



CICS Nuts Bolts and Gotchas

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DFHRM0401 during Disaster Recovery



- IXGBRWSE request=start returns RC08 RSN00000846 IxgRsnCodeEmptyStream for DASD only logstreams after logstream recovery is attempted using staging datasets.
- This results in message DFHRM0401 from CICS when trying to recover the DFHLOG logstream after a failure or DR exercise.
- Apply PTF for z/OS APAR OA46962
 - UA74157 (z/OS 1.13)
 - UA74158 (z/OS 2.1)



PERFORMANCE DEGRADATION WITH ENTERPRISE COBOL V5 UNDER CICS



- With Enterprise COBOL V5, the Working Storage section of a COBOL program is now included into the Writable Static Area (WSA). When linking several programs together, the size of the WSA can become very large. This may result in very highoverhead during initialization.
- Monitor OPEN COBOL APAR PI45771



AUTORESTTIME=IMMEDIATE SIT PARAMETER MAY NOT ALWAYS SYNCHRONISE THE CICS INTERNAL CLOCK WITH THE MVS CLOCK.



- The intent of the AUTORESTTIME=IMMEDIATE parameter is to sync the CICS internal clock with the MVS clock as soon as a USER task is attached.
- On a *very* quiet system, this may not occur. Or, a system may have conversational tasks 'running' but are suspended.
- When these are re-dispatched, they will not drive DFHAPIN which would check the clocks will drive a resync should one be necessary.
- Monitor OPEN APAR PI39631



CICS TRANSACTION DOSE NOT RESPOND TO FORCEPURGE OR KILL



- A CICS transaction gets hung up after FORCEPURGE or KILL being issued
- CICS Dispatcher shows the task is Running Abterm Yes on it's L8 tcb. The Kernel domain shows the transaction is running, and the stack entries show that the task is under BACKOUT process and the control is in DFHD2D2.
- TCB summary the L8 TCB shows the task has been put into a Wait by DFHD2D2 for abterm_pending_ecb to be posted.
- The task will not come down without recycling the region.
- Monitor OPEN APAR PI40172



EXEC CICS DELAY TIME(000000) DOES NOT DELAY TASK TILL MIDNIGHT



- A CICS application program issues EXEC CICS DELAY TIME(000000).
 - It is expected that this will delay until midnight (subject to the standard rules for expiration times). Instead, control is returned immediately to the application.
- DFHEIIC has been corrected to process EXEC CICS DELAY TIME(000000) commands correctly.
- APAR PI10204
 - R600 UI16723 (R410)
 - R700 UI16724 (R420)
- APAR PI10878
 - R800 UI16725 (R510)



DFHFC6021 - VSAM RLS CODE 08 A9



- DFHFC6021 issued when quiescing a VSAM RLS data set.
- The VSAM RLS quiesce function is issued against a data set. The File Control Quiesce Receive system transaction (CFQR) is driven so that CICS can complete any outstanding work against the data set and close it. CICS then sends a completion notification to SMSVSAM.
- However if the data set has been deleted from the catalog since the quiesce was first requested, VSAM will return an error response of 08A9 to CICS. CICS considers the quiesce to have failed and issues a DFHFC6021 error message.
- DFHFCQI has been modified to accept an error response of A9 as an acceptable response to a quiesce completion notification.
 - APAR PI11959 PTF UI15734 R800
 - APAR PI07019 PTF UI15731 R700



DFHSM0131 CICS IS UNDER STRESS SOS BELOW 16MB

- DFHSM0131 CICS is under stress (short on storage below 16MB) due to a large amount of storage in CDSA subpool KESTK24E.
- Requests such as INQUIRE CONNECTION that invoke module DFHEIQSC requires 24-bit Kernel Stack storage segments, which remain allocated for the duration of the task
- It is possible for CICS to enter an SOS condition due to the number of 4K segments that are allocated in the CDSA KESTK24E subpool.
- Module DFHEIQSC has been changed to use 31-bit Kernel Stack storage.
 - APAR PI11798 PTF UI17959 R800
 - APAR PI20188 PTF UI19928 R900







- You are running with the sample exit DFH\$XTSE and recently upgraded to CICS Transaction Server for z/OS (CICS TS) V5.1. During CICS initialization, you receive DFHSM0102 A storage violation (code X'0D11') has been detected by module DFHSMMF.
- Symptom
 - <u>DFHSM0102</u> A storage violation (code X'<u>0D11'</u>) has been detected by module DFHSMMF.
 - The exception trace entry is: *EXC* Storage_check_failed_on_freemain_request

Cause

DFHEISTG has moved within the storage GETMAINed by DFHEIPA for the sample exit <u>DFH\$XTSE</u>. Sample exit DFH\$XTSE declares a one byte field for RESP, into which 4 bytes are later moved. The last byte moved overlays the trailing check zone.

