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International Informix Users Group

New Sysmaster Queries - Continue Exploring the Sysmaster Database

My Favorite Sysmaster Queries

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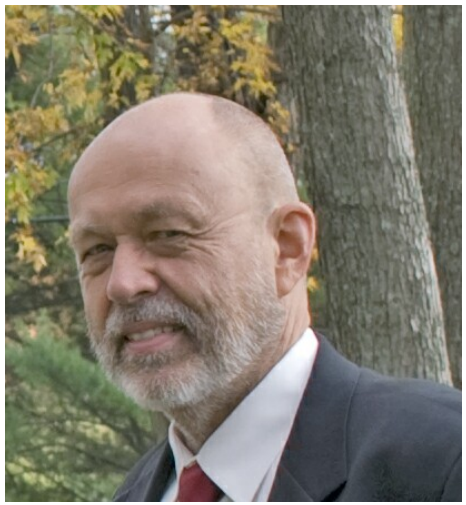

Lester Knutsen is President of Advanced DataTools Corporation, and has been building large Data Warehouse and Business Systems using Informix Database software since 1983. Lester focuses on large database performance tuning, training and consulting. Lester is a member of the IBM Gold Consultant program and was presented with one of the Inaugural IBM Data Champion awards by IBM. Lester was one of the founders of the International Informix Users Group and the Washington Area Informix User Group.

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Outline

- What is the Sysmaster Database?
- My Favorite Sysmaster Queries
- Monitoring the Server
- Monitoring Dbspace and Chunks
- Monitoring Tables and Indexes
- Monitoring Users SQL

