IBM eServer™

Systems Management: z/OS® Health checker support

ebusiness on demand software

Background information

What is Health Checker?

- IBM Health Checker for z/OS is a component of MVS™. It consists of:
  - The framework - The interface that allows you to run and manage checks
  - The individual checks - specific settings or values checked for potential problems
    - Individual checks are owned by a component or element
- It identifies potential problems before they impact availability or cause outages.
  - Configuration is complicated:
    - Many outages or performance bottlenecks are caused by configuration problems
    - Sometimes, default values are best guesses
    - Best practices may not become known until exposure in many environments
- It checks the current active z/OS and sysplex settings and definitions for a system and compares the values to those suggested by IBM or defined by you.
- IBM Health Checker for z/OS produces output in the form of detailed messages to let you know of both potential problems and suggested actions to take.
  - Can be viewed via: SDSF, HZSPRINT utility, or log stream
  - Exceptions produce WTO messages
  - Use the information in the check message to resolve possible configuration problems

Setting up Health Checker

- **To setup Health Checker to run, you must:**
  - Allocate the HZSPDATA data set to save check data between restarts
  - Set up the HZSPRINT utility
  - Define log streams
    - If you want to maintain an historical record of your check output
  - Create security definitions
    - Give the Health Checker proc update access to the HZSPDATA data set
    - Give the Health Checker proc read access to the HZSPRMxx parmlib members
    - Give the Health Checker proc read access to each Health Checker logstream
    - Authorize HZSPRINT users to QUERY and MESSAGES services
    - Authorize SDSF support for Health Checker message output
  - Create multilevel security definitions, if necessary
  - Create HZSPRMxx from the HZSPRM00 parmlib member
    - If you want to make permanent changes to check values & parameters
    - If you want to deactivate a check
  - Start the IBM Health Checker for z/OS proc
- **Step-by-Step details for setting up Health Checker can be found in**
  - IBM Health Checker for z/OS User's Guide

Add CS checks to Health Checker - TCP/IP

- **TCP/IP will use Health Checker to perform 2 checks for V1R8**
  - Checks are defined when a TCP/IP stack is started. Checks are deleted when a TCP/IP stack is stopped.
  - Check names for TCP/IP are suffixed by the TCP/IP stack name
  - Check name: CSTCP_TCPMAXRCVBUFRSIZE_tcpipstackname
    - Checks that TCPMAXRCVBUFRSIZE is specified large enough to accommodate FTP use
  - Check name: CSTCP_SYSTCPIP_CTRACE_tcpipstackname
    - Checks that the TCP stack is not running with more than the default options for the TCP/IP Event Trace (SYSTCPIP)

Add CS checks to Health Checker – VTAM®

- **VTAM will use Health Checker to perform 1 check for V1R8**
  - Check is defined when VTAM is started. Check is deleted when VTAM is stopped.
  - Check name: CSVTAM_CSM_STG_LIMIT
    - Checks that the CSM FIXED and ECSA maximums defined in IVTPRM00 are sufficient to prevent CSM resource shortages

Notes about IBMCS checks

NOTES

- CSTCP_TCPMAXRCVBUFRSIZE_*tcpipstackname*
  - The TCPMAXRCVBUFRSIZE parameter on the TCPCONFIG statement in the TCP/IP profile determines the maximum value an application can set as its receive buffer size using SETSOCKOPT(). The minimum acceptable value is the value coded on TCPRCVBUFRSIZE, the maximum is 512K, and the default is 256K. Some applications, such as FTP, require a TCPMAXRCVBUFRSIZE of at least 180K.
  - This check will compare the value specified on the TCPCONFIG statement with the check value defined for this check (the default value is 180K). If the value specified is less than the check value, an exception message will be issued, suggesting that the value be set to at least the check value.
  - This check will be performed once at stack initialization, and again if the value of the TCPMAXRCVBUFRSIZE parameter is changed with a Vary Obeyfile.
- CSTCP_SYSTCPIP_CTRACE_*tcpipstackname*
  - After collecting diagnosis information for a problem, sometimes the TCP/IP Event Trace is left running with options beyond the default options (MINIMUM, INIT, OPCMDS, or OPMSGS). This can lead to performance degradation on the affected system.
  - This check will determine if the TCP/IP Event Trace (SYSTCPIP) is running with more than the default options. If so, an exception message will be issued suggesting that additional trace options beyond the default be turned off.
  - This check will be performed once at stack initialization and then will be repeated once every 24 hours.
- CSVTAM_CSM_STG_LIMIT
  - The maximum values for CSM FIXED and ECSA storage defined in the IVTPRM00 parmlib member can impact storage resource availability.
  - This check will compare the values specified for the maximum FIXED and ECSA storage specified in the IVTPRM00 member with the check values defined for this check (the default values are 100M for both FIXED and ECSA). If the value specified is less than the check value, an exception message will be issued, suggesting an algorithm to determine the correct values for CSM FIXED and ECSA maximums.
  - This check will be performed once at VTAM initialization.

