

# Baze podataka 1

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Vežbe – softverska podrška

# Sadržaj

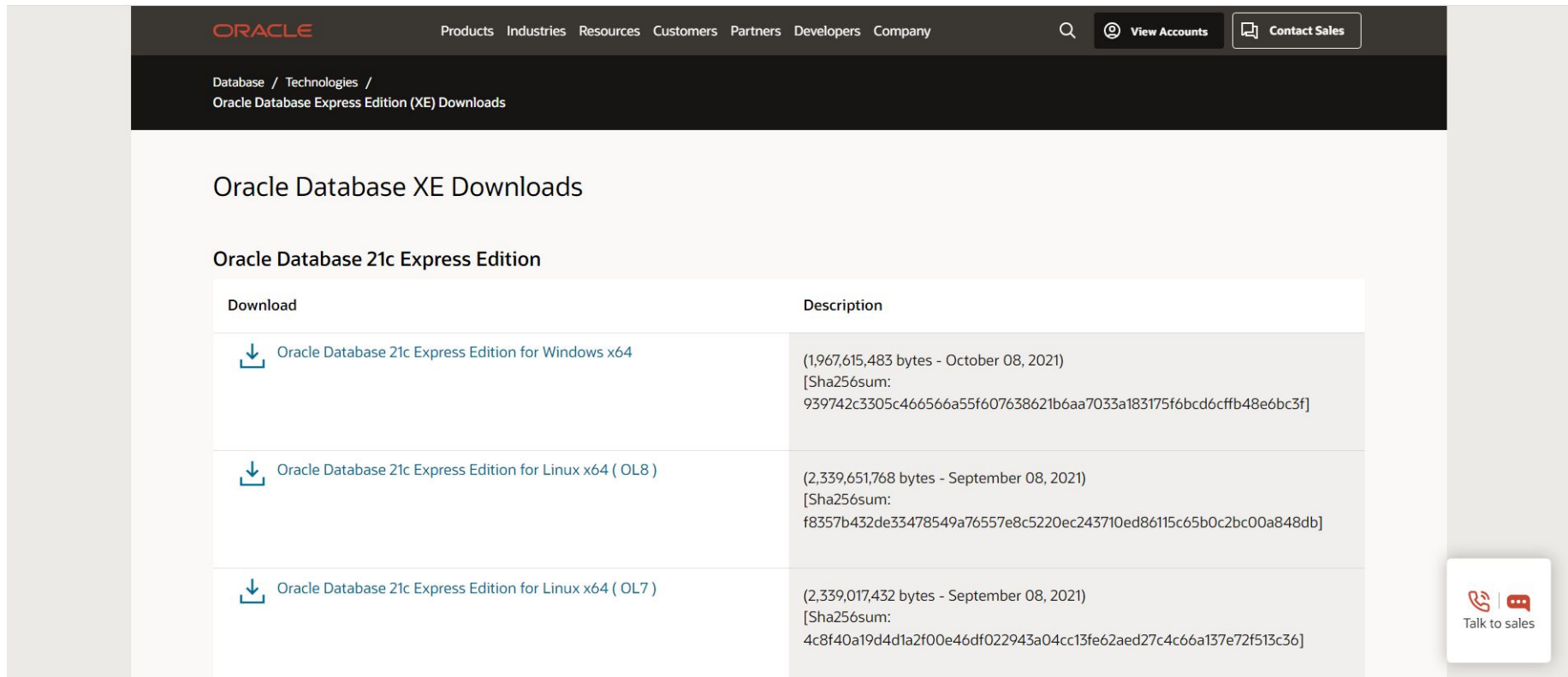
- Instalacija Oracle Database Express Edition 21c
- Pokretanje Oracle Database Express Edition 21c
- Oracle SQL Developer
- Uvod u rad sa Oracle SQL Developer

# Instalacija Oracle Database Express Edition 21c




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# Instalacija Oracle Database Express Edition 21c

- Oracle Database Express Edition 21c se može preuzeti sa sledećeg URL- a:
  - <https://www.oracle.com/database/technologies/xe-downloads.html>



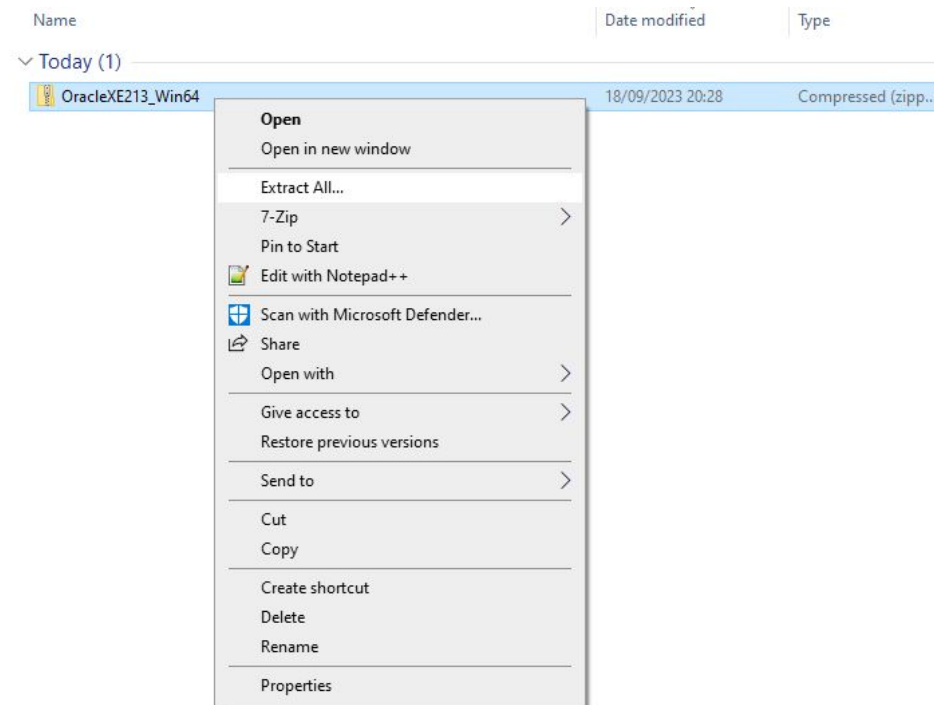
The screenshot shows the Oracle Database XE Downloads page. The header includes the Oracle logo and navigation links: Products, Industries, Resources, Customers, Partners, Developers, and Company. There are also links for View Accounts and Contact Sales. The breadcrumb trail indicates the path: Database / Technologies / Oracle Database Express Edition (XE) Downloads. The main heading is "Oracle Database XE Downloads". Below it, the section "Oracle Database 21c Express Edition" is highlighted. A table lists three download options with their descriptions, including file sizes, dates, and SHA256 checksums.

