Создание NetBackup политики (Oracle Intelligent Policy) для БД Oracle (SAP)

А) Установка агента NB и Регистрация экземпляра БД Oracle на NB мастер-сервере.

1. Устанавлеваем NetBackup (NB) клиента на Linux-хост с БД Oracle.
2. Проверяем, что в каталоге установки NB есть ссылка на lib в $ORACLE_HOME/lib/libobk.so
   # ls /usr/openv/netbackup/bin/libobk.*
   Если нет, создаём:
   # cd $ORACLE_HOME/lib/
   # ln -s /usr/openv/netbackup/bin/libobk.so64 libobk.so
3. После регистрации клиента на NB мастер-сервере, в NB админ-консоле в разделе «NetBackup Management» -> Aplications -> Oracle -> All Instances должен появиться наш инстанс БД Oracle.
4. В БД Oracle надо использовать (если нет – создать) пользователя с ролями CONNECT, SYSBACKUP, например так:
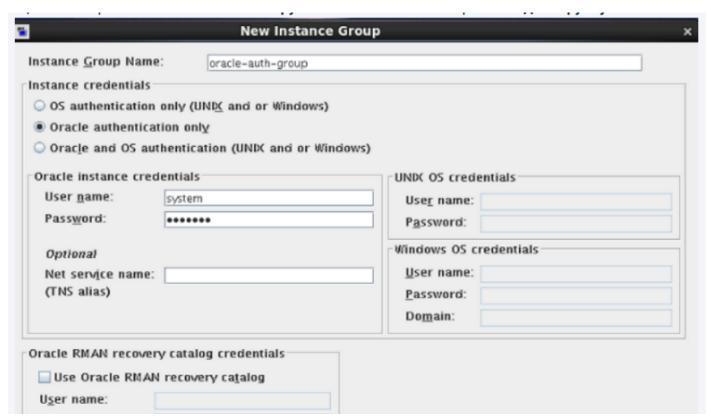   > SQL> CREATE USER BackupAdmin;
   > SQL> ALTER USER BackupAdmin IDENTIFIED BY <passwd *с первой буквы>;
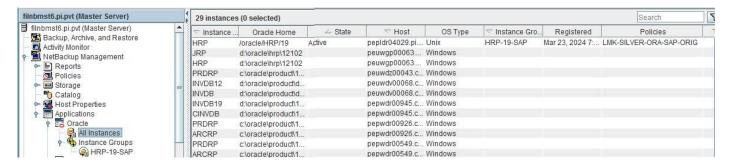   > SQL > GRANT CONNECT, SYSBACKUP TO BackupAdmin;
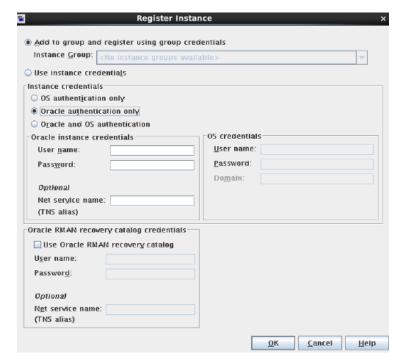   > *отъем/удаление: REVOKE SYSBACKUP from BackupAdmin / DROP USER BackupAdmin
5. Заходим в Instance Groups на NB админ-консоли и создаем группу.
6. В свойствах группы указываем имя группы – HRP-19-SAP, usera BackupAdmin и его пароль:

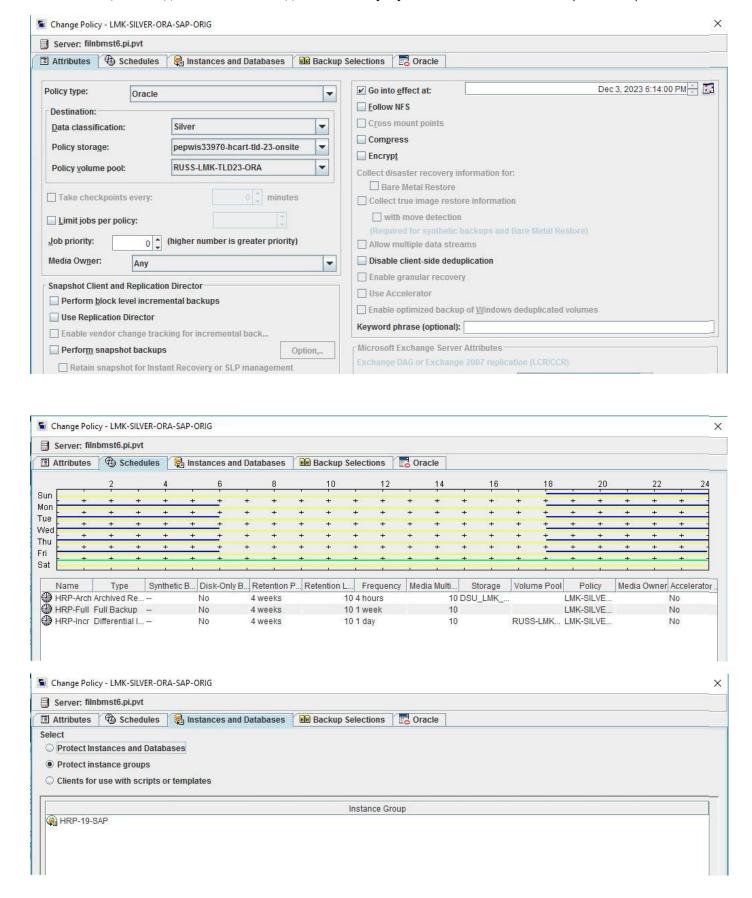Имя вновь созданной группы экземпляров появится на левой панели.

Автор – Коновалов С.П.

7. Чтобы назначить отдельные экземпляры этой группе, нажмите **«All instances»** на левой панели, чтобы отобразить список экземпляров на правой панели.

8. Щёлкните правой кнопкой мыши по нужному экземпляру и выберите **Зарегистрировать**, чтобы отобразилась следующая панель. Вы можете использовать клавиши **Ctrl** и **Shift**, чтобы выбрать несколько экземпляров для регистрации.

9. Убедитесь, что выбрана галка "Добавить в группу и зарегистрироваться с использованием учётных данных группы". С помощью раскрывающегося меню "Группа инстансов" выберите группу инстансов, в которую вы хотите добавить инстанс (HRP-19-SAP), затем нажмите **OK**.

10. Повторите для каждого экземпляра, который вы хотите включить в группу экземпляров.

B) Создание NB политики для БД Oracle:

11. С помощью NB админ-консоли создаем политику и указываем ей тип – Oracle (см. ниже):

Name	Type	Synthetic B...	Disk-Only B...	Retention P...	Retention L...	Frequency	Media Multi...	Storage	Volume Pool	Policy	Media Owner	Accelerator ...
HRP-Arch	Archived Re...	--	No	4 weeks	10	4 hours	10	DSU_LMK_...		LMK-SILVE...		No
HRP-Full	Full Backup	--	No	4 weeks	10	1 week	10			LMK-SILVE...		No
HRP-Incr	Differential I...	--	No	4 weeks	10	1 day	10		RUSS-LMK...	LMK-SILVE...		No

Автор – Коновалов С.П.

Если выбрать "Partial database – Tablespace" мы должны увидеть все таблеспейсы БД в окне "Backup Selection List". Если нет – то кренделя к БД Oracle неправильные (см. п. 4).

