❁ 117. Database Level pump (고수들이 데이터 이행 하는 방법)

```
database level 로 export pump 하기
expdp  directory=datapump_dir  full=y  file=complete02.dmp

현업 기준으로 export/import 를 수행하는 방법을 정리 → 가장 빠르고 편한 데이터 이관
1. 오라클 골든 게이트(유료) --> 리눅스 화면에서 명령어로 수행하는 툴
2. 테이블 스페이스 레벨의 export / import
- 테이블, 인덱스, 뷰, 시퀀스, synonym, 권한, 프로시져, 트리거, 기타 등등 한번에 편하게 이관하는
    것이고 만약 위의 방법이 아니라면 몇 개월 짜리 프로젝트다.

- 테이블 스페이스 레벨로 이관을 할 수 있으면 이 방법으로 수행하고 만약 character set이 틀려서
    테이블 스페이스 레벨로 못하면 유저 레벨로 수행
```

```
이행 순서
1. asm 인스턴스를 먼저 올리고 orcl 인스턴스를 올린다.
(PROD sys)
shutdown immediate

. oraenv
+ASM

crs_start -all
-> 위의 명령어 하나로 클러스터 올리고 ASM 올리고 orcl db도 올린다.

crs_stat  -t
ps -ef |grep pmon
```

```
[+ASM:~]$ ps -ef |grep pmon
oracle    5916     1  0 14:03 ?        00:00:00 ora_pmon_psh
oracle    6068     1  0 14:03 ?        00:00:00 asm_pmon_+ASM
oracle    6202     1  0 14:03 ?        00:00:00 ora_pmon_orcl
oracle    6342  5518  0 14:05 pts/1    00:00:00 grep pmon
```

```
. oraenv
orcl

(orcl)
sqlplus hr/tiger

2. (orcl) hr 계정의 데이터를 스키마 단위로 export 한다.
exp system/oracle_4U file=hr.dmp owner=hr
ls -lh hr.dmp
```

```
[orcl:~]$ ls -lh hr.dmp
-rw-r--r-- 1 oracle oinstall 64K  2월  26 14:07 hr.dmp
```

```
3. (psh2) hr 계정의 테이블 생성 스크립트를 뽑아낸다.
. oraenv
psh2
```

```
(psh2 sys)
create  user  hr2 identified by  tiger;
grant connect, resource  to  hr2;
create  user oe  identified  by oe;
grant connect, resource  to  oe;

(psh2)
imp system/oracle file=hr.dmp fromuser=hr touser=hr2 indexes=n constraints=n indexfile=hr_table

⇒ 위의 명령어는 hr.dmp 파일에서 table 생성 스크립트를 뽑아내는 명령어다. 오직 테이블 생성
     스크립트만 만든다.

hr_table.sql 바탕화면에 다운받기
```

```
[psh2:~]$ imp system/oracle file=hr.dmp fromuser=hr touser=hr2 indexes=n constra
ints=n indexfile=hr_table.sql

Import: Release 11.2.0.1.0 - Production on Mon Feb 26 14:10:07 2024

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

Export file created by EXPORT:V11.02.00 via conventional path
import done in US7ASCII character set and AL16UTF16 NCHAR character set
. . skipping table "COUNTRIES"

. . skipping table "DEPARTMENTS"

. . skipping table "EMPLOYEES"

. . skipping table "JOBS"

. . skipping table "JOB_HISTORY"

. . skipping table "LOCATIONS"

. . skipping table "REGIONS"

Import terminated successfully without warnings.
```

```
4. (psh2) hr2 계정으로 접속해서 3번에서 생성한 테이블 생성 스크립트를 수행
먼저 sys 유저에서 example tablespace를 생성한다.