Diagnosing the problem

• Internal trace shows that the GETMAIN for the storage, that is eventually freed in error, is used by the exit. The first character of the trailing check zone is overlaid.

Looking at the exit program, DFH\$XTSE is defined with: RESP $$\rm DS\ X$$

This creates a 1 byte field for RESP. When assembled, the exit runs instruction: MVC $\mbox{RESP}(4), \mbox{EIBRESP}$

This moves 4 bytes into the one byte field, causing the overlay of the trailing check zone.

Resolving the problem

In your user exit, or sample exit DFH\$XTSE, change the RESP declaration from:

RESP DS X

to: RESP DS F

This will define the RESP field to the correct size.

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INCREASED CPU CONSUMPTION AFTER MIGRATING FROM CICS TS R3.2 WITH EI 1-2 TRACE TURNED ON



- You have just migrated from CICS/TS R3.2 up to R4.2 and have EI1-2 trace turned on. You see an possible increase of CPU consumption up to 33%. When you turn on EI1 or not turn on EI tracing you do not see this increase of CPU consumption.
- Apply CICS PTF
 - R420 UK97124
 - R510 UK97125



MIGRATING TO CICS 4.2 YOU MAY EXPERIENCE CPU INCREASE IF APPLICATIONS ISSUE LARGE GETMAINS SPECIFYING INITIMG(X'00')



- Large CICS GETMAINs with an INITIMG of zeros, consume an increased amount of CPU, when compared with earlier versions of CICS Transaction Server for z/OS.
- The operations performed to initialise storage returned by a CICS GETMAIN with zeros, have been modified to improve performance.
- APPLY CICS PTF
 - R410 UK93832
 - R510 UK93833



INSUFFICIENT STRINGS FOR DFHCSD ACCESS CSACSDCT NOT DECREMENTED



- A CICS task which issues EXEC CICS CREATE and EXEC CICS CSD commands results in the CSACSDCT string counter not decrementing when the task ends.
- When the CSDSTRNO value specified in the SIT is exhausted, EXEC CICS CSD commands will receive:
 - RESP 00000119 CSDERR and RESP2 00000005 indicating insufficent strings.
- APAR PI20232
 - PTF R900 UI20713
- APAR PI17632
 - PTF R800 UI18550
- APAR PI15986
 - PTF R700 UI18547



CICS LOOP IN DFHFCRO WHILE CLOSING AN RLS

- CICS encounters an 0C4 abend while closing a RLS file. After this, the region fails to respond to any commands because transaction CFQR is in a tight loop. The region has to be cancelled
- DFHFCRO has been changed to deallocate the data set after the FC_RLS_ACB_CHAIN has been modified to remove the file
- CICS/TS R420 APAR PI17260 / PTF UI19923
- CICS/TS R510 APAR PI21385 / PTF UI19924
- CICS/TS R520 APAR PI21385 / PTF UI19925



DFHPC0409 ABENDS AZTA AND AZTA HAVE BEEN ISSUED WHILE PROCESSING ABEND AZI3 FOR THE SAME TASK



- You use CEDF in a TOR running a transaction in an AOR. The TOR used a non-zero RTIMEOUT value in single terminal mode
- Exceeding the RTIMEOUT value results in an AZI3 abend in the AOR, and the recovery routine in DFHEDFP is entered. Registers used to address storage are not valid
- When register 2 is used in a subsequent DFHXMIQM macro, the terminal is not removed from the CEDF task, which results in the AZTA abends, which in turn cause the PC0409 abend and the AOR is terminated
- The CEDF session in the TOR shows an abend, but the TOR is not terminated
- CICS/TS R510 APAR PI13165 / PTF UI19019
- CICS/TS R520 APAR PI20398 / PTF UI19968



