜ **http://mstack.cso.niu.edu/pub**
- **Balbir Oberoi - useful links**
  - ➜ **http://www.geocities.com/~oberoi/mainfrme.html**
- **TSO Times (ChicagoSoft) - various REXX and other TSO goodies.**
  - ➜ **http://www.quickref.com/tsotimes/tsotimes.html**
- **COG Technical Papers - various MVS doc files**
  - ➜ **http://www.cog.fl.net.au/Technical.htm**
- **Mortice Kern Systems - UNIX goodies for MVS**
  - ➜ **http://www.mks.com/s390/gnu/index.htm**

MVS URL's

- **Xephon MVS Update archive**
  - ➜ **http://www.xephon.com/**
- **CBT tape info maintained by Sam Golob**
  - ➜ **http://members.aol.com/cbttape**
- **Gerard Nicol - REXX FunctionPak for MVS**
  - ➜ **http://www.leichhardt.net.au/gerard/rexxfp/**
- **IBM Downloads**
  - ➜ **http://www.s390.ibm.com/os390/downloads.html**
- **IBM's Tools and toys for Unix System Services**
  - ➜ **http://www.s390.ibm.com/oe/bpxa1toy.html**
- **Tivoli Netview Tools page**
  - ➜ **http://www.tivoli.com/z_nv390/tools.html**

MVS URL's

- **Naspa**
  - ➜ **http://www.naspa.net/**
- **David Alcock - toy shop**
  - ➜ **http://www.ticnet.com/davea/mvs/freeware.htm**
- **Bruce Gillispie - toy shop**
  - ➜ **http://www.concentric.net/~Gillispi/othermvs.shtml**
- **Eric Loriaux - comprehensive links**
  - ➜ **http://www. Loriaux.com/s390/**
- **Doug Nader - TASID**
  - ➜ **http://booksrv2.raleigh.ibm.com/ispf/tasid.htm**
  - ➜ **http://www.software.ibm.com/ad/ispf/downloads/tasid.htm**

'Toys' from IBM

- Praise to IBM
- OS/390 has been a boon for 'Toys'
- Six monthly preview/release cycles creates the need for ‘fluff’ in the previews
- Labs asked to provide bullets for press releases
- Suspect they go back over 20 year old APARS looking for ‘easy’ bullet points

  (Maybe even old rejected GSE requirements ?)

'Toys' from IBM

- Some of the 'Toys' are really obvious and widely used
- Some are not so widely used, maybe because you don’t know about them
- Most sites have similar 'Toys' in-house for many of these features
- But these are static from site to site - always available
- And best of all, they are supported/maintained by IBM, not us !
- Praise to IBM, thank you , thank you, thank you

MVS - Dynamic Exits

- Been available for ages
- Allow multiple exits off the same exit point
- Any exit point that calls CSVDYNEX macro can be dynamic
- IBM provide a bunch of them
- Allows passing of return codes back to the exit caller
- Allows an exit to only be called for specific jobnames (neat for testing)
- Enable via SETPROG MVS command

MVS - Dynamic Exits

- **Users as at OS/390 v2r5:**
- **Allocation exits:**
  - ➜ **IEF_ALLC_OFFLN-- Alloc/Offline Device Installation Exit**
  - ➜ **IEFDB401-- Allocation Input Validation Routine**
  - ➜ **IEF_SPEC_WAIT-- Specific Waits Installation Exit**
  - ➜ **IEF_VOLUME_ENQ-- Volume ENQ Installation Exit**
  - ➜ **IEF_VOLUME_MNT-- Volume Mount Installation Exit**
- **Automatic restart management exits:**
  - ➜ **IXC_ELEM_RESTART-- Element Restart Exit**
  - ➜ **IXC_WORK_RESTART-- Workload Restart Exit**
- **Subsystem interface (SSI) exit:**
  - ➜ **IEFJFRQ-- Subsystem Function Request Exit**

