



POLITECHNIKA RZESZOWSKA
im. Ignacego Łukasiewicza
WYDZIAŁ MATEMATYKI I FIZYKI STOSOWANEJ

Administracja systemów bazodanowych
Projekt semestralny

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2 rok FS0-DI
Gruba laboratoryjna nr 6

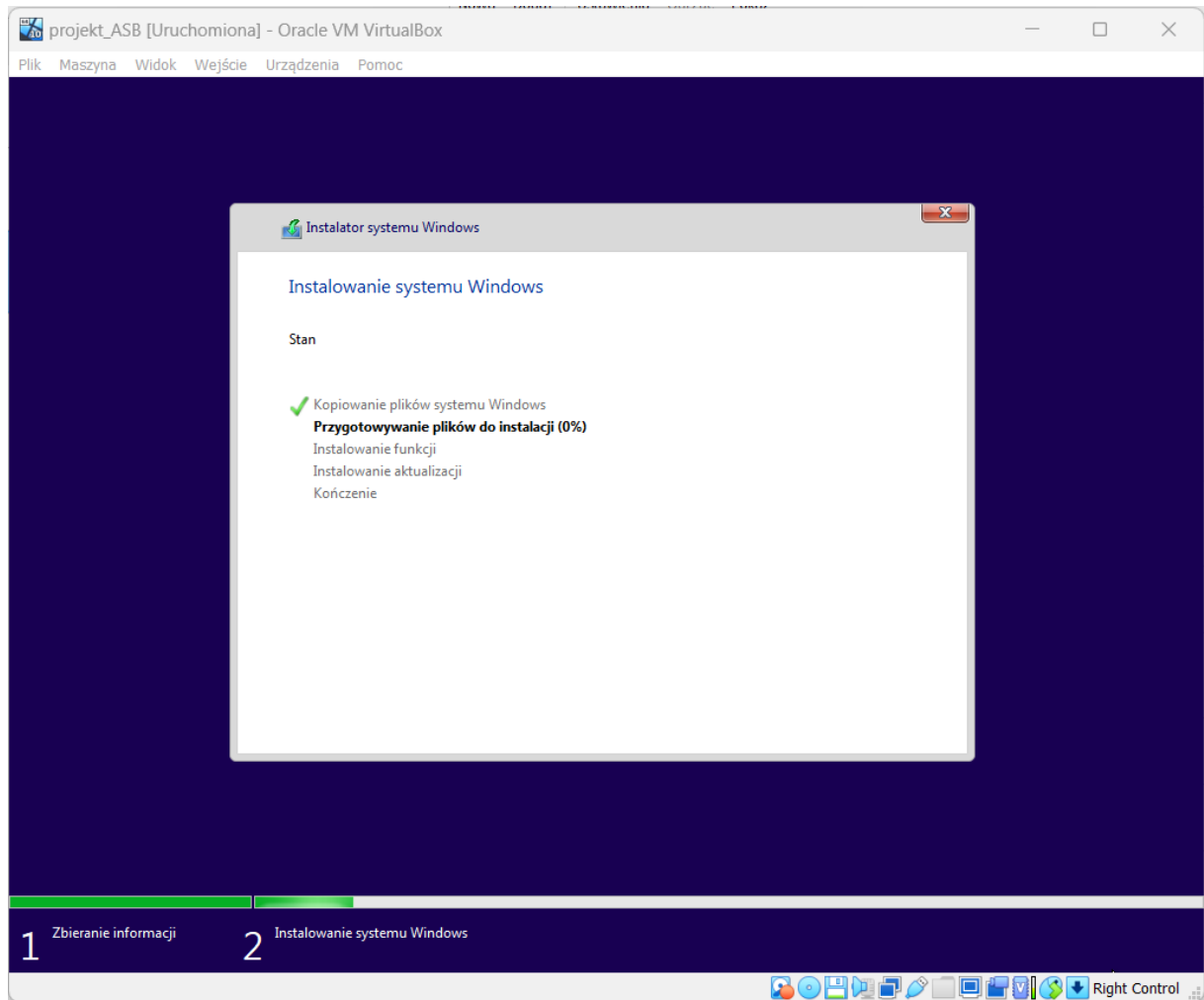
Rzeszów 2024

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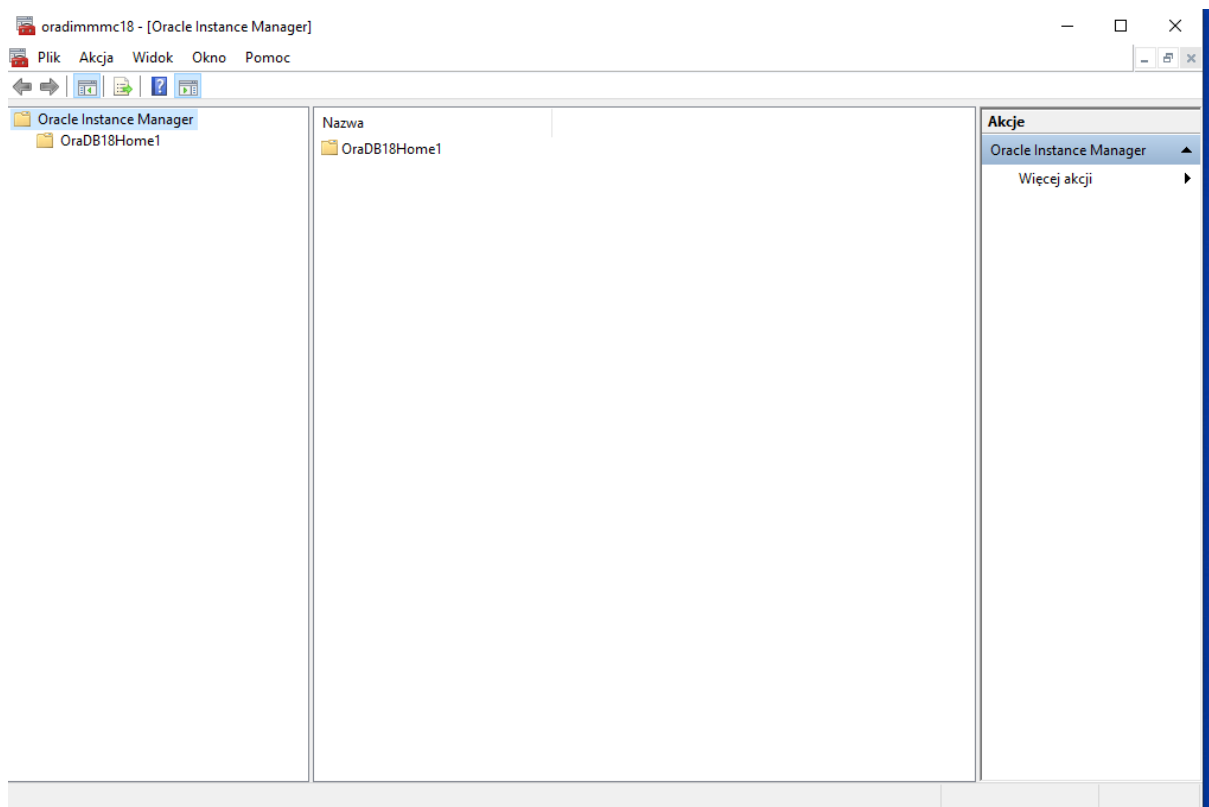
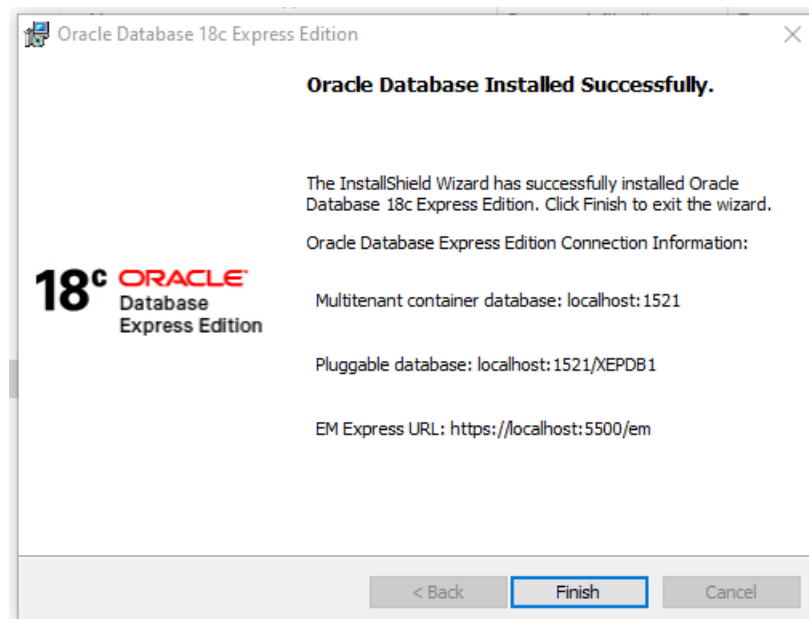
1. Utworzenie maszyny wirtualnej oraz instalacja SO

Udało się zainstalować i utworzyć maszynę wirtualną na Windows 10 Pro.

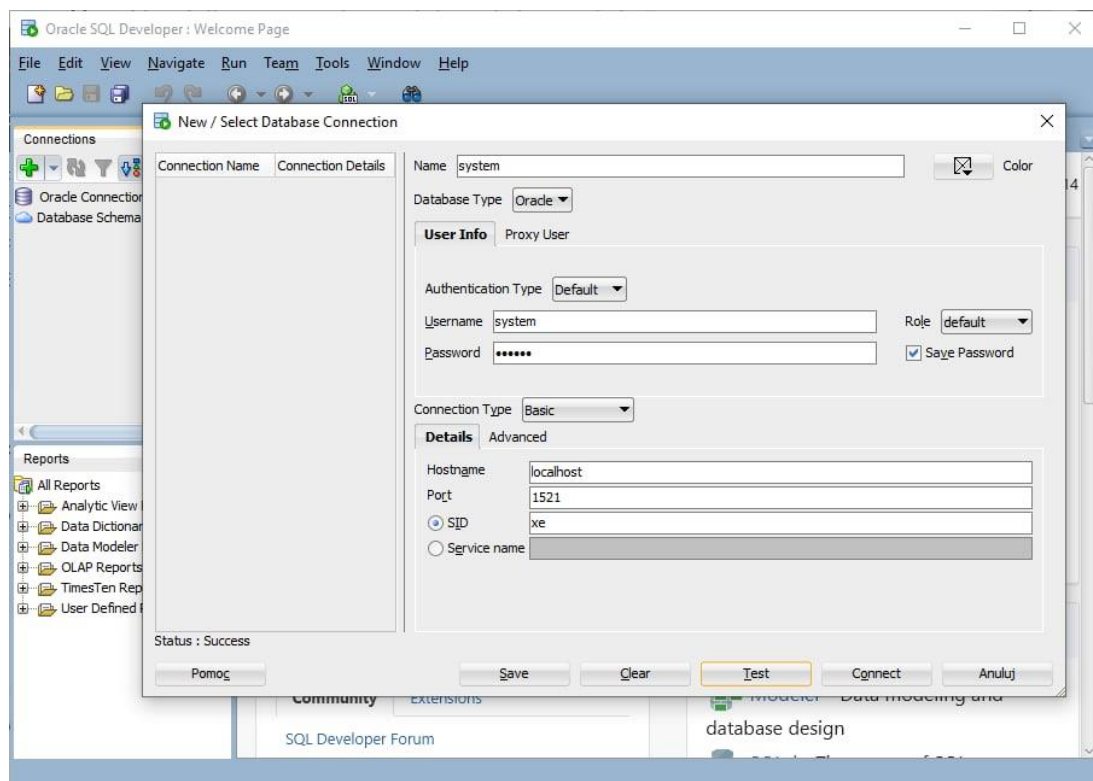
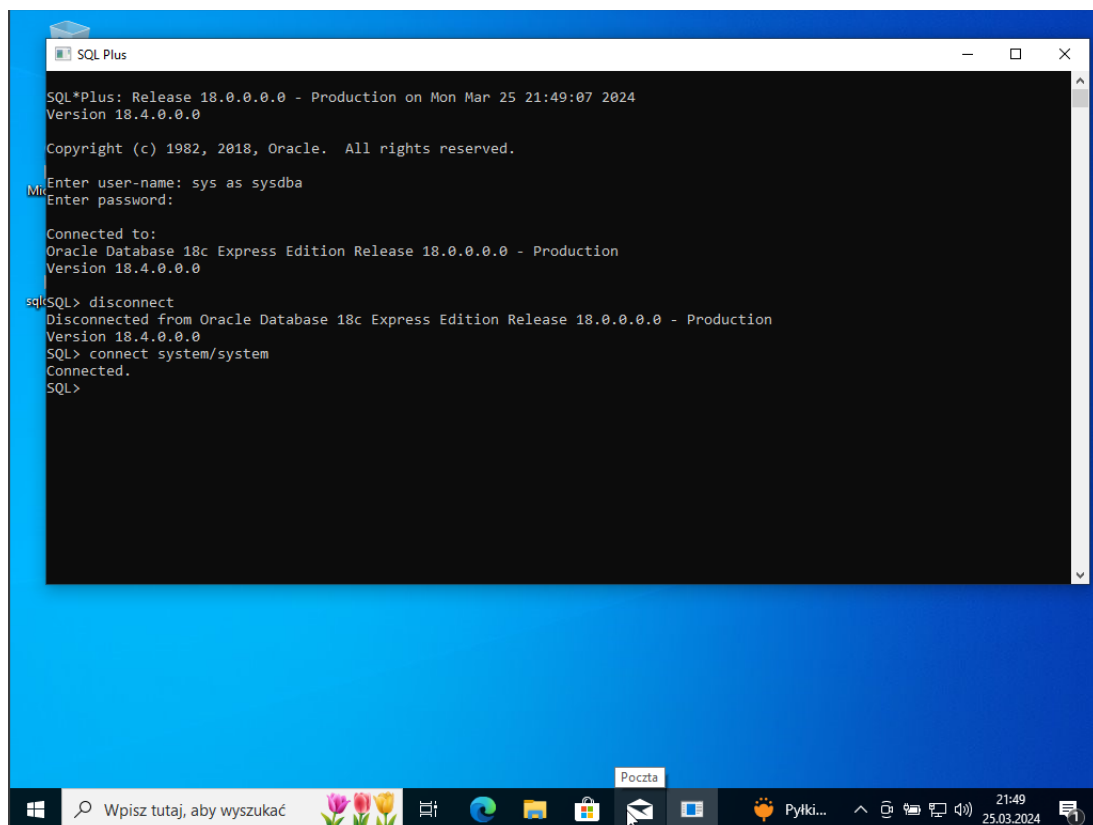


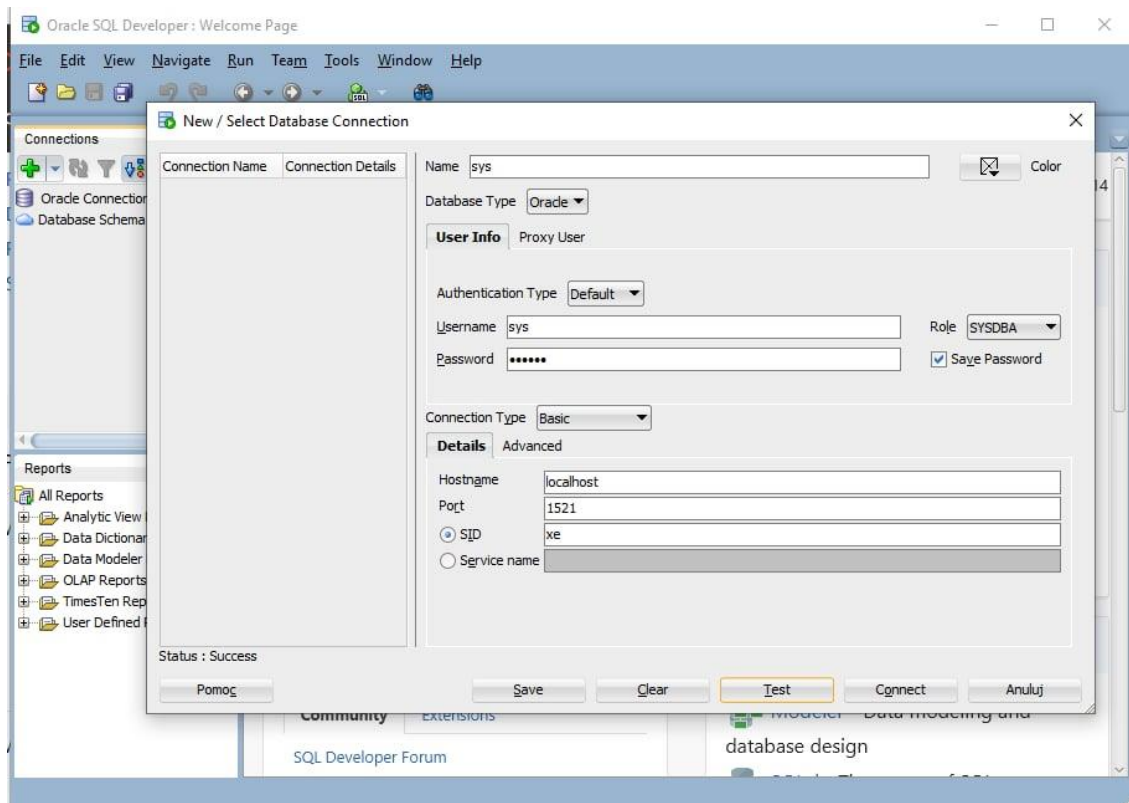
2. Instalacja systemu bazodanowego

Z głównej strony Oracle pobrano Oracle Database 18c XE oraz zainstalowano go na maszynie wirtualnej.



Nawiązano połączenie w SQLPlus oraz w SQL Developer.





3. Tworzenie dwóch plików parametrów

3.1. Parametry systemu bazodanowego

Tworzenie pliku INIT-PFILE:

```
Administrator: Wolska_Wandas - sqlplus

SQL> alter session set container = CDB$ROOT;

Session altered.

SQL> CREATE PFILE = 'C:\PLIK\parametry\init-pfile.ora' FROM SPFILE = 'C:\app\karolina\product\18.0.0\dbhomeXE\database\SPFILEXE.ORA';

File created.

SQL> _
```

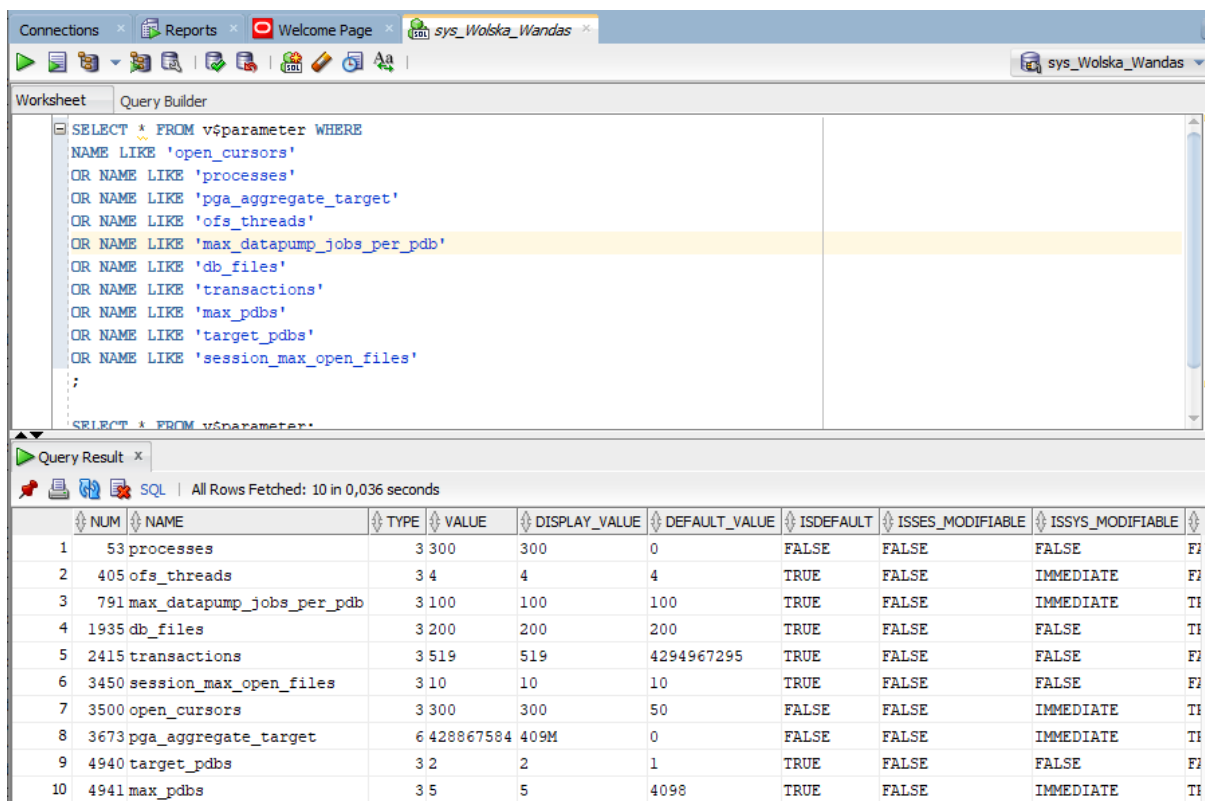
Wygląd pliku INIT-PFILE przed modyfikacją:

```
C:\PLIK\parametry\INIT-PFILE.ORA - Notepad++
Plik Edycja Szukaj Widok Format Składnia Ustawienia Narzędzia Makra Uruchom Wtyczki Karty ?

listener_zmieniony.ora tnsnames_zmieniony.ora PDB_Wolska_1.XML PDB_Wandas_2.XML PDB_Wolska_Wandas_3.XML SPFILEXE.ORA

1 xe.__data_transfer_cache_size=0
2 xe.__db_cache_size=805306368
3 xe.__inmemory_ext_roarea=0
4 xe.__inmemory_ext_rwarea=0
5 xe.__java_pool_size=16777216
6 xe.__large_pool_size=33554432
7 xe.__oracle_base='C:\app\karolina\product\18.0.0'#ORACLE_BASE set from environment
8 xe.__pga_aggregate_target=436207616
9 xe.__sga_target=1291845632
10 xe.__shared_io_pool_size=67108864
11 xe.__shared_pool_size=335544320
12 xe.__streams_pool_size=16777216
13 *.audit_file_dest='C:\app\karolina\product\18.0.0\admin\XE\adump'
14 *.audit_trail='db'
15 *.compatible='18.0.0'
16 *.control_files='C:\app\karolina\product\18.0.0\oradata\XE\control01.ctl','C:\app\karolina\product\18.0.0\oradata\XE\control0
17 *.db_block_size=8192
18 *.db_name='XE'
19 *.diagnostic_dest='C:\app\karolina\product\18.0.0'
20 *.dispatchers='(PROTOCOL=TCP) (SERVICE=XE)'
21 *.enable_pluggable_database=true
22 *.local_listener='LISTENER_XE'
23 *.nls_currency='$'
24 *.nls_date_language='AMERICAN'
25 *.nls_iso_currency='AMERICA'
26 *.nls_language='AMERICAN'
27 *.nls_territory='AMERICA'
28 *.open_cursors=300
29 *.pga_aggregate_target=409m
30 *.processes=300
31 *.remote_login_passwordfile='EXCLUSIVE'
32 *.sga_target=1228m
33 *.undo_tablespace='UNDOTBS1'
34
```

