Exploring VTAM's Performance Parameters

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Whether a seasoned VTAM Systems Programmer for decades, or a newbie to the mainframe world of Communications Server, this session will provide powerful information to take home to your shop. Basic knowledge of VTAM is all that is required in order to benefit from the gems that will be revealed to you. Performance improvement is not limited to storage and response time: you can expect those areas to be covered. Performance improvement can come from many corners, and most of the information you will glean from this session is unlikely to have been considered. Have your eyes opened and learn some new ways, including some old ways, to tune good ol' VTAM.
If your system is running fine I think your interest lies elsewhere than making slight improvements to VTAM.

But .......
Where? What?

Where and what are VTAM's performance parameters.

VTAM has a several parameters which effect the performance of the application, the network or the even the system. These parameters are set in the application major node, switched major node or by the startoptions in ATCSTRxx.
EAS Definition Application Major Node

EAS = 509

If your EAS value is specified as lower than the number of sessions that you actually have, sessions would still be established as usual. However, the efficiency of searching for the session representation could be impaired if a smaller table was allocated due to the lower EAS value.

DIS CICS2,O
DISPLAY NET,ID=CICS2,SCOPE=ONLY

IST097I DISPLAY ACCEPTED
IST075I NAME = NETA.CICS2, TYPE = APPL
IST486I STATUS= ACT/S , DESIRED STATE= ACTIV

......

IST1634I DATA SPACE USAGE: CURRENT = 0 MAXIMUM = 256
IST171I ACTIVE SESSIONS = 0000011682 , SESSION REQUESTS = 0000000001
IST314I END
EAS Definition Application Major Node

Application EAS ...

If an application is planned to have more than 509 sessions, then this number should be increased accordingly. High paging rates are seen if this value is set to small!

Accurate coding of the EAS value for your applications can save storage in your system. For example, if you estimate that there will be less than 30 sessions with this application, but you let the EAS value default to 509, then an extra 4K table will be allocated from common storage. The size of the table is based on the EAS value that you code and is determined as follows:

<table>
<thead>
<tr>
<th>Table size</th>
<th>EAS value</th>
</tr>
</thead>
<tbody>
<tr>
<td>4K</td>
<td>30 - 4000</td>
</tr>
<tr>
<td>8K</td>
<td>4001 - 8000</td>
</tr>
<tr>
<td>16K</td>
<td>8001 - 16000</td>
</tr>
<tr>
<td>32K</td>
<td>16001 - 32000</td>
</tr>
<tr>
<td>64K</td>
<td>32001 - 48000</td>
</tr>
<tr>
<td>128K</td>
<td>48001 - 56000</td>
</tr>
<tr>
<td>256K</td>
<td>56001 - 64000</td>
</tr>
<tr>
<td>512K</td>
<td>greater than 64000</td>
</tr>
</tbody>
</table>

If your EAS value is specified as lower than the number of sessions that you actually have, sessions would still be established as usual. However, the efficiency of searching for the session representation could be impaired if a smaller table was allocated due to the lower EAS value.
EAS Definition Application Major Node

APPLNODE VBUILD TYPE=APPL
CICS2 APPL AUTH=ACQ, PERMIT APPLICATION TO ACQUIRE LUS
EAS=509, CONCURRENT APPLICATION SESSIONS

SNA Network Implementation: For a non-TSO application program, you should specify an EAS value that equals the average number of sessions, but does not exceed 32767.

SNA Resource Definition Reference: gives a range from 0 to 65535.

I recommend using value from the Resource Definition Reference.
IBMTGPS and XCF

*  

XCF TGP COSTTIME=0,COSTBYTE=1, SECURITY=SECURE,PDELAY=NEGLIGIB, CAPACITY=25M

*
APPN Logmodes and Class of Service

Choosing the correct APPNCOS/subarea COS can affect the performance of VTAM

There are two ways to resolve COS Names

LOGMODE Table Method

COS Mapping Table Method

For a more detailed description see

Session 3222 SHARE in Denver Summer 2009
Johnathan Harter: APPN LOGMODEs and Class of Services
Slow responsetime

D NET,ID=CNR000BA,HPRDIAG=YES
IST075I NAME = CNR01D1E , TYPE = PU_T2.1
....
IST875I APPNCOS TOWARDS RTP = #INTER
....
IST1477I ALLOWED DATA FLOW RATE = 25 KBITS/SEC
IST1516I INITIAL DATA FLOW RATE = 12 KBITS/SEC
IST1841I ACTUAL DATA FLOW RATE = 117 KBITS/SEC <= half of the line speed
IST1511I MAXIMUM NETWORK LAYER PACKET SIZE = 1469 BYTES
...