Download	Description
 Oracle Database 21c Express Edition for Windows x64	(1,967,615,483 bytes - October 08, 2021) [Sha256sum: 939742c3305c466566a55f607638621b6aa7033a183175f6bcd6cfff48e6bc3f]
 Oracle Database 21c Express Edition for Linux x64 ( OL8 )	(2,339,651,768 bytes - September 08, 2021) [Sha256sum: f8357b432de33478549a76557e8c5220ec243710ed86115c65b0c2bc00a848db]
 Oracle Database 21c Express Edition for Linux x64 ( OL7 )	(2,339,017,432 bytes - September 08, 2021) [Sha256sum: 4c8f40a19d4d1a2f00e46df022943a04cc13fe62aed27c4c66a137e72f513c36]

A "Talk to sales" button is visible in the bottom right corner.

# Instalacija Oracle Database Express Edition 21c

- Preuzeti odgovarajući instalacioni paket (npr. za Windows operativni sistem: *Oracle Database 21c Express Edition for Windows x64*)
  - Napomena: da bi se preuzeo bilo koji Oracle softver potrebno je izvršiti besplatnu registraciju na Oracle WEB stranici
- Nakon preuzimanja instalacionog paketa potrebno je raspakovati zip arhivu



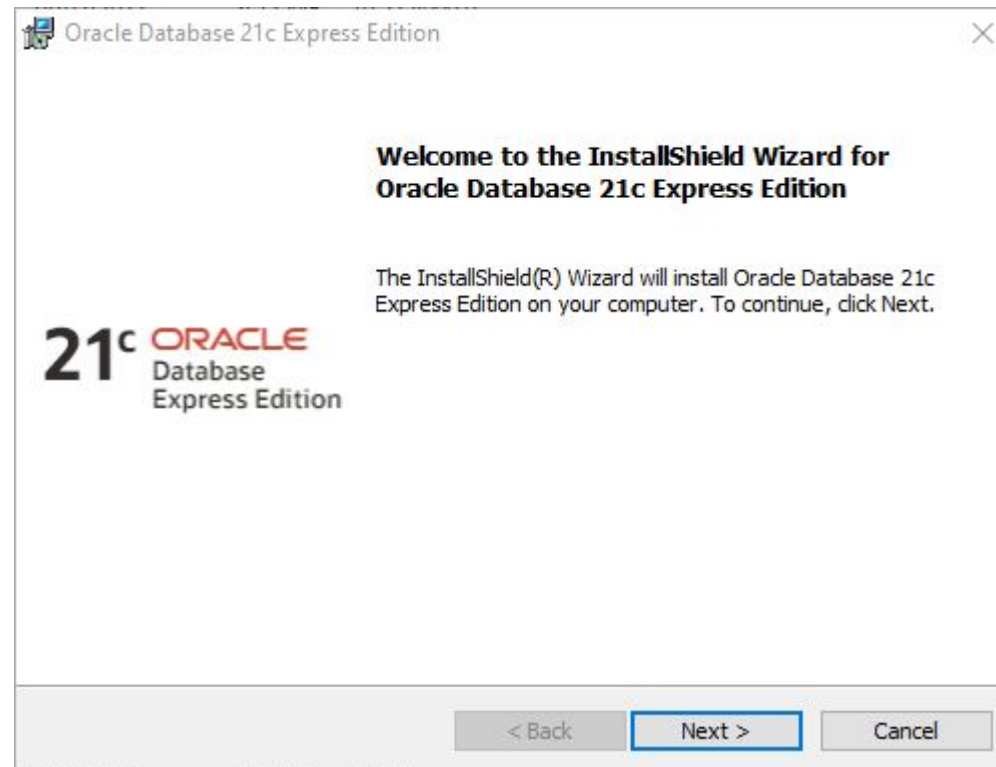
# Instalacija Oracle Database Express Edition 21c

- Nakon raspakivanja zip arhive u raspakovanom direktorijumu potrebno je dvokliknuti na setup.exe