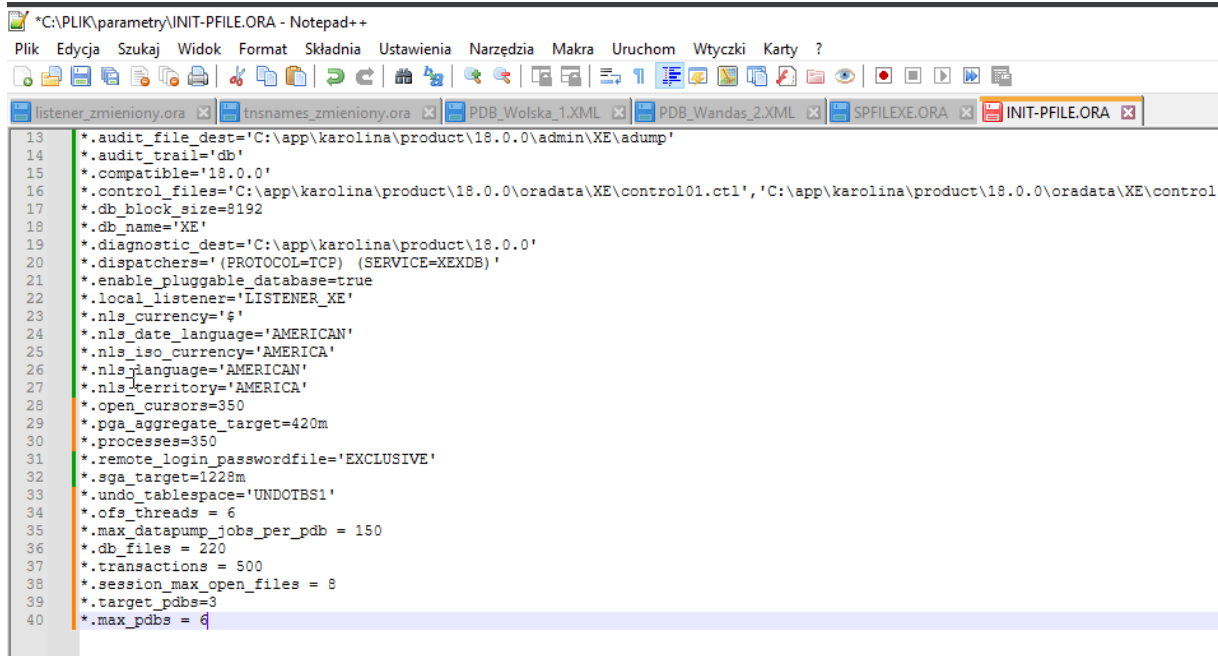
Parametry przed zmianą:



The screenshot shows the Oracle SQL Developer interface. The top pane displays a SQL query: `SELECT * FROM v$parameter WHERE NAME LIKE 'open_cursors' OR NAME LIKE 'processes' OR NAME LIKE 'pga_aggregate_target' OR NAME LIKE 'ofs_threads' OR NAME LIKE 'max_datapump_jobs_per_pdb' OR NAME LIKE 'db_files' OR NAME LIKE 'transactions' OR NAME LIKE 'max_pdb' OR NAME LIKE 'target_pdb' OR NAME LIKE 'session_max_open_files';`. The bottom pane shows the query results in a table with 10 rows and 10 columns.

NUM	NAME	TYPE	VALUE	DISPLAY_VALUE	DEFAULT_VALUE	ISDEFAULT	ISSUES_MODIFIABLE	ISSYS_MODIFIABLE	
1	53 processes	3	300	300	0	FALSE	FALSE	FALSE	F
2	405 ofs_threads	3	4	4	4	TRUE	FALSE	IMMEDIATE	F
3	791 max_datapump_jobs_per_pdb	3	100	100	100	TRUE	FALSE	IMMEDIATE	T
4	1935 db_files	3	200	200	200	TRUE	FALSE	FALSE	T
5	2415 transactions	3	519	519	4294967295	TRUE	FALSE	FALSE	F
6	3450 session_max_open_files	3	10	10	10	TRUE	FALSE	FALSE	F
7	3500 open_cursors	3	300	300	50	FALSE	FALSE	IMMEDIATE	T
8	3673 pga_aggregate_target	6	428867584	409M	0	FALSE	FALSE	IMMEDIATE	T
9	4940 target_pdb	3	2	2	1	TRUE	FALSE	FALSE	F
10	4941 max_pdb	3	5	5	4098	TRUE	FALSE	IMMEDIATE	T

Zmiana parametrów:



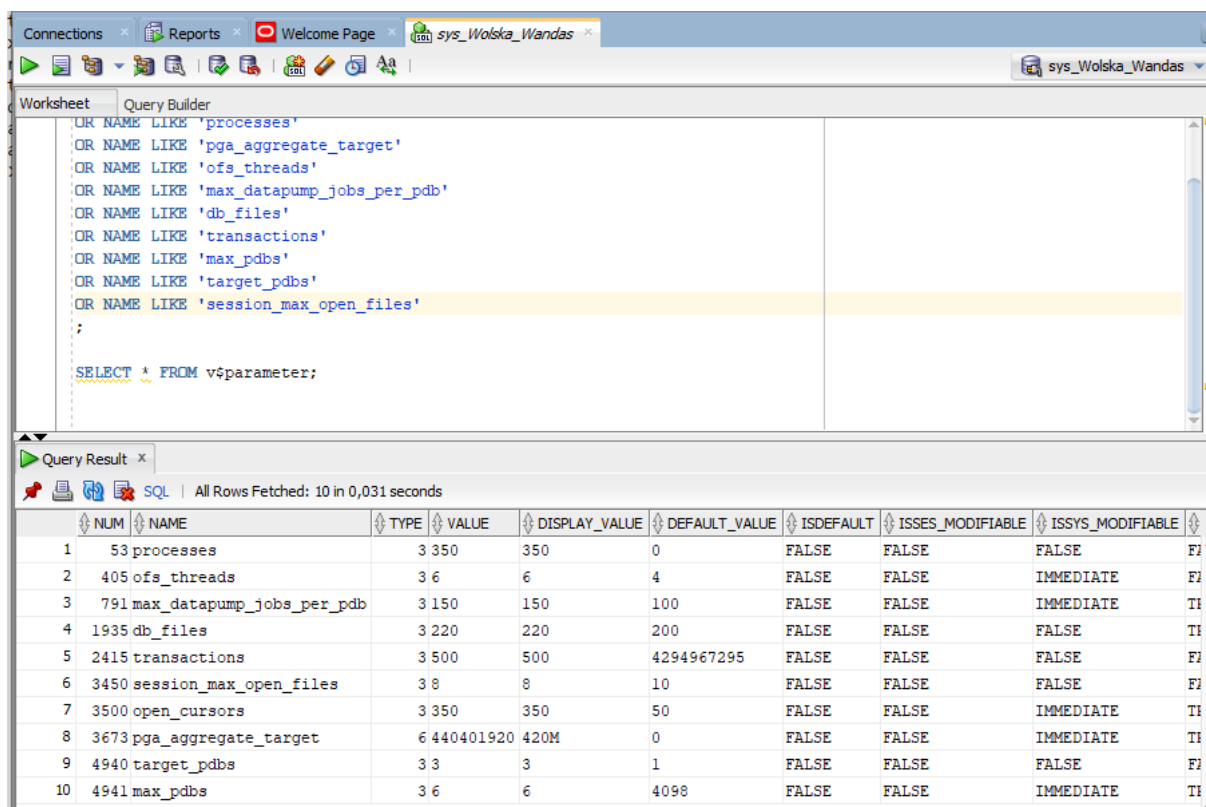
The screenshot shows a Notepad++ window with a file named `INIT-PFILE.ORA`. The file contains a list of database parameters and their values, including `audit_file_dest`, `audit_trail`, `compatible`, `control_files`, `db_block_size`, `db_name`, `diagnostic_dest`, `dispatchers`, `enable_pluggable_database`, `local_listener`, `nls_currency`, `nls_date_language`, `nls_iso_currency`, `nls_language`, `nls_territory`, `open_cursors`, `pga_aggregate_target`, `processes`, `remote_login_passwordfile`, `sga_target`, `undo_tablespace`, `ofs_threads`, `max_datapump_jobs_per_pdb`, `db_files`, `transactions`, `session_max_open_files`, `target_pdb`, and `max_pdb`.

```
*.audit_file_dest='C:\app\karolina\product\18.0.0\admin\XE\adump'
*.audit_trail='db'
*.compatible='18.0.0'
*.control_files='C:\app\karolina\product\18.0.0\oradata\XE\control01.ctl', 'C:\app\karolina\product\18.0.0\oradata\XE\control02.ctl'
*.db_block_size=8192
*.db_name='XE'
*.diagnostic_dest='C:\app\karolina\product\18.0.0'
*.dispatchers='(PROTOCOL=TCP) (SERVICE=XE)'
*.enable_pluggable_database=true
*.local_listener='LISTENER_XE'
*.nls_currency='€'
*.nls_date_language='AMERICAN'
*.nls_iso_currency='AMERICAN'
*.nls_language='AMERICAN'
*.nls_territory='AMERICAN'
*.open_cursors=350
*.pga_aggregate_target=420m
*.processes=350
*.remote_login_passwordfile='EXCLUSIVE'
*.sga_target=1228m
*.undo_tablespace='UNDOTBS1'
*.ofs_threads = 6
*.max_datapump_jobs_per_pdb = 150
*.db_files = 220
*.transactions = 500
*.session_max_open_files = 8
*.target_pdb=3
*.max_pdb = 6
```


Uruchomienie bazy z pliku INIT-PFILE:

```
CA. WybierzAdministrator: Wolska_Wandas - sqlplus
SQL> shutdown immediate;
Database closed.
Database dismounted.
ORACLE instance shut down.
SQL> startup pfile = 'C:\PLIK\parametry\INIT-PFILE.ORA';
ORACLE instance started.
"Total System Global Area",1291845528,"bytes"
"Fixed Size",9027480,"bytes"
"Variable Size",469762048,"bytes"
"Database Buffers",805306368,"bytes"
"Redo Buffers",7749632,"bytes"
Database mounted.
Database opened.
SQL> █
```

Parametry po zmianie:



The screenshot shows the SQL Developer interface. The 'Query Builder' tab is active, displaying a query that filters parameters from the 'v\$parameter' view. The query is:
OR NAME LIKE 'processes'
OR NAME LIKE 'pga_aggregate_target'
OR NAME LIKE 'ofs_threads'
OR NAME LIKE 'max_datapump_jobs_per_pdb'
OR NAME LIKE 'db_files'
OR NAME LIKE 'transactions'
OR NAME LIKE 'max_pdb'
OR NAME LIKE 'target_pdb'
OR NAME LIKE 'session_max_open_files'
;
SELECT * FROM v\$parameter;
The 'Query Result' tab below shows the output of this query as a table with 10 rows and 10 columns. The columns are: NUM, NAME, TYPE, VALUE, DISPLAY_VALUE, DEFAULT_VALUE, ISDEFAULT, ISSUES_MODIFIABLE, ISSYS_MODIFIABLE, and an unlabeled column. The rows list various database parameters and their current values.

NUM	NAME	TYPE	VALUE	DISPLAY_VALUE	DEFAULT_VALUE	ISDEFAULT	ISSUES_MODIFIABLE	ISSYS_MODIFIABLE	
1	53 processes	3	350	350	0	FALSE	FALSE	FALSE	FI
2	405 ofs_threads	3	6	6	4	FALSE	FALSE	IMMEDIATE	FI
3	791 max_datapump_jobs_per_pdb	3	150	150	100	FALSE	FALSE	IMMEDIATE	TH
4	1935 db_files	3	220	220	200	FALSE	FALSE	FALSE	TH
5	2415 transactions	3	500	500	4294967295	FALSE	FALSE	FALSE	FI
6	3450 session_max_open_files	3	8	8	10	FALSE	FALSE	FALSE	FI
7	3500 open_cursors	3	350	350	50	FALSE	FALSE	IMMEDIATE	TH
8	3673 pga_aggregate_target	6	440401920	420M	0	FALSE	FALSE	IMMEDIATE	TH
9	4940 target_pdb	3	3	3	1	FALSE	FALSE	FALSE	FI
10	4941 max_pdb	3	6	6	4098	FALSE	FALSE	IMMEDIATE	TH

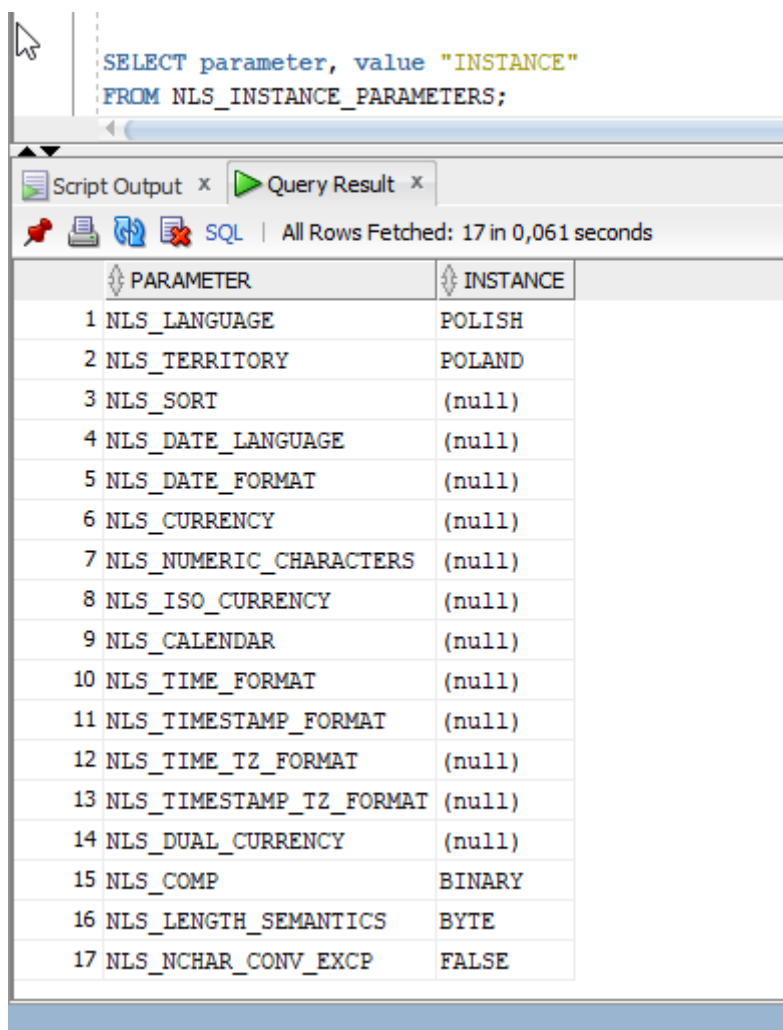
Wartości tych parametrów uległy zmianie.

Opis parametrów:

- **open_cursors** - maksymalna liczba kursorów, które mogą być jednocześnie otwarte dla jednej sesji w bazie danych
- **pga_aggregate_target** - całkowity rozmiar pamięci PGA (Program Global Area) alokowany dla wszystkich procesów w bazie danych
- **Processes** - maksymalna liczba procesów operacyjnych, które mogą jednocześnie działać w bazie danych.
- **ofs_threads** - liczba wątków alokowanych dla operacji Online File System.
- **max_datapump_jobs_per_pdb** - maksymalna liczba zadań Data Pump, które mogą być jednocześnie uruchomione na pojedynczej pluggable database (PDB).
- **db_files** - maksymalna liczba plików danych, które mogą być otwarte jednocześnie w bazie danych.
- **transactions** - maksymalna liczba jednoczesnych transakcji w bazie danych.
- **session_max_open_files** - maksymalna liczba plików, które mogą być otwarte jednocześnie przez jedną sesję.
- **target_pdb**s - docelowa liczba pluggable databases (PDB), którą administrator planuje uruchomić w tej instancji.
- **max_pdb**s - maksymalna liczba pluggable databases (PDB), które mogą być jednocześnie uruchomione w tej instancji.

3.2. Parametry z grupy NLS

Parametry NLS przed zmianą:



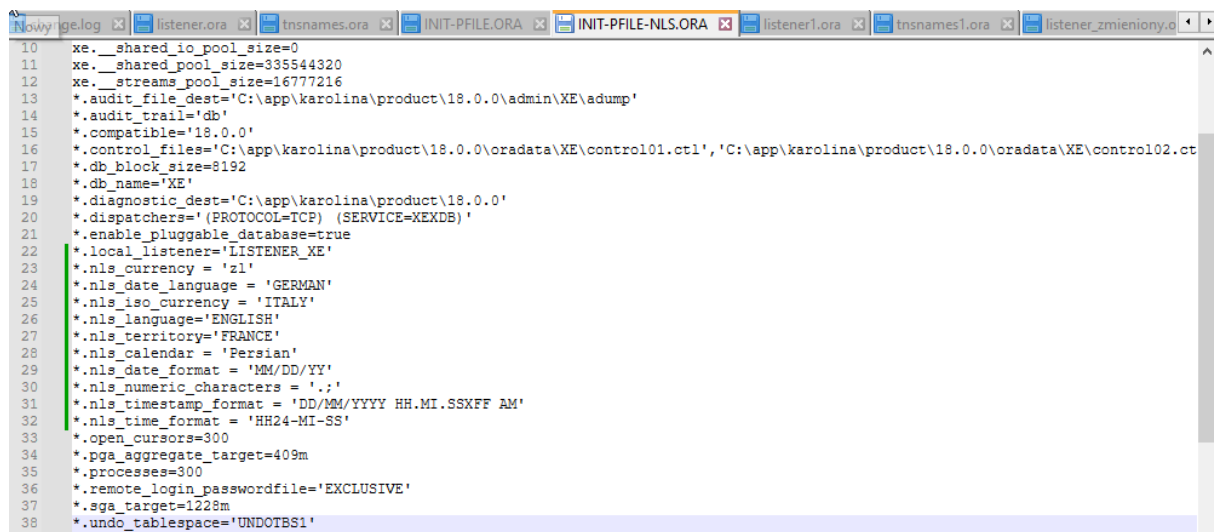
The screenshot shows a SQL query window with the following SQL statement:

```
SELECT parameter, value "INSTANCE"  
FROM NLS_INSTANCE_PARAMETERS;
```

Below the query window, the 'Query Result' tab is active, displaying 17 rows of data. The status bar indicates 'All Rows Fetched: 17 in 0,061 seconds'.

	PARAMETER	INSTANCE
1	NLS_LANGUAGE	POLISH
2	NLS_TERRITORY	POLAND
3	NLS_SORT	(null)
4	NLS_DATE_LANGUAGE	(null)
5	NLS_DATE_FORMAT	(null)
6	NLS_CURRENCY	(null)
7	NLS_NUMERIC_CHARACTERS	(null)
8	NLS_ISO_CURRENCY	(null)
9	NLS_CALENDAR	(null)
10	NLS_TIME_FORMAT	(null)
11	NLS_TIMESTAMP_FORMAT	(null)
12	NLS_TIME_TZ_FORMAT	(null)
13	NLS_TIMESTAMP_TZ_FORMAT	(null)
14	NLS_DUAL_CURRENCY	(null)
15	NLS_COMP	BINARY
16	NLS_LENGTH_SEMANTICS	BYTE
17	NLS_NCHAR_CONV_EXCP	FALSE

Zmiana parametrów w pliku INIT-PFILE-NLS.ORA:



```
10 xe._shared_io_pool_size=0
11 xe._shared_pool_size=335544320
12 xe._streams_pool_size=16777216
13 *.audit_file_dest='C:\app\karolina\product\18.0.0\admin\XE\adump'
14 *.audit_trail='db'
15 *.compatible='18.0.0'
16 *.control_files='C:\app\karolina\product\18.0.0\oradata\XE\control01.ctl','C:\app\karolina\product\18.0.0\oradata\XE\control02.ctl'
17 *.db_block_size=8192
18 *.db_name='XE'
19 *.diagnostic_dest='C:\app\karolina\product\18.0.0'
20 *.dispatchers=(PROTOCOL=TCP) (SERVICE=XE)
21 *.enable_pluggable_database=true
22 *.local_listener='LISTENER_XE'
23 *.nls_currency = 'zl'
24 *.nls_date_language = 'GERMAN'
25 *.nls_iso_currency = 'ITALY'
26 *.nls_language='ENGLISH'
27 *.nls_territory='FRANCE'
28 *.nls_calendar = 'Persian'
29 *.nls_date_format = 'MM/DD/YY'
30 *.nls_numeric_characters = '.,;'
31 *.nls_timestamp_format = 'DD/MM/YYYY HH.MI.SSXXF AM'
32 *.nls_time_format = 'HH24-MI-SS'
33 *.open_cursors=300
34 *.pga_aggregate_target=409m
35 *.processes=300
36 *.remote_login_passwordfile='EXCLUSIVE'
37 *.sga_target=1228m
38 *.undo_tablespace='UNDOTBS1'
```

