Oracle 19c Server auf Oracle Linux 7

Vorbemerkung

Oracle Linux (OL, früher bekannt als Oracle Enterprise Linux) ist eine Linux-Distribution, die von Oracle gepackt und frei vertrieben wird. Es wurde aus dem RHEL-Quellcode (Red Hat Enterprise Linux) kompiliert und ersetzt das Red Hat-Branding durch das von Oracle. Benutzer können Oracle Linux kostenlos über den E-Delivery-Service von Oracle (Oracle Software Delivery Cloud) oder von verschiedenen Mirror-Sites herunterladen und kostenlos bereitstellen und verteilen.

Oracle Database 19c ist die langfristige Support-Version der Oracle Database 12c- und 18c-Produktfamilie und bietet Kunden Premier- und Extended Support bis März 2023 bzw. März 2026. In diesem Tutorial wird die Enterprise Edition installiert, aber auch die Standard Edition funktioniert.

In diesem Tutorial werden Linux und Oracle in einer virtuellen Maschine unter Proxmox installiert. Andere Virtualisierungslösungen wie VMware oder VirtualBox gehen natürlich genauso gut.

Installation

Linux ISO herunterladen

Nehmen sie die neuste Version von Oracle Linux 7. Zum Zeitpunkt da diese Anleitung entstand war das 7.7, wenn eine neuere Ausgabe der 7er Version vorhanden ist können sie ruhig jene nehmen.

Oracle Linux 8 sollten sie jedoch nicht nehmen, derzeit ist die Datenbank 19c jedenfalls noch nicht dafür freigegeben und die Installaton scheitert.

Holen sie Oracle Linux von https://edelivery.oracle.com:

- Melden sie sich mit ihrem Oracle Konto an (ggf. kostenlose Registrierung möglich)
- Suchen sie nach „Oracle Linux“
- Fügen sie „DLP: Oracle Linux 7.7.0.0.0 (Oracle Linux)“ zum Warenkorb hinzu
- Wählen sie beim Checkout „x86 64 bit“ als Plattform
- Akzeptieren sie die Lizenzvereinbarung
- Laden sie „VV983339-01.iso Oracle Linux Release 7 Update 7 for x86 (64 bit), 4.4 GB“ herunter

Kreieren der Virtuellen Maschine

Beispielvorschlag für eine brauchbare Entwicklungsdatenbank:

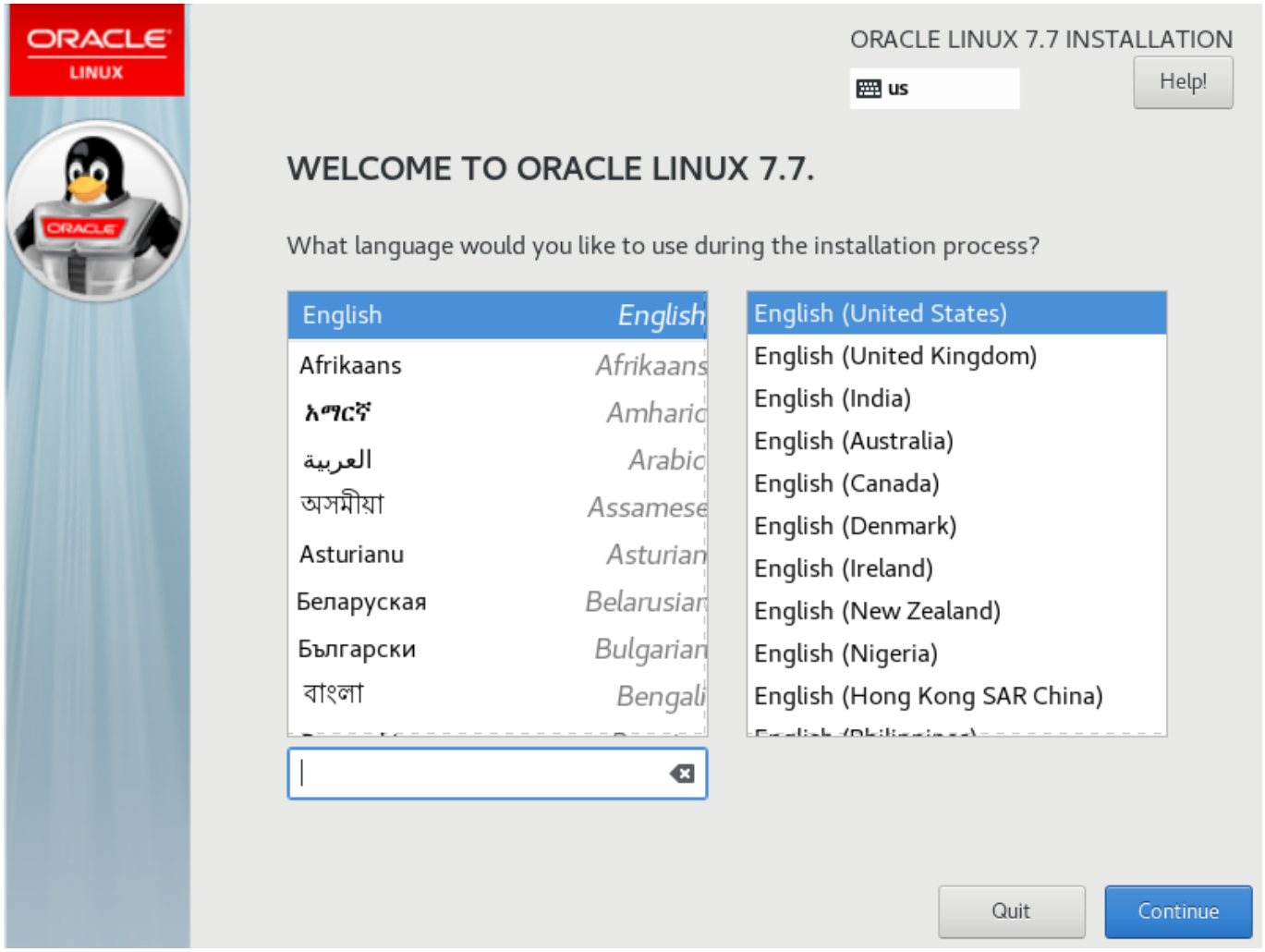
- Installations-Disk Image Datei (iso): V1004253-01.iso
- Name der virtuellen Maschine: ora19

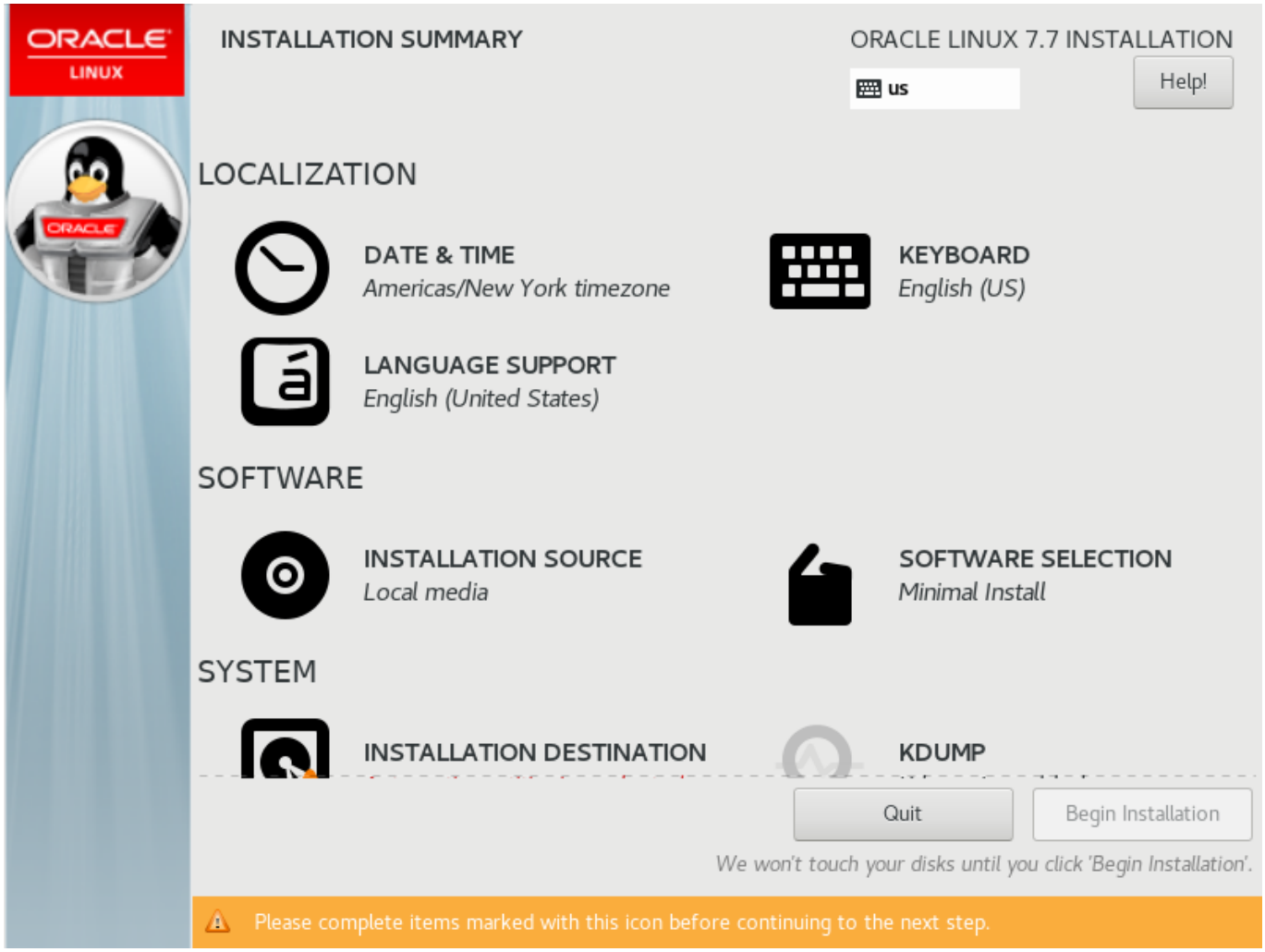
- Maximale Festplattengrösse: 100 GB
- Virtuelle Festplatte als eine einzige Datei speichern
- Arbeitsspeicher: 3 GB
- Prozessoren: 2
- Netzwerk-Adapter: Bridged

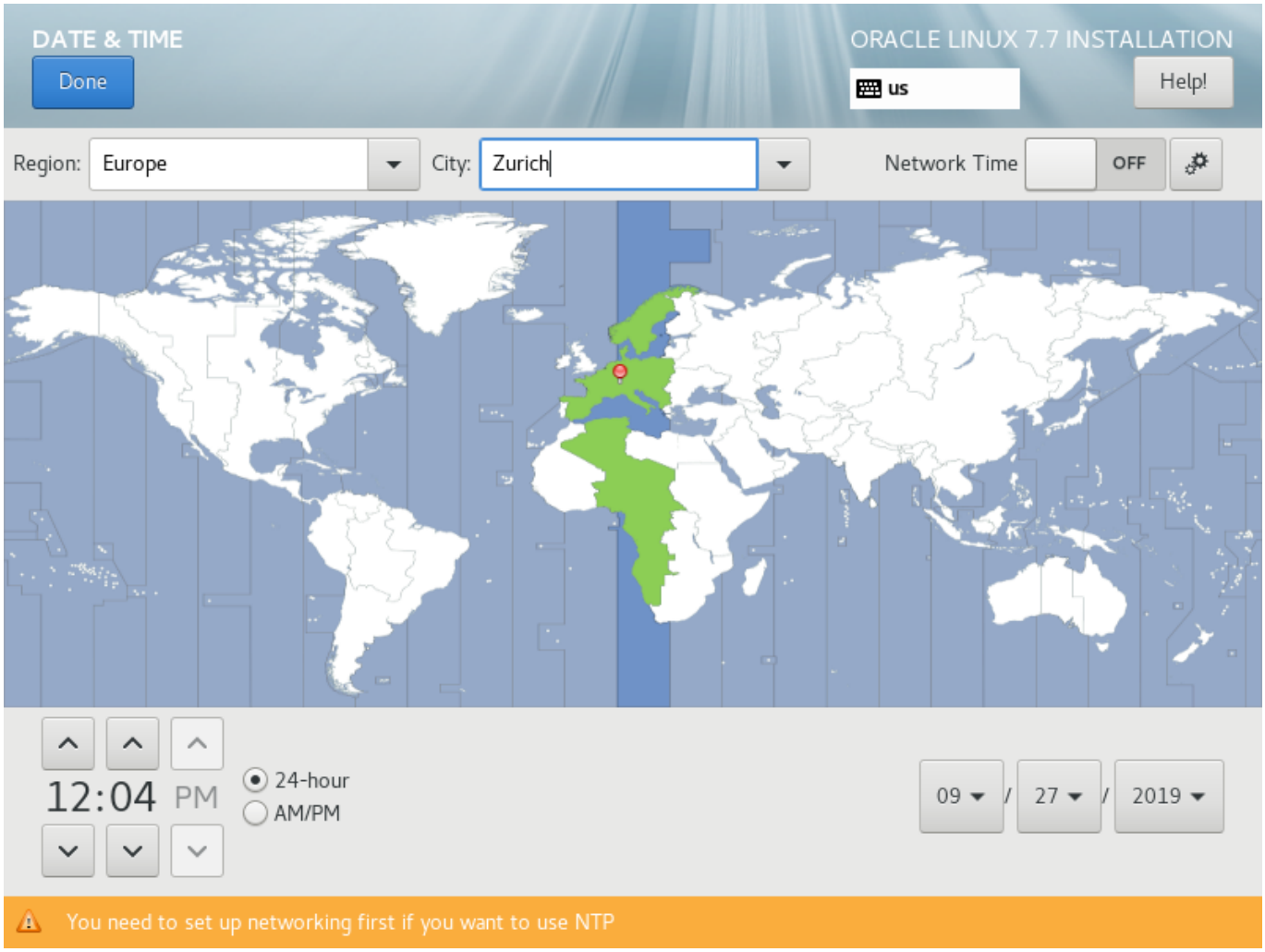
Für eine Produktionsdatenbank sollten sie je nach Anzahl Benutzern natürlich mehr Arbeitsspeicher und Prozessoren vorsehen.