И наконец закладка "Oracle" (см. ниже), которая появляется, когда мы указываем тип политики – Oracle.
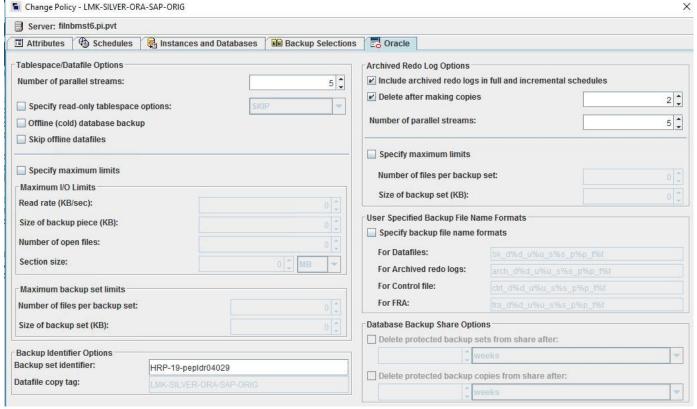
Наибольший интерес – разделы "Tablespace/Datafile Options" и "Arhived Redo Log Options".

В нём указывается количество параллельных потоков (5), которое влияет на скорость бэкапа (*бесконечное увеличение может упереться в скорость среды передачи данных и вызывать ошибки).

Тут же указывается, включать ли в Full и Incr-бэкапы файлов данных БД ещё и Arch-Redo-Log-файлы.

Тут же указано после какого количества копий Arch-Redo-Log-файлов удалять их из FS и таким образом делать space-рекламацию для создания следующих Arch-Redo-Log-файлов. Если это не выполнять после бэкапов, рано или поздно доступное дисковое пространство закончится и БД засуспендиться не имея возможность создавать новые архивные журналы. Тут указано удалять после 2х копий.

Если БД очень активно пишет, Arch-Redo-Logs будут создаваться быстро и можно зашедулить отдельный их бэкап в этой же бэкап-политики. После запуска бэкапа, можно смотреть RMAN-лог, пример см. ниже.

Автор – Коновалов С.П.

Фрагмент NB и RMAN-логов Incr-бэкапа:

```
Dec 11, 2023 6:00:09 PM - Info bphdb (pid=1985630) Backup started
Dec 11, 2023 6:00:09 PM - connected; connect time: 0:00:00
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
 ************************************************************
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - Backup Information:
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -    Client: pepldr      .pi.pvt
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -    ORACLE_SID: HRP
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -    ORACLE_HOME: /oracle/HRP/19
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -    Online (Hot) Stream backup requested
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -    Objects being backed up:
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -         Whole Database
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -         Archive Logs
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -         Control File
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
     Number of channels to allocate (database): 5
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
     Number of channels to allocate (archive logs): 5
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -    Oracle Authentication is being used
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
     RMAN Default Limits will be used (Database)
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
     RMAN Default Limits will be used (Archive Logs)
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -   Backup Set Identifier: HRP-19-
pepldr04029
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -    Backup File Name Formats:
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
     Database: bk_d%d_u%u_s%s_p%p_t%t
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
     Archive Log: arch_d%d_u%u_s%s_p%p_t%t
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
     Control File: ctrl_d%d_u%u_s%s_p%p_t%t
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - End of Backup Information
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
 ************************************************************
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - Database status is: OPEN
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - Database open mode is: READ WRITE
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - ARCHIVE LOG mode is: ARCHIVELOG
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - CDB mode: NOT ENABLED
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - Starting Oracle Recovery Manager.
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - Using: /oracle/HRP/19/bin/rman
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
 Connection info: target "'BackupAdmin/***** as sysbackup'" nocatalog
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - Start of Recovery Manager input.
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - # ------------------------------------
----------------------------
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - # RMAN command section
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - # ------------------------------------
----------------------------
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - RUN {
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - ALLOCATE CHANNEL ch00
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -    TYPE 'SBT_TAPE'
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
    PARMS 'SBT_LIBRARY=/usr/openv/netbackup/bin/libobk.so64, ENV=(NB_ORA_SID=HRP,NB_ORA_HOME=/o
racle/HRP/19,NB_ORA_CLIENT=pepldr04029.pi.pvt,)';
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - ALLOCATE CHANNEL ch01
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -    TYPE 'SBT_TAPE'
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
    PARMS 'SBT_LIBRARY=/usr/openv/netbackup/bin/libobk.so64, ENV=(NB_ORA_SID=HRP,NB_ORA_HOME=/o
racle/HRP/19,NB_ORA_CLIENT=pepldr04029.pi.pvt,)';
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - ALLOCATE CHANNEL ch02
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -    TYPE 'SBT_TAPE'
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
    PARMS 'SBT_LIBRARY=/usr/openv/netbackup/bin/libobk.so64, ENV=(NB_ORA_SID=HRP,NB_ORA_HOME=/o
racle/HRP/19,NB_ORA_CLIENT=pepldr04029.pi.pvt,)';
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - ALLOCATE CHANNEL ch03
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -    TYPE 'SBT_TAPE'
```