Name	Date modified	Type	Size
ISSetupPrerequisites	18/09/2023 20:32	File folder	
0x040a	18/09/2023 20:32	Configuration sett...	25 KB
0x040c	18/09/2023 20:32	Configuration sett...	26 KB
0x0404	18/09/2023 20:32	Configuration sett...	11 KB
0x0407	18/09/2023 20:32	Configuration sett...	26 KB
0x0409	18/09/2023 20:32	Configuration sett...	22 KB
0x0410	18/09/2023 20:32	Configuration sett...	25 KB
0x0411	18/09/2023 20:32	Configuration sett...	15 KB
0x0412	18/09/2023 20:32	Configuration sett...	14 KB
0x0416	18/09/2023 20:32	Configuration sett...	24 KB
0x0804	18/09/2023 20:32	Configuration sett...	11 KB
1028.mst	18/09/2023 20:32	MST File	76 KB
1031.mst	18/09/2023 20:32	MST File	104 KB
1033.mst	18/09/2023 20:32	MST File	20 KB
1034.mst	18/09/2023 20:32	MST File	104 KB
1036.mst	18/09/2023 20:32	MST File	104 KB
1040.mst	18/09/2023 20:32	MST File	104 KB
1041.mst	18/09/2023 20:32	MST File	96 KB
1042.mst	18/09/2023 20:32	MST File	92 KB
1046.mst	18/09/2023 20:32	MST File	96 KB
2052.mst	18/09/2023 20:32	MST File	76 KB
DB	18/09/2023 20:32	Cabinet File	1,907,646 KB
Oracle Database 21c Express Edition	18/09/2023 20:32	Windows Installer ...	4,145 KB
setup	18/09/2023 20:32	Application	1,271 KB
Setup	18/09/2023 20:32	Configuration sett...	6 KB
XEInstall.rsp	18/09/2023 20:32	RSP File	1 KB

# Instalacija Oracle Database Express Edition 21c

- Instalacija se vrši u okviru *Oracle Database 21c Express Edition – InstallShield Wizard*
- Potrebno je ispratiti nekoliko jednostavnih koraka



# Instalacija Oracle Database Express Edition 21c

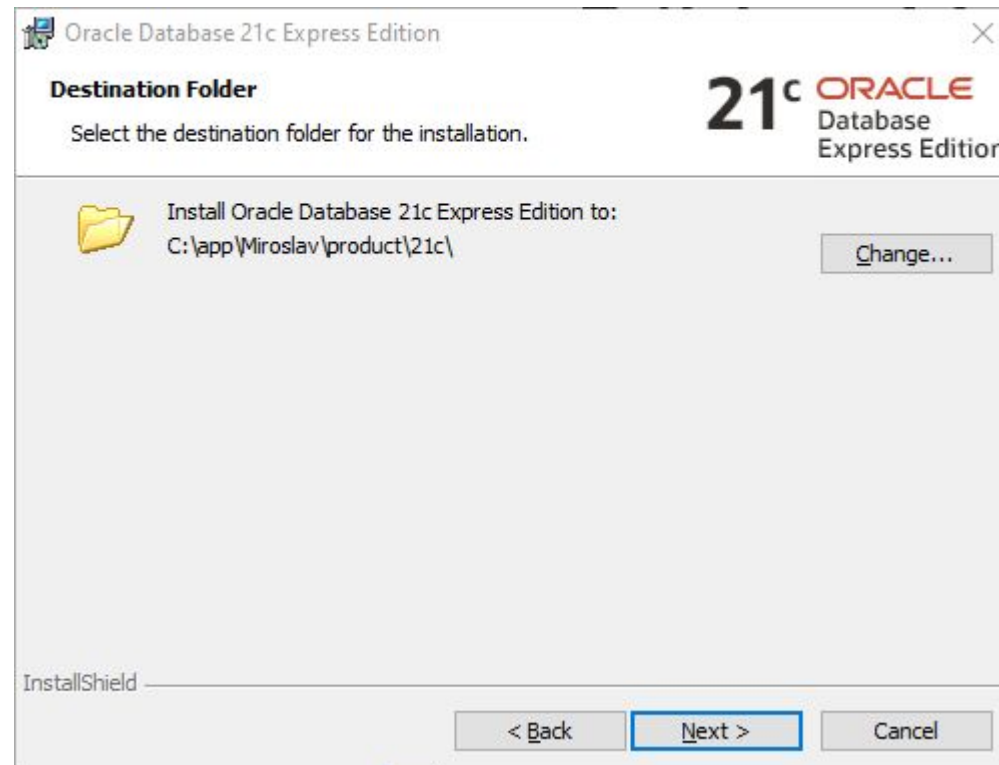
- Potrebno je selektovati *I accept the terms in the license agreement* u okviru *License agreement* i kliknuti na *Next*