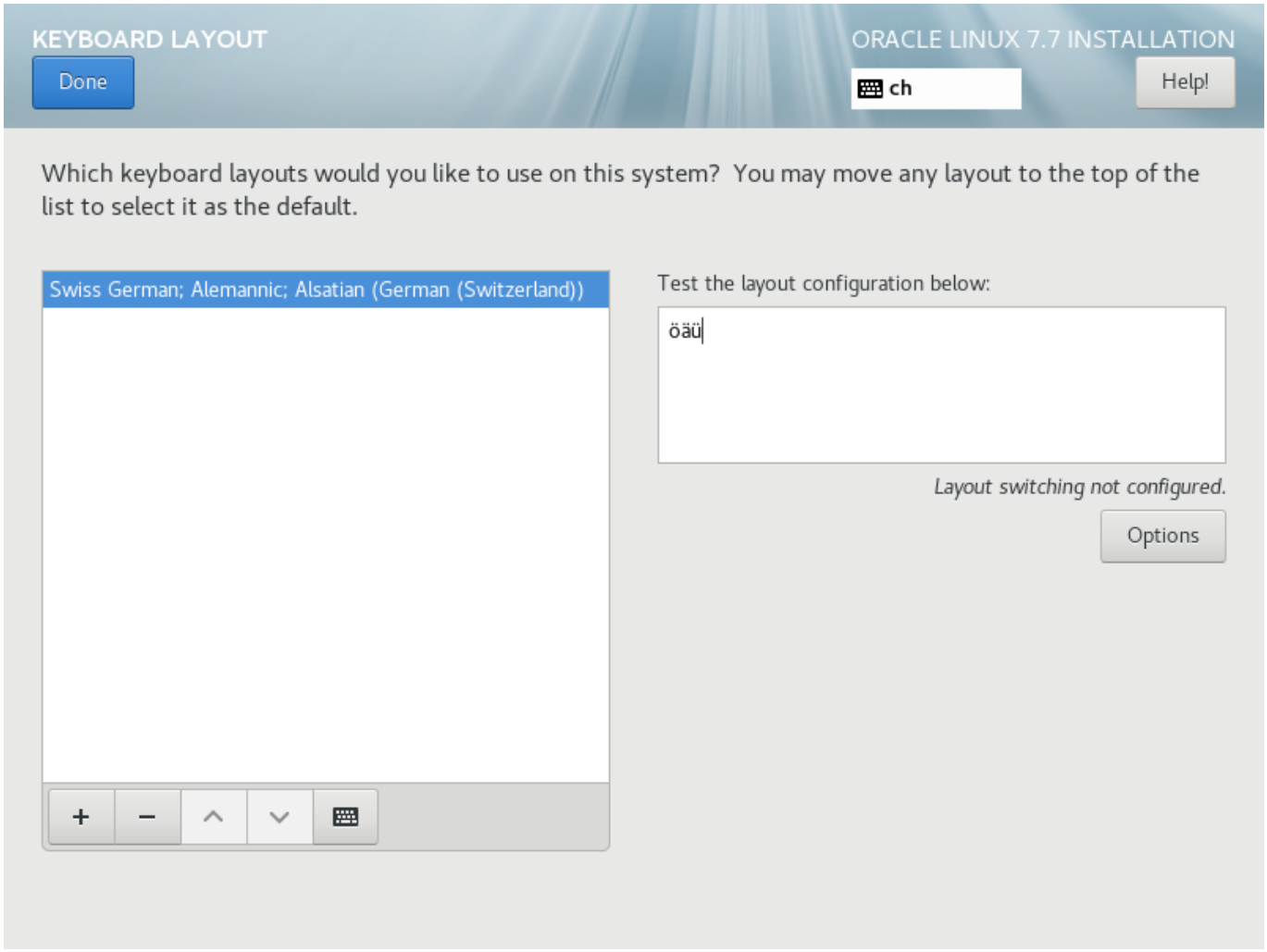
Linux Installation

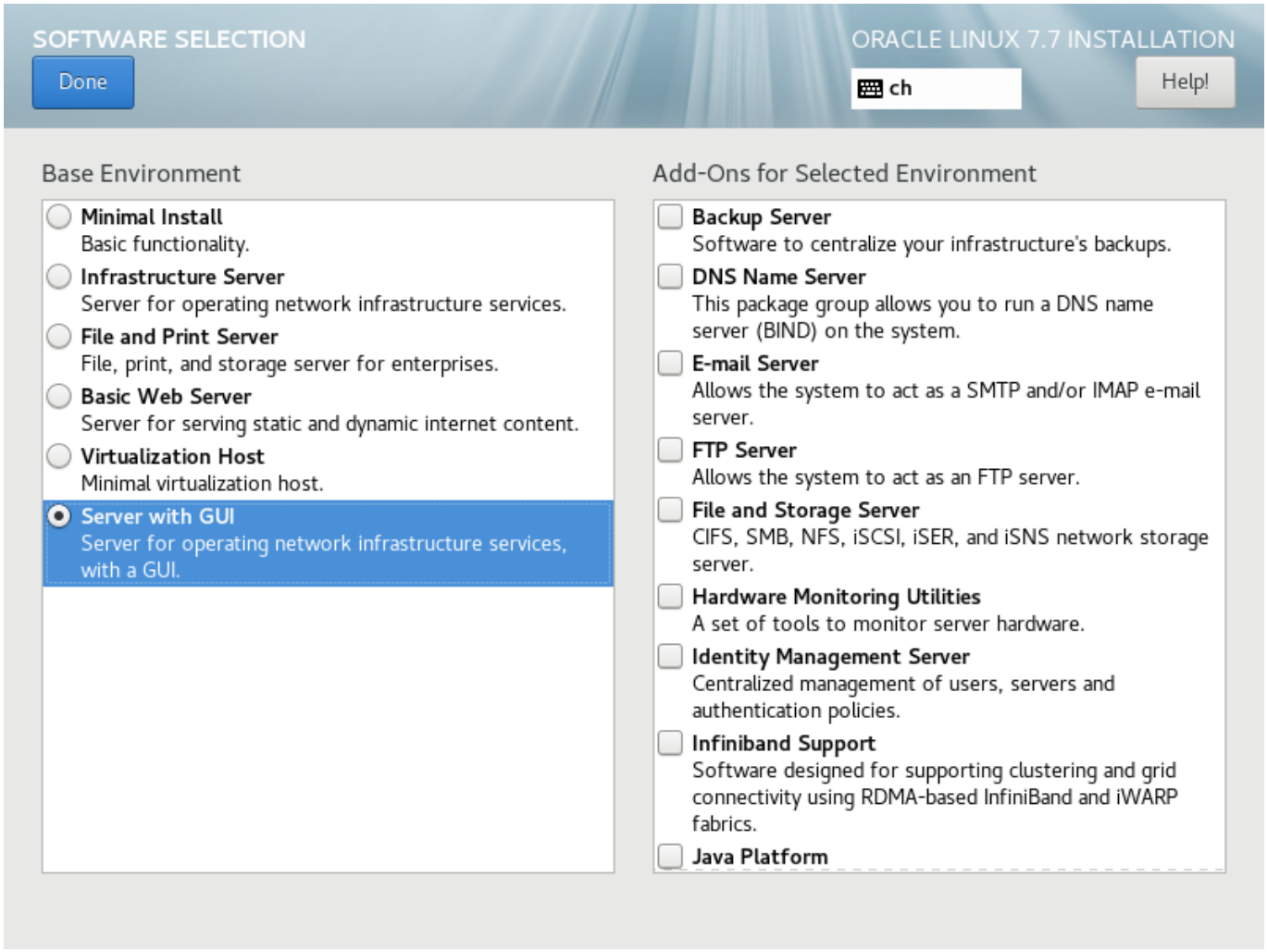
Zeige alle Installationsschritte

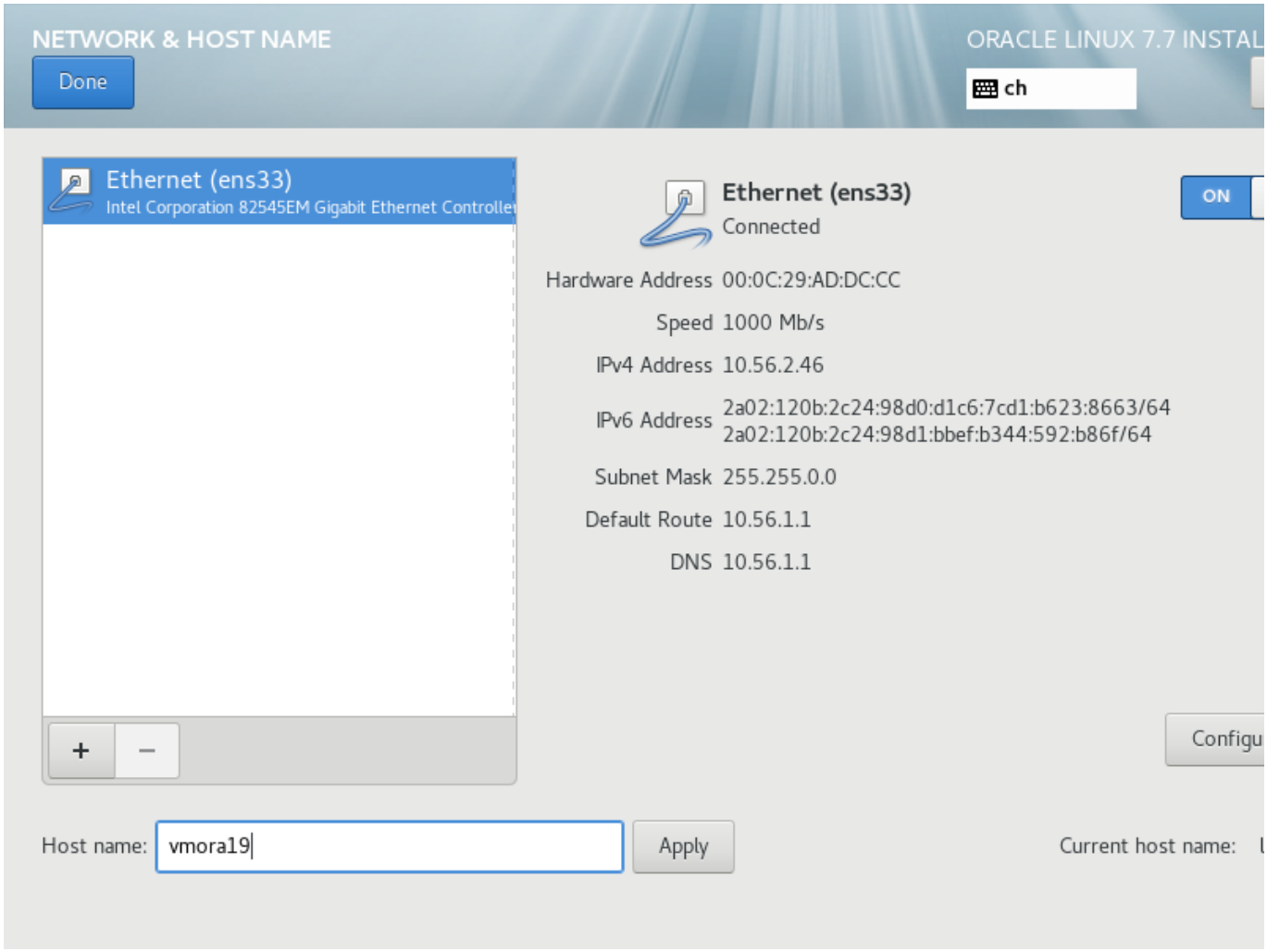

ORACLE LINUX
ORACLE LINUX 7.7 INSTALLATION
us
Help!
WELCOME TO ORACLE LINUX 7.7.
What language would you like to use during the installation process?
English English
Afrikaans Afrikaans
አማርኛ Amharic
العربية Arabic
অসমীয়া Assamese
Asturianu Asturian
Беларуская Belarusian
Български Bulgarian
বাংলা Bengali
English (United States)
English (United Kingdom)
English (India)
English (Australia)
English (Canada)
English (Denmark)
English (Ireland)
English (New Zealand)
English (Nigeria)
English (Hong Kong SAR China)
Quit
Continue

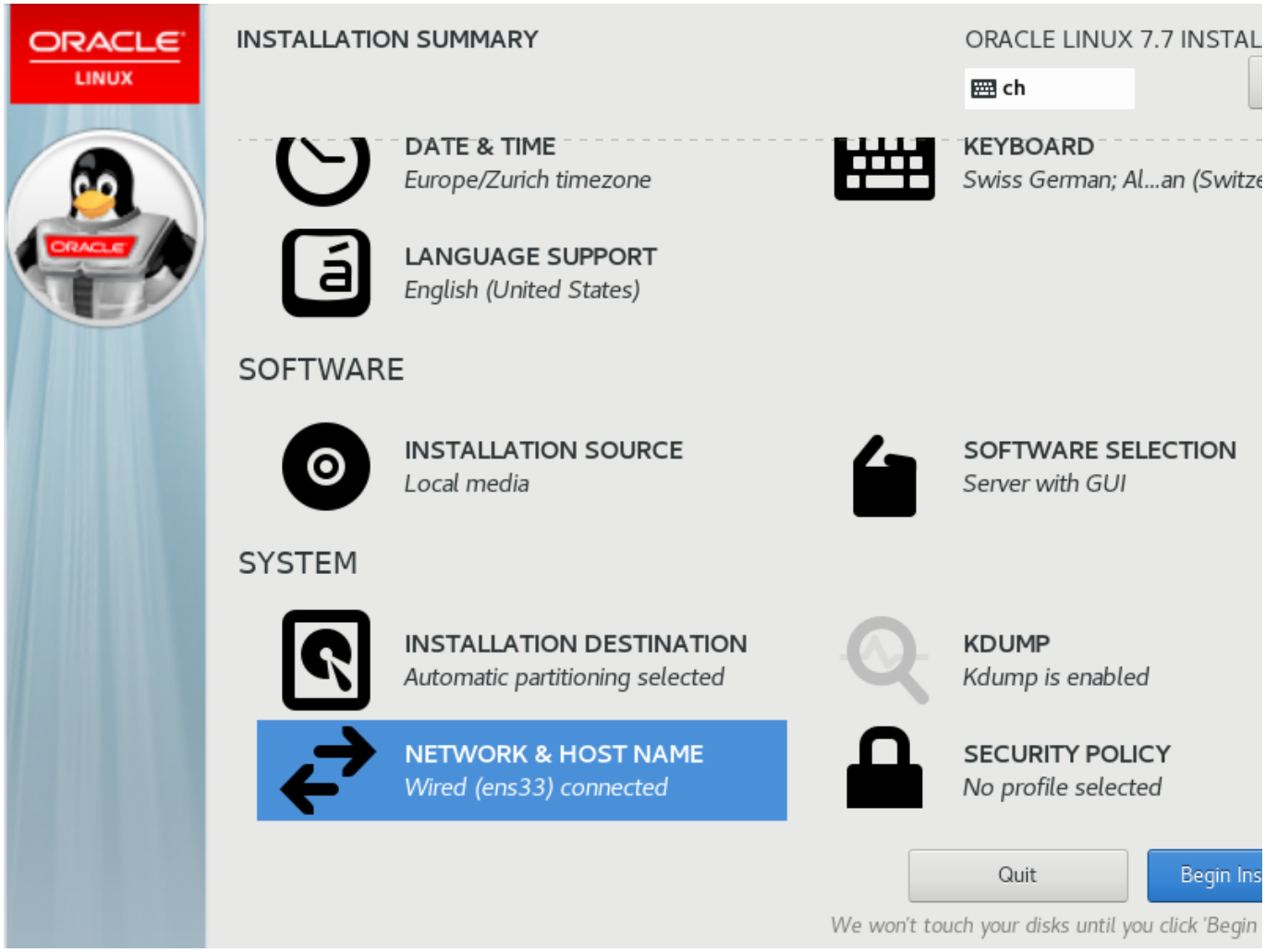

ORACLE LINUX
INSTALLATION SUMMARY
ORACLE LINUX 7.7 INSTALLATION
us
Help!
LOCALIZATION
DATE & TIME
Americas/New York timezone
KEYBOARD
English (US)
LANGUAGE SUPPORT
English (United States)
SOFTWARE
INSTALLATION SOURCE
Local media
SOFTWARE SELECTION
Minimal Install
SYSTEM
INSTALLATION DESTINATION
KDUMP
Quit
Begin Installation
We won't touch your disks until you click 'Begin Installation'.
Please complete items marked with this icon before continuing to the next step.

