

relstb utility.
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The goal of this short presentation is to demonstrate how relstb utility can be used to decrease time and handmade work to re-/create Oracle logical/physical standby databases for 10g, 11g, 12c Enterprise/Standard Edition versions.

Please use “zoom in” slide show function to see more picture details.

Description

- relstb utility is a bunch of UNIX Korn shell scripts (100 pcs. and 917 kbytes total about) that gives a hand of help to the Oracle database administrators to re-/create any kinds of Oracle standby databases with the minimal efforts. relstb utility is under constant developing to implement new standby related features. relstb utility was tested and works on Red Hat Linux (ver 6. and higher), Sun/Oracle Solaris (ver. 10 and higher) and IBM AIX (ver. 6 and higher) operating systems.
- Supported standby features by Oracle version:
 - 10g: Physical/Logical on EE, Physical on SE
 - 11g: Physical/Logical on EE, Physical on SE
 - 12c: Physical/Logical on EE, Physical on SE. Note: Far Sync is not supported.

Features like Data Guard, Data Guard Broker, Data Guard Fast-Start Failover, Active Database Duplication are supported if they presents

How does it work in general?

- Prerequisites' check
- Copying (from MAIN system) and modification (on AUX system) for files: init.ora, password file
- Copying (from MAIN system) control file for standby
- physical standby restoration and recovery using primary system's Flash Recovery Area on NFS share or using duplicate active database way
- Physical standby conversion into the logical standby in case of need
- Data guard broker creation in case of need
- Active data guard activation in case of need

Here you can see a short command line help



```
oracle@ora01/home/oracle/
[12:16] ◊ oracle@ora01:~$ /relstb/relstb.sh --help
Usage: relstb.sh arg1 arg2 arg3
(Re-)Creation of Oracle 10g/11g/12c Logical/Physical Standby database version 2.12 build 593

arg1 is --direction=arg      It's mandatory.
                             --direction=none    Only check of prerequisites.
                             --direction=lstb     Check of prerequisites and (re-)creation of logical standby.
                             --direction=phstb    Check of prerequisites and (re-)creation of physical standby.

arg2 is --enodgfile=arg      It's mandatory.
                             --enodgfile=filename Path to enodg file that sets and probably exports variables
                                                    DG_PRIMARY_SID, DG_STANDBY_SID,
                                                    DG_PRIMARY_HOST, DG_STANDBY_HOST,
                                                    DG_PRIMARY,    DG_STANDBY

arg3 is --edition=arg        It's mandatory.
                             --edition=se        Standard is the Oracle target edition.
                             --edition=ee        Enterprise is the Oracle target edition.

arg4 is --stbmode=arg
                             --stbmode=replace   log_archive_dest_2, log_archive_config parameters will be
                                                    updated by the proper values as well as DG broker configuration.
                                                    It's default value.
                             --stbmode=add        log_archive_dest_2 won't be changed, log_archive.config will get
                                                    additional entry, DG broker configuration won't be changed.
                                                    First free log_archive_dest_n will be chosen where n=8.

arg5 is --bkpctrl4stb=arg
                             --bkpctrl4stb=yes   Perform current control file backup for standby.
                                                    It's default value.
                             --bkpctrl4stb=no    Not to perform. Suitable when NFS share with primary FRA
                                                    doesn't exist.

arg6 is --duplactivedbs=arg
                             --duplactivedbs=yes Perform active database duplication forcibly.
                             --duplactivedbs=auto Decision to perform or not will be come automatically.
                                                    It's default value.

Please report any bugs to Olexandr Siroklyn (mailto:osiroklyn@gmail.com)

[12:17] ◊ oracle@ora01:~$
```

