

WHAT'S NEW IN IBM INFORMIX V.14.10.XC7

v.1a



Agenda

- `onconfig` change to mirroring / mirror path
- Java updates
- GSKit upgrades
- Removal of the `ifxdeployassist`
- ER / CDC update
- `oncheck -w #`
- `onstat -I`
- `onstat -g rah` **enhancements**
- **IHQ 1.6.0**

onconfig change to
mirroring / mirror path

onconfig change to mirroring

- This is an undocumented change
- The `MIRROR` parameter is now enabled by default and removed from `onconfig`
- If you use a FC6 (or earlier) file where `MIRROR` is disabled, the value is ignored
- If you use a FC6 (or earlier) file where `MIRRORPATH` is populated with default values, that value is used to create a mirror of the `rootdbs` regardless of any `MIRROR` value in the file!!
 - This only affects newly created instances

onconfig change to mirroring

- For example, an FC6 file used to create a new instance from scratch in FC7

```

ROOTNAME rootdbs
ROOTPATH rootspace
ROOTOFFSET 0
ROOTSIZE 100000
MIRROR 0
MIRRORPATH $INFORMIXDIR/tmp/demo_on.root_mirror
MIRROROFFSET 0

Inst_1_7: oninit -v
ISI API version mismatch: 2.2 required, 2.1 found
attn: Ignoring unknown or deprecated config parameter (MIRROR)

```

```

Dbspaces
address      number  flags    fchunk  nchunks  pgsz    flags  owner  name
45733028     1       0x2      1        1        2048    M BA   informix rootdbs
45734bf0     2       0x1      2        1        2048    N BA   informix data_space_1
467f8028     3       0x1      3        1        2048    N BA   informix log_space
467f8268     4       0x2001   4        1        2048    N TBA  informix work_space
467f84a8     5       0x8001   5        1        2048    N SBA  informix slob_space
467f86e8     6       0xa001   6        1        2048    N UBA  informix slob_temp
6 active, 2047 maximum

Chunks
address      chunk/dbs  offset  size    free    bpages  flags  pathname
45733268     1          1       0       50000  37812   PO-B-D rootspace
45734028     1          1       0       50000  0       MD-B-- /opt/IBM/informix/14_10/tmp/demo_on.root_mirror
467f9028     2          2       0       102400 91223   PO-B-D dataspace
46801028     3          3       0       102400 32347   PO-B-D logspace
46802028     4          4       0       102400 102347  PO-B-- tmpspace
46803028     5          5       0       25600  23689  23802  POSB-D sbspace
46804028     6          6       0       102400 95432  95432  POSB-- sbtemp
Metadata 1745 1298 1745
Metadata 6915 5146 6915
6 active, 32766 maximum

```

onconfig change to mirroring

- To prevent this mirror from being created when you initialize an instance, you must disable / erase the MIRRORPATH parameter

```

ROOTNAME rootdbs
ROOTPATH rootspace
ROOTOFFSET 0
ROOTSIZE 100000
# MIRROR 0
# MIRRORPATH $INFORMIXDIR/tmp/demo_on.root_mirror
MIRROROFFSET 0
    
```

```

Server Version 14.10.FC7DE -- On-Line -- Up 00:01:26 -- 234176 Kbytes
    
```

address	number	flags	fchunk	nchunks	pgsize	flags	owner	name
4596e028	1	0x20001	1	1	2048	N BA	informix	rootdbs
46fac028	2	0x20001	2	1	2048	N BA	informix	data_space_1
47520c20	3	0x20001	3	1	2048	N BA	informix	log_space
47594c20	4	0x2001	4	1	2048	N TBA	informix	work_space
4752a660	5	0x28001	5	1	2048	N SBA	informix	slob_space
47c9bd28	6	0xa001	6	1	2048	N UBA	informix	slob_temp

6 active, 2047 maximum

Chunks

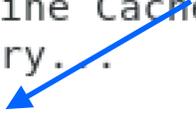
address	chunk/dbs	offset	size	free	bpages	flags	pathname
4596e268	1 1	0	50000	1046		P0-B--	rootspace
46fac268	2 2	0	102400	102347		P0-B-D	dataspace
47b89028	3 3	0	102400	102347		P0-B-D	logspace
47ba1028	4 4	0	102400	102347		P0-B--	tmpspace
47c33028	5 5	0	25600	23802	23802	POSB-D	sbspace
		Metadata	1745	1298	1745		
47547028	6 6	0	102400	-1	-1	POSB--	sbtemp

6 active, 32766 maximum

onconfig change to mirroring

- Why does this matter?
- You may have an instance try to create the mirror you were not expecting resulting is increased file system usage, potentially slower performance if `$INFORMIXDIR/tmp` (the default location) is not on the fastest disk and more
- If the instance is preexisting and you're performing an in-place upgrade to FC7, it will NOT create the mirror chunk
 - However you will get an error message on instance start that the root `MIRROR` chunk can not be located

```
Initializing ASF...succeeded
Initializing Dictionary Cache and SPL Routine Cache...succeeded
Initializing encryption-at-rest if necessary...
Could not open mirror root chunk. Errno 2.
succeeded
Bringing up ADM VP...succeeded
Creating VP classes...succeeded
Forking main_loop thread...succeeded
```



Questions



Java updates

Java updates

- So, what happened here??
- Well, according to development just general maintenance and being current with the most recent release
 - There isn't anything visible to the end user

Questions



GSKit updates

GSKit upgrades

- So, what happened here??
- Well, according to development not a whole lot
 - There was some code cleanup and some internal changes but nothing that is visible to the end user