Автор – Коновалов С.П.

```
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
     PARMS 'SBT_LIBRARY=/usr/openv/netbackup/bin/libobk.so64, ENV=(NB_ORA_SID=HRP,NB_ORA_HOME=/o
racle/HRP/19,NB_ORA_CLIENT=pepldr04029.pi.pvt,)';
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - ALLOCATE CHANNEL ch04
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -     TYPE 'SBT_TAPE'
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
     PARMS 'SBT_LIBRARY=/usr/openv/netbackup/bin/libobk.so64, ENV=(NB_ORA_SID=HRP,NB_ORA_HOME=/o
racle/HRP/19,NB_ORA_CLIENT=pepldr04029.pi.pvt,)';
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
 SEND 'NB_ORA_SERV=filnbmst6.pi.pvt,NB_ORA_POLICY=LMK-SILVER-ORA-SAP-
LNX,NB_ORA_PARENT_JOBID=395750,NB_ORA_SCHED=HRP-Incr';
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - BACKUP
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -     INCREMENTAL LEVEL=1
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -     FORMAT 'bk_d%d_u%u_s%s_p%p_t%t'
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -     TAG 'HRP-19-pepldr04029'
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -     DATABASE;
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - RELEASE CHANNEL ch00;
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - RELEASE CHANNEL ch01;
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - RELEASE CHANNEL ch02;
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - RELEASE CHANNEL ch03;
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - RELEASE CHANNEL ch04;
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - # Backup Archived Logs
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - sql 'alter system archive log current';
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - ALLOCATE CHANNEL ch00
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -     TYPE 'SBT_TAPE'
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
     PARMS 'SBT_LIBRARY=/usr/openv/netbackup/bin/libobk.so64, ENV=(NB_ORA_SID=HRP,NB_ORA_HOME=/o
racle/HRP/19,NB_ORA_CLIENT=pepldr04029.pi.pvt,)';
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - ALLOCATE CHANNEL ch01
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -     TYPE 'SBT_TAPE'
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
     PARMS 'SBT_LIBRARY=/usr/openv/netbackup/bin/libobk.so64, ENV=(NB_ORA_SID=HRP,NB_ORA_HOME=/o
racle/HRP/19,NB_ORA_CLIENT=pepldr04029.pi.pvt,)';
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - ALLOCATE CHANNEL ch02
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -     TYPE 'SBT_TAPE'
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
     PARMS 'SBT_LIBRARY=/usr/openv/netbackup/bin/libobk.so64, ENV=(NB_ORA_SID=HRP,NB_ORA_HOME=/o
racle/HRP/19,NB_ORA_CLIENT=pepldr04029.pi.pvt,)';
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - ALLOCATE CHANNEL ch03
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -     TYPE 'SBT_TAPE'
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
     PARMS 'SBT_LIBRARY=/usr/openv/netbackup/bin/libobk.so64, ENV=(NB_ORA_SID=HRP,NB_ORA_HOME=/o
racle/HRP/19,NB_ORA_CLIENT=pepldr04029.pi.pvt,)';
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - ALLOCATE CHANNEL ch04
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -     TYPE 'SBT_TAPE'
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
     PARMS 'SBT_LIBRARY=/usr/openv/netbackup/bin/libobk.so64, ENV=(NB_ORA_SID=HRP,NB_ORA_HOME=/o
racle/HRP/19,NB_ORA_CLIENT=pepldr04029.pi.pvt,)';
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
 SEND 'NB_ORA_SERV=filnbmst6.pi.pvt,NB_ORA_POLICY=LMK-SILVER-ORA-SAP-
LNX,NB_ORA_PARENT_JOBID=395750,NB_ORA_SCHED=HRP-Incr';
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - BACKUP
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -     FORMAT 'arch_d%d_u%u_s%s_p%p_t%t'
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -     TAG 'HRP-19-pepldr04029'
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -     ARCHIVELOG
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -         ALL;
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - RELEASE CHANNEL ch00;
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - RELEASE CHANNEL ch01;
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - RELEASE CHANNEL ch02;
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - RELEASE CHANNEL ch03;
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - RELEASE CHANNEL ch04;
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - # Control File Backup
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - ALLOCATE CHANNEL ch00
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -     TYPE 'SBT_TAPE'
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
     PARMS 'SBT_LIBRARY=/usr/openv/netbackup/bin/libobk.so64, ENV=(NB_ORA_SID=HRP,NB_ORA_HOME=/o
racle/HRP/19,NB_ORA_CLIENT=pepldr04029.pi.pvt,)';
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -
 SEND 'NB_ORA_SERV=filnbmst6.pi.pvt,NB_ORA_POLICY=LMK-SILVER-ORA-SAP-
LNX,NB_ORA_PARENT_JOBID=395750,NB_ORA_SCHED=HRP-Incr';
```