Prerequisites' checking

```

oracle@ora01/home/oracle
MAIN ($DG_PRIMARY_HOST): maisel ($DG_PRIMARY_HOST):
AUX ($DG_STANDBY_HOST): maisel ($DG_STANDBY_HOST):
OBSERVER ($DG_OBSERVER_HOST):

ID MODULE REQ? VARIABLE VALUE
10 getPWDFileMAIN.sh yes 1 PWDFileMAIN OK. File maisel.pwd exists on
20 getPWDFileAUX.sh yes 1 PWDFileAUX OK. File maisel.pwd exists on
30 getSysPWDMMAIN.sh yes 1 SysPWDMMAIN *****
40 getSysPWMAUX.sh yes 1 SysPWMAUX *****
50 getSystemPWDMMAIN.sh yes 1 SystemPWDMMAIN *****
60 getSystemPWMAUX.sh yes 1 SystemPWMAUX *****
70 getConnection2MAIN.sh yes 1 Connection2MAIN OK. TNSPING is good.
80 getOraVersionMAIN.sh yes 1 OraVersionMAIN Oracle Database 11g Enterprise Edition Release 11.2.0.4.0 - 64bit Production
90 getCompatibleMAIN.sh yes 1 CompatibleMAIN 11.2.0.4
100 getOraOptionsMAIN.sh yes 1 OraOptionsMAIN Oracle Application Express(APEX v.4.0.2.00.07); Oracle Database Catalog Views(CATALOG v.11.2.0.4.0); Oracle Da
tabase Java Packages(CATJAVA v.11.2.0.4.0); Oracle Database Packages and Types(CATPROC v.11.2.0.4.0); Oracle Text(CONTEXT v.11.2.0.4.0); Oracle Enterprise Manager(EM v.11.2.0
.4.0); Oracle Expression Filter(EPF v.11.2.0.4.0); JServer JAVA Virtual Machine(JSRVM v.11.2.0.4.0); Oracle Label Security(OLS v.11.2.0.4.0); Oracle Workspace Manager(OWM v.
11.2.0.4.0); Oracle XML Database(XDB v.11.2.0.4.0); Oracle XDK(XDK v.11.2.0.4.0);
110 getPWDLifeTimeMAIN.sh yes 1 PWDLifeTimeMAIN OK. PASSWORD_LIFE_TIME is UNLIMITED.
120 getAPEXInfoMAIN.sh yes 1 APEXInfoMAIN OK. Oracle Application Express v.4.0.2.00.07
130 getDatabaseRoleMAIN.sh yes 1 DatabaseRoleMAIN OK. Primary.
140 getDomainMAIN.sh yes 1 DomainMAIN
150 getNameMAIN.sh yes 1 NameMAIN maisel
160 getUniqueNameMAIN.sh yes 1 UniqueNameMAIN FAILED. Real db unique name = maisel , right db unique name = maisel
170 getOraServicesMAIN.sh yes 1 OraServicesMAIN maisel, maisel , maisel , maisel , maisel
180 getDatabaseUsersMAIN.sh yes 1 DatabaseUsers anonymous apex_040000 apex public user appsys ctsys dmsmp dip , exfsys flows_files , lba
csys mgmt view oracle com outln
190 getInstalledMAIN.sh yes 1 InstalledMAIN FAILED. Software is not installed.
200 getBlockChrMAIN.sh yes 1 BlockChrMAIN OK. Block change tracking feature is enabled.
210 getMemoryTargetMAIN.sh yes 1 MemoryTargetMAIN 0 Mb
220 getMemoryMaxTargetMAIN.sh yes 1 MemoryMaxTargetMAIN 0 Mb
230 getSGAMaxsizeMAIN.sh yes 1 SGAMaxsizeMAIN 5120 Mb
240 getSGATargetMAIN.sh yes 1 SGATargetMAIN 5120 Mb
250 getPGASizeMAIN.sh yes 1 PGASizeMAIN 1024 Mb
255 getDBCacheSizeMAIN.sh yes 1 DBCacheSizeMAIN 2048 Mb
260 getLSNRUpAUX.sh yes 1 LSNRUpAUX OK. Oracle 11g listener with name LISTENER is up.
270 getLSNRStaticSIDAUX.sh yes 1 LSNRStaticSIDAUX OK. Oracle listener with name LISTENER statically registered SID maisel. It is main requirement for using DUPL
ICATE ACTIVE DATABASE way in 11g.
280 getLSNRStaticDGGRMAUX.sh yes 1 LSNRStaticDGGRMAUX FAILED. Oracle listener with name LISTENER did not statically register service maisel , DGGRMAUX . It co
nflicts with Oracle objectives.
285 getLSNRStaticDGGRMAIN.sh yes 1 LSNRStaticDGGRMAIN Be sure Oracle listener with name LISTENER statically registered service maisel , DGGRMAUX , on MAIN syst
em also.
290 getTNSNamesValidAUX.sh yes 1 TNSNamesValidAUX FAILED. LISTENER entry can not be resolved. LISTENERS entry can not be resolved. SID occurrence is detected for
$DG_STANDBY entry in tnsnames.ora. TNSPING was used for resolving. But if DUPLICATE ACTIVE DATABASE way in 11g will be used do not worry about SID occurrence.
300 getLSNR_ADR_AUX.sh yes 1 LSNR_ADR_AUX ADR is not disabled via listener.ora
310 getLSName.sh yes 1 LSName Linux
320 getOSLevel.sh yes 1 OSLevel 3.10.0-123.el7.x86_64 HW:x86_64-bit KR:64-bit