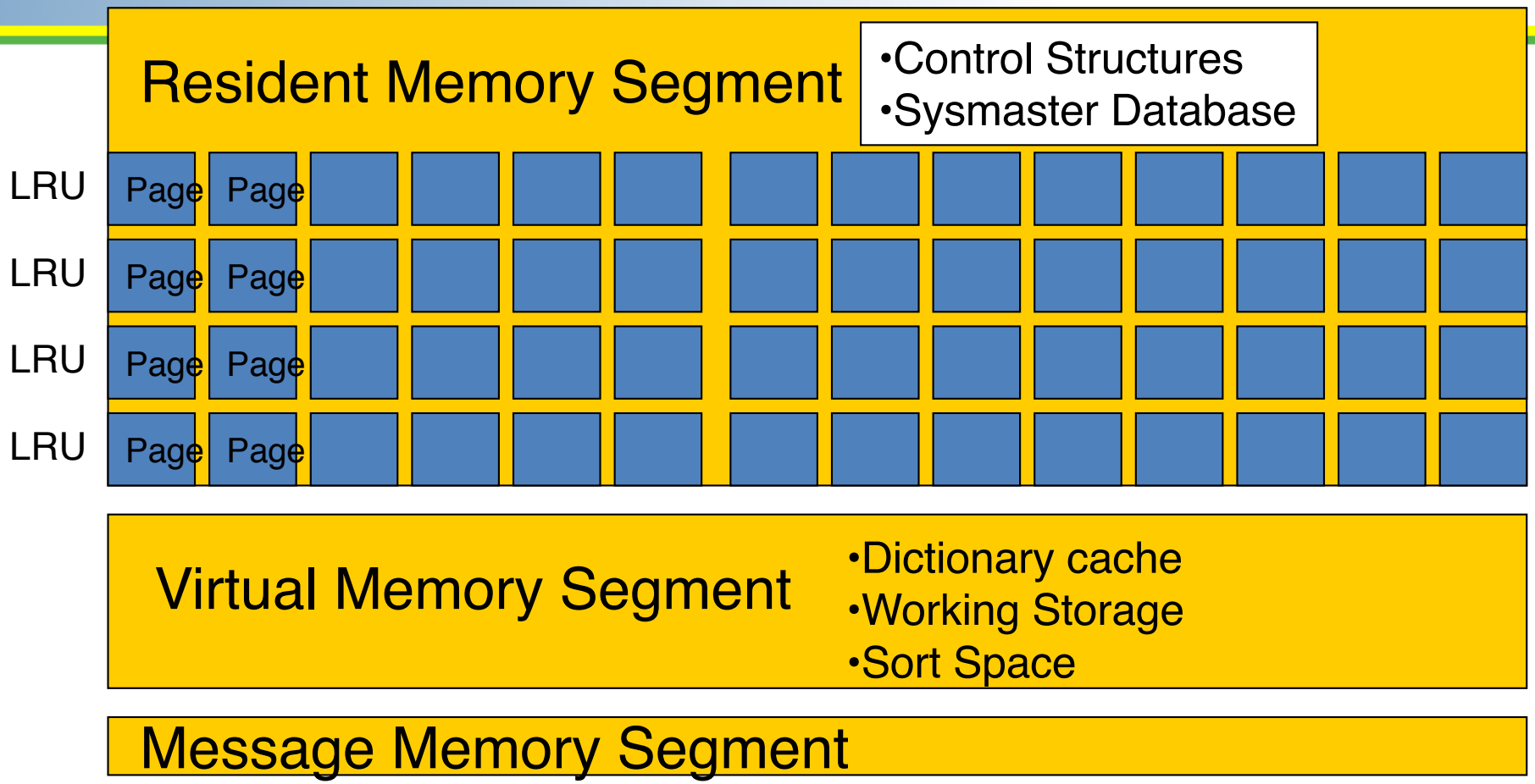
Past Presentations

- Informix Performance Tuning using the Sysmaster Database
  - March 24, 2015 – 63 pages of slides and scripts
  - April 30, 2013 - 101 pages of slides and scripts
- Webcast Replay on YouTube:
  - https://www.youtube.com/user/AdvancedDataTools/videos
  - http://advancedatatools.com/Informix/Webcasts.html

What is the Sysmaster Database?

A database that peeks into
the shared memory structures
of an INFORMIX-Dynamic Server

Informix Control Structures in Memory are the Sysmaster Database



Sysmaster Database contains:

- Server information
- Dbspace & chunk information
- Database & table information
- User session information

Performance of Sysmaster

The data is in shared memory but:

- Views used by tables require disk access and may be slow
- Complex views used to hide complex data
- Some tables are large (million locks)
- Unbuffered logging of temp tables

Differences from other databases

- Do not update Sysmaster tables as this may corrupt the server
- Cannot use dbschema on pseudo tables
- Cannot drop pseudo tables or the Sysmaster Database

Isolation level is Dirty Read

- Data is dynamic and can change as you retrieve it (Dirty Read)
- Dynamic nature may return inconsistent results
- However, it uses Unbuffered logging and temp tables are logged

Sysmaster Database may change

- Some undocumented tables and columns may change in future versions
- Scripts in this presentation using undocumented features may not work on all versions of Informix
- New scripts have been run on versions 11.7 and 12.X
- Sysmaster has changed in IDS 11.X and 12.X

Server SQL

- server_uptime.sql
- server_ratios.sql
- buff_btr_ratio.sql
- memsegments.sql
- machineinfo.sql
- licensehistory.sql

When were the Statistics Cleared?

```
------------------------------------------------------------------------
-- Module: @(#)server_uptime.sql        2.0     Date: 2013/04/10
-- Author: Lester Knutsen  Email: lester@advancedatatools.com
--         Advanced DataTools Corporation
-- Discription: Displays how long the Informix Server has been up and when the
--              last time stats (onstat -z) were cleared.
--      Tested with Informix 11.70 and Informix 12.10
------------------------------------------------------------------------

database sysmaster;

select
        current current_time,
        DBINFO ('utc_to_datetime', sh_boottime ) boot_time,
        DBINFO ('utc_to_datetime',sh_pfclrtime)  stats_reset_time,
        current - DBINFO ('utc_to_datetime',sh_pfclrtime) interval_since_stats_reset,
        ( sh_curtime - sh_pfclrtime) units second secounds_since_stats_reset,
        (ROUND (( sh_curtime - sh_pfclrtime)/60) )  minutes_since_stats_reset
from sysshmvals;
```