CS Check characteristics

- **CSTCP_TCPMAXRCVBUFRSIZE_tcpipstackname**
  - Check Owner: IBMCS
  - Severity: LOW
  - Interval: ONETIME
  - Parameters: 'MAXRCVBUFRSIZE(180K)'
- **CSTCP_SYSTCPIP_CTRACE_tcpipstackname**
  - Check Owner: IBMCS
  - Severity: LOW
  - Interval: 24 Hours
  - Parameters: None
- **CSVTAM_CSM_STG_LIMIT**
  - Check Owner: IBMCS
  - Severity: LOW
  - Interval: ONETIME
  - Parameters: 'MAXECSA(100M),MAXFIX(100M)'
- **Many check characteristics may be changed by you**

Notes about Check characteristics

NOTES

- Check Owner: The name of the z/OS component that owns the check. Check Owner plus Check Name uniquely identify a check. For z/OS Communication Server checks, the Check Owner will be IBMCS.
- Severity: Indicates the severity level of the check. Health Checker allows 3 levels of severity:
  - LOW - When a low-severity check detects an exception, an informational WTO is issued.
  - MED - When a medium-severity check detects an exception, an eventual action WTO is issued.
  - HI - When a high-severity check detects an exception, a critical eventual action WTO is issued.
- Interval: Indicates the frequency of the check. ONETIME indicates the check will run once and will not be rescheduled. Otherwise, a time interval in hours and minutes may be specified.
- Parameters: A check may have one or more parameters specifying values that are used in the check.
- Many of the check characteristics (Severity, Interval, Parameter values) may be changed by you
  - Dynamic, temporary changes may be made either using the SDSF CK command or through the MODIFY *hzsproc* command.
  - Persistent changes may be made through entries in the HZSPRMxx parmlib member.
  - See *IBM Health Checker for z/OS User's Guide* for details on modifying check characteristics

Check output

- **Output from checks is in the form of messages. They are either:**
  - Exception messages issued when a check detects a potential problem or a deviation from a suggested setting.
    - The complete message description (including System Action, Operator Response, etc) is written to the message buffer.
    - The message text is written to the console.
  - Information messages issued to the message buffer to indicate either:
    - a clean check run (no exceptions found)
    - a check is inappropriate in the current environment and will not run.
  - Reports issued to the message buffer
    - as supplementary information for an exception message.

- **Complete output messages in the message buffer can be viewed using:**
  - HZSPRINT utility
  - SDSF CK command
  - A log stream

- **You may need to set up authorization through your Security Access Facility (for example, RACF®) to view the Health Checker message output. See IBM Health Checker for z/OS User's Guide for a complete description of how to display check output messages**

Display Health Checker checks

- Display a summary of Health Checker checks

```
F HEALTHCK,DISPLAY,CHECKS
HZS0200I 15.52.12 CHECK SUMMARY
CHECK OWNER      CHECK NAME                          STATE STATUS
IBMCS            CSTCP_TCPMAXRCVBUFRSIZE_TCPCS2       AE   SUCCESSFUL
IBMCS            CSTCP_SYSTCPIP_CTRACE_TCPCS2         AE   EXCEPTION-LOW
IBMCS            CSTCP_TCPMAXRCVBUFRSIZE_TCPCS1       AE   SUCCESSFUL
IBMCS            CSTCP_SYSTCPIP_CTRACE_TCPCS1         AE   EXCEPTION-LOW
IBMCS            CSVTAM_CSM_STG_LIMIT                 AE   EXCEPTION-LOW
IBMUSS           USS_MAXSOCKETS_MAXFILEPROC           AD   UNEXP ERROR
IBMUSS           USS_AUTOMOUNT_DELAY                  AD   ENV N/A
IBMUSS           USS_FILESYS_CONFIG                   AE   EXCEPTION-MED
IBMRACF          RACF_SENSITIVE_RESOURCES             AE   EXCEPTION-HIGH
IBMRACF          RACF_GRS_RNL                         AD   ENV N/A
IBMCNZ           CNZ_SYSCONS_PD_MODE                  AE   SUCCESSFUL
IBMCNZ           CNZ_EMCS_INACTIVE_CONSOLES           AEG  SUCCESSFUL
IBMCNZ           CNZ_SYSCONS_ROUTCODE                 AE   EXCEPTION-LOW
IBMCNZ           CNZ_SYSCONS_MSCOPE                   AD   ENV N/A
IBMCNZ           CNZ_EMCS_HARDCOPY_MSCOPE             AD   ENV N/A
```

What do I do about exception messages?

- **Exception messages from Health Checker are an indication of a potential availability or performance problem**
- **Just because you get an exception, it does not mean that there is a problem to report to IBM**
- **You need to look over the exception message and decide whether the suggested change is appropriate for your system. Either**
  - Implement the suggested change
  - Change the parameters of the check
  - Inactivate the check
  - Delete the check
- **No automatic correction of exceptions is done by IBM Health Checker for z/OS**

Things to think about

- When you start Health Checker for the first time on a system that has been running fine for a long time, you may be surprised at seeing a number of Health Checker exception messages.
- Remember, these exception messages are just suggestions meant to help you improve the performance and availability of your system. The checks reflect generally accepted recommendations.
- It is worthwhile to evaluate each exception message and decide what is appropriate for your system.

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IBM MVS Notes RACF VTAM z/OS

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