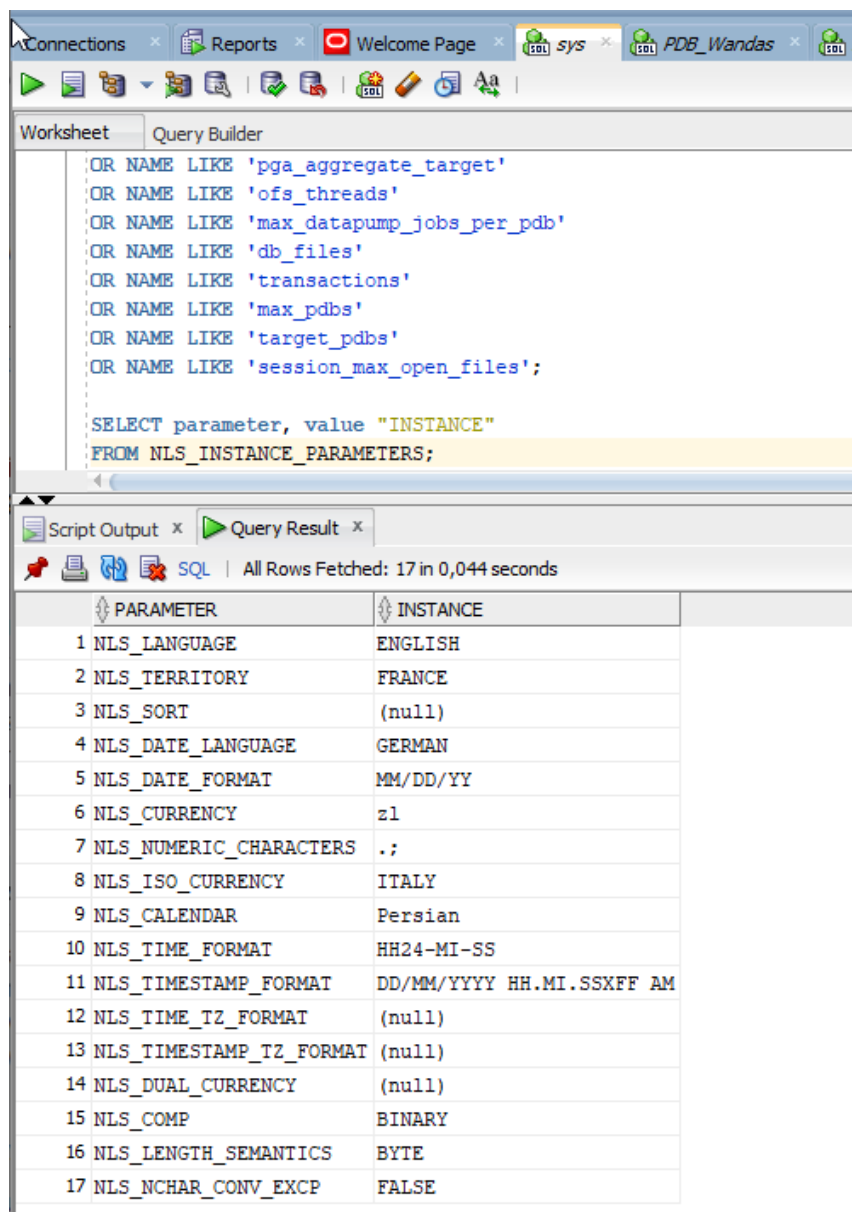
Uruchomienie bazy z pliku INIT-PFILE-NLS.ORA:



```
C:\> Administrator: Wolska_Wandas - sqlplus
File created.

SQL> shutdown immediate;
Database closed.
Database dismounted.
ORACLE instance shut down.
SQL> startup pfile = 'C:\PLIK\parametry\INIT-PFILE-NLS.ORA'
ORACLE instance started.
"Total System Global Area",1291845424,"bytes"
"Fixed Size",9027376,"bytes"
"Variable Size",452984832,"bytes"
"Database Buffers",822083584,"bytes"
"Redo Buffers",7749632,"bytes"
Database mounted.
Database opened.
SQL>
```

Parametry po zmianie:



The screenshot shows the SQL Developer interface. The top pane displays a SQL query in the Query Builder. The query consists of a WHERE clause with multiple OR conditions and a SELECT statement. The bottom pane shows the Query Results table with 17 rows of data.

```
OR NAME LIKE 'pga_aggregate_target'
OR NAME LIKE 'ofs_threads'
OR NAME LIKE 'max_datapump_jobs_per_pdb'
OR NAME LIKE 'db_files'
OR NAME LIKE 'transactions'
OR NAME LIKE 'max_pdbs'
OR NAME LIKE 'target_pdbs'
OR NAME LIKE 'session_max_open_files';

SELECT parameter, value "INSTANCE"
FROM NLS_INSTANCE_PARAMETERS;
```

	PARAMETER	INSTANCE
1	NLS_LANGUAGE	ENGLISH
2	NLS_TERRITORY	FRANCE
3	NLS_SORT	(null)
4	NLS_DATE_LANGUAGE	GERMAN
5	NLS_DATE_FORMAT	MM/DD/YY
6	NLS_CURRENCY	zł
7	NLS_NUMERIC_CHARACTERS	.,;
8	NLS_ISO_CURRENCY	ITALY
9	NLS_CALENDAR	Persian
10	NLS_TIME_FORMAT	HH24-MI-SS
11	NLS_TIMESTAMP_FORMAT	DD/MM/YYYY HH.MI.SSXXFF AM
12	NLS_TIME_TZ_FORMAT	(null)
13	NLS_TIMESTAMP_TZ_FORMAT	(null)
14	NLS_DUAL_CURRENCY	(null)
15	NLS_COMP	BINARY
16	NLS_LENGTH_SEMANTICS	BYTE
17	NLS_NCHAR_CONV_EXCP	FALSE

Opis parametrów NLS:

- **nls_currency= 'zl'** - ustawia symbol waluty na 'zl', który może być używany w formatach walutowych.
- **nls_date_language='GERMAN'** - ustawia język używany do wyświetlania nazw dni tygodnia i miesięcy w formatach dat na niemiecki.
- **nls_iso_currency='ITALY'** - ustawia nazwę kraju dla międzynarodowego symbolu waluty na 'ITALY' (Włochy). To określa, że symbole walut będą wyświetlane zgodnie z włoskim standardem ISO.
- **nls_language='ENGLISH'** - ustawia domyślny język bazy danych na angielski.
- **nls_territory='FRANCE'** - ustawia domyślny region lub terytorium na Francję
- **nls_calendar='Persian'** - ustawia domyślny kalendarz na (perski), co wpływa na sposób interpretacji dat.
- **nls_date_format='MM/DD/YY'** - ustawia domyślny format daty na 'MM/DD/YY'.
- **nls_numeric_characters=',.'** - ustawia znaki używane do oddzielania części dziesiętnych i tysięcznych w liczbach na ','.
- **nls_timestamp_format='DD/MM/YYYY HH:MI:AM'** - ustawia domyślny format znacznika czasu na 'DD/MM/YYYY HH:MI
- **nls_time_format='HH24:MI'** - ustawia domyślny format czasu na 'HH24:MI

4. Modyfikacja plików listener.ora oraz tsnames.ora

Zmodyfikowano plik listener.ora dodając 3 listenery (numery portów: 1522, 1544, 1588).

```
1  DEFAULT_SERVICE_LISTENER = XE
2
3  LISTENER =
4      (DESCRIPTION =
5          (ADDRESS = (PROTOCOL = TCP) (HOST = localhost) (PORT = 1521))
6      )
7
8  LISTENER_1_173235 =
9      (DESCRIPTION =
10         (ADDRESS = (PROTOCOL = TCP) (HOST = localhost) (PORT = 1522))
11     )
12
13  LISTENER_2_173230 =
14      (DESCRIPTION =
15         (ADDRESS = (PROTOCOL = TCP) (HOST = localhost) (PORT = 1544))
16     )
17
18  LISTENER_3_173230_173235 =
19      (DESCRIPTION =
20         (ADDRESS = (PROTOCOL = TCP) (HOST = localhost) (PORT = 1588))
21     )
22
23  SID_LIST_LISTENER =
24      (SID_LIST =
25          (SID_DESC =
26              (GLOBAL_DBNAME = XE)
27              (SID_NAME = XE)
28          )
29      )
30
31  SID_LIST_LISTENER_1_173235 =
32      (SID_LIST =
33          (SID_DESC =
34              (GLOBAL_DBNAME = XE)
35              (SID_NAME = XE)
36          )
37      )
38
39  SID_LIST_LISTENER_2_173230 =
40      (SID_LIST =
41          (SID_DESC =
42              (GLOBAL_DBNAME = XE)
43              (SID_NAME = XE)
44          )
45      )
46
47  SID_LIST_LISTENER_3_173230_173235 =
48      (SID_LIST =
49          (SID_DESC =
50              (GLOBAL_DBNAME = XE)
51              (SID_NAME = XE)
52          )
53      )
```

Zmodyfikowano plik tsnames.ora dodając 3 aliasy.

```
1  # tsnames.ora Network Configuration File: C:\app\karolina\product\18.0.0\dbhomeXE\NETWORK\ADMIN\tnsnames.ora
2  # Generated by Oracle configuration tools.
3
4  XE =
5  (DESCRIPTION =
6  (ADDRESS = (PROTOCOL = TCP) (HOST = localhost) (PORT = 1521))
7  (CONNECT_DATA =
8  (SERVER = DEDICATED)
9  (SERVICE_NAME = XE)
10 )
11 )
12
13 Alias_1_173235 =
14 (DESCRIPTION =
15 (ADDRESS = (PROTOCOL = TCP) (HOST = localhost) (PORT = 1522))
16 (CONNECT_DATA =
17 (SERVER = DEDICATED)
18 (SERVICE_NAME = XE)
19 )
20 )
21
22 Alias_2_173230 =
23 (DESCRIPTION =
24 (ADDRESS = (PROTOCOL = TCP) (HOST = localhost) (PORT = 1544))
25 (CONNECT_DATA =
26 (SERVER = DEDICATED)
27 (SERVICE_NAME = XE)
28 )
29 )
30
31 Alias_3_173230_173235 =
32 (DESCRIPTION =
33 (ADDRESS = (PROTOCOL = TCP) (HOST = localhost) (PORT = 1588))
34 (CONNECT_DATA =
35 (SERVER = DEDICATED)
36 (SERVICE_NAME = XE)
37 )
38 )
39
```

4.1. Nawiązywanie połączenia poprzez porty

Po uruchomieniu ponownie listenerów w cmd jako administrator nawiązano kolejno trzy nowe połączenia do instancji bazy danych dla utworzonych wcześniej usług z przypisanymi portami (1522, 1544, 1588) zarówno w sqlplus jak i w SQL Developer.

- Sqlplus

```
Administrator: Wolska_Wandas - sqlplus
Connected to:
Oracle Database 18c Express Edition Release 18.0.0.0.0 - Production
Version 18.4.0.0.0
SQL> connect system/system@((DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=127.0.0.1)(PORT=1522))(connect_data=(SERVICE_NAME=XE)))
Connected.
SQL> disconnect
Disconnected from Oracle Database 18c Express Edition Release 18.0.0.0.0 - Production
Version 18.4.0.0.0
SQL> connect system/system@((DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=127.0.0.1)(PORT=1544))(connect_data=(SERVICE_NAME=XE)))
Connected.
SQL> disconnect
Disconnected from Oracle Database 18c Express Edition Release 18.0.0.0.0 - Production
Version 18.4.0.0.0
SQL> connect system/system@((DESCRIPTION=(ADDRESS=(PROTOCOL=tcp)(HOST=127.0.0.1)(PORT=1588))(connect_data=(SERVICE_NAME=XE)))
Connected.
SQL> disconnect
Disconnected from Oracle Database 18c Express Edition Release 18.0.0.0.0 - Production
Version 18.4.0.0.0
SQL>
```


- SQL Developer

The image displays two screenshots of the "New / Select Database Connection" dialog box in SQL Developer, showing the configuration for a connection named "sys".

Top Screenshot:

- Connection Name:** sys
- Connection Details:** sys@//localhost:...
- Name:** sys
- Database Type:** Oracle
- User Info:** Proxy User
- Authentication Type:** Default
- Username:** sys
- Role:** SYSDBA
- Password:** (masked with dots)
- Save Password:** ☒
- Connection Type:** Basic
- Details:** Advanced
 - Hostname:** localhost
 - Port:** 1522
 - SID:** xe
 - Service name:** (empty)

Status: Success

Buttons: Pomoc, Save, Clear, Test, Connect, Anuluj

Bottom Screenshot:

This screenshot is identical to the top one, but the **Port** is set to 1544.

New / Select Database Connection

Connection Name	Connection Details
sys	sys@//localhost:...

Name: sys

Database Type: Oracle

User Info

Authentication Type: Default

Username: sys

Password: *****

Role: SYSDBA

☒ Save Password

Connection Type: Basic

Details

Hostname: localhost

Port: 1588

☒ SID: xe

☐ Service name

Status: Success

Pomoc Save Clear Test Connect Anuluj

4.2. Nawiązywanie połączenia poprzez aliasy

Następnie nawiązano połączenie przy użyciu aliasów za pomocą sqlplus oraz SQL Developer.

- sqlplus

```
Administrator: Wolska_Wandas - sqlplus
SQL> connect system/system@Alias_1_173235
Connected.
SQL> disconnect
Disconnected from Oracle Database 18c Express Edition Release 18.0.0.0.0 - Production
Version 18.4.0.0.0
SQL> connect system/system@Alias_2_173230
Connected.
SQL> disconnect
Disconnected from Oracle Database 18c Express Edition Release 18.0.0.0.0 - Production
Version 18.4.0.0.0
SQL> connect system/system@Alias_3_173230_173235
Connected.
SQL> disconnect
Disconnected from Oracle Database 18c Express Edition Release 18.0.0.0.0 - Production
Version 18.4.0.0.0
SQL>
```

- SQL Developer

The image displays two screenshots of the 'New / Select Database Connection' dialog box in SQL Developer, showing the configuration for a connection named 'sys'.

Top Screenshot:

- Connection Name:** sys
- Connection Details:** sys@//localhost:...
- Name:** sys
- Database Type:** Oracle
- User Info:** Proxy User
- Authentication Type:** Default
- Username:** sys
- Role:** SYSDBA
- Password:** (masked with dots)
- Save Password:** ☒
- Connection Type:** TNS
- Details:** Advanced
 - Network Alias:** ☒ Alias_1_173235
 - Connect Identifier:** ☐
- Status:** Success
- Buttons:** Pomoc, Save, Clear, Test, Connect, Anuluj

Bottom Screenshot:

- Connection Name:** sys
- Connection Details:** sys@//localhost:...
- Name:** sys
- Database Type:** Oracle
- User Info:** Proxy User
- Authentication Type:** Default
- Username:** sys
- Role:** SYSDBA
- Password:** (masked with dots)
- Save Password:** ☒
- Connection Type:** TNS
- Details:** Advanced
 - Network Alias:** ☒ Alias_2_173230
 - Connect Identifier:** ☐
- Status:** Success
- Buttons:** Pomoc, Save, Clear, Test, Connect, Anuluj

New / Select Database Connection

Connection Name	Connection Details
sys	sys@//localhost:...

Name: sys Color

Database Type: Oracle

User Info Proxy User

Authentication Type: Default

Username: sys Role: SYSDBA

Password: ***** ☒ Save Password

Connection Type: TNS

Details Advanced

☒ Network Alias Alias_3_173230_173235

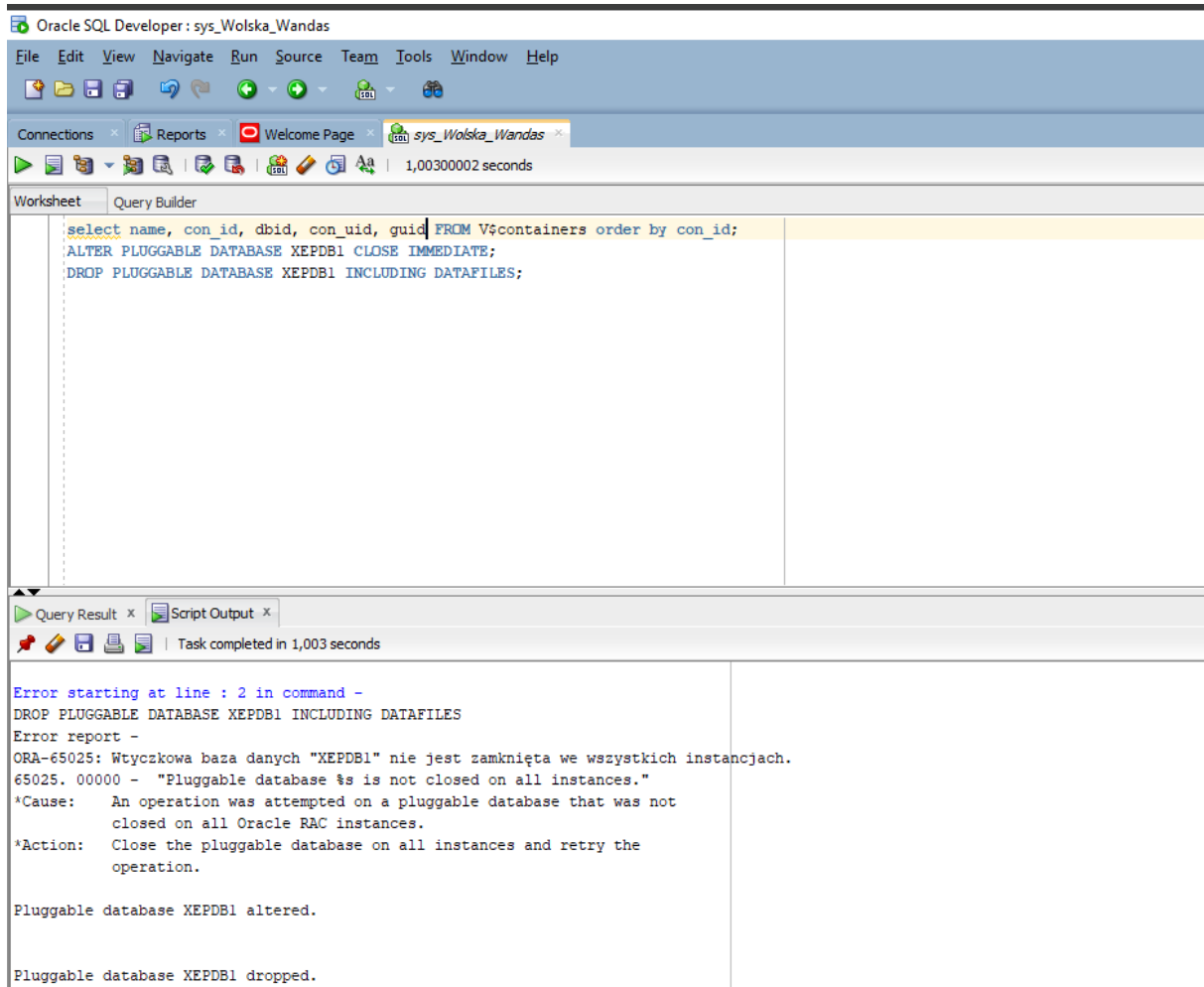
☐ Connect Identifier

Status : Success

Pomoc Save Clear Test Connect Anuluj

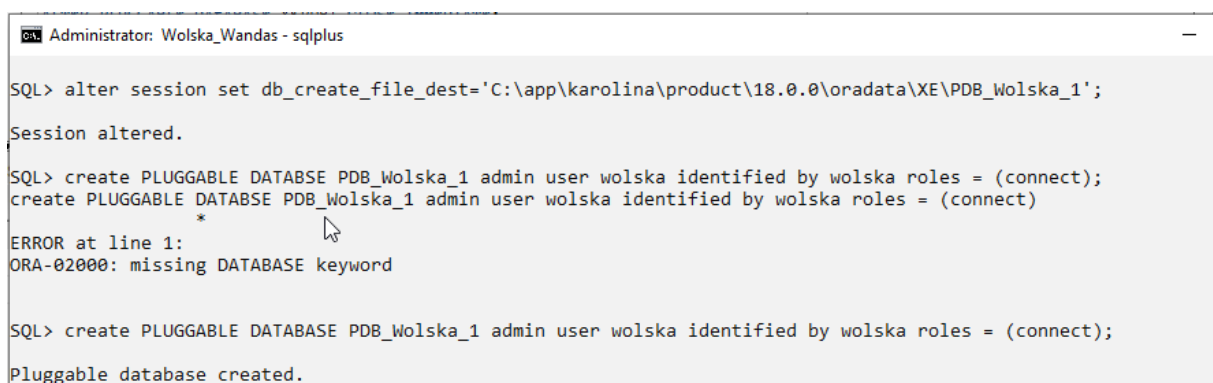
5. Tworzenie i modyfikacja kontenerów

Usunięto kontener XEPDB1.



```
Oracle SQL Developer : sys_Wolska_Wandas
File Edit View Navigate Run Source Team Tools Window Help
Connections Reports Welcome Page sys_Wolska_Wandas
1,00300002 seconds
Worksheet Query Builder
select name, con_id, dbid, con_uid, guid FROM Vcontainers order by con_id;
ALTER PLUGGABLE DATABASE XEPDB1 CLOSE IMMEDIATE;
DROP PLUGGABLE DATABASE XEPDB1 INCLUDING DATAFILES;
Task completed in 1,003 seconds
Error starting at line : 2 in command -
DROP PLUGGABLE DATABASE XEPDB1 INCLUDING DATAFILES
Error report -
ORA-65025: Wtyczkowa baza danych "XEPDB1" nie jest zamknięta we wszystkich instancjach.
65025. 00000 - "Pluggable database %s is not closed on all instances."
*Cause: An operation was attempted on a pluggable database that was not
closed on all Oracle RAC instances.
*Action: Close the pluggable database on all instances and retry the
operation.
Pluggable database XEPDB1 altered.
Pluggable database XEPDB1 dropped.
```

5.1. Utworzenie kontenerów



```
Administrator: Wolska_Wandas - sqlplus
SQL> alter session set db_create_file_dest='C:\app\karolina\product\18.0.0\oradata\XE\PDB_Wolska_1';
Session altered.
SQL> create PLUGGABLE DATABASE PDB_Wolska_1 admin user wolska identified by wolska roles = (connect);
create PLUGGABLE DATABASE PDB_Wolska_1 admin user wolska identified by wolska roles = (connect)
*
ERROR at line 1:
ORA-02000: missing DATABASE keyword
SQL> create PLUGGABLE DATABASE PDB_Wolska_1 admin user wolska identified by wolska roles = (connect);
Pluggable database created.
```

```
Administrator: Wolska_Wandas - sqlplus

SQL> alter session set db_create_file_dest='C:\app\karolina\product\18.0.0\oradata\XE\PDB_Wandas_2';
Session altered.

SQL> create PLUGGABLE DATABASE PDB_Wandas_2 admin user wandas identified by wandas roles = (connect);
create PLUGGABLE DATABASE PDB_Wandas_2 admin user wandas identified by wandas roles = (connect)
*
ERROR at line 1:
ORA-02000: missing DATABASE keyword

SQL> create PLUGGABLE DATABASE PDB_Wandas_2 admin user wandas identified by wandas roles = (connect);
Pluggable database created.

SQL> alter session set db_create_file_dest='C:\app\karolina\product\18.0.0\oradata\XE\PDB_Wolska_Wandas_3';
Session altered.

SQL> create PLUGGABLE DATABASE PDB_Wolska_Wandas_3 admin user wolska_wandas identified by wolska_wandas roles = (connect);
Pluggable database created.

SQL>
```

Potwierdzenie utworzenia kontenerów:

```
select con_ID, name, open_mode, dbid, con_uid from v$pdb;
```