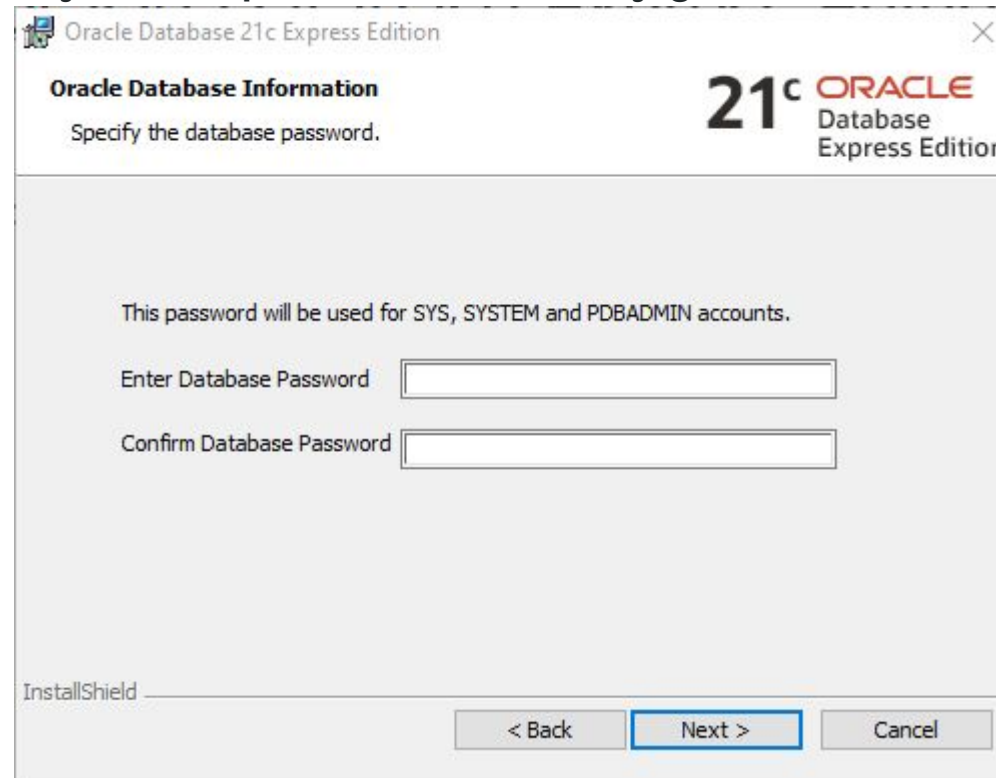
# Instalacija Oracle Database Express Edition 21c

- U okviru prozora *Choose Destination Location* moguće je potvrditi podrazumevani folder ili izabrati drugi folder za instalaciju
  - Ne birati folder koji u okviru svog imena ima razmake



# Instalacija Oracle Database Express Edition 21c

- U okviru prozora *Oracle Database Information* potrebno je uneti šifru za SYS, SYSTEM i PDBADMIN naloge
  - SYS i SYSTEM nalozi imaju administratorska prava i ne koriste se za rutinske operacije
- **Zadatu šifru je potrebno zapamtiti jer će biti potrebna tokom kasnijeg rada!**



Oracle Database 21c Express Edition

**Oracle Database Information**  
Specify the database password.

21<sup>c</sup> ORACLE  
Database  
Express Edition

This password will be used for SYS, SYSTEM and PDBADMIN accounts.