Autojournal write add and write add complete records may be out of sequence with writes to an RLS ESDS



- On a system with multiple CICS regions, it is possible for CICS tasks to interleave records to the same non-recoverable RLS ESDS file, and the subsequent calls to journal the write-add-complete replication log records.
- Usually, locking occurs to ensure these records are in the correct RBA sequence. However, a codepath exists where a FCT definition of the file has JNLSYNCWRITE=NO specified. As a consequence, log buffers can be flushed out of order causing out of sequence records on the replication log and what is on the VSAM RLS ESDS.
- CICS/TS R510 APAR PI16561 / PTF UI20138
- CICS/TS R520 APAR PI16561 / PTF UI20139



CEMT SET TERMINAL(*) OUTSERVICE causes overlay of storage.



- An attempt to make a change to the attributes of more than 32767 terminals using CEMT SET TERMINAL(*) xxx, where xxx is the attribute being set results in storage overlays.
- This is because a multiply halfword instruction in CEMT code causes a large negative value to be used as an offset into storage and this causes the overlay.
- DFHEMT56 has been changed to limit the number of elements being set for CEMT SET TERMINAL to 32766. If the number of elements is greater than or equal to 32767, a "too many elements" message is displayed and no terminals will be updated by the SET request.
- CICS/TS R420 APAR PI15520 / PTF UI17954
- CICS/TS R510 APAR PI17119 / PTF UI17958
- CICS/TS R520 APAR PI20224 / PTF UI19969



Apply PTF UI15115 if using transient data queues with CICS TS 5.1



- **Abstract:** If you are using CICS Transaction Server for z/OS (CICS TS) V5.1 with transient data (TD) queues, you should apply PTF UI15115. This PTF fixes several serialization problems that can cause abend 0C4 in DFHTDB, LMQUEUE and ENQUEUE deadlocks, DFHDS0002 severe error code 0067 in DFHDSSR, DFHTD0180, DFHTD0382, and DFHTD0384. DFHSR0622 and DFHAP0001 abend 0C4 in DFHZIS2 can also occur.
- **Content:** In CICS TS V5.1, transient data became threadsafe for all users. This introduced various serialization problems that are described in the following CICS TS V5.1 APARs:
- APAR PTF Description:
 - PM98076 PTF UI12013 DFHTD0001 AN ABEND (CODE 0C4/AKEA) DFHTDB TD PURGE PROCESSING NOT LOCKED WHEN RUNNING UNDER L8 TCBS
 - <u>PM98235</u> PTF UI12853 LMQUEUE AND ENQUEUE DEADLOCKS FOR RECOVERABLE TD QUEUE
 - PI08308 PTF UI15115 DFHDS0002 SEVERE ERROR (CODE X'0067') AND DFHTD0180 MESSAGE
 - PI13293 PTF not available DFHSR0622 AN ATTEMPT TO OVERWRITE THE ERDSA AND DFHAP0001 ABEND (CODE 0C4/AKEA) IN DFHZIS2
- The PTFs for the first three APARs fix one module, DFHTDB. Therefore when applying PTF **UI15115**, you will be applying the fixes for these three APARs to CICS TS.



Jobs submitted from Internal Reader run under wrong USERID after upgrading to CICS TS 5.1



- Problem: After upgrading to CICS Transaction Server for z/OS (CICS TS) V5.1, the jobs submitted from the Internal Reader are now running under the wrong userid. Instead of using the userid of the task that wrote the JCL to the internal reader, the job is using the CICS region userid. You are using CA Top Secret Security as the external security manager (ESM).
- **Symptom:** The problem with the jobs being submitted with the userid of the CICS region only occurs when the JCL is submitted to the internal reader through an indirect transient data queue (TDqueue) destination. If the JCL is written to a TD queue that is pointing directly to the DD associated to the Internal Reader, the job is submitted with the correct userid.
- **Cause:** The CA Top Secret IJU parameter should cause a USERID= to be included in the job card when written to the internal reader. However, after migrating to CICS TS V5.1, this functionality is no longer working and no USERID= is being added to the job card. As such, when the JCL is run, the job runs under the CICS region userid.
- **Resolving the problem:** Apply CA fix **TR70790** to resolve this problem.