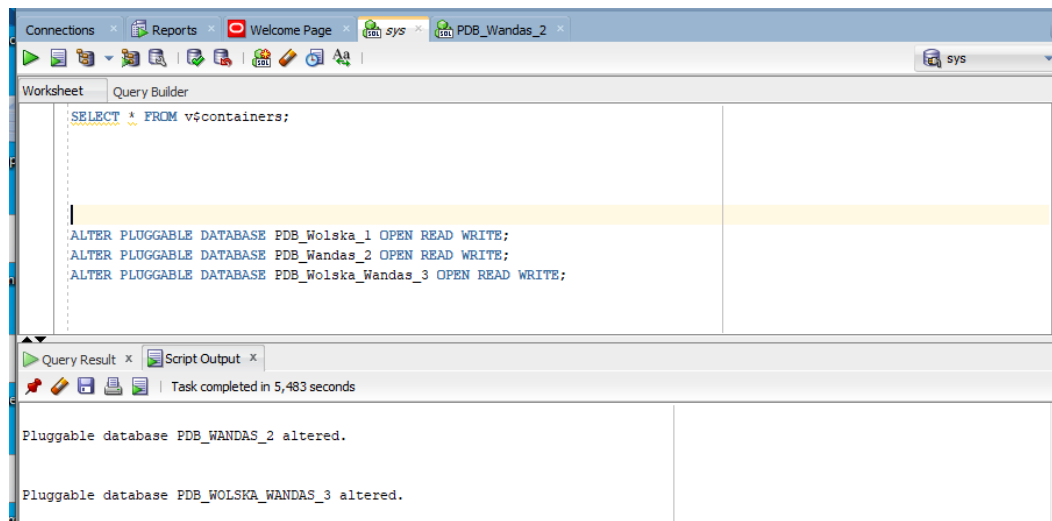
CON_ID	NAME	OPEN_MODE	DBID	CON_UID
1	PDB\$SEED	READ ONLY	1340115381	1340115381
2	PDB_WOLSKA_1	MOUNTED	1960278044	1960278044
3	PDB_WANDAS_2	MOUNTED	2909027335	2909027335
4	PDB_WOLSKA_WANDAS_3	MOUNTED	3464653287	3464653287

Modyfikacja listenerów i aliasów:

```
SID_LIST_LISTENER =
(SID_LIST =
(SID_DESC =
(GLOBAL_DBNAME = XE)
(ORACLE_HOME = C:\app\karolina\product\18.0.0\dbhomeXE)
(SID_NAME = XE)
)
(SID_DESC =
(GLOBAL_DBNAME = PDB_Wolska_1)
(ORACLE_HOME = C:\app\karolina\product\18.0.0\dbhomeXE)
(SID_NAME = XE)
(SERVICE_NAME = PDB_Wolska_1)
)
(SID_DESC =
(GLOBAL_DBNAME = PDB_Wandas_2)
(ORACLE_HOME = C:\app\karolina\product\18.0.0\dbhomeXE)
(SID_NAME = XE)
(SERVICE_NAME = PDB_Wandas_2)
)
(SID_DESC =
(GLOBAL_DBNAME = PDB_Wolska_Wandas_3)
(ORACLE_HOME = C:\app\karolina\product\18.0.0\dbhomeXE)
(SID_NAME = XE)
(SERVICE_NAME = PDB_Wolska_Wandas_3)
)
)
```

```
change.log x listener.ora x tnsnames.ora x listener1.ora x tnsnames1.ora x listener_zmieniony.ora x tnsnames_zmieniony.ora x
28 )
29 )
30 )
31 Alias_3_173230_173235 =
32 (DESCRIPTION =
33 (ADDRESS = (PROTOCOL = TCP)(HOST = localhost)(PORT = 1588))
34 (CONNECT_DATA =
35 (SERVER = DEDICATED)
36 (SERVICE_NAME = XE)
37 )
38 )
39 )
40 PDB_Wolska_1 =
41 (DESCRIPTION =
42 (ADDRESS = (PROTOCOL = TCP)(HOST = localhost)(PORT = 1522))
43 (CONNECT_DATA =
44 (SERVER = DEDICATED)
45 (SERVICE_NAME = PDB_Wolska_1)
46 )
47 )
48 )
49 PDB_Wandas_2 =
50 (DESCRIPTION =
51 (ADDRESS = (PROTOCOL = TCP)(HOST = localhost)(PORT = 1522))
52 (CONNECT_DATA =
53 (SERVER = DEDICATED)
54 (SERVICE_NAME = PDB_Wandas_2)
55 )
56 )
57 )
58 PDB_Wolska_Wandas_3 =
59 (DESCRIPTION =
60 (ADDRESS = (PROTOCOL = TCP)(HOST = localhost)(PORT = 1522))
61 (CONNECT_DATA =
62 (SERVER = DEDICATED)
63 (SERVICE_NAME = PDB_Wolska_Wandas_3)
64 )
65 )
66 )
```

Zmieniono status bazy z MOUNTED na OPEN READ WRITE:



5.2. Utworzono triggery

- PDB_Wolska_1 – PL

The screenshot shows the Oracle SQL Developer interface. The top pane displays a SQL script in the Query Builder:

```
show con_name;  
CREATE OR REPLACE TRIGGER PDB_Wolska_lang_terr  
AFTER LOGON ON PLUGGABLE DATABASE  
BEGIN  
EXECUTE IMMEDIATE 'ALTER SESSION SET NLS_LANGUAGE='POLISH'';  
EXECUTE IMMEDIATE 'ALTER SESSION SET NLS_TERRITORY='POLAND'';  
END;  
/
```

The bottom pane shows the Script Output, indicating that the task completed in 0,702 seconds. The output displays the connection name and the trigger compilation status:

```
CON_NAME  
-----  
PDB_WOLSKA_1  
CON_NAME  
-----  
PDB_WOLSKA_1  
  
Trigger PDB_WOLSKA_LANG_TERR compiled
```

The screenshot shows the Oracle Connections tree. The tree is expanded to show the Triggers folder under the PDB_Wolska connection. The trigger PDB_WOLSKA_LANG_TERR is highlighted with a red rectangle.

- Oracle Connections
 - PDB_Wandas
 - PDB_Wolska
 - Tables (Filtered)
 - Views
 - Indexes
 - Packages
 - Procedures
 - Functions
 - Operators
 - Queues
 - Queues Tables
 - Triggers
 - AW_DROP_TRG
 - AW_REN_TRG
 - AW_TRUNC_TRG
 - DELETE_ENTRIES
 - LOGMNRGGC_TRIGGER
 - OJDS\$ROLE_TRIGGER\$
 - PDB_WOLSKA_LANG_TERR**
 - SYSLSBY_EDS_DDL_TRIG
 - XDB_PI_TRIG
 - Types
 - Sequences
 - Materialized Views

- PDB_Wandas_2 – EN

The screenshot displays the Oracle SQL Developer interface. The top toolbar includes tabs for Connections, Reports, Welcome Page, and several database connections. The 'Worksheet' tab is active, showing a SQL script in the 'Query Builder' pane. The script is as follows:

```
CREATE OR REPLACE TRIGGER PDB_Wandas_lang_terr
AFTER LOGON ON PLUGGABLE DATABASE
BEGIN
EXECUTE IMMEDIATE 'ALTER SESSION SET NLS_LANGUAGE='''ENGLISH''';
EXECUTE IMMEDIATE 'ALTER SESSION SET NLS_TERRITORY='''UNITED KINGDOM''';
END;
/
```

Below the script, the 'Query Result' and 'Script Output' tabs are visible. The 'Script Output' tab shows the message: 'Trigger PDB_WANDAS_LANG_TERR compiled'. Below this, a tree view of the database schema is shown. The tree is expanded to the 'Triggers' folder, which contains a list of triggers. The trigger 'PDB_WANDAS_LANG_TERR' is highlighted with a red rectangle.

Trigger PDB_WANDAS_LANG_TERR compiled

- PDB_Wandas
 - Tables (Filtered)
 - Views
 - Indexes
 - Packages
 - Procedures
 - Functions
 - Operators
 - Queues
 - Queues Tables
 - Triggers
 - AW_DROP_TRG
 - AW_REN_TRG
 - AW_TRUNC_TRG
 - DELETE_ENTRIES
 - LOGMNRGGC_TRIGGER
 - OJDS\$ROLE_TRIGGER\$
 - PDB_WANDAS_LANG_TERR**
 - SYSLSBY_EDS_DDL_TRIG
 - XDB_PI_TRIG
 - Types
 - Sequences
 - Materialized Views
 - Materialized View Logs

- PDB_Wolska_Wandas_3 – USA

The screenshot displays the Oracle SQL Developer interface. The top toolbar includes tabs for Connections, Reports, Welcome Page, and several database connections. The 'Worksheet' tab is active, showing a SQL script to create a trigger. The script is as follows:

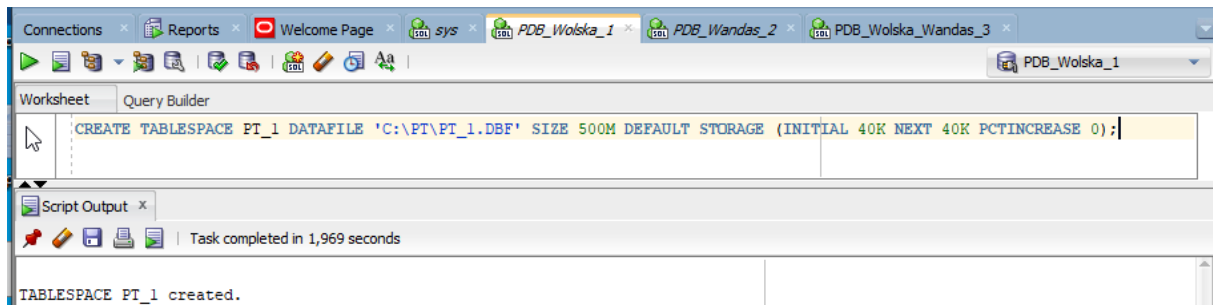
```
CREATE OR REPLACE TRIGGER PDB_Wolska_Wandas_lang_terr
AFTER LOGON ON PLUGGABLE DATABASE
BEGIN
EXECUTE IMMEDIATE 'ALTER SESSION SET NLS_LANGUAGE='''AMERICAN''';
EXECUTE IMMEDIATE 'ALTER SESSION SET NLS_TERRITORY='''AMERICA''';
END;
```

Below the script, the 'Query Result' tab shows the message: 'Trigger PDB_WOLSKA_WANDAS_LANG_TERR compiled'. The bottom pane shows the database schema tree for 'PDB_Wolska_Wandas'. The 'Triggers' folder is expanded, and the trigger 'PDB_WOLSKA_WANDAS_LANG_TERR' is highlighted with a red rectangle. Other triggers listed include AW_DROP_TRG, AW_REN_TRG, AW_TRUNC_TRG, DELETE_ENTRIES, LOGMNRGGC_TRIGGER, OJDS\$ROLE_TRIGGER\$, SYSLSBY_EDS_DDL_TRIG, and XDB_PI_TRIG.

6. Tworzenie przestrzeni tabel

Połączenie się z każdym z trzech wcześniej utworzonych kontenerów i stworzenie przestrzeni tabel PT_1, PT_2 i PT_3 o rozmiarze 500MB.

- PT_1 w PDB_Wolska_1



```
C:\> WybierzAdministrator: Wolska_Wandas - sqlplus
SQL> alter session set container = PDB_Wolska_1;

Session altered.

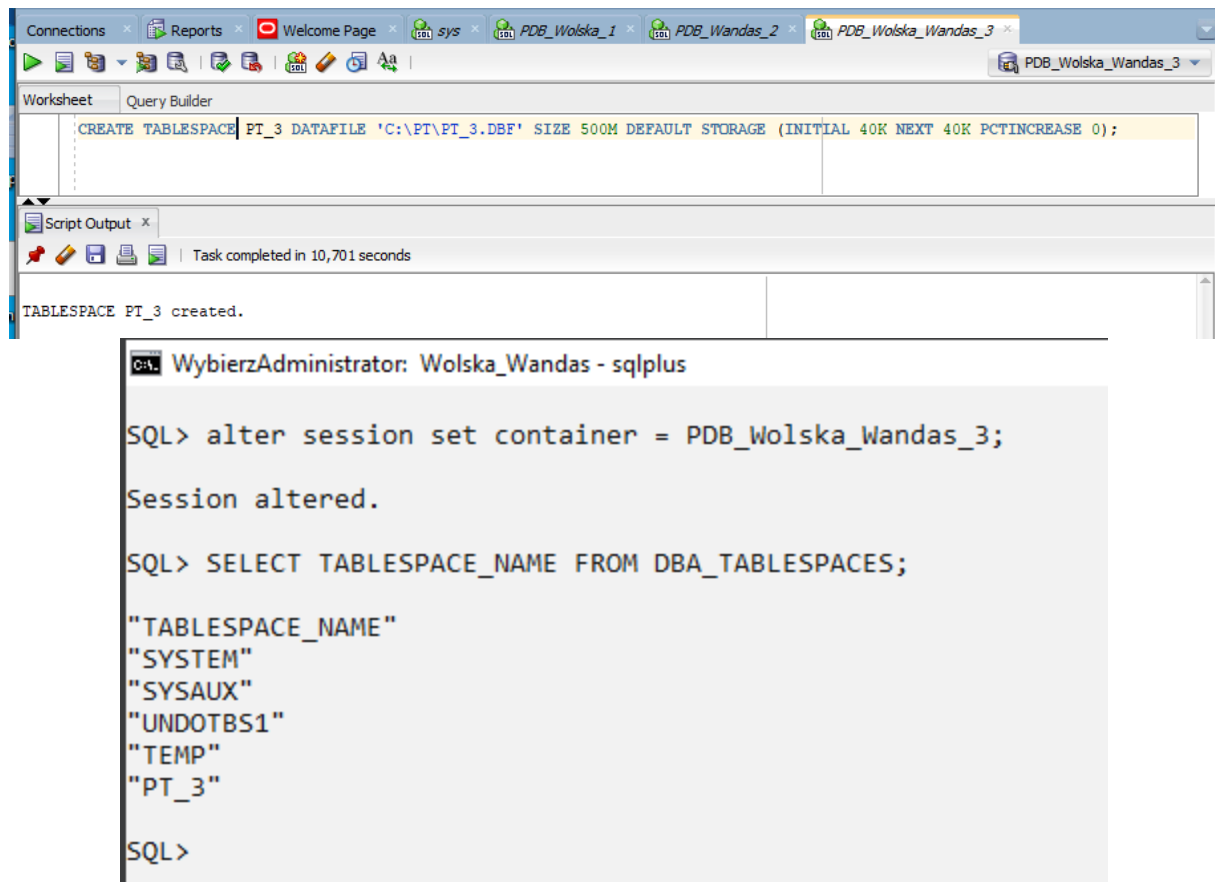
SQL> SELECT TABLESPACE_NAME FROM DBA_TABLESPACES;

"TABLESPACE_NAME"
"SYSTEM"
"SYSAUX"
"UNDOTBS1"
"TEMP"
"PT_1"
```

- PT_2 w PDB_Wandas_2

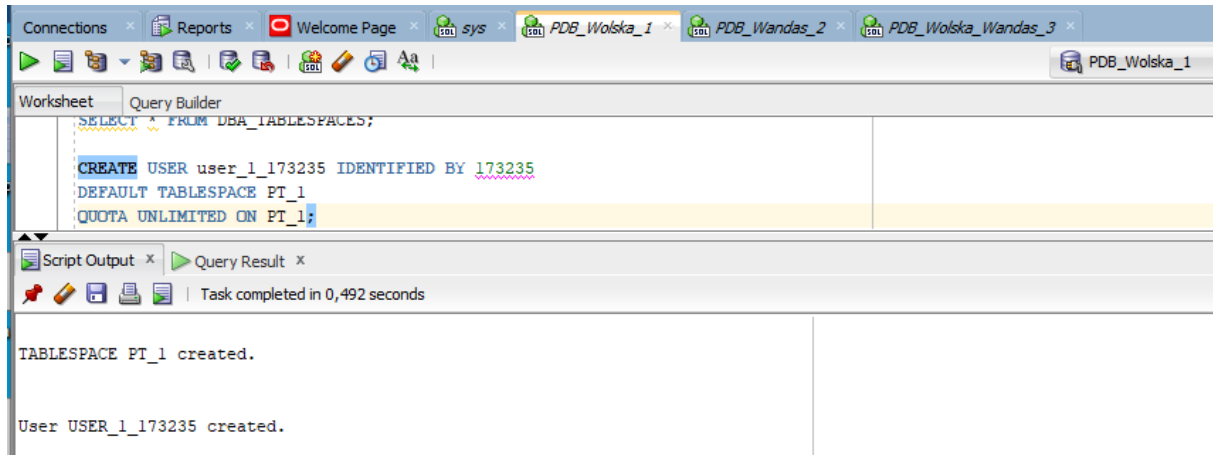
The screenshot displays the SQL Developer interface. The top toolbar shows various icons for connections, reports, and execution. The main window is titled 'Worksheet' and contains a SQL query: `CREATE TABLESPACE PT_2 DATAFILE 'C:\PT\PT_2.DBF' SIZE 500M DEFAULT STORAGE (INITIAL 40K NEXT 40K PCTINCREASE 0);`. Below the query, the 'Script Output' pane shows the execution results: `CON_NAME`, `PDB_WANDAS_2`, `TABLESPACE PT_1 created.`, `TABLESPACE PT_1 dropped.`, and `TABLESPACE PT_2 created.`. A terminal window titled 'Administrator: Wolska_Wandas - sqlplus' is overlaid on the bottom right, showing the following commands and output: `SQL> alter session set container = PDB_Wandas_2;` resulting in `Session altered.`, and `SQL> SELECT TABLESPACE_NAME FROM DBA_TABLESPACES;` resulting in a list of tablespaces: `"TABLESPACE_NAME"`, `"SYSTEM"`, `"SYSAUX"`, `"UNDOTBS1"`, `"TEMP"`, and `"PT_2"`.

- PT_3 w PDB_Wolska_Wandas_3

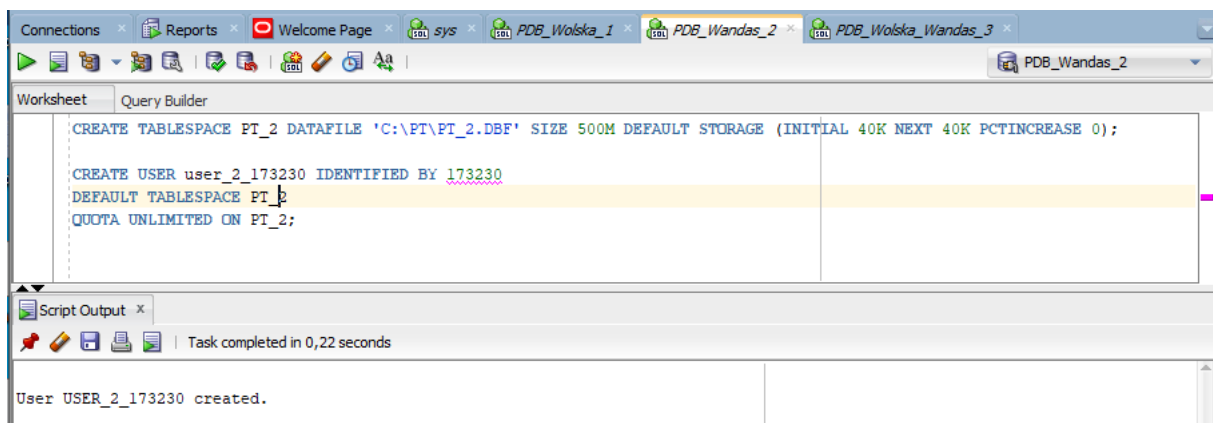


7. Tworzenie użytkowników lokalnych

- PDB_Wolska_1



- PDB_Wandas_2



- PDB_Wolska_Wandas_3

The screenshot shows the Oracle SQL Developer interface. The top toolbar includes icons for Connections, Reports, Welcome Page, and several database connections: sys, PDB_Wolska_1, PDB_Wandas_2, and PDB_Wolska_Wandas_3. The 'Worksheet' tab is active, displaying a SQL script in the 'Query Builder' area:

```
CREATE USER user_3_173235_173230 IDENTIFIED BY 173235173230
DEFAULT TABLESPACE PT_3
QUOTA UNLIMITED ON PT_3;
```

Below the script, the 'Script Output' tab shows the execution results. It indicates that the task completed in 0.155 seconds. An 'Error Report' section is visible, showing the following error:

```
ORA-00911: niepoprawny znak
00911. 00000 - "invalid character"
*Cause: The identifier name started with an ASCII character other than a
letter or a number. After the first character of the identifier
name, ASCII characters are allowed including "$", "#", and "_".
Identifiers enclosed in double quotation marks may contain any
character other than a double quotation. Alternate quotation
marks (q'...'') cannot use spaces, tabs, or carriage returns as
delimiters. For all other contexts, consult the SQL Language
Reference Manual.
*Action: Check the Oracle identifier naming convention. If you are
attempting to provide a password in the IDENTIFIED BY clause of
a CREATE USER or ALTER USER statement, then it is recommended to
always enclose the password in double quotation marks because
characters other than the double quotation are then allowed.
```

At the bottom of the output, it states: 'User USER_3_173235_173230 created.'

8. Tworzenie użytkowników wspólnych

- Wspolny_1_173235

The screenshot shows the SQL Developer interface with the following content:

Worksheet:

```
ALTER PLUGGABLE DATABASE PDB_Wolska_Wandas_3 OPEN READ WRITE;  
  
SELECT TABLESPACE_NAME, STATUS, CONTENTS FROM DBA_TABLESPACES;  
  
show con_name;  
CREATE USER c##wspolny_1_173235 IDENTIFIED BY 173235 CONTAINER = ALL;  
GRANT CREATE SESSION TO c##wspolny_1_173235 CONTAINER=ALL;
```

Script Output:

Task completed in 0,217 seconds

*Action: Specify a valid common user or role name.

User C##WSPOLNY_1_173235 created.

Error starting at line : 15 in command -
GRANT TO CREATE SESSION TO c##wspolny_1_173235 CONTAINER=ALL
Error report -
ORA-00990: brakujące lub niepoprawne uprawnienie
00990. 00000 - "missing or invalid privilege"
*Cause:
*Action:

Grant succeeded.