Enter Database Password

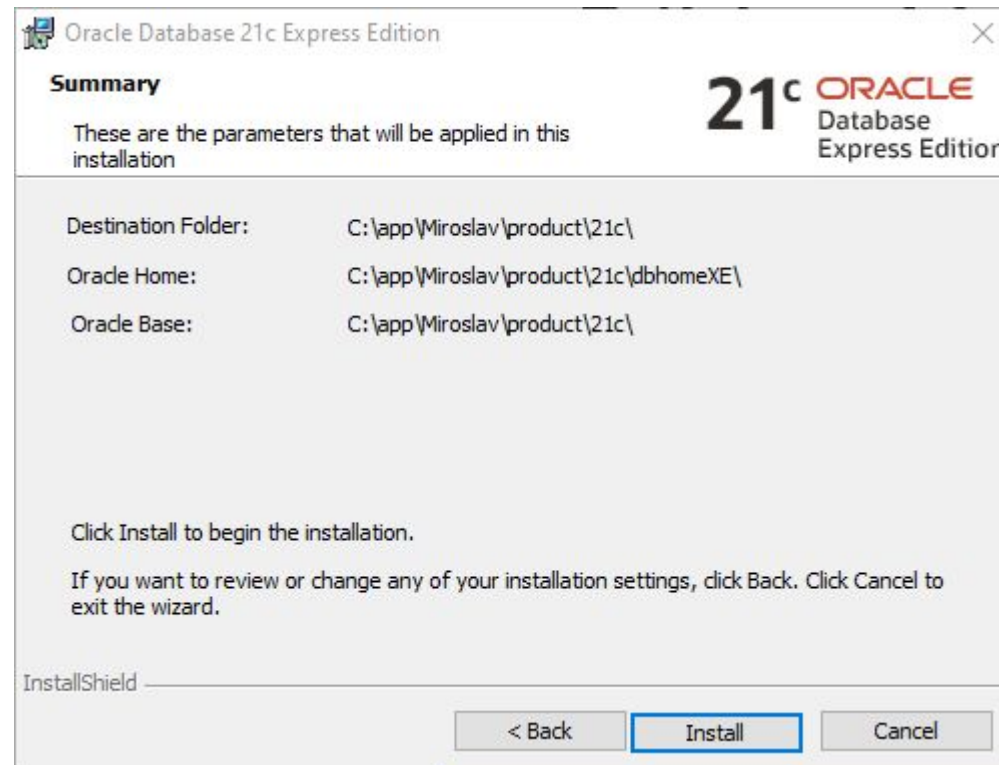
Confirm Database Password

InstallShield

< Back   **Next >**   Cancel

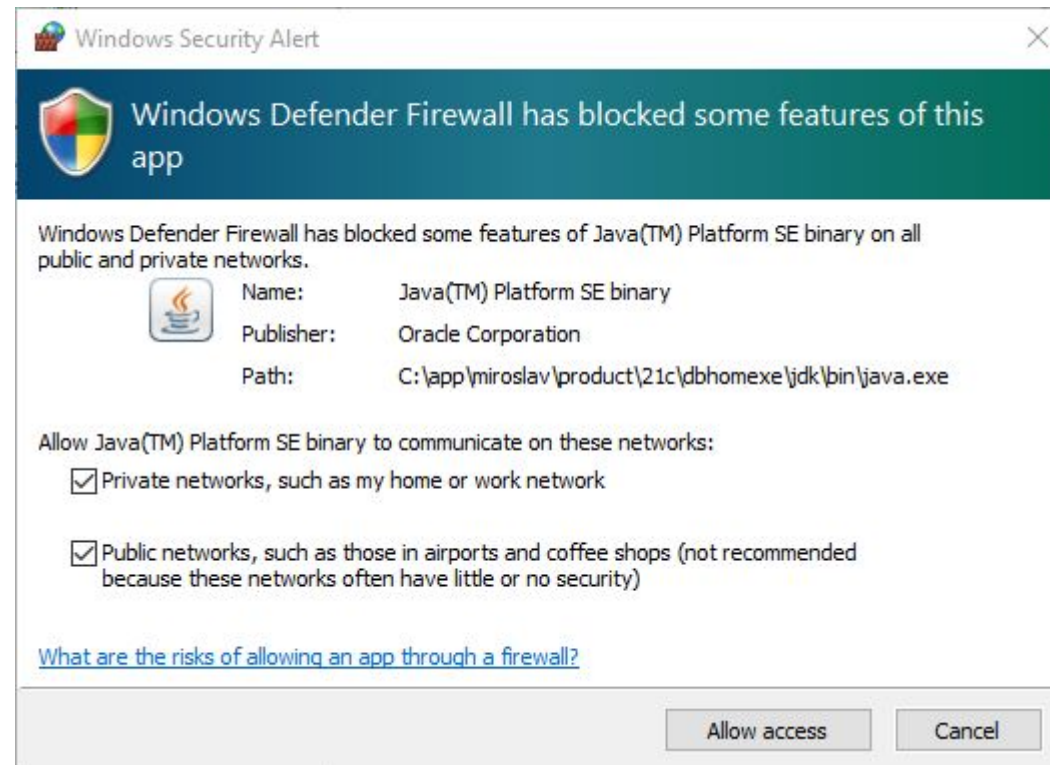
# Instalacija Oracle Database Express Edition 21c

- Sva podešavanja vezana za instalaciju mogu se videti u okviru *Summary* prozora
- Ukoliko su svi parametri tačni može da se završi proces instaliranja



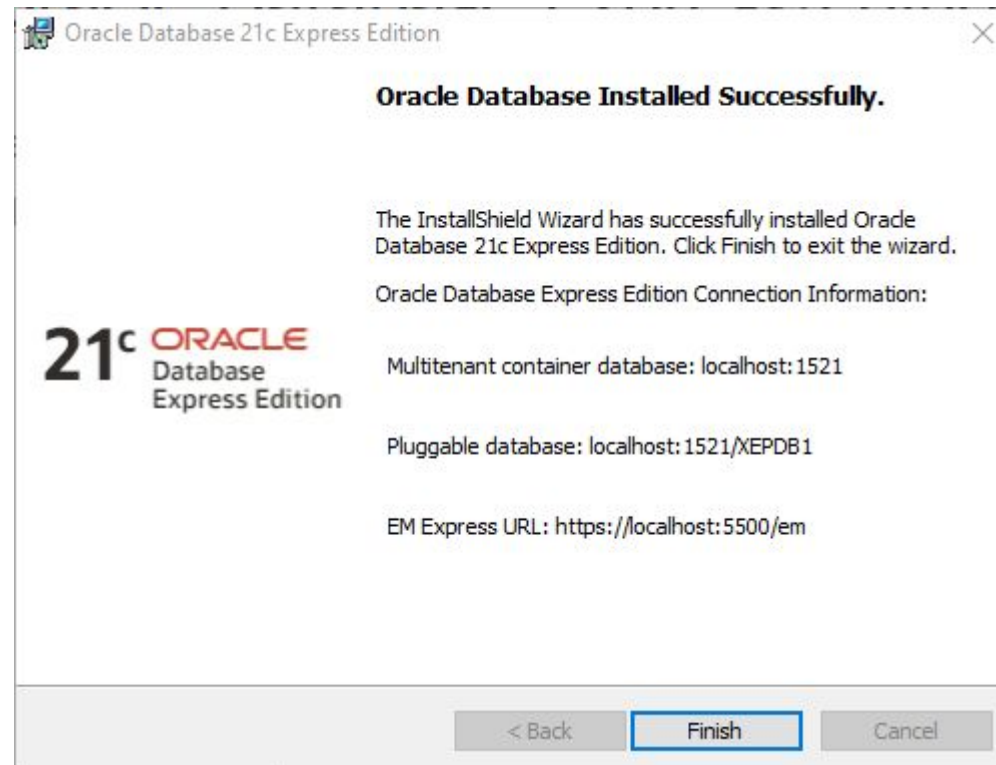
# Instalacija Oracle Database Express Edition 21c

- Tokom instalacije potrebno je dati dozvolu u *Windows Defender Firewall*- u za izvršavanje aplikacije
  - otkačiti oba polja (*private* i *public* networks)