(psh2 sys)
 create  tablespace  example datafile  '/u01/app/oracle/oradata/psh2/disk1/example01.dbf'  size

- 그리고 테이블 생성 스크립트 7개를 수행한다. (hr_table.sql 메모장에서 REM 지우기)

CREATE TABLE "HR2"."COUNTRIES" ("COUNTRY_ID" CHAR(2) CONSTRAINT
"COUNTRY_ID_NN" NOT NULL ENABLE, "COUNTRY_NAME" VARCHAR2(40),
"REGION_ID" NUMBER, CONSTRAINT "COUNTRY_C_ID_PK" PRIMARY KEY
("COUNTRY_ID") ENABLE ) ORGANIZATION INDEX PCTFREE 10 INITRANS 2
MAXTRANS 255 STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1
FREELISTS 1 FREELIST GROUPS 1 BUFFER_POOL DEFAULT) TABLESPACE
"EXAMPLE" NOLOGGING NOCOMPRESS PCTTHRESHOLD 50 ;

CREATE TABLE "HR2"."DEPARTMENTS" ("DEPARTMENT_ID" NUMBER(4, 0),
"DEPARTMENT_NAME" VARCHAR2(30) CONSTRAINT "DEPT_NAME_NN" NOT NULL
ENABLE, "MANAGER_ID" NUMBER(6, 0), "LOCATION_ID" NUMBER(4, 0))
PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255 STORAGE(INITIAL 65536
NEXT 1048576 MINEXTENTS 1 FREELISTS 1 FREELIST GROUPS 1 BUFFER_POOL
DEFAULT) TABLESPACE "EXAMPLE" NOLOGGING NOCOMPRESS ;
```

```
CREATE TABLE "HR2"."EMPLOYEES" ("EMPLOYEE_ID" NUMBER(6, 0),
"FIRST_NAME" VARCHAR2(20), "LAST_NAME" VARCHAR2(25) CONSTRAINT
"EMP_LAST_NAME_NN" NOT NULL ENABLE, "EMAIL" VARCHAR2(25) CONSTRAINT
"EMP_EMAIL_NN" NOT NULL ENABLE, "PHONE_NUMBER" VARCHAR2(20),
"HIRE_DATE" DATE CONSTRAINT "EMP_HIRE_DATE_NN" NOT NULL ENABLE,
"JOB_ID" VARCHAR2(10) CONSTRAINT "EMP_JOB_NN" NOT NULL ENABLE,
"SALARY" NUMBER(8, 2), "COMMISSION_PCT" NUMBER(2, 2), "MANAGER_ID"
NUMBER(6, 0), "DEPARTMENT_ID" NUMBER(4, 0)) PCTFREE 10 PCTUSED 40
INITRANS 1 MAXTRANS 255 STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS
1 FREELISTS 1 FREELIST GROUPS 1 BUFFER_POOL DEFAULT) TABLESPACE
"EXAMPLE" NOLOGGING NOCOMPRESS ;

CREATE TABLE "HR2"."JOBS" ("JOB_ID" VARCHAR2(10), "JOB_TITLE"
VARCHAR2(35) CONSTRAINT "JOB_TITLE_NN" NOT NULL ENABLE, "MIN_SALARY"
NUMBER(6, 0), "MAX_SALARY" NUMBER(6, 0)) PCTFREE 10 PCTUSED 40
INITRANS 1 MAXTRANS 255 STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS
1 FREELISTS 1 FREELIST GROUPS 1 BUFFER_POOL DEFAULT) TABLESPACE
"EXAMPLE" NOLOGGING NOCOMPRESS ;

CREATE TABLE "HR2"."JOB_HISTORY" ("EMPLOYEE_ID" NUMBER(6, 0)
CONSTRAINT "JHIST_EMPLOYEE_NN" NOT NULL ENABLE, "START_DATE" DATE
CONSTRAINT "JHIST_START_DATE_NN" NOT NULL ENABLE, "END_DATE" DATE
CONSTRAINT "JHIST_END_DATE_NN" NOT NULL ENABLE, "JOB_ID" VARCHAR2(10)
CONSTRAINT "JHIST_JOB_NN" NOT NULL ENABLE, "DEPARTMENT_ID" NUMBER(4,
0)) PCTFREE 10 PCTUSED 40 INITRANS 1 MAXTRANS 255 STORAGE(INITIAL
65536 NEXT 1048576 MINEXTENTS 1 FREELISTS 1 FREELIST GROUPS 1
BUFFER_POOL DEFAULT) TABLESPACE "EXAMPLE" NOLOGGING NOCOMPRESS ;

CREATE TABLE "HR2"."LOCATIONS" ("LOCATION_ID" NUMBER(4, 0),
"STREET_ADDRESS" VARCHAR2(40), "POSTAL_CODE" VARCHAR2(12), "CITY"
VARCHAR2(30) CONSTRAINT "LOC_CITY_NN" NOT NULL ENABLE,
"STATE_PROVINCE" VARCHAR2(25), "COUNTRY_ID" CHAR(2)) PCTFREE 10
PCTUSED 40 INITRANS 1 MAXTRANS 255 STORAGE(INITIAL 65536 NEXT 1048576
MINEXTENTS 1 FREELISTS 1 FREELIST GROUPS 1 BUFFER_POOL DEFAULT)
TABLESPACE "EXAMPLE" NOLOGGING NOCOMPRESS ;

CREATE TABLE "HR2"."REGIONS" ("REGION_ID" NUMBER CONSTRAINT
"REGION_ID_NN" NOT NULL ENABLE, "REGION_NAME" VARCHAR2(25)) PCTFREE
10 PCTUSED 40 INITRANS 1 MAXTRANS 255 STORAGE(INITIAL 65536 NEXT