Server Statistics Ratios

```
------------------------------------------------------------------------------
-- Module: @(#)server_ratios.sql        1.0     Date: 2017/04/01
-- Author: Lester Knutsen  Email: lester@advancedatatools.com
--         Advanced DataTools Corporation
-- Discription: Displays key server profile/perfomance ratios
--      The list of names is all the values in Informix 12.10
--      Tested with Informix 12.10
------------------------------------------------------------------------------

database sysmaster;

--  Read Ahead ratio
select
        "Read Ahead Ratio",
        (( select value  rapgs_used from sysprofile where name = 'rapgs_used') /
        (( select value  btradata from sysprofile where name =  'btradata' ) +
        ( select value  btraidx from sysprofile where name =  'btraidx' ) +
        ( select value  dpra from sysprofile where name = 'dpra' )))  Read_Ahead_Ratio
from sysdual;

-- Seqence Scans
select  "Total Scans:", value
from sysprofile
where name in ( "seqscans" );

select
        "Scans per hour: ",
        ( Value / ( select (ROUND ((( sh_curtime - sh_pfclrtime)/60)/60) )
                        from sysshmvals ))
from sysprofile
where name in ( "seqscans" );
```

Server Statistics Ratios

```
-- Sort Information
select  name, value
from sysprofile
where name in ( "totalsorts", "memsorts", "disksorts", "maxsortspace" );

select "Sorts per hour:",
        ( Value / ( select (ROUND ((( sh_curtime - sh_pfclrtime)/60)/60) )
                        from sysshmvals ))
from sysprofile
where name in ( "totalsorts" );

-- Buffer Ratios per hour
select "Buffer Reads per hour:",
        ( Value / ( select (ROUND ((( sh_curtime - sh_pfclrtime)/60)/60) )
                        from sysshmvals ))
from sysprofile
where name in ( "bufreads" );

select "Buffer Writes per hour:",
        ( Value / ( select (ROUND ((( sh_curtime - sh_pfclrtime)/60)/60) )
                        from sysshmvals ))
from sysprofile
where name in ( "bufwrites" );
```

Server Statistics Ratios

```
-- Transaction commits per hour
select "Commits per hour:",
        ( Value / ( select (ROUND ((( sh_curtime - sh_pfclrtime)/60)/60) )
                        from sysshmvals ))
from sysprofile
where name in ( "iscommits" );

select "Buffer Waits per hour:",
        ( Value / ( select (ROUND ((( sh_curtime - sh_pfclrtime)/60)/60) )
                        from sysshmvals ))
from sysprofile
where name in ( "buffwts" );

select "Checkpoints per hour:",
        ( Value / ( select (ROUND ((( sh_curtime - sh_pfclrtime)/60)/60) )
                        from sysshmvals ))
from sysprofile
where name in ( "ckptwts" );

-- Lock Information
select  name, value
from sysprofile
where name in ( "lockreqs", "lockwts", "deadlks" );

select
        "Lock Wait Ratio",
        case when ( ( select value lockwts from sysprofile where name =  'lockwts' ) <> 0 )
                then (( select value  lockreqs from sysprofile where name = 'lockreqs') /
                ( select value   lockwts from sysprofile where name =  'lockwts' ))
                else 0
        end case
from sysdual;

-- Write Types
select  name, value
from sysprofile
where name in ( "fgwrites", "lruwrites", "chunkwrites");
```

What is the Buffer Turnover Ratio

```
------------------------------------------------------------------------
-- Module: @(#)buff_btr_ratio.sql     2.0     Date: 2013/04/10
-- Author: Lester Knutsen  Email: lester@advancedatatools.com
--         Advanced DataTools Corporation
-- Discription: Display Buffer Turnovers per hour
--              Based on Art Kagels performance tuning tip on monitoring
--              how much buffer churn your server has.
--              Goal is BTR of less then 7 times per hour
--      Tested with Informix 11.70 and Informix 12.10
--  The Error - 1202: An attempt was made to divide by zero. happens when
--  the server has been up less then one hour
------------------------------------------------------------------------

select
        bufsize,
        pagreads,
        bufwrites,
        nbuffs,
        ((( pagreads + bufwrites ) /nbuffs )
                / ( select (ROUND ((( sh_curtime - sh_pfclrtime)/60)/60) )
                        from sysshmvals )
        ) BTR
from sysbufpool;
```

What is the Memory Usage?