- Wspolny_2_173230

The screenshot shows the SQL Developer interface with the following content:

Worksheet:

```
CREATE USER c##wspolny_2_173230 IDENTIFIED BY 173230 CONTAINER = ALL;  
GRANT CREATE SESSION TO c##wspolny_2_173230 CONTAINER=ALL;
```

Script Output:

Task completed in 0,067 seconds

*Cause:
*Action:

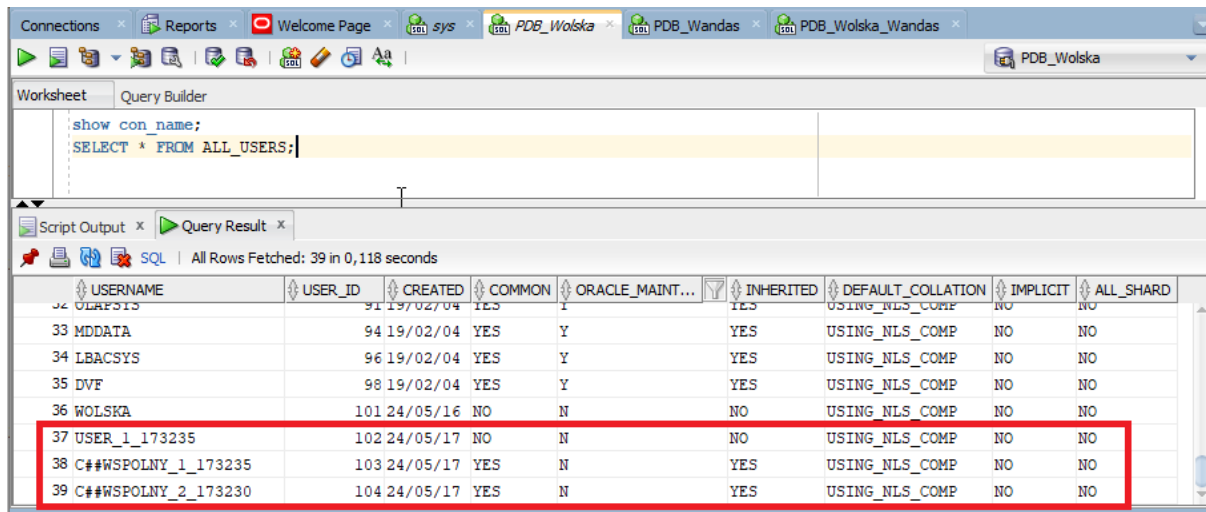
Grant succeeded.

User C##WSPOLNY_2_173230 created.

Grant succeeded.

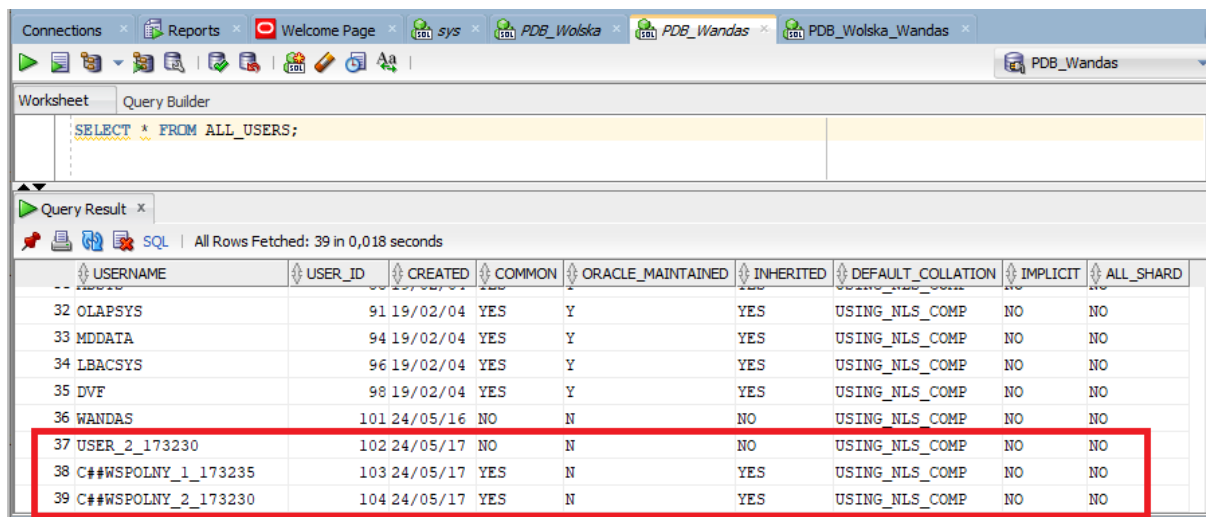
8.1. Potwierdzenie stworzenia użytkowników

- PDB_Wolska_1



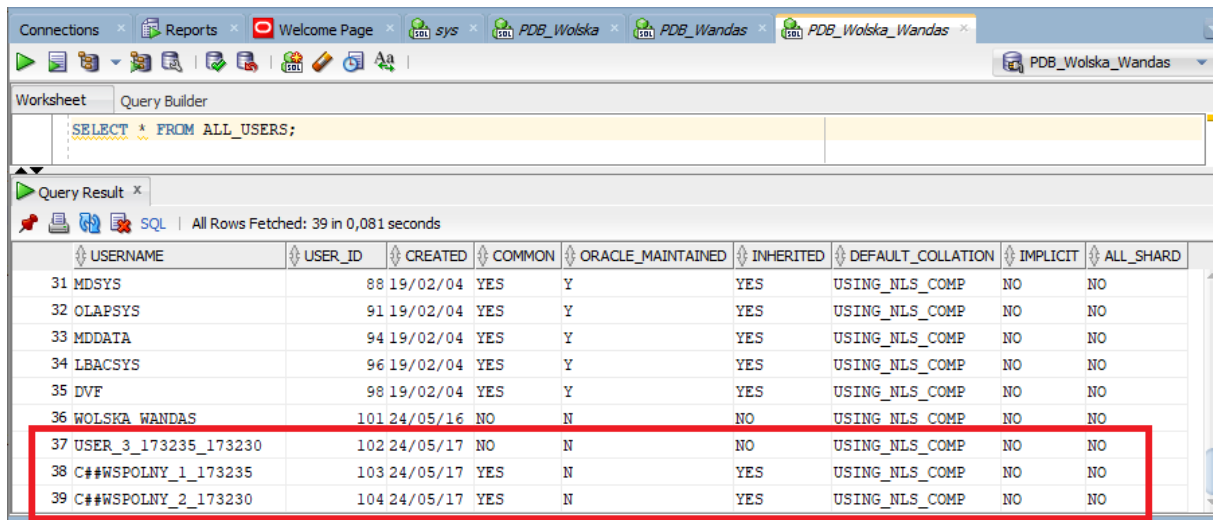
	USERNAME	USER_ID	CREATED	COMMON	ORACLE_MAINTAINED	INHERITED	DEFAULT_COLLATION	IMPLICIT	ALL_SHARD
32	OLAPSYS	91	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
33	MDDATA	94	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
34	LBACSYS	96	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
35	DVF	98	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
36	WOLSKA	101	24/05/16	NO	N	NO	USING_NLS_COMP	NO	NO
37	USER_1_173235	102	24/05/17	NO	N	NO	USING_NLS_COMP	NO	NO
38	C##WSPOLNY_1_173235	103	24/05/17	YES	N	YES	USING_NLS_COMP	NO	NO
39	C##WSPOLNY_2_173230	104	24/05/17	YES	N	YES	USING_NLS_COMP	NO	NO

- PDB_Wandas_2



	USERNAME	USER_ID	CREATED	COMMON	ORACLE_MAINTAINED	INHERITED	DEFAULT_COLLATION	IMPLICIT	ALL_SHARD
32	OLAPSYS	91	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
33	MDDATA	94	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
34	LBACSYS	96	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
35	DVF	98	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
36	WANDAS	101	24/05/16	NO	N	NO	USING_NLS_COMP	NO	NO
37	USER_2_173230	102	24/05/17	NO	N	NO	USING_NLS_COMP	NO	NO
38	C##WSPOLNY_1_173235	103	24/05/17	YES	N	YES	USING_NLS_COMP	NO	NO
39	C##WSPOLNY_2_173230	104	24/05/17	YES	N	YES	USING_NLS_COMP	NO	NO

- PDB_Wolska_Wandas_3

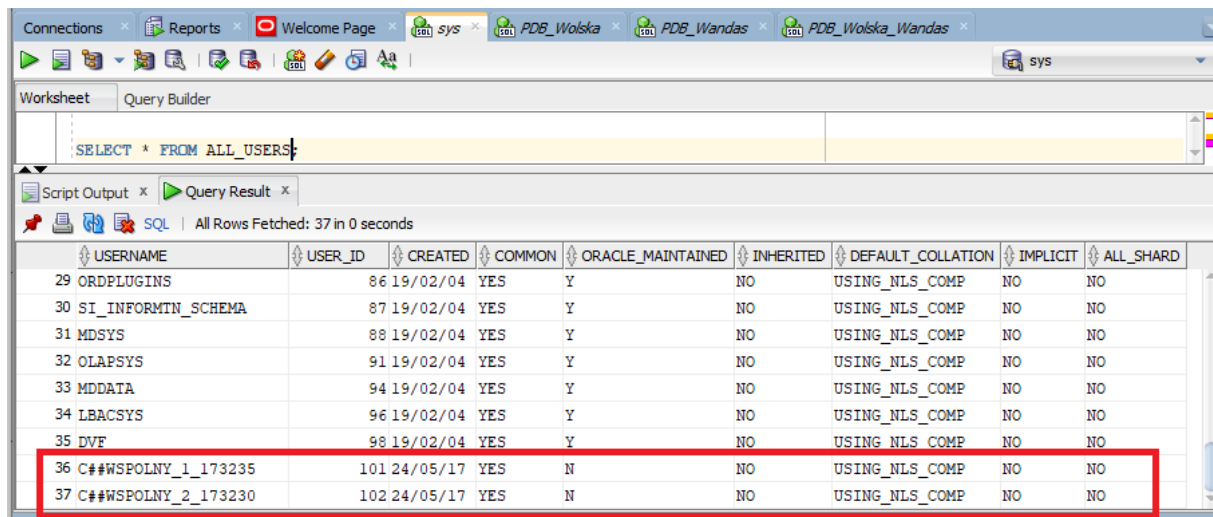


Query Result x

SQL | All Rows Fetched: 39 in 0,081 seconds

USERID	USERNAME	USER_ID	CREATED	COMMON	ORACLE_MAINTAINED	INHERITED	DEFAULT_COLLATION	IMPLICIT	ALL_SHARD
31	MDSYS	88	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
32	OLAPSYS	91	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
33	MDDATA	94	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
34	LBACSYS	96	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
35	DVF	98	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
36	WOLSKA_WANDAS	101	24/05/16	NO	N	NO	USING_NLS_COMP	NO	NO
37	USER_3_173235_173230	102	24/05/17	NO	N	NO	USING_NLS_COMP	NO	NO
38	C##WSPOLNY_1_173235	103	24/05/17	YES	N	YES	USING_NLS_COMP	NO	NO
39	C##WSPOLNY_2_173230	104	24/05/17	YES	N	YES	USING_NLS_COMP	NO	NO

- CDB\$ROOT



Script Output x Query Result x

SQL | All Rows Fetched: 37 in 0 seconds

USERID	USERNAME	USER_ID	CREATED	COMMON	ORACLE_MAINTAINED	INHERITED	DEFAULT_COLLATION	IMPLICIT	ALL_SHARD
29	ORDPLUGINS	86	19/02/04	YES	Y	NO	USING_NLS_COMP	NO	NO
30	SI_INFORMTN_SCHEMA	87	19/02/04	YES	Y	NO	USING_NLS_COMP	NO	NO
31	MDSYS	88	19/02/04	YES	Y	NO	USING_NLS_COMP	NO	NO
32	OLAPSYS	91	19/02/04	YES	Y	NO	USING_NLS_COMP	NO	NO
33	MDDATA	94	19/02/04	YES	Y	NO	USING_NLS_COMP	NO	NO
34	LBACSYS	96	19/02/04	YES	Y	NO	USING_NLS_COMP	NO	NO
35	DVF	98	19/02/04	YES	Y	NO	USING_NLS_COMP	NO	NO
36	C##WSPOLNY_1_173235	101	24/05/17	YES	N	NO	USING_NLS_COMP	NO	NO
37	C##WSPOLNY_2_173230	102	24/05/17	YES	N	NO	USING_NLS_COMP	NO	NO

9. Przydzielenie oddzielnych listenerów/aliasów dla każdego kontenera

Modyfikacja pliku listener:

```
35 SID_LIST_LISTENER_1_173235 =
36   (SID_LIST =
37     (SID_DESC =
38       (GLOBAL_DBNAME = PDB_Wolska_1)
39       (SID_NAME = XE)
40     )
41   )
42
43 SID_LIST_LISTENER_2_173230 =
44   (SID_LIST =
45     (SID_DESC =
46       (GLOBAL_DBNAME = PDB_Wandas_2)
47       (SID_NAME = XE)
48     )
49   )
50
51 SID_LIST_LISTENER_3_173230_173235 =
52   (SID_LIST =
53     (SID_DESC =
54       (GLOBAL_DBNAME = PDB_Wolska_Wandas_3)
55       (SID_NAME = XE)
56     )
57   )
58
```

Modyfikacja pliku tnsnames:

```
18 Alias_1_173235 =
19   (DESCRIPTION =
20     (ADDRESS = (PROTOCOL = TCP) (HOST = localhost) (PORT = 1522))
21     (CONNECT_DATA =
22       (SERVER = DEDICATED)
23       (SERVICE_NAME = PDB_Wolska_1)
24     )
25   )
26
27 Alias_2_173230 =
28   (DESCRIPTION =
29     (ADDRESS = (PROTOCOL = TCP) (HOST = localhost) (PORT = 1544))
30     (CONNECT_DATA =
31       (SERVER = DEDICATED)
32       (SERVICE_NAME = PDB_Wandas_2)
33     )
34   )
35
36 Alias_3_173230_173235 =
37   (DESCRIPTION =
38     (ADDRESS = (PROTOCOL = TCP) (HOST = localhost) (PORT = 1588))
39     (CONNECT_DATA =
40       (SERVER = DEDICATED)
41       (SERVICE_NAME = PDB_Wolska_Wandas_3)
42     )
43   )
```

10. Tworzenie i testowanie połączeń w SQL Developerze dla każdego użytkownika i kontenera, z użyciem różnych Listenerów i Aliasów

10.1. Za pomocą listenerów

- User_1_173235

Dla kontenera PDB_Wolska_1

New / Select Database Connection

Connection Name	Connection Details
PDB_Wandas_2	sys@//localhost:...
PDB_Wolska_1	sys@//localhost:...
PDB_Wolska_Wa...	sys@//localhost:...
sys	sys@//localhost:...

Name: testy

Database Type: Oracle

User Info: Proxy User

Authentication Type: Default

Username: user_1_173235

Password:

Role: default

Save Password: ☒

Connection Type: Basic

Details: Advanced

Hostname: localhost

Port: 1522

☐ SID: xe

☒ Service name: PDB_Wolska_1

Status: Success

Pomoc Save Clear Test Connect Anuluj

- User_2_1732302

Dla kontenera PDB_Wandas_2

New / Select Database Connection

Connection Name	Connection Details
PDB_Wandas_2	sys@//localhost:...
PDB_Wolska_1	sys@//localhost:...
PDB_Wolska_Wa...	sys@//localhost:...
sys	sys@//localhost:...

Name: testy

Database Type: Oracle

User Info: Proxy User

Authentication Type: Default

Username: user_2_173230 Role: default

Password: ***** ☒ Save Password

Connection Type: Basic

Details: Advanced

Hostname: localhost

Port: 1544

☐ SID: xe

☒ Service name: PDB_Wandas_2

Status: Success

Pomoc Save Clear Test Connect Anuluj

- User_3_173235_173230

Dla kontenera PDB_Wolska_Wandas_3

New / Select Database Connection

Connection Name	Connection Details
PDB_Wandas_2	sys@//localhost:...
PDB_Wolska_1	sys@//localhost:...
PDB_Wolska_Wa...	sys@//localhost:...
sys	sys@//localhost:...
testy	user_2_173230...

Name: test

Database Type: Oracle

User Info: Proxy User

Authentication Type: Default

Username: user_3_173235_173230

Role: default

Password:

Save Password: ☒

Connection Type: Basic

Details: Advanced

Hostname: localhost

Port: 1588

☐ SID

☒ Service name: PDB_Wolska_Wandas_3

Status: Success

Pomoc Save Clear Test Connect Anuluj

- C##wspolny_1_173235

New / Select Database Connection

Connection Name	Connection Details
PDB_Wandas_2	sys@//localhost:...
PDB_Wolska_1	sys@//localhost:...
PDB_Wolska_Wa...	sys@//localhost:...
sys	sys@//localhost:...
testy	user_2_173230...

Name: test

Database Type: Oracle

User Info: Proxy User

Authentication Type: Default

Username: c##wspolny_1_173235

Password:

Role: default

Save Password: ☒

Connection Type: Basic

Details: Advanced

Hostname: localhost

Port: 1521

☒ SID: xe

☐ Service name:

Status: Success

Pomoc Save Clear Test Connect Anuluj

New / Select Database Connection

Connection Name	Connection Details
PDB_Wandas_2	sys@//localhost:...
PDB_Wolska_1	sys@//localhost:...
PDB_Wolska_Wa...	sys@//localhost:...
sys	sys@//localhost:...
testy	user_2_173230...

Name: test

Database Type: Oracle

User Info: Proxy User

Authentication Type: Default

Username: c##wspolny_1_173235

Password:

Role: default

Save Password: ☒

Connection Type: Basic

Details: Advanced

Hostname: localhost

Port: 1522

☐ SID: xe

☒ Service name: PDB_Wolska_1

Status: Success

Pomoc Save Clear Test Connect Anuluj

New / Select Database Connection

Connection Name	Connection Details
PDB_Wandas_2	sys@//localhost:...
PDB_Wolska_1	sys@//localhost:...
PDB_Wolska_Wa...	sys@//localhost:...
sys	sys@//localhost:...
testy	user_2_173230...

Name: test

Database Type: Oracle

User Info: Proxy User

Authentication Type: Default

Username: c##wspolny_1_173235

Role: default

Password:

Save Password: ☒

Connection Type: Basic

Details: Advanced

Hostname: localhost

Port: 1544

☐ SID: xe

☒ Service name: PDB_Wandas_2

Status: Success

Pomoc Save Clear Test Connect Anuluj

New / Select Database Connection

Connection Name	Connection Details
PDB_Wandas_2	sys@//localhost:...
PDB_Wolska_1	sys@//localhost:...
PDB_Wolska_Wa...	sys@//localhost:...
sys	sys@//localhost:...
testy	user_2_173230...

Name: test

Database Type: Oracle

User Info: Proxy User

Authentication Type: Default

Username: c##wspolny_1_173235

Role: default

Password:

Save Password: ☒

Connection Type: Basic

Details: Advanced

Hostname: localhost

Port: 1588

☐ SID: xe

☒ Service name: PDB_Wolska_Wandas_3

Status: Success

Pomoc Save Clear Test Connect Anuluj

- C##wspolny_2_173230

New / Select Database Connection

Connection Name	Connection Details
PDB_Wandas_2	sys@//localhost:...
PDB_Wolska_1	sys@//localhost:...
PDB_Wolska_Wa...	sys@//localhost:...
sys	sys@//localhost:...
testy	user_2_173230...

Name: test

Database Type: Oracle

User Info Proxy User

Authentication Type: Default

Username: c##wspolny_2_173230 Role: default

Password: ***** ☒ Save Password

Connection Type: Basic

Details Advanced

Hostname: localhost

Port: 1521

☒ SID xe

☐ Service name PDB_Wolska_Wandas_3

Status: Success

Pomoc Save Clear Test Connect Anuluj

New / Select Database Connection

Connection Name	Connection Details
PDB_Wandas_2	sys@//localhost:...
PDB_Wolska_1	sys@//localhost:...
PDB_Wolska_Wa...	sys@//localhost:...
sys	sys@//localhost:...
testy	user_2_173230...

Name: test

Database Type: Oracle

User Info Proxy User

Authentication Type: Default

Username: c##wspolny_2_173230 Role: default

Password: ***** ☒ Save Password

Connection Type: Basic

Details Advanced

Hostname: localhost

Port: 1522

☐ SID xe

☒ Service name PDB_Wolska_1

Status: Success

Pomoc Save Clear Test Connect Anuluj

New / Select Database Connection

Connection Name	Connection Details
PDB_Wandas_2	sys@//localhost:...
PDB_Wolska_1	sys@//localhost:...
PDB_Wolska_Wa...	sys@//localhost:...
sys	sys@//localhost:...
testy	user_2_173230...

Name: test

Database Type: Oracle

User Info Proxy User

Authentication Type: Default

Username: c##wspolny_2_173230 Role: default

Password: ☒ Save Password

Connection Type: Basic

Details Advanced

Hostname: localhost

Port: 1544

☐ SID xe

☒ Service name PDB_Wandas_2

Status: Success

Pomoc Save Clear Test Connect Anuluj

New / Select Database Connection

Connection Name	Connection Details
PDB_Wandas_2	sys@//localhost:...
PDB_Wolska_1	sys@//localhost:...
PDB_Wolska_Wa...	sys@//localhost:...
sys	sys@//localhost:...
testy	user_2_173230...

Name: test

Database Type: Oracle

User Info Proxy User

Authentication Type: Default

Username: c##wspolny_2_173230 Role: default

Password: ☒ Save Password

Connection Type: Basic

Details Advanced

Hostname: localhost

Port: 1588

☐ SID xe

☒ Service name PDB_Wolska_Wandas_3

Status: Success

Pomoc Save Clear Test Connect Anuluj

10.2. Za pomocą aliasów

- User_1_173235

Alias_1_173235

New / Select Database Connection

Connection Name	Connection Details
PDB_Wandas_2	sys@//localhost:...
PDB_Wolska_1	sys@//localhost:...
PDB_Wolska_Wa...	sys@//localhost:...
sys	sys@//localhost:...
testy	user_2_173230...

Name: test

Database Type: Oracle

User Info: Proxy User

Authentication Type: Default

Username: user_1_173235

Role: default

Password: *****

Save Password: ☒

Connection Type: TNS

Details: Advanced

Network Alias: ☐ Alias_1_173235

Connect Identifier: ☐

Status: Success

Pomoc Save Clear Test Connect Anuluj

- User_2_173230

Alias_2_173230

New / Select Database Connection

Connection Name	Connection Details
PDB_Wandas_2	sys@//localhost:...
PDB_Wolska_1	sys@//localhost:...
PDB_Wolska_Wa...	sys@//localhost:...
sys	sys@//localhost:...
testy	user_2_173230...