RPL FEEDBACK WORD 41080040 RECEIVED FROM VSAM WHEN THEY ATTEMPT TO DYNAMICALLY ADD A STRING TO A CICS DEFINED LSRPOOL



- OPENAPI Programs accessing File Control Threadsafe in a CICS region receive RPL feedback word 41080040. This indicates VSAM did not have a PlaceHolder (PLH) control block available for the request. This should not occur in CICS. If there are 10 strings defined for the LSRPOOL CICS will suspend the 11th transaction that would need a string with FCSRSUSP. The reason there were already 10 active strings from the VSAM perspective is because they will use a string during CLOSE processing to issue a internal Write Buffer request. This is a timing issue.
- DFHFCL has been altered to allocate an additional string when an LSRPOOL is built, up to a maximum of 255 strings in total.
- Apply PTF: R510 UI14693



Abend U1800 in DFHKELCA can cause CICS TS 5.1 region to end



- Calling of a GLUE program causes storage overwrite leading to unexpected behaviour
- During the execution of a task an enabled GLUE is linked to. While setting up the GLUE environment the registers are saved into a save area that is too small. This causes storage to be overwritten, dependent on where the overwrite occurs this can cause unpredictable results.
- DFHUEH has been changed to increase the size of the register save area.
- Apply PTF UI15119 for APAR PI10485



CONL transaction shows extremely high CPU in CICS TS region



- You look at performance monitoring data for your CICS Transaction Server for z/OS (CICS TS) regions and notice that one of the regions has an extremely high amount of CPU usage for transaction CONL. This is the long-running CICSPlex SM (CPSM) transaction. You might see high CPU usage for other long running CPSM transactions such as COI0, CONA, and CONL.
- If you have CPSM running, CONL will run on the CICS region from initialization until the region is brought down. If the system initialization parameter (SIT) monitoring frequency parameter MNFREQ is allowed to default, the CICS monitoring data is never reset. Therefore, it appears that the transaction is taking large amounts of CPU. This is true for any long running transaction.
- Set the <u>MNFREQ</u> SIT parameter, instead of allowing it to default to zero.



Performance Hit End of Day Statistics



- Statistics intervals can occur simultaneously across many CICS regions in the same z/OS image, and this can degrade performance. To prevent this, you should vary the statistics interval occurrence time for each CICS region.
- You can use the sample utility program DFH\$STED to vary the end-of-day time of each CICS region it is installed in, and therefore vary the interval occurrence time of these CICS regions.
- The source code for DFH\$STED is supplied in the SDFHSAMP samples library, and the pregenerated version is supplied in SDFHLOAD
- More Information at:

http://publib.boulder.ibm.com/infocenter/cicsts/v3r2/index.jsp?topic=/com.ibm.cics.ts.doc/dfha6/topics/dfha62o.html



Changes to SIT parameters in CICS TS 5.1



- What changes have been made to the CICS Transaction Server for z/OS (CICS TS) V5.1 System Initialization Table (SIT) parameters and what effect will these have on your CICS regions when you upgrade?
- In previous releases, the default values for a number of SIT parameters were such that they needed to be changed immediately after installation in order to run any form of workload. Other parameters are now obsolete since they were typically not being configured correctly leading to performance issues under certain circumstances.
- See the following URL:
 - http://www-01.ibm.com/support/docview.wss?uid=swg21599151





New CICS system initialization option advised to ensure smooth handling of daylight saving time (DST)

- When the z/OS system clock is set back, such as for 1 hour for Daylight Saving Time, you are advised to use this new function to automatically re-synchronize the clock in your CICS regions with the z/OS system clock. Without this, if your CICS Transaction Server for z/OS (CICS TS) regions run applications that do EXEC CICS STARTs or EXEC CICS DELAYs or EXEC CICS POSTs that specify a TIME (rather than an INTERVAL), and that time is calculated from EIBTIME plus some amount of time, then those STARTs and DELAYs and POSTs will expire immediately if the CICS time does not match the z/OS time. This can cause various problems like application loops and excessive SMF data recording that can cause the CICS region to become unresponsive.
- Synchronize the CICS time with the z/OS time immediately whenever you alter the system date or time-of-day in the MVS TOD clock while a CICS region is running. APARs PM61466 (4.2), PM52109 (4.1), and PM52172 (3.2) add a new IMMEDIATE option to the AUTORESETTIME System Initialization Parameter (SIT). If you do not have a process in place to guarantee that a manual CEMT PERFORM RESET or EXECCICS PERFORM RESETTIME command will be done immediately after altering the MVS TOD clock, then apply the PTF for your release of CICS below and set AUTORESETTIME=IMMEDIATE to pick up the new functionality and automatically synchronize the CICS time with the z/OS time:
 - CICS TS 4.2 PTF UK78430 for APAR PM61466
 - CICS TS 4.1 PTF UK77263 for APAR PM52109
 - CICS TS 3.2 PTF UK78322 for APAR PM52172