Автор – Коновалов С.П.

```
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - BACKUP
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -     FORMAT 'ctrl_d%d_u%u_s%s_p%p_t%t'
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -     TAG 'HRP-19-pepldr04029'
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF -     CURRENT CONTROLFILE;
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - RELEASE CHANNEL ch00;
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - }
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - End of Recovery Manager input.
Dec 11, 2023 6:00:10 PM - Info bphdb (pid=1985630) INF - Start of Recovery Manager output.
Dec 11, 2023 6:00:11 PM - Info bphdb (pid=1985630) INF - Recovery Manager: Release 19.0.0.0 -
 Production on Mon Dec 11 18:00:10 2023
Dec 11, 2023 6:00:11 PM - Info bphdb (pid=1985630) INF - Version 19.19.0.0.0
Dec 11, 2023 6:00:12 PM - Info bphdb (pid=1985630) INF -
 connected to target database: HRP (DBID=2256538394)
Dec 11, 2023 6:00:12 PM - Info bphdb (pid=1985630) INF -
 using target database control file instead of recovery catalog
Dec 11, 2023 6:00:12 PM - Info bphdb (pid=1985630) INF - allocated channel: ch00
Dec 11, 2023 6:00:12 PM - Info bphdb (pid=1985630) INF -
 channel ch00: SID=697 device type=SBT_TAPE
Dec 11, 2023 6:00:13 PM - Info bphdb (pid=1985630) INF - allocated channel: ch01
Dec 11, 2023 6:00:13 PM - Info bphdb (pid=1985630) INF -
 channel ch01: SID=258 device type=SBT_TAPE
Dec 11, 2023 6:00:13 PM - Info bphdb (pid=1985630) INF - allocated channel: ch02
Dec 11, 2023 6:00:13 PM - Info bphdb (pid=1985630) INF -
 channel ch02: SID=768 device type=SBT_TAPE
Dec 11, 2023 6:00:13 PM - Info bphdb (pid=1985630) INF - allocated channel: ch03
Dec 11, 2023 6:00:13 PM - Info bphdb (pid=1985630) INF -
 channel ch03: SID=259 device type=SBT_TAPE
Dec 11, 2023 6:00:14 PM - Info bphdb (pid=1985630) INF - allocated channel: ch04
Dec 11, 2023 6:00:14 PM - Info bphdb (pid=1985630) INF -
 channel ch04: SID=455 device type=SBT_TAPE
Dec 11, 2023 6:00:16 PM - Info bphdb (pid=1985630) INF -
 channel ch00: starting incremental level 1 datafile backup set
Dec 11, 2023 6:00:16 PM - Info bphdb (pid=1985630) INF -
