

Bit Bucket x'2C'

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Integral Integrity

(Tom Conley)

It Started (Ab)Normally.....

- Received an abend A37-08 in TWS datastore
 - IEC015I A37-08,IGC0005E,TWSD,TWSD,UNKNOWN
 - IEC223I IFG0559B,TWSD,TWSD
- A37 is taken during EOV processing
 - RC08 indicates an invalid DCB
 - Probably why IEC015I reported a DD of "UNKNOWN"
- TWS level 2 recommended OAXxxxx for A37 abend
- A search on IBMLink did not find APAR OAXxxxx
 - An error has occurred: The document OAXxxxx was not found.
- IBMLink did find the PTF's
- I opened a ticket with the IBMLink Help Desk
 - They never called me back
- TWS level 2 said OAXxxxx is INTEGRITY APAR
- So I Googled IBM Integrity APARs, and found this:

http://www-03.ibm.com/systems/z/advantages/security/integrity_zos.html

And Ended Up Here....

The screenshot shows a web browser window displaying the IBM System z Security website. The browser's address bar shows the URL www-03.ibm.com/systems/z/advantages/security/integrity_zos.html. The website header includes the IBM logo, a search bar, and a navigation menu with items like Home, Solutions, Services, Products, Support & downloads, and My IBM. A user is logged in as 'Welcome [IBM Sign in] [Register]'. The main content area is titled 'Security' and features a sub-navigation menu with 'Overview', 'Integrity', 'Solutions', and 'Resources'. The 'Integrity' section is active, showing a list of links: Overview, z/OS, z/VM, z/VSE, and Subscription Process. The main text describes the z/OS System Integrity, its history since 1973, and the importance of maintaining system integrity. It includes a section for signing up for the Security Portal and a related links section. On the right side, there is a 'We're here to help' section with a contact form and a 'System z Security' section with a 'Read more' link. The bottom right corner has a 'Related Links' section with a link to 'Frequently Asked Questions (49KB)' and another link to 'z/OS System'.

IBM System z - Security: z/OS

www-03.ibm.com/systems/z/advantages/security/integrity_zos.html

Imported From Firefox

United States [change]

Search

Home Solutions Services Products Support & downloads My IBM Welcome [IBM Sign in] [Register]

Mainframe servers

- Advantages
- Hardware
- Operating systems
- Software
- Solutions
- Migrate to IBM
- Support
- Resources
- Success stories
- News
- Education
- Destination z

Security

Overview Integrity Solutions Resources

- Overview
- z/OS
- z/VM
- z/VSE
- Subscription Process

The z/OS System Integrity is born from the original statement issued in 1973 with the IBM MVS™ operating system. Read the Statement of z/OS System Integrity [here](#)

To maintain the highest levels of z/OS system integrity, IBM strongly recommends that users of the z/OS Operating System validate the currency of security and system integrity service and take action to promptly install all security and integrity PTFs.

Sign up and get your integrity information sooner

As a best practice, IBM strongly recommends that clients obtain access to the System z Security Portal and subscribe to the Security Portal's automatic notification process to get access to the latest service information on security and system integrity APARs for z/OS. Note that IBM treats vulnerability information in connection with System z as IBM Confidential and by accessing the [Security Portal](#) you agree to treat such information as confidential in accordance with the terms set forth.

If you are not currently authorized to access the Security Portal, instructions to do so are located [here](#). IBM makes available important information about security and system integrity APARs and associated fixes in this Security Portal which can help you to plan the timely installation of security and integrity

We're here to help

Easy ways to get the answers you need.

- Request a quote
- E-mail IBM

or call us at 866-883-8901 Priority code: 101AS13W

System z Security

Read more about the subscription process for access.

→ Read more

Related Links

- Frequently Asked Questions (49KB)
- z/OS System

IBM's Statement of Integrity

IBM's commitment includes design and development practices intended to prevent unauthorized application programs, subsystems, and users from bypassing z/OS security - that is, to prevent them from gaining access, circumventing, disabling, altering, or obtaining control of key z/OS system processes and resources unless allowed by the installation. Specifically, z/OS "System Integrity" is defined as the inability of any program not authorized by a mechanism under the installation's control to circumvent or disable store or fetch protection, access a resource protected by the z/OS Security Server (RACF®), or obtain control in an authorized state; that is, in supervisor state, with a protection key less than eight (8), or Authorized Program Facility (APF) authorized. In the event that an IBM System Integrity problem is reported, IBM will always take action to resolve it.

Stuff Just Got Real

- Statement of Integrity APARs flagged INTEGRITY
- IBM takes INTEGRITY APARs VERY seriously
- IBM does not advertise INTEGRITY APARs
- They are considered "IBM Confidential" information
- You will not find them on IBMLink
- They are not marked HIPER
- They DO show up in RSU, but typically up to 60 days later
- Only way to get INTEGRITY APAR info is **Security Portal**
 - Also only way to get immediate INTEGRITY APAR info
- Security Portal is accessed via subscription
 - Need ResourceLink ID
 - You must have "need-to-know" in writing from company management
 - You agree to treat Security Portal information as IBM Confidential
- Do yourself a favor and get the Security Portal!



Security Portal

(Sam Knutson)

IBM Security Portal .02 more

- Integrity APARs are not new
- IBM provides a means with the security portal for you as a customer to stay informed
- Recent enhancements to the Security Portal also provide you the CVSS score for a defect
- Common Vulnerability Scoring System (CVSS) provides an open framework for communicating the characteristics and impacts of IT vulnerabilities.
- Shortly before year end 2012 IBM informed proactively many customers of some recent Security APARs and recommended they promptly install service
- IBM has published as a Flash Security vulnerability in IBM HTTP Server for z/OS Version 5.3 (PM79239) which has a CVSS base score of 10. What does that mean to you?
- <http://www-01.ibm.com/support/docview.wss?uid=swg21620945>

IBM Security Portal .02 more

- Your site should subscribe to the Security Portal and use the information and enhanced HOLDATA
- Security and Integrity fixes are not HIPER
- HOLDDATA for Security/Integrity fixes is available through the System z Security Portal. Information on registration and accessing the System z Security Portal is available at
- http://www-03.ibm.com/systems/z/advantages/security/integrity_sub.html
- If you are already registered you can link directly to the IBM Resource Link Security Alerts.
- The HOLDDATA available from the System z Security Portal adds a new HOLD CLASS, SECINT, and the HOLD SYMPTOMS contains the CVSS Base and Temporal scores.