New CICS TS 4.1 Abend AFDK



• AFDK

- A file control request was made against a NSR file while transaction isolation was active for the task. Using NSR files with transaction isolation active is not supported. The TRANISO system initialization parameter is YES and the transaction definition has ISOLATE set to YES.
- CICS Manuals at all supported releases indicate:
 - VSAM nonshared resources (NSR) are not supported for transactions that use transaction isolation. You should specify ISOLATE(NO) when you define transactions that access VSAM files using NSR.
- NOTE: CICS APAR PM07304 / PTF UK55020 will allow READONLY Files to use NSR and Transaction Isolation.



Customer requirements answered in CICS TS 5.1



- Over 100 customer requirements or requests for enhancements (RFEs) that have been delivered in version 5.1 of IBM CICS Transaction Server for z/OS (CICS TS).
- The following URL lists them all:
 - http://www-01.ibm.com/support/docview.wss?uid=swg27037777
- RFE 24857 Add APPEND option to PUT container command
- 24678 Add Console Journaling for CICS transactions
- 20335 Add SMF 110 monitoring records for CPU consumed by transaction on zIIP and zAAP
- 20243 Add security refresh function to CICS Transaction Server for SSL security
- 20294 Addition of message indicating release of GCD and LCD
- 20236 <u>Allocate CICS commarea storage above the line after XCTL (SHARE requirement SSCICS10002)</u>
- NOTE: 5.2 requirements: http://www-01.ibm.com/support/docview.wss?uid=swg27041548





CICS Technical Exchanges

• CICS Technical Exchanges can be found at the following URL:

http://www-947.ibm.com/support/entry/portal/previous tech exchanges/software/other software/cics transaction server

Sample Titles:

Sizing and Analyzing JVM Memory Usage under CICS TS for z/OS

CPSM API Requests - Hangs and Timeouts

CICS Web services structure and debugging

CICS Storage 102 - Debugging CICS Short on Storage Conditions

Understanding Urimaps, Pipelines, and Webservices for CICS





Detailed System Requirements for CICS Transaction Server

- Detailed System Requirements (DSR) contain the supported operating system requirements, hardware requirements, software requirements, and other related information for a product.
- From this document you can select DSR for CICS Transaction Server (CICS TS) for:
 - V5.2
 - V5.1
 - V4.2
 - V4.1
 - V3.2
 - V3.1
 - CICS TS for VSE/ESA V1.1.1
- Website: http://www.ibm.com/support/docview.wss?uid=swg27006382



Finding Knowledge Centers



- How do you find CICS product documentation for CICS Transaction Server for z/OS (CICS TS) and the CICS tools?
- The best place to find CICS product documentation is to use the CICS TS Knowledge centers. Documentation for most of the CICS Tools is also included in the CICS TS Knowledge Centers.
- Here is a link to the Knowledge Center and also how to view all the CICS manuals in pdf:
 - http://www.ibm.com/support/docview.wss?uid=swg21200934







- Fix list documents summarize all of the APARs and PTFs for a particular product Version
- Fixes by version document 7008833 contains a link to the available Fix list documents
- Direct URL:
 - http://www.ibm.com/support/docview.wss?uid=swg27008833







 CICS Document 1231874 has a listing of all PSP buckets for CICS Transaction Server and all CICS Tools

• Direct URL:

- http://www.ibm.com/support/docview.wss?uid=swg21231874



New Function APARs



- Flashes for all CICS New Function (NF) APARs are posted to CICS Support page and included in MySupport email
- CICS item 1238275 has a listing of links to all New Function APARs for CICS Transaction Server and all CICS Tools
- Direct URL:
 - http://www.ibm.com/support/docview.wss?uid=swg21238275



Announcement Letters for CICS



- CICS item 1227090 contains links to all Announcement letters for CICS Transaction Server and all CICS Tools
- Can be linked to from Announcement Letters on the CICS Support page
- Direct URL:
 - http://www.ibm.com/support/docview.wss?uid=swg21227090





IBM Software Support Lifecycle

You want to know when the end of service is for any IBM Software release.