Questions



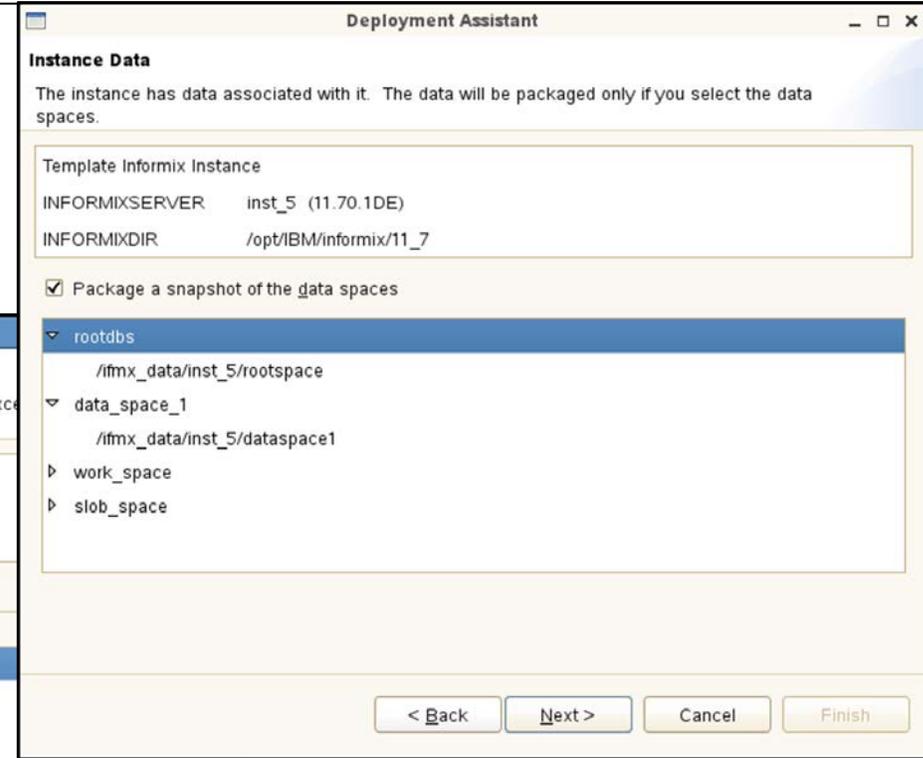
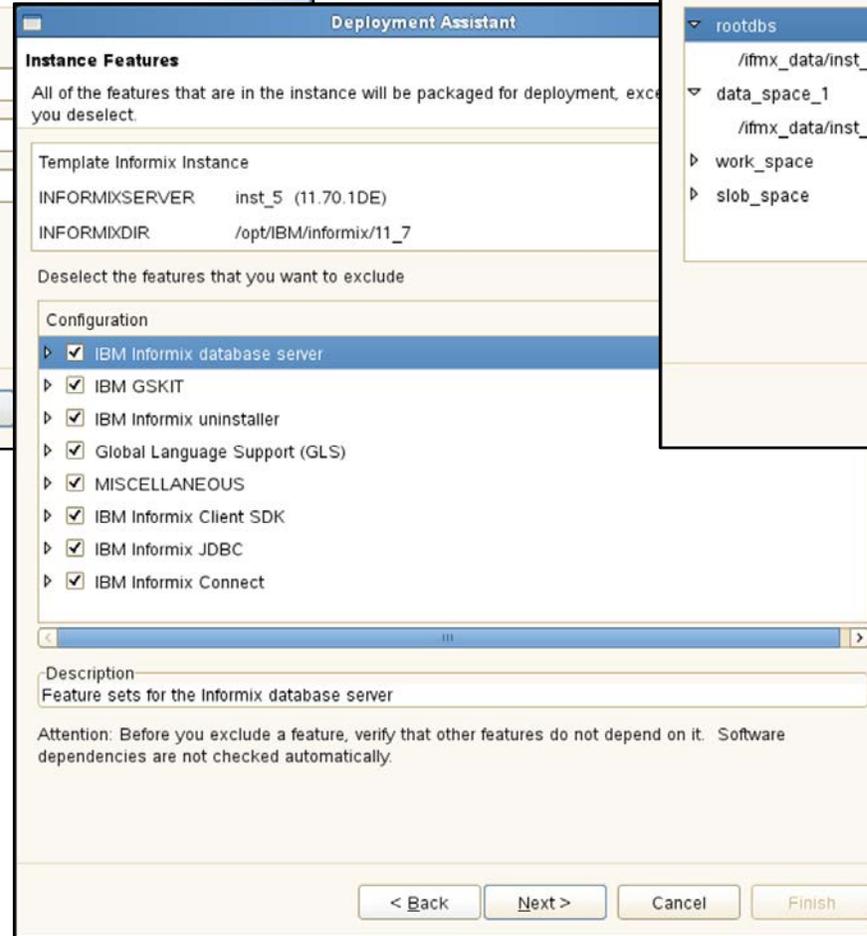
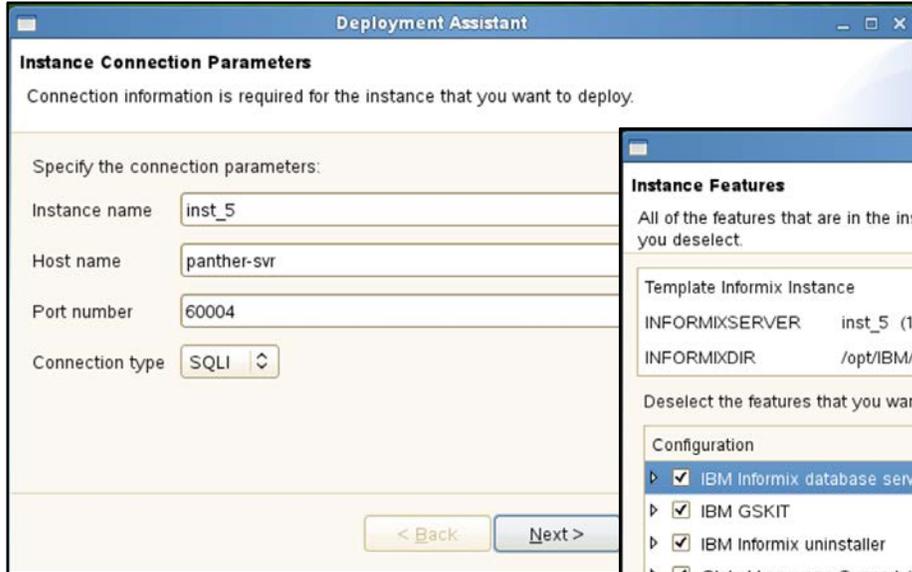
IFXdeployassist **removal**

`ifxdeployassist`

- The `ifxdeployassist` utility was introduced in Informix v.11.70
 - It was used to extract some or all of a source instance to create a snapshot to roll out as needed
 - It had a CLI and a graphical interface
 - It could capture
 - Some or all of the Informix binary
 - Some or all of an instance's data stored in cooked files
 - Both
- The utility was intended for use by partners to roll out their application and an Informix environment (binary and data) in one operation with the `ifxdeploy` utility

ifxdeployassist

- For example



`ifxdeployassist`

- In real life however, it wasn't used much
- With the improved binary installer along with `ifxclone` and `cdr migrate server`, there are more and better options to populate a target
- As a result, the utility has been withdrawn
 - You can cry now if you want 😭😭 Haha!!