# Instalacija Oracle Database Express Edition 21c

- Na kraju instalacije pojaviće se prozor sa porukom o uspešnoj instalaciji



# Instalacija Oracle Database Express Edition 21c – ostale platforme

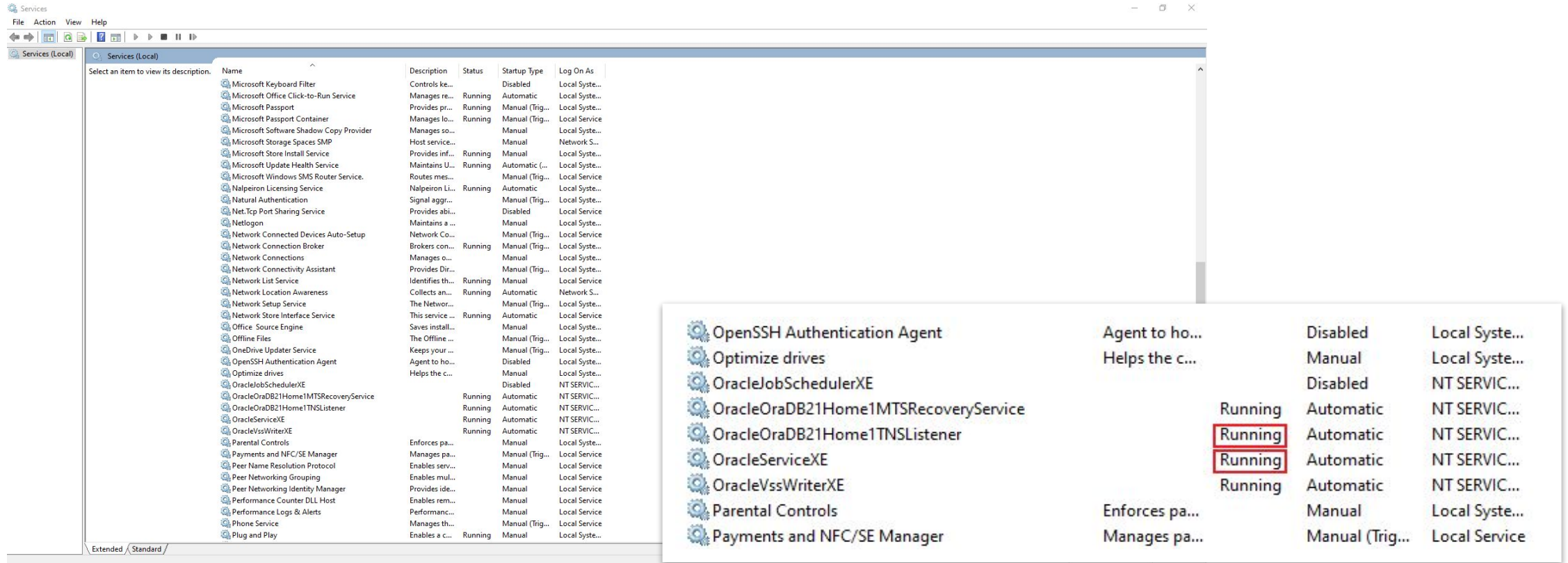
- Oracle Database Express Edition 21c je moguće instalirati direktno i na Linux operativnom sistemu dok na MacOS operativnom sistemu nije moguća direktna instalacija
  - Ovde su date samo osnovne smernice, ohrabrujemo studente da samostalno pretraže Internet za rešenjem!
- Za Linux operativne sisteme:
  - direktna instalacija zahteva napredno poznavanje rada sa Linux operativnim sistemom i nije preporučljiva sem ako niste napredni korisnik
  - alternativa je pokretanje putem virtualizacionih tehnologija
    - Docker - <https://github.com/oracle/docker-images/tree/main/OracleDatabase/SingleInstance>
    - Instalacija Windows virtuelne mašine putem OracleVM VirtualBox- a, a zatim proći kroz prethodne slajdove
- Za MacOS operativne sisteme:
  - direktna instalacija nije moguća
  - alternativa je pokretanje putem virtualizacionih tehnologija
    - Docker - <https://github.com/oracle/docker-images/tree/main/OracleDatabase/SingleInstance>
    - Instalacija Windows virtuelne mašine putem OracleVM VirtualBox- a, a zatim proći kroz prethodne slajdove

# Pokretanje Oracle Database Express Edition 21c

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# Pokretanje Oracle Database Express Edition 21c

- Nakon instaliranja Oracle Database Express Edition 21c, instanca baze podataka je pokrenuta i odmah se može početi koristiti
- Da bi se proverio status rada instance baze podataka potrebno je pronaći odgovarajuće informacije o dva procesa u okviru *Windows Services*, potrebno je da procesi imaju status Running
  - Control Panel -> Administrative Tools -> Services