IBM Security Portal .02 more

- A guide to using enhanced HOLDDATA
- <http://service.software.ibm.com/holdata/390holddata.html>
- Sample Report from IBM's public web above for SMP/E's REPORT ERRSYSMODS shows how you can inspect a system using SMP/E for missing Security/Integrity fixes

EXCEPTION SYSMOD REPORT FOR ZONE TGT113

HOLD FMID	SYSMOD NAME	APAR NUMBER	---RESOLVING SYSMOD---			HOLD CLASS	HOLD SYMPTOMS
			NAME	STATUS	RECEIVED		
HBB7780	HBB7780	AA35954	UA62955	GOOD	YES	HIPER	IPL
	AA36906	UA63106	GOOD	YES	HIPER	FUL	
	AA98765	UA12345	GOOD	YES	SECINT	B6.9,T6.0	
	AA37985	UA63165	GOOD	YES	HIPER	IPL	



Virtually Exhausted
(Sam Knutson)

Virtually Exhausted - What is CSM?

- Communications Storage Manager (CSM) is a semi-independent component of VTAM used by VTAM and TCP/IP to manage storage pools. ..Chris Mason
- CSM is a VTAM component that allows authorized host applications to share data with VTAM, TCP/IP and other CSM users without the need to physically copy the data. ..Alfred B Christensen (IBM)
- Public API, CSM storage is ECSA key 6 most as "SYSTEM" or data space storage
- CSM limits how much storage with global implications (common storage or fixed storage) it will provide callers
- If VTAM or TCP/IP cannot get the storage they want from CSM someone is likely going to be unhappy and it is probably going to be you☹
- MVS commands available and some OEM monitoring products can display and alert on CSM storage use

Virtually Exhausted - "the leash" IVTPRM00

- PARMLIB(IVTPRM00) is where the settings for CSM are kept
- The shipped defaults from IBM since z/OS 1.8
FIXED MAX(120MB)
ECSA MAX(120MB)
- MaxFIXED is 1024K to 30720M
- MaxECSA is limited by your ECSA i.e.
IVT5590I MAX ECSA VALUE ADJUSTED TO
90 PERCENT OF SYSTEM ECSA
- MVS command F NET,CSM to reread PARMLIB
- MVS commands can also modify without a PARMLIB member F NET,CSM,FIXED=200M
- MVS command D NET,CSM with options is available

Virtually Exhausted - Comments in IVTPRM00

- Comments are accepted in every format we could imagine i.e.

* This is absolutely a comment

`FIXED MAX(120M) /* Is this a comment? */`

`ECSA MAX(120M)` how about this one with no surrounding delimiters?

- Requirement SSMVSE11057 Parmlib member IVTPRM00 should allow comments is Recognized. The MVSE requirements team will be contacting IBM to see if it should be marked Available. We cannot see any comment option that is not usable here even ones we did not expect.

Virtually Exhausted - "minutia" IVTPRM00

- IEFPRMLB service appears to be used because it dynamically allocated system parmlibs

F VTAM,CSM

IVT5510I MODIFY ACCEPTED

IEE252I MEMBER IVTPRM00 FOUND IN SYS2.PARMLIB

IEF196I IEF285I SYS2.PARMLIB KEPT

IEF196I IEF285I VOL SER NOS= MVSSY1.

IEF196I

IEF285I ADCD.Z113.PARMLIB KEPT

IEF196I IEF285I VOL SER NOS= ZDRES1.

IEF196I IEF285I SYS1.PARMLIB KEPT

IEF196I IEF285I VOL SER NOS= ZDRES1.

Virtually Exhausted - Where does it really go?

- The TCP/IP fixed storage whether it resides in a dataspace or ECSA would preferably be backed with frames above 2G.
- TCP/IP on their ECSA GETMAIN or the DSPSERV CREATE requests indicate that their storage can be fixed above 2G. What this means from a z/OS perspective is at the time the storage is fixed by TCP/IP, z/OS will choose an above 2G frame if one is available. So only back the fix request with a below 2G frame in the case where NO above 2G frames are available on the system at the time of the fix request.

Virtually Exhausted - Where does it really go?

- This is yet another reason to keep a healthy number of frames on the your available frame queue, so it would not be likely that the TCP/IP storage would be fixed below 2G.
- Real storage is a good value and inexpensive compared to general purpose CPU time
- FlashExpress storage is cheaper still and exploitation is available today with more on the way
- **Don't starve your z/OS LPARs for real memory**
- AFQA size IMHO is the best metric for managing real memory. In today's large real 64-bit world UICA is not useful. A UICA of <64K is a system with serious issues.

Virtually Exhausted - a real problem

- Enqueue delay with an OEM dump analysis product which hung some CICS and IMS transactions. CSM storage became constrained briefly before resolved many TN3270 sessions throughout the enterprise have problems.

This was very impacting to the customers production applications and operations team ability to manage z/OS

- 10DEC 21:20:11 NET IVT5592I CSM FIXED STORAGE AT CONSTRAINED LEVEL
- 10DEC 21:24:30 NET IVT5565I CSM FIXED STORAGE SHORTAGE RELIEVED

Virtually Exhausted - a real problem

- This type of problem has been something I have seen a recurring with different causes over the years until recent adjustments to FIXED storage limits and implementation of z/OS V1.13
- Caused at other times by problems in CICS resulting in many transactions held in SOCKETWAIT and other problems which cause large volumes of work to hang up
- APARs have been generated with IBM and vendors including (old) APAR PK74282 CSM fixed storage growth can occur with large number application connections
- Optimize configuration to use XCF links for high volume message transport instead of TCP/IP inside a Sysplex where this is possible

Virtually Exhausted - IVT5592I

- **IVT5592I CSM FIXED STORAGE AT CONSTRAINED LEVEL**

Explanation: This message is issued when CSM fixed storage usage is approaching the CSM FIXED constrained level (85% of CSM FIXED storage limit value) and it is above 80% of the CSM FIXED storage limit value. CSM

FIXED storage usage might reach the critical level.