Table:Sysseglst

```
seg_address         int8,     --  address of segment structure
seg_next            int8,     --  pointer to next segment
seg_prev            int8,     --  pointer to prev segment
seg_class           smallint, --  segment class
seg_size            int8,     --  size of this segment
seg_osshmid         integer,  --  id of this OS segment in this seg
seg_osmaxsize       int8,     --  size of maximum OS segment in this seg
seg_osshmkey        integer,  --  shmkey for first OS segment
seg_procid          integer,  --  process id of creator
seg_userid          smallint, --  usr id of creator
seg_shmaddr         int8,     --  address of segment
seg_ovhd            int8,     --  amount of overhead bytes
seg_lock            int8,     --  lock to synchronise bitmap access
seg_nextid          integer,  --  segment id of next seg
seg_bmapsz          int8,     --  size of block map
seg_blkused         int8,     --  no. of used blocks in segment
seg_blkfree         int8      --  no. of free blocks in segment
```

What is the Memory Usage?

```
------------------------------------------------------------------------
-- Module: @(#)memsegments.sql  1.0     Date: 2015/03/20
-- Author: Lester Knutsen  Email: lester@advancedatatools.com
--         Advanced DataTools Corporation
-- Description:
--      Tested with Informix 11.70 and Informix 12.10
------------------------------------------------------------------------

database sysmaster;

-- Summary by Memory Segments Class
select
        -- seg_class,
        case
                when seg_class = 1 then "Resident"
                when seg_class = 2 then "Virtual"
                when seg_class = 3 then "Message"
                when seg_class = 4 then "Buffer"
                else "Unknown"
        end class,
        count(*) number ,
        sum( seg_size ) total_size,
        sum( seg_blkused )      total_blkused,
        sum( seg_blkfree )      total_blkfree
from sysseglst
group by 1;
```

What is the Memory Usage?

```
-- Detail by Memory Segment
select
        -- seg_class,
        case
                when seg_class = 1 then "Resident"
                when seg_class = 2 then "Virtual"
                when seg_class = 3 then "Message"
                when seg_class = 4 then "Buffer"
                else "Unknown"
        end class,
        seg_size,
        seg_blkused,
        seg_blkfree
from sysseglst;
```

What is the Memory Usage?

class	number	total_size	total_blkused	total_blkfree
Message	1	561152	136	1
Resident	1	31289344	7639	0
Buffer	3	5958115328	1454618	0
Virtual	1	1048576000	20679	235321

class	seg_size	seg_blkused	seg_blkfree
Resident	31289344	7639	0
Virtual	1048576000	20679	235321
Buffer	4292870144	1048064	0
Buffer	5337088	1303	0
Buffer	1659908096	405251	0
Message	561152	136	1

What is the Hardware and OS?

```
------------------------------------------------------------------------
-- Module: @(#)machineinfo.sql  1.0     Date: 2015/03/20
-- Author: Lester Knutsen  Email: lester@advancedatatools.com
--         Advanced DataTools Corporation
-- Description:
--      Tested with Informix 11.70 and Informix 12.10
------------------------------------------------------------------------
database sysmaster;

select * from sysmachineinfo;
```

What is the Hardware and OS?

```
os_name             Darwin
os_release          16.5.0
os_nodename         Joy.local
os_version          Darwin Kernel Version 16.5.0: Fri Mar  3 16:52:33 PST 2017;
                    root:xnu-3789.51.2~3/RELEASE_X86_64
os_machine          x86_64
os_num_procs        8
os_num_olprocs      8
os_pagesize         4096
os_mem_total        17179869184
os_mem_free         3537784832
os_open_file_lim    32768
os_shmmax           2147483648
os_shmmin           1
os_shmids           512
os_shmnumsegs       512
os_semmap
os_semids           87381
os_semnum           87381
os_semundo          87381
os_semnumperid
os_semops
os_semundoperproc   10
os_semundosize
os_semmaxvalue
```

What Informix Features are used?