Questions



ER / CDC update

ER / CDC update

- Some background
 - Historically, when performing an in-place table alter and ER / CDC is active, the operation caused a flood of `page-out-of-sync` errors
 - In a *slow alter*, it was not a problem because the pages are immediately converted to the new table schema
 - With an IPA, the schema on page is updated when *data on the page changes*
 - This causes a schema version mismatch error to occur flooding the logs with messages
- With FC7, there are two significant changes to performing a table alter
 - First, CDC capture on the table must be stopped with the `cdc_endcapture()` command
 - Second, full row logging must be disabled with the `cdc_set_fullrowlogging()` command
 - The alter will be processed then you can reset full row logging and restart capture

ER / CDC update

- Syntax

```
cdc_set_fullrowlogging (table_name, [0, 1])
```

where

0 (zero) - disable

1 (one) - enable

Questions



oncheck -w **(seconds)**

oncheck wait

- A new `-w` (*seconds*) flag can be appended to any `oncheck` command
- If the command is blocked by a lock, it will wait the # of seconds specified
 - If the lock clears, the command continues
 - Otherwise, the command fails with the appropriate message
- Obviously, you should use a reasonable amount of time to wait
 - However, if you use the `-w` flag with NO time value, the command will wait indefinitely
 - Which might or might not be what you want it to do

Questions



onstat -I (capital "eye")

onstat -I

- A new flag has been added to onstat
 - No!! Say it isn't true?!?!?!?!?!? 🤔
😊😊
- The “I” (capital “eye”) flag displays general index information such as
 - The number of times B-Tree indexes have been searched
 - The number of inserts or deletes into / from indexes
 - The number of reverse scans
 - The number of node splits
 - Index level merges
 - And more

```
Inst_1_7: onstat -I
IBM Informix Dynamic Server Version 14.10.FC7DE -- On-Line (Prim) --
2021-12-02 15:13:02

Index statistics
search      additem    delitem    retry      rev_scans  rs_retries
72179      22123     750        0          504        0

splits      page       slot       root       copyback
117         110        1          48         0

compress    merges     shuffles   root
0           0          0          0
```

Questions



onstat -g rah **enhancements**

Read-ahead reporting enhancements

- This is very much a work still in progress
- While some nice enhancements were added in FC7, it is reasonable to expect one or two additional changes will occur in the next fix pack
- Four new pseudo-tables have been added to sysmaster
 - `sys_ra_act_queues` — contains information about read-ahead queues with pending requests
 - `sys_ra_act_daemons` — contains information about read-ahead daemons currently processing requests
 - `sys_ra_ptn_stats` — contains read-ahead statistics broken down by partition
 - This information is returned by the `onstat -g rah partitions` command
 - `sys_ra_thrd_stats` — contains read-ahead statistics broken down by the requesting thread
 - The information is returned by the `onstat -g rah threads` command

Read-ahead reporting enhancements

- At this time, there is no session or SQL statement level R/A information available

```
{ Read Ahead Queues }
  create table informix.sys_ra_act_queues
  (
    ra_req  int8,
    type   char(10),
    req_id integer,
    state  char(10),
    owner  int8,
    partnum integer,
    abort  smallint
  );
  revoke all on informix.sys_ra_act_queues
```

```
{ Read Ahead Threads }
  create table informix.sys_ra_act_daemons
  (
    rstcb      int8,
    ra_req     int8,
    req_id     integer,
    type       char(10),
    state      char(10),
    partnum   integer,
    pgs_read   integer,
    threshold  integer,
    pgs_ahead  integer
  );
  revoke all on informix.sys_ra_act_daemons
```

```
{ Partition Read Ahead Stats }
  create table informix.sys_ra_ptn_stats
  (
    partnum      integer,
    bfcread      integer,
    dskreads     integer,
    hit_ratio    smallint,
    data_reqs    integer,
    data_npages  integer,
    data_nios    integer,
    data_eff     smallint,
    leaf_reqs    integer,
    leaf_npages  integer,
    leaf_nios    integer,
    idx_eff      smallint,
    idxdata_reqs integer,
    idxdata_npages integer,
    idxdata_nios integer,
    idxdata_eff  smallint,
    logrec_npages integer,
    logrec_nios  integer,
    logrec_eff   smallint,
    lc_nreqs     integer,
    lc_nused     integer,
    lc_resched   integer,
    lc_fail      integer,
    lc_eff       smallint,
    ptn_reqs     integer,
    ptn_npages   integer,
    ptn_nios     integer,
    ptn_eff      smallint
  );
```

```
{ Thread Read Ahead Stats }
  create table informix.sys_ra_thrd_stats
  (
    tid          integer,
    bfcread      integer,
    dskreads     integer,
    hit_ratio    smallint,
    data_reqs    integer,
    data_npages  integer,
    data_nios    integer,
    data_eff     smallint,
    leaf_reqs    integer,
    leaf_npages  integer,
    leaf_nios    integer,
    idx_eff      smallint,
    idxdata_reqs integer,
    idxdata_npages integer,
    idxdata_nios integer,
    idxdata_eff  smallint,
    logrec_npages integer,
    logrec_nios  integer,
    logrec_eff   smallint,
    lc_nreqs     integer,
    lc_nused     integer,
    lc_resched   integer,
    lc_fail      integer,
    lc_eff       smallint,
    ptn_reqs     integer,
    ptn_npages   integer,
    ptn_niossq   integer,
    ptn_eff      smallint
  );
```


Read-ahead reporting enhancements

- With this new information, the instance can calculate and print the effectiveness of R/A operations as well as break it down by R/A type (DATA, LEAF, DATA/INDEX, PARTITION, LASTCOMMIT, etc)
- This information helps understand the effectiveness of R/A based on the percentage of queried pages that came from the R/A cache
- There is currently a discussion going on about how to make this information even more valuable
 - For example, how many R/A cached pages are actually being used?
 - The use case here is that system memory may be used to cache too much data (result - low usage percentage)
 - In resource constrained environments, this can result in buffer churn trying to keep the R/A queues full but they are *not* used so it's wasted I/O
 - In other words, is too much R/A a bad thing???
 - Look for more in the next fix pack

Questions



IHQ 1.6.0

IHQ 1.6.0

- Please note — a new fix pack for v.14.10 and v.12.10 has been released that includes upgraded IHQ binaries that eliminate the log4js vulnerability!
 - Please use the w1 fix packs for both interims to get the new binaries

IHQ 1.6.0

- There are numerous changes and updates in this release
 - Additional documentation clarity
 - View query plan execution
 - Additional H/A cluster functionality
 - Search within system reports and expanded search throughout IHQ
 - Storage Manager enhancements
 - General stuff

Documentation clarity

- Two areas of IHQ functionality have additional documentation describing their use
 - Logging
 - Starting IHQ with Java
- For logging, IHQ uses the `log4j2` library with the `INFO` level of messages being sent to the server and agent logs
 - You can customize this in the `server.log4j.xml` / `agent.log4j.xml` files to display the level of information you need
 - There are options for displaying log messages to the console as well as a rolling log file with various trigger and rollover policies

Documentation clarity

- Starting with IHQ 1.2.0, a shell script that makes starting, stopping and managing server and agent services was introduced
 - With 1.4.0, there have been numerous changes to the functionality
 - With Informix v.14.10.FC6 and IHQ 1.5.0, there were additional changes to the shell script functionality
 - Korn shell for AIX
 - “Help” command functionality
 - Parameter consistency (all lower case)
 - Process naming removed due to AIX
 - `.jar` and `.properties` file renaming
 - The `list` parameter to display active IHQ server / agent processes
 - The stop process was significantly enhanced for accuracy and reliability
 - Connection property testing
 - Significant overhaul and enhancement to the Schema Manager
 - ISAM and incident reporting improvements