System Action: Processing continues. Subsequent requests for CSM storage might fail if the current storage growth rate continues.

- **Note:** No dump taken automatically but you can **SLIP SET,MSGID=IVT5592I,A=SYNCSVCD,DSPNAME=(1.CSM*),END** to capture first failure documentation

Virtually Exhausted - IVT5592I

Operator Response: Enter the DISPLAY CSM command without the OWNERID operand to determine current storage limits and usage. Issue a DISPLAY CSM command with OWNERID=ALL to determine how much storage is in use by each application. See the DISPLAY CSM command information in z/OS Communications Server: SNA Operation for more information.

Save the system log for the problem determination.

System Programmer Response: Verify that the fixed storage limit value is correct. Increase storage as required using a MODIFY CSM command. See the MODIFY CSM command information in z/OS Communications Server: SNA Operation for more information.

Virtually Exhausted - What was done to fix?

- Update IVTPRM00 to provide significantly more fixed storage for use by CSM than before. This was actually done incrementally first then to 1G after discussion with RSM development clarified backing of real frames for fixed storage i.e.

**FIXED MAX(1024M)
ECSA MAX(30M)**

- SLIP in place for CSM messages always get good first failure data capture
- Message automation in place for CSM messages always alert operations and systems programmers

Virtually Exhausted - Things to READ

- Review MustGather: Collect Troubleshooting Data / Read First / Fix List for TCPIP CSM Storage for z/OS Communications Server <http://www-01.ibm.com/support/docview.wss?rs=852&uid=swg21318426>
- Understanding z/OS Communications Server storage use presented at SHARE in Boston by Alfred B Christensen <http://www.share.org/p/do/sd/topic=68&sid=778>

Virtually Exhausted - Things to DO

- Automate messages IVT5592I CSM FIXED STORAGE AT CONSTRAINED LEVEL & IVT5591I CSM ECSA STORAGE AT CONSTRAINED LEVEL regardless of what thresholds you have
- Have command D net,CSM,OWNERID=ALL issued by automation periodically so you have some historical data
- Review your IVTPRM00 PARMLIB member and make adjustments you determine are appropriate for your system
- Add a SLIP for IVT5592I & IVT5591I to collect a dump if this occurs



Virtually Exhausted Again
(Sam Knutson)

Virtually Exhausted - TN3270E

- IBM moved the TN3270 server into its own address space to provide VSCR
- Plentiful and not shared you can still run out of private storage
- If a unit of work in the TN3270E address space cannot get the storage requested someone is likely going to be unhappy and it is probably going to be you 😞
- There is currently no global monitoring and alerting for private storage depletion built into z/OS

Virtually Exhausted - The culprit

- On a day like any other the TN3270E asid takes several dumps
- IEA794I SVC DUMP HAS CAPTURED: DUMPID=009
REQUESTED BY JOB |TN3270E | DUMP
TITLE=TN3270E V1R13: Job|STPA5YKA|
EZBITSTO|HIP61D0 11.09 0|+002004 S4C5/74BE2507
SRB P=0064,S=0064,H=0064
- IEA794I SVC DUMP HAS CAPTURED: DUMPID=010
REQUESTED BY JOB |TN3270E | DUMP
TITLE=TN3270E V1R13: Job|UNKNOWN |
UNKNOWN |??????? ????|+?????? S92A/00000018
TCB P=0064,S=0064,H=0064
- SVC dumps titles are forwarded using message automation by email to the systems programmers for situational awareness (see new trees in the forest)
- ABENDS92A RSN18 ATTACH is unable to obtain a linkage stack for the task.

Virtually Exhausted - The culprit

- Global impact is soon reported... What to do?
- SEV1 input using SR call IBM "TN3270E ABEND878-10 private storage exhausted"
- Storage exhaustion in TN3270E confirmed as issue but root cause will not be found immediately
- Much time is spent debating whether TN3270E should be recycled as some users had experienced failures others were working OK it was not known how long this would last
- Eventually the TN3270E asid is recycled
- Sysplex distribution of the TN3270 traffic would have provided high availability helped this issue
- Later find that TN3270E had actually self healed and recycle have been avoided. Systems programmer was looking at High Water Mark instead of current value in an MVS Monitor screen

Virtually Exhausted - The culprit

- What IBM found in the storage?
- Many buffers containing the logon screen with the legal beagle warning for TN3270 users
- All from one Windows PC IP address. Wow!
- One bad behaving PC caused trouble in TN3270
- Replicated with simple Vista emulator macro
- CLEAR key does not lock keyboard allowing this loop to occur

```
k...Y.%..0..9..SKMB.....
SKDB..7... ..7...9... ..7...
..BV.D
<><><>.CJ.DIP ADDRESS: 10.65.182
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```

Virtually Exhausted - the hammer

- PM73261 NEW FUNCTION TN3270 Client-Bound Data Queueing Limit
- <http://www-01.ibm.com/support/docview.wss?uid=swg27036905>
- PM73261 introduces MAXTCPSSENDQ, a new parameter in the Telnet profile, to prevent large amounts of storage from being held for data that is destined for an unresponsive Telnet client.
- To enable the TN3270 client-bound data queueing limit, you need to specify the MAXTCPSSENDQ parameter in the Telnet profile.
- `d tcpip,tn3270e,telnet,profile,detail` will show current MAXTCPSSENDQ
- I set this to 1048576 or 10M a "crazy high" value for a TN3270 terminal but consider devices types like printers and set your system your way

Virtually Exhausted - the hammer

SYS1.TCPPARMS(TN3270) - 01.00

Columns 00001

00080

====>

Scroll ====> CSR