Name	Description	Status	Startup Type	Log On As
Microsoft Keyboard Filter	Controls ke...	Disabled	Disabled	Local Syste...
Microsoft Office Click-to-Run Service	Manages re...	Running	Automatic	Local Syste...
Microsoft Passport	Provides pr...	Running	Manual (Trig...	Local Syste...
Microsoft Passport Container	Manages lo...	Running	Manual (Trig...	Local Service
Microsoft Software Shadow Copy Provider	Manages so...	Manual	Manual	Local Syste...
Microsoft Storage Spaces SMP	Host service...	Manual	Manual	Network S...
Microsoft Store Install Service	Provides inf...	Running	Manual	Local Syste...
Microsoft Update Health Service	Maintains U...	Running	Automatic (...)	Local Syste...
Microsoft Windows SMS Router Service	Routes mes...	Manual (Trig...	Manual (Trig...	Local Service
Nalpeiron Licensing Service	Nalpeiron Li...	Running	Automatic	Local Syste...
Natural Authentication	Signal aggr...	Manual (Trig...	Manual (Trig...	Local Syste...
Net.Tcp Port Sharing Service	Provides abi...	Disabled	Disabled	Local Service
Netlogon	Maintains a ...	Manual	Manual	Local Syste...
Network Connected Devices Auto-Setup	Network Co...	Manual (Trig...	Manual (Trig...	Local Service
Network Connection Broker	Brokers con...	Running	Manual (Trig...	Local Syste...
Network Connections	Manages o...	Manual	Manual	Local Syste...
Network Connectivity Assistant	Provides Dir...	Manual (Trig...	Manual (Trig...	Local Syste...
Network List Service	Identifies th...	Running	Manual	Local Service
Network Location Awareness	Collects an...	Running	Automatic	Network S...
Network Setup Service	The Networ...	Manual (Trig...	Manual (Trig...	Local Syste...
Network Store Interface Service	This service ...	Running	Automatic	Local Service
Office Source Engine	Saves installe...	Manual	Manual	Local Syste...
Offline Files	The Offline ...	Manual (Trig...	Manual (Trig...	Local Syste...
OneDrive Updater Service	Keeps your ...	Manual (Trig...	Manual (Trig...	Local Syste...
OpenSSH Authentication Agent	Agent to ho...	Disabled	Manual	Local Syste...
Optimize drives	Helps the c...	Manual	Manual	Local Syste...
OracleJobSchedulerXE		Disabled	Disabled	NT SERVIC...
OracleOraDB21Home1MTSRecoveryService		Running	Automatic	NT SERVIC...
OracleOraDB21Home1TNSListener		Running	Automatic	NT SERVIC...
OracleServiceXE		Running	Automatic	NT SERVIC...
OracleVssWriterXE		Running	Automatic	NT SERVIC...
Parental Controls	Enforces pa...	Manual	Manual	Local Syste...
Payments and NFC/SE Manager	Manages pa...	Manual (Trig...	Manual (Trig...	Local Service
Peer Name Resolution Protocol	Enables serv...	Manual	Manual	Local Service
Peer Networking Grouping	Enables mul...	Manual	Manual	Local Service
Peer Networking Identity Manager	Provides ide...	Manual	Manual	Local Service
Performance Counter DLL Host	Enables rem...	Manual	Manual	Local Service
Performance Logs & Alerts	Performanc...	Manual	Manual	Local Service
Phone Service	Manages th...	Manual (Trig...	Manual (Trig...	Local Service
Plug and Play	Enables a c...	Running	Manual	Local Syste...

Service Name	Status	Startup Type	Log On As
OpenSSH Authentication Agent	Disabled	Manual	Local Syste...
Optimize drives	Manual	Manual	Local Syste...
OracleJobSchedulerXE	Disabled	Manual	NT SERVIC...
OracleOraDB21Home1MTSRecoveryService	Running	Automatic	NT SERVIC...
OracleOraDB21Home1TNSListener	Running	Automatic	NT SERVIC...
OracleServiceXE	Running	Automatic	NT SERVIC...
OracleVssWriterXE	Running	Automatic	NT SERVIC...
Parental Controls	Manual	Manual	Local Syste...
Payments and NFC/SE Manager	Manual (Trig...	Manual (Trig...	Local Service



# Pokretanje Oracle Database Express Edition 21c

- Ako je instanca baze podataka zaustavljena (status nije *Running*), može se startovati na sledeći način:
  - u okviru Start menija, može se pronaći Oracle – OraDB21Home1, a zatim otvoriti SQL Plus
  - za user-name uneti: **sys as sysdba**
  - za password uneti: **password koji je zadat prilikom instalacije**
  - uneti: **startup**
  - potvrditi na taster **enter**
- Alternativno instanca baze podataka se može startovati u listi procesa u *Windows Services*
  - pronaći proces pod nazivom *OracleServiceXE*
    - desni klik na proces, a zatim kliknuti na Start iz padajućeg menija
  - pronaći proces pod nazivom *OracleOraDB21Home1TNSListener*
    - desni klik na proces, a zatim kliknuti na Start iz padajućeg menija

# Oracle SQL Developer

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# Oracle SQL Developer



- Oracle SQL Developer je besplatan grafički alat odnosno integrisano razvojno okruženje koje pojednostavljuje razvoj i upravljanje Oracle bazom podataka
- Oracle SQL Developer (poslednja verzija) se može preuzeti sa sledećeg URL- a:
  - <https://www.oracle.com/database/sqldeveloper/technologies/download/>


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## SQL Developer 23.1

Version 23.1.0.0971607 - April 19, 2023

- [Release Notes](#)
- [Documentation](#)

Platform	Download	Notes
Windows 64-bit with JDK 11 included	 <a href="#">Download</a> (459 MB)	<ul style="list-style-type: none"><li>• MD5: 5b0fe5b6a5f53451204b26491da412f7</li><li>• SHA1: 884f86c70130c109bb0cefd294eb8061ae1fd0ff</li><li>• <a href="#">Installation Notes</a></li></ul>
Windows 32-bit/64-bit	 <a href="#">Download</a> (510 MB)	<ul style="list-style-type: none"><li>• MD5: b191ae7b67149045ec384e2a8add4ad1</li><li>• SHA1: e20967b34f4db1b1395deb10cfd9fe61031a3e11</li><li>• <a href="#">Installation Notes</a></li><li>• <a href="#">JDK 11 required</a></li></ul>

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# Oracle SQL Developer

- Preuzeti odgovarajući instalacioni paket (npr. za Windows operativni sistem zajedno sa JDK: Windows 64-bit with JDK 11 included)
    - **Napomena:** da bi se preuzeo bilo koji Oracle softver potrebno je izvršiti besplatnu registraciju na Oracle WEB stranici
  - Nakon preuzimanja instalacionog paketa potrebno je raspakovati zip arhivu na željenu lokaciju
  - Nakon raspakivanja završen je i proces instalacije jer je Oracle SQL Developer direktno izvršiv
  - Da bi se pokrenuo Oracle SQL Developer iz raspakovanog direktorijuma je dovoljno dvokliknuti na sqldeveloper.exe
- 
- **Napomena:** ukoliko nije preuzet instalacioni paket sa uključenim JDK, potrebno je JDK instalirati zasebno i prilikom pokretanja SQL Developer- a zadati putanju do JDK odredišnog (instalacionog) direktorijuma!

