

Перенести данные схемы HR из базы данных STUD в базу данных ORCL в схему HR_ORCL с помощью NETWORK MODE

Создаем две директории в двух базах данных:

```
SQL> Conn sys/oracle@student as sysdba
Connected.
SQL> CREATE DIRECTORY dop5_1 AS 'E:\labs\';
Directory created.

SQL> Conn sys/oracle@orcl as sysdba
Connected.
SQL> CREATE DIRECTORY dop5_2 AS 'E:\labs\';
Directory created.

SQL>
```

Даем привилегии на экспорт и на чтение директории для hr

```
SQL> Conn sys/oracle@student as sysdba
Connected.
SQL> grant read,write on directory dop5_1 to hr;
Grant succeeded.

SQL> grant datapump_exp_full_database to hr;
Grant succeeded.

SQL>
SQL> grant datapump_imp_full_database to hr;
Grant succeeded.
```

Создаем ссылку на базу данных:

```
SP2-0734: unknown command beginning "DUMPFILE=h..." - rest of line ignored.
SQL> CREATE public DATABASE LINK student_link CONNECT TO hr IDENTIFIED BY hr USING 'student';
Database link created.
```

Запускаем экспорт схемы hr:

```

SQL> $expdp hr/hr@student SCHEMAS=hr NETWORK_LINK=student_link DIRECTORY=dop5_1
DUMPFILE=hr.dmp LOGFILE=hr_exp.log

Export: Release 11.2.0.1.0 - Production on Sat Nov 18 03:33:18 2023

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Connected to: Oracle Database 11g Enterprise Edition Release 11.2.0.1.0 - 64bit
Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options
Starting "HR"."SYS_EXPORT_SCHEMA_01": hr/*****@student SCHEMAS=hr NETWORK_LI
NK=student_link DIRECTORY=dop5_1 DUMPFILE=hr.dmp LOGFILE=hr_exp.log
Estimate in progress using BLOCKS method...
Processing object type SCHEMA_EXPORT/TABLE/TABLE_DATA
Total estimation using BLOCKS method: 832 KB
Processing object type SCHEMA_EXPORT/USER
Processing object type SCHEMA_EXPORT/SYSTEM_GRANT
Processing object type SCHEMA_EXPORT/ROLE_GRANT
Processing object type SCHEMA_EXPORT/DEFAULT_ROLE
Processing object type SCHEMA_EXPORT/PRE_SCHEMA/PROACT_SCHEMA
Processing object type SCHEMA_EXPORT/SEQUENCE/SEQUENCE
Processing object type SCHEMA_EXPORT/CLUSTER/CLUSTER
Processing object type SCHEMA_EXPORT/CLUSTER/INDEX
Processing object type SCHEMA_EXPORT/TABLE/TABLE
Processing object type SCHEMA_EXPORT/TABLE/GRANT/OWNER_GRANT/OBJECT_GRANT
Processing object type SCHEMA_EXPORT/TABLE/INDEX/INDEX
Processing object type SCHEMA_EXPORT/TABLE/CONSTRAINT/CONSTRAINT
Processing object type SCHEMA_EXPORT/TABLE/INDEX/STATISTICS/INDEX_STATISTICS
Processing object type SCHEMA_EXPORT/TABLE/COMMENT
Processing object type SCHEMA_EXPORT/PROCEDURE/PROCEDURE
Processing object type SCHEMA_EXPORT/PROCEDURE/ALTER_PROCEDURE
Processing object type SCHEMA_EXPORT/VIEW/VIEW
Processing object type SCHEMA_EXPORT/TABLE/CONSTRAINT/REF_CONSTRAINT
Processing object type SCHEMA_EXPORT/TABLE/TRIGGER
Processing object type SCHEMA_EXPORT/TABLE/STATISTICS/TABLE_STATISTICS
. . exported "HR"."SYS_EXPORT_SCHEMA_01" 329.8 KB 1263 rows
. . exported "HR"."COUNTRIES" 6.281 KB 25 rows
. . exported "HR"."DEPARTMENTS" 7.015 KB 27 rows
. . exported "HR"."DEPT" 7.015 KB 28 rows
. . exported "HR"."EMP" 16.79 KB 107 rows
. . exported "HR"."EMPLOYEES" 16.81 KB 107 rows
. . exported "HR"."EMPLOYEES_IOT" 16.81 KB 107 rows
. . exported "HR"."JOBS" 6.992 KB 19 rows
. . exported "HR"."JOB_HISTORY" 7.054 KB 10 rows
. . exported "HR"."LOCATIONS" 8.273 KB 23 rows
. . exported "HR"."REGIONS" 5.484 KB 4 rows
Master table "HR"."SYS_EXPORT_SCHEMA_01" successfully loaded/unloaded
*****
Dump file set for HR.SYS_EXPORT_SCHEMA_01 is:
E:\LABS\HR.DMP
Job "HR"."SYS_EXPORT_SCHEMA_01" successfully completed at 03:34:10