1048576 MINEXTENTS 1 FREELISTS 1 FREELIST GROUPS 1 BUFFER_POOL
DEFAULT) TABLESPACE "EXAMPLE" NOLOGGING NOCOMPRESS ;

5. (psh2) hr2 계정에 2번에 받은 export 파일을 import 수행 (indexes=n)
(psh2)
imp system/oracle_4U file=hr.dmp ignore=y indexes=n fromuser=hr touser=hr2;
```

```
[psh2:~]$ imp system/oracle_4U file=hr.dmp ignore=y indexes=n fromuser=hr touser
=hr2;

Import: Release 11.2.0.1.0 - Production on Mon Feb 26 14:19:13 2024

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IMP-00058: ORACLE error 1017 encountered
ORA-01017: invalid username/password; logon deniedUsername: sys as sysdba
Password:

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Export file created by EXPORT:V11.02.00 via conventional path

Warning: the objects were exported by SYSTEM, not by you

import done in US7ASCII character set and AL16UTF16 NCHAR character set
. importing HR's objects into HR2
. . importing table                  "COUNTRIES"         25 rows imported
. . importing table                "DEPARTMENTS"         27 rows imported
. . importing table                  "EMPLOYEES"        107 rows imported
. . importing table                       "JOBS"         19 rows imported
. . importing table                "JOB_HISTORY"         10 rows imported
. . importing table                  "LOCATIONS"         23 rows imported
. . importing table                    "REGIONS"          4 rows imported
About to enable constraints...
Import terminated successfully with warnings.
[psh2:~]$
```

6. (psh2) hr2 계정에서 인덱스를 생성한다.
(psh2)
imp system/oracle file=hr.dmp indexes=y constraints=n fromuser=hr touser=hr2 indexfile=hr_inde

```
[psh2:~]$ imp system/oracle file=hr.dmp  indexes=y constraints=n fromuser=hr tou
ser=hr2  indexfile=hr_index.sql

Import: Release 11.2.0.1.0 - Production on Mon Feb 26 14:23:09 2024

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

Export file created by EXPORT:V11.02.00 via conventional path
import done in US7ASCII character set and AL16UTF16 NCHAR character set
. . skipping table "COUNTRIES"

. . skipping table "DEPARTMENTS"

. . skipping table "EMPLOYEES"

. . skipping table "JOBS"

. . skipping table "JOB_HISTORY"

. . skipping table "LOCATIONS"

. . skipping table "REGIONS"

Import terminated successfully without warnings.
```

```
ls -l hr_index.sql

hr_index.sql 바탕화면에서 다운받기!!!
```

```
[psh2:~]$ ls -l hr_index.sql
-rw-r--r-- 1 oracle oinstall 7867  2월  26 14:23 hr_index.sql
```

7. hr2 계정에서 제약을 생성한다.
imp system/oracle file=hr.dmp indexes=n constraints=y fromuser=hr touser=hr2 indexfile=hr_cons

hr_constraints.sql 바탕화면에서 다운받기!!!

```
[psh2:~]$ imp system/oracle file=hr.dmp  indexes=n constraints=y fromuser=hr tou
ser=hr2  indexfile=hr_constraints.sql

Import: Release 11.2.0.1.0 - Production on Mon Feb 26 14:24:54 2024

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

Export file created by EXPORT:V11.02.00 via conventional path
import done in US7ASCII character set and AL16UTF16 NCHAR character set
. . skipping table "COUNTRIES"

. . skipping table "DEPARTMENTS"

. . skipping table "EMPLOYEES"

. . skipping table "JOBS"

. . skipping table "JOB_HISTORY"

. . skipping table "LOCATIONS"

. . skipping table "REGIONS"

Import terminated successfully without warnings.
