DB Comparison for Regression Test

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1 EOD TEAM - Regression Test Tool

1.1 ASCII Dump Comparison

`TSBT DEV` Can see all dev machines and firms.

I can see my Zion copy in ibm6 which will expire on 2016/09/08.

All setting in ibm6 for Zion will be erase on the expiry date.

	Pnum	Firm	Pri Pro	Pri Bet	Start	End	DRQS	Sys Type	Group
11)	25	RBS FINANCIAL MKTS	P896	P535	2014/02/21	Permanent	49728553	TOMS	57
12)	33	THE WORLD BANK	N083	N635	2016/08/26	2016/09/07	88086622	AIM	0
13)	56	NORDEA MARKETS	K061	J378	2012/09/18	Permanent	35331470	TOMS	57
14)	100	ZIONS	J300	IBM6	2016/08/31	2016/09/08	88324464	TOMS	0
15)	101	BB LONDON DEMO SYS	S406	P535	2014/02/28	Permanent	49978886	TOMS	809
16)	102	BB TOKYO DEMO SYS	P746	IBM6	2014/02/27	Permanent	49930417	TOMS	0
17)	170	BB DEMO-AIM ENG NY B	J074	X208	2015/09/14	Permanent	71184179	AIM	546
18)	206	CUSTOMER TESTING	P321	N592	2014/03/21	Permanent	50719021	TOMS	52
19)	289	QC portfolio system	P321	N635	2014/03/21	Permanent	50720426	AIM	313
20)	290	QC retail system	N322	P535	2014/03/01	Permanent	68640437	TOMS	312
21)	300	BB DEMO-AIM EMEA UK	Y691	N592	2014/03/21	Permanent	50717437	AIM	303
22)	428	BB DEMO-AIM IM APAC1	P742	N635	2014/03/21	Permanent	50720438	AIM	348
23)	591	SSEOMS IBM	N776	IBM3	2014/03/24	Permanent	50770152	SSEOMS	87
24)	817	AIM DART DEMO	N776	IBM6	2012/10/02	Permanent	38770409	AIM	710
25)	998	BB DEMO-AIM SA USLT1	N294	N592	2014/03/20	Permanent	62226024	AIM	354
26)	999	BB SELL-SIDE DEMO	J068	IBM3	2014/03/25	Permanent	50822053	TOMS	210
27)	1112	NOMURA QA-TEST	P321	N635	2016/02/09	Permanent	78107251	AIM	1488
28)	1125	FIT QA	N776	P535	2014/03/01	Permanent	49996725	TOMS	0
29)	1388	STANDALONE SSOX	N333	P535	2014/08/13	Permanent	55617463	TOMS	0
30)	1459	AIMDART2	P321	J073	2012/10/03	Permanent	35324280	AIM	710
31)	1479	PCS AVAILABLE	NONE	IBM3	2014/03/24	Permanent	50770434	SSEOMS	87

Figure 1:

BXT is not a trading system command. It won't change anything in trading system. It is an analytic command.

For 290, it lives in p535. with `RHST P535`, we can see Px290 exists in machine NJTSDEV2.

So we go to NJTSDEV2 and dump the tables:

```
[1704][njtsdev2][330][bash](15:26:25)[0](fwu131) : ~/mb/m_comparefpdb/src
$m_dumphfdb.tsk -p 290 -f /ts/pod/px/px290/ext/hf290dump -a
Dumping the table tomspos in single-threaded mode.Dumping the table
pricing in single-threaded mode.
Dumping the table securityinfo in single-threaded mode.
Dumping the table fx in single-threaded mode.
Dumping the table mop in single-threaded mode.Dumping the table fx3 in single-threaded mode.
Dumping the table Dumping the table cavcoffline in single-threaded mode.

fx2 in single-threaded mode.
```

RHST P535
RHST
91) Related Functions
92) Edit
93) Delete
Host Maintenance - Machine Information
Node Id 535
Machine Name NJTSDEV2
11) Get PW
Machine Alias(es) P535
Stage/Substage SN2/SN2A
Regulated Type Not Regulated
Manufacturer SUN
Architecture SPARC
Location RIDGE ROAD
OS Version 11 2 2.4.0.6.0 150517
DRQS -
In bbcpu.lst?
QC Process
All machines taken offline (rtcpu) outside of turn or maint MUST be QC before going online (rescpu). The machine owner must be contacted before placing the machine back in service.
Groups
Parent Cluster TSTRAD
Cluster TSDEV
Filter groups
Total Groups 86
ASPLKF AUTCRM AUTDLV BAGNT BASQD
BASS BBCPU BBXFER BMQ BPKG
BRCV BRDEV CHEF CHMERA CRTEST
CTM08 CTM20 CTMA DBINI DEV
DEVBIG DEVQ4 DEVSUN DEVTLS DMP
DPKG DPRMCM DTICDB DVMN EMA
FSLINK FUPCSH LIBS LVM LZONE
MBUS MQCLNT MSGATT MSGRAP NFPVDV