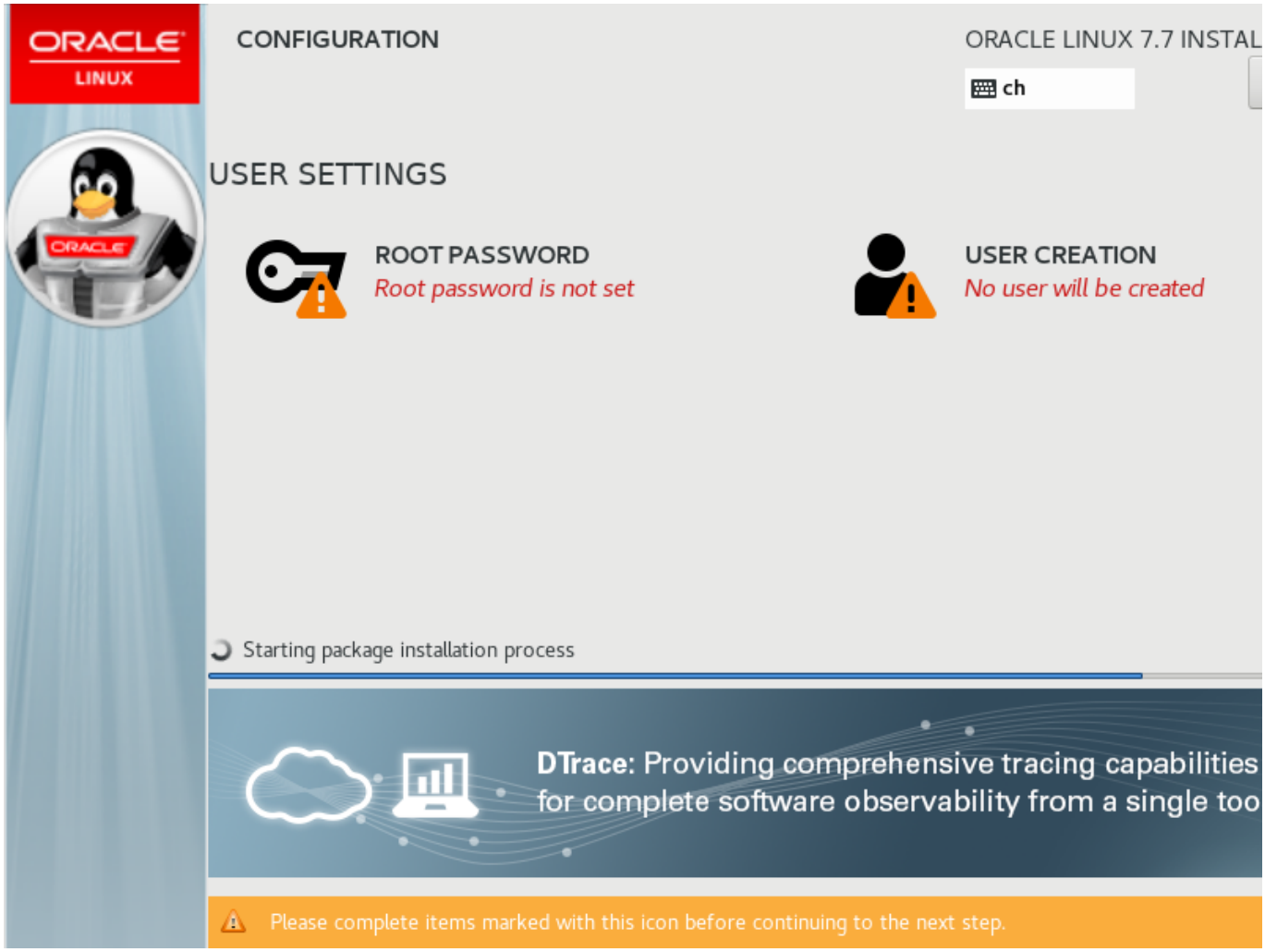

DATE & TIME
Done
ORACLE LINUX 7.7 INSTALLATION
us
Help!
Region: Europe
City: Zurich
Network Time
OFF
12:04 PM
24-hour
AM/PM
09 / 27 / 2019
You need to set up networking first if you want to use NTP

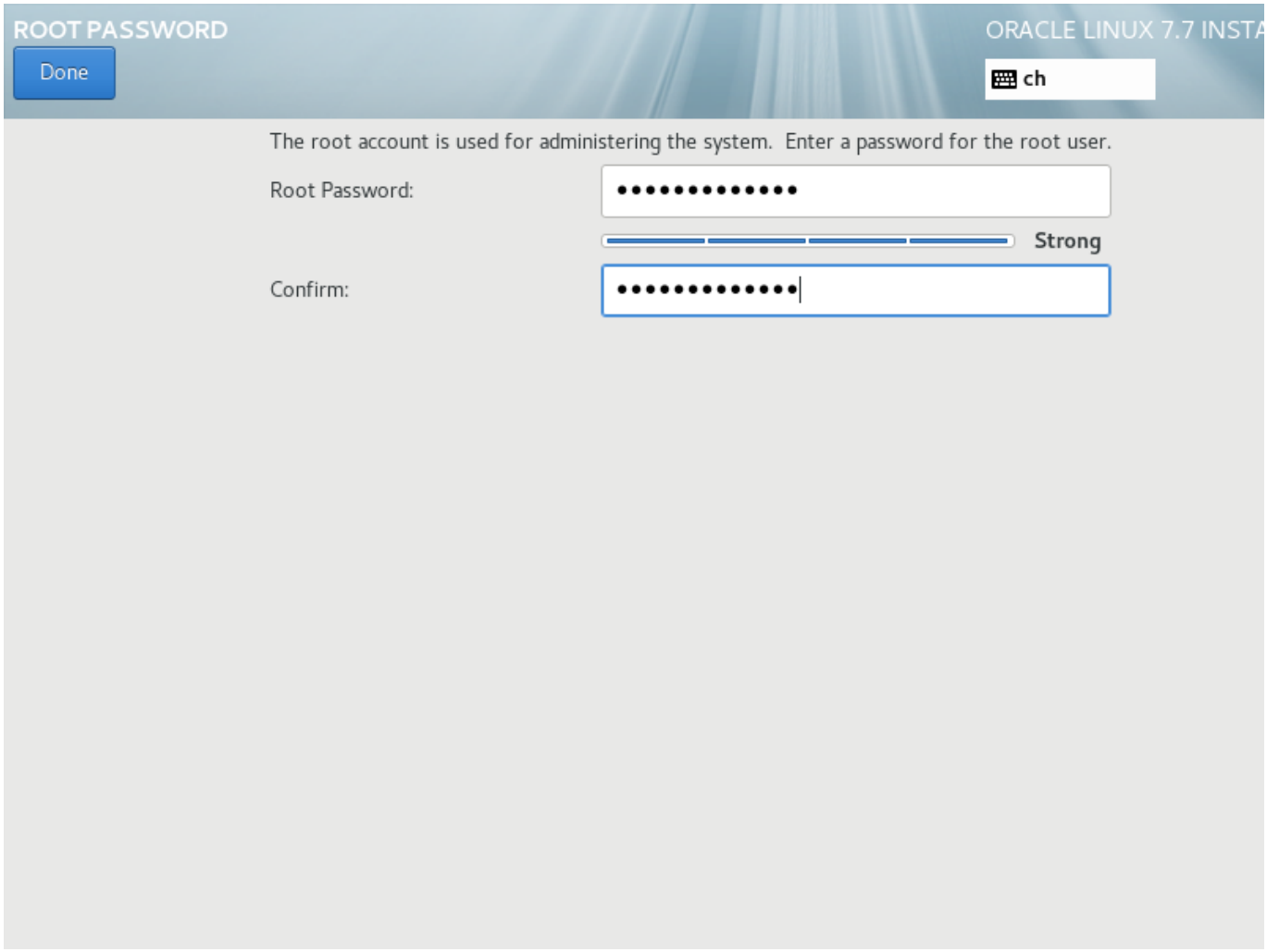

KEYBOARD LAYOUT
Done
ORACLE LINUX 7.7 INSTALLATION
ch
Help!
Which keyboard layouts would you like to use on this system? You may move any layout to the top of the list to select it as the default.
Swiss German; Alemannic; Alsatian (German (Switzerland))
Test the layout configuration below:
öäü
Layout switching not configured.
Options

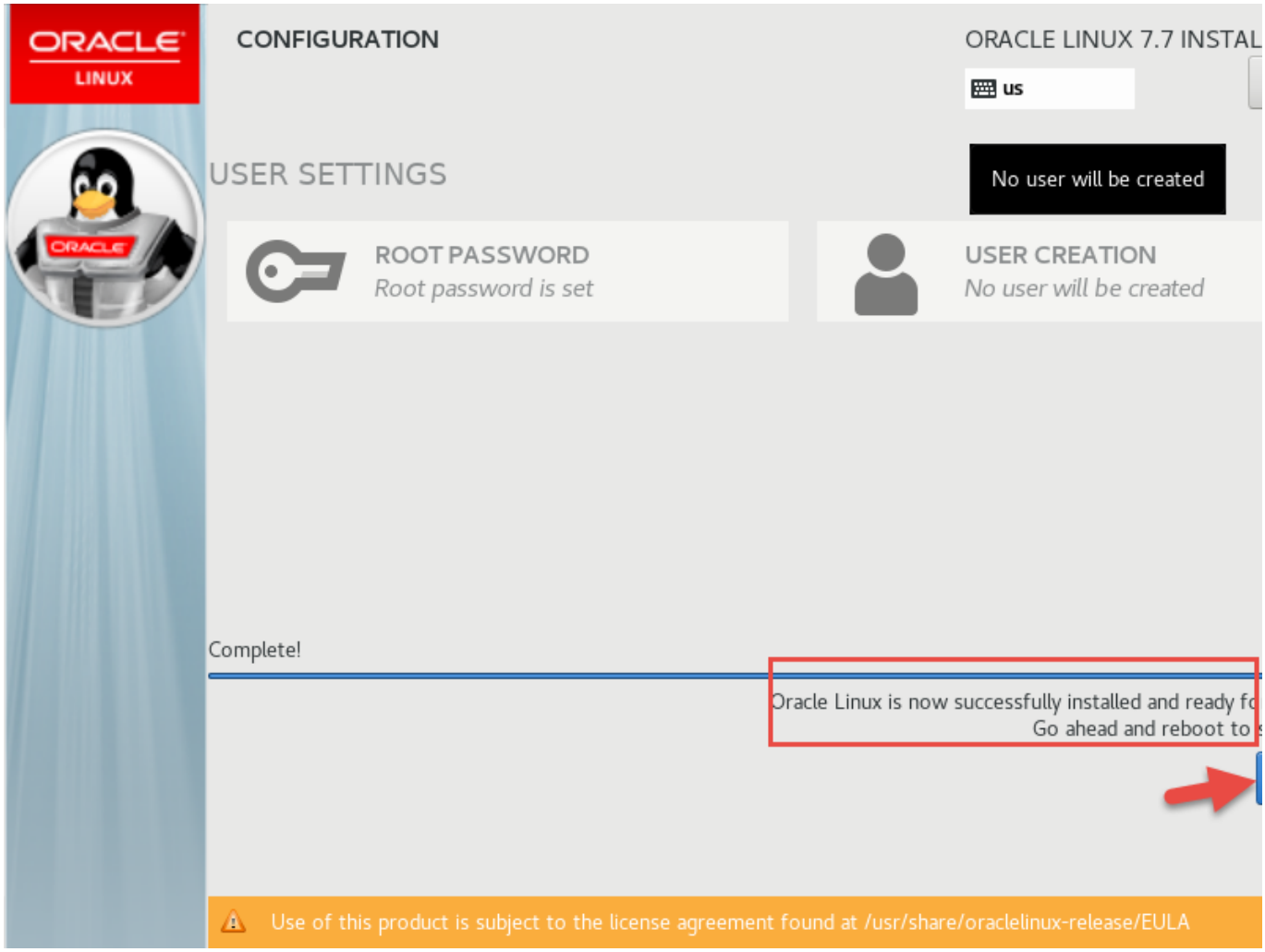

SOFTWARE SELECTION
Done
ORACLE LINUX 7.7 INSTALLATION
ch
Help!
Base Environment
Minimal Install
Basic functionality.
Infrastructure Server
Server for operating network infrastructure services.
File and Print Server
File, print, and storage server for enterprises.
Basic Web Server
Server for serving static and dynamic internet content.
Virtualization Host
Minimal virtualization host.
Server with GUI
Server for operating network infrastructure services, with a GUI.
Add-Ons for Selected Environment
Backup Server
Software to centralize your infrastructure's backups.
DNS Name Server
This package group allows you to run a DNS name server (BIND) on the system.
E-mail Server
Allows the system to act as a SMTP and/or IMAP e-mail server.
FTP Server
Allows the system to act as an FTP server.
File and Storage Server
CIFS, SMB, NFS, iSCSI, iSER, and iSNS network storage server.
Hardware Monitoring Utilities
A set of tools to monitor server hardware.
Identity Management Server
Centralized management of users, servers and authentication policies.
Infiniband Support
Software designed for supporting clustering and grid connectivity using RDMA-based InfiniBand and iWARP fabrics.
Java Platform


NETWORK & HOST NAME
Done
ORACLE LINUX 7.7 INSTAL
ch
Ethernet (ens33)
Intel Corporation 82545EM Gigabit Ethernet Controlle
Ethernet (ens33)
Connected
ON
Hardware Address 00:0C:29:AD:DC:CC
Speed 1000 Mb/s
IPv4 Address 10.56.2.46
IPv6 Address 2a02:120b:2c24:98d0:d1c6:7cd1:b623:8663/64
2a02:120b:2c24:98d1:bbef:b344:592:b86f/64
Subnet Mask 255.255.0.0
Default Route 10.56.1.1
DNS 10.56.1.1
+
−
Configu
Host name: vmora19
Apply
Current host name:


ORACLE
LINUX
INSTALLATION SUMMARY
ORACLE LINUX 7.7 INSTAL
ch
DATE & TIME
Europe/Zurich timezone
KEYBOARD
Swiss German; Al...an (Switze
LANGUAGE SUPPORT
English (United States)
SOFTWARE
INSTALLATION SOURCE
Local media
SOFTWARE SELECTION
Server with GUI
SYSTEM
INSTALLATION DESTINATION
Automatic partitioning selected
KDUMP
Kdump is enabled
NETWORK & HOST NAME
Wired (ens33) connected
SECURITY POLICY
No profile selected
Quit
Begin Ins
We won't touch your disks until you click 'Begin


ORACLE
LINUX
CONFIGURATION
ORACLE LINUX 7.7 INSTAL
ch
USER SETTINGS
ROOT PASSWORD
Root password is not set
USER CREATION
No user will be created
Starting package installation process
DTrace: Providing comprehensive tracing capabilities
for complete software observability from a single too
Please complete items marked with this icon before continuing to the next step.


ROOT PASSWORD
Done
ORACLE LINUX 7.7 INSTA
ch
The root account is used for administering the system. Enter a password for the root user.
Root Password:
Strong
Confirm:



An diesem Punkt des grafischen Setups halten wir inne. Vor der Fortsetzung muss das Paket „Oracle

19c preinstall“ installiert werden welches benötigte Komponenten hinzufügt und den Benutzer „oracle“ anlegt den wir im GUI verwenden wollen.

Aktualisierung und Datenbank Installationsvorbereitung

Öffnen sie mit PuTTY eine SSH Terminalverbindung zu „vmora19“ und melden sie sich als root mit dem oben festgelegten Passwort an.

Software aktualisieren:

```
# yum -y update
```

„Oracle 19c preinstall“ installieren:

```
# yum install -y oracle-database-preinstall-19c
```

Definieren eines Passworts für Benutzer „oracle“ damit wir uns anmelden können:

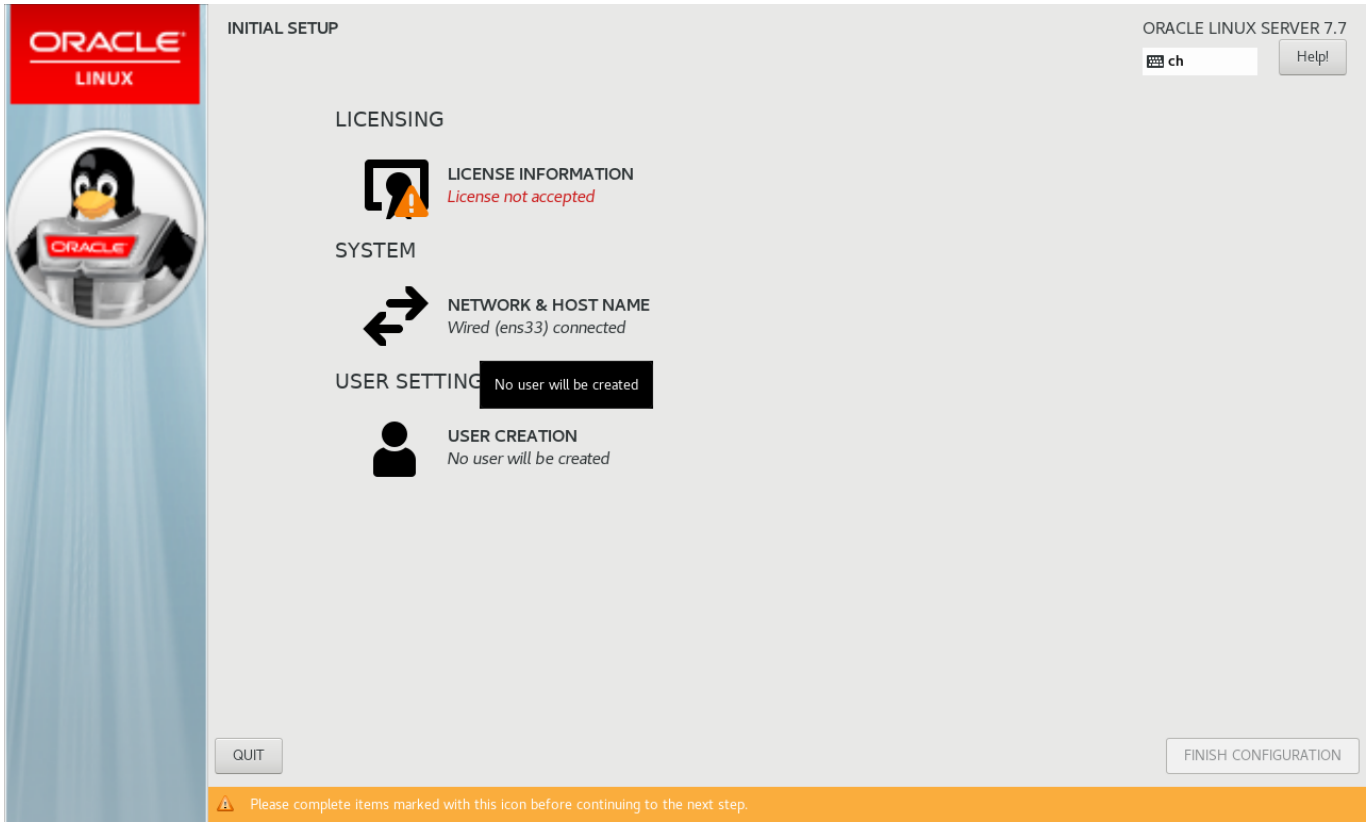
```
# passwd oracle
```

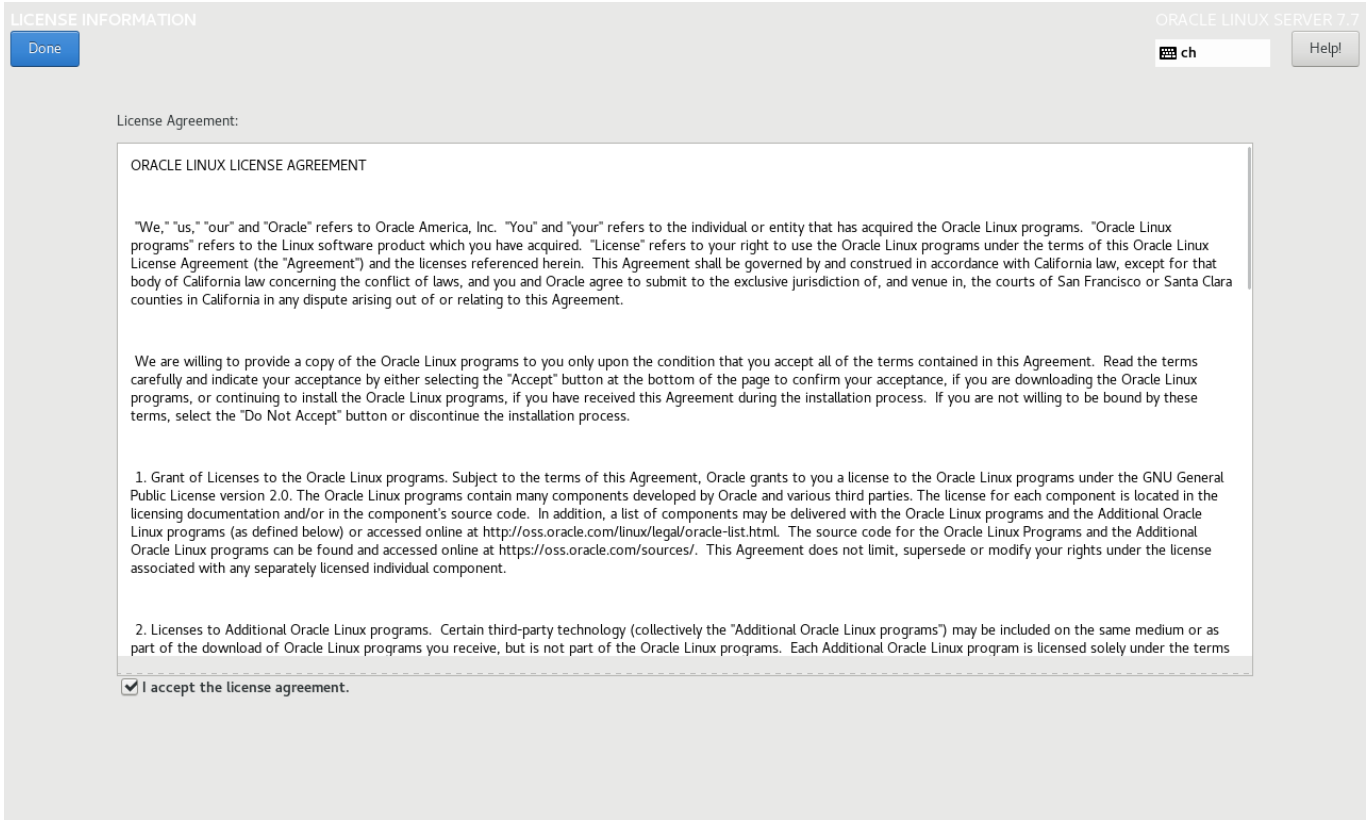
Neustart:

```
# reboot
```

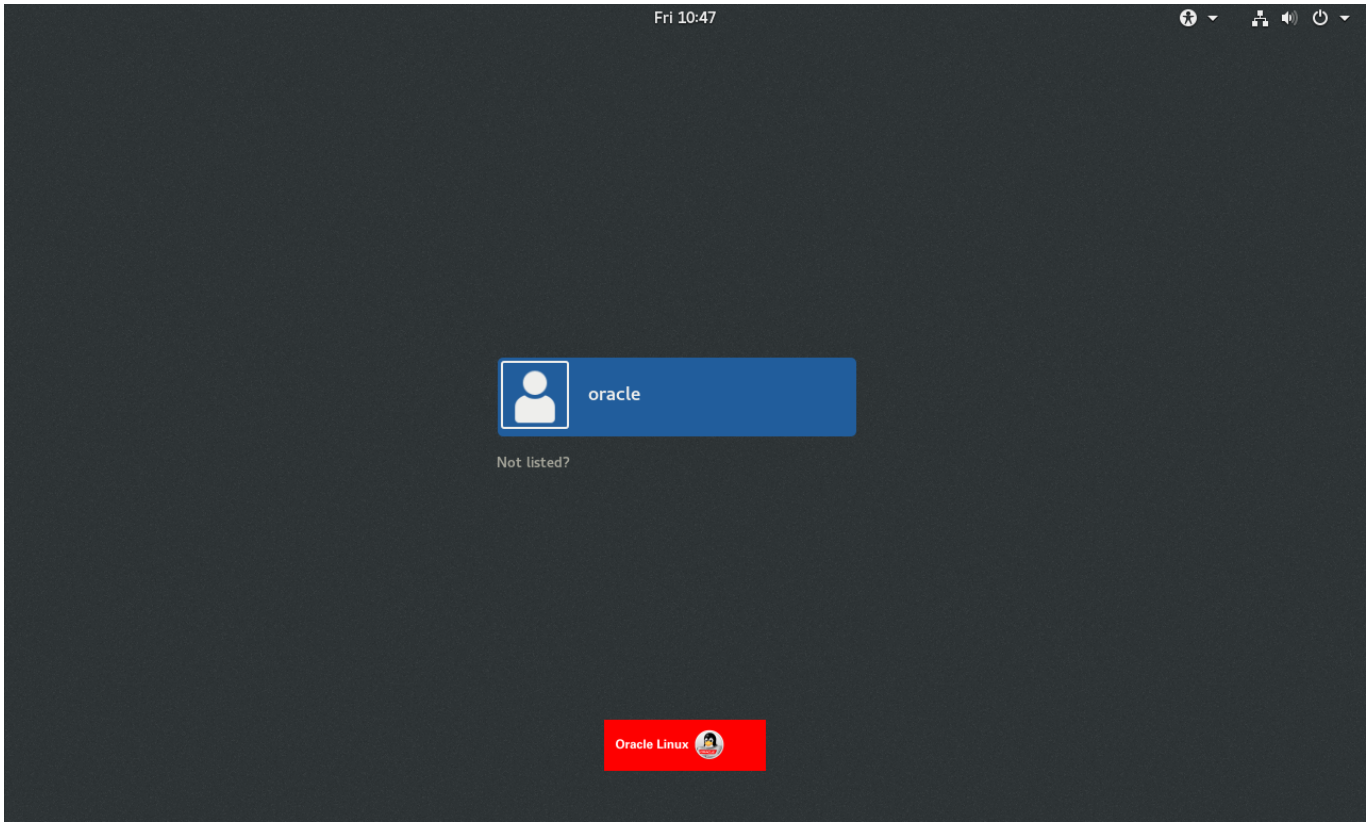
Grafisches Setup beenden

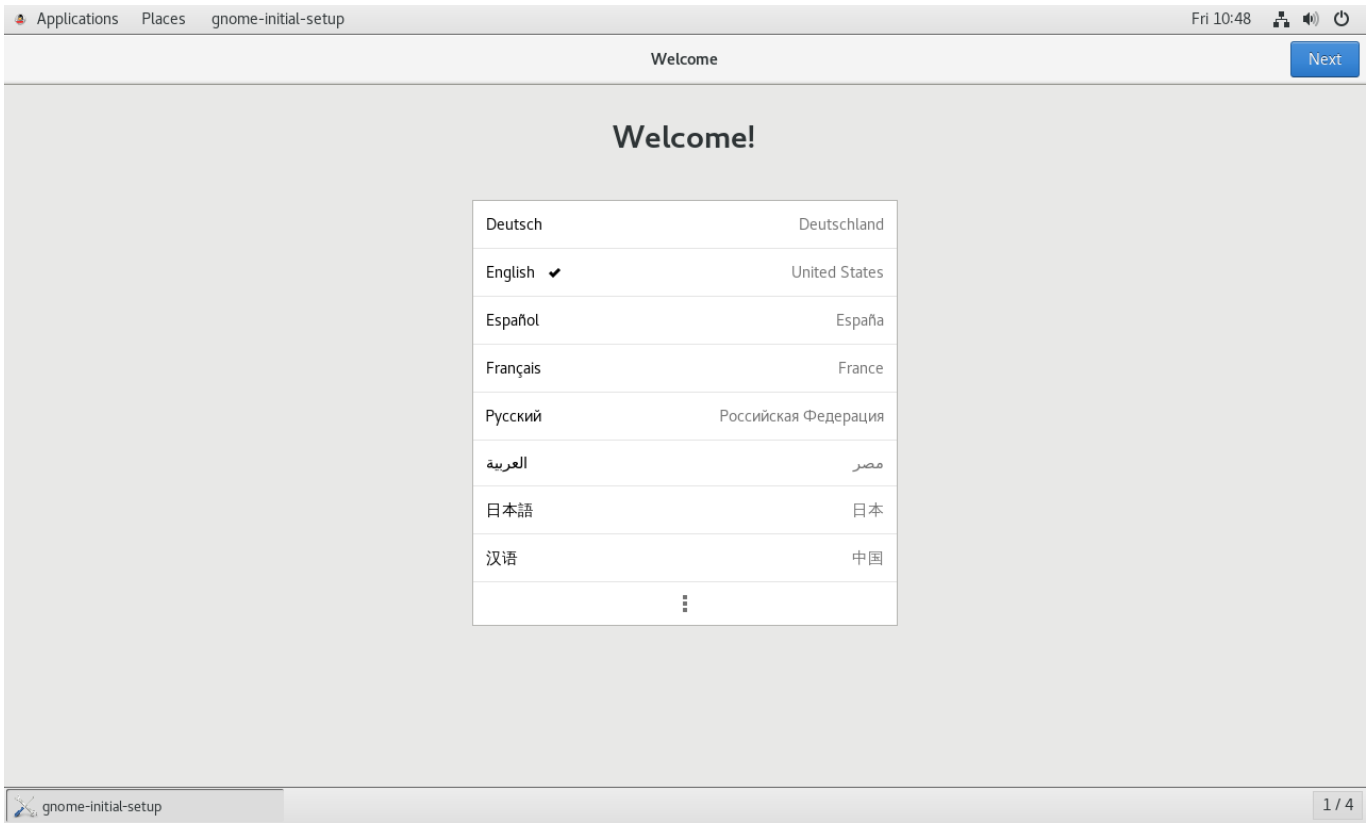
Zeige abschliessende Schritte

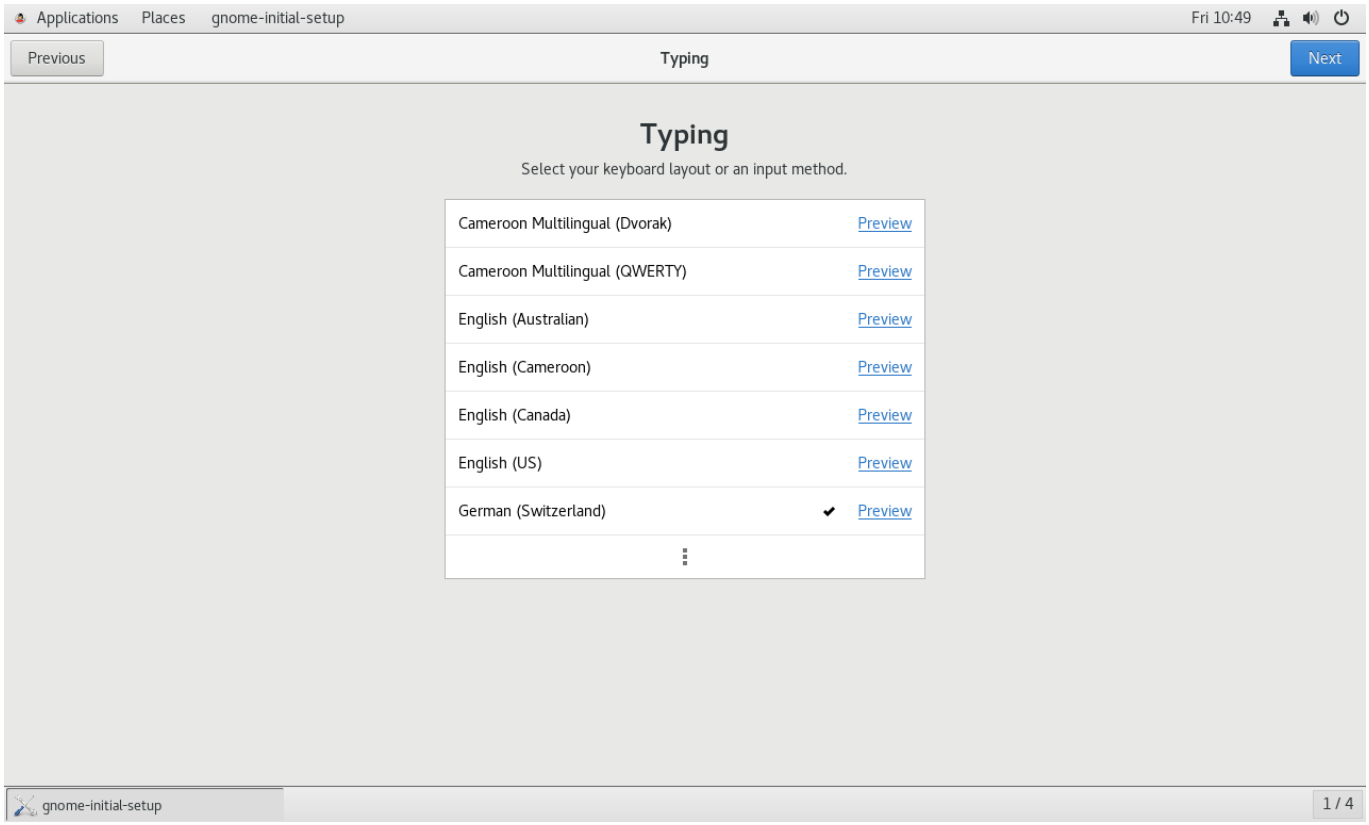


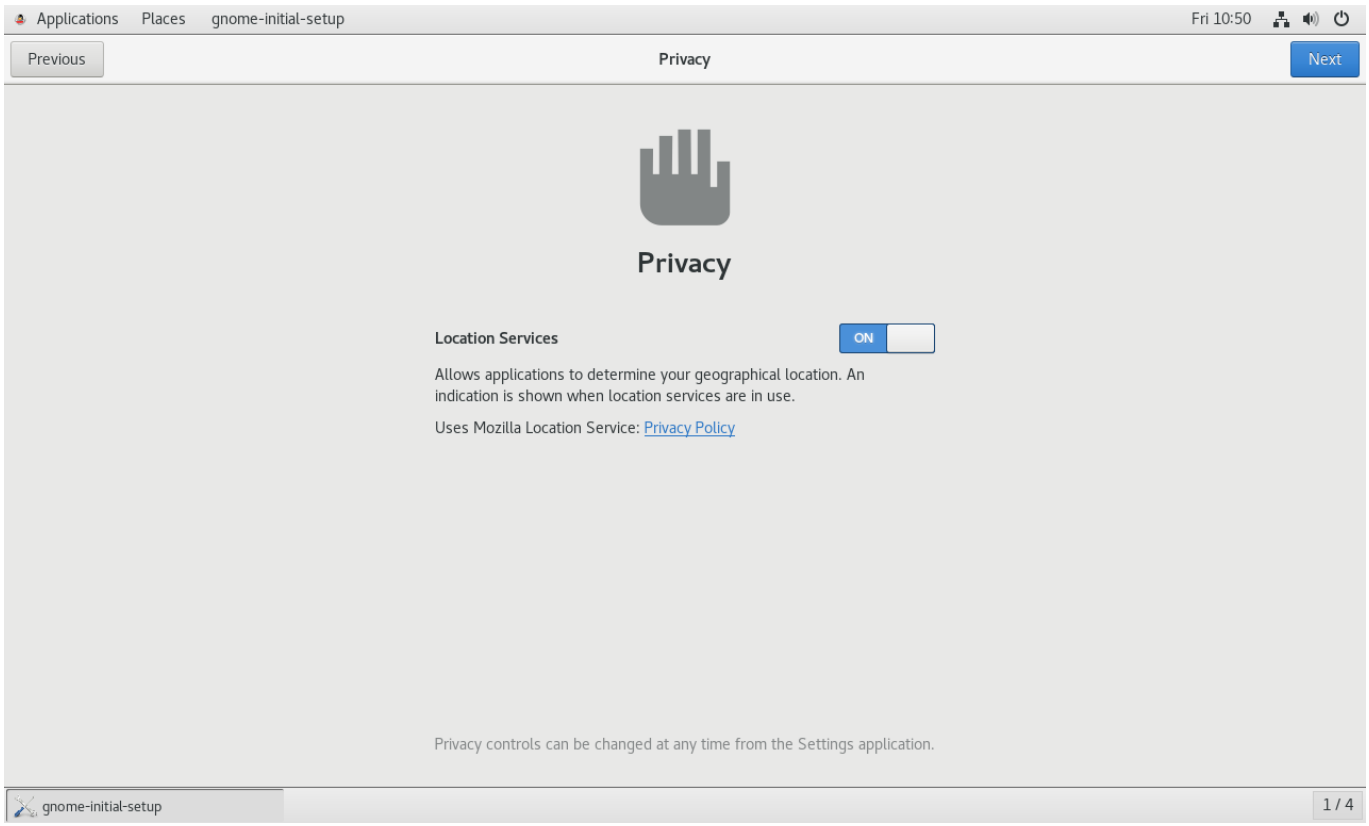


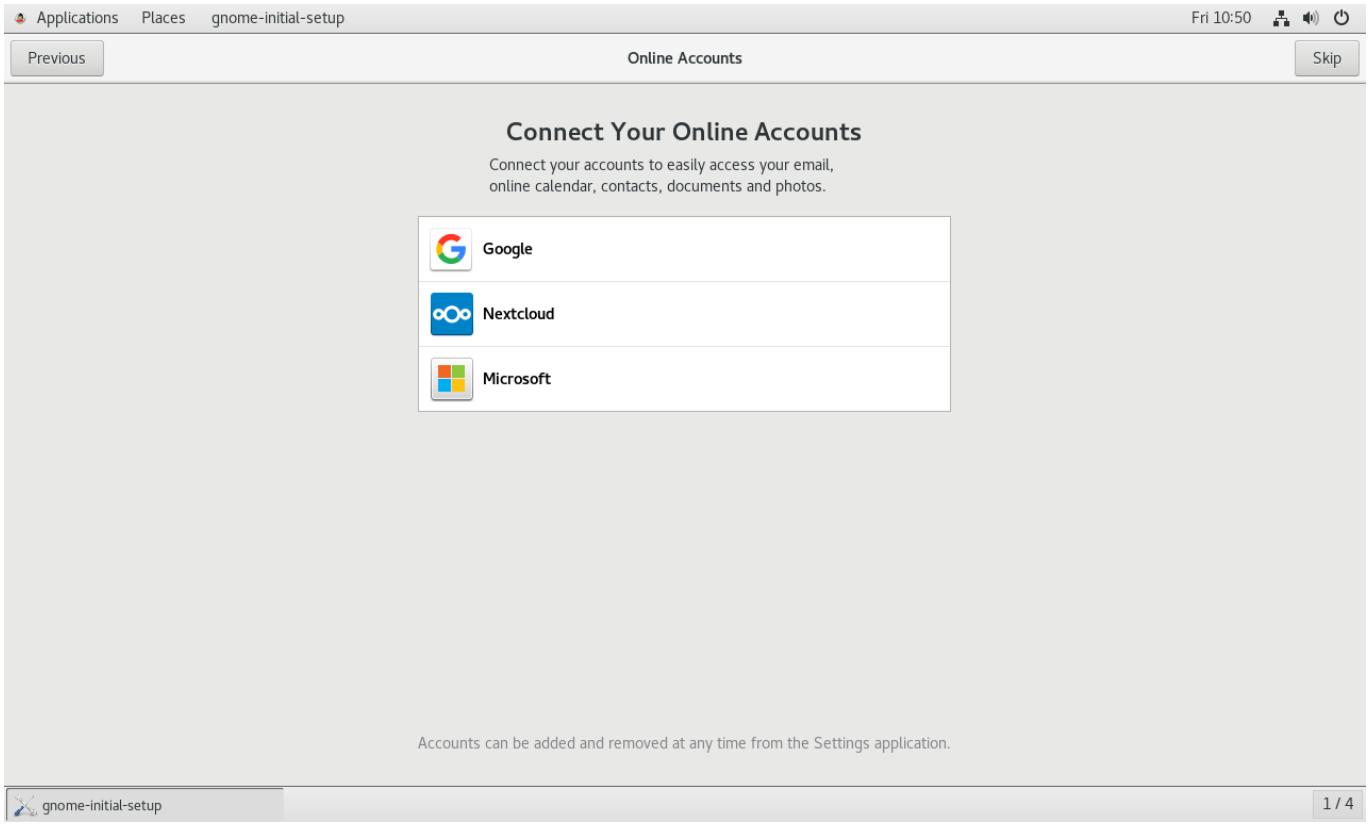
Anmelden als "oracle" und gnome Benuzerkonfiguration durchführen

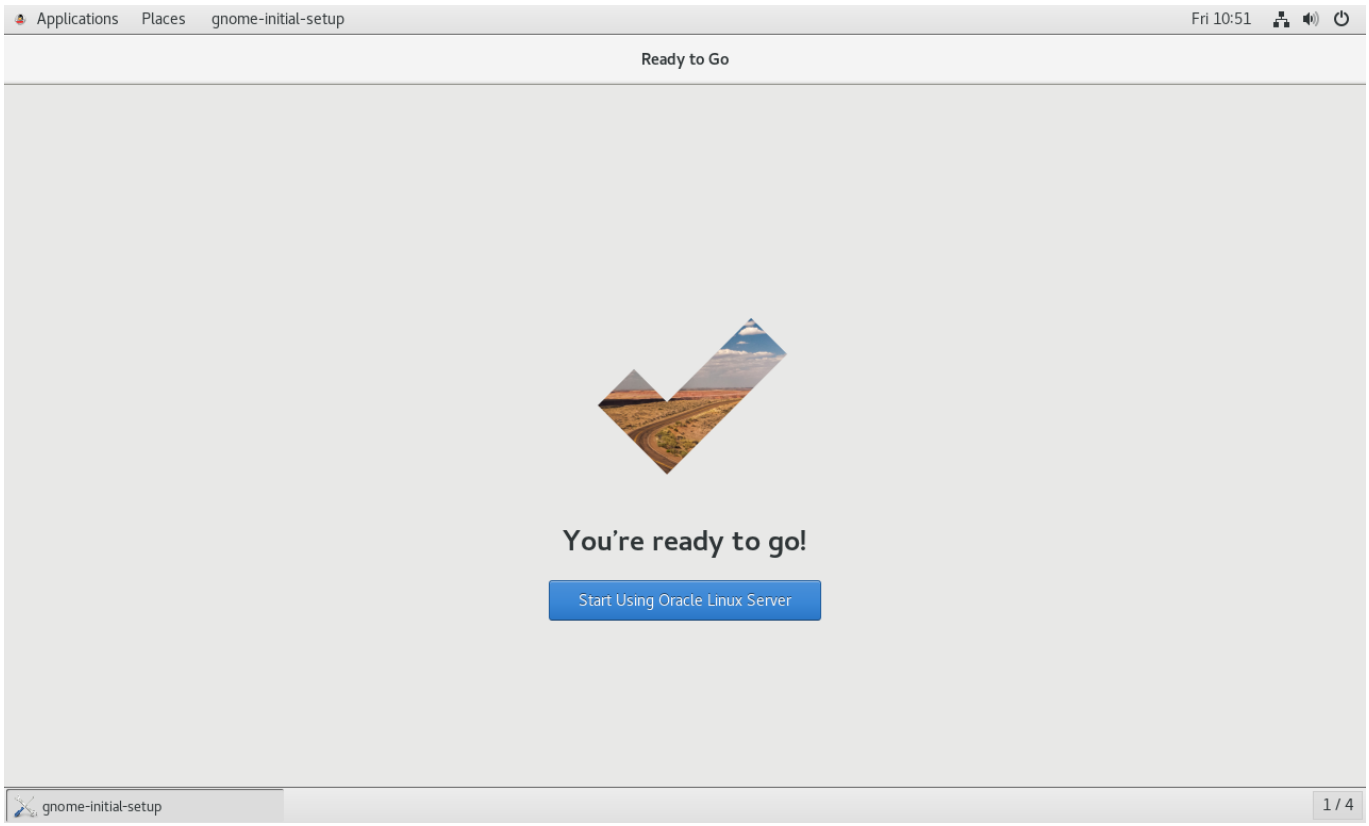

Fri 10:47
oracle
Not listed?
Oracle Linux

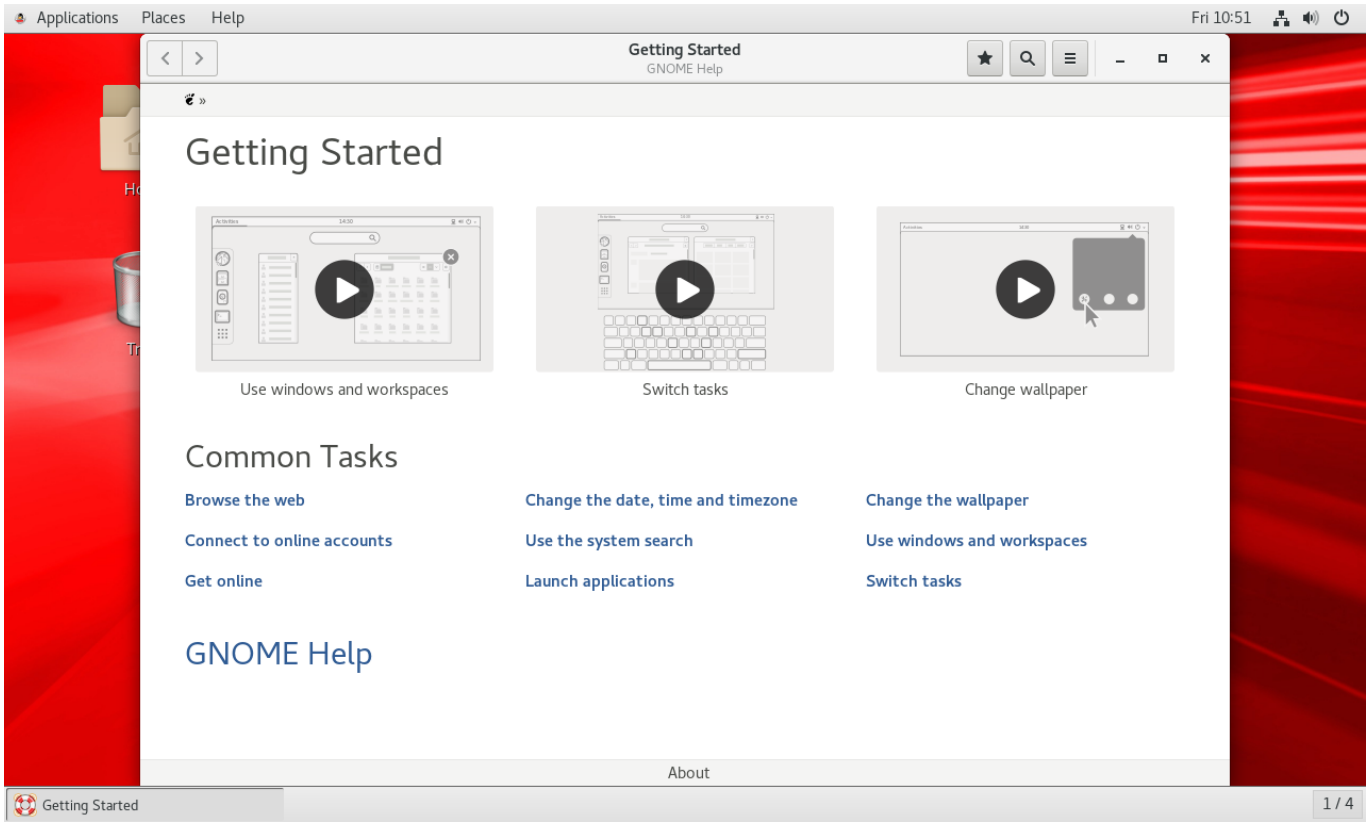

Applications
Places
gnome-initial-setup
Fri 10:48
Welcome
Next
Welcome!
Deutsch
Deutschland
English
United States
Español
España
Français
France
Русский
Российская Федерация
العربية
مصر
日本語
日本
汉语
中国