D NET,ID=CNR00091, HPRDIAG=YES
IST075I NAME = CNR00091 , TYPE = PU_T2.1
....
IST875I APPNCOS TOWARDS RTP = #CONNECT
....
IST1477I ALLOWED DATA FLOW RATE = 5000 BITS/SEC
IST1516I INITIAL DATA FLOW RATE = 12 KBITS/SEC
IST1841I ACTUAL DATA FLOW RATE = 0 KBITS/SEC <= #CONNECT has not enough throughput
Slow responsetime because of a new connection

Remember if LOGMODE is not recognized the APPNCOS comes from the first entry of ISTINCLM

D NET,SESSION,SID=E2633551AE1B4417

IST350I DISPLAY TYPE = SESSIONS
IST879I PLU/OLU REAL = GBIBMFR.FR0ZNF12 ALIAS = DEXYZ00.FR0ZNF12
IST879I SLU/DLU REAL = DEXYZ000.NVFTS1 ALIAS = GBIBMFR.NVFTS1
IST880I SETUP STATUS = ACTIV
IST875I ADJSSCP TOWARDS PLU = ISTAPNCP
IST875I ADJSSCP TOWARDS SLU = ISTAPNCP
IST875I ALSNAME TOWARDS PLU = CNR01D1E
IST875I ALSNAME TOWARDS SLU = CNR00587
IST933I LOGMODE=*BLANK* , COS=*BLANK*
IST1438I LOGMODE *BLANK* UNKNOWN IN THIS DOMAIN, DEFAULT IS ISTCOSDF
IST875I APPNCOS TOWARDS PLU = #INTER
IST875I APPNCOS TOWARDS SLU = #INTER

IST314I END
Slow responsetime solution

When a logmode is available either from the application or from a predefined CDRSC the APPNCOS will taken from the logmode

D NET,SESSION,SID=CA13EF2AE1238BF7
IST097I  DISPLAY  ACCEPTED
IST350I  DISPLAY  TYPE = SESSIONS
IST879I  PLU/OLU REAL = GBIBMFR.FR0ZNF12 ALIAS = DEXYZ00.FR0ZNF12
IST879I  SLU/DLU REAL = DEXYZ000.NVFTS1 ALIAS = GBIBMFR.NVFTS1
IST875I  ALSNAME TOWARDS PLU = CNR01B8A
IST875I  ALSNAME TOWARDS SLU = CNR01A7E
IST933I  LOGMODE=FTPBIND , COS=BATCH
IST875I  APPNCOS TOWARDS PLU = #BATCH
IST875I  APPNCOS TOWARDS SLU = #BATCH
.....
IST314I  END
Slow responsetime because of a new connection

Check with D NET,ID=CNR03F57,HPRDIAG=YES the status of CPSVCMG pipe

IST075I NAME = CNR03F57 , TYPE = PU_T2.1
IST1392I DISCNTIM = 00010 DEFINED AT PU FOR DISCONNECT ....
IST1477I ALLOWED DATA FLOW RATE = 128 KBITS/SEC
IST1516I INITIAL DATA FLOW RATE = 2600 BITS/SEC
IST1841I ACTUAL DATA FLOW RATE = 2 KBITS/SEC
IST1511I MAXIMUM NETWORK LAYER PACKET SIZE = 1461 BYTES
IST1478I NUMBER OF UNACKNOWLEDGED BUFFERS = 0
IST1479I RTP CONNECTION STATE = CONNECTED - MNPS = NO
IST1855I NUMBER OF SESSIONS USING RTP = 2

IST1860I NUMBER OF NLPS SENT = 201117 - OVERFLOW = 0
IST1861I NUMBER OF NLPS RECEIVED = 247887 - OVERFLOW = 0
IST1842I NUMBER OF NLPS RETRANSMITTED = 64
IST1843I NUMBER OF NLPS ON WAITING-TO-SEND QUEUE = 0
IST1847I NUMBER OF NLPS ON WAITING-FOR-ACKNOWLEDGEMENT QUEUE = 0
IST1862I ARB MAXIMUM SEND RATE = 52 KBITS/SEC
IST1844I ARB MODE = GREEN
IST1846I CURRENT RECEIVER THRESHOLD = 1166118 MICROSECONDS
IST1846I MAXIMUM RECEIVER THRESHOLD = 1320000 MICROSECONDS
IST1846I MINIMUM RECEIVER THRESHOLD = 585000 MICROSECONDS
IST1848I SEND BYTE COUNT = 14259879 RECEIVE BYTE COUNT = 33126613
IST1849I LARGEST NLP SENT = 597 BYTES
IST1850I LARGEST NLP RECEIVED = 584 BYTES
IST1851I SMOOTHED ROUND TRIP TIME = 28 MILLISECONDS