Figure 2:

```
Dumping the table cavcticketdata in single-threaded mode.
Dumping the table nasdaq_mmpr in single-threaded mode.
Dumping the table misc_pos in single-threaded mode.
Dumping the table cavclock in single-threaded mode.
Dumping the table tws_strategy in single-threaded mode.
0 cavclock records dumped into /ts/pod/px/px290/ext/hf290dump.cavclock
5829 tws_strategy records dumped into /ts/pod/px/px290/ext/hf290dump.tws_strategy
0 nasdaq_mmpr records dumped into /ts/pod/px/px290/ext/hf290dump.nasdaq_mmpr
5 cavcoffline records dumped into /ts/pod/px/px290/ext/hf290dump.cavcoffline
134 fx records dumped into /ts/pod/px/px290/ext/hf290dump.fx
268 fx3 records dumped into /ts/pod/px/px290/ext/hf290dump.fx3
274 fx2 records dumped into /ts/pod/px/px290/ext/hf290dump.fx2
6264 cavcticketdata records dumped into /ts/pod/px/px290/ext/hf290dump.cavcticketdata
73484 misc_pos records dumped into /ts/pod/px/px290/ext/hf290dump.misc_pos
22940 mop records dumped into /ts/pod/px/px290/ext/hf290dump.mop
35368 securityinfo records dumped into /ts/pod/px/px290/ext/hf290dump.securityinfo
72280 tomspos records dumped into /ts/pod/px/px290/ext/hf290dump.tomspos
72281 pricing records dumped into /ts/pod/px/px290/ext/hf290dump.pricing
```

But px290's database is too big:

```
[1743][njtsdev2][330][bash](09:37:58)[0](fwu131) : ~/mb/m_comparefpdb/src
$du -m /ts/pod/px/px290/ext/hf290dump*
0       /ts/pod/px/px290/ext/hf290dump.cavclock
0       /ts/pod/px/px290/ext/hf290dump.cavcoffline
21      /ts/pod/px/px290/ext/hf290dump.cavcticketdata
0       /ts/pod/px/px290/ext/hf290dump.fx
0       /ts/pod/px/px290/ext/hf290dump.fx2
0       /ts/pod/px/px290/ext/hf290dump.fx3
28      /ts/pod/px/px290/ext/hf290dump.misc_pos
66      /ts/pod/px/px290/ext/hf290dump.mop
0       /ts/pod/px/px290/ext/hf290dump.nasdaq_mmpr
0       /ts/pod/px/px290/ext/hf290dump.new.cavclock
0       /ts/pod/px/px290/ext/hf290dump.new.cavcoffline
21      /ts/pod/px/px290/ext/hf290dump.new.cavcticketdata
0       /ts/pod/px/px290/ext/hf290dump.new.fx
0       /ts/pod/px/px290/ext/hf290dump.new.fx2
0       /ts/pod/px/px290/ext/hf290dump.new.fx3
28      /ts/pod/px/px290/ext/hf290dump.new.misc_pos
66      /ts/pod/px/px290/ext/hf290dump.new.mop
0       /ts/pod/px/px290/ext/hf290dump.new.nasdaq_mmpr
444     /ts/pod/px/px290/ext/hf290dump.new.pricing
132     /ts/pod/px/px290/ext/hf290dump.new.securityinfo
444     /ts/pod/px/px290/ext/hf290dump.new.tomspos
4       /ts/pod/px/px290/ext/hf290dump.new.tws_strategy
444     /ts/pod/px/px290/ext/hf290dump.pricing
132     /ts/pod/px/px290/ext/hf290dump.securityinfo
444     /ts/pod/px/px290/ext/hf290dump.tomspos
4       /ts/pod/px/px290/ext/hf290dump.tws_strategy
```

Running this command take too long time:

```
$./m_comparefpdb.sundev1.tsk -m HFDB_FILE -c db_compare_config -l /ts/pod/px/px290/ext/hf290dump -r /ts/p
```