gnome-initial-setup
1 / 4


Applications
Places
gnome-initial-setup
Fri 10:49
Previous
Typing
Next
Typing
Select your keyboard layout or an input method.
Cameroon Multilingual (Dvorak) Preview
Cameroon Multilingual (QWERTY) Preview
English (Australian) Preview
English (Cameroon) Preview
English (Canada) Preview
English (US) Preview
German (Switzerland) Preview
gnome-initial-setup
1 / 4

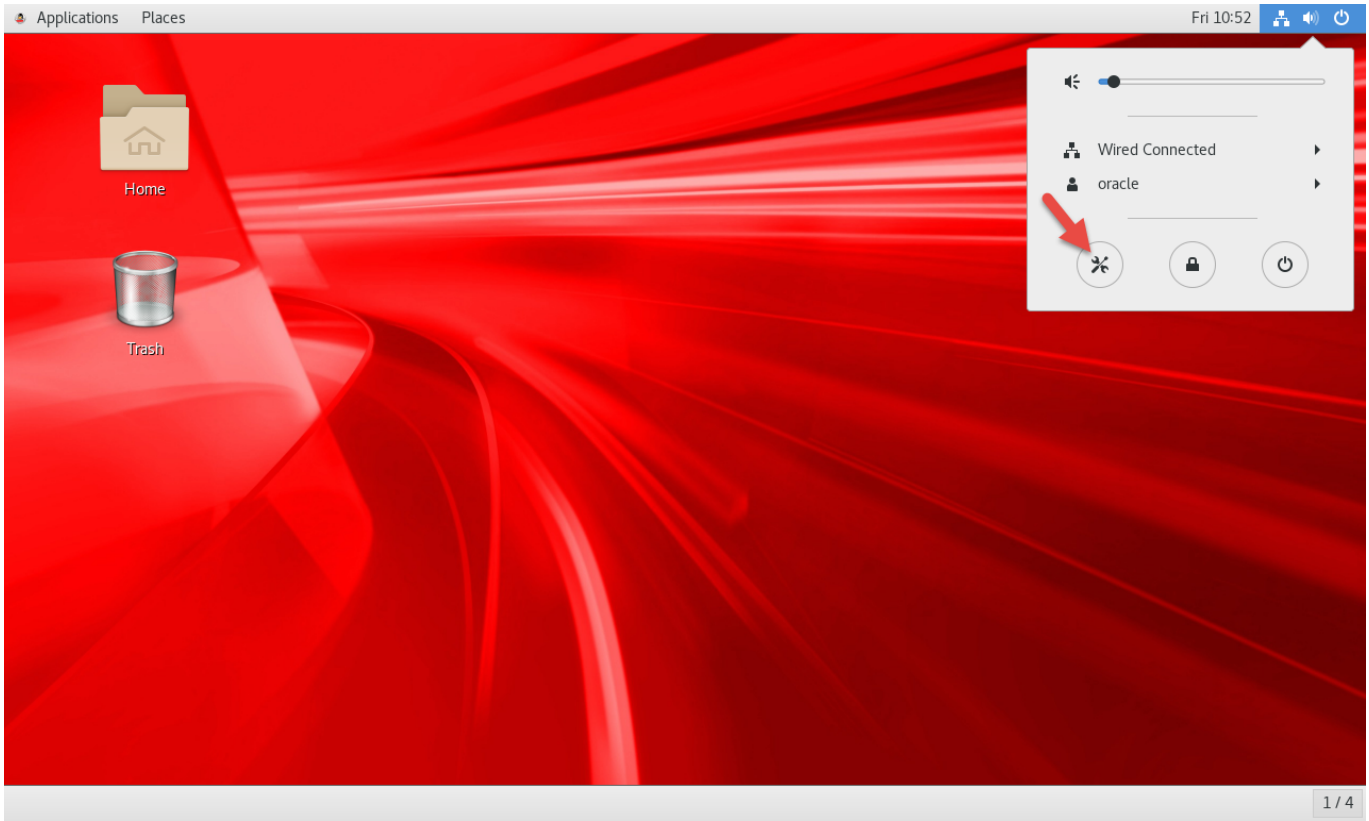

Applications
Places
gnome-initial-setup
Fri 10:50
Previous
Privacy
Next
Privacy
Location Services
ON
Allows applications to determine your geographical location. An indication is shown when location services are in use.
Uses Mozilla Location Service: Privacy Policy
Privacy controls can be changed at any time from the Settings application.
gnome-initial-setup
1 / 4