Table: Syslicenseinfo*

```
version           char(12),    --  Informix version
week              smallint,    --  Week
year              smallint,    --  Year
max_cpu_vps       smallint,    --  Max number of cpu vps
max_vps           smallint,    --  Max number of vps
max_conns         integer,     --  Max # of user connected
max_sec_conns     integer,     --  Max # of secondary user
max_sds_conns     integer,     --  Max # of sds users
max_sds_clones    smallint,    --  Max # of sds clones
max_rss_clones    smallint,    --  Max # of rss clones
total_size        integer,     --  max disk space (MB)
total_size_used   integer,     --  max disk space used (MB)
max_memory        integer,     --  Max memory allocated (MB)
max_memory_used   integer,     --  Max memory used (MB)
feature_flags     integer,     --  Feature Flags
feature_flags2    integer      --  Feature Flags2
```

What Informix Features are used?

```
------------------------------------------------------------------------
-- Module: @(#)licensehistory.sql       1.0     Date: 2015/03/20
-- Author: Lester Knutsen  Email: lester@advancedatatools.com
--         Advanced DataTools Corporation
-- Description:
--      Tested with Informix 11.70 and Informix 12.10
------------------------------------------------------------------------
database sysmaster;

select  year, week, version, max_cpu_vps, max_conns, max_memory
from syslicenseinfo;
```

What Informix Features are used?

year	week	version	max_cpu_vps	max_conns	max_memory
2017	17	12.10.FC8	8	2	6712
2017	8	12.10.FC8	8	0	5129
2017	7	12.10.FC8	8	0	5129
2017	6	12.10.FC8	8	2	5129
2017	5	12.10.FC8	8	1000	5761
2017	4	12.10.FC8	1	0	2580
2017	2	12.10.FC8	1	101	2584
2017	1	12.10.FC8	1	1	2582

Dbspaces and Chunks SQL

- dbspace_free.sql
- chunkio.sql
- chunklayout.sql
- chunk_free_list.sql

What Percent of Dbspace is Free?

```
--------------------------------------------------------------------------------
-- Module: @(#)dbspace_free.sql 2.5     Date: 2013/04/10
-- Author: Lester Knutsen  Email: lester@advancedatatools.com
--         Advanced DataTools Corporation
-- Discription: Displays free space in all dbspaces like Unix "df -k " comm
--      Tested with Informix 11.70 and Informix 12.10
--------------------------------------------------------------------------------

database sysmaster;

select    name[1,8] dbspace,       -- name truncated to fit on one line
          sum(chksize) Pages_size, -- sum of all chuncks size pages
          sum(chksize) - sum(nfree) Pages_used,
          sum(nfree) Pages_free,   -- sum of all chunks free pages
          round ((sum(nfree)) / (sum(chksize)) * 100, 2) percent_free
from      sysdbspaces d, syschunks c
where     d.dbsnum = c.dbsnum
group by 1
order by 1;
```

What Percent of Dbspace is Free?

dbspace	pages_size	pages_used	pages_free	percent_free
batchdbs	5000000	139993	4860007	97.20
datadbs	5000000	4062867	937133	18.74
index16d	500000	228	499772	99.95
indexdbs	5000000	849353	4150647	83.01
logdbs	1500100	1250053	250047	16.67
plogdbs	1500100	1250053	250047	16.67
rootdbs	1000000	12319	987681	98.77
tmp1dbs	500000	53	499947	99.99
tmp2dbs	500000	53	499947	99.99
tmp3dbs	500000	53	499947	99.99
tmp4dbs	500000	53	499947	99.99