So I am going to use px100 instead:

```
[1756][ibm6][9][bash](09:51:42)[0](fwu131) : ~
$m_dumphfdb.tsk -p 100 -f /ts/pod/px/px100/ext/hf100dump -a
Dumping the table tomspos in single-threaded mode.Dumping the table pricing in single-threaded mode.

Dumping the table securityinfo in single-threaded mode.
Dumping the table mop in single-threaded mode.
Dumping the table fx in single-threaded mode.
Dumping the table fx2 in single-threaded mode.
Dumping the table fx3 in single-threaded mode.
Dumping the table cavcoffline in single-threaded mode.
Dumping the table cavcticketdata in single-threaded mode.
Dumping the table nasdaq_mmpr in single-threaded mode.
Dumping the table Dumping the table cavclock in single-threaded mmiscod_pe.os in single-threaded mode.

Dumping the table tws_strategy in single-threaded mode.
6 fx2 records dumped into /ts/pod/px/px100/ext/hf100dump.fx2
0 cavcticketdata records dumped into /ts/pod/px/px100/ext/hf100dump.cavcticketdata
0 cavcoffline records dumped into /ts/pod/px/px100/ext/hf100dump.cavcoffline
0 fx records dumped into /ts/pod/px/px100/ext/hf100dump.fx
15 fx3 records dumped into /ts/pod/px/px100/ext/hf100dump.fx3
0 cavclock records dumped into /ts/pod/px/px100/ext/hf100dump.cavclock
0 nasdaq_mmpr records dumped into /ts/pod/px/px100/ext/hf100dump.nasdaq_mmpr
6011 tws_strategy records dumped into /ts/pod/px/px100/ext/hf100dump.tws_strategy
2175 misc_pos records dumped into /ts/pod/px/px100/ext/hf100dump.misc_pos
1812 securityinfo records dumped into /ts/pod/px/px100/ext/hf100dump.securityinfo
2175 tomspos records dumped into /ts/pod/px/px100/ext/hf100dump.tomspos
2175 pricing records dumped into /ts/pod/px/px100/ext/hf100dump.pricing
3961 mop records dumped into /ts/pod/px/px100/ext/hf100dump.mop
[1759][ibm6][9][bash](09:57:46)[0](fwu131) : ~
$du -m /ts/pod/px/px100/ext/hf100dump*
0.00    /ts/pod/px/px100/ext/hf100dump.cavclock
0.00    /ts/pod/px/px100/ext/hf100dump.cavcoffline
0.00    /ts/pod/px/px100/ext/hf100dump.cavcticketdata
0.00    /ts/pod/px/px100/ext/hf100dump.fx
0.01    /ts/pod/px/px100/ext/hf100dump.fx2
0.02    /ts/pod/px/px100/ext/hf100dump.fx3
0.83    /ts/pod/px/px100/ext/hf100dump.misc_pos
11.43   /ts/pod/px/px100/ext/hf100dump.mop
0.00    /ts/pod/px/px100/ext/hf100dump.nasdaq_mmpr
13.67   /ts/pod/px/px100/ext/hf100dump.pricing
6.74    /ts/pod/px/px100/ext/hf100dump.securityinfo
13.50   /ts/pod/px/px100/ext/hf100dump.tomspos
4.38    /ts/pod/px/px100/ext/hf100dump.tws_strategy
```

LOGD => select internal beta machine => Express Login => LOGD = >Input `IBM6` => ZOMO

Use ZOMO to query:

You cannot modify database from ZOMO. If you want, you have to use `comdb2sql`.

Use comdb2sql to query:

```
[1761][ibm6][9][bash](10:41:29)[0](fwu131) : ~
$comdb2sql hf100db "SELECT * FROM tomspos where account_id=92 and position_id=2414"
(position_id=2414, account_id=92, cusip_1=1162555442, cusip_2=909520953, cusip_3=538976288, seq_num=4, av
```