Name: test

Database Type: Oracle

User Info: Proxy User

Authentication Type: Default

Username: user_2_173230

Password:

Role: default

Save Password: ☒

Connection Type: TNS

Details: Advanced

☒ Network Alias: Alias_2_173230

☐ Connect Identifier:

Status: Success

Pomoc Save Clear Test Connect Anuluj

- User_3_173235_173230

Alias_3_173230_173235

New / Select Database Connection

Connection Name	Connection Details
PDB_Wandas_2	sys@//localhost:...
PDB_Wolska_1	sys@//localhost:...
PDB_Wolska_Wa...	sys@//localhost:...
sys	sys@//localhost:...
testy	user_2_173230...

Name: test

Database Type: Oracle

User Info: Proxy User

Authentication Type: Default

Username: user_3_173235_173230

Role: default

Password:

Save Password: ☒

Connection Type: TNS

Details: Advanced

☒ Network Alias: Alias_3_173230_173235

☐ Connect Identifier:

Status: Success

Pomoc Save Clear Test Connect Anuluj

- C##wspolny_1_173235

New / Select Database Connection

Connection Name	Connection Details
PDB_Wandas_2	sys@//localhost:...
PDB_Wolska_1	sys@//localhost:...
PDB_Wolska_Wa...	sys@//localhost:...
sys	sys@//localhost:...
testy	user_2_173230...

Name: test

Database Type: Oracle

User Info: Proxy User

Authentication Type: Default

Username: c##wspolny_1_173235

Password:

Role: default

Save Password: ☒

Connection Type: TNS

Details: Advanced

Network Alias: ☒ Alias_1_173235

Connect Identifier: ☐

Status: Success

Pomoc Save Clear Test Connect Anuluj

New / Select Database Connection

Connection Name	Connection Details
PDB_Wandas_2	sys@//localhost:...
PDB_Wolska_1	sys@//localhost:...
PDB_Wolska_Wa...	sys@//localhost:...
sys	sys@//localhost:...
testy	user_2_173230...

Name: test

Database Type: Oracle

User Info: Proxy User

Authentication Type: Default

Username: c##wspolny_1_173235

Password:

Role: default

Save Password: ☒

Connection Type: TNS

Details: Advanced

Network Alias: ☒ Alias_2_173230

Connect Identifier: ☐

Status: Success

Pomoc Save Clear Test Connect Anuluj

New / Select Database Connection

Connection Name	Connection Details
PDB_Wandas_2	sys@//localhost:...
PDB_Wolska_1	sys@//localhost:...
PDB_Wolska_Wa...	sys@//localhost:...
sys	sys@//localhost:...
testy	user_2_173230...

Name: test

Database Type: Oracle

User Info: Proxy User

Authentication Type: Default

Username: c##wspolny_1_173235

Role: default

Password:

Save Password: ☒

Connection Type: TNS

Details: Advanced

Network Alias: ☒ Alias_3_173230_173235

Connect Identifier: ☐

Status: Success

Pomoc Save Clear Test Connect Anuluj

- C##wspolny_2_173230

New / Select Database Connection

Connection Name	Connection Details
PDB_Wandas_2	sys@//localhost:...
PDB_Wolska_1	sys@//localhost:...
PDB_Wolska_Wa...	sys@//localhost:...
sys	sys@//localhost:...
testy	user_2_173230...

Name: test

Database Type: Oracle

User Info: Proxy User

Authentication Type: Default

Username: c##wspolny_2_173230

Role: default

Password:

Save Password: ☒

Connection Type: TNS

Details: Advanced

Network Alias: ☒ Alias_1_173235

Connect Identifier: ☐

Status: Success

Pomoc Save Clear Test Connect Anuluj

New / Select Database Connection

Connection Name	Connection Details
PDB_Wandas_2	sys@//localhost:...
PDB_Wolska_1	sys@//localhost:...
PDB_Wolska_Wa...	sys@//localhost:...
sys	sys@//localhost:...
testy	user_2_173230...

Name: test

Database Type: Oracle

User Info: Proxy User

Authentication Type: Default

Username: c##wspolny_2_173230

Role: default

Password:

Save Password: ☒

Connection Type: TNS

Details: Advanced

Network Alias: ☒ Alias_2_173230

Connect Identifier: ☐

Status: Success

Pomog Save Clear Test Connect Anuluj

New / Select Database Connection

Connection Name	Connection Details
PDB_Wandas_2	sys@//localhost:...
PDB_Wolska_1	sys@//localhost:...
PDB_Wolska_Wa...	sys@//localhost:...
sys	sys@//localhost:...
testy	user_2_173230...

Name: test

Database Type: Oracle

User Info: Proxy User

Authentication Type: Default

Username: c##wspolny_2_173230

Role: default

Password:

Save Password: ☒

Connection Type: TNS

Details: Advanced

Network Alias: ☒ Alias_3_173230_173235

Connect Identifier: ☐

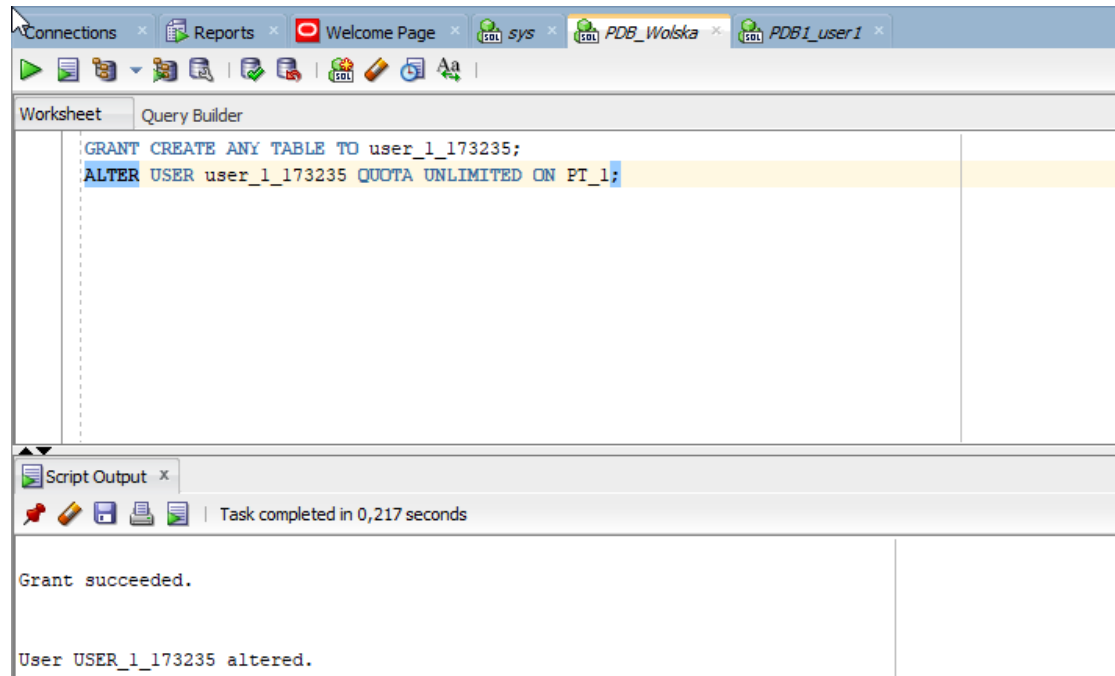
Status: Success

Pomog Save Clear Test Connect Anuluj

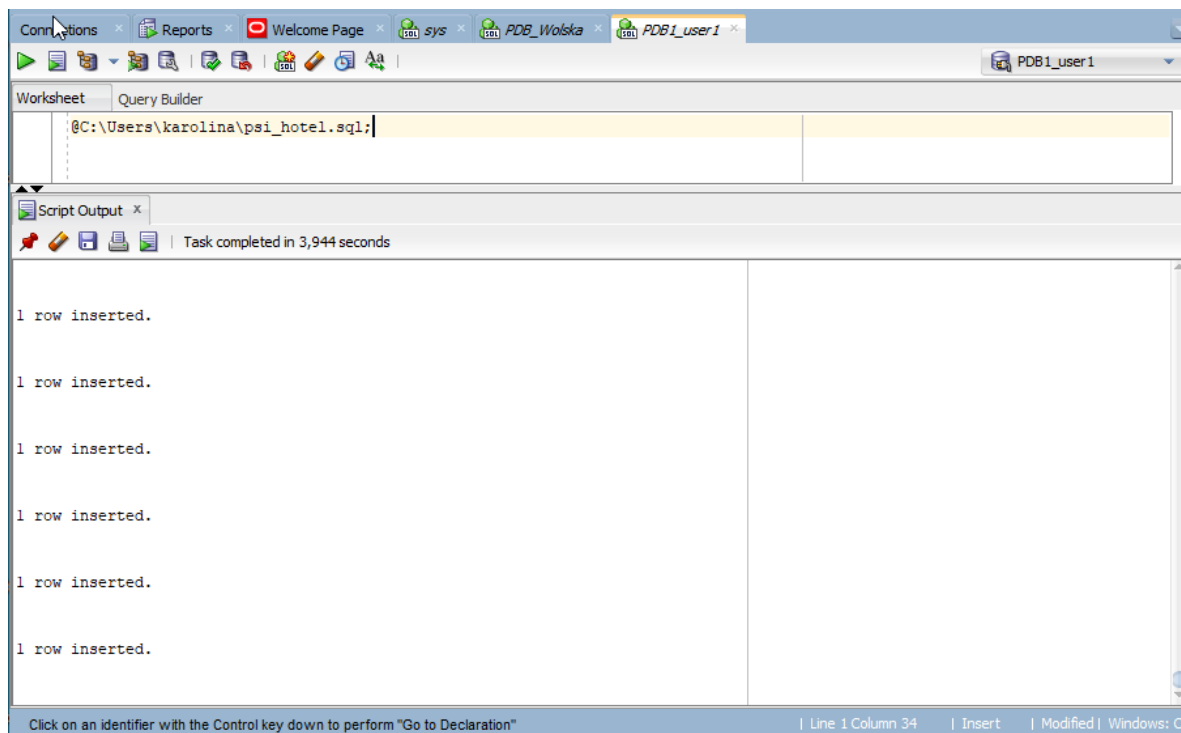
11. Instalacja schematów bazy i import danych

11.1. Import bazy danych z poprzedniego semestru

Nadanie uprawnień user_1_173235 do tworzenia tabel oraz do przestrzeni tabel PT_1:



Import danych:



Potwierdzenie zaimportowania tabel i danych:

The screenshot shows the Oracle SQL Developer interface. The 'Connections' pane on the left lists several database connections: PDB_Wandas, PDB_Wolska, PDB_Wolska_Wandas, and PDB1_user1. The 'PDB1_user1' connection is selected, and its 'Tables (Filtered)' list is expanded, showing tables: DIETA, OPINIA_HOTELU, PIES, PIES_SZCZEPENIE, PIES_UCZULENIE, RASA, REZERWACJA, SZCZEPIONKI, UCZULENIA, and WLASCICIEL. The 'Query Builder' pane shows the SQL query: `SELECT * FROM Rasa;`. The 'Query Result' pane displays the results of the query, showing 11 rows of data from the 'Rasa' table.

ID_RASY	NAZWA_RASY
1	1 Labrador Retriever
2	2 Golden Retriever
3	3 Owczarek Niemiecki
4	4 Buldog
5	5 Beagle
6	6 Pudel
7	7 Rottweiler
8	8 Syberyjski Husky
9	9 Jamnik
10	10 Shih Tzu
11	11 Boxer

Connections | Reports | Welcome Page | sys | PDB_Wolska | PDB1_user1

Worksheet | Query Builder

```
GRANT CREATE ANY TABLE TO user_1_173235;
ALTER USER user_1_173235 QUOTA UNLIMITED ON PT_1;

SELECT * FROM dba_tables;
```

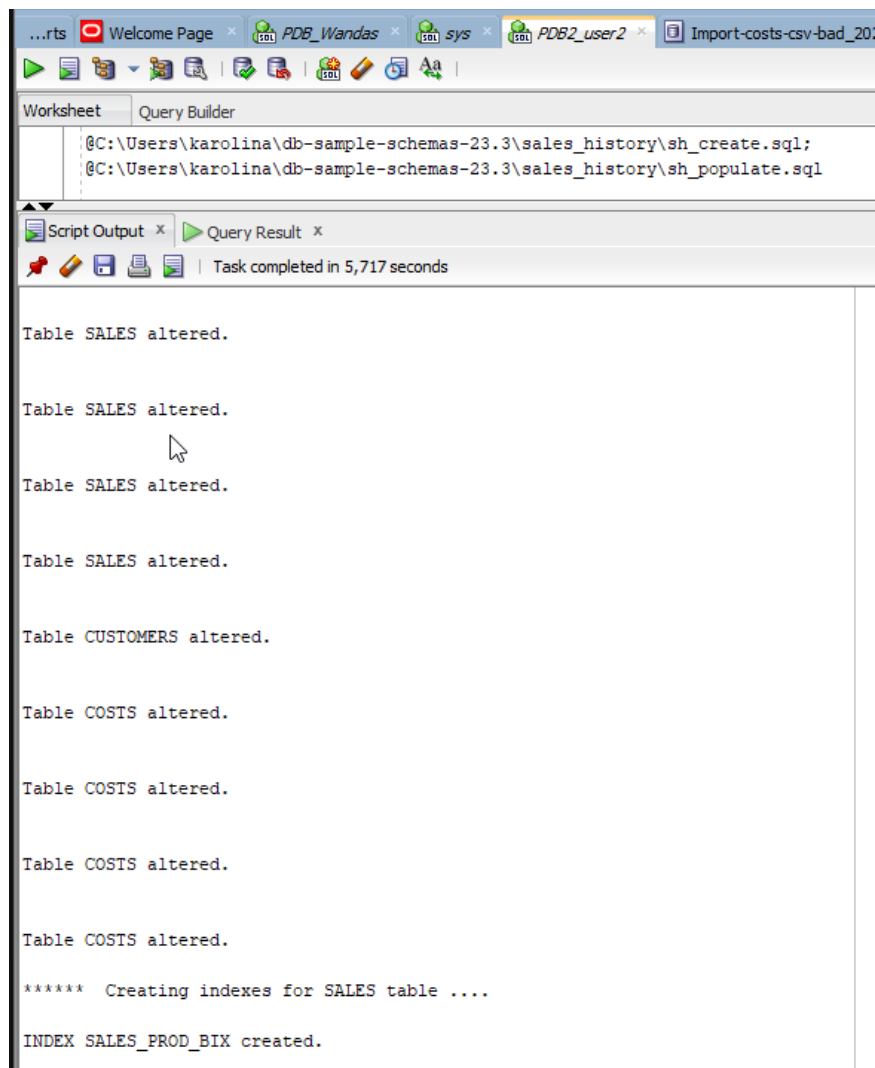
Script Output | Query Result

SQL | All Rows Fetched: 2143 in 1,18 seconds

	OWNER	TABLE_NAME	TABLESPACE_NAME	CLUSTER_NAME	IOT_NAME	STATUS	PCT_FREE	PCT_USED	INI_TRANS	MA
2132	SYS	DBMS_SQLPATCH_...	SYSTEM	(null)	(null)	VALID	10	40	1	
2133	SYS	AQ_SRVNTPN_TAB...	SYSTEM	(null)	(null)	VALID	10	40	1	
2134	USER_1_173235	DIETA	PT_1	(null)	(null)	VALID	10	(null)	1	
2135	USER_1_173235	OPINIA_HOTELU	PT_1	(null)	(null)	VALID	10	(null)	1	
2136	USER_1_173235	PIES	PT_1	(null)	(null)	VALID	10	(null)	1	
2137	USER_1_173235	PIES_SZCZEPNIENIE	PT_1	(null)	(null)	VALID	10	(null)	1	
2138	USER_1_173235	PIES_UCZULENIE	PT_1	(null)	(null)	VALID	10	(null)	1	
2139	USER_1_173235	RASA	PT_1	(null)	(null)	VALID	10	(null)	1	
2140	USER_1_173235	REZERWACJA	PT_1	(null)	(null)	VALID	10	(null)	1	
2141	USER_1_173235	SZCZEPIONKI	PT_1	(null)	(null)	VALID	10	(null)	1	
2142	USER_1_173235	UCZULENIA	PT_1	(null)	(null)	VALID	10	(null)	1	
2143	USER_1_173235	WLASCICIEL	PT_1	(null)	(null)	VALID	10	(null)	1	

11.2. Import SH

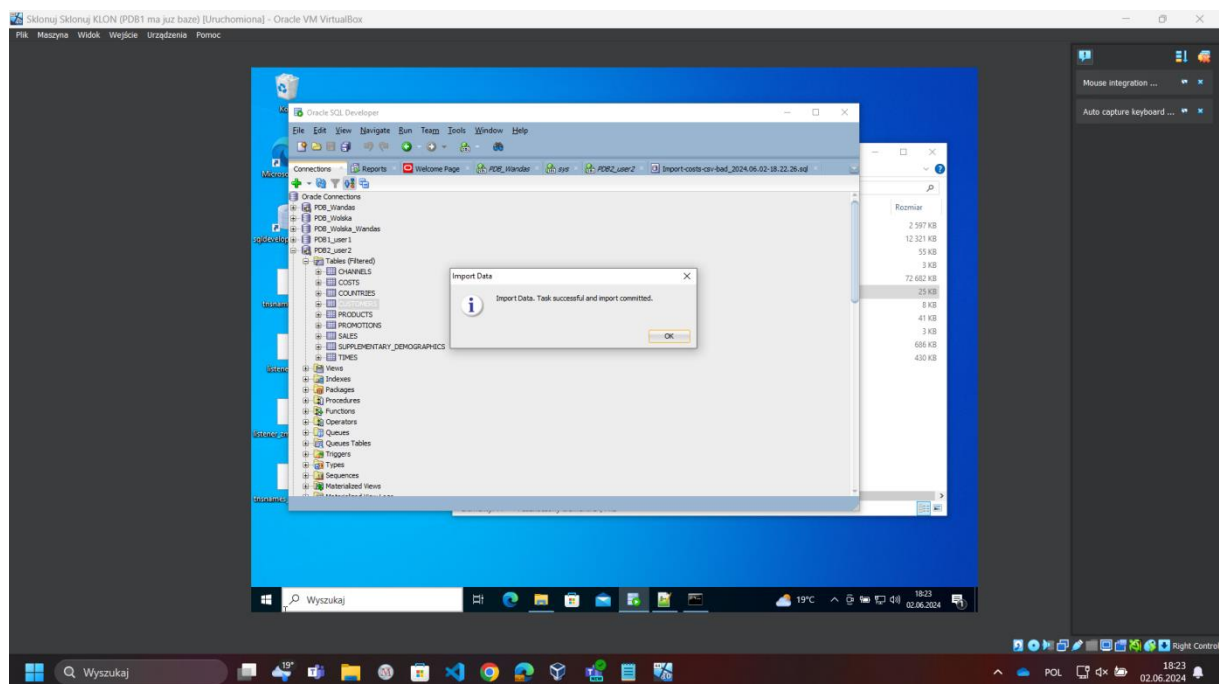
Import schematu SH i danych



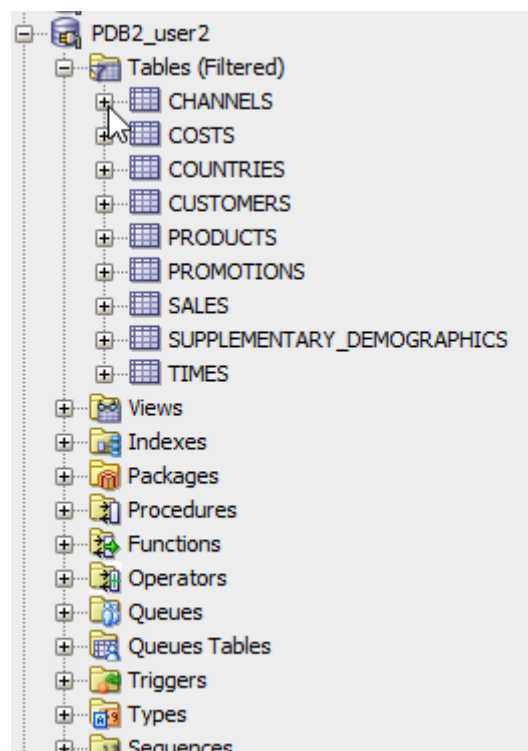
The screenshot shows a SQL Developer window with the following components:

- Worksheet:** Contains two SQL scripts:
 - @C:\Users\karolina\db-sample-schemas-23.3\sales_history\sh_create.sql;
 - @C:\Users\karolina\db-sample-schemas-23.3\sales_history\sh_populate.sql
- Script Output:** Displays the results of the script execution:
 - Task completed in 5,717 seconds
 - Table SALES altered.
 - Table SALES altered.
 - Table SALES altered.
 - Table SALES altered.
 - Table CUSTOMERS altered.
 - Table COSTS altered.
 - Table COSTS altered.
 - Table COSTS altered.
 - Table COSTS altered.
 - ***** Creating indexes for SALES table
 - INDEX SALES_PROD_BIX created.

Niektóre dane znajdowały się już w tabelach. Resztę zaimportowano z plików csv.