What is the I/O by Chunk?

```
------------------------------------------------------------------------
-- Module: @(#)chunkio.sql      1.0     Date: 2015/03/20
-- Author: Lester Knutsen  Email: lester@advancedatatools.com
--         Advanced DataTools Corporation
-- Description:
--      Tested with Informix 11.70 and Informix 12.10
------------------------------------------------------------------------

database sysmaster;

select
        name dbspace,
        chknum,
        pagesread,
        pageswritten,
        readtime,
        writetime,
        round(  pagesread / ( select sum( pagesread )
                from sysmaster:syschktab ) , 2) read_percent,
        round(  pageswritten / ( select sum( pageswritten )
               from sysmaster:syschktab ) , 2) write_percent
from    sysmaster:syschktab c, sysmaster:sysdbstab d
where     c.dbsnum = d.dbsnum
order by 1, 2 desc;
```

What is on each Chunk?

```
------------------------------------------------------------------------
-- Module: @(#)chunklayout.sql  1.0     Date: 2015/03/20
-- Author: Lester Knutsen  Email: lester@advancedatatools.com
--         Advanced DataTools Corporation
-- Description:
--      Tested with Informix 11.70 and Informix 12.10
------------------------------------------------------------------------

database sysmaster;
select  dbinfo ("DBSPACE", pe_partnum ) dbspace,
        pe_chunk          chunknum,
        pe_offset         ext_start,
        dbsname           database,
        tabname           partname,
        pe_partnum        partnum,
        pe_extnum         extnum,
        pe_size           ext_size
from    sysptnext b, outer systabnames a
where   a.partnum = b.pe_partnum
order by  2, 3
```

Where is my Free Space?

```
------------------------------------------------------------------------
-- Module: @(#)chunk_free_list.sql      2.5     Date: 2013/04/10
-- Author: Lester Knutsen  Email: lester@advancedatatools.com
--         Advanced DataTools Corporation
-- Discription: Displays free space within a chunk
--      Tested with Informix 11.70 and Informix 12.10
------------------------------------------------------------------------

database sysmaster;

select
     name dbspace,  -- dbspace name
     f.chknum,      -- chunk number
     f.extnum,      -- extent number of free space
     f.start,       -- starting address of free space
     f.leng free_pages   -- length of free space
from      sysdbspaces d, syschunks c, syschfree f
where d.dbsnum = c.dbsnum
and   c.chknum = f.chknum
order by dbspace, chknum, extnum
```

Tables and Indexes

- table_disk_layout.sql
- tableextents.sql
- table_with_seqscans.sql
- tableinfo2016.sql
- Index_usage.sql

What is the table layout on disk?

```
------------------------------------------------------------------------
-- Module: @(#)tablayout.sql    2.5     Date:2013/04/10
-- Author: Lester Knutsen  Email: lester@advancedatatools.com
--         Advanced DataTools Corporation
-- Discription: Displays tables and extents
--      Tested with Informix 11.70 and Informix 12.10
------------------------------------------------------------------------

database sysmaster;

select dbinfo( "DBSPACE" , pe_partnum ) dbspace,
     dbsname,
     tabname,
     -- pe_phys   start,  -- use this for IDS < 9.40
     pe_offset    start,  -- use this for IDS >= 9.40
     pe_size size
from       sysptnext, outer systabnames
where      pe_partnum = partnum
order by dbspace, start;
```

What tables need to be reorganized?

```
------------------------------------------------------------------------
-- Module: @(#)tableextents.sql 1.0     Date: 2015/03/20
-- Author: Lester Knutsen  Email: lester@advancedatatools.com
--         Advanced DataTools Corporation
-- Description:
--      Tested with Informix 11.70 and Informix 12.10
------------------------------------------------------------------------

database sysmaster;

select ( dbinfo('dbspace', ti_partnum )) dbspace,
        dbsname database,
        owner,
        tabname,
        ti_partnum      partnum,
        ti_pagesize     pagesize,
        ti_nptotal      total_pages,
        ti_npused       used_pages,
        ti_npdata       data_pages,
        ti_nextns       num_extents
from systabnames, systabinfo
where ti_partnum = partnum
order by 10 desc;
```