```

Some more checks

```
oracle /ora01/home/oracle
310 getOSName.sh yes 1 OSName Linux
320 getOSLevel.sh yes 1 OSLevel 3.10.0-123.el7.x86_64 HW:x86_64-bit KR:64-bit
330 getHACMP.sh yes 1 HACMP No HACMP for Linux.
340 getHACMPDirStructureAUX.sh yes 1 HACMPDirStructureAUX OK. Either file structures conform to Oracle for HACMP requirements or there is no HACMP and therefore there are no any extra file structure needs.
350 getNFSmountAUX.sh yes 1 NFSmountAUX FAILED. /ora01_prim is not mounted,/ora04_prim is not mounted.
360 getNFSmountRWSizeAUX.sh yes 1 NFSmountRWSizeAUX OK.
370 getLinktoPrimaryFRAAUX.sh yes 1 LinktoPrimaryFRAAUX OK. Primary FRA is linked on AUX.
375 getContentPrimaryFRAAUX.sh yes 1 ContentPrimaryFRAAUX FAILED. MAIN system FRA content is strange on AUX system.
380 getRWtoPrimaryFRAAUX.sh yes 1 RWtoPrimaryFRAAUX OK. RW privileges on primary FRA.
390 getSPFileUsedMAIN.sh yes 1 SPFileUsedMAIN OK. SPFILE is in use.
400 getFRAUsedMAIN.sh yes 1 FRAUsedMAIN OK. FRA is properly configured.
410 getDefSegCreMAIN.sh yes 1 DefSegCreMAIN false
420 getSecureFileMAIN.sh yes 1 SecureFileMAIN permitted
430 getFlashbackUsedMAIN.sh yes 1 FlashbackUsedMAIN retention = NOGUARANTEE, undo_retention = 7200, db_flashback_retention_target = 10080, flashback_on = NO
440 getForceLoggingMAIN.sh yes 1 ForceLoggingMAIN OK.
450 getFailServerMAIN.sh yes 1 FailServerMAIN OK. Parameter fal_server=maisel
460 getFailClientMAIN.sh yes 1 FailClientMAIN OK. Parameter fal_client=maisel
470 getRMANArchDelPolMAIN.sh yes 1 RMANArchDelPolMAIN OK. ARCHIVELOG DELETION POLICY TO APPLIED ON ALL STANDBY BACKED UP 1 TIMES TO DISK is set.
495 getDirectoriesAUX.sh yes 1 DirectoriesAUX FAILED. see notes/getdirectoriesAUX.sh.txt,maisel for details
500 getLSNRoptMAIN.sh yes 1 LSNROptMAIN FAILED. remote_listener = , local_listener = LISTENER, But if DUPLICATE ACTIVE DATABASE way in 11G will be use
d do not worry about remote_listener = .
510 getSTBYLogsMAIN.sh yes 1 STBYLogsMAIN OK. At least 5 standby logs exist on MAIN.
520 getRSHAvailable.sh yes 1 RSHAvailable FAILED. For pair $DG_STANDBY_HOST(->)$DG_PRIMARY_HOST either $HOME/.rhosts is not correctly configured or appropriate daemons were not ran.
530 getRSHAvailableOBS.sh yes 1 RSHAvailableOBS FAILED. For pair $DG_STANDBY_HOST(->)$DG_OBSERVER_HOST either $HOME/.rhosts is not correctly configured or appropriate daemons were not ran.
540 getRCPAvailable.sh yes 1 RCPAvailable FAILED. For pair $DG_STANDBY_HOST(->)$DG_PRIMARY_HOST either $HOME/.rhosts is not correctly configured or appropriate daemons were not ran.
550 getSSHAvailableOBS.sh yes 1 SSHAvailableOBS FAILED. For pair $DG_STANDBY_HOST(->)$DG_OBSERVER_HOST either SSH requires interactive password or SSH software is not available.
560 getSSHAvailable.sh yes 1 SSHAvailable OK. For pair $DG_STANDBY_HOST(->)$DG_PRIMARY_HOST SSH works correctly.

Would you like to see results of backup checking for maisel ? (Y,y/N,n)n
Checking of prerequisites has been finished.
Results of the next actions will be database modifications.
Do you want to continue? (Y,y/N,n)y
Some failed checks have been found! See /ora01/home/oracle/relstb/var/variables.txt,maisel
Continue anyway? (Y,y/N,n)y
see future details in /ora01/home/oracle/trace/relstb.log
```