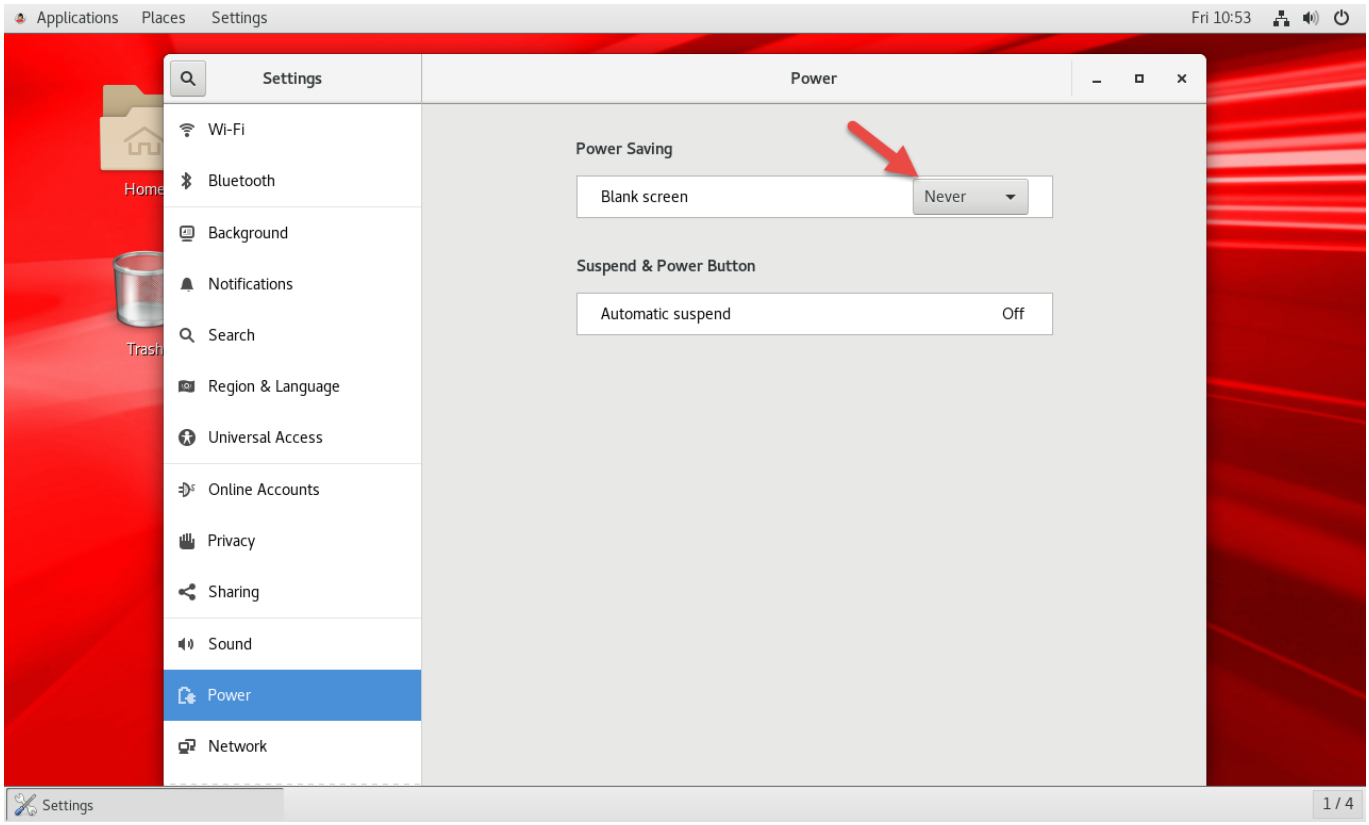

Applications
Places
gnome-initial-setup
Fri 10:50
Previous
Online Accounts
Skip
Connect Your Online Accounts
Connect your accounts to easily access your email, online calendar, contacts, documents and photos.
Google
Nextcloud
Microsoft
Accounts can be added and removed at any time from the Settings application.
gnome-initial-setup
1 / 4


Applications
Places
gnome-initial-setup
Fri 10:51
Ready to Go
You're ready to go!
Start Using Oracle Linux Server
gnome-initial-setup
1 / 4



Bildschirm Timeout abschalten



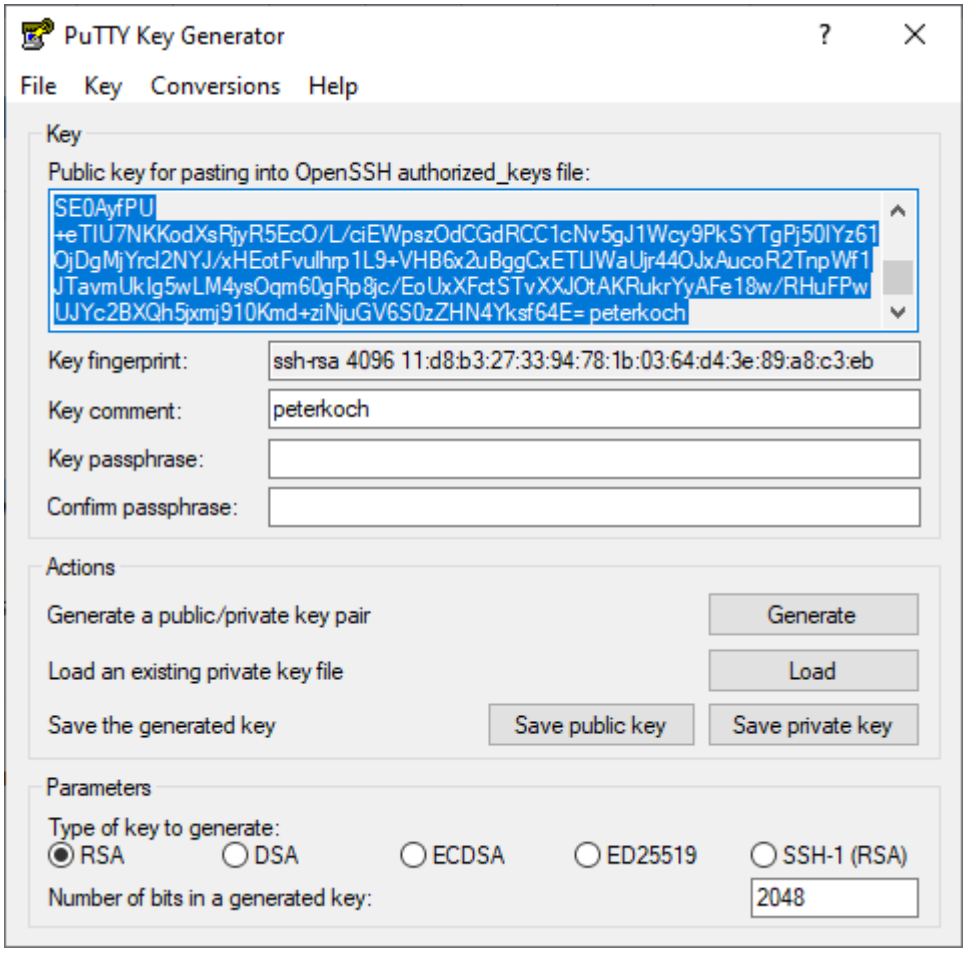


SSH Schlüssenauthorisierung für root

Verzeichnis ~/.ssh und Schlüssel generieren:

```
# ssh-keygen -t rsa -b 4096
    <enter>
    <enter>
    <enter>
```

Persönlichen Schlüssel in PuTTYgen laden, und den Public Key ins die Zwischenablage kopieren:



Public Key des persönlichen Schlüssels zu authorized_keys hinzufügen:

```
# nano ~/.ssh/authorized_keys
<paste>
```

Passwortanmeldung für SSH Verbindungen ausschalten:

```
# nano /etc/ssh/sshd_config
...
PasswordAuthentication no
...
```

SSH neu starten:

```
# service sshd restart
```

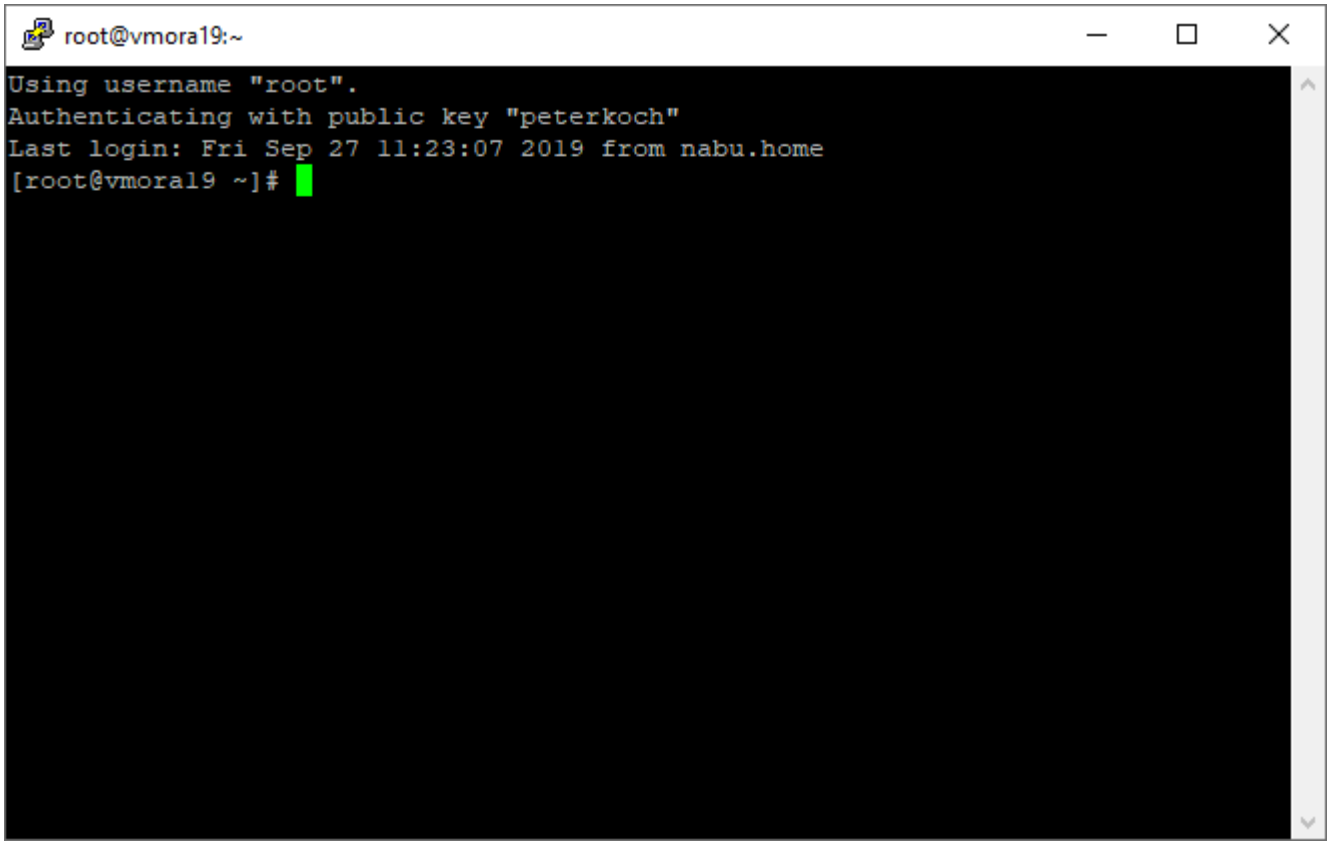
Aktuelles PuTTY Terminal zur Sicherheit noch offen lassen.

In PuTTY eine Session für root erzeugen und testen:

- Session
  - Host Name: ora19
  - Port: 22 / SSH
- Connection
  - Data
    - Auto-login username: root

        - SSH
            - Auth
                - Private key file: (Speicherort meiner ppk Datei)
- Session
    - Saved sessions: ora19 - root
    - Save

Testen ob das Autologin funktioniert:



Motd Logo

Logo erzeugen bei http://www.network-science.de/ascii/

- Text: vmora19
- Font: slant
- Reflection: no
- Adjustment: center
- Stretch: no
- Width: 80
- do it!

Logo in Zwischenablage kopieren und in motd einfügen

```
# nano /etc/motd
<paste>
```

rlwrap für Cursortasten in SqlPlus installieren

```
# wget
https://dl.fedoraproject.org/pub/epel/epel-release-latest-7.noarch.rpm
# rpm -ivh epel-release-latest-7.noarch.rpm
# yum -y install rlwrap
```

SELinux auf Permissive ändern

```
# nano /etc/selinux/config
SELINUX=permissive
```

```
# setenforce permissive
```

Firewall ausschalten

```
# systemctl stop firewalld
# systemctl disable firewalld
```

Oracle Verzeichnisse anlegen

```
# mkdir -p /u01/app/oracle/product/19.3.0/dbhome_1
# mkdir -p /u02/oradata
# mkdir -p /u02/orafra
# chown -R oracle:oinstall /u01 /u02
# chmod -R 775 /u01 /u02
```

SSH Login für Benutzer oracle

Analog wie bei root:

```
# su oracle
```

```
$ ssh-keygen -t rsa -b 4096
    <enter>
    <enter>
    <enter>
```