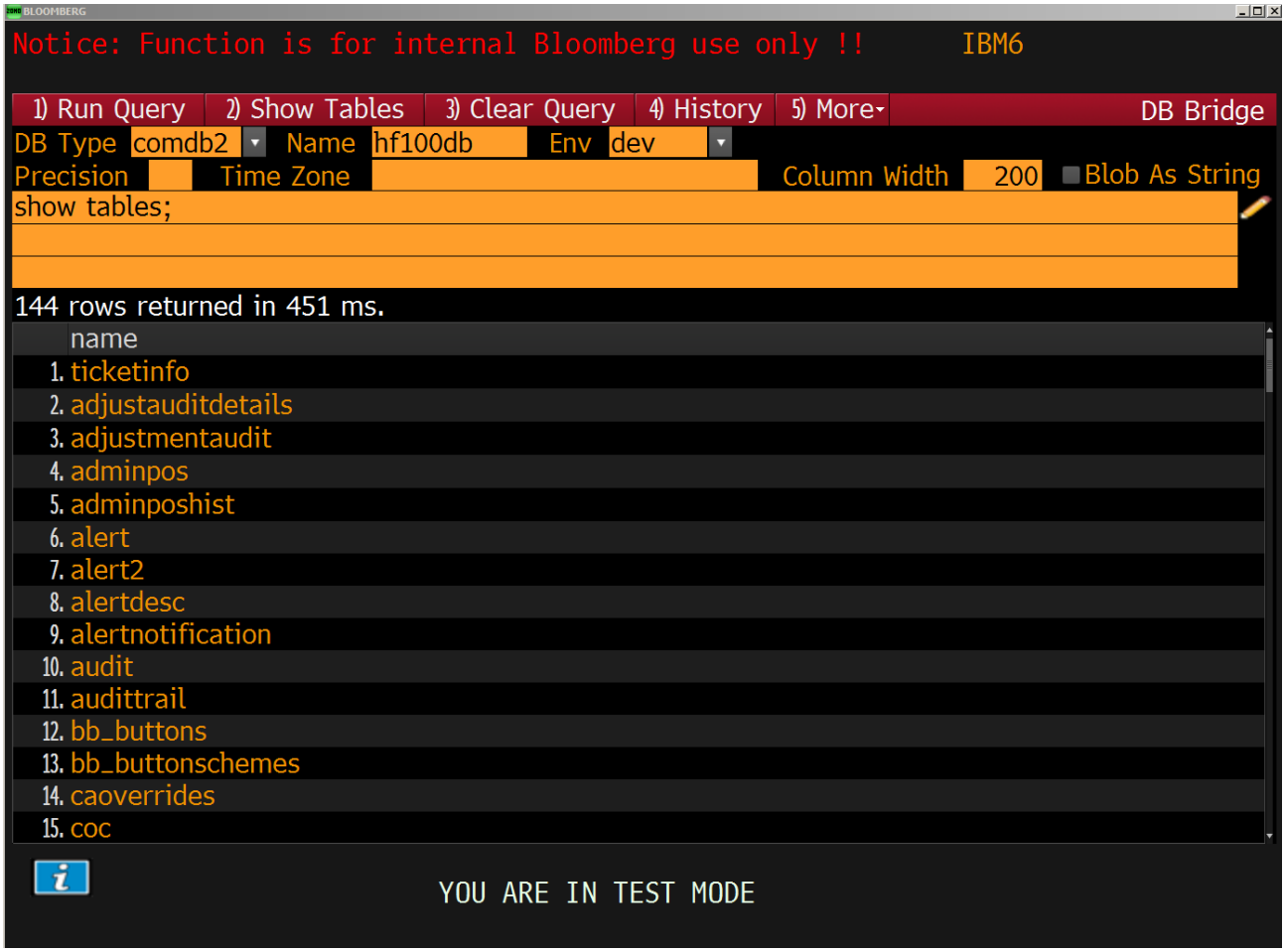

Figure 3:

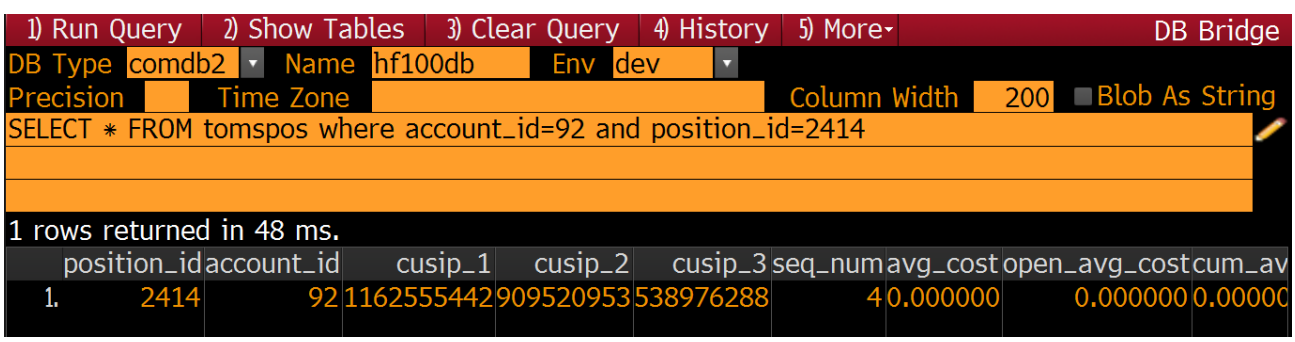

Figure 4:

1.1.1 ASCII UPDATE TEST

Then update database:

```
[1762][ibm6][9][bash](10:44:23)[0](fwu131) : ~
$comdb2sql hf100db "update tomspos set avg_cost=123 where account_id=92 and position_id=2414"
(rows updated='1')
```

Go back zomo to check:

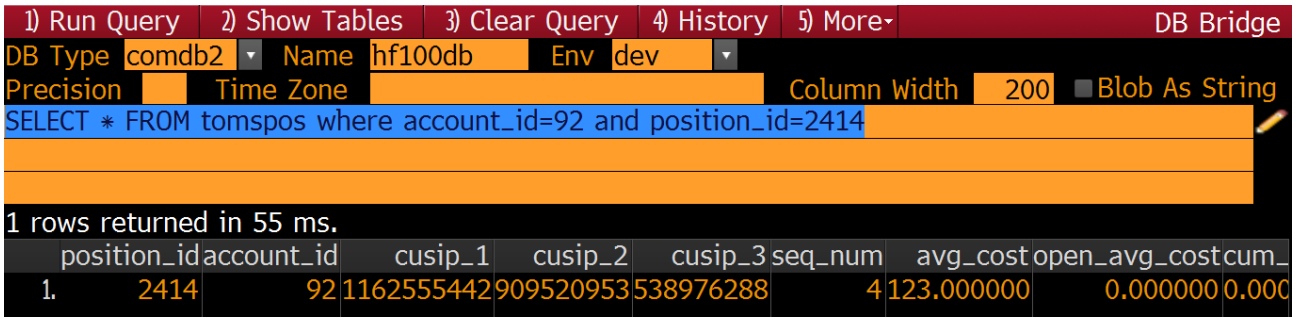

Figure 5:

Then regenerate new ASCII dump:

```
[1763][ibm6][9][bash](10:46:33)[0](fwu131) : ~
$m_dumphfdb.tsk -p 100 -f /ts/pod/px/px100/ext/hf100dump_new -a
Dumping the table tomspos in single-threaded mode.Dumping the table pricing in single-threaded mode.

Dumping the taDumblepi ng the table securityinfo in single-threamodped mo idn se.ingle-threaded mode.

Dumping the table Dumfxp iing n sinthe gletab-threlead ed mode.
fx2 in single-threaded mode.
Dumping the table fx3 in single-threaded mode.
DDuumping tmpihe ng thtabe tale ble ccaavcvcofftilinckeet idan tas iingln se-tinglhree-tadhreaded edmo mo

Dumping the table nasdaq_mmpr in single-threaded modDumpine.g the table misc_pos in single-threaded mode.

DDumping the tablue mping the table tws_strategyc in savcingle-thrlocke inaded si mode.ngle-threaded mode

6 fx2 records dumped into /ts/pod/px/px100/ext/hf100dump_new.fx2
0 fx records dumped into /ts/pod/px/px100/ext/hf100dump_new.fx
6011 tws_strategy records dumped into /ts/pod/px/px100/ext/hf100dump_new.tws_strategy
0 cavclock records dumped into /ts/pod/px/px100/ext/hf100dump_new.cavclock
0 nasdaq_mmpr records dumped into /ts/pod/px/px100/ext/hf100dump_new.nasdaq_mmpr
0 cavcoffline records dumped into /ts/pod/px/px100/ext/hf100dump_new.cavcoffline
0 cavcticketdata records dumped into /ts/pod/px/px100/ext/hf100dump_new.cavcticketdata
15 fx3 records dumped into /ts/pod/px/px100/ext/hf100dump_new.fx3
2175 misc_pos records dumped into /ts/pod/px/px100/ext/hf100dump_new.misc_pos
1812 securityinfo records dumped into /ts/pod/px/px100/ext/hf100dump_new.securityinfo
2175 tomspos records dumped into /ts/pod/px/px100/ext/hf100dump_new.tomspos
3961 mop records dumped into /ts/pod/px/px100/ext/hf100dump_new.mop
2175 pricing records dumped into /ts/pod/px/px100/ext/hf100dump_new.pricing
```

Run comparison task:

```
[1770][ibm6][9][bash](11:02:46)[0](fwu131) : ~/mb/m_comparefpdb/src
$./m_comparefpdb.ibm.tsk -m HFDB_FILE -c db_compare_config -l /ts/pod/px/px100/ext/hf100dump -r /ts/pod/p
Ignoring following fields in comparison: id,pricing_id,position_id,security_id,objid_1,objid_2,objid_3,fm
Adding field tomspos.open_pos to the list of comparison fields, values to be compared with epsilon 0.001,
Adding field tomspos.pos to the list of comparison fields, values to be compared with epsilon 0.001, zero
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump.tomspos
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump.pricing
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump.mop
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump.fx
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump.fx2
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump.fx3
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump.tws_strategy
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump_new.tomspos
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump_new.pricing
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump_new.mop
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump_new.fx
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump_new.fx2
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump_new.fx3
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump_new.tws_strategy
Total number or records in left source:
Pricing: 2175
Position: 2175
Security: 0
Fx: 0
Fx2: 6
Fx3: 15
Mop: 3961
Cavclock: 0
Cavcoffline: 0
Cavcticketdat: 0
Miscpos: 0
Nasdaq_mmpr: 0
Tws_strategy: 6011
Total number or records in right source:
Pricing: 2175
Position: 2175
Security: 0
Fx: 0
Fx2: 6
Fx3: 15
Mop: 3961
Cavclock: 0
Cavcoffline: 0
Cavcticketdat: 0
Miscpos: 0
Nasdaq_mmpr: 0
Tws_strategy: 6011
Field avg_cost differs in two source. Value in left source: 0.000000; value in right source: 123.000000.
Above errors were produced when comparing records in table tomspos with key TraderCusipKey: trader = 92;
Data comparison concluded, discrepancies found, please see above for the list.
```

1.1.2 ASCII DELTE ROW TEST

- Delete one row

```
[1977][ibm6][9][bash](15:53:14)[3](fwu131) : ~/mb/m_comparefpdb/src
$comdb2sql hf100db "delete from tomspos where account_id=92 and position_id=2414"
(rows deleted='1')
[1978][ibm6][9][bash](15:53:55)[3](fwu131) : ~/mb/m_comparefpdb/src
$comdb2sql hf100db "SELECT * FROM tomspos where account_id=92 and position_id=2414"
[1979][ibm6][9][bash](15:55:01)[3](fwu131) : ~/mb/m_comparefpdb/src
$
```