Documentation clarity

- While the shell scripts are my preferred method to interact with IHQ, you can use the raw Java commands
 - There is additional information about how the logging mechanism discussed earlier and the Java `start` commands interact
 - This affects what gets displayed when the IHQ server is started



IHQ 1.6.0 - query plan

- Within the **Schema Manager**, you can execute an SQL statement through the **SQL Editor**
 - With this release, you now have access to the query plan (in theory)
 - However it requires that SQL tracing is enabled

The screenshot shows the Schema Manager interface. On the left, there is a 'Select Database' dropdown set to 'stores' and a search bar. Below the search bar is a list of tables: bld_registered, bldi_provided, bldi_required, calendarpatterns, and calendartable. The main area is titled 'SQL Editor' and contains the query: `select * from systables, syscolumns, sysindexes`. Below the query are 'Run' and 'Query History' buttons. Under the 'Result' section, the 'Execution Plan' tab is selected. A yellow warning box at the bottom states: '⚠ To view query execution plan enable SQL tracing. Currently SQL tracing is disable for stores database. [Click here](#) to enable SQL tracing & configure.' A blue arrow points to the 'Click here' link in the warning box.

IHQ 1.6.0 - query plan

- Selecting the **Edit** button allows you to modify the tracing parameters to your needs
 - Then click the **Save** button

⚠ To view query execution plan enable SQL tracing. Currently SQL tracing is disable for stores database. [Click here](#) to enable SQL configure.

Configuration

Status: Disabled



Note: Changing the SQL tracing parameters through this interface is NOT permanent. If you reboot IHQ or the instance, tracing reverts back to instance default.

Result **Execution Plan**

Configuration



Status: Enable Disable

Mode: Global

Level: Low

Number of traces: 500

Trace Size: 20

KB

Traced databases: All databases

stores x

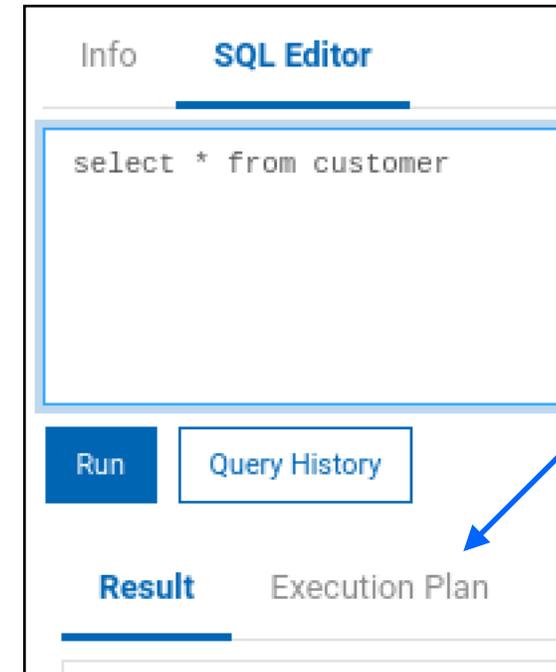
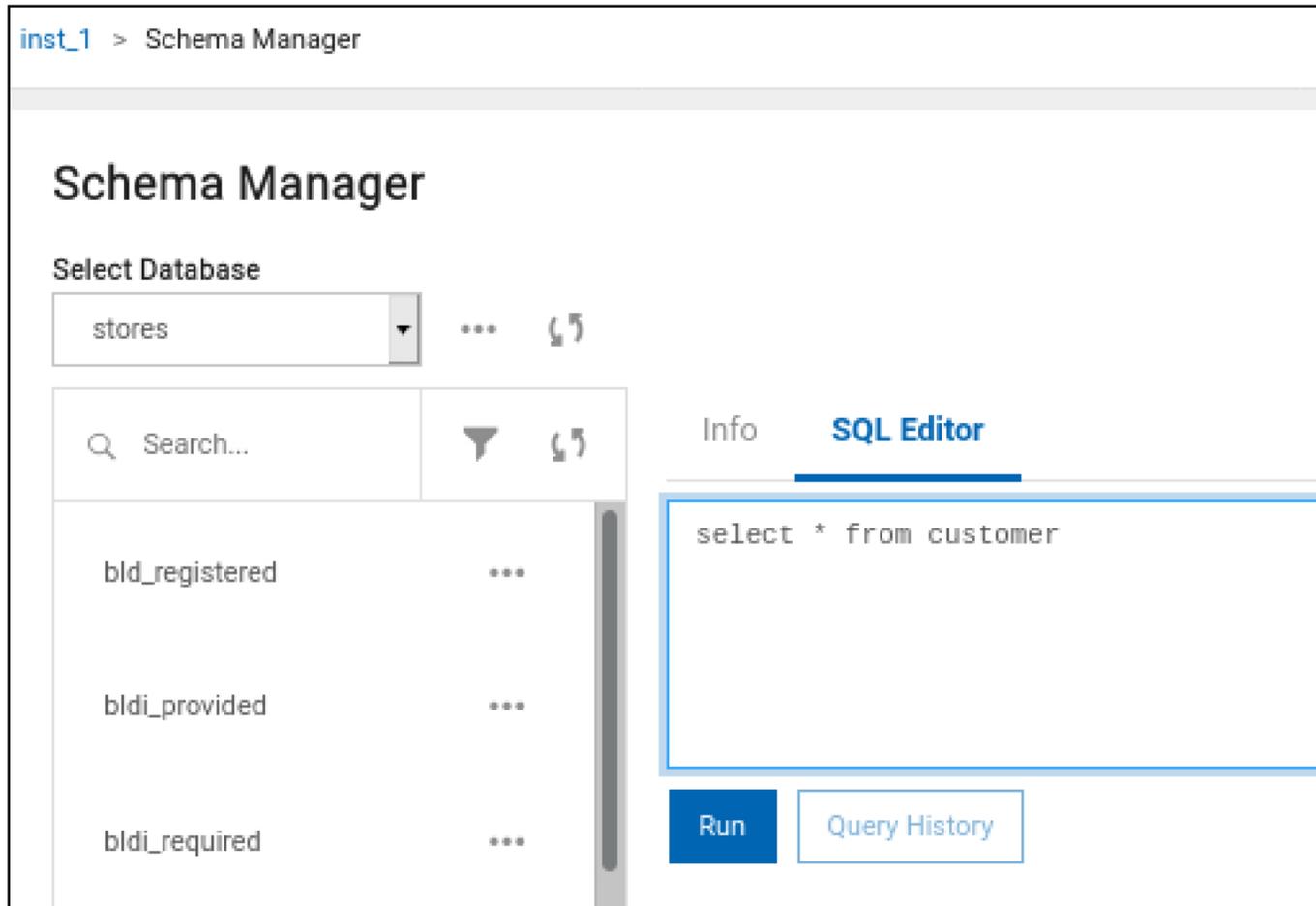
Search

ihq_repository

stores

IHQ 1.6.0 - query plan

- Run your query through the IHQ **SQL Editor**
 - When completed, click the **Execution Plan** option