After prerequisites' checks finish there is a step to start physical standby restoration and recovery on AUX system. After that physical standby can be converted into the logical standby.

```
oracle@ [redacted] /ora01/home/oracle
Results of the next actions will be database modifications.
Do you want to continue? (Y,y/N,n)y
Some failed checks have been found! See /ora01/home/oracle/relstb/var/variables.txt, maisel_ [redacted]
Continue anyway? (Y,y/N,n)y
see future details in /ora01/home/oracle/trace/relstb.log
You are starting a (re-)creation of maisel_ [redacted] (logical standby database) on [redacted] host.
Backup copy of $ORACLE_HOME/dbs is in $ORACLE_HOME/dbs/backup_15Apr2016_14:58:39

Step 1a
Switch existing(?) report services to maisel_ [redacted]? (Y,y/N,n)n
Switching of existing(?) report services to maisel_ [redacted] is skipped.
Step 1c
De-register logical standby maisel_ [redacted] with EM DBconsole? (Y,y/N,n)n
De-registering of logical standby maisel_ [redacted] with EM DBconsole is skipped.
Step 2a
Remove existing(?) maisel_ [redacted] as a supposed LOGICAL standby database by RMAN on [redacted] host? (Y,y/N,n)n
Removing of maisel_ [redacted] is skipped on [redacted] host.
Step 2b
Remove existing(?) maisel_ [redacted] as a supposed TEMPORARY PHYSICAL standby database by RMAN on [redacted] host? (Y,y/N,n)y

In case of HAOMP presence do not forget to check full FRA path is existed and available right now!
Step 3
Modify and copy s(p) files and pwd file for maisel_ [redacted]? (Y,y/N,n)y
initmaisel.ora          100% 3151    3.1KB/s  00:00
orapwmaisel            100% 2048    2.0KB/s  00:00

SCP way has been used to perform copying.
Hereafter following files will be used:
AUX ($DG_STANDBY): maisel_ [redacted] ($DG_STANDBY_HOST): [redacted]
-rw-r----- 1 oracle dba 2428 Apr 15 14:56 /ora01/home/oracle/relstb/tmp/dbs/initmaisel.ora
-rw-r----- 1 oracle dba 2048 Apr 15 14:56 /ora01/app/oracle/product/11.2.0/server_ee_1/dbs/orapwmaisel

Step 4
Restore and recover physical standby maisel_ [redacted] on [redacted] host? (Y,y/N,n)█
```

Here you can see parallelism during data files' restoration and a timer at the top with the end work time estimation. Timer refreshes every 30 seconds.

```
oracle@ [redacted] /ora01/home/oracle
Friday Apr 15, 03:03:47 PM
%% done Estimated end time Action name
-----
18 Friday Apr 15, 03:15:21 PM RMAN: aggregate input
18.9 Friday Apr 15, 03:08:03 PM RMAN: full datafile restore
5.04 Friday Apr 15, 03:20:25 PM RMAN: full datafile restore
5.51 Friday Apr 15, 03:21:13 PM RMAN: full datafile restore
79.33 Friday Apr 15, 03:04:03 PM RMAN: full datafile restore

SCP way has been used to perform copying.
Hereafter following files will be used:
AUX ($DG_STANDBY): maisel [redacted] ($DG_STANDBY_HOST): [redacted]
-rw----- 1 oracle dba 2428 Apr 15 14:56 /ora01/home/oracle/relstb/tmp/dbs/initmaisel.ora
-rw-r----- 1 oracle dba 2048 Apr 15 14:56 /ora01/app/oracle/product/11.2.0/server_ee_1/dbs/orapwmaisel

Step 4
Restore and recover physical standby maisel on [redacted] host? (Y,y/N,n)y
nohup: redirecting stderr to stdout
Done 0%

Do you want to allocate RMAN channels manually (default is 4 aux. + 1 std.)? (Y,y/N,n)y
AUX channels' amount (1..12): 4
STANDARD channels' amount (1..12): 4

Done 11.11%
Done 22.22%
Done 33.33%
[redacted]
```