- Regenerate ASCII dump files

```
$m_dumphfdb.tsk -p 100 -f /ts/pod/px/px100/ext/hf100dump_new2 -a
Dumping the table tomspos in single-threaded mode.
DumpingD umpithe ng thtable table e pricings in ecusingrile-ttyinfoh in sreainglded mode.e-threaded mode.

Dumping the table mop in single-threaded mode.
Dumping the table fx in single-threaded mode.
Dumping the table fx2 in single-threaded mode.
Dumping the table fx3 in single-threaded mode.
Dumping the table cavcoffline in single-threaded mode.
Dumping the table cavcticketdata in single-threaded mode.
Dumping the table nasdaq_mmpr in single-threaded mode.
Dumping the table misc_pos in single-threaded mode.
Dumping theDump taingbl te he tablce avclocktws_ istn ratsinegyg in silengl-te-thrhreaeadeded mdode m.ode

0 cavclock records dumped into /ts/pod/px/px100/ext/hf100dump_new2.cavclock
0 nasdaq_mmpr records dumped into /ts/pod/px/px100/ext/hf100dump_new2.nasdaq_mmpr
0 fx records dumped into /ts/pod/px/px100/ext/hf100dump_new2.fx
0 cavcticketdata records dumped into /ts/pod/px/px100/ext/hf100dump_new2.cavcticketdata
0 cavcoffline records dumped into /ts/pod/px/px100/ext/hf100dump_new2.cavcoffline
6 fx2 records dumped into /ts/pod/px/px100/ext/hf100dump_new2.fx2
15 fx3 records dumped into /ts/pod/px/px100/ext/hf100dump_new2.fx3
6011 tws_strategy records dumped into /ts/pod/px/px100/ext/hf100dump_new2.tws_strategy
2175 misc_pos records dumped into /ts/pod/px/px100/ext/hf100dump_new2.misc_pos
1812 securityinfo records dumped into /ts/pod/px/px100/ext/hf100dump_new2.securityinfo
2174 tomspos records dumped into /ts/pod/px/px100/ext/hf100dump_new2.tomspos
2175 pricing records dumped into /ts/pod/px/px100/ext/hf100dump_new2.pricing
3961 mop records dumped into /ts/pod/px/px100/ext/hf100dump_new2.mop
[1982][ibm6][9][bash](15:58:04)[3](fwu131) : ~/mb/m_comparefpdb/src
$./m_comparefpdb.ibm.tsk -m HFDB_FILE -c db_compare_config -l /ts/pod/px/px100/ext/hf100dump -r /ts/pod/p
Ignoring following fields in comparison: id,pricing_id,position_id,security_id,objid_1,objid_2,objid_3,fm
Adding field tomspos.open_pos to the list of comparison fields, values to be compared with epsilon 0.001,
Adding field tomspos.pos to the list of comparison fields, values to be compared with epsilon 0.001, zero
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump.tomspos
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump.pricing
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump.mop
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump.fx
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump.fx2
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump.fx3
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump.tws_strategy
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump_new2.tomspos
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump_new2.pricing
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump_new2.mop
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump_new2.fx
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump_new2.fx2
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump_new2.fx3
```

```
Reconstituting database dump from /ts/pod/px/px100/ext/hf100dump_new2.tws_strategy
Total number or records in left source:
Pricing: 2175
Position: 2175
Security: 0
Fx: 0
Fx2: 6
Fx3: 15
Mop: 3961
Cavclock: 0
Cavcoffline: 0
Cavcticketdat: 0
Miscpos: 0
Nasdaq_mmpr: 0
Tws_strategy: 6011
Total number or records in right source:
Pricing: 2175
Position: 2174
Security: 0
Fx: 0
Fx2: 6
Fx3: 15
Mop: 3961
Cavclock: 0
Cavcoffline: 0
Cavcticketdat: 0
Miscpos: 0
Nasdaq_mmpr: 0
Tws_strategy: 6011
Record in table tomspos is not present in right source for following trader: 92, cusip: 1162555442:909520
Looked up using following key: TraderCusipKey: trader = 92; cusip = 1162555442:909520953:538976288 (EK026
Data comparison concluded, discrepancies found, please see above for the list.
```

1.2 Binary Dump Comparison

We create binary dumps using the script `create_binary_hfdb_dumps`.

The script should exist on `/ts/bin` on all trading system machine. You can find it on bbgithub in:

https://bbgithub.dev.bloomberg.com/TSBACKEND/scripts/blob/master/src/create_binary_hfdb_dumps

On example of a script that calls `create_binary_hfdb_dumps` is `backpnum`. That `backpnum` script is on `/ts/bin` on all trading system machines and is in the following location on bbgithub:

https://bbgithub.dev.bloomberg.com/TSBACKEND/scripts/blob/master/src/backpnum

The `create_binary_hfdb_dumps` call in `backpnum` is what creates files like the following on Beta/Production systems for each PNUM.