MVS - Dynamic Exits

- **SMF exits:**
  - ➜ **IEFACTRT-- SMF Job/Job Step Termination Exit**
  - ➜ **IEFUAV-- User Account Validation Exit**
  - ➜ **IEFUJI-- Job Initiation Exit**
  - ➜ **IEFUJP-- Job Purge Exit**
  - ➜ **IEFUJV-- Job Validation Exit**
  - ➜ **IEFUSI-- Step Initiation Exit**
  - ➜ **IEFUSO-- SYSOUT Limit Exit**
  - ➜ **IEFUTL-- Time Limit Exit**
  - ➜ **IEFU29-- SMF Dump Exit**
  - ➜ **IEFU83-- SMF Record Exit**
  - ➜ **IEFU84-- SMF Record Exit**
  - ➜ **IEFU85-- SMF Record Exit**

MVS - Dynamic Exits

- Personal favourite is CBIPO sample IEFACTRT
  - ➜ nice JES joblog info box
  - ➜ Step RC, EXCP, SIO, CPU time etc.
- But a lot of sites use IEFACTRT for Chargeback data accumulation
- Integrating the sample with site IEFACTRT normally a lot of work
- Needs rework each OS/390 release
- No problem, just stack the IPO supplied exit after/before site IEFACTRT
- No more reworking, it works out of the box
- IPO1 libraries no longer delivered with CustomPacs (2.5 onwards), try CPAC samples

MVS - Reality Check

- **Who still uses LLA Refresh ?**
- **Who has a concatenated Parmlib ?**
- **Who has a shared Mastercat ?**
- **Anybody not using Dynamic Dump datasets ?**
- **Is 100 (99 now) SYSTEM SYMBOLS enough ?**

ISPF

- Best editor in the world
- (A little gripe, some ‘inconsistency’ in dialog design in newer product interfaces, colour blind maybe ?)
- New 'Toys' with each release, need to read the CHANGES section to catch them all
- Or look at the What's new section in tutorial
- Many of the examples that follow are widely known and used, but my experience shows that some sites/sysprogs DON’T know of or use these 'Toys'
- So no apologies for the ‘pin hole either end and then suck’ nature of this

ISPF - Browse/View

- Browse has been superseded by View
- View is like Edit, but you can't save the dataset.
- View takes up more storage, so use Browse if the dataset/member is very large.
- View and Edit use different colours so you should be able to tell them apart.
- Browse is still supported as a command and via option 3.4
- Browse is substituted for View if the dataset contains load modules.

ISPF - Highlight

- **Laura Ashley style colouring in the Editor, e.g.:**

➜ **lowlight comments**

➜ **make flow of programs easy to read by colouring operations differently from operands**

➜ **even highlight missing continuations**

➜ **colour IF/END processing**

➜ **etc..**

ISPF - Hilight

- Command is HILITE, note foreign spelling
- Different colour settings for different source type, e.g.:
  - ➜ HILITE JCL
  - ➜ HILITE REXX
  - ➜ HILITE COBOL
  - ➜ ..etc.
- To see colours you must ‘tick’ the COLOR SOURCE ‘box’
- Should also ‘tick’ the matching parenthesis ‘box’, fantastic for SAS
- In general, HILITE uses a bit more storage

ISPF - DSLIST (Option 3.4)

- Option 3.4 is the ‘normal’ working environment
- Almost any functions can be invoked against a specified dataset, e.g.:
  - ➜ Browse / Edit
  - ➜ View
  - ➜ Reset Stats
  - ➜ Member Copy / Move
  - ➜ ...etc.
- Use ‘/’ to prompt for options
- Option 3.4 can be nested to from anywhere using pulldown menus if coded on panel
- Dataset / Member lists can be SAVEd to a dataset
- Datasets can be eXcluded from the display

ISPF - Multiple Split Screens

- ISPF can run up to 32 logical screens, YIPPEE !!!
- Set SCRMAX value in ISRCONFG
- Consumes storage after about 6 screens so should be limited
- Default is 8 screens, probably should be 4 for plebes and 32 for sysprogs
- Screen can be partitioned using the SPLIT NEW or START command
- The logical screens are treated as independent ISPF sessions
- A 3270 screen can only display 2 screens at a time
- Selection of which logical screen to display is done by using the SWAP command

ISPF - Multiple Split Screens

- Logical screens can be named and then SWAPped to using name
- Set names with SCRNAME screen name [PERM|ON|OFF]
- Name can be any set of 2 to 8 characters
  - ➜ except NEXT, PREV, LIST, ON, OFF
- Name deleted when new ISPF SELECT command invoked, but can use PERM to maintain past SELECTs
- Lasts for the duration of the logical screen, so you have to set up each time you logon
- ON causes screen name to be displayed in the panelid area
- OFF removes the screen name from visible display.