 input datafile file number=00016 name=+DATA/HRPMDB/DATAFILE/psapsr3.331.1155073211
…

Dec 11, 2023 6:13:22 PM - Info bphdb (pid=1985630) INF -
 Starting Control File and SPFILE Autobackup at 11-DEC-23
Dec 11, 2023 6:13:37 PM - Info bphdb (pid=1985630) INF - piece handle=c-2256538394-20231211-
04 comment=API Version 2.0,MMS Version 5.0.0.0
Dec 11, 2023 6:13:37 PM - Info bphdb (pid=1985630) INF -
 Finished Control File and SPFILE Autobackup at 11-DEC-23
Dec 11, 2023 6:13:37 PM - Info bphdb (pid=1985630) INF - RMAN-
08591: warning: invalid archived log deletion policy
Dec 11, 2023 6:13:39 PM - Info bphdb (pid=1985630) INF - released channel: ch00
Dec 11, 2023 6:13:39 PM - Info bphdb (pid=1985630) INF - released channel: ch01
Dec 11, 2023 6:13:39 PM - Info bphdb (pid=1985630) INF - released channel: ch02
Dec 11, 2023 6:13:40 PM - Info bphdb (pid=1985630) INF - released channel: ch03
Dec 11, 2023 6:13:40 PM - Info bphdb (pid=1985630) INF - released channel: ch04
Dec 11, 2023 6:13:40 PM - Info bphdb (pid=1985630) INF -
 sql statement: alter system archive log current
Dec 11, 2023 6:13:40 PM - Info bphdb (pid=1985630) INF - allocated channel: ch00
Dec 11, 2023 6:13:40 PM - Info bphdb (pid=1985630) INF -
 channel ch00: SID=697 device type=SBT_TAPE
Dec 11, 2023 6:13:40 PM - Info bphdb (pid=1985630) INF - allocated channel: ch01
Dec 11, 2023 6:13:40 PM - Info bphdb (pid=1985630) INF -
 channel ch01: SID=258 device type=SBT_TAPE
Dec 11, 2023 6:13:41 PM - Info bphdb (pid=1985630) INF - allocated channel: ch02
Dec 11, 2023 6:13:41 PM - Info bphdb (pid=1985630) INF -
 channel ch02: SID=768 device type=SBT_TAPE
Dec 11, 2023 6:13:41 PM - Info bphdb (pid=1985630) INF - allocated channel: ch03
Dec 11, 2023 6:13:41 PM - Info bphdb (pid=1985630) INF -
 channel ch03: SID=259 device type=SBT_TAPE
Dec 11, 2023 6:13:41 PM - Info bphdb (pid=1985630) INF - allocated channel: ch04
Dec 11, 2023 6:13:41 PM - Info bphdb (pid=1985630) INF -
 channel ch04: SID=455 device type=SBT_TAPE
Dec 11, 2023 6:13:41 PM - Info bphdb (pid=1985630) INF - current log archived
Dec 11, 2023 6:13:48 PM - Info bphdb (pid=1985630) INF -
 channel ch00: starting archived log backup set
```