IST1857I BACKPRESSURE REASON COUNTS:
IST1858I PATHSWITCH SEND QUEUE MAX STORAGE FAILURE
IST1859I 6 0 0

Both EE partner need to have the same definitions. Having not the right CAPACITY set results in reduced initial throughput and excessive pathswitches.

TGP/CAPACITY is not set with the correct parameters this is the default of 56k

Angela Schmitz, AS Communication Consultant Services
Slow responsetime because of a new connection

Not having the right CAPACITY setting results in reduced initial throughput and excessive path switches.

The characteristics of an EE line is defined by the TGP parameter defined in the member IBMTGPS. To resolve different line speed by otherwise the same characteristics set the CAPACITY parameter with the correct line speed.

The setup of an RTP pipe starts with 1 fifth of the actual speed without the parameter set
The default is 56 kb
Start options define and affect VTAM's characteristics, behavior and performance

- D NET,VTAMOPTS,FORMAT=COMPLETE
- D NET,BFRUSE,BUFFER=SHORT
### D NET,BFRUSE,BUFFER=SHORT

<table>
<thead>
<tr>
<th>IST350I</th>
<th>DISPLAY TYPE = BUFFER POOL DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>IST632I</td>
<td>BUFF</td>
</tr>
<tr>
<td>IST633I</td>
<td>ID</td>
</tr>
<tr>
<td>IST356I</td>
<td>IO00</td>
</tr>
<tr>
<td>IST356I</td>
<td>BS00</td>
</tr>
<tr>
<td>IST356I</td>
<td>LP00</td>
</tr>
<tr>
<td>IST356I</td>
<td>XD00</td>
</tr>
<tr>
<td>IST356I</td>
<td>LF00</td>
</tr>
<tr>
<td>IST356I</td>
<td>CRPL</td>
</tr>
<tr>
<td>IST356I</td>
<td>SF00</td>
</tr>
<tr>
<td>IST356I</td>
<td>SP00</td>
</tr>
<tr>
<td>IST356I</td>
<td>AP00</td>
</tr>
<tr>
<td>IST356I</td>
<td>TI00</td>
</tr>
<tr>
<td>IST356I</td>
<td>T100</td>
</tr>
<tr>
<td>IST356I</td>
<td>T200</td>
</tr>
<tr>
<td>IST356I</td>
<td>CRA4</td>
</tr>
<tr>
<td>IST356I</td>
<td>CRA8</td>
</tr>
</tbody>
</table>
Startoptions: Buffer Pools

Buffer expansions is a performance issue

In a subarea environment the critical buffers are: IOBUF and BSBUF

<table>
<thead>
<tr>
<th>Buffer</th>
<th>Value1</th>
<th>Value2</th>
<th>Value3</th>
<th>Value4</th>
<th>Value5</th>
<th>Value6</th>
<th>Value7</th>
<th>Value8</th>
<th>Value9</th>
</tr>
</thead>
<tbody>
<tr>
<td>IO00</td>
<td>999</td>
<td>12000</td>
<td>11935</td>
<td>12000</td>
<td>214</td>
<td>0</td>
<td>32/-----</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>BS00</td>
<td>260</td>
<td>6006</td>
<td>5926</td>
<td>6006</td>
<td>103</td>
<td>0</td>
<td>1/-----</td>
<td>42</td>
<td></td>
</tr>
</tbody>
</table>

TN3270 and IP printing application do use another pair of buffers which should be watched: LFBUF and CRPL (range 1-32767)

<table>
<thead>
<tr>
<th>Buffer</th>
<th>Value1</th>
<th>Value2</th>
<th>Value3</th>
<th>Value4</th>
<th>Value5</th>
<th>Value6</th>
<th>Value7</th>
<th>Value8</th>
<th>Value9</th>
</tr>
</thead>
<tbody>
<tr>
<td>LF00</td>
<td>120</td>
<td>32790</td>
<td>496</td>
<td>32790</td>
<td>32367</td>
<td>0</td>
<td>1/-----</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>CRPL</td>
<td>144</td>
<td>15000</td>
<td>9498</td>
<td>15000</td>
<td>5964</td>
<td>0</td>
<td>20/------</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