For pnum 100:

```
[1779][ibm6][9][bash](11:36:55)[0](fwu131) : ~/mb/m_comparefpdb/src
$create_binary_hfdb_dumps 100 /ts/pod/px/px100/backup hf100db_bindump
+ [[ ! -e /ts/pod/px/px100/config/create_bin_dumps_serially ]]
+ wait
wrote 0 records, table cavcoffline
wrote 0 records, table cavclock
```

```
wrote 6 records, table fx2
wrote 0 records, table fx
wrote 15 records, table fx3
wrote 0 records, table nasdaq_mmpr
wrote 0 records, table cavcticketdata
wrote 2175 records, table misc_pos
wrote 6011 records, table tws_strategy
wrote 1812 records, table securityinfo
wrote 2175 records, table pricing
wrote 2175 records, table tomspos
wrote 3961 records, table mop
+ exit 0
...
[1983][ibm6][9][bash](16:00:00)[3](fwu131) : ~/mb/m_comparefpdb/src
$pushd /ts/pod/px/px100/backup/
/ts/pod/px/px100/backup ~/mb/m_comparefpdb/src
[1984][ibm6][9][bash](16:15:53)[3](fwu131) : /ts/pod/px/px100/backup
$ll hf100db_bindump.*
-rw-rw-r--    1 fwu131   general          99 Sep  2 11:37 hf100db_bindump.cavclock
-rw-rw-r--    1 fwu131   general        5473 Sep  2 11:37 hf100db_bindump.cavcoffline
-rw-rw-r--    1 fwu131   general        4238 Sep  2 11:37 hf100db_bindump.cavcticketdata
-rw-rw-r--    1 fwu131   general        2537 Sep  2 11:37 hf100db_bindump.fx
-rw-rw-r--    1 fwu131   general        3598 Sep  2 11:37 hf100db_bindump.fx2
-rw-rw-r--    1 fwu131   general        8945 Sep  2 11:37 hf100db_bindump.fx3
-rw-rw-r--    1 fwu131   general      398428 Sep  2 11:37 hf100db_bindump.misc_pos
-rw-rw-r--    1 fwu131   general     9011242 Sep  2 11:37 hf100db_bindump.mop
-rw-rw-r--    1 fwu131   general        3705 Sep  2 11:37 hf100db_bindump.nasdaq_mmpr
-rw-rw-r--    1 fwu131   general     8201838 Sep  2 11:37 hf100db_bindump.pricing
-rw-rw-r--    1 fwu131   general     2447596 Sep  2 11:37 hf100db_bindump.securityinfo
-rw-rw-r--    1 fwu131   general     7241326 Sep  2 11:37 hf100db_bindump.tomspos
-rw-rw-r--    1 fwu131   general     3403881 Sep  2 11:37 hf100db_bindump.tws_strategy
[1985][ibm6][9][bash](16:16:05)[3](fwu131) : /ts/pod/px/px100/backup
$
```

Then update database again:

```
[1762][ibm6][9][bash](10:44:23)[0](fwu131) : ~
$comdb2sql hf100db "update tomspos set avg_cost=111 where account_id=92 and position_id=2414"
(rows updated='1')
```

Regenerate bin dump:

```
[1782][ibm6][9][bash](11:40:39)[0](fwu131) : ~/mb/m_comparefpdb/src
$create_binary_hfdb_dumps 100 /ts/pod/px/px100/backup hf100db_bindump_new
+ [[ ! -e /ts/pod/px/px100/config/create_bin_dumps_serially ]]
+ wait
wrote 2175 records, table misc_pos
wrote 6 records, table fx2
wrote wrote 00 records, table  records, table nasdaq_mmprcavcoffline
wrote
wrote 015 records, table  records, table cavcticketdatafx3

wrote 0 records, table cavclock
wrote 0 records, table fx
```

```
wrote 6011 records, table tws_strategy
wrote 1812 records, table securityinfo
wrote 2175 records, table tomspos
wrote 2175 records, table pricing
wrote 3961 records, table mop
+ exit 0
...
[1985][ibm6][9][bash](16:16:05)[3](fwu131) : /ts/pod/px/px100/backup
$ll hf100db_bindump_new.*
-rw-rw-r--    1 fwu131   general          99 Sep  2 11:40 hf100db_bindump_new.cavclock
-rw-rw-r--    1 fwu131   general        5473 Sep  2 11:40 hf100db_bindump_new.cavcoffline
-rw-rw-r--    1 fwu131   general        4238 Sep  2 11:40 hf100db_bindump_new.cavcticketdata
-rw-rw-r--    1 fwu131   general        2537 Sep  2 11:40 hf100db_bindump_new.fx
-rw-rw-r--    1 fwu131   general        3598 Sep  2 11:40 hf100db_bindump_new.fx2
-rw-rw-r--    1 fwu131   general        8945 Sep  2 11:40 hf100db_bindump_new.fx3
-rw-rw-r--    1 fwu131   general      398428 Sep  2 11:40 hf100db_bindump_new.misc_pos
-rw-rw-r--    1 fwu131   general     9011242 Sep  2 11:40 hf100db_bindump_new.mop
-rw-rw-r--    1 fwu131   general        3705 Sep  2 11:40 hf100db_bindump_new.nasdaq_mmpr
-rw-rw-r--    1 fwu131   general     8201838 Sep  2 11:40 hf100db_bindump_new.pricing
-rw-rw-r--    1 fwu131   general     2447596 Sep  2 11:40 hf100db_bindump_new.securityinfo
-rw-rw-r--    1 fwu131   general     7241326 Sep  2 11:40 hf100db_bindump_new.tomspos
-rw-rw-r--    1 fwu131   general     3403881 Sep  2 11:40 hf100db_bindump_new.tws_strategy
[1986][ibm6][9][bash](16:17:27)[3](fwu131) : /ts/pod/px/px100/backup
$
```