End of restoration, recovery and logical standby conversion

```
Do you want to allocate RMAN channels manually (default is 4 aux. + 1 std.)? (Y,y/N,n)y
AUX channels' amount (1..12): 4
STANDARD channels' amount (1..12): 4
Done 11.11%
Done 22.22%
Done 33.33%
Done 44.44%
Done 55.55%
Done 66.66%
Done 77.77%
Done 88.88%
Done 100%
Step 5
Convert physical standby maisel to logical standby maisel_ on host? (Y,y/N,n)y
Done 0%
Done 7.14%
Done 14.28%
Done 21.42%
Done 28.56%
Done 35.70%
Done 42.84%
Done 49.98%
Done 57.12%
Done 64.26%
Done 71.40%
Done 100%
Step 6
Install File Name conversion procedure and Hot fixes for NOSORT statements for logical standby maisel_ and primary instance maisel_ (Y,y/N,n)
```

A lot of propositions to adjust standby and primary instance

Done 0%
Done 25.00%
Done 50.00%
Done 75.00%
Done 100%

Step 7c

Set guard status to STANDBY for logical standby maisel_? (Y,y/N,n)y

Step 7d

Set LOG_AUTO_DELETE to TRUE for logical standby maisel_ and primary instance maisel_? (Y,y/N,n)y

Don't forget to reboot maisel_ to activate this feature in case of 10g.

Step 7e

Set LOG_AUTO_DEL_RETENTION_TARGET to 2 hours (default value is 24 hrs.) for logical standby maisel_ and primary instance maisel_? (Y,y/N,n)y

Step 7f

Apply APEX fixes for logical standby maisel_ and primary instance maisel_? (Y,y/N,n)y

Step 7g

Adjust DATA_PUMP_DIR for logical standby maisel_? (Y,y/N,n)■

```
Step 7h
Set skip rules for temporary segment advisor tables (per Metalink note 9595358) for logical standby maisel_ and primary instance maisel_? (Y,y/N,n)y

Step 7i
Setup CONFIGURE ARCHIVELOG DELETION POLICY TO NONE in RMAN for logical standby maisel_? (Y,y/N,n)y

Step 7j
Apply workaround to avoid ORA-26808 - Streams Apply Process Aborted (per Metalink note 1273698.1) for logical standby maisel_ and primary instance maisel_? (Y,y/N,n)y

Step 7k
Adjust parameter dispatchers for logical standby maisel_? (Y,y/N,n)y

Step 7l
Launch optimizer statistic gathering for logical standby maisel_? (Y,y/N,n)y

Done 0%
Done 33.33%
Done 66.66%
Done 100%

Step 7m
Set skip rules for tables like SYS_EXPORT_TABLE_0* and SYSTEM_EXPORT_TABLE_0* for logical standby maisel_? (Y,y/N,n)y

Step 7n
Apply SYS.AUD$ and SYS.FGA_LOG$ fixes (per Metalink note 862173.1) for logical standby maisel_ and primary instance maisel_? (Y,y/N,n)y

Step 7o
Switch Autospace advisor off for logical standby maisel_ and primary instance maisel_? (Y,y/N,n)█
```