Potwierdzenie importu tabel i danych:



...rts Welcome Page PDB_Wandas sys PDB2_user2 Import-costs-csv-bad_2024.06.02-18.22.26.sql Import-sales-csv-bad_2024.06.02-18.23.57.sql

Worksheet Query Builder

```
@C:\Users\karolina\db-sample-schemas-23.3\sales_history\sh_create.sql;
@C:\Users\karolina\db-sample-schemas-23.3\sales_history\sh_populate.sql;

SELECT * FROM user_tables;

SELECT * FROM COUNTRIES;
SELECT * FROM CUSTOMERS;
SELECT * FROM PROMOTIONS;
SELECT * FROM PRODUCTS;
SELECT * FROM TIMES;
SELECT * FROM CHANNELS;
SELECT * FROM SALES;
SELECT * FROM COSTS;
```

Script Output Query Result

SQL | Fetched 50 rows in 0,006 seconds

PROD_ID	PROD_NAME	PROD_DESC	PROD_SUBCATEGORY	PROD_SU
1	138 Soccer Cleats - Adult	Soccer Cleats - Adult	Soccer Clothing	
2	16 Sonic Core Graphite Racquet	Sonic Core Graphite Racquet	Tennis Racquet	
3	20 Match Used Autograph Racquet	Match Used Autograph Racquet	Tennis Racquet	
4	29 Limited Edition Racquet	Limited Edition Racquet	Tennis Racquet	
5	139 Tennis Balls Heavy Duty Felt 3	Tennis Balls Heavy Duty Felt 3 can	Tennis Balls	
6	140 Tennis Strings Natural Gut	Tennis Strings Natural Gut	Tennis Strings	
7	141 Tennis Strings Synthetic Gut	Tennis Strings Synthetic Gut	Tennis Strings	
8	142 Tennis Strings Hybrids	Tennis Strings Hybrids	Tennis Strings	
9	143 Tennis Strings Polyester	Tennis Strings Polyester	Tennis Strings	
10	144 Tennis Grip Overgrip Tacky	Tennis Grip Overgrip Tacky	Tennis Racquet Grip	
11	145 Practice Tennis Balls	Practice Tennis Balls	Tennis Balls	
12	146 Regular Duty Tennis Balls	Regular Duty Tennis Balls	Tennis Balls	
13	147 Cushioned Grip	Cushioned Grip	Tennis Racquet Grip	
14	148 Tennis Balls 12 Pack	Tennis Balls 12 Pack	Tennis Balls	
15	24 Endurance Coolcore 1/2 Zip Pullover	Endurance Coolcore 1/2 Zip Pullover	Baseball Clothing	
16	25 5 Point Batting Tee	5 Point Batting Tee	Batting Tees	

...rts Welcome Page PDB_Wandas sys PDB2_user2 Import-costs-csv-bad_2024.06.02-18.22.26.sql Import-sales-csv-bad_2024.06.02-18.23.57.sql

Worksheet Query Builder

```
@C:\Users\karolina\db-sample-schemas-23.3\sales_history\sh_create.sql;
@C:\Users\karolina\db-sample-schemas-23.3\sales_history\sh_populate.sql;

SELECT * FROM user_tables;
```

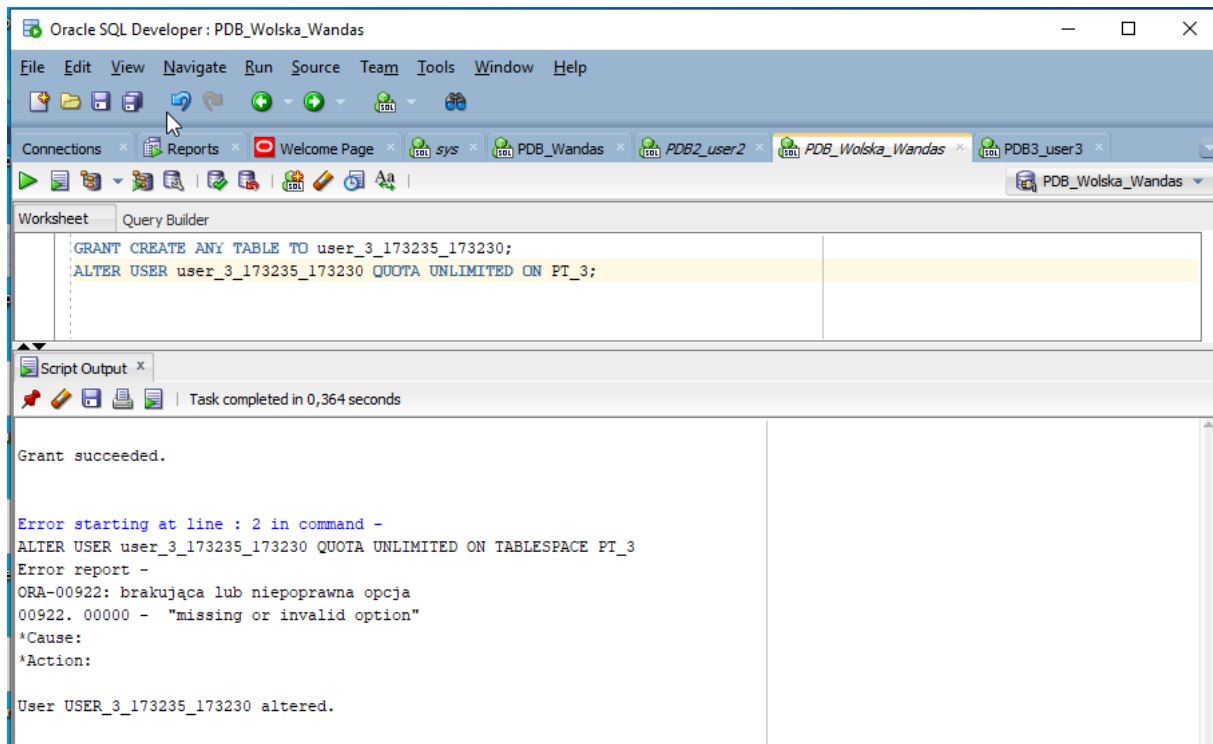
Script Output Query Result

SQL | All Rows Fetched: 9 in 0,07 seconds

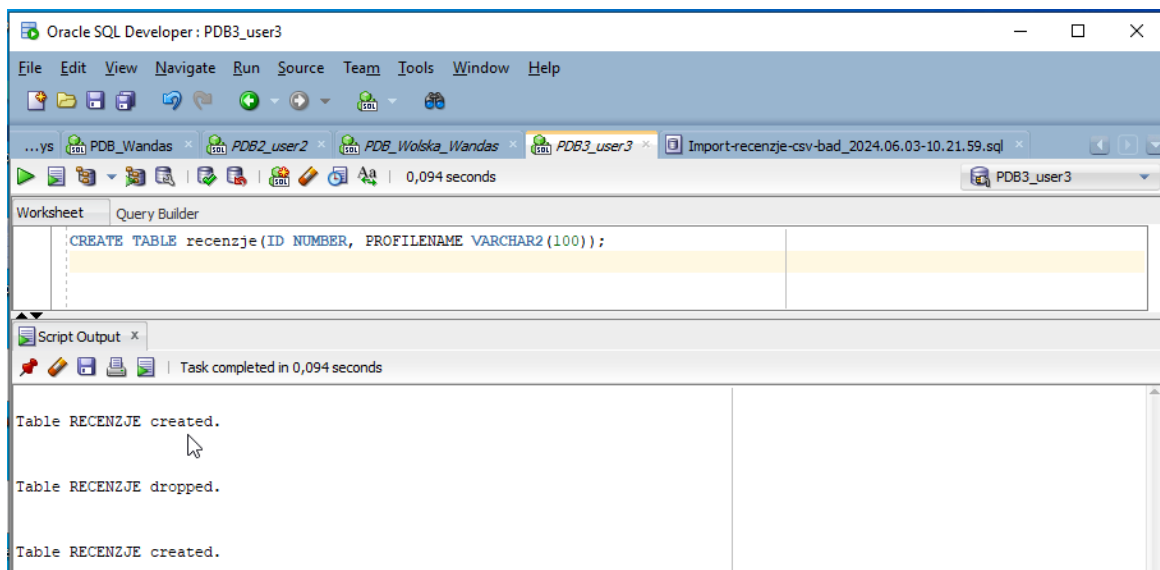
TABLE_NAME	TABLESPACE_NAME	CLUSTER_NAME	IOT_NAME	STATUS	PCT_FREE	PCT_USED	INI_TRANS	MAX_TRANS	INITIAL_EXTENT
1 COUNTRIES	PT_2	(null)	(null)	VALID	10	(null)	1	255	40960
2 CUSTOMERS	PT_2	(null)	(null)	VALID	10	(null)	1	255	40960
3 PROMOTIONS	PT_2	(null)	(null)	VALID	10	(null)	1	255	40960
4 PRODUCTS	PT_2	(null)	(null)	VALID	10	(null)	1	255	40960
5 TIMES	PT_2	(null)	(null)	VALID	10	(null)	1	255	40960
6 CHANNELS	PT_2	(null)	(null)	VALID	10	(null)	1	255	40960
7 SALES	(null)	(null)	(null)	VALID	(null)	(null)	(null)	(null)	(null)
8 COSTS	(null)	(null)	(null)	VALID	(null)	(null)	(null)	(null)	(null)
9 SUPPLEMENTARY_DEMOGRAPHICS	PT_2	(null)	(null)	VALID	10	(null)	1	255	(null)

11.3. Import open data

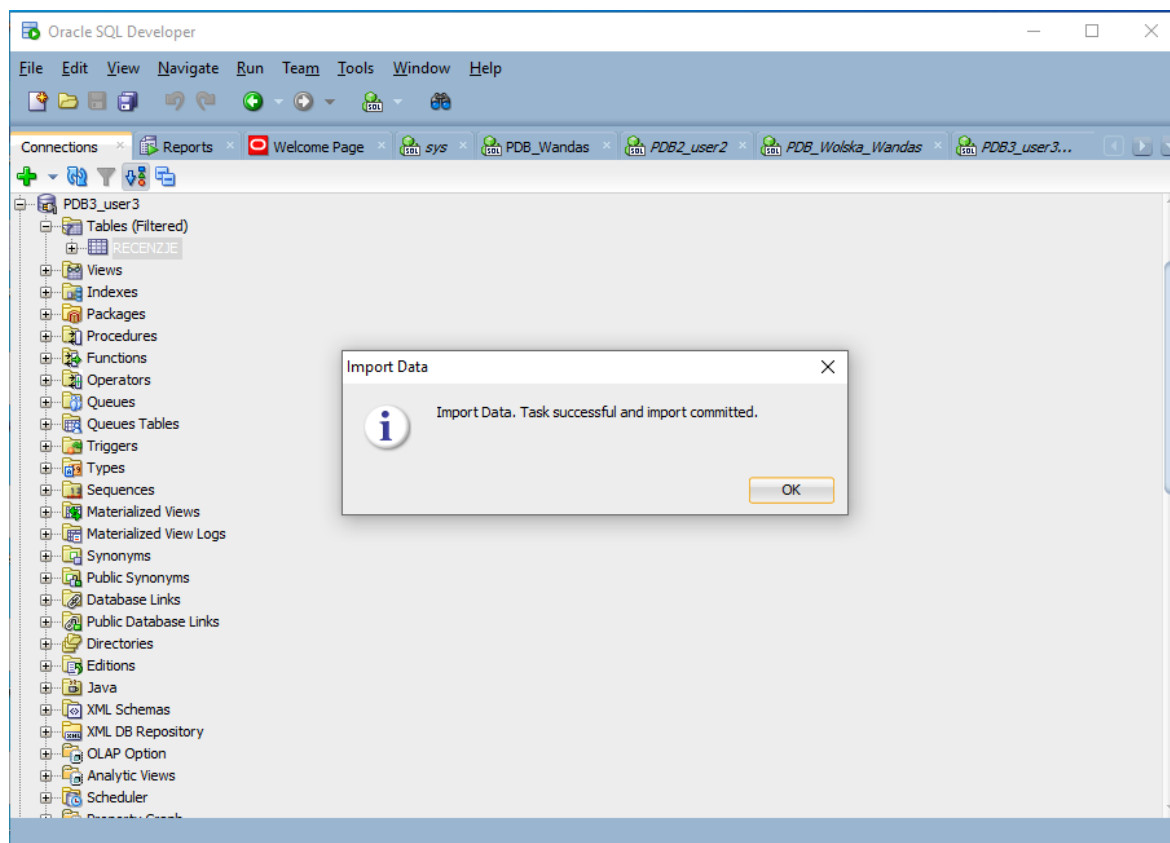
Nadanie uprawnień:



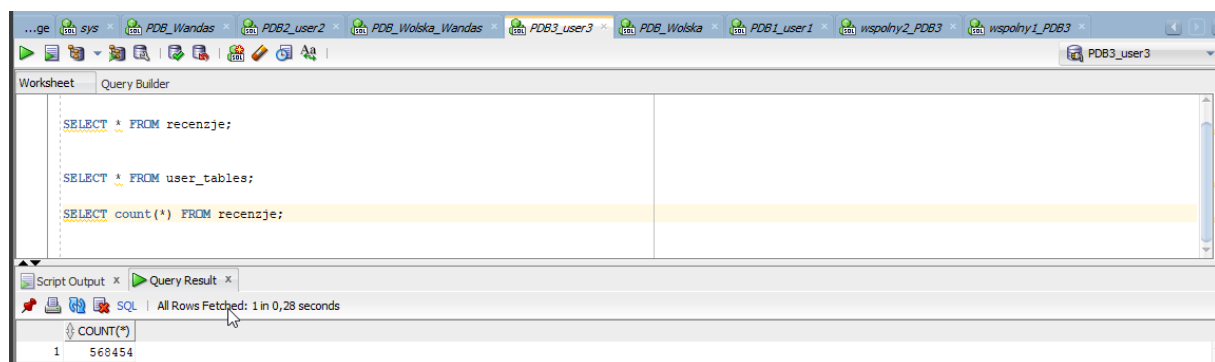
Utworzono tabelę:



Zaimportowano dane:



Potwierdzenie zaimportowania tabeli i danych:



...ns Reports Welcome Page sys PDB_Wandas PDB2_user2 PDB_Wolska_Wandas PDB3_user3 Import...

PDB3_user3

Worksheet Query Builder

```
CREATE TABLE recenzje(ID NUMBER, PROFILENAME VARCHAR2(100));
```

```
SELECT * FROM recenzje;
```

Script Output Query Result

SQL | Fetched 50 rows in 0,017 seconds

ID	PROFILENAME
1	delmartian
2	2dll pa
3	Natalia Corres "Natalia Corres"
4	Karl
5	Michael D. Bigham "M. Wassir"
6	Twoapennything
7	David C. Sullivan
8	Pamela G. Williams
9	R. James
10	Carol A. Reed
11	Canadian Fan
12	A Poeng "SparkyGoHome"
13	LT
14	willie "roadie"
15	Lynrie "Oh HELL no"
16	...

Line 2 Column 1 | Insert | Modified | Windows: C

...ns Reports Welcome Page sys PDB_Wandas PDB2_user2 PDB_Wolska_Wandas PDB3_user3 Import...

PDB3_user3

Worksheet Query Builder

```
SELECT * FROM recenzje;
```

```
SELECT * FROM user_tables;
```

Script Output Query Result

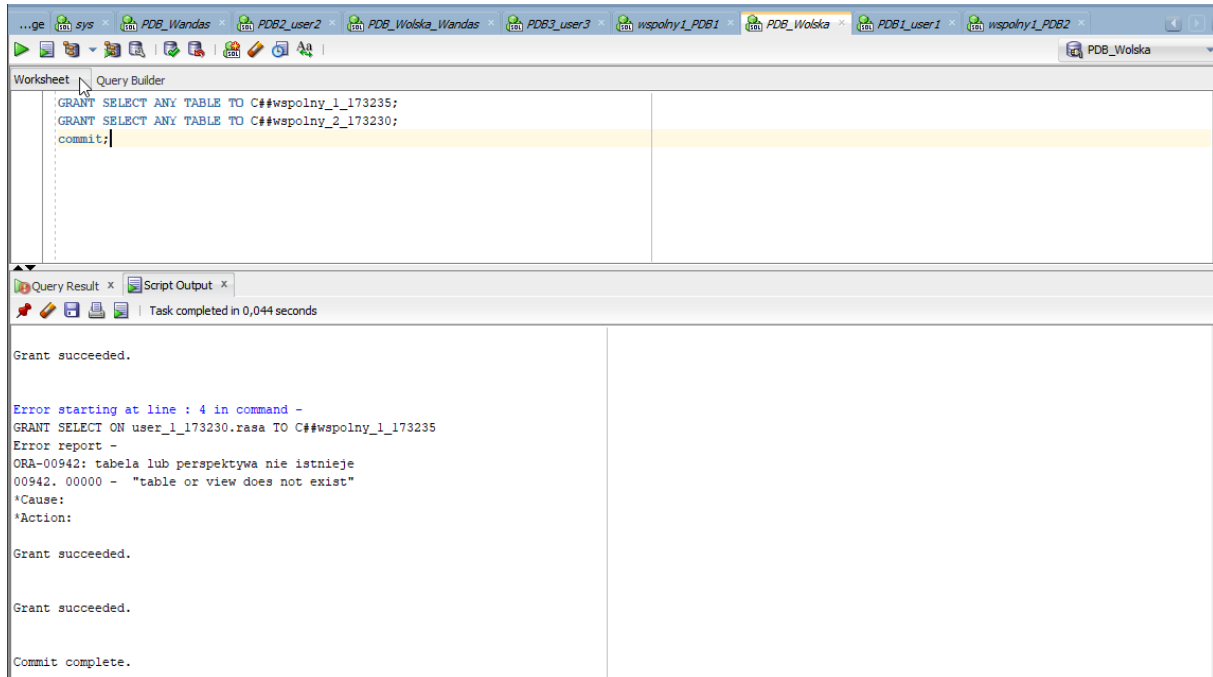
SQL | All Rows Fetched: 1 in 0,182 seconds

TABLE_NAME	TABLESPACE_NAME	CLUSTER_NAME	IOT_NAME	STATUS	PCT_FREE	PCT_USED	INI_TRANS	MAX_TRANS	INITIAL_EXTENT	NE
1 RECENZJE	PT_3	(null)	(null)	VALID	10	(null)	1	255	40960	

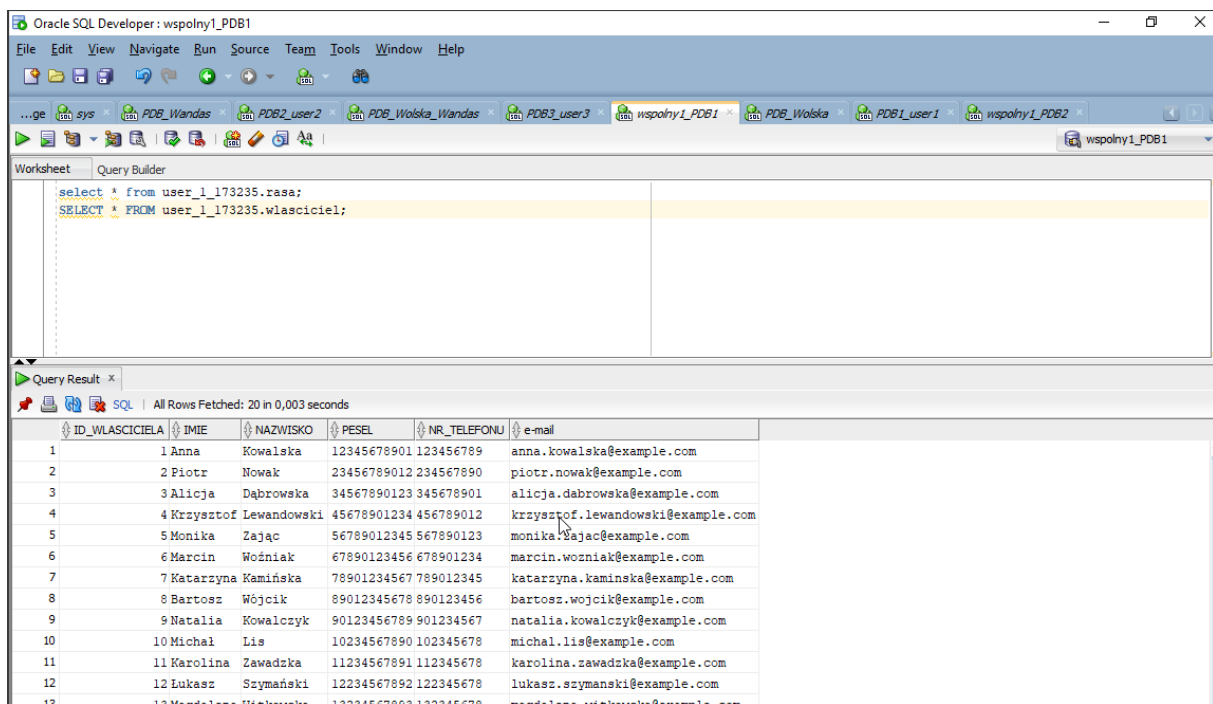
12. Nadanie uprawnień użytkownikom wspólnym

Nadanie uprawnień użytkownikom wspólnym do tabel w kontenerach

12.1. PDB1



- C##wspolny_1_173235 na PDB_1



- C##wspolny_2_173230 na PDB_1

The screenshot shows the SQL Developer interface with a query window containing the SQL statement: `SELECT * FROM user_1_173235.Rasa;`. The query result is displayed in a table with 12 rows and 2 columns: `ID_RASY` and `NAZWA_RASY`. The results are as follows:

ID_RASY	NAZWA_RASY
1	1 Labrador Retriever
2	2 Golden Retriever
3	3 Owczarek Niemiecki
4	4 Buldog
5	5 Beagle
6	6 Pudel
7	7 Rottweiler
8	8 Syberyjski Husky
9	9 Jamnik
10	10 Shih Tzu
11	11 Boxer
12	12 Dog Niemiecki

12.2. PDB_2

The screenshot shows the SQL Developer interface with a query window containing the following SQL statements: `GRANT SELECT ANY TABLE TO C##wspolny_1_173235;`, `GRANT SELECT ANY TABLE TO C##wspolny_2_173230;`, and `commit;`. The query result shows the following output:

```
Grant succeeded.
Grant succeeded.
Commit complete.
```

- C##wspolny_1_173235 na PDB_2

Worksheet Query Builder

SELECT * FROM user_2_173230.COSTS;

Query Result x

SQL | Fetched 50 rows in 0,131 seconds

	PROD_ID	TIME_ID	PROMO_ID	CHANNEL_ID	UNIT_COST	UNIT_PRICE
1	46	19/02/05	999	2	20,68	25,18
2	46	19/03/10	999	3	20,41	24,83
3	46	19/03/13	999	3	20,78	24,92
4	46	19/03/17	999	3	20,41	25,18
5	47	19/01/01	999	2	25,7	30,14
6	47	19/01/07	999	3	25,83	30,55
7	47	19/01/09	999	3	25,37	30,44
8	47	19/01/13	999	3	25,37	30,81
9	47	19/01/19	999	4	24,55	29,94
10	47	19/01/22	999	4	24,55	29,53
11	47	19/01/30	999	3	25,37	30,87
12	47	19/02/05	999	3	26,3	30,53
13	47	19/02/10	999	2	26,21	30,56
14	47	19/02/19	999	3	26,35	30,49
15	47	19/03/07	999	3	26,35	30,55
16	47	19/03/19	999	4	25,04	29,94
17	47	19/03/26	999	3	25,88	30,87
18	47	19/03/30	999	4	25,04	29,94
19	48	19/01/12	999	3	10,43	13,13
20	48	19/01/19	999	3	10,43	12,95
21	48	19/02/05	999	4	10,5	13,13

| Line 1 Column 35 | Insert | Modified | Windows: C

- C##wspolny_2_173230 na PDB_2

Worksheet Query Builder

SELECT * FROM user_2_173230.CHANNELS;

Query Result x

SQL | All Rows Fetched: 5 in 0,006 seconds

	CHANNEL_ID	CHANNEL_DESC	CHANNEL_CLASS	CHANNEL_CLASS_ID	CHANNEL_TOTAL	CHANNEL_TOTAL_ID
1	3	Direct Sales	Direct		12 Channel total	1
2	9	Tele Sales	Direct		12 Channel total	1
3	5	Catalog	Indirect		13 Channel total	1
4	4	Internet	Indirect		13 Channel total	1
5	2	Partners	Others		14 Channel total	1

12.3. PDB_3

The screenshot shows the SQL Developer interface with the 'Script Output' window open. The 'Worksheet' tab contains the following SQL commands:

```
GRANT SELECT ANY TABLE TO C##wspolny_1_173235;  
GRANT SELECT ANY TABLE TO C##wspolny_2_173230;  
  
commit;
```

The 'Script Output' window shows the following output:

```
Grant succeeded.  
  
Error starting at line : 2 in command -  
ALTER USER user_3_173235_173230 QUOTA UNLIMITED ON TABLESPACE PT_3  
Error report -  
ORA-00922: brakująca lub niepoprawna opcja  
00922. 00000 - "missing or invalid option"  
*Cause:  
*Action:  
  
User USER_3_173235_173230 altered.  
  
Grant succeeded.  
  
Grant succeeded.  
  
Commit complete.
```

- C##wspolny_1_173235 na PDB_3

The screenshot shows the SQL Developer interface with the 'Query Result' window open. The 'Worksheet' tab contains the following SQL command:

```
SELECT * FROM user_3_173235_173230.recenzje;
```

The 'Query Result' window shows the following output:

ID	PROFILENAME
1	delmartian
2	dill pa
3	Natalia Corres "Natalia Corres"
4	Karl
5	Michael D. Bigham "M. Wassir"
6	Twoapennything
7	David C. Sullivan
8	Pamela G. Williams
9	R. James
10	Carol A. Reed
11	Canadian Fan
12	A Poeng "SparkyGoHome"
13	LI
14	Willie "roadie"
15	Lynrie "Oh HELL no"
16	Brian A. Lee

- C##wspolny_2_173230 na PDB_3

The screenshot shows a SQL query execution interface. The top bar displays several tabs, including 'wspolny2_PDB3'. The main window is divided into two sections: 'Query Builder' and 'Query Result'.

