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ORACLE TimesTen

ORACLE TimesTen Scaleout

Oracle TimesTen 18.1.2.1.0 Patchset Update

TimesTen Product Management

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18.1.2 patchset release schedule, contents, platforms

18.1.**2**.1.0 is a patchset release

Contents

- First 18.1 release with support for TimesTen Classic and Cache
- Bug fixes and minor enhancements for Scaleout

Platforms

- Server
  - Linux x86-64 (Scaleout and Classic) and AIX (Classic)
- Client only
  - Windows x64 and macOS
  - Clients will ship sometime after the initial 18.1.2.1.0 patchset

18.1.2 patchset release schedule, contents, platforms (cont)

OS versions supported

- Oracle Linux 6 and 7
- RedHat Enterprise Linux 6 and 7
- SUSE Enterprise Server 12
- AIX 7.1 TL3 and TL4
- Windows Server 2012 and 2016
- Windows 8.1 and 10
- macOS – TBC but should be 10.12, 10.13 and 10.14

Java versions supported

- Oracle JDK 8, 9 and 10
- Open JDK 8, 9 and 10 (Linux only)

Clusterware versions supported

- Linux x64 – 11.2.0.4.0 and 12.1.0.2.0
- AIX 64 – 11.2.0.4.0 and 12.1.0.2.0

18.1.2 Classic changes vs. 11.2.2

Changes

- B+-Tree indexes are now the default for range indexes
  - More concurrent and scalable than T-Trees
- Aggregate function return type changes (TT_BIGINT)
- System views (V$ and GV$)
- Increased upper limit on number of connections
  - 11.2.2
    - Max is 2,000
    - Default determined by OS semaphore configuration
  - 18.1
    - Max is 32,000
    - Default is the lesser of 2,000 and OS semaphore configuration
- IPv6 support is enabled by default

18.1.2 Classic changes vs. 11.2.2

Changes

- Several defaults have changed:
  - Preallocate=1 – checkpoint file space always pre-allocated
  - LogFileSize=LogBufMB
  - CkptFrequency=0 – time interval based checkpointing is disabled by default
  - CkptLogVolume=LogBufMB – log volume based checkpointing is enabled by defaukIt
  - CommitBufferSizeMax=10MB

18.1.2 Classic New Features

- Improved memory management for indexes
  - Each index has its own heap
  - Faster DROP INDEX
  - Faster recovery
- Automatically detect and use huge pages on Linux and AIX
- ttBulkCp enhancements
  - -directLoad
    - Avoids undo logging and formatting overheads
    - Can’t be used on tables that have indexes or constraints

18.1.2 Classic New Features

- Support for ODBC 3.5 API
  - ODBC 2.5 still supported and still the default
- Support for many JDBC 4.1 features
- Oracle database compatible bit manipulation functions
  - BITAND(), BITOR(), BITXOR, BITNOT()
- Optimiser can now gather additional interval statistics
  - New option to ttOptUpdateStats() to enable
  - ttOptUpdateStats(['tablename'],[invalidate],[**intervalstats**]);
    - NULL or 0 -> collect full intervals stats for columns that are part of range indexes and single interval stats otherwise (default)
    - 1 -> only collect single interval stats (as per 11.2.2)
- Connection level optimizer hints
  - Specifies hints to be applied to all SQL from this connection
  - Connection attribute - **OptimizerHint**

18.1.2 Classic New Features

- **ttLoadFromOracle()** improvements
  - Improved error messages
  - Option to stop after ***n*** errors not just after the first error
  - Option to ignore all uniqueness errors
    - Enables restart of a failed/partial load
  - Returns Oracle SCN of load
    - Can specify the SCN in order to restart load from that SCN
    - Enables restart of a partial load

18.1.2 Classic New Features

- Support for replicated READONLY AUTOREFRESH Cache Groups when the Oracle Database uses Active DataGuard with asynchronous transport
  - If the standby Oracle Database is promoted to active, TimesTen cache refresh will automatically switch to the new active
  - TimesTen replication will only replicate Oracle transactions that are present on both the Oracle active and Oracle standby
  - No data loss or cache inconsistency after a DataGuard failover

18.1.2 Classic New Features

- Forced disconnect
  - The instance administrator can safely forcibly disconnect application connections
  - No more need to kill processes (risky!)
  - Needs **ForceDisconnectEnabled=1** to be specified in the DSN attributes.

```
ttAdmin -disconnect urgency [granularity] { DSN | -connStr connstr }
```

urgency
- **-transactional** – Disconnect connections after they commit or rollback.
- **-immediate** – Rollback any open transactions and disconnect.
- **-abort** – Abort all direct mode processes and servers!

granularity
- **-unload** – Disconnects all connections including the sub-daemon. Allows for a clean unload of the database.
- **-users** – Disconnects only user connections – the default

18.1.2 Classic Deprecated Features

Don’t start using these, plan to stop using them ASAP

- Bitmap Indexes
- **User defined** parallel replication
- **Asynchronous** Materialized Views
- TT_DECIMAL data type
- Legacy features not compatible with Oracle Database
  - DDLCommitBehaviour=1
  - DuplicateBindMode=1
  - PLSQL=0
  - TypeMode=1
  - The TIMESTEN8 ‘character set’

18.1.2 Classic Removed Features

- Cache Grid
- Cache Advisor

18.1.2 Scaleout New Features

- Forced disconnect
  - The instance administrator can safely forcibly disconnect application connections
  - No more need to kill processes (risky)
  - Always enabled, cannot be disabled.
  - Database must be ‘closed’ before you can use this.

```
ttGridAdmin dbDisconnect dbname
        –transactional|-immediate|-abort [-nowait | -wait timeout]
```

-transactional – Disconnect connections after they commit or rollback.

-immediate – Rollback any open transactions and disconnect.

-abort – Abort all direct mode processes and servers!

18.1.2 Scaleout New Features

- Extra options for **ttGridAdmin dbStatus** (introduced in 18.1.1.4.0 I believe)
  -epochs – Show information on epochs for all elements.
  -connections – Displays information on application connections to the database..
    -system – Includes system connections in the display.
    -proxy – Includes proxy connections in the display.

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