What tables have sequential scans?

```
------------------------------------------------------------------------
-- Module: @(#)table_with_seqscans.sql  2.1     Date: 2013/04/10
-- Author: Lester Knutsen  Email: lester@advancedatatools.com
--         Advanced DataTools Corporation
-- Discription: Displays tables with sequence scans
--      Tested with Informix 11.70 and Informix 12.10
------------------------------------------------------------------------

database sysmaster;

select  dbsname,
        tabname,
        ti_npdata   pages_used,
        sum(seqscans) total_scans,
        (ti_npdata * (sum(seqscans))) total_pages_scaned
from    sysptprof, systabinfo
where   sysptprof.partnum = systabinfo.ti_partnum
and seqscans > 0
and tabname not in ( select tabname from systables where tabid < 100 )
and dbsname not in ( "sysmaster", "sysadmin" , "sysuser", "sysutils" )
group   by 1, 2, 3
order   by 5 desc
```

All Table Info

- ***Everything you want to know about your tables***
- ***Load results into an Excel Worksheet***
- ***Show Example***

Questions about Tables

- What tables fit on a page?
- What tables have free space before an new extent?
- How big are the tables?
- What tables have the most lock activity?
- What tables have the most I/O activity?
- What tables have sequential scans?
- What buffer read % by table?
- What tables could be partitioned?

Base Tables

- Systabnames – Basic Table Information
- Systabinfo – undocumented
- Sysptprof – Performance Information

Systabnames

Table systabnames: All tables on the server.

```
partnum         integer, -- table id for table
dbsname         char(128), -- database name
owner           char(32), -- table owner
tabname         char(128), -- table name
collate         char(32) -- collation associated
                         with NLS DB
```

Systabinfo*

View systabinfo: Table information

```
ti_partnum      integer, -- table's partnum
ti_flags        smallint, -- partition flags
ti_rowsize      smallint, -- rowsize (max for variable)
ti_ncols        smallint, -- number of varchar or blob columns
ti_nkeys        smallint, -- number of indexes
ti_nextns       smallint, -- number of extents
ti_created      integer, -- date created
ti_serialv      integer, -- current serial value
ti_fextsiz      integer, -- first extent size ( in pages )
ti_nextsiz      integer, -- next extent size ( in pages )
ti_nptotal      integer, -- number of pages allocated
ti_npused       integer, -- number of pages used
ti_npdata       integer, -- number of data pages
ti_octptnm      integer, -- OCT partnum (optical blobs only)
ti_nrows        integer -- number of data rows
```

Sysptprof

View sysptprof: Tables IO profile.

```
dbsname          char(128), -- database name
tabname          char(128), -- table name
partnum          integer, -- partnum for this table
lockreqs         integer, -- lock requests
lockwts          integer, -- lock waits
deadlks          integer, -- deadlocks
lktouts          integer, -- lock timeouts
isreads          integer, -- reads
iswrites         integer, -- writes
isrewrites       integer, -- rewrites
isdeletes        integer, -- deletes
bufreads         integer, -- buffer reads
bufwrites        integer, -- buffer writes
seqscans         integer, -- sequential scans
pagreads         integer, -- disk reads
pagwrites        integer-- disk writes
```

