



Oracle TimesTen in-memory database integration

CERN openlab Summer Student
Lightning Talks Sessions

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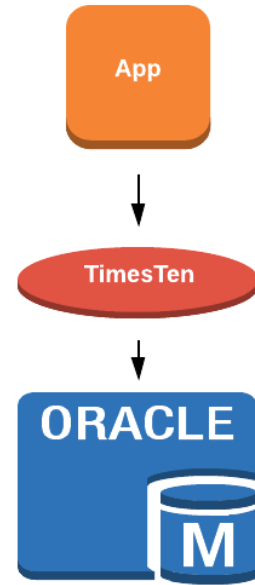
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ORACLE
TIMESTEN
IN-MEMORY DATABASE



- › **In-memory SQL database**
- › **One of the ways to speed up Oracle**
 - as caching layer for Oracle
 - read-only and writethrough
 - faster than fully-cached Oracle
- › **Non-trivial setup**

Oracle TimesTen



TimesTen setup automation

- › **System prerequisites**
 - kernel, users, security, tools, env, ..., ...
 - › **TimesTen installation**
 - › **TimesTen and Oracle configuration**
 - › **Cache users and cache groups setup**
- ⇒ **more than 30 tasks for basic installation**

My contribution (1)

1. Bash script

- › 1000+ lines
- › checks everything
- › logs everything
- › verbose mode
- › debug mode
- › interactive mode
- › man pages

```

116 ## checks if dependencies are present
117 ## which is replaced by hash ttx to http://stackoverflow.com/a/677212
118 ## printf hack ttx to http://stackoverflow.com/a/1371788
119 ## cat, awk and id are called directly
120 ##
121 function checkDeps() {
122     verboseEcho "Checking dependencies."
123     local NEEDED_DEPS=(cut userdel groupdel sudo)
124     if !INSTALL; then
125         SQLPLUS=$(command -v sqlplus 2>&| sed 's/2-6- /' | except 4 "$SuggestSqlPlus")
126         $SQLPLUS -v <> $DN || fixSqlPlus
127         NEEDED_DEPS+=(ssh netstat systemctl java tar passwd mkdir cp sed grep)
128         NEEDED_DEPS+=(chmod chown getent useradd usermod groupadd)
129     fi
130     for CMD in ${NEEDED_DEPS[@]}; do
131         if ! hash $CMD && $RM; then
132             except 4 "$CMD is missing."
133         fi
134         printf -v ${CMD%*} "${hash -t $CMD}"
135     done
136 }
137
138 ##
139 ## try to fix the sqlplus shlib problem
140 ##
141 function fixSqlPlus() {
142     colorEcho 33 "SqlPlus lib path problem, trying to fix..."
143     SQLPLUS_PATH=$(ls -d /usr/lib/oracle/11g/client/2-6- / | except 4 "Failed.")
144     echo "export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:$SQLPLUS_PATH/lib" >> ~/.bashrc
145     LD_LIBRARY_PATH=$LD_LIBRARY_PATH:~
146     export LD_LIBRARY_PATH=$LD_LIBRARY_PATH:$SQLPLUS_PATH/lib
147     $SQLPLUS -v > $DN 2-&| | except 4 "Failed."
148     colorEcho 33 "SqlPlus fixed for now."
149 }
150
151 ##
152 ## parses the command line commands
153 ## prints help
154 ##
155 function parseOptions() {
156     DECRK=false
157     BATCH=false
158     INSTALL=false
159     UNINSTALL=false
160     while getopts hbvdiuz:OPT
161     do
162         case "$OPT" in
163             h) showHelp; exit 0;;
164             b) BATCH=true; BATCH_CONFIG=$OPTARG;;
165             v) VERBOSE=true;;
166             d) DECRK=true; set -x;;
167             i) INSTALL=true; TIMESTen_ARCHIVE=$OPTARG;;
168             u) UNINSTALL=true; TIMESTen_INSTALL_LOC=$OPTARG;;
169             *) except 3 "Bad option ${OPTARG}.";
170         esac
171     done
172 }
173
174 . 140,1 11X :

```

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SYNOPSIS
ttdeploy [-vd] -i <tt.package>
ttdeploy [-vd] -i <tt.package> -b <batch.conf>
ttdeploy [-vd] -u <path/to/ttloc>
ttdeploy -h

DESCRIPTION
TimesTen is in-memory database from Oracle with ability to be attached as a cache to
existing Oracle database. The installation process requires a lot of configuration to
be done and although Oracle provides some installation scripts to simplify that, one
still needs to go through a lot of hassle to set everything up. Program ttdeploy
enables the installation to be done interactively or automatically with single command.
Ttdeploy prepares the whole system for TimesTen deployment, including the setup of kernel
parameters, user and group account, permissions, environment variables and also
desired configuration of TimesTen cache, connection to "big" Oracle database and so on.

OPTIONS
-i <tt.package>
    interactive installation from tt.package file
    file can be gz, tar or unpacked directory
-b <batch.conf>
    automated batch installation
    gets answers from given config file e.g. batch.conf
    used in combination with -i
    see below for config file contents
-u <path/to/ttloc>
    uninstalls TimesTen from given location (e.g. /home/ttadmin)
-v
    turns on verbose mode
-d
    turns on debug mode
-h
    shows help message

FILES
<batch.conf>
    configuration file for batch mode
    specified with option -b
    the contents of the file is set of bash variables
    - mandatory settings:
        ORACLE_TNSNAME ORACLE_USERNAME ORACLE_PASSWORD DATABASE_SIZE
    - optional settings (recommended):
        ADMIN_USERNAME ADMIN_PASSWORD ADMIN_GROUP TT_INSTANCENAME
        TT_ADMINNAME TT_ADMINPASS TT_USERNAME TT_USERPASS TT_CACHE_GRIDNAME
    - optional settings (needed only in special cases):
        TT_VERSION TT_PORT ORACLE_HOME TT_DATASTORE_DIR TT_LOGS_DIR
        ADMIN_HOME KERNEL_SEM SHMMAX SHMALL
        TTCONFIG_PERM_SIZE TTCONFIG_TEMP_SIZE TTC_SERVER_BASE
    each setting (variable) is described in ENVIRONMENT section

<tt.package>
    TimesTen installation package

```

My contribution (2)

2. RPM package

⇒ 2 steps for real-world deployment

3. Puppet module (Openstack)

⇒ 0 steps for CERN environment

4. Documentation

- › **Puppet module enhancements**
- › **Automated analysis of candidate data**
- › **Testing, benchmarks**

Thank you.

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