```
; -----  
; Optional Global Configuration affects all ports  
; -----
```

TelnetGlobals

MAXTCPSENDQ 1048576

- ; Allow only about 10M of queued screen updates
- ; for a single terminal to prevent a TN3270
- ; outage due to a looping emulator session

LUSESSIONPEND ; On termination of a Telnet server connection,
; the user will redrive application lookup
; instead of having the connection dropped.

Virtually Exhausted - the hammer

- It works!
- 1DEC 08:59:39 CONSOLE EZZ6034I EZZ6034I
TN3270E CONN 00001D80 LU PLT10003 CONN DROP
ERR 4018
- 1DEC 08:59:39 CONSOLE EZZ6034I IP..PORT:
10.49.130.216..1986
EZBTPCCO
- You may want to automate this message and alert when you get this since it should not happen



Room of Requirements
(Sam Knutson)

Heed the advice of Napoleon

- When looking for help, look for smart lazy people
 - Smart energetic people already have their own crusade and won't stop to help you
 - Dumb lazy people can't help....
 - and dumb energetic should be shot!

NAPOLEON BONAPARTE

SHARE Requirements

- The SHARE requirements process is one way we raise our voice as one to ask IBM to undertake change. Typically a requirement is for new or changed function in software expressed in a clearly articulated statement. To find the requirements system on-line login to the www.SHARE.org website and select the **Our Community** then **Advocacy and Requirements** on that menu. You can register or login if you have already registered on that page.
- Cheryl Watson has just conducted a wonderful interactive discussion session **z/OS Requirements: Influencing IBM Development** with foils that provide a detailed guide to using the requirements system and how the process works.
- <https://share.confex.com/share/120/webprogram/Session13044.html>



Beware BPXWDYN
(Ed Jaffe)

Beware BPXWDYN

- At SHARE in Anaheim 2011, I talked about how we had converted all of our old TSO/E logon data set allocation CLISTs to REXX execs using BPXWDYN instead of TSO/E ALLOCATE.
- This was done to get around the hard-wired limit of DYNAMNBR=100 for z/OS UNIX forked procedures (BPXAS) in order to allow TSO/ISPF data sets to be allocated while running from an SSH prompt.
 - BPXWDYN uses the DALPERMA text unit on its SVC 99 dynamic allocations; TSO/E ALLOCATE does not.
- I demonstrated how to run certain ISPF services (e.g., LMMCOPY) from an SSH prompt and even how to invoke a remote ISPF service programmatically from a process running on your Windows desktop.
- All was right with the world until ...

Beware BPXWDYN

- We tried to bring a z/OS 2.1 system into a sysplex with z/OS 1.13 images. The z/OS 1.13 images were missing some toleration PTFs allowing coexistence with new ZFS facilities in z/OS 2.1.
- ZFS would not initialize (msgIOEZ00675E was produced); ZFS requested an OMVS shut down.
- We tried to diagnose/repair the problem by logging on to the z/OS 2.1 image. The result was a hung TSO/E address space and the following message on the system log:

```
*BPXP022E ONE OR MORE JOBS ARE WAITING  
FOR UNIX SYSTEM SERVICES AVAILABILITY.
```

- We eventually discovered this was occurring as a result of the first BPXWDYN ALLOC in the logon REXX exec. It was "stuck" allocating a user PDSE to SYSUPROC.

Beware BPXWDYN

- We created an EXEC that used TSO/E ALLOCATE instead of BPXWDYN and the logon was successful.
- We were able to use ISPF, submit and review jobs, etc. with OMVS down—just like in olden days.



Beware BPXWDYN

- The following trace was posted on the MVS-OE list during the post-mortem investigation.

```
6 ** address "TSO"
7 ** rc = BPXWDYN("free dd(SYSPROC)")
  >L> "free dd(SYSPROC)"
  >F> "0"
8 ** rc = BPXWDYN("free dd(SYSEXEC)")
  >L> "free dd(SYSEXEC)"
  >F> "70778880"
```

[snip]