You can find the End of Service dates by navigating to the following URL:

http://www.ibm.com/software/support/lifecycle/index_c.html

Product name	Release	General availability	End of Support
CICS Transaction Server for z/	<u>OS</u> 5.2. OS 5.1.	<u>13 Jun 2014</u> 14 Dec 2012	
CICS Transaction Server for z/	<u>OS</u> 4.2.	24 Jun 2011	<u>30 Sep 2018</u>
CICS Transaction Server for z/ CICS Transaction Server for z/	<u>OS</u> 4.1. <u>OS</u> 3.2.	<u>26 Jun 2009</u> 29 Jun 2007	<u>30 Sep 2017</u> 31 Dec 2015





Ordering CICS products and maintenance

- You would like to order a CICS[®] product or maintenance. You want to know what options are available for ordering the product, individual PTFs, and cumulative maintenance for CICS or any of the CICS tools
- See the following document for all product or maintenance ordering concerns

http://www.ibm.com/support/docview.wss?uid=swg21049360



Must Gather Documentation



MustGather documents aid in problem determination and save time resolving problem management records (PMRs). These documents are located on the CICS® Web site and contain instructions about what documentation to gather for specific problems.

Collecting MustGather data early, even before opening a PMR, helps IBM® Support quickly determine if:

- 1. Symptoms match known problems (rediscovery).
- 2. There is a non-defect problem that can be identified and resolved.
- 3. There is a defect that identifies a workaround to reduce severity.
- 4. Locating root cause can speed development of a code fix.

You can find the MustGather – Read first document on the CICS Home Page or go directly to:

http://www.ibm.com/support/docview.wss?uid=swg21208053







- CICS DCF item 1182322 will dynamically show all PE and HIPER maintenance for all supported releases of CICS and CPSM
- You can find this item by going directly to:
 - http://www.ibm.com/support/docview.wss?uid=swg21182322



Upgrading information for CICS when changing release of CICS, z/OS, or DB2



- CICS Document 1207399 may be used to see if there are Upgrade Issues with CICS and CPSM.
- You can find this item by going directly to:
 - http://www.ibm.com/support/docview.wss?uid=swg21207399





Mapping CICS releases from APARs and PTFs to CICS external versions

- How do you map the release numbers that IBM uses for CICS APARs and PTFs to the corresponding external versions of CICS? For example, how would you know that release 670 corresponds to CICS Transaction Server for z/OS (CICS TS) V4.2?
- Reference item:

http://www-01.ibm.com/support/docview.wss?uid=swg21509464



Request for Enhancements (RFEs)



- Submit new RFEs
 - Go to https://www.ibm.com/developerworks/rfe/
 - Click on "Submit" tab
 - Sign in using your IBM id
 - Fill out form
 - Click "Submit"
- Vote up existing CICS RFEs
 - Go to https://www.ibm.com/developerworks/rfe/?PROD ID=440
 - Sign in using your IBM id
 - Select an RFE that you would like to see
 - Scroll to the bottom
 - Click "Vote"

Related Blog: How to let the team know what you want in CICS - use RFE !



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 - Answer questions that others post
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 - Like questions and answers that others post
 - Earn 20 points for each accepted answer
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Additional Product Resources



- Engage with the community, share expertise & get answers on dW Answers <u>https://developer.ibm.com/answers/index.html</u>
- Follow IBM_CICS support on Twitter to see the latest updates! <u>http://www.ibm.com/support/docview.wss?uid=swg21384915</u>
- Find CICS documentation in the IBM Knowledge Center <u>https://developer.ibm.com/answers/questions/170485/finding-cics-product-documentation-in-ibm-knowledg.html</u>
- Find software & hardware requirements in CICS Detailed System Requirements <u>http://www.ibm.com/support/docview.wss?uid=swg27006382</u>
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