After clang-format, i got some build errors:

```
[1888][ibm6][9][bash](12:20:01)[1](fwu131) : ~/mb/m_comparefpdb/src
$plink -d big2016.35-828793-20160829T212048 -a ibm m_comparefpdb.mk
/bb/util/version12-052015/usr/vacpp/bin/xlC_r -I.  -qthreaded -D__VACPP_MULTI__ -D_REENTRANT -D_THREAD_SA
/bb/util/version12-052015/usr/vacpp/bin/xlC_r -I.  -qthreaded -D__VACPP_MULTI__ -D_REENTRANT -D_THREAD_SA
"./m_compare_fpdb_keyedposition.h", line 114.69: 1540-2955 (I) SUGGESTION: Try using "-qlanglvl=rightangl
"./m_compare_fpdb_keyedposition.h", line 114.69: 1540-0063 (S) The text ">>" is unexpected.
/bb/build/AIX-powerpc-32/release/robolibs/big2016.35-828793-20160829T212048/dpkgroot/opt/bb/share/plink/m
make: *** [m_compare_fpdb_main.ibm.o] Error 1
"./m_compare_fpdb_keyedposition.h", line 114.69: 1540-2955 (I) SUGGESTION: Try using "-qlanglvl=rightangl
"./m_compare_fpdb_keyedposition.h", line 114.69: 1540-0063 (S) The text ">>" is unexpected.
/bb/build/AIX-powerpc-32/release/robolibs/big2016.35-828793-20160829T212048/dpkgroot/opt/bb/share/plink/m
make: *** [m_compare_fpdb_keyedposition.ibm.o] Error 1
make: Target 'build' not remade because of errors.
```

After add `-qlanglvl=rightanglebracket` in the makefile:

```
 26 USER_CFLAGS   += -I.  -qlanglvl=rightanglebracket
 27 USER_CPPFLAGS += -I. $(SINC)  -qlanglvl=rightanglebracket
```

Everything works fine now:

```
[1892][ibm6][9][bash](12:24:08)[2](fwu131) : ~/mb/m_comparefpdb/src
$md5sum m_comparefpdb.ibm.tsk
f56e54929f8650ee1e629052171b10e3  m_comparefpdb.ibm.tsk
```

Delete one row:

```
[1977][ibm6][9][bash](15:53:14)[3](fwu131) : ~/mb/m_comparefpdb/src
$comdb2sql hf100db "delete from tomspos where account_id=92 and position_id=2414"
(rows deleted='1')
[1978][ibm6][9][bash](15:53:55)[3](fwu131) : ~/mb/m_comparefpdb/src
$comdb2sql hf100db "SELECT * FROM tomspos where account_id=92 and position_id=2414"
[1979][ibm6][9][bash](15:55:01)[3](fwu131) : ~/mb/m_comparefpdb/src
$
```

Regenerate binary dump files:

```
[1979][ibm6][9][bash](15:55:01)[3](fwu131) : ~/mb/m_comparefpdb/src
$create_binary_hfdb_dumps 100 /ts/pod/px/px100/backup hf100db_bindump_new2
+ [[ ! -e /ts/pod/px/px100/config/create_bin_dumps_serially ]]
+ wait
wrote 0 records, table cavcticketdata
wrote 0 records, table cavclock
wrote 15 records, table fx3
wrote 6 records, table fx2
wrote 0 records, table fx
wrote 0 records, table nasdaq_mmpr
wrote 0 records, table cavcoffline
wrote 2175 records, table misc_pos
wrote 6011 records, table tws_strategy
wrote 1812 records, table securityinfo
wrote 2175 records, table pricing
wrote 2174 records, table tomspos
wrote 3961 records, table mop
+ exit 0
```