```
22 ** /* Allocate SYSUPROC */
23 ** clist = USERID() || ".CLIST"
  >F> "EDJXADM"
  >L> ".CLIST"
  >O> "EDJXADM.CLIST"
24 ** rc = BPXWDYN("alloc dd(SYSPROC) da('clist') shr reuse")
  >L> "alloc dd(SYSPROC) da('"
  >V> "EDJXADM.CLIST"
  >O> "alloc dd(SYSPROC) da('EDJXADM.CLIST"
  >L> "') shr reuse"
  >O> "alloc dd(SYSPROC) da('EDJXADM.CLIST') shr reuse"
```

- You can see the function result code is yet not shown for the “hanging” BPXWDYN call.
 - This partial statement trace capability is nice Rexx behavior!

Beware BPXWDYN - An Explanation and Workaround

- **Bill Schoen (IBM) posted the explanation below.**

[The problem is] REUSE. That key causes BPXWDYN to recursively invoke itself with a FREE. To hide any messages, it specifies MSG with an invalid file descriptor number so the messages go nowhere but causes dubbing. If you explicitly do the FREES and remove the REUSE, you shouldn't have a problem. If the DDs were already allocated, there would be no messages and it doesn't hang when OMVS isn't up.

- **Keep this restriction in mind when using BPXWDYN!**



Goodbye, BookManager. :(

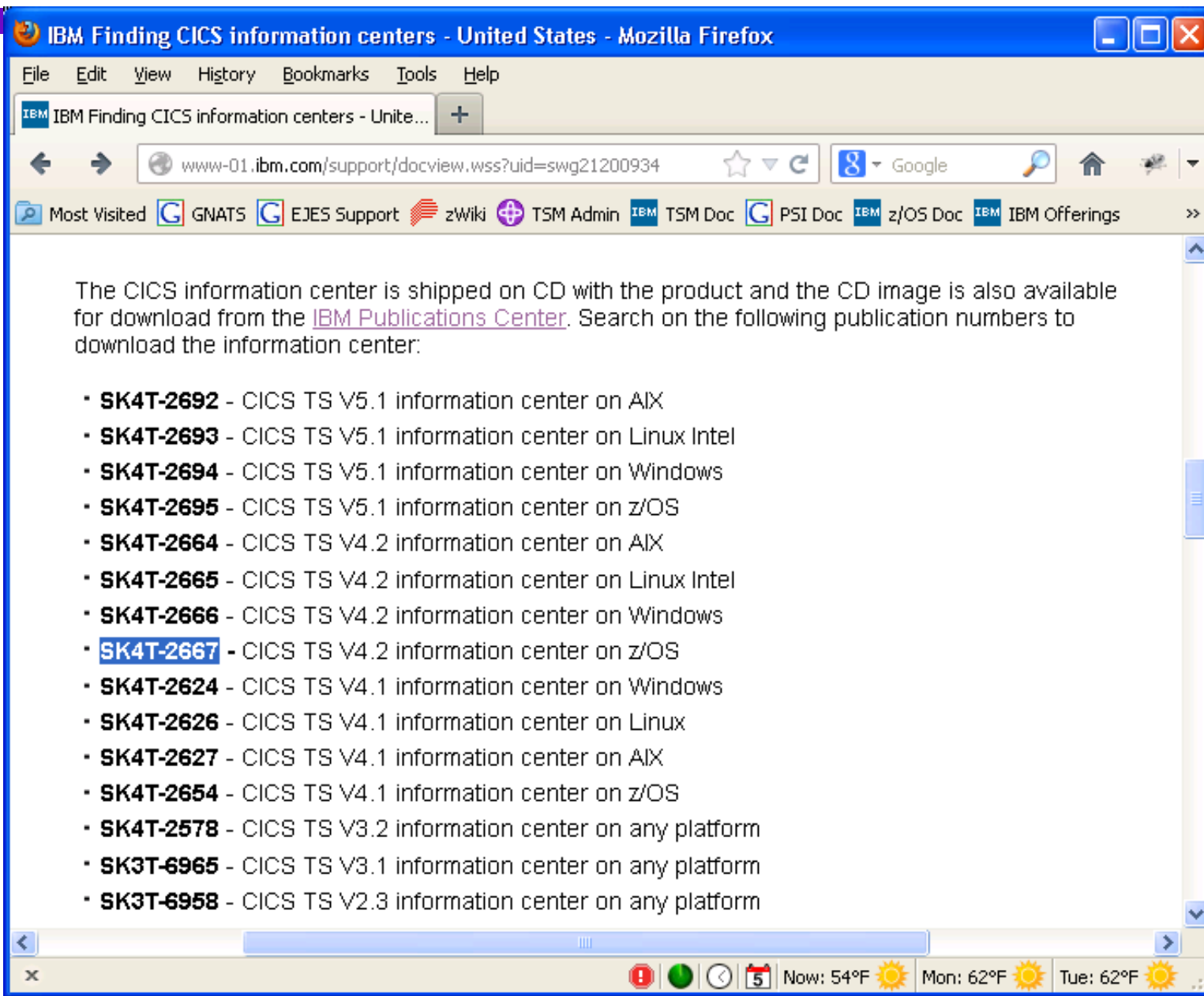
Hello, InfoCenter!

(Ed Jaffe)

Goodbye BookManager, Hello InfoCenter

- IBM is finally discontinuing BookManager books and switching to Information Centers (aka InfoCenters) - a viewing platform based on the Eclipse help system.
- One of the great things about BookManager was the ability to host a book server on z/OS with IBM, ISV and your own books.
 - This was originally done with BookManager Bookserver.
 - Later it "morphed" into the Library Server for z/OS, which supported both BookManager books and Adobe PDF documents.
 - The latest incarnation of Library Server for z/OS can display content from InfoCenters as well.
- IBM has not yet delivered a stand-alone InfoCenter infrastructure, standard with z/OS, that allows you to add IBM, ISV and your own Eclipse help plug-ins.
- So how can you get this functionality?

CICS Delivers Free Information Centers for z/OS



The screenshot shows a Mozilla Firefox browser window titled "IBM Finding CICS information centers - United States". The address bar displays the URL "www-01.ibm.com/support/docview.wss?uid=swg21200934". The page content includes a paragraph and a list of publication numbers for CICS information centers.

The CICS information center is shipped on CD with the product and the CD image is also available for download from the [IBM Publications Center](#). Search on the following publication numbers to download the information center:

- **SK4T-2692** - CICS TS V5.1 information center on AIX
- **SK4T-2693** - CICS TS V5.1 information center on Linux Intel
- **SK4T-2694** - CICS TS V5.1 information center on Windows
- **SK4T-2695** - CICS TS V5.1 information center on z/OS
- **SK4T-2664** - CICS TS V4.2 information center on AIX
- **SK4T-2665** - CICS TS V4.2 information center on Linux Intel
- **SK4T-2666** - CICS TS V4.2 information center on Windows
- **SK4T-2667** - CICS TS V4.2 information center on z/OS
- **SK4T-2624** - CICS TS V4.1 information center on Windows
- **SK4T-2626** - CICS TS V4.1 information center on Linux
- **SK4T-2627** - CICS TS V4.1 information center on AIX
- **SK4T-2654** - CICS TS V4.1 information center on z/OS
- **SK4T-2578** - CICS TS V3.2 information center on any platform
- **SK3T-6965** - CICS TS V3.1 information center on any platform
- **SK3T-6958** - CICS TS V2.3 information center on any platform

CICS Delivers Free Information Centers for z/OS

The screenshot shows a Mozilla Firefox browser window displaying the IBM Publications Center website. The browser's address bar shows the URL `www-05.ibm.com/e-business/linkweb/publications/servlet/pbi.wss`. The website header includes the IBM logo and a navigation menu with options like Home, Solutions, Services, Products, Support & downloads, and My IBM. The main content area is titled "Quick Publications Center search" and features a search form with fields for "Search on", "Publication number" (containing "SK4T-2667"), and "List" (with radio buttons for "All publications", "All orderable publications", and "All online publications (read/download)"). A "Number of results per page" dropdown is set to "10". The browser's status bar at the bottom shows system information including the date (5), time (Now: 54°F), and weather forecasts for Monday (62°F) and Tuesday (62°F).

CICS Delivers Free Information Centers for z/OS

The screenshot shows a Mozilla Firefox browser window with the title "IBM Publications Center - Download Free Documentation or Order". The address bar shows the URL "www-05.ibm.com/e-business/linkweb/publications/". The page content includes a search bar, a "Publication Information" section, and a table of files available for download.

Publication Information

CICS Transaction Server for z/OS V4.2 Information Center (z/OS) (SK4T-2667-02)

Abstract:

The CICS Transaction Server V4.2 Information Center contains all the documentation for this release of CICS. The information center runs in the IBM User Interface Help System built on Eclipse. Updates to the documentation are published regularly on an FTP site, which you can access to download updates.

This information center runs on z/OS V1.11. You can download it for free as a pax file (BINARY file format).

Read/download free of charge:

File Name	File Type	File Format	Date	Size (MB)	Language	Read	Download HTTP	Download Director
K4T26672	EDBIN	BINARY	30-07-2012	0.01	ENU			

Download Director is a signed Java applet that provides enhanced download capabilities and...

Now: 54°F Mon: 62°F Tue: 62°F

Download and Unpax the InfoCenter

- Download the pax.tgz file into a z/OS UNIX directory.
- Unpax the file using a pax -rvf command.
- The output directory will look similar to this:

```
-rwxrwxrwx 1 WEBADM DEV 480 Jan 16 2012 IC_end.sh
-rwxrwxrwx 1 WEBADM DEV 814 Jan 16 2012 IC_start.sh
-rwxrwxrwx 1 WEBADM DEV 45 Sep 16 18:30 IC_start_wrapper.sh
-rwxrwxrwx 1 WEBADM DEV 541 Feb 23 2011 customization_iehs.properties
drwxrwxrwx 7 WEBADM DEV 8192 Jan 12 09:51 eclipse
-rwxrwxrwx 1 WEBADM DEV 22894 Jan 16 2012 readme_zos.html
-rwxrwxrwx 1 WEBADM DEV 23032 Jan 16 2012 readme_zos_es.html
-rwxrwxrwx 1 WEBADM DEV 23022 Jan 16 2012 readme_zos_it.html
-rwxrwxrwx 1 WEBADM DEV 24226 Jan 16 2012 readme_zos_ja.html
-rwxrwxrwx 1 WEBADM DEV 23142 Jan 16 2012 readme_zos_pt_BR.html
-rwxrwxrwx 1 WEBADM DEV 21625 Jan 16 2012 readme_zos_zh_CN.html
-rwxrwxrwx 1 WEBADM DEV 21686 Jan 16 2012 readme_zos_zh_TW.html
```

Start the InfoCenter

- There is more than one way to run the InfoCenter.
- We run ours as a z/OS started task.

```
//INFOCNTR PROC
//JAVA EXEC PGM=BPXBATCH,REGION=256M,MEMLIMIT=1G,TIME=NOLIMIT,
// PARM='SH /local/infocenter/IC_start_wrapper.sh'
//STDOUT DD SYSOUT=*
//STDERR DD SYSOUT=*
//STDIN DD DUMMY
```

- The embedded Apache Tomcat server initializes. The default IP port number is 9999. You can change this value in the properties file if necessary.

Access the InfoCenter from your Browser

The screenshot shows a Mozilla Firefox browser window titled "Help - CICS Information Center". The address bar, which is circled in orange, contains the URL "mvs60.phx:9999/help/index.jsp". The browser's menu bar includes "File", "Edit", "View", "History", "Bookmarks", "Tools", and "Help". Below the address bar, there are search engines (Google) and a "Most Visited" section with links to "GNATS", "EJES Support", "zWiki", "TSM Admin", "TSM Doc", "PSI Doc", "z/OS Doc", and "IBM Offerings".

The main content area of the browser displays the "Software information center" for CICS. It features a search bar with the text "Search:" and a "Go" button. Below the search bar is a "Contents" sidebar with a list of topics, including "CICS Transaction Server for z/OS, Version 4 Release 2", "Information Center home", "CICS Transaction Server for z/OS V3.1", "Discovery Library Adapter for CICS", "CICS Transaction Gateway for Mult", "CICS Transaction Gateway for z/OS", "CICS Service Flow Runtime", "CICS Batch Application Control for", "CICS Configuration Manager for z/OS", "CICS Interdependency Analyzer V3", "CICS Online Transmission Time Opt", "CICS Performance Analyzer V3.2", "CICS VSAM Recovery for z/OS V4.3", "CICS VSAM Transparency for z/OS", "IBM Session Manager for z/OS V3.1", and "REXX for CICS Transaction Server f".

The main content area is titled "CICS Transaction Server for z/OS, Version 4 Release 2". It includes a description: "CICS® Transaction Server is IBM's general purpose transaction processing". Below this, there are two tabs: "Tasks" and "Start here". A graphic of three capsules is shown with the text: "The following topics in the information center w the product." Below this, there is a "What's new" section with the heading "Extensions to event processing".

The browser's status bar at the bottom shows system icons, including a red exclamation mark, a green circle, a clock, and a calendar. The system tray displays the current time as "Now: 40°F" and the weather for "Mon: 62°F" and "Tue: 62°F".

Copy your Plugin(s) into the *plugins* Directory