```

(psh2 hr2)
바탕화면에 다운 받은 hr_constraints.sql에서 REM, rows 다 지우고 create 문 다 지우고
alter 문만 실행하기

```
ALTER TABLE "HR2"."DEPARTMENTS" ADD CONSTRAINT "DEPT_ID_PK" PRIMARY
KEY ("DEPARTMENT_ID") USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 FREELISTS 1 FREELIST
GROUPS 1 BUFFER_POOL DEFAULT) TABLESPACE "EXAMPLE" NOLOGGING ENABLE ;


ALTER TABLE "HR2"."EMPLOYEES" ADD CONSTRAINT "EMP_SALARY_MIN" CHECK
(salary > 0) ENABLE NOVALIDATE ;
ALTER TABLE "HR2"."EMPLOYEES" ADD CONSTRAINT "EMP_EMAIL_UK" UNIQUE
("EMAIL") USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 FREELISTS 1 FREELIST
GROUPS 1 BUFFER_POOL DEFAULT) TABLESPACE "EXAMPLE" NOLOGGING ENABLE ;
ALTER TABLE "HR2"."EMPLOYEES" ADD CONSTRAINT "EMP_EMP_ID_PK" PRIMARY
KEY ("EMPLOYEE_ID") USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 FREELISTS 1 FREELIST
GROUPS 1 BUFFER_POOL DEFAULT) TABLESPACE "EXAMPLE" NOLOGGING ENABLE ;

ALTER TABLE "HR2"."JOBS" ADD CONSTRAINT "JOB_ID_PK" PRIMARY KEY
("JOB_ID") USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 FREELISTS 1 FREELIST
GROUPS 1 BUFFER_POOL DEFAULT) TABLESPACE "EXAMPLE" NOLOGGING ENABLE ;

ALTER TABLE "HR2"."JOB_HISTORY" ADD CONSTRAINT "JHIST_DATE_INTERVAL"
CHECK (end_date > start_date) ENABLE NOVALIDATE ;
ALTER TABLE "HR2"."JOB_HISTORY" ADD CONSTRAINT
"JHIST_EMP_ID_ST_DATE_PK" PRIMARY KEY ("EMPLOYEE_ID", "START_DATE")
USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255 STORAGE(INITIAL 65536
NEXT 1048576 MINEXTENTS 1 FREELISTS 1 FREELIST GROUPS 1 BUFFER_POOL
DEFAULT) TABLESPACE "EXAMPLE" NOLOGGING ENABLE ;
```

```
ALTER TABLE "HR2"."LOCATIONS" ADD CONSTRAINT "LOC_ID_PK" PRIMARY KEY
("LOCATION_ID") USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 FREELISTS 1 FREELIST
GROUPS 1 BUFFER_POOL DEFAULT) TABLESPACE "EXAMPLE" NOLOGGING ENABLE ;

ALTER TABLE "HR2"."REGIONS" ADD CONSTRAINT "REG_ID_PK" PRIMARY KEY
("REGION_ID") USING INDEX PCTFREE 10 INITRANS 2 MAXTRANS 255
STORAGE(INITIAL 65536 NEXT 1048576 MINEXTENTS 1 FREELISTS 1 FREELIST
GROUPS 1 BUFFER_POOL DEFAULT) TABLESPACE "EXAMPLE" NOLOGGING ENABLE ;
ALTER TABLE "HR2"."LOCATIONS" ADD CONSTRAINT "LOC_C_ID_FK" FOREIGN
KEY ("COUNTRY_ID") REFERENCES "COUNTRIES" ("COUNTRY_ID") ENABLE
NOVALIDATE ;
ALTER TABLE "HR2"."DEPARTMENTS" ADD CONSTRAINT "DEPT_LOC_FK" FOREIGN
KEY ("LOCATION_ID") REFERENCES "LOCATIONS" ("LOCATION_ID") ENABLE
NOVALIDATE ;
ALTER TABLE "HR2"."DEPARTMENTS" ADD CONSTRAINT "DEPT_MGR_FK" FOREIGN
KEY ("MANAGER_ID") REFERENCES "EMPLOYEES" ("EMPLOYEE_ID") ENABLE
NOVALIDATE ;
ALTER TABLE "HR2"."COUNTRIES" ADD CONSTRAINT "COUNTR_REG_FK" FOREIGN
KEY ("REGION_ID") REFERENCES "REGIONS" ("REGION_ID") ENABLE
NOVALIDATE ;
ALTER TABLE "HR2"."JOB_HISTORY" ADD CONSTRAINT "JHIST_DEPT_FK"
FOREIGN KEY ("DEPARTMENT_ID") REFERENCES "DEPARTMENTS"
("DEPARTMENT_ID") ENABLE NOVALIDATE ;
ALTER TABLE "HR2"."JOB_HISTORY" ADD CONSTRAINT "JHIST_EMP_FK" FOREIGN
KEY ("EMPLOYEE_ID") REFERENCES "EMPLOYEES" ("EMPLOYEE_ID") ENABLE
NOVALIDATE ;
ALTER TABLE "HR2"."JOB_HISTORY" ADD CONSTRAINT "JHIST_JOB_FK" FOREIGN
KEY ("JOB_ID") REFERENCES "JOBS" ("JOB_ID") ENABLE NOVALIDATE ;
ALTER TABLE "HR2"."EMPLOYEES" ADD CONSTRAINT "EMP_MANAGER_FK" FOREIGN
KEY ("MANAGER_ID") REFERENCES "EMPLOYEES" ("EMPLOYEE_ID") ENABLE
NOVALIDATE ;
ALTER TABLE "HR2"."EMPLOYEES" ADD CONSTRAINT "EMP_JOB_FK" FOREIGN KEY
("JOB_ID") REFERENCES "JOBS" ("JOB_ID") ENABLE NOVALIDATE ;
ALTER TABLE "HR2"."EMPLOYEES" ADD CONSTRAINT "EMP_DEPT_FK" FOREIGN
KEY ("DEPARTMENT_ID") REFERENCES "DEPARTMENTS" ("DEPARTMENT_ID")
ENABLE NOVALIDATE ;
ALTER TABLE "HR2"."EMPLOYEES" ENABLE CONSTRAINT "EMP_SALARY_MIN" ;
ALTER TABLE "HR2"."JOB_HISTORY" ENABLE CONSTRAINT
"JHIST_DATE_INTERVAL" ;
ALTER TABLE "HR2"."LOCATIONS" ENABLE CONSTRAINT "LOC_C_ID_FK" ;
ALTER TABLE "HR2"."DEPARTMENTS" ENABLE CONSTRAINT "DEPT_LOC_FK" ;
ALTER TABLE "HR2"."DEPARTMENTS" ENABLE CONSTRAINT "DEPT_MGR_FK" ;
ALTER TABLE "HR2"."COUNTRIES" ENABLE CONSTRAINT "COUNTR_REG_FK" ;
ALTER TABLE "HR2"."JOB_HISTORY" ENABLE CONSTRAINT "JHIST_DEPT_FK" ;
ALTER TABLE "HR2"."JOB_HISTORY" ENABLE CONSTRAINT "JHIST_EMP_FK" ;
ALTER TABLE "HR2"."JOB_HISTORY" ENABLE CONSTRAINT "JHIST_JOB_FK" ;
ALTER TABLE "HR2"."EMPLOYEES" ENABLE CONSTRAINT "EMP_MANAGER_FK" ;
ALTER TABLE "HR2"."EMPLOYEES" ENABLE CONSTRAINT "EMP_JOB_FK" ;
ALTER TABLE "HR2"."EMPLOYEES" ENABLE CONSTRAINT "EMP_DEPT_FK" ;
```

8. psh2와 orcl 간의 데이터의 건수가 동일한지 확인하시오.
orcl 쪽에서 hr 계정의

(orcl hr)

```
exec dbms_stats.gather_schema_stats('HR');
select table_name, num_rows from user_tables;
```

```
orcl(HR) > select table_name, num_rows from user_tables;

TABLE_NAME                     NUM_ROWS
------------------------------ ----------
COUNTRIES                              25
REGIONS                                 4
DEPARTMENTS                            27
LOCATIONS                              23
JOB_HISTORY                            10
EMPLOYEES                             107
JOBS                                   19

7 rows selected.
```

```
(psh2 hr2)
exec dbms_stats.gather_schema_stats('HR2');
select table_name, num_rows from user_tables;
```

⇒ 동일하다

```
psh2(HR2) > select table_name, num_rows from user_tables;

TABLE_NAME                     NUM_ROWS
------------------------------ ----------
COUNTRIES                              25
REGIONS                                 4
LOCATIONS                              23
JOB_HISTORY                            10
JOBS                                   19
EMPLOYEES                             107
DEPARTMENTS                            27

7 rows selected.
```