All the Information about a Table

```
-- Module: @(#)tableinfo2016.sql 1.0     Date: 2016/04/01
-- Author: Lester Knutsen  Email: lester@advancedatatools.com
--         Advanced DataTools Corporation
-- Description: New Table Information Script - Unload the output to a file
--              and the load the results into a worksheet for analysis
--   Tested with Informix 11.70 and Informix 12.10
--------------------------------------------------------------------------------

database sysmaster;

-- unload to tableinfo2016.uld
select
     systabnames.dbsname       database,
     systabnames.tabname       tabname,
     ( dbinfo('dbspace', ti_partnum )) dbspace,
     systabnames.partnum,
     ti_rowsize    row_size,
     ti_ncols      num_columns,
     ti_nkeys      num_indexes,
     ti_nextns     num_extents,
     ti_pagesize   page_size,
     ti_nptotal    pages_total,
     ti_npused      pages_used,
     ti_npdata      pages_data,
     (ti_nptotal - ti_npused ) pages_free,
     ti_nrows  num_rows,
     case
          when ( (ti_pagesize +4)  -24)  <  ti_rowsize   then "Row larger then pagesize"
          else "Row smaller the pagesize"
     end rowfit,
     case
          when ti_rowsize > 0 then
               trunc ((ti_pagesize -24) / ti_rowsize )
          else 0
     end rows_per_page,
     case
          when ti_rowsize > 0 then
               ( ( trunc ((ti_pagesize -24) / ti_rowsize ) ) * (ti_nptotal - ti_npused ) )
          else 0
     end free_rows,
     DBINFO ('utc_to_datetime', ti_created ) create_date,
     lockreqs,
     lockwts,
     deadlks,
     lktouts,
     isreads,
     iswrites,
     isrewrites,
     isdeletes,
     bufreads,
     bufwrites,
     seqscans,
     pagreads,
     pagwrites,
     ( bufreads + bufwrites ) total_io,
     case
          when pagreads > 0 then
               ( pagreads / bufreads )
          else 0
     end buff_read_percent,
     case
          when pagwrites > 0 then
               ( pagwrites / bufwrites )
          else 0
     end  buff_write_percent,
     (( ti_npdata * seqscans ) * ti_pagesize ) total_bytes_scanned
from systabnames, systabinfo, outer sysptprof
where     systabinfo.ti_partnum = systabnames.partnum
and       systabinfo.ti_partnum = sysptprof.partnum
and  systabnames.dbsname not in ( "sysmaster", "sysuser", "sysutils", "sysadmin" )
and  ti_npdata > 0 -- remove partitions with no data pages
order by total_io desc;
```

Index Usage

```
-- ###############################################################################
-- ## Module: @(#)index_usage.sql      2.0     Date: 01/01/2015
-- ## Author: Lester Knutsen  Email: lester@advancedatatools.com
-- ##         Advanced DataTools Corporation
-- ###############################################################################

select
        a.tabname,
        b.idxname,
        bufreads,
        bufwrites,
        case
                when bufwrites = 0 then bufreads
                when bufreads = 0 then 0
                else ( bufreads /bufwrites )
        end ratio
from    systables a, sysindexes b,  outer sysmaster:sysptprof p
where   a.tabid = b.tabid
and     p.tabname = b.idxname
and     a.tabid > 99;
```

Users and SQL

- syssqexplain.sql

What are the most costly queries?
View Sqexplain

- Documented View
- Based on the undocumented table syssdblock

What are the most costly queries?

```
------------------------------------------------------------------------
-- Module: @(#)syssqexplain.sql 1.0     Date: 2015/03/20
-- Author: Lester Knutsen  Email: lester@advancedatatools.com
--         Advanced DataTools Corporation
-- Description:
--      Tested with Informix 11.70 and Informix 12.10
------------------------------------------------------------------------

database sysmaster;

select
        sqx_estcost,
        sqx_sqlstatement
from    syssqexplain
into    temp A;

select
        sqx_sqlstatement sqlstatement,
        sum(sqx_estcost) sum_estcost,
        count(*)         count_executions
from A
group by 1
order by 2 desc;
```

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- **Informix Configuration, ONCONFIG part 2 by Lester Knutsen**
  - Thursday, May 18, 2017 at 2:00pm EST
- **Informix Connection Manager by Thomas Beebe**
  - Thursday, June 29, 2017 at 2:00pm EST
- **Informix Auditing by Mike Walker**
  - Thursday, July 27, 2017 at 2:00pm EST

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Questions?

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lester@advancedatatools.com

Thank You

Lester Knutsen

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