```
-rwxrwxrwx 1 WEBADM DEV 44624 Jan 16 2012 com.ibm.cics.ts.wmq.support.doc_
-rwxrwxrwx 1 WEBADM DEV 44690483 Jan 16 2012 com.ibm.cics.ts42.home.doc_4.2.
-rwxrwxrwx 1 WEBADM DEV 1403658 Jan 16 2012 com.ibm.cics.vt.doc_2.1.0.jar
drwxrwxrwx 4 WEBADM DEV 8192 Jan 16 2012 com.ibm.help.hs.doc.nl1_3.6.1.v2
drwxrwxrwx 3 WEBADM DEV 8192 Jan 16 2012 com.ibm.help.hs.doc_3.6.1
drwxrwxrwx 4 WEBADM DEV 8192 Jan 16 2012 com.ibm.help.ic.doc.nl1_3.6.1.v2
drwxrwxrwx 3 WEBADM DEV 8192 Jan 16 2012 com.ibm.help.ic.doc_3.6.1
-rwxrwxrwx 1 WEBADM DEV 6451211 Feb 23 2011 com.ibm.icu_4.2.1.v20100412.jar
drwxrwxrwx 3 WEBADM DEV 8192 Jan 16 2012 com.ibm.iehs.content.filter_3.6.
drwxrwxrwx 2 WEBADM DEV 8192 Jan 16 2012 com.ibm.iehs.updater.nl1_3.6.1.v
drwxrwxrwx 4 WEBADM DEV 8192 Jan 16 2012 com.ibm.iehs.updater_3.6.1.v2011
drwxrwxrwx 4 WEBADM DEV 8192 Jan 16 2012 com.ibm.iehs.updater_3.6.1.v2011
-rwxrwxrwx 1 WEBADM DEV 18073 Jan 16 2012 com.ibm.srcf.doc_3.1.0.jar
-rwxrwxrwx 1 WEBADM DEV 18226 Jan 16 2012 com.ibm.sref.doc_3.1.1.jar
drwxr-x--- 6 GILBERT DEV 8192 Jan 11 17:41 com.psi.ejes.doc_5.3.0
-rwxrwxrwx 1 WEBADM DEV 62707 Feb 23 2011 javax.servlet.jsp_2.0.0.v2008060
-rwxrwxrwx 1 WEBADM DEV 118874 Feb 23 2011 javax.servlet_2.5.0.v20091030133
-rwxrwxrwx 1 WEBADM DEV 128692 Feb 23 2011 org.apache.commons.el_1.0.0.v201
-rwxrwxrwx 1 WEBADM DEV 45405 Feb 23 2011 org.apache.commons.logging_1.0.4
-rwxrwxrwx 1 WEBADM DEV 1722552 Feb 23 2011 org.apache.jasper_5.5.17.v201004
-rwxrwxrwx 1 WEBADM DEV 71545 Feb 23 2011 org.apache.lucene.analysis_1.9.1
-rwxrwxrwx 1 WEBADM DEV 445306 Feb 23 2011 org.apache.lucene_1.9.1.v2010051
-rwxrwxrwx 1 WEBADM DEV 97499 Feb 23 2011 org.eclipse.ant.core_3.2.200.v20
-rwxrwxrwx 1 WEBADM DEV 107210 Feb 23 2011 org.eclipse.core.commands_3.6.0.
```

Browse your Documents via the InfoCenter

Help - CICS Information Center - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Help - CICS Information Center

mvs60.phx:9999/help/index.jsp

Most Visited GNATS EJES Support zWiki TSM Admin TSM Doc PSI Doc z/OS Doc IBM Offerings

Software information center

Search: Go Scope: All topics

Contents

- LILS Performance Analyzer V3.2
- CICS VSAM Recovery for z/OS V4.3
- CICS VSAM Transparency for z/OS
- IBM Session Manager for z/OS V3.1
- REXX for CICS Transaction Server f
- (E)JES V5R3**
 - (E)JES Reference
 - (E)JES Installation
 - (E)JES Release Information
 - (E)JES Security
 - (E)JES SECURITY
 - (E)JES Security Overview
 - (E)JES Internal Security
 - SAF Security
 - User Exit Routines
- CICS Deployment Assistant for z/O
- CICS Dynamic Scripting Feature Pa

(E)JES V5R3 > (E)JES Security

User Exit Routines

The (E)JES user exit routines allow installations to tailor certain (E)JES operational characteristics when the default behavior is not adequate for the needs of the installation. The assembler source code for the (E)JES user exit routines is located in the SEJESRC library.

The (E)JES user exit routines are listed in [Table 74](#).

Table 74 - User Exit Routines

Exit Name	Function
EJESUXIT	Vector Table for User Exits
EJESUX00	User Exit Resource Cleanup
EJESUX01	User ID to SXID Translation
EJESUX02	Message Summary Filter
EJESUX03	User Profile Modification

Now: 40°F Mon: 62°F Tue: 62°F

InfoCenter Runs for "Free" if you have System z Specialty Engine(s)

- The Apache Tomcat server is all Java.
- The IBM Eclipse Help System (IEHS) is all Java and runs as an application under Tomcat.
- Java runs on zAAP or zAAP-on-zIIP!





"If you are going through hell, keep going." - Winston Churchill

(Ed Jaffe)

Plagued with Corruption Problems Since June 2009...

- You might recall that I have complained about data set corruption issues on EAV since 2009. All would be well and then suddenly a PDSE would become so unusable that it could not be opened or even deleted by traditional means. (I covered the deletion "trick" in a previous Bit Bucket.)
- Several PMRs were opened with IBM PDSE L2. Dumps were analyzed, PTFs were applied, nothing helped.
- The same problem started happening with extended format sequential data sets on EAV. Same thing: dumps, traces, PTFs, no relief.
- Eventually, we realized that DSS DEFrag was the culprit. Once we stopped defragging our volumes the corruption problems went away.
- We sent many before/after LISTVTOC output and DSS traces to IBM. The process was slow and painful.

Hallelujah! Salvation Arrived in August 2012!

- IBM eventually discovered what the problem was and took APAR OA40210. It was marked HIPER and DATALOSS. (I was secretly rooting for my first Red Alert, but that never happened...)
- The error occurs only for data sets in the EAS that are greater than 21 cylinders in size. (Since the unit of allocation in the EAS is 21 cylinders, that describes most of the data sets residing there!)
- Fast replication for DEFRAG/CONSOLIDATE can be preferred FR(PREF), required FR(REQ), or FR(NONE). The default is FR(PREF) and that is the failing case.
- If preferred, and the extent cannot be moved by fast replication, DSS falls back to traditional data movement via CCWs. But, that channel program moves only the first 21 cylinders of the extent. Yikes!!!
- The workaround is to use FR(REQ) or FR(NONE).

What Does This Tell Me About EAV?

- This error should have been occurring all over the world in shops many orders of magnitude larger than ours. Somebody else should have seen and solved this during the three years we suffered with it!
- From our experience, I have no choice but to conclude that EAV adoption is practically non-existent. We have supported EAV in all of our products since 2008, but apparently nobody cares.
- This conclusion was further reinforced by an experience just last month installing a popular product from a very well-known, very large ISV. The install failed and their support folks were scratching their heads; they had never seen this failure before. It turned out to be because the data sets were located on EAV!





Please Mother, I'd Rather Do It Myself!
(Skip Robinson)

- Auto Reply was introduced in R12
- z/OS function replies to WTORs with canned responses
- Function starts very early in IPL
- Continues for life of system
- Controlled by PARMLIB member AUTORxx
- For each WTOR, you can specify reply text, delay time
- Multiple AUTORxx members can be specified in IEASYSxx
 - AUTOR=(xx,yy),
 - If not specified, z/OS looks for AUTOR00
- An AUTOR00 is supplied in SYS1.IBM.PARMLIB
- IBM recommends that users examine default AUTOR00
- Yeah, well, good advice. Really good. ;-(

- 
- Backstory. We run our own Disaster Recovery via mirrored DASD
 - All volumes continuously mirrored including couple data sets
 - Prep for DR IPL includes creating fresh logger couple data sets
 - In-flight logger CF data is unavailable, need exploiter cold start anyway
 - PARMLIB COUPLEDR edited to point to new couple data sets
 - Early in IPL, XCF finds discrepancy between PARMLIB and 'old' (production) config

- IXC287I THE COUPLE DATA SETS SPECIFIED IN COUPLEDR ARE INCONSISTENT WITH
- THOSE LAST USED FOR LOGR
- IXC288I COUPLE DATA SETS SPECIFIED IN COUPLEDR FOR LOGR ARE 438
- PRIMARY: SYS1.COUPLE.LOGGERDR ON VOLSER PLXZ01
- ALTERNATE: SYS1.COUPLE.LOGGERDR ON VOLSER PLXZ00
- IXC288I COUPLE DATA SETS LAST USED FOR LOGR ARE 439
- PRIMARY: SYS1.COUPLE.LOGGER1 ON VOLSER PLXZ01
- ALTERNATE: SYS1.COUPLE.LOGGER2 ON VOLSER PLXZ00
- *IXC289D REPLY U TO USE THE DATA SETS LAST USED FOR LOGR OR C TO USE THE
- COUPLE DATA SETS SPECIFIED IN COUPLEDR

- 
- Our SOP DR doc instructs operator to reply 'C', i.e. use PARMLIB regardless of old config
 - Each logger exploiter will be cold started (CICS, RRS)
 - Exploiters rebuild logstreams from scratch, life goes on
 - This practice has worked just fine for years
 - In a recent DR test, things went awry in a whole new way
 - Operator running DR procedure got distracted at a key point
 - Systems came up in a peculiar state
 - Reminiscent of old problems long ago solved with new logger CDS
 - After a long struggle, we examined IPL time syslog and found...

- 
- CNZ2602I REPLY TO 00 IS:U ← Auto replied
 - IXC286I COUPLE DATA SET 442
 - SYS1.COUPLE.LOGGER1,
 - VOLSER PLXZ01, HAS BEEN ADDED AS THE PRIMARY
 - FOR LOGR ON SYSTEM Z0
 - IXC286I COUPLE DATA SET 443
 - SYS1.COUPLE.LOGGER2,
 - VOLSER PLXZ00, HAS BEEN ADDED AS THE ALTERNATE
 - FOR LOGR ON SYSTEM Z0

- Auto reply of 'U' was caused by default AUTOR00:
- ```