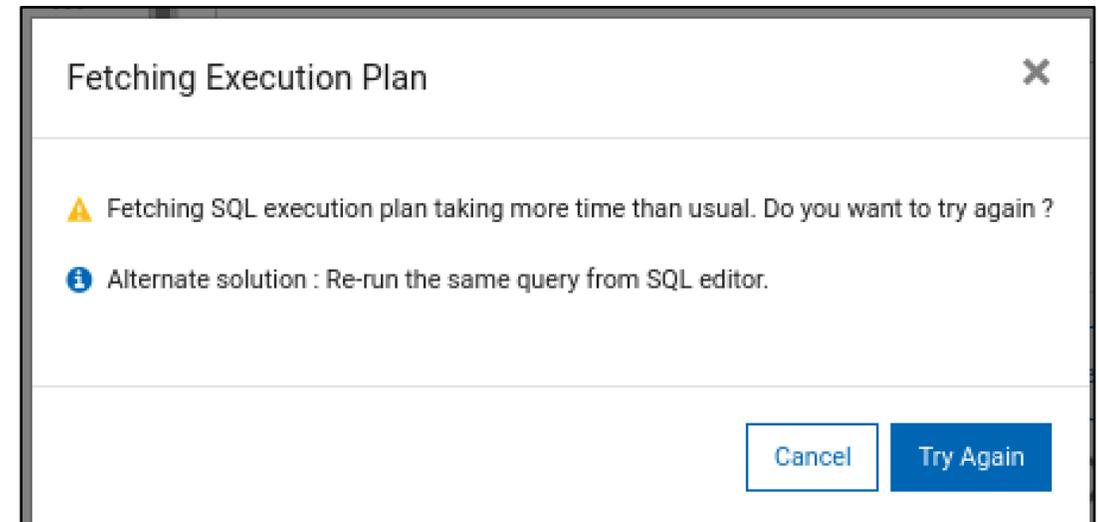
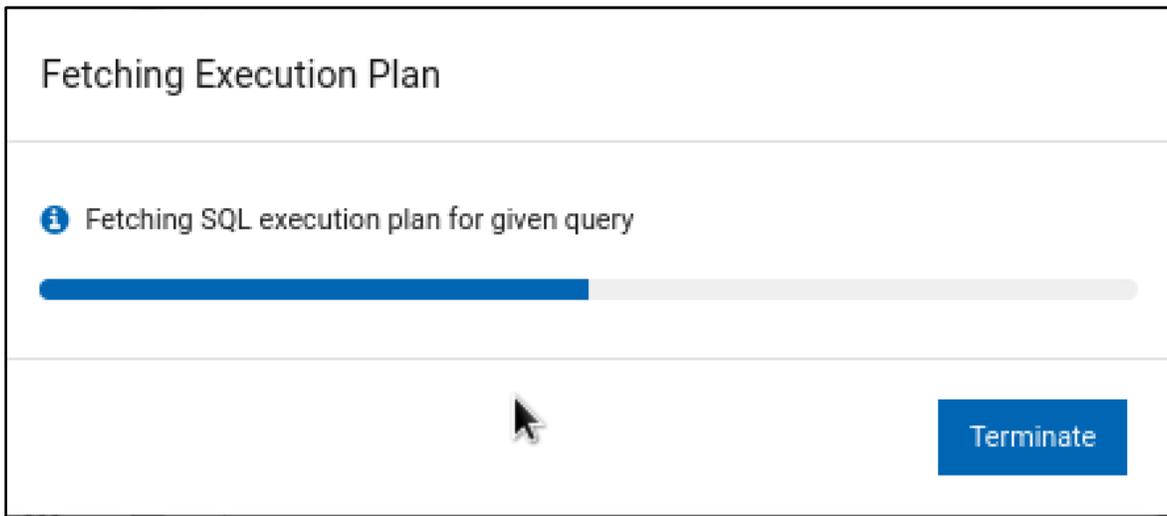
IHQ 1.6.0 - query plan

- In theory the query plan should be displayed
 - I was never able to get it to work regardless of how simple or complex the query
- When I queried development:

“Sometimes, based on sever configuration, [the] server may take longer to gather sql statistics and generate execution plan. Or sometime when IHQ UI makes call to Java API (which internally gets information from Informix server), it may not respond promptly.

What we have implemented in IHQ, if it takes more than 10 seconds to fetch execution plan, it will show the pop up what you are getting. If it is not displaying query plan by “Try Again” button, then by re-executing query manually (clicking on run button), it should display execution plan.”

- As I said, it never worked for me





IHQ 1.6.0 - HA cluster

- In earlier versions, IHQ didn't provide a lot of functionality with respect to the HA cluster
 - For example, only basic information was available

Root Group

Groups (0)

Servers (8)

inst_1

SERVER STATUS | AGENT STATUS

0 INCIDENTS

inst_2

SERVER STATUS | AGENT STATUS

0 INCIDENTS

inst_3

SERVER STATUS | AGENT STATUS

0 INCIDENTS

inst_4

SERVER STATUS | AGENT STATUS

0 INCIDENTS

High Availability

Cluster Topology
Cluster Metrics
SMX Info
Configuration

Cluster Status Information

Active Connection Managers : 1

Failover Arbitration : SDS,HDR,RSS

Server	Type	Replication Status	Connection Status	Updatable	Workload	Lagtime (seconds)	Approx
inst_1	PRIMARY	Active	Connected	✓	13.91 %	0.00000	-
inst_3	HDR	Active	Connected	✓	3.63 %	0.00647	0
inst_2	SDS	Active	Connected	✗	4.11 %	0.47547	12
inst_4	RSS	Active	Connected	✓	5.84 %	0.03342	0

IHQ 1.6.0 - HA cluster

- With this release, it's more intelligent
 - At the highest level, it displays the cluster membership and state

The screenshot displays a grid of six instance cards, each representing a node in the HA cluster. Each card shows the instance name, its role, server and agent status, and the number of incidents.