The end. Some missed Oracle background process mean Data Guard Broker wasn't activated.

```
orade@ora01/home/orade
Apply workaround to avoid ORA-28808 - Streams Apply Process Aborted (per Metalink note 1273698.1) for logical standby maisel_ and primary instance maisel_? (Y,y/N,n)y

Step 7k
Adjust parameter dispatchers for logical standby maisel_ (Y,y/N,n)y

Step 7l
Launch optimizer statistic gathering for logical standby maisel_? (Y,y/N,n)y

Done 0%
Done 33.33%
Done 66.66%
Done 100%

Step 7m
Set skip rules for tables like SYS_EXPORT_TABLE_0* and SYSTEM_EXPORT_TABLE_0* for logical standby maisel_? (Y,y/N,n)y

Step 7n
Apply SYS.AUD$ and SYS.FGA_LOG$ fixes (per Metalink note 862173.1) for logical standby maisel_ and primary instance maisel_? (Y,y/N,n)y

Step 7o
Switch Autospace advisor off for logical standby maisel_ and primary instance maisel_? (Y,y/N,n)y

Step 8
Register logical standby maisel_ with EM DBconsole? (Y,y/N,n)n
Registering of logical standby maisel_ with EM DBconsole is skipped.

Step 9
Switch existing(?) report services to maisel_? (Y,y/N,n)n
Switching of existing(?) report services to maisel_ is skipped.

Some Oracle background processes for logical standby are not running, i.e.
Data Guard Broker Monitor(ora_dmon_maisel), Data Guard Broker Instance Slave(ora_insv_maisel), Data Guard Broker NetSlave(ora_nsv0_maisel), Data Guard Broker Resource Guard(
ora_rsm0_maisel)

see more details in /ora01/home/oracle/trace/relsth.log

Don't forget to run
~/cmd/chkoradb.sh maisel -f ~/policy/ora_dg_logical_sync_checks
to make sure everything is OK or is not.

Finish

[16:32] <maisel> orade@ora01/home/orade
```

Total. alert.log output. Primary logs get to standby instance and apply

```
oracle@ /ora01/app/oracle/admin/maisel/bdump
LOGMINER: session#=1 (Logical Standby$), preparer MS02 pid=49 OS id=2285 sid=419 started
LOGSTDBY WARNING: Oracle recommends skipping SYS.AUD$ and SYS.FGA_LOG$ together.
LOGMINER: Begin mining logfile for session 1 thread 1 sequence 35480, /ora06/oradata/maisel/sredo07bmaise
l.rdl
Fri Apr 15 16:31:26 2016
LOGSTDBY Analyzer process AS00 started with server id=0 pid=50 OS id=2287
Fri Apr 15 16:31:26 2016
LOGSTDBY Apply process AS03 started with server id=3 pid=54 OS id=2293
Fri Apr 15 16:31:26 2016
LOGSTDBY Apply process AS05 started with server id=5 pid=56 OS id=2297
Fri Apr 15 16:31:26 2016
LOGSTDBY Apply process AS01 started with server id=1 pid=51 OS id=2289
Fri Apr 15 16:31:26 2016
LOGSTDBY Apply process AS04 started with server id=4 pid=55 OS id=2295
Fri Apr 15 16:31:26 2016
LOGSTDBY Apply process AS02 started with server id=2 pid=52 OS id=2291
Fri Apr 15 16:36:01 2016
Thread 1 advanced to log sequence 6 (LGWR switch)
  Current log# 2 seq# 6 mem# 0: /ora02/oradata/maisel/redo02amaisel.rdl
  Current log# 2 seq# 6 mem# 1: /ora06/oradata/maisel/redo02bmaisel.rdl
Fri Apr 15 16:36:07 2016
Archived Log entry 5 added for thread 1 sequence 5 ID 0xa4239d09 dest 1:
Fri Apr 15 16:41:30 2016
LOGMINER: End mining logfile for session 1 thread 1 sequence 35480, /ora06/oradata/maisel/sredo07bmaise
l.rdl
Fri Apr 15 16:41:30 2016
RFS[1]: Selected log 5 for thread 1 sequence 35481 dbid -1725949980 branch 859980588
LOGMINER: Begin mining logfile for session 1 thread 1 sequence 35481, /ora06/oradata/maisel/sredo05bmaise
l.rdl
Fri Apr 15 16:41:36 2016
RFS LogMiner: Registered logfile [/ora05/flash_recovery_area/MAISEL /foreign_archive/maisel_
2016_04_15/ol_mf_1_35480_cklvmc4w_.arc] to LogMiner session id [1]
Fri Apr 15 16:49:16 2016
LSP0: warning -- apply server 2, sid 26 waiting for event (since 421 seconds):
```