/*****
IXC289D REPLY U TO USE THE DATA SETS LAST USED
FOR typename OR C */
/* TO USE THE COUPLE DATA SETS SPECIFIED IN
COUPLExx */
/* Rule: 3 */
Msgid(IXC289D) Delay(60S) Reply(U)

```
- After one minute of delay, z/OS replied 'U'
- Logger exploiters tried to slog forward with obsolete log streams
- Many problems/failures on missing in-flight data not yet mirrored
- We finally decided just to start over ;-(((

- Long term solution: override problem default AUTOR00 specifications
- We created our own AUTOR01 which includes...
- ```
/******  
/* IXC289D REPLY U TO USE THE DATA SETS LAST  
USED FOR TYPENAME OR C */  
/* TO USE THE COUPLE DATA SETS  
SPECIFIED IN COUPLEXX */  
MSGID(IXC289D) NOAUTOREPLY /* Req'd for SCE DR  
recovery */
```


- For AUTORxx, installation overrides *precede* original statement
- So in IEASYSxx we added: AUTOR=(01,00),
- We can now tolerate indefinite delay in responding to IXC289D
- BTW we also specify some other replies as well in AUTOR01
- E.g. IFB010D ENTER 'IPL REASON,SUBSYSTEM ID' OR 'U'
- We always reply 'U'
- WTOR comes too early in IPL for System Automation to reply
- We leave IBM's AUTOR00 alone to catch future updates

Acknowledgements Knowing and Unknowing



- Kay Anderson-Haines (GEICO)
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- Chris Mason (IBM-MAIN, in memorial 2013)
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- Geoff Smith, IBM
- Elpida Tzortzatos (IBM)



See You in Boston...