IBM-supplied values are appropriate for system which do not use TN3270!
Startoptions: Buffer Pools

APPPN/HPR/EE the following should be increased the default is much to low: T100, T100 and T200

<table>
<thead>
<tr>
<th></th>
<th>T100</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>IST356I</td>
<td>632</td>
<td>2004</td>
<td>1976</td>
<td>2004</td>
<td>424</td>
<td>0</td>
<td>1/-</td>
<td>30</td>
</tr>
<tr>
<td>IST356I</td>
<td>1004</td>
<td>48</td>
<td>48</td>
<td>48</td>
<td>18</td>
<td>0</td>
<td>1/-</td>
<td>32</td>
</tr>
<tr>
<td>IST356I</td>
<td>2028</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>24</td>
<td>0</td>
<td>7/-</td>
<td>32</td>
</tr>
</tbody>
</table>

Fixed IBM-supplied values are appropriate for most systems. The default value for this pool is set at a conservative value in case the functions that use this pool are not used. If using the functions that utilize this pool, use the DISPLAY net,BFRUSE command to monitor usage and then set the BASENO for the pool at the normal high period usage.
### Exploring VTAM's Performance Parameters

<table>
<thead>
<tr>
<th>IST1309I</th>
<th>START OPTION</th>
<th>CURRENT VALUE</th>
<th>ORIGINAL VALUE</th>
<th>ORIGIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>IST1310I</td>
<td>AFFDELAY</td>
<td>0</td>
<td>0</td>
<td>ATCSTR00</td>
</tr>
<tr>
<td>IST1310I</td>
<td>APPNCOS</td>
<td>#CONNECT</td>
<td>#CONNECT</td>
<td>ATCSTR00</td>
</tr>
<tr>
<td>IST1310I</td>
<td>ASIRFMSG</td>
<td>OLUSSCP</td>
<td>OLUSSCP</td>
<td>DEFAULT</td>
</tr>
<tr>
<td>IST1310I</td>
<td>BN</td>
<td>YES</td>
<td>YES</td>
<td>ATCSTR00</td>
</tr>
<tr>
<td>IST1310I</td>
<td>BNORD</td>
<td>DEFINED</td>
<td>DEFINED</td>
<td>ATCSTR00</td>
</tr>
<tr>
<td>IST1310I</td>
<td>CINDXSIZ</td>
<td>74959</td>
<td>74959</td>
<td>ATCSTR00</td>
</tr>
<tr>
<td>IST1310I</td>
<td>DIALRTRY</td>
<td>YES</td>
<td>YES</td>
<td>DEFAULT</td>
</tr>
<tr>
<td>IST1310I</td>
<td>DUPDEFS</td>
<td>DEPLU</td>
<td>DEPLU</td>
<td>ATCSTR00</td>
</tr>
<tr>
<td>IST1310I</td>
<td>ENHADDR</td>
<td>YES</td>
<td>YES</td>
<td>ATCSTR00</td>
</tr>
<tr>
<td>IST1310I</td>
<td>HPRPST</td>
<td>LOW</td>
<td>480S LOW</td>
<td>480S ATCSTR00</td>
</tr>
<tr>
<td>IST1310I</td>
<td>HPRPST</td>
<td>MEDIUM</td>
<td>240S MEDIUM</td>
<td>240S ATCSTR00</td>
</tr>
<tr>
<td>IST1310I</td>
<td>HPRPST</td>
<td>HIGH</td>
<td>150S HIGH</td>
<td>150S ATCSTR00</td>
</tr>
<tr>
<td>IST1310I</td>
<td>HPRPST</td>
<td>NETWRK</td>
<td>90S NETWRK</td>
<td>90S ATCSTR00</td>
</tr>
<tr>
<td>IST1310I</td>
<td>HSRTSIZE</td>
<td>29989</td>
<td>29989</td>
<td>ATCSTR00</td>
</tr>
<tr>
<td>IST1310I</td>
<td>NUMTREES</td>
<td>100</td>
<td>100</td>
<td>DEFAULT</td>
</tr>
<tr>
<td>IST1310I</td>
<td>OSRTSIZE</td>
<td>251</td>
<td>251</td>
<td>ATCSTR00</td>
</tr>
<tr>
<td>IST1310I</td>
<td>TOPOTIME</td>
<td>18:28</td>
<td>18:28</td>
<td>DEFAULT</td>
</tr>
<tr>
<td>IST1310I</td>
<td>VTAMEAS</td>
<td>70999</td>
<td>70999</td>
<td>ATCSTR00</td>
</tr>
</tbody>
</table>
AFFDELAY

AFFDELAY affects Generic Resource behavior

AFFDELAY = 0  -  on session termination the affinity will be deleted.