```

Создаем пользователя hr_orcl, даем ему все необходимые права и создаем ссылку на базу данных student:

```

SQL> CREATE public DATABASE LINK student_link CONNECT TO hr IDENTIFIED BY hr USI
NG 'student';

Database link created.

```

```
SQL> Conn sys/oracle@orcl as sysdba
Connected.
SQL> Create user hr_orcl IDENTIFIED BY hr_orcl account unlock;
User created.
SQL> grant read,write on directory dop5_2 to hr_orcl;
Grant succeeded.
SQL> grant datapump_exp_full_database to hr_orcl;
Grant succeeded.
SQL> grant datapump_imp_full_database to hr_orcl;
Grant succeeded.
SQL> grant create session to hr_orcl;
Grant succeeded.
```

```
SQL> GRANT UNLIMITED TABLESPACE TO hr_orcl;
Grant succeeded.
```

Импортируем схему и переименовываем ее(REMAP_SCHEMA=hr:hr_orcl):


```

SQL> $impdp hr_orcl/hr_orcl@orcl REMAP_SCHEMA=hr:hr_orcl NETWORK_LINK=student_li
nk DIRECTORY=dop5_2 LOGFILE=hr_imp.log

Import: Release 11.2.0.1.0 - Production on Sat Nov 18 03:39:29 2023

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Connected to: Oracle Database 11g Enterprise Edition Release 11.2.0.1.0 - 64bit
Production
With the Partitioning, OLAP, Data Mining and Real Application Testing options
Starting "HR_ORCL"."SYS_IMPORT_SCHEMA_01": hr_orcl/*****@orcl REMAP_SCHEMA=h
r:hr_orcl NETWORK_LINK=student_link DIRECTORY=dop5_2 LOGFILE=hr_imp.log
Estimate in progress using BLOCKS method...
Processing object type SCHEMA_EXPORT/TABLE/TABLE_DATA
Total estimation using BLOCKS method: 640 KB
Processing object type SCHEMA_EXPORT/USER
ORA-31684: Object type USER:"HR_ORCL" already exists
Processing object type SCHEMA_EXPORT/SYSTEM_GRANT
Processing object type SCHEMA_EXPORT/ROLE_GRANT
Processing object type SCHEMA_EXPORT/DEFAULT_ROLE
Processing object type SCHEMA_EXPORT/PRE_SCHEMA/PROCACT_SCHEMA
Processing object type SCHEMA_EXPORT/SEQUENCE/SEQUENCE
Processing object type SCHEMA_EXPORT/CLUSTER/CLUSTER
ORA-39083: Object type CLUSTER failed to create with error:
ORA-00959: tablespace 'TBS_DOP_3' does not exist