# Oracle SQL Developer - ostale platforme

- Oracle SQL Developer je moguće instalirati i na Linux i MacOS operativnim sistemima
  - Ovde su date samo osnovne smernice, ohrabrujemo studente da samostalno pretraže Internet za rešenjem!
- Za Linux operativne sisteme (Debian based) je dovoljno preuzeti verziju pod nazivom Windows 64-bit with JDK 11 included
  - Nakon raspakivanja zip arhive putem terminala se pozicionirati u raspakovani direktorijum
  - Izvršiti: `bash sqldeveloper.sh`
  - **Napomena:** za kreiranje GUI launcher- a samostalno pretražiti Internet
- Za MacOS operativne sisteme je dovoljno preuzeti verziju pod nazivom Mac OSX with JDK 11 included ili Mac ARM64 with JDK 11 included (u zavisnosti od arhitekture procesora)
  - Nakon raspakivanja zip arhive pozicionirati se u raspakovani direktorijum
  - Pokrenuti kreirani GUI launcher pod nazivom SQLDeveloper
- **Napomena:** ukoliko nije preuzet instalacioni paket sa uključenim JDK, potrebno je JDK instalirati zasebno i prilikom pokretanja SQL Developer- a zadati putanju do JDK odredišnog (instalacionog) direktorijuma!

# Uvod u rad sa Oracle SQL Developer

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# Kreiranje nove konekcije za SYS i SYSTEM korisnike

New / Select Database Connection

Connection Name | Connection Details

Name: sys

Database Type: Oracle

User Info | Proxy User

Authentication Type: Default

Username: sys

Password: .....

Role: SYSDBA

☒ Save Password

Connection Type: Basic

Details | Advanced

Hostname: localhost

Port: 1521

☐ SID

☒ Service name: xepdb1

Status : Success

Help Save Clear Test Connect Cancel

# Kreiranje novog korisnika

The screenshot displays the Oracle SQL Developer interface. The main window is titled "Worksheet" and contains the following SQL script:

```
create user E12679 identified by ftn
default tablespace USERS temporary tablespace TEMP;

grant connect, resource to E12679;

grant create table to E12679;

grant create view to E12679;

grant create procedure to E12679;

grant create synonym to E12679;

grant create sequence to E12679;

grant select on dba_rollback_segs to E12679;

grant select on dba_segments to E12679;

grant unlimited tablespace to E12679;
```

The "Script Output" window at the bottom shows the results of the script execution:

```
Grant succeeded.

Grant succeeded.

Grant succeeded.

Grant succeeded.
```

The status bar at the bottom indicates "Line 17 Column 49 | Insert | Modified | Windows: CF".



# Kreiranje nove konekcije za kreiranog korisnika

The screenshot shows the 'New / Select Database Connection' dialog box in SQL Developer. The dialog is divided into two main sections: a list of existing connections on the left and a configuration area on the right.

**Left Panel (Connections List):**

Connection Name	Connection String
sys	sys@//...

**Right Panel (Configuration):**

- Name:** student
- Database Type:** Oracle
- User Info:**
  - Authentication Type:** Default
  - Username:** e12679
  - Password:** (masked with dots)
  - Role:** default
  - Save Password:** ☒
- Connection Type:** Basic
- Details:**
  - Hostname:** localhost
  - Port:** 1521
  - Service name:** xepdb1 (selected with a radio button)

**Status:** Success

**Buttons:** Help, Save, Clear, Test, Connect, Cancel

# Kreiranje nove konekcije

- Prilikom kreiranja nove konekcije može se javiti greška sa sledećom porukom
  - Status : Failure -Test failed: IO Error: The Network Adapter could not establish the connection (CONNECTION\_ID=xjA00AMLQi+yiSZdij8c2A==)
- Mogući problemi/rešenja
  - Listener proces nije pokrenut – potrebno je ući u listu procesa i pokrenuti ovaj proces
  - Neispravno uneti kredencijali – proveriti sva polja
  - Ako je sve ispravno a uneti Hostname je localhost zameniti localhost za ip adresom računara
- Za ostale greške pogledati rešenja na internetu prvenstveno na Oracle forumima
- Voditi računa da se od Oracle 12c verzije za rad nad bazom podataka koristi pluggable baza podataka (više o ovom pročitati u Oracle dokumentaciji)
  - Prilikom konekcije kroz SQL Developer zadaje Service name, a ne SID
  - Konekcioni string se zadaje u formatu (default port je 1521)
    - host[:port]/service\_name
  - A ne u formatu
    - host[:port]
- Za Service name se uvek zadaje naziv pluggable baze podataka (default kod 21c XE verzije je xepdb1)
- Na Container bazu podataka (CDB) se uglavnom konektuju administratori baze podataka

# Kraj!

Hvala na pažnji!