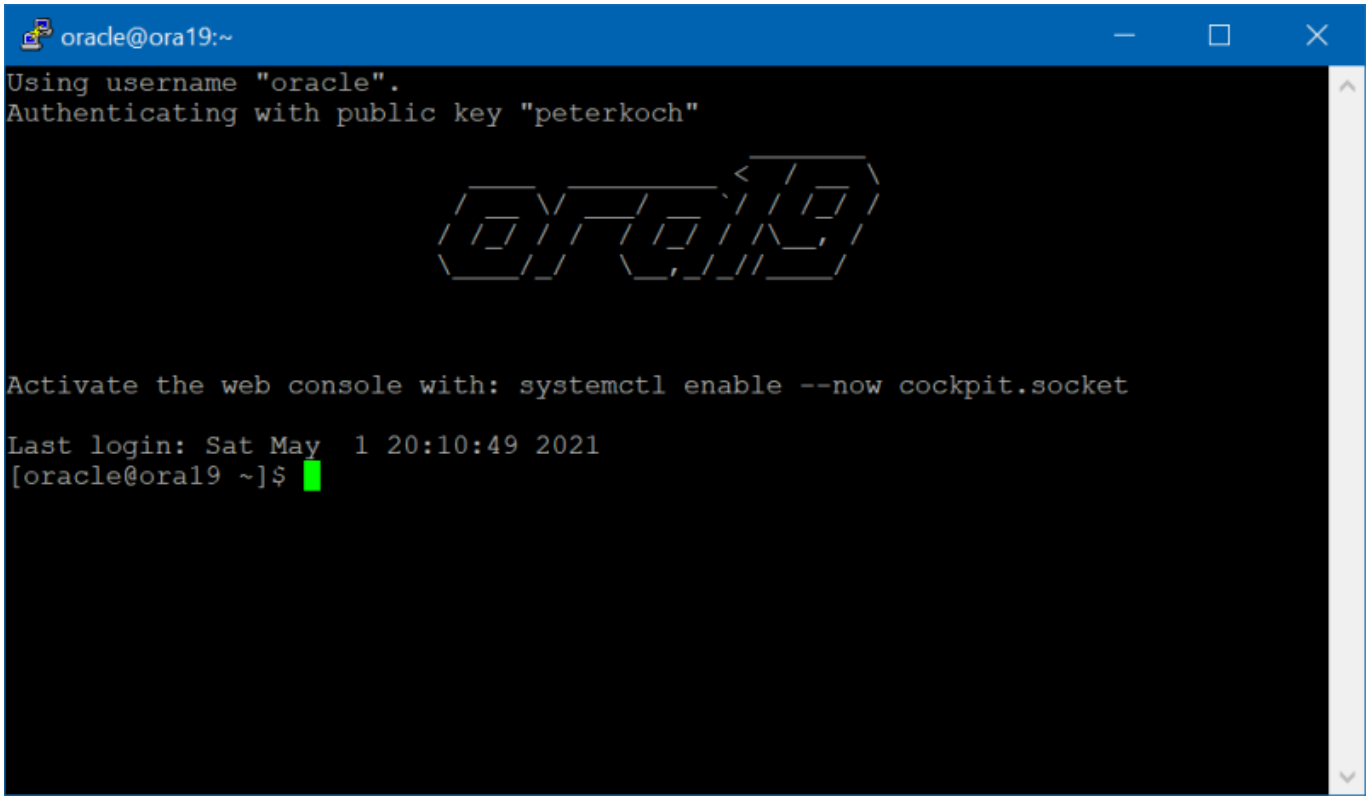
```
$ nano ~/.ssh/authorized_keys
<paste des eigenen Public Key>
```

PuTTY Session anlegen

- Session „vmora19 - root“ laden
- Auto-login username ändern auf: oracle

- Session speichern als „vmora19 - oracle“

Testen ob es funktioniert:




```
$ exit
# reboot
```

Oracle Database 19c Software beschaffen

Download von https://www.oracle.com/database/technologies/oracle19c-linux-downloads.html

- Auswählen: LINUX.X64_193000_db_home.zip
- Lizenzvereinbarung akzeptieren
- Auf „Download“ klicken
- Mit eigenem Oracle Konto anmelden (ggf. kostenlose Registrierung möglich)
- Datei auf eigenem Arbeitsplatz-PC abspeichern

Filezilla verwenden um sich als oracle per SFTP/SSH zu verbinden, dann LINUX.X64_193000_db_home.zip hochladen nach /home/oracle

Vorbereitungen als Benutzer oracle

Skripte erzeugen

```
$ mkdir ~/scripts
$ nano ~/scripts/setEnv.sh
```

~/scripts/setEnv.sh

```
# Oracle Settings
export TMP=/tmp
export TMPDIR=$TMP

export ORACLE_HOSTNAME=ora19
export ORACLE_UNQNAME=cdb1
export ORACLE_BASE=/u01/app/oracle
export ORACLE_HOME=$ORACLE_BASE/product/19.3.0/dbhome_1
export ORA_INVENTORY=/u01/app/oraInventory
export ORACLE_SID=cdb1
export PDB_NAME=pdb1
export DATA_DIR=/u02/oradata

export PATH=/usr/sbin:/usr/local/bin:$PATH
export PATH=$ORACLE_HOME/bin:$PATH

export LD_LIBRARY_PATH=$ORACLE_HOME/lib:/lib:/usr/lib
export CLASSPATH=$ORACLE_HOME/jlib:$ORACLE_HOME/rdbms/jlib
```

```
$ nano ~/scripts/start_all.sh
```

~/scripts/start_all.sh

```
#!/bin/bash
. /home/oracle/scripts/setEnv.sh

export ORAENV_ASK=NO
. oraenv
export ORAENV_ASK=YES

dbstart $ORACLE_HOME
```

```
$ nano ~/scripts/stop_all.sh
```

~/scripts/stop_all.sh

```
#!/bin/bash
. /home/oracle/scripts/setEnv.sh

export ORAENV_ASK=NO
. oraenv
export ORAENV_ASK=YES

dbshut $ORACLE_HOME
```

Skripte ausführbar machen:

```
$ chmod u+x ~/scripts/*.sh
```

An Datei .bash_profile anhängen:

```
$ nano ~/.bash_profile
```

~/.bash_profile

```
. /home/oracle/scripts/setEnv.sh
alias sqlplus="rlwrap sqlplus"
```

Abmelden, und erneut als oracle anmelden, dann:

```
$ cd $ORACLE_HOME
$ unzip -oq ~/LINUX.X64_193000_db_home.zip
```

DB Software Installation starten

Im GUI als oracle anmelden und ein Terminal-Fenster öffnen.

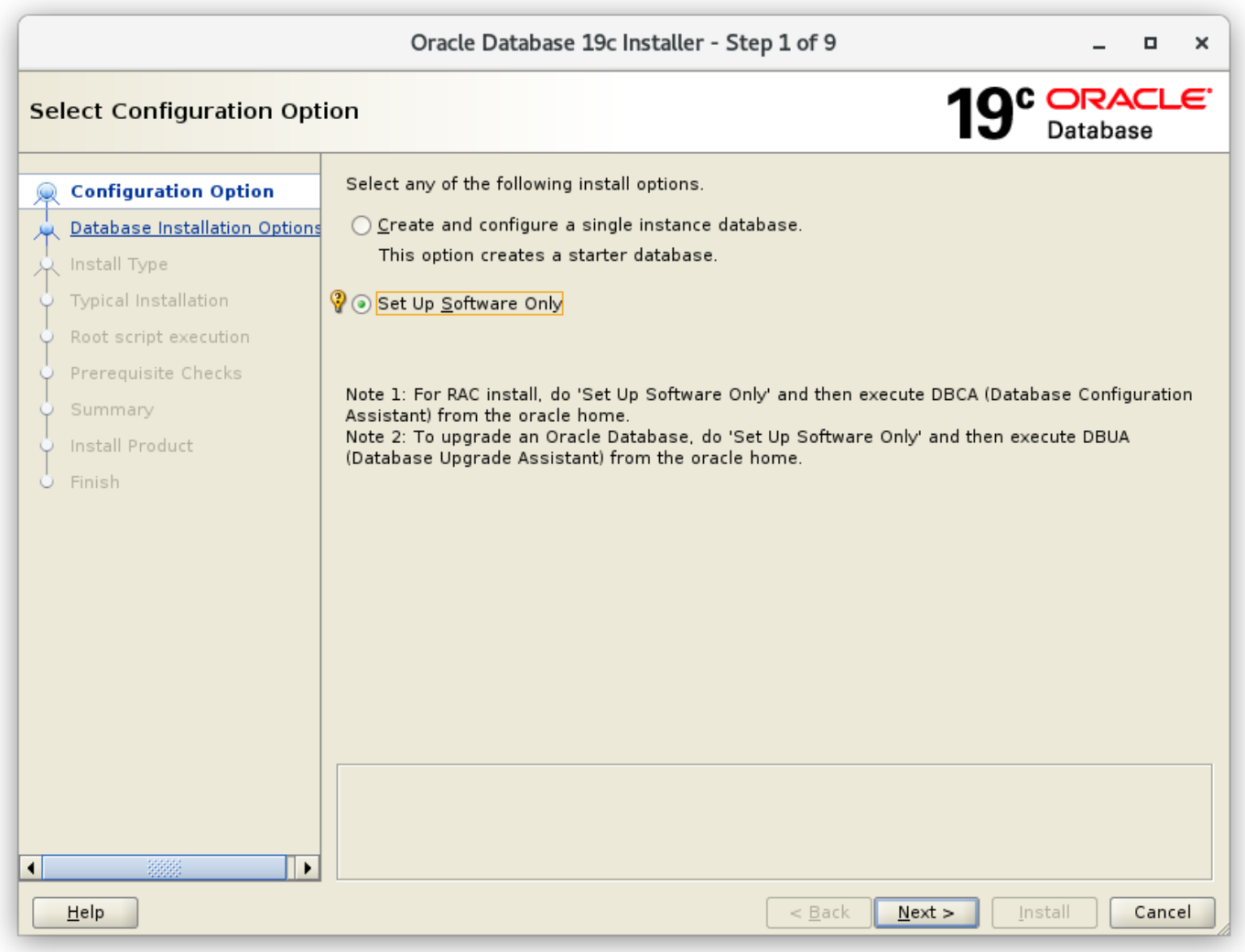
Ins ORACLE_HOME Verzeichnis wechseln und das Installationsprogramm starten:

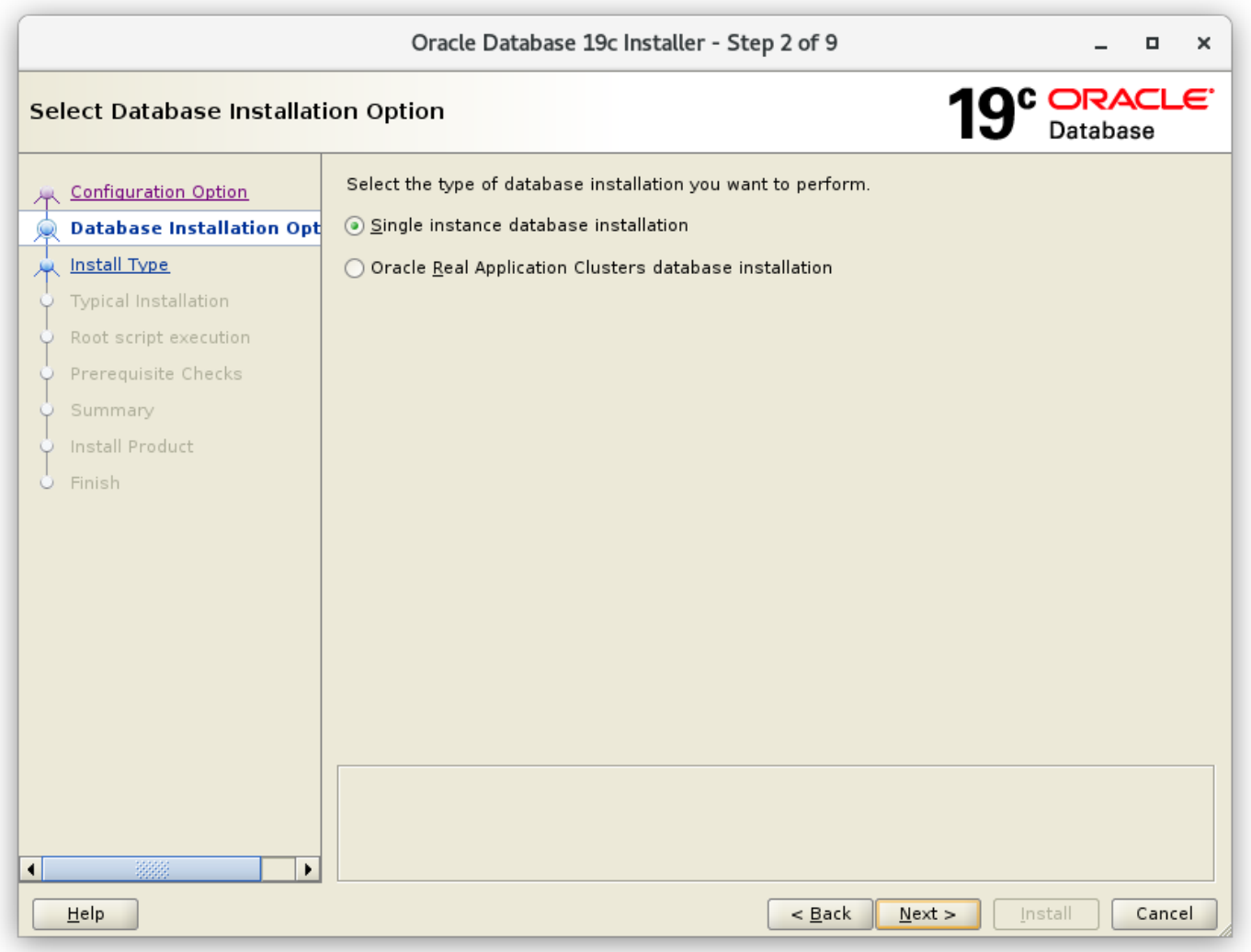
```
$ cd $ORACLE_HOME
$ ./runInstaller
```

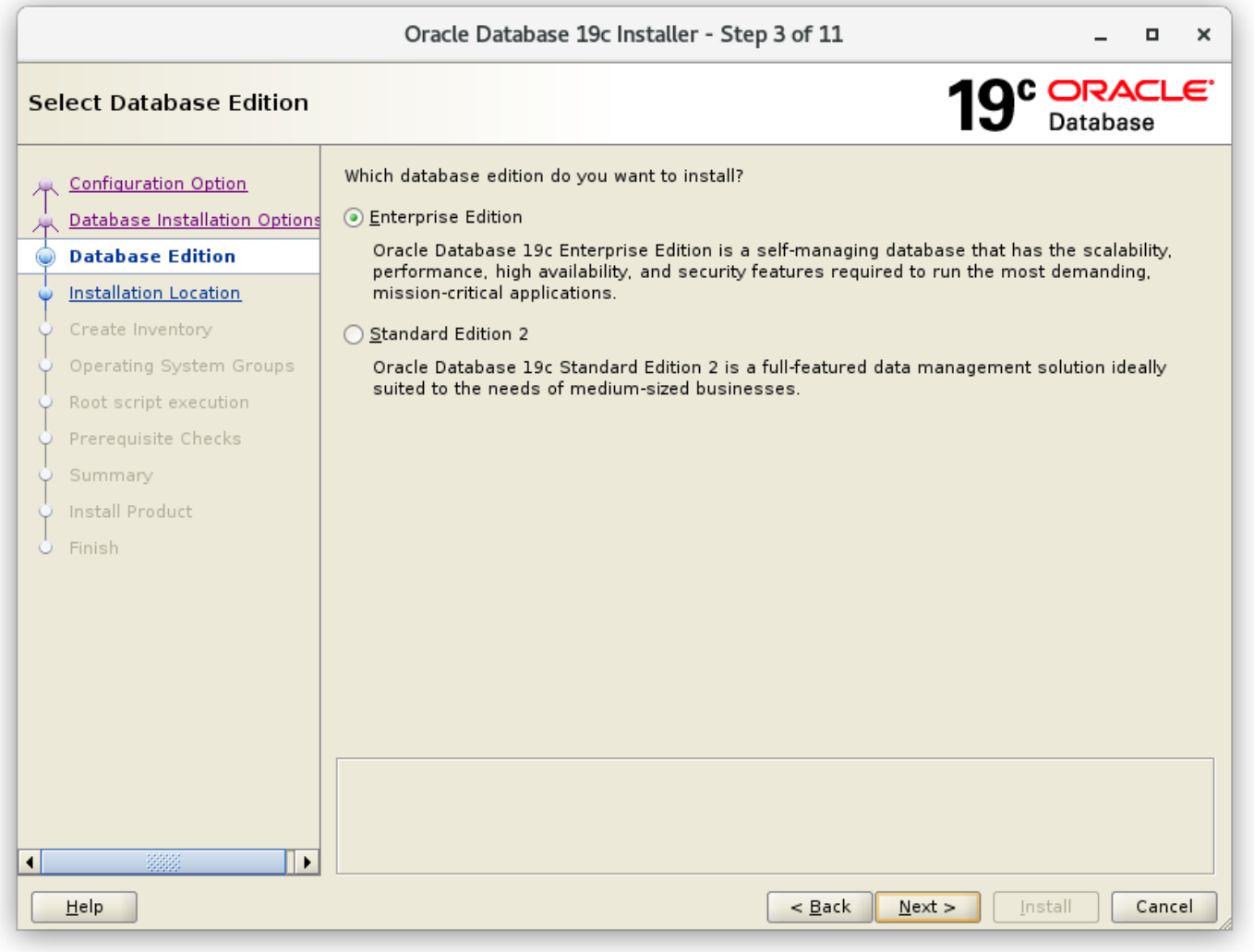
Setup mit dem Oracle Database 19c Installer