AFFDELAY > 0  -  if time has not expired, the affinity will be considered to be in force and the new session will be assigned to the same Generic Resource member
DUPDEFS

DUPDEFS specifies whether VTAM should continue searching for a target resource when the resource has been found but is not active.

This default is the worst performer and hardly ever necessary!
ENHADDR

Specifies whether VTAM can assign element address greater than 65,535.

The default is NO

VTAM assigns network addresses for all resources that share its subarea
- With ENHADDR=YES, PARSESS=NO APPLs in an APPL major node are assigned extended addresses when the major node is activated.
- With ENHADDR=YES, PARSESS=YES APPLs in an APPL major node, if VTAM has no subarea connections (is a pure Network Node or pure End Node), two extended addresses will be assigned to each APPL when the major node is started.
- APPN session partner element addresses come out of this subarea's 64K element address pool if you specify ENHADDR=NO

Reducing the number of addresses:
If there are a large number of APPL definitions with a name pattern, then the use of model APPL definitions eliminates the need to redefine these APPLs. If PARSESS=NO, VTAM assigns one network address when the APPL is activated. If PARSESS=YES, VTAM assigns two network address when the APPL is activated. By using model APPL definitions, the assigned network addresses are reduced to only those for active applications.
HPRPST

HPRPST Specifies the maximum time that VTAM tries a path switch before ending a connection.

Consider in an EE environment the time to find a new route before ending a path switch. The default is lower than the default IP values which means the path switches start before IP is finished.
NUMTREES

Setting up a high number for NUMTREES makes session setup faster, but takes up more storage than a lower number.

Setting up a lower number makes session setup slower because routes will have to be calculated.
TOPOTIME

If TOPOTIME is not specified, topology garbage collection runs every 24 hours after the time that topology and routing service is activated at VTAM initialization.
VTAM's control blocks

VTAM's SSCP function provides support und session services for all endusers. It create control blocks for all nodes during activation.
To access the control blocks as efficently as possible a hash function and table are used. The size of the table should be selected based on the number of network names.
The search efficiency is reduced conciderably for larger table sizes.
Prime numbers usually produce the best distribution.
Performance Startoptions

D NET,VTAMOPTS,FUNCTION=PERFTUNE

The command returns all startoptions which were once contants of ISTRACON.

<table>
<thead>
<tr>
<th>Startoption</th>
<th>ISTRACON</th>
</tr>
</thead>
<tbody>
<tr>
<td>CINDXSIZ</td>
<td>RACCITSZ</td>
</tr>
<tr>
<td>HNTSIZE</td>
<td>RACHNHTSZ</td>
</tr>
<tr>
<td>HSRTSIZE</td>
<td>RACHSRT</td>
</tr>
<tr>
<td>OSRTSIZE</td>
<td>RACHONSRT</td>
</tr>
<tr>
<td>VTAMEAS</td>
<td>RACEAS</td>
</tr>
</tbody>
</table>

This start option is no longer user defined. If specified in the VTAM® start list, the value will be forced to 4080 bytes.
CINDXSIZ

From z/OS Comm Svr: SNA Resource Definition Reference

CINDXSIZ  \( \text{CINDXSIZ} = \text{table\_size} \)

range: 28–16777199 bytes default: 8176

Specifies the maximum size of the ISTCIT and ISTCONVT index tables.

Question: Who knows ISTCIT and ISTCONVT?
CINDXSIZ

From SNA DATA Areas CID Index Table:
The CIT provides a mapping for the VTAM CID index table. The CID index table provides direct access to a function management control block (FMCB) or FMCB extension given a unique session identifier (the CID)

CONVID Index Table:
The CONVT provides direct access to an APPC conversation control block (RAB) given a unique conversation identifier (CONID)
CINDXSIZ

For more information see:

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Chapter 5.2.2.14 Size of the CID Index Table
HSRTSIZE

z/OS Comm Svr: SNA Resource Definition Reference

HSRTSIZE=number_of_queue_pointers
range:1–2097148  default: 9973

Specifies the number of queue pointers in the symbol resolution table (SRT) for the network containing the VTAM host node.
OSRTSIZE

z/OS Comm Svr: SNA Resource Definition Reference

OSRTSIZE=number_of_queue_pointers

range: 1–2097148  default: 43

Specifies the number of queue pointers in the symbol resolution table (SRT) directory for networks other than the VTAM host node’s network.
HSRTSIZE and OSRTSIZE

The following is true for both HSRTSIZE and OSRTSIZE

For networks with a large number of LUs, increasing this number shortens the length of the queues, thereby decreasing the logon time.
HSRTSIZE and OSRTSIZE

After deleting it from the customization manual it first appeared back in 1995 as APAR II02531 mentioned:
In large networks this value should be set higher. Higher paging rates in module ISTNRCSD or ISTNRCSA are seen, when this value is too low.
and finally made it back in the customization manual (without a reference in the Resource Definition Reference).

Attention:
The values shown in the z/CS SNA Customization are the same as in 3.4.2 manual! - I recommend that you substitute them with those from the SNA Resource Definition Reference manual.
HSRTSIZE and OSRTSIZE

For HSRTSIZE as well OSRTSIZE you need to add all

- PUs
- Lines
- LUs
- CDRSCs
- Applications
- MPC
- XCF
- ......

in one word all network resources.
VTAMEAS

z/OS Comm Svrs: SNA Resource Definition Reference

VTAMEAS VTAMEAS=number_of_concurrent_sessions
range: 0–2147483647 default: 32001

Specifies the number of concurrent sessions VTAM can have with other LUs.
For more information see:

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5.2.2.15 EAS Value
How to determine the size of the network?
### VTAMSTATS

D NET,STATS,TYPE=VTAM

IST350I DISPLAY TYPE = STATS,TYPE=VTAM

<table>
<thead>
<tr>
<th>ID</th>
<th>VALUE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>135</td>
<td>INTERCONNECT CONTROLLERS FOR XCAEE01</td>
</tr>
<tr>
<td>63</td>
<td>21848</td>
<td>RECOVERABLE SESSIONS</td>
</tr>
<tr>
<td>67</td>
<td>435</td>
<td>PU STATEMENTS UNDER SW LINES</td>
</tr>
<tr>
<td>51</td>
<td>126220</td>
<td>ACTIVE LU TOTAL</td>
</tr>
<tr>
<td>10</td>
<td>435</td>
<td>TOTAL LINE STATEMENTS FOR XCA MAJOR NODES</td>
</tr>
<tr>
<td>65</td>
<td>435</td>
<td>NUMBER OF LINES DEFINED</td>
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<tr>
<td>80</td>
<td>5984</td>
<td>NETWORK INDEPENDENT LU TOTAL</td>
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<tr>
<td>50</td>
<td>169564</td>
<td>DEFINED LU TOTAL</td>
</tr>
<tr>
<td>64</td>
<td>42084</td>
<td>CURRENT NUMBER OF SESSION PARTNERS</td>
</tr>
<tr>
<td>100</td>
<td>35480</td>
<td>DYNAMIC DIRECTORY ENTRIES</td>
</tr>
</tbody>
</table>

IST1454I 109 STATISTICS DISPLAYED

IST314I END

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Angela Schmitz, AS Communication Consultant Services
Prime numbers

Using a prime number of queue pointers results in a fairly even distribution of SRT entries to the queues. It is recommended that you choose a prime number.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Default Value</th>
<th>Prime Number</th>
<th>Max Value</th>
<th>Prime Number</th>
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<tr>
<td>CINDXSIZ</td>
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<td>16777199</td>
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<td>HSRTSIZE</td>
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<td>9973</td>
<td>2097148</td>
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<td>OSRTSIZE</td>
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<td>2097148</td>
<td>2097143</td>
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<tr>
<td>VTAMEAS</td>
<td>32001</td>
<td>32003</td>
<td>2147483647</td>
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<td>EAS</td>
<td>509</td>
<td>509</td>
<td>65535</td>
<td>65521</td>
</tr>
</tbody>
</table>
References

SC31-8778 z/OS Comm Svr: SNA Resource Definition Reference

➢ SC31-8777 z/OS Comm Svr: SNA Network Implementation Guide

➢ GC31-6852 z/OS Comm Svr: SNA Data Areas Volume 1

➢ SC31-6854 z/OS Comm Svr: SNA Customization

➢ APAR II02531
➢ Session 3222 Summer SHARE 2009 Johnathan Harter, APPN LOGMODEs And Class Of Services