Instance	Role	Server Status	Agent Status	Incidents
inst_1	PRIMARY	✓	✓	0
inst_2	SDS READ-ONLY	✓	✓	0
inst_3	SECONDARY UPDATABLE	✓	✓	0
inst_4	RSS UPDATABLE	✓	✓	0
inst_5	N/A	?	✗	0
inst_6	N/A	?	✗	0

IHQ 1.6.0 - HA cluster

- The **Cluster Topology** page is similar but selecting a secondary displays additional statistical information such as replication latency

High Availability

Cluster Topology
Cluster Metrics
SMX Info
Configuration

HDR Status Information

Last Log Page Applied (Log_id, Page_id) : 18,646

Backlog : 0

Transaction Latency : 0 seconds

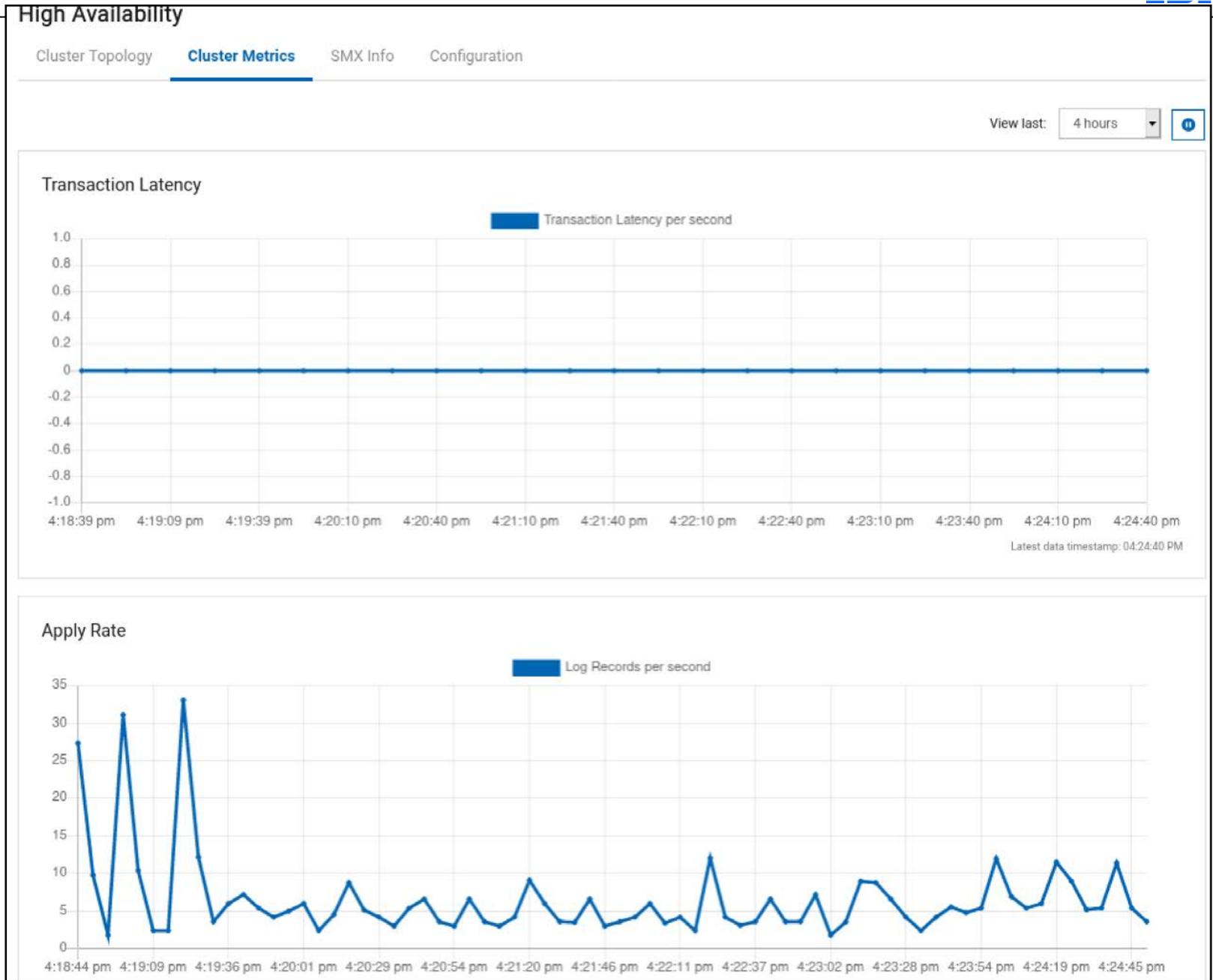
Apply Rate : 1575.6

🔍 Search here (Use ', ' OR '+' operator for multiple keyword search).

Server	Type	Replication Status	Connection Status	Updatable	Workload	Lagtime (seconds)	Approx Log Backlog
inst_1	PRIMARY	Active	Connected	✓	17.99 %	0.00000	-
inst_3	HDR	Active	Connected	✓	1.39 %	0.00036	0
inst_2	SDS	Active	Connected	✗	1.42 %	0.91586	1
inst_4	RSS	Active	Connected	✓	1.43 %	0.00046	
inst_5	RSS	Defined	Defined				

IHQ 1.6.0 - HA cluster

- Cluster metrics and SMX information is available from their respective tabs



IHQ 1.6.0 - HA cluster

- Cluster metrics and SMX information is available from their respective tabs

High Availability ↶

Cluster Topology Cluster Metrics **SMX Info** Configuration

🔍 Search here (Use ', ' OR ' + ' operator for multiple keyword search).

Name ↕	Type ↕	Total Number of Network Pipes ↕	Encryption Status ↕	Compression Status ↕	Total Bytes Sent ↕	Total Bytes Received ↕	Total Retries for Write Call ↕
inst_2	SDS	1	Disabled	Disabled	349.71 KB	294.43 KB	0
inst_3	HDR	3	Disabled	Disabled	19.41 KB	14.88 KB	0
inst_4	RSS	2	Disabled	Disabled	38.02 MB	116.39 KB	2474

IHQ 1.6.0 - HA cluster

- You can review, and in some cases modify, cluster parameters

High Availability

Cluster Topology Cluster Metrics SMX Info **Configuration**

[Hide descriptions](#) [Show dynamic only](#) Filter By: All

Search for Parameter (Use ' , ' OR ' + ' operator for multiple keyword search).