Failing sql is:
CREATE CLUSTER "HR_ORCL"."EMP_DEPT" ( ("DEPARTMENT_ID" NUMBER(4,0) ) SIZE 1024
PCTFREE 10 PCTUSED 40 INITRANS 2 MAXTRANS 255 STORAGE(INITIAL 65536 NEXT 104857
6 MINEXTENTS 1 MAXEXTENTS 2147483645 PCTINCREASE 0 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT) TABLESPACE "T
BS_DOP_3" PARALLEL (DEGREE 1 INSTANCES 1)
Processing object type SCHEMA_EXPORT/CLUSTER/INDEX
ORA-39112: Dependent object type INDEX:"HR_ORCL"."EMP_DEPT_IDX" skipped, base ob
ject type CLUSTER:"HR_ORCL"."EMP_DEPT" creation failed
Processing object type SCHEMA_EXPORT/TABLE/TABLE
ORA-39083: Object type TABLE:"HR_ORCL"."EMPLOYEES_IOT" failed to create with err
or:
ORA-00959: tablespace 'DB_4' does not exist
Failing sql is:
CREATE TABLE "HR_ORCL"."EMPLOYEES_IOT" ("EMPLOYEE_ID" NUMBER(6,0), "FIRST_NAME"
VARCHAR2(20 BYTE), "LAST_NAME" VARCHAR2(25 BYTE), "EMAIL" VARCHAR2(25 BYTE), "PH
ONE_NUMBER" VARCHAR2(20 BYTE), "HIRE_DATE" DATE, "JOB_ID" VARCHAR2(10 BYTE), "SA
LARY" NUMBER(8,2), "COMMISSION_PCT" NUMBER(2,2), "MANAGER_ID" NUMBER(6,0), "DEPA
RTMENT_ID" NUMBER(4,0), PRIMARY KEY ("EMPLOYEE_ID"))
ORA-39083: Object type TABLE:"HR_ORCL"."DEPT" failed to create with error:
ORA-00943: cluster does not exist
Failing sql is:
CREATE TABLE "HR_ORCL"."DEPT" ("DEPARTMENT_ID" NUMBER(4,0) NOT NULL ENABLE, "DEP
ARTMENT_NAME" VARCHAR2(30 BYTE) NOT NULL ENABLE, "MANAGER_ID" NUMBER(6,0), "LOCA
TION_ID" NUMBER(4,0)) CLUSTER "HR_ORCL"."EMP_DEPT" ("DEPARTMENT_ID")
ORA-39083: Object type TABLE:"HR_ORCL"."EMP" failed to create with error:
ORA-00943: cluster does not exist
Failing sql is:
CREATE TABLE "HR_ORCL"."EMP" ("EMPLOYEE_ID" NUMBER(6,0) NOT NULL ENABLE, "FIRST_
NAME" VARCHAR2(20 BYTE), "LAST_NAME" VARCHAR2(25 BYTE) NOT NULL ENABLE, "EMAIL"
VARCHAR2(25 BYTE) NOT NULL ENABLE, "PHONE_NUMBER" VARCHAR2(20 BYTE), "HIRE_DATE"
DATE NOT NULL ENABLE, "JOB_ID" VARCHAR2(10 BYTE) NOT NULL ENABLE, "SALARY" NUMB
ER(8,2), "COMMISSION_PCT" NUMBER(2,2), "MANAGER_ID" NUMBER(6,0), "