ISPF - Multiple Split Screens

- **SWAP command without parameters moves the cursor between two logical screens**
- **SWAP PREV|NEXT|screen_name|n|LIST:**
  - ➜ **SWAP PREV changes the focus or display to the next lower screen number**
  - ➜ **SWAP NEXT is the reverse of PREV**
  - ➜ **SWAP screen_name changes the focus or display to the screen named screen_name**
  - ➜ **SWAP n changes the focus or display to the screen numbered n**
  - ➜ **SWAP LIST command displays the ISPF Task List**

ISPF - ISRDDN

- TSO command
- Provides panel support for viewing Terminal I/O Table (TIOT)
- Originally available from Web, now fully supported
- Can edit/browse/free etc datasets allocated to TSO session
- Can search concatenated PDS's for members
- Search supports multiple hits

ISPF - ISRDDN

- Any DD (concatenated) can be allocated to a session, so easy search facility for members not normally assigned to TSO session
- Can allocate LPA and LINKLST to session via LPA option
- Therefore can search LPA and LINKLST
- (Great visual refresh when searching !)
- I know everyone has their own, but this is supported

ISPF - ISPVCALL

- TSO command
- Displays config and trace data for ISPF session
- Need to Execute command twice, once to dump current ISPF info, second time takes you to a view session of the info
- Includes all ISPF config settings
- Includes accumulated ISPF session consumption info
- Includes FMID and versions of important MVS products, e.g. JES, MVS, DFSMS, RACF, etc
- Not documented anywhere I can find

ISPF Misc.

- **Option 3.2 enhanced**
  - ➜ Can allocate Multi Volume datasets
  - ➜ Can Define/Delete/List VSAM - neat !!
  - ➜ VSAM SYSIN can be copied to own dataset
- **REFLISTS**
  - ➜ ISPF keeps track of all datasets referenced
  - ➜ Reflist can be invoked from most IBM supplied dialogs
  - ➜ When invoked, can be used to populate underlying panel with dataset info, .g. Option 3.4
  - ➜ Can build your own Reflist, maybe containing mixed HLQs for MVSey type datasets, e.g.:
    - Concat Parmlib and Proclib Concat and LPA and LNKLST etc
  - ➜ Can be big storage consumer (APARS for it)
  - ➜ Can build your own

MVS/JES Commands

- **D U,IPLVOL**
  - ➜ **display the volser IPLed from**
- **D U,VOL=**
  - ➜ **display UCB info by VOLSER !!!!**
- **JES JOBMASK operand**
  - ➜ **Allows use of wildcards in JES commands**
  - ➜ **e.g. £PQ,JM=F%%K***
- **D OPDATA,PREFIX**
  - ➜ **display (message IEE603I) sysplex-wide information about message processing and presentation, including Subsystem prefixes in use**

MVS/JES Commands

- **SETLOAD command**
  - ➜ **dynamically change the Parmlib concatenation**
- **DISPLAY PARMLIB**
  - ➜ **displays information about the logical Parmlib setup**
- **DISPLAY IPLINFO**
  - ➜ **displays information about the last IPL**
- **DISPLAY PROG,EXIT,EXITNAME=exitname,DIAG**
- **DISPLAY PROD command**
  - ➜ **display information about product registration and enablement.**

SDSF

- EMCS support extended, now you get response overlaid on screen
- ULOG command to show just the output from commands you entered
- M/command to issue command as master console
- / command provides 128 char capability
- Personalise display via ARRANGE drop down
- SORT on any fields
- DISPLAY command to show attributes
- XD line command displays Print Dataset Open Dialog
  - ➜ Don't need to use PRINT ODSN anymore
- XO line command displays Print Sysout Dialog

SDSF

- **SE Command - SDSF EDIT**
  - ➜ ISPF Edit session of the output or input job.
  - ➜ Not the real spool data, just a copy.
  - ➜ Can consume a lot of storage and can take a very long time.
- **SJ Command - SDSF JCL**
  - ➜ Provides an editable copy of the submitted JCL
  - ➜ Can be modified and resubmitted.
  - ➜ Can be saved back to a dataset
  - ➜ Includes any SYSIN
  - ➜ This one is the dogs bollocks !

er...that's it