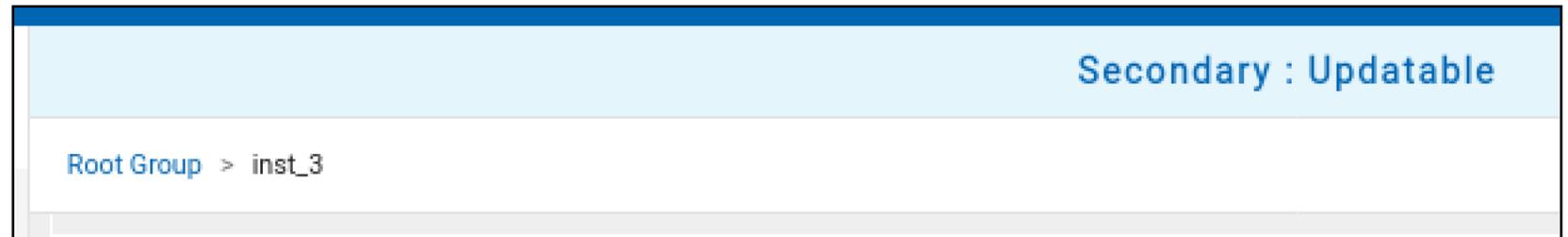
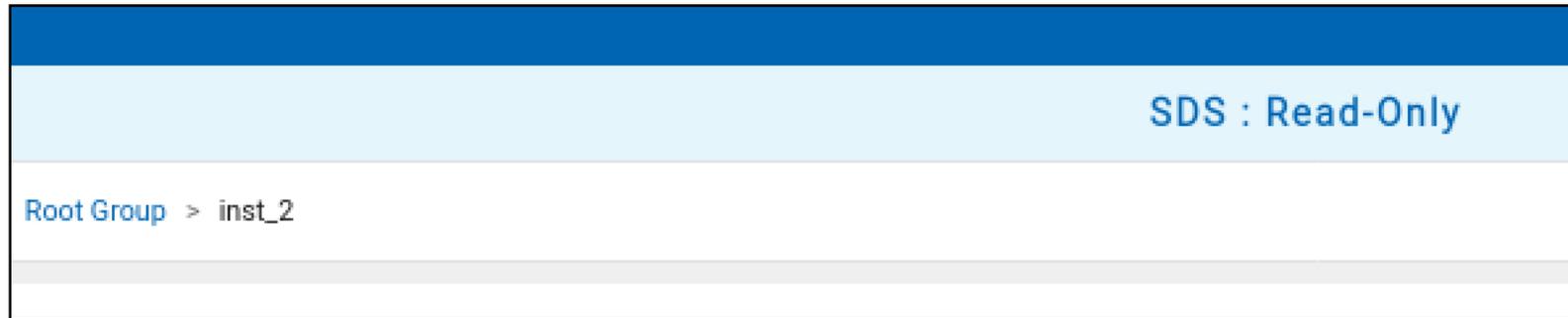
Parameter ^	Value ↕
DRAUTO Specifies a HDR-failover method for HDR high-availability systems.	3 
DRIDXAUTO Specifies whether the primary High-Availability Data Replication (HDR) server automatically starts index replication if the secondary HDR server detects a corrupted index.	1 
DRINTERVAL Specifies the maximum interval in seconds between flushing of the high-availability data-replication buffer. To update synchronously, set the parameter to -1.	0 
DRLOSTFOUND Specifies the path name to the HDR lost-and-found file. This file indicates that some transactions were committed on the HDR primary database server that were not committed on the secondary database server when the primary database server experienced a failure.	/opt/IBM/informix/14_10_7/etc/dr.lostfound 
DRTIMEOUT For high-availability data-replication pairs, specifies the length of time, in seconds, that a database server in a high-availability data-replication pair waits for a transfer acknowledgment from the other database server in the pair.	30 
ENABLE_SNAPSHOT_COPY Enables or disables the ability to clone a server by using the ifxclone utility	1 
ENCRYPT_HDR Enable or disable HDR encryption.	0 

Rows per page: 20

[First](#) [Previous](#) **1** [2](#) [Next](#) [Last](#)

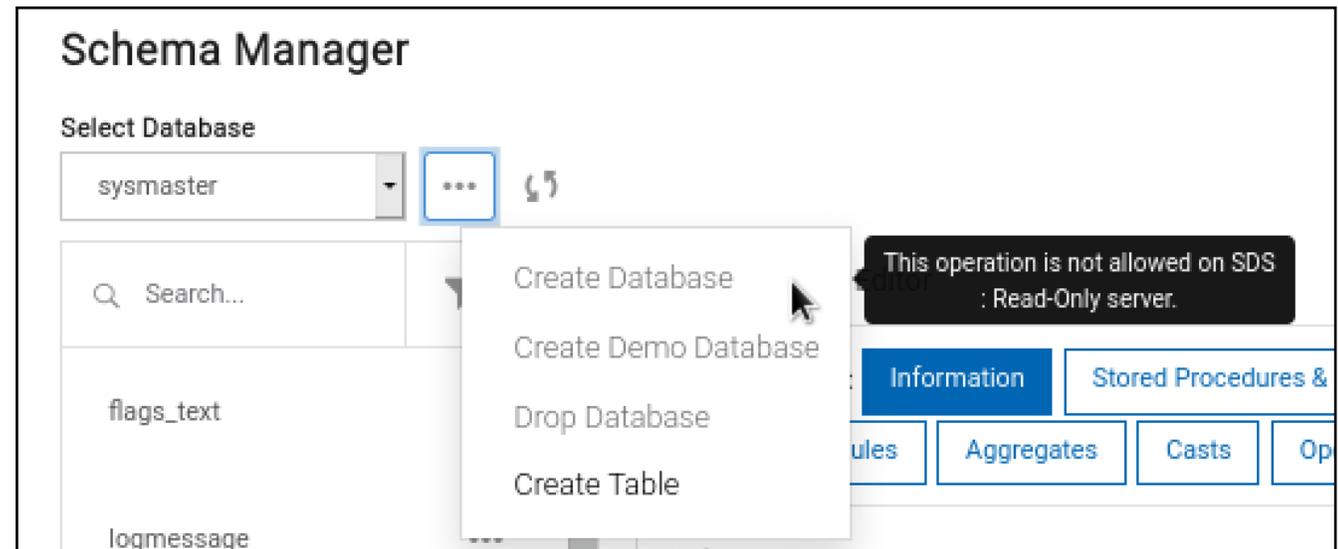
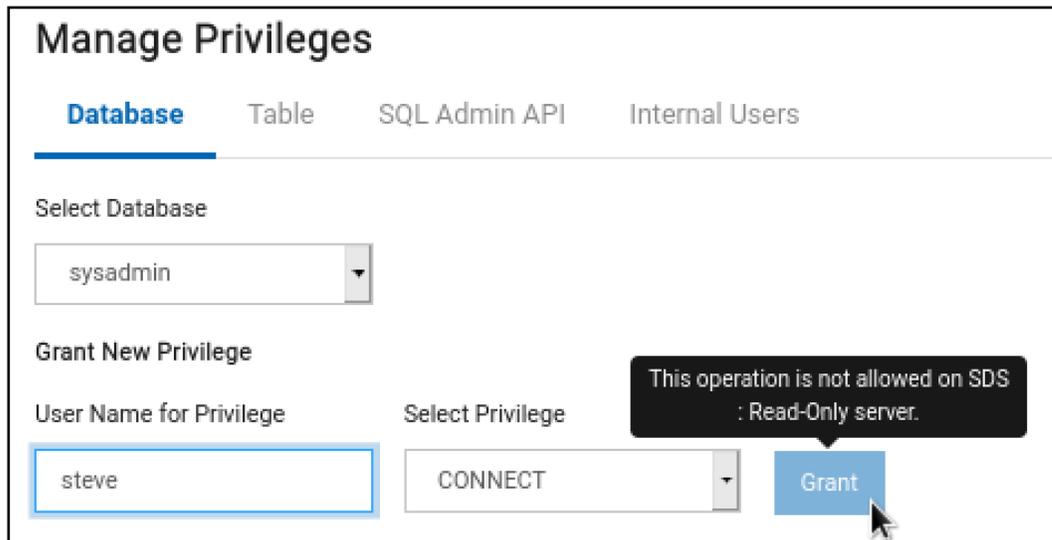
IHQ 1.6.0 - HA cluster