```

```

ER(8,2), "COMMISSION_PCT" NUMBER(2,2), "MANAGER_ID" NUMBER(6,0), "
. . imported "HR_ORCL"."COUNTRIES" 25 rows
. . imported "HR_ORCL"."DEPARTMENTS" 27 rows
. . imported "HR_ORCL"."EMPLOYEES" 107 rows
. . imported "HR_ORCL"."JOBS" 19 rows
. . imported "HR_ORCL"."JOB_HISTORY" 10 rows
. . imported "HR_ORCL"."LOCATIONS" 23 rows
. . imported "HR_ORCL"."REGIONS" 4 rows
Processing object type SCHEMA_EXPORT/TABLE/GRANT/OWNER_GRANT/OBJECT_GRANT
ORA-39083: Object type OBJECT_GRANT failed to create with error:
ORA-01917: user or role 'HRCLERK' does not exist
Failing sql is:
GRANT SELECT, UPDATE ON "HR_ORCL"."EMPLOYEES" TO "HRCLERK"

ORA-39083: Object type OBJECT_GRANT failed to create with error:
ORA-01917: user or role 'HRMANAGER' does not exist
Failing sql is:
GRANT DELETE, INSERT ON "HR_ORCL"."EMPLOYEES" TO "HRMANAGER"

ORA-39083: Object type OBJECT_GRANT failed to create with error:
ORA-01917: user or role 'HREMPLOYEE' does not exist
Failing sql is:
GRANT SELECT, UPDATE ON "HR_ORCL"."EMPLOYEES" TO "HREMPLOYEE"

Processing object type SCHEMA_EXPORT/TABLE/INDEX/INDEX
Processing object type SCHEMA_EXPORT/TABLE/CONSTRAINT/CONSTRAINT
Processing object type SCHEMA_EXPORT/TABLE/INDEX/STATISTICS/INDEX_STATISTICS
Processing object type SCHEMA_EXPORT/TABLE/COMMENT
Processing object type SCHEMA_EXPORT/PROCEDURE/PROCEDURE
Processing object type SCHEMA_EXPORT/PROCEDURE/ALTER_PROCEDURE
Processing object type SCHEMA_EXPORT/VIEW/VIEW
Processing object type SCHEMA_EXPORT/TABLE/CONSTRAINT/REF_CONSTRAINT
Processing object type SCHEMA_EXPORT/TABLE/TRIGGER
Processing object type SCHEMA_EXPORT/TABLE/STATISTICS/TABLE_STATISTICS
Job "HR_ORCL"."SYS_IMPORT_SCHEMA_01" completed with 9 error(s) at 03:39:58

```

Проверяем, что все строки перенеслись и мы можем сделать выборку:

```

SQL> select count(*) from hr_orcl.employees;

COUNT(*)
-----
107

SQL> select count(*) from hr_orcl.jobs;

COUNT(*)
-----
19

SQL> select count(*) from hr_orcl.departments;

COUNT(*)
-----
27

SQL> select count(*) from hr_orcl.regions;

COUNT(*)
-----
4

```

```

SQL> $impdp hr_orcl/hr_orcl@orcl REMAP_SCHEMA=hr:hr_orcl
NETWORK_LINK=student_li
nk DIRECTORY=dop5_2 LOGFILE=hr_imp.log

```

Import: Release 11.2.0.1.0 - Production on Sat Nov 18 03:39:29 2023

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Connected to: Oracle Database 11g Enterprise Edition Release 11.2.0.1.0 - 64bit
Production

With the Partitioning, OLAP, Data Mining and Real Application Testing options

Starting "HR_ORCL"."SYS_IMPORT_SCHEMA_01": hr_orcl/*****@orcl
REMAP_SCHEMA=h

r:hr_orcl NETWORK_LINK=student_link DIRECTORY=dop5_2
LOGFILE=hr_imp.log

Estimate in progress using BLOCKS method...

Processing object type SCHEMA_EXPORT/TABLE/TABLE_DATA

Total estimation using BLOCKS method: 640 KB

Processing object type SCHEMA_EXPORT/USER

ORA-31684: Object type USER:"HR_ORCL" already exists

При переносе, пользователи не создаются

Processing object type SCHEMA_EXPORT/SYSTEM_GRANT

Processing object type SCHEMA_EXPORT/ROLE_GRANT

Processing object type SCHEMA_EXPORT/DEFAULT_ROLE

Processing object type SCHEMA_EXPORT/PRE_SCHEMA/PROCACT_SCHEMA

Processing object type SCHEMA_EXPORT/SEQUENCE/SEQUENCE

Processing object type SCHEMA_EXPORT/CLUSTER/CLUSTER

ORA-39083: Object type CLUSTER failed to create with error:

ORA-00959: tablespace 'TBS_DOP_3' does not exist

Failing sql is:

```
CREATE CLUSTER "HR_ORCL"."EMP_DEPT" ( "DEPARTMENT_ID" NUMBER(4,0)  
) SIZE 1024
```

```
PCTFREE 10 PCTUSED 40 INITRANS 2 MAXTRANS 255 STORAGE(INITIAL 65536  
NEXT 104857
```

```
6 MINEXTENTS 1 MAXEXTENTS 2147483645 PCTINCREASE 0 FREELISTS 1  
FREELIST GROUPS 1
```

```
BUFFER_POOL DEFAULT FLASH_CACHE DEFAULT CELL_FLASH_CACHE DEFAULT)  
TABLESPACE "T
```

```
BS_DOP_3" PARALLEL (DEGREE 1 INSTANCES 1)
```

Табличные пространства надо было создавать заранее

Processing object type SCHEMA_EXPORT/CLUSTER/INDEX

ORA-39112: Dependent object type INDEX:"HR_ORCL"."EMP_DEPT_IDX"
skipped, base ob

ject type CLUSTER:"HR_ORCL"."EMP_DEPT" creation failed

Processing object type SCHEMA_EXPORT/TABLE/TABLE

ORA-39083: Object type TABLE:"HR_ORCL"."EMPLOYEES_IOT" failed to create
with err

or:

ORA-00959: tablespace 'DB_4' does not exist

Failing sql is:

```
CREATE TABLE "HR_ORCL"."EMPLOYEES_IOT" ("EMPLOYEE_ID" NUMBER(6,0),  
"FIRST_NAME"
```

```
VARCHAR2(20 BYTE), "LAST_NAME" VARCHAR2(25 BYTE), "EMAIL"  
VARCHAR2(25 BYTE), "PH
```

```
ONE_NUMBER" VARCHAR2(20 BYTE), "HIRE_DATE" DATE, "JOB_ID"  
VARCHAR2(10 BYTE), "SA
```

```
LARY" NUMBER(8,2), "COMMISSION_PCT" NUMBER(2,2), "MANAGER_ID"  
NUMBER(6,0), "DEPA
```

RTMENT_ID" NUMBER(4,0), PRIMARY KEY ("EMPLOYEE

ORA-39083: Object type TABLE:"HR_ORCL"."DEPT" failed to create with error:

ORA-00943: cluster does not exist

Failing sql is:

```
CREATE TABLE "HR_ORCL"."DEPT" ("DEPARTMENT_ID" NUMBER(4,0) NOT NULL
ENABLE, "DEP
```

```
ARTMENT_NAME" VARCHAR2(30 BYTE) NOT NULL ENABLE, "MANAGER_ID"
NUMBER(6,0), "LOCA
```

```
TION_ID" NUMBER(4,0)) CLUSTER "HR_ORCL"."EMP_DEPT"
("DEPARTMENT_ID")
```

ORA-39083: Object type TABLE:"HR_ORCL"."EMP" failed to create with error:

ORA-00943: cluster does not exist

Failing sql is:

```
CREATE TABLE "HR_ORCL"."EMP" ("EMPLOYEE_ID" NUMBER(6,0) NOT NULL
ENABLE, "FIRST_
```

```
NAME" VARCHAR2(20 BYTE), "LAST_NAME" VARCHAR2(25 BYTE) NOT NULL
ENABLE, "EMAIL"
```

```
VARCHAR2(25 BYTE) NOT NULL ENABLE, "PHONE_NUMBER" VARCHAR2(20
BYTE), "HIRE_DATE"
```

```
DATE NOT NULL ENABLE, "JOB_ID" VARCHAR2(10 BYTE) NOT NULL ENABLE,
"SALARY" NUMB
```

```
ER(8,2), "COMMISSION_PCT" NUMBER(2,2), "MANAGER_ID" NUMBER(6,0), "
```

```
. . imported "HR_ORCL"."COUNTRIES"                25 rows
```

```
. . imported "HR_ORCL"."DEPARTMENTS"              27 rows
```

```
. . imported "HR_ORCL"."EMPLOYEES"                107 rows
```

```
. . imported "HR_ORCL"."JOBS"                     19 rows
```

```
. . imported "HR_ORCL"."JOB_HISTORY"              10 rows
```


.. imported "HR_ORCL"."LOCATIONS" 23 rows

.. imported "HR_ORCL"."REGIONS" 4 rows

Processing object type

SCHEMA_EXPORT/TABLE/GRANT/OWNER_GRANT/OBJECT_GRANT

ORA-39083: Object type OBJECT_GRANT failed to create with error:

ORA-01917: user or role 'HRCLERK' does not exist

Failing sql is:

GRANT SELECT, UPDATE ON "HR_ORCL"."EMPLOYEES" TO "HRCLERK"

ORA-39083: Object type OBJECT_GRANT failed to create with error:

ORA-01917: user or role 'HRMANAGER' does not exist

Failing sql is:

GRANT DELETE, INSERT ON "HR_ORCL"."EMPLOYEES" TO "HRMANAGER"

ORA-39083: Object type OBJECT_GRANT failed to create with error:

ORA-01917: user or role 'HREMPLOYEE' does not exist

Failing sql is:

GRANT SELECT, UPDATE ON "HR_ORCL"."EMPLOYEES" TO "HREMPLOYEE"

Роли и привилегии также перенести не возможно

Processing object type SCHEMA_EXPORT/TABLE/INDEX/INDEX

Processing object type SCHEMA_EXPORT/TABLE/CONSTRAINT/CONSTRAINT

Processing object type

SCHEMA_EXPORT/TABLE/INDEX/STATISTICS/INDEX_STATISTICS

Processing object type SCHEMA_EXPORT/TABLE/COMMENT

Processing object type SCHEMA_EXPORT/PROCEDURE/PROCEDURE

Processing object type SCHEMA_EXPORT/PROCEDURE/ALTER_PROCEDURE

Processing object type SCHEMA_EXPORT/VIEW/VIEW

Processing object type

SCHEMA_EXPORT/TABLE/CONSTRAINT/REF_CONSTRAINT

Processing object type SCHEMA_EXPORT/TABLE/TRIGGER

Processing object type SCHEMA_EXPORT/TABLE/STATISTICS/TABLE_STATISTICS

Job "HR_ORCL"."SYS_IMPORT_SCHEMA_01" completed with 9 error(s) at
03:39:58

Список источников:

1. <https://docs.oracle.com/en/database/oracle/database/12.2/sutil/datapump-import-utility.html#GUID-D11E340E-14C6-43B8-AB09-6335F0C1F71B>
2. https://www.dba-oracle.com/t_expdp_network_link.htm
3. https://www.dba-oracle.com/t_direct_export_remote_database.htm
4. <https://docs.oracle.com/database/121/SUTIL/GUID-619809A6-1966-42D6-9ACC-A3E0ADC36523.htm#SUTIL927>
5. https://www.dba-oracle.com/t_expdp_ora_39070_ora_39145.htm
6. <https://oracle-patches.com/oracle/prof/oracle-database-link-%D1%83%D0%BF%D1%80%D0%B0%D0%B2%D0%BB%D0%B5%D0%BD%D0%B8%D0%B5-%D1%81%D0%B2%D1%8F%D0%B7%D1%8F%D0%BC%D0%B8-%D0%B1%D0%B0%D0%B7-%D0%B4%D0%B0%D0%BD%D0%BD%D1%8B%D1%85>
- 7.