Автор – Коновалов С.П.

```
Dec 11, 2023 6:13:48 PM - Info bphdb (pid=1985630) INF -
 input archived log thread=1 sequence=184 RECID=269 STAMP=1155134614
…
Dec 11, 2023 6:27:01 PM - Info bphdb (pid=1985630) INF -
 Starting Control File and SPFILE Autobackup at 11-DEC-23
Dec 11, 2023 6:27:16 PM - Info bphdb (pid=1985630) INF - piece handle=c-2256538394-20231211-
05 comment=API Version 2.0,MMS Version 5.0.0.0
Dec 11, 2023 6:27:16 PM - Info bphdb (pid=1985630) INF -
 Finished Control File and SPFILE Autobackup at 11-DEC-23
Dec 11, 2023 6:27:17 PM - Info bphdb (pid=1985630) INF - RMAN-
08591: warning: invalid archived log deletion policy
Dec 11, 2023 6:27:18 PM - Info bphdb (pid=1985630) INF - released channel: ch00
Dec 11, 2023 6:27:18 PM - Info bphdb (pid=1985630) INF - released channel: ch01
Dec 11, 2023 6:27:18 PM - Info bphdb (pid=1985630) INF - released channel: ch02
Dec 11, 2023 6:27:18 PM - Info bphdb (pid=1985630) INF - released channel: ch03
Dec 11, 2023 6:27:18 PM - Info bphdb (pid=1985630) INF - released channel: ch04
Dec 11, 2023 6:27:18 PM - Info bphdb (pid=1985630) INF - allocated channel: ch00
Dec 11, 2023 6:27:18 PM - Info bphdb (pid=1985630) INF -
 channel ch00: SID=697 device type=SBT_TAPE
Dec 11, 2023 6:27:18 PM - Info bphdb (pid=1985630) INF -
 channel ch00: starting full datafile backup set
Dec 11, 2023 6:27:19 PM - Info bphdb (pid=1985630) INF -
 including current control file in backup set
Dec 11, 2023 6:27:34 PM - Info bphdb (pid=1985630) INF -
 piece handle=ctrl_dHRP_u8m2dpj05_s2326_p1_t1155320837 tag=HRP-19-
PEPLDR04029 comment=API Version 2.0,MMS Version 5.0.0.0
Dec 11, 2023 6:27:34 PM - Info bphdb (pid=1985630) INF -
 channel ch00: backup set complete, elapsed time: 00:00:15
Dec 11, 2023 6:27:34 PM - Info bphdb (pid=1985630) INF -
 Starting Control File and SPFILE Autobackup at 11-DEC-23
Dec 11, 2023 6:27:49 PM - Info bphdb (pid=1985630) INF - piece handle=c-2256538394-20231211-
06 comment=API Version 2.0,MMS Version 5.0.0.0
Dec 11, 2023 6:27:49 PM - Info bphdb (pid=1985630) INF -
 Finished Control File and SPFILE Autobackup at 11-DEC-23
Dec 11, 2023 6:27:50 PM - Info bphdb (pid=1985630) INF - released channel: ch00
Dec 11, 2023 6:27:50 PM - Info bphdb (pid=1985630) INF - RMAN-
08591: warning: invalid archived log deletion policy
Dec 11, 2023 6:27:51 PM - Info bphdb (pid=1985630) INF - Recovery Manager complete.
Dec 11, 2023 6:27:51 PM - Info bphdb (pid=1985630) INF - End of Recovery Manager output.
Dec 11, 2023 6:27:51 PM - Info bphdb (pid=1985630) INF - End Oracle Recovery Manager.
Dec 11, 2023 6:27:52 PM - Info bpbrm (pid=7892) validating image for client pepldr04029.pi.pvt
Dec 11, 2023 6:27:52 PM -
 Info bphdb (pid=1985630) done. status: 0: the requested operation was successfully completed
Dec 11, 2023 6:27:52 PM - end writing
```
The requested operation was successfully completed.   (0)

Автор – Коновалов С.П.