- The tool is “state” aware and displays that information when a node is selected



IHQ 1.6.0 - HA cluster

- The tool is “state” aware and will prevent secondaries from executing certain operations if not allowed
 - For example updatable operations on read-only configured nodes even if the IHQ userID has admin privileges





Search within System Reports

- You can now search for keywords in the name or description of reports listed in **System Reports**
 - These are the standard, built-in reports
- You can now create your own, custom reports

inst_1 > System Reports

System Reports

Filter By

Search for report (Use ', ' OR ' + ' operator for multiple keyword search).

Name ^	Description ↕
Lock List	View all locks on the database server.
Locks per Session	View lock statistics per user session.
Locks per Table	View lock statistics per table.
Locks with Waiters	View locks that have other users settings waiting on them.
Resource Usage	View weekly database server resource usage statistics
Session Activity	View statistics on the activity performed by each user session, including CPU time, rows processed, and page reads and writes.
Slowest SQL Statements	View SQL tracing statistics for the slowest SQL statements.
SQL Caches	View cache statistics and hit ratios for each SQL cache.
SQL with the Highest Estimated Cost	View SQL tracing statistics for the SQL statements with the highest estimated cost.
SQL with the Most Buffer Activity	View SQL tracing statistics for the SQL statements with the most buffer activity.
SQL with the Most I/O Time	View SQL tracing statistics for the SQL statements with the most I/O time.
SQL with the Most Memory	View SQL tracing statistics for the SQL statements that use the most memory.
Table Activity	View lock, cache, read and write, and insert, update, and delete statistics per table.
Table Buffer Pool Activity	View buffer pool cache rates per table.
Table Extents	View the number of extents per table.
Update Statistics	View information on the late recent update statistics for each table.
Waiting Sessions	View sessions waiting on resources.

Search within System Reports

- If interested in a particular result type, you can filter by it
 - For example

inst_1 > System Reports

System Reports

Q cache

Name ^	Description ↕
SQL Caches	View cache statistics and hit ratios for each SQL cache.
Table Activity	View lock, cache, read and write, and insert, update, and delete statistics per table.
Table Buffer Pool Activity	View buffer pool cache rates per table.

Note: you can not search or filter by the report *results*

For example, trying to find where “dirty” buffers or reads are returned

System Reports

Filter By All

Q cache + table

⚠ To search either of keywords use ", " as operator or to search all of keywords use "+" operator . Combination of both operators ", " and "+" is not allowed.

Name ^	Description ↕
Table Activity	View lock, cache, read and write, and insert, update, and delete statistics per table.
Table Buffer Pool Activity	View buffer pool cache rates per table.

Expanded IHQ search

- In fact, many IHQ windows now have search capabilities to find keywords within names or descriptions
 - In some cases on some pages, you can filter by the data values, in other cases you can not
 - Experiment! 😊

inst_1 > Configuration

Configuration

All

Q cache|

Parameter ^

CACHE_TIMESTAMPS

NS_CACHE
Specifies the maximum retention time for entries in the Informix® name service caches: the host name/IP address cache, the service cache, the user cache, and the group cache.

SEQ_CACHE_SIZE
Specifies the maximum number of sequence objects that are cached in memory.

STMT_CACHE
Determines whether the database server uses the SQL statement cache. 0 = SQL statement cache not used. 1 = SQL statement cache enabled, but user sessions do not use the cache, unless they set the environment variable STMT_CACHE to 1 or execute the SQL statement SET STATEMENT CACHE ON for their session. 2 = SQL statement cache turned on. All statements are cached.]

STMT_CACHE_HITS
Specifies the number of hits (references) to a statement before it is fully inserted in the SQL statement cache. 0 = Fully inserts all qualified statements in the SQL statement cache. n>0 = Statements are given key-only entries until number of statement hits is reached and all fully qualified statements are inserted into the cache. Set hits to 1 or more to exclude ad hoc queries from entering the cache.

STMT_CACHE_NOLIMIT
Controls whether to insert qualified statements into the SQL statement cache. 0 = Prevents statements from being inserted in the cache to avoid allocating a large amount of memory for the cache. 1 = Always insert statements in the SQL statement cache regardless of the cache size.

STMT_CACHE_NUMPOOL
Specifies the number of memory pools for the SQL statement cache.



Storage Manager enhancements

- Within the **Storage Manager**, you can now display all tables and indexes in one view even if created outside of the “default” dbspace
 - For example:

inst_1 > Storage > Tables & Indexes

Tables & Indexes

Tables & Indexes Server Optimization Policies Task Status

Select Dbspace: All Select Database: stores Include System Catalogs

Search here (Use ' , ' OR ' + ' operator for multiple keyword search).

<input type="checkbox"/>	Name ↕	Dbspace name ↕	Database ↕	Type ↕	Rows ↕	Extents ↕	Space
<input type="checkbox"/>	employee	data_space_1	stores	Table	1	1	<div style="width: 100%; height: 10px; background: linear-gradient(to right, red, green);"></div>
<input type="checkbox"/>	ext_customer	data_space_1	stores	Table	0	0	<div style="width: 0%; height: 10px; background: linear-gradient(to right, red, green);"></div>
<input type="checkbox"/>	foo	rootdbs	stores	Table	0	0	<div style="width: 0%; height: 10px; background: linear-gradient(to right, red, green);"></div>
<input type="checkbox"/>	items	data_space_1	stores	Table	67	1	<div style="width: 100%; height: 10px; background: linear-gradient(to right, red, green);"></div>

Storage Manager enhancements

- The **Storage Manager** page does allow filtering by values
 - You can use this to isolate fragmented tables or indexes to see where their partitions are
- Filtering example:

Tables & Indexes

Tables & Indexes | Server Optimization Policies | Task Status

Select Dbspace: All | Select Database: stores | Include System Catalogs

Q foo

<input type="checkbox"/>	Name ↕	Dbspace name ↕	Database ↕	Type ↕	Rows ↕	Exten
<input type="checkbox"/>	foo	rootdbs	stores	Table	0	0



General IHQ stuff

- All open source libraries have been upgraded to the latest available
- White Source scan vulnerabilities have been addressed
- Some defects have been fixed

Questions