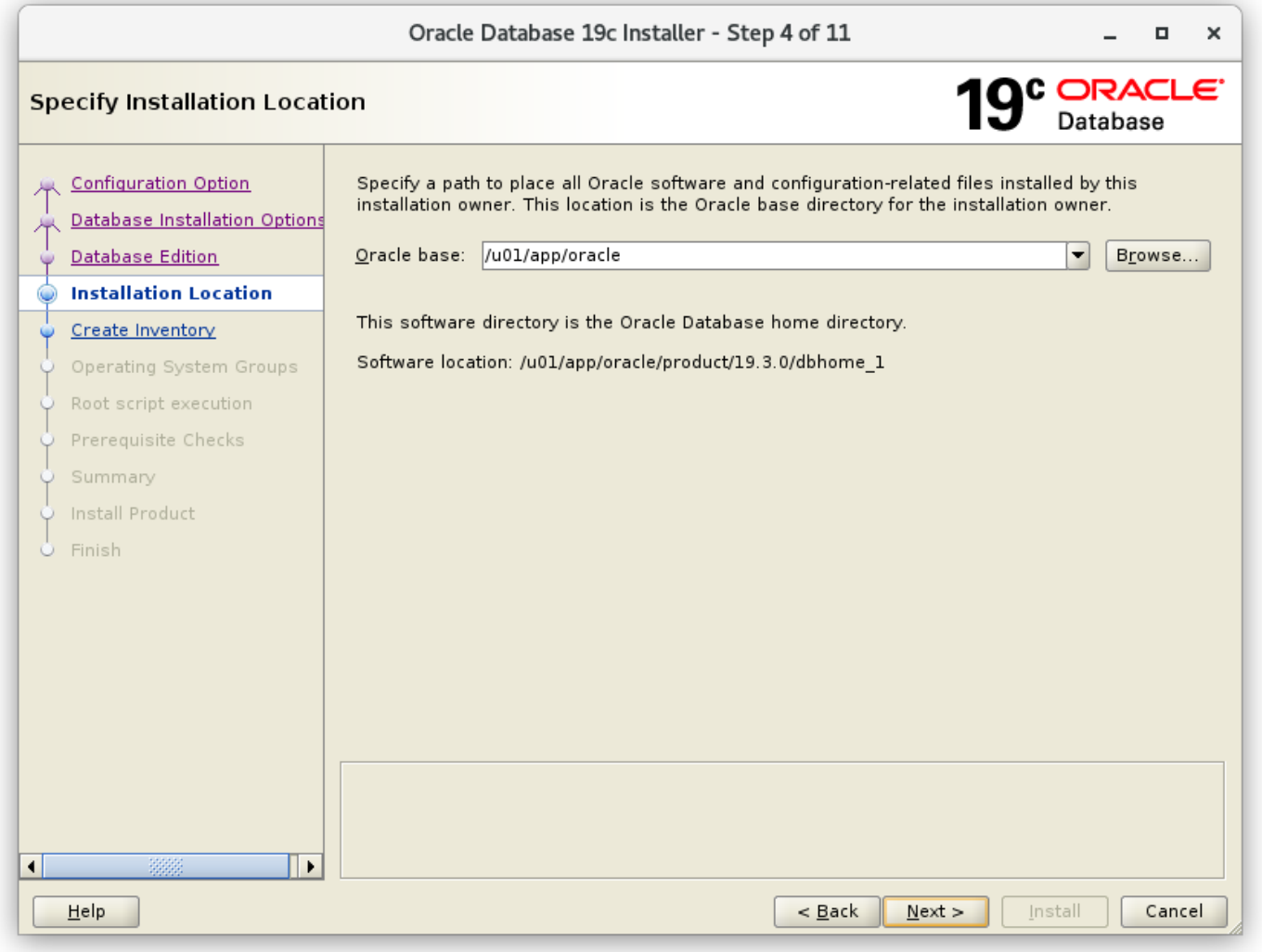
Setzen sie zunächst nur die Software auf, die Datenbank wird später mit dem DBCA Database Configuration Assistant erstellt.

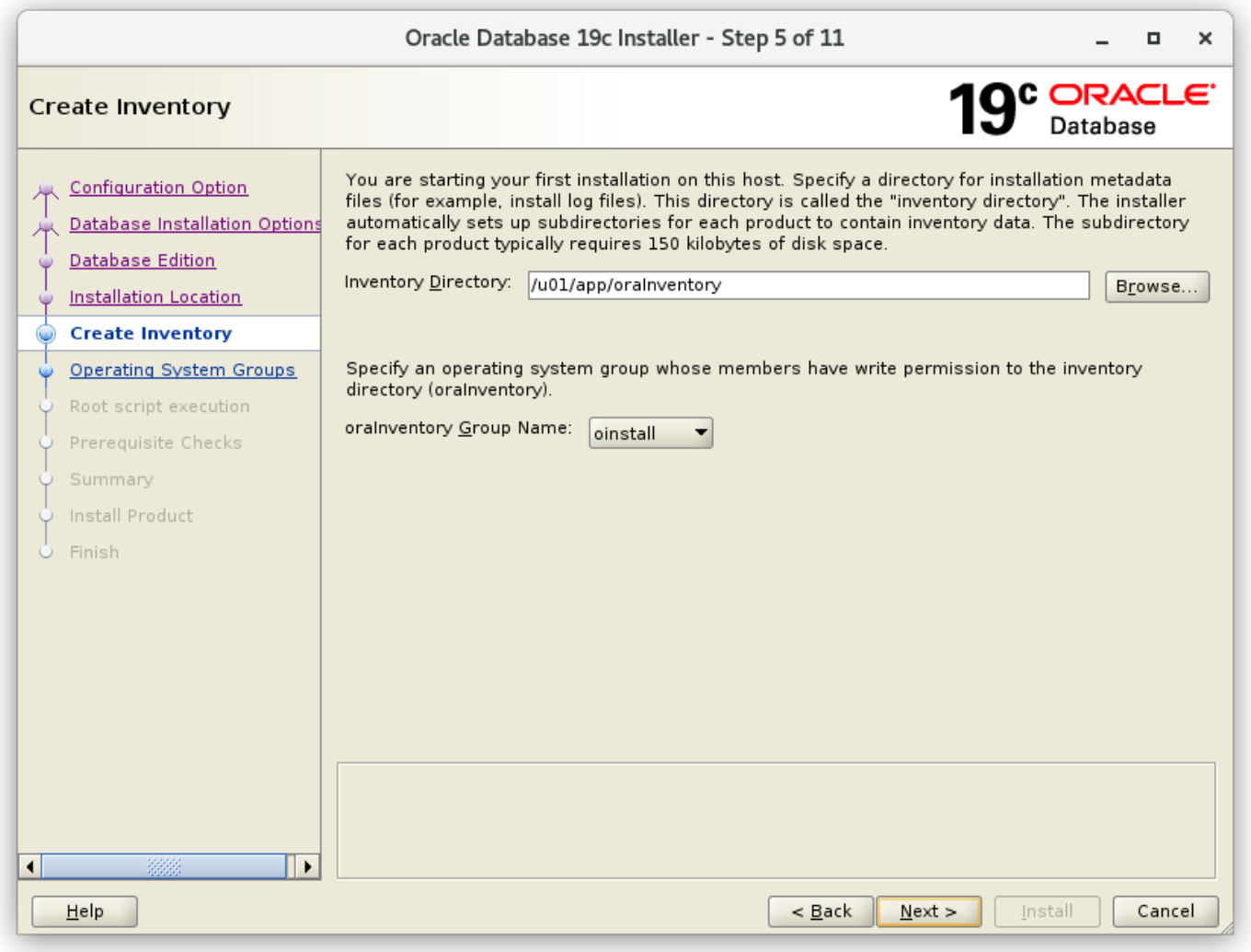
Zeige alle Schritte

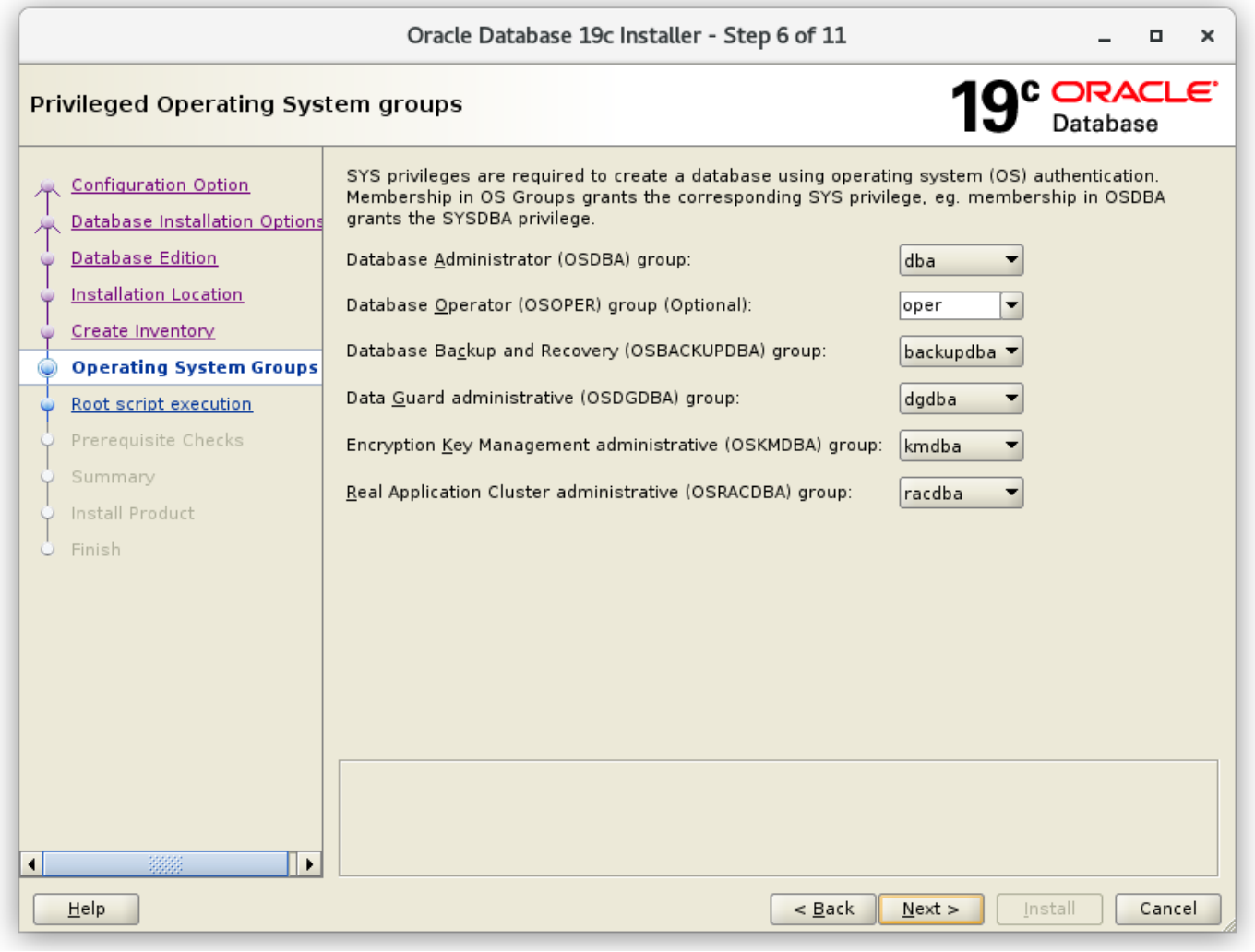

Oracle Database 19c Installer - Step 1 of 9
Select Configuration Option
19c ORACLE Database
Configuration Option
Database Installation Options
Install Type
Typical Installation
Root script execution
Prerequisite Checks
Summary
Install Product
Finish
Select any of the following install options.
Create and configure a single instance database.
This option creates a starter database.
Set Up Software Only
Note 1: For RAC install, do 'Set Up Software Only' and then execute DBCA (Database Configuration Assistant) from the oracle home.
Note 2: To upgrade an Oracle Database, do 'Set Up Software Only' and then execute DBUA (Database Upgrade Assistant) from the oracle home.
Help
< Back
Next >
Install
Cancel

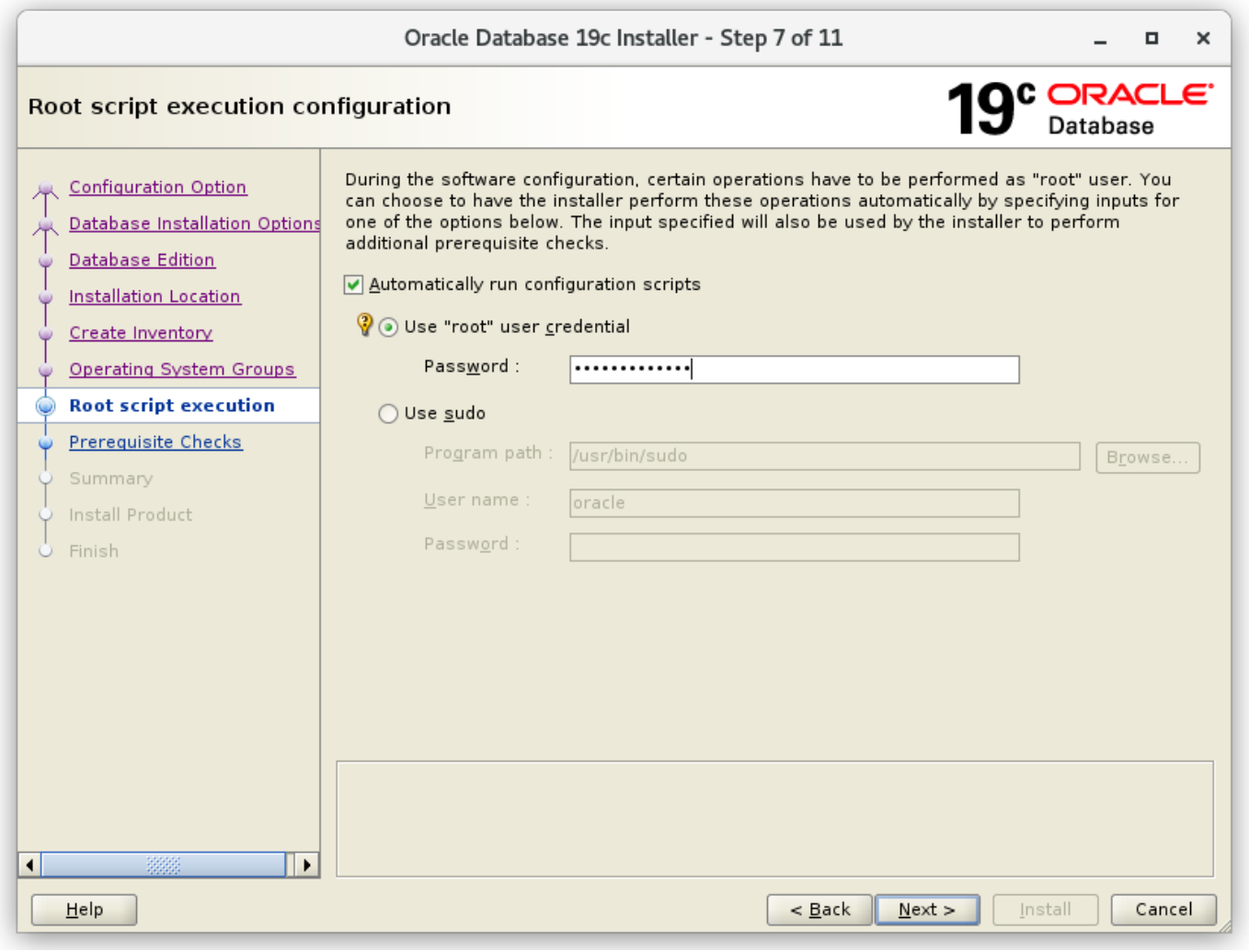

Oracle Database 19c Installer - Step 2 of 9
Select Database Installation Option
19c ORACLE Database
Configuration Option
Database Installation Opt
Install Type
Typical Installation
Root script execution
Prerequisite Checks
Summary
Install Product
Finish
Select the type of database installation you want to perform.
Single instance database installation
Oracle Real Application Clusters database installation
Help
< Back
Next >
Install
Cancel