Query Builder: The SQL query entered is: `SELECT * FROM user_3_173235_173230.recenzje;`

Query Result: The result shows 22 rows of data. The status bar indicates 'Fetched 50 rows in 0,05 seconds'. The table has two columns: 'ID' and 'PROFILENAME'.

ID	PROFILENAME
1	delmartian
2	dill pa
3	Natalia Corres "Natalia Corres"
4	Karl
5	Michael D. Bigham "M. Wassir"
6	Twoapennything
7	David C. Sullivan
8	Pamela G. Williams
9	R. James
10	Carol A. Reed
11	Canadian Fan
12	A Poeng "SparkyGoHome"
13	LI
14	willie "roadie"
15	Lynrie "Oh HELL no"
16	Brian A. Lee
17	Erica Neathery
18	Becca
19	Wolfeel
20	Greg
21	mom2emma
22	Tammy Anderson
23	Charles B...

13. Odłączenie kontenera, skopiowanie i podłączenie w nowej maszynie wirtualnej

13.1. Odpięcie kontenera do pliku XML

The screenshot displays the SQL Developer interface with a SQL script in the Query Builder and its execution results in the Script Output window. The script performs the following actions:

```
ALTER PLUGGABLE DATABASE PDB_WOLSKA_1 OPEN READ WRITE;  
ALTER PLUGGABLE DATABASE PDB_WANDAS_2 OPEN READ WRITE;  
ALTER PLUGGABLE DATABASE PDB_WOLSKA_WANDAS_3 OPEN READ WRITE;  
  
--  
  
SELECT * FROM DBA_SYS_PRIVS;  
  
--zamykanie i odłączanie  
ALTER PLUGGABLE DATABASE PDB_Wolska_Wandas_3 CLOSE IMMEDIATE;  
ALTER PLUGGABLE DATABASE PDB_Wolska_Wandas_3 UNPLUG INTO 'C:\app\karolina\product\18.0.0\oradata\XE\PDB_Wolska_Wandas_3\PDB_Wolska_Wandas.XML';
```

The Script Output window shows the following messages:

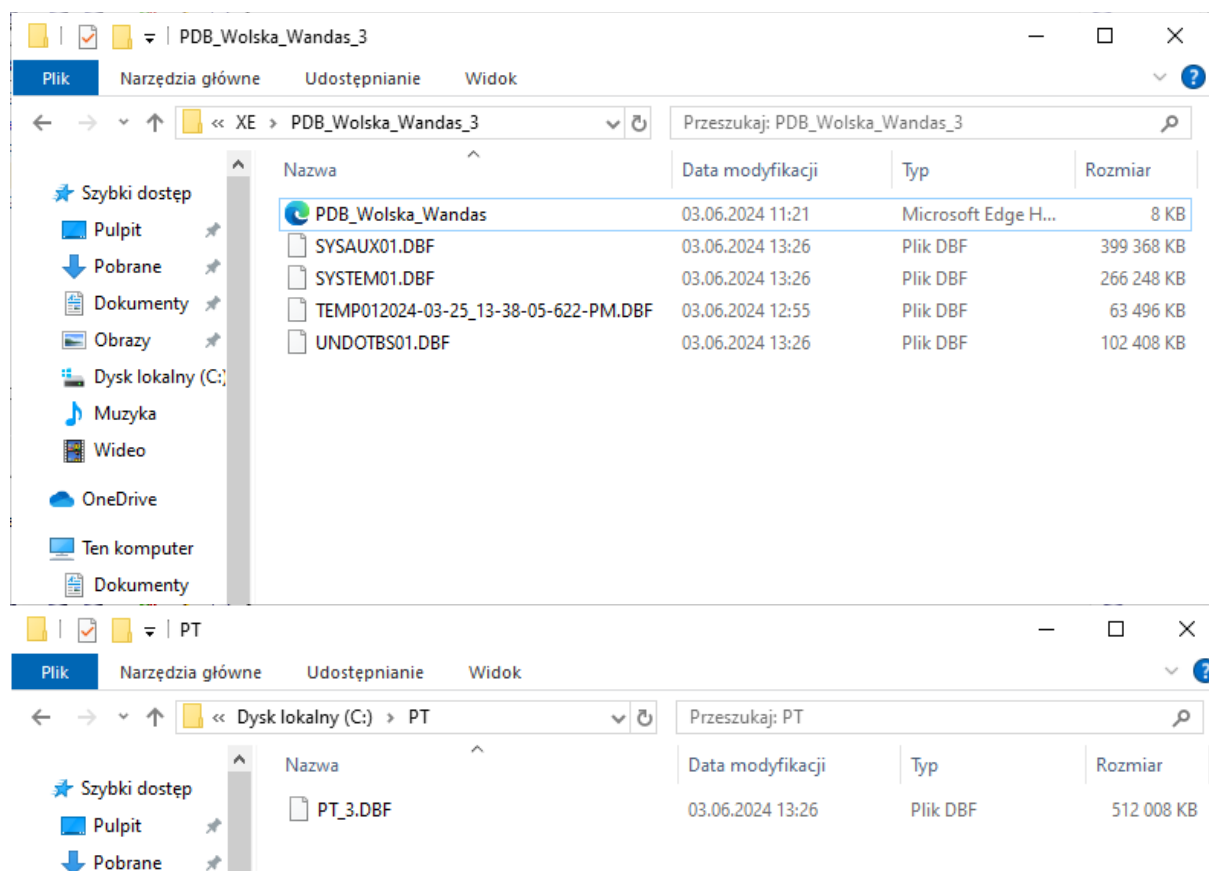
```
Pluggable database PDB_WOLSKA_1 altered.  
Grant succeeded.  
Grant succeeded.  
Pluggable database PDB_WOLSKA_WANDAS_3 altered.  
Pluggable database PDB_WOLSKA_WANDAS_3 altered.
```

Simultaneously, a Windows File Explorer window is open at the path `PDB_Wolska_Wandas_3`, displaying a list of files. The file `PDB_Wolska_Wandas` is highlighted with a red rectangle. The file details are as follows:

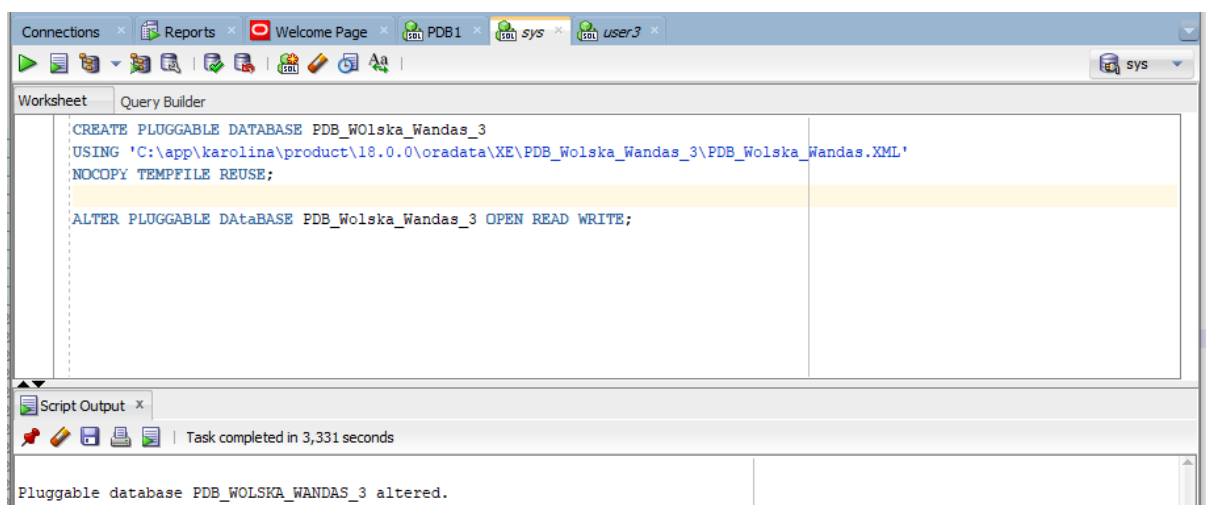
Nazwa	Data modyfikacji	Typ	Rozmiar
PDB_Wolska_Wandas	03.06.2024 11:21	Microsoft Edge H...	8 KB
SYSAUX01.DBF	03.06.2024 11:21	Plik DBF	399 368 KB
SYSTEM01.DBF	03.06.2024 11:21	Plik DBF	266 248 KB
TEMP012024-03-25_13-38-05-622-PM.DBF	18.05.2024 16:30	Plik DBF	63 496 KB
UNDOTBS01.DBF	03.06.2024 11:21	Plik DBF	102 408 KB

13.2. Wpinanie kontenera

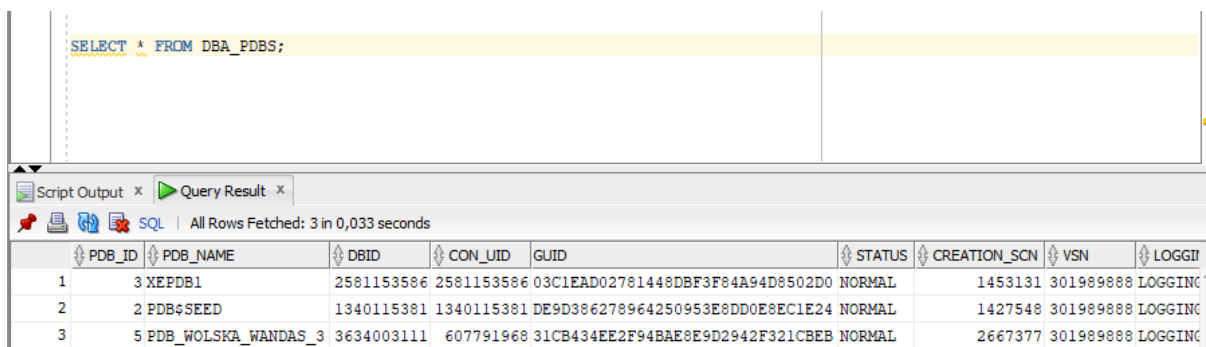
Przeniesienie plików na nową maszynę w takie miejsca, które są podane w pliku XML:



Stworzenie kontenera używając pliku XML:



Potwierdzenie podpięcia kontenera



Zmodyfikowano listenery i tnsnames aby można było połączyć się przez SQLDeveloper.

```
change.log x listener.ora x tnsnames.ora x listener1.ora x tnsnames1.ora x listener_zmieniony.ora x tnsnames_zmieniony.ora x
1 # listener.ora Network Configuration File: C:\app\karolina\product\18.0.0\dbhomeXE\NETWORK\ADMIN\listener.ora
2 # Generated by Oracle configuration tools.
3
4 DEFAULT_SERVICE_LISTENER = XE
5
6 LISTENER =
7   (DESCRIPTION_LIST =
8     (DESCRIPTION =
9       (ADDRESS = (PROTOCOL = TCP) (HOST = DESKTOP-QJ0SJS5.local) (PORT = 1521))
10      (ADDRESS = (PROTOCOL = IPC) (KEY = EXTPROC1521))
11    )
12  )
13
14 LISTENER_3_173230_173235 =
15   (DESCRIPTION =
16     (ADDRESS = (PROTOCOL = TCP) (HOST = localhost) (PORT = 1588))
17   )
18
19 SID_LIST_LISTENER =
20   (SID_LIST =
21     (SID_DESC =
22       (SID_NAME = CLRExtProc)
23       (ORACLE_HOME = C:\app\karolina\product\18.0.0\dbhomeXE)
24       (PROGRAM = extproc)
25       (ENVS = "EXTPROC_DLLS=ONLY:C:\app\karolina\product\18.0.0\dbhomeXE\bin\oraclr18.dll")
26     )
27   )
28
29
30
31 SID_LIST_LISTENER_3_173230_173235 =
32   (SID_LIST =
33     (SID_DESC =
34       (GLOBAL_DBNAME = PDB_Wolska_Wandas_3)
35       (SID_NAME = XE)
36     )
37   )
38
39
40
41
42
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84
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86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
```

```
change.log x listener.ora x tnsnames.ora x listener1.ora x tnsnames1.ora x listener_zmieniony.ora x tnsnames_zmieniony.ora x
1 # tnsnames.ora Network Configuration File: C:\app\karolina\product\18.0.0\dbhomeXE\NETWORK\ADMIN\tnsnames.ora
2 # Generated by Oracle configuration tools.
3
4 XE =
5   (DESCRIPTION =
6     (ADDRESS = (PROTOCOL = TCP) (HOST = DESKTOP-QJ0SJS5.local) (PORT = 1521))
7     (CONNECT_DATA =
8       (SERVER = DEDICATED)
9       (SERVICE_NAME = XE)
10    )
11  )
12
13 LISTENER_XE =
14   (ADDRESS = (PROTOCOL = TCP) (HOST = DESKTOP-QJ0SJS5.local) (PORT = 1521))
15
16 ALIAS_3_173230_173235 =
17   (DESCRIPTION =
18     (ADDRESS = (PROTOCOL = TCP) (HOST = localhost) (PORT = 1588))
19     (CONNECT_DATA =
20       (SERVER = DEDICATED)
21       (SERVICE_NAME = PDB_Wolska_Wandas_3)
22    )
23  )
24
25 ORACLE_CONNECTION_DATA =
26   (DESCRIPTION =
27     (ADDRESS_LIST =
28       (ADDRESS = (PROTOCOL = IPC) (KEY = EXTPROC1521))
29     )
30     (CONNECT_DATA =
31       (SID = CLRExtProc)
32       (PRESENTATION = RO)
33     )
34   )
35
36
```

Zalogowano się na użytkownika user_3_173235_173230:

The screenshot shows the Oracle SQL Developer interface. The top bar includes tabs for Connections, Reports, Welcome Page, PDB1, sys, and user3. The main window is divided into a Worksheet and a Query Builder. The Worksheet contains the following SQL query:

```
select * from user_tables;  
SELECT * FROM recenzje;  
SELECT count(*) FROM recenzje;
```

The Query Result pane shows the results of the first query, displaying a table with columns: TABLE_NAME, TABLESPACE_NAME, CLUSTER_NAME, IOT_NAME, STATUS, PCT_FREE, PCT_USED, INI_TRANS, MAX_TRANS, INITIAL_EXTENT, and NE. The results are as follows:

TABLE_NAME	TABLESPACE_NAME	CLUSTER_NAME	IOT_NAME	STATUS	PCT_FREE	PCT_USED	INI_TRANS	MAX_TRANS	INITIAL_EXTENT	NE
1 RECENTZJE	PT_3	(null)	(null)	VALID	10	(null)	1	255	40960	

The screenshot shows the Oracle SQL Developer interface. The top bar includes tabs for Connections, Reports, Welcome Page, PDB1, sys, and user3. The main window is divided into a Worksheet and a Query Builder. The Worksheet contains the following SQL query:

```
select * from user_tables;  
SELECT * FROM recenzje;  
SELECT count(*) FROM recenzje;
```

The Query Result pane shows the results of the second query, displaying a table with columns: ID and PROFILENAME. The results are as follows:

ID	PROFILENAME
1	1delmartian
2	2dll pa
3	3Natalia Corres "Natalia Corres"
4	4Karl
5	5Michael D. Bigham "M. Wassir"
6	6Twoapennything
7	7David C. Sullivan
8	8Pamela G. Williams
9	9R. James
10	10Carol A. Reed
11	11Canadian Fan
12	12A Poeng "SparkyGoHome"
13	13LT
14	14willie "roadie"
15	15Lynrie "Oh HELL no"

The screenshot shows the Oracle SQL Developer interface. The top bar includes tabs for Connections, Reports, Welcome Page, PDB1, sys, and user3. The main window is divided into a Worksheet and a Query Builder. The Worksheet contains the following SQL query:

```
select * from user_tables;  
SELECT * FROM recenzje;  
SELECT count(*) FROM recenzje;
```

The Query Result pane shows the results of the third query, displaying a table with columns: COUNT(*). The results are as follows:

COUNT(*)
1 568454

Ilość danych zgadza się z ilością danych na głównej maszynie.

Wyświetlenie użytkowników w kontenerze:

The screenshot shows the Oracle SQL Developer interface. The top bar includes tabs for 'Connections', 'Reports', 'Welcome Page', and a list of database connections: 'sys', 'pdb1', and 'user3'. The 'Query Builder' tab is active, displaying the SQL query: `select * from all_users;`. Below the query, the 'Query Result' tab shows the execution status: 'All Rows Fetched: 37 in 0,085 seconds'. The result is presented as a table with the following columns: USERNAME, USER_ID, CREATED, COMMON, ORACLE_MAINTAINED, INHERITED, DEFAULT_COLLATION, IMPLICIT, and ALL_SHARD. The table lists 19 rows of data, with the last row (row 37) highlighted in red. This row represents a user created in the container: 'USER_3_173235_173230'.

	USERNAME	USER_ID	CREATED	COMMON	ORACLE_MAINTAINED	INHERITED	DEFAULT_COLLATION	IMPLICIT	ALL_SHARD
19	GSMCATUSER	58	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
20	GGSYS	59	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
21	XDB	61	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
22	ANONYMOUS	62	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
23	WMSYS	71	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
24	DVSY	1279990	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
25	OJVMSYS	80	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
26	CTXSYS	82	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
27	ORDSYS	84	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
28	ORDDATA	85	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
29	ORDPLUGINS	86	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
30	SI_INFORMTN_SCHEMA	87	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
31	MDSYS	88	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
32	OLAPSYS	91	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
33	MDDATA	94	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
34	LBACSYS	96	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
35	DVF	98	19/02/04	YES	Y	YES	USING_NLS_COMP	NO	NO
36	WOLSKA_WANDAS	101	24/05/16	NO	N	NO	USING_NLS_COMP	NO	NO
37	USER_3_173235_173230	102	24/05/17	NO	N	NO	USING_NLS_COMP	NO	NO

W podpiętym kontenerze nie znajdują się użytkownicy wspólni, ponieważ tworzeni oni byli na sys na innej maszynie.

14.Wnioski

Tworzenie i konfiguracja maszyn wirtualnych:

Instalacja systemu operacyjnego (Windows 10 PRO) oraz systemu bazodanowego (Oracle 18c XE) na maszynie wirtualnej Oracle VirtualBox przebiegła pomyślnie.

Tworzenie dwóch plików parametrów:

Parametry systemu bazodanowego oraz ustawienia NLS zostały zmodyfikowane zgodnie z wymaganiami, a zmiany zostały udokumentowane i przetestowane. Zmienione parametry systemu bazodanowego i NLS widoczne są dopiero po uruchomieniu bazy z plików INIT-PFILE, w których dokonano zmian.

Konfiguracja listenerów i aliasów:

Pomyślnie dodano i skonfigurowano trzy listenery oraz aliasy dla różnych portów. Ustawienia listenerów zostały przetestowane i udokumentowane. W 10 punkcie zmodyfikowano ponownie listenery i aliasy co umożliwiło logowanie się użytkownikom i kontenerom.

Tworzenie kontenerów PDB:

Z powodu ograniczonej ilości możliwych PDB usunięto kontener XEPDB1. Kontenery PDB_Wolska_1, PDB_Wandas_2 oraz PDB_Wolska_Wandas_3 zostały stworzone i skonfigurowane z odpowiednimi ustawieniami krajowymi (PL, EN, USA) za pomocą triggera oraz przydzielonymi przestrzeniami po 500MB na każdy kontener.

Tworzenie użytkowników lokalnych:

Lokalni użytkownicy zostali utworzeni w każdym kontenerze zgodnie z wymaganiami, a ich dostęp do odpowiednich przestrzeni został przetestowany. Wywnioskowano, że każdy użytkownik może się połączyć jedynie za pomocą kontenera, w którym został stworzony. Kontenery nie “widzą” użytkowników stworzonych w innych kontenerach.

Tworzenie użytkowników wspólnych:

Użytkownicy wspólni zostali utworzeni na koncie sys z dopiskiem CONTAINER=ALL oraz nadano im prawo do sesji i przeglądania tabel innych użytkowników w kontenerach. Udowodniono, że każdy użytkownik wspólny ma możliwość zalogowania się do każdego kontenera i przeglądania tabel użytkowników.

Instalacja schematów bazy i import danych:

Schematy bazy danych zostały zaimportowane, a dane (poprzedni semestr, SH, open data) zostały prawidłowo załadowane do odpowiednich kontenerów. Wszystkie obiekty i ich dostępność zostały udokumentowane.

Odlączenie kontenera i podłączenie go na nowej maszynie wirtualnej:

Zamknięto kontener i odłączono go do pliku XML. Następnie przeniesiono wszystkie potrzebne pliki na nową maszynę i pomyślnie wpięto kontener. Po wpięciu kontenera PDB_Wolska_Wandas_3 na nowej maszynie wirtualnej widoczni są tylko użytkownicy, którzy zostali utworzeni bezpośrednio w tym kontenerze (np. Użytkownicy wspólni nie są widoczni, ponieważ zostali utworzeni na ROOT). Nie utraciono żadnych danych – ich ilość zgadza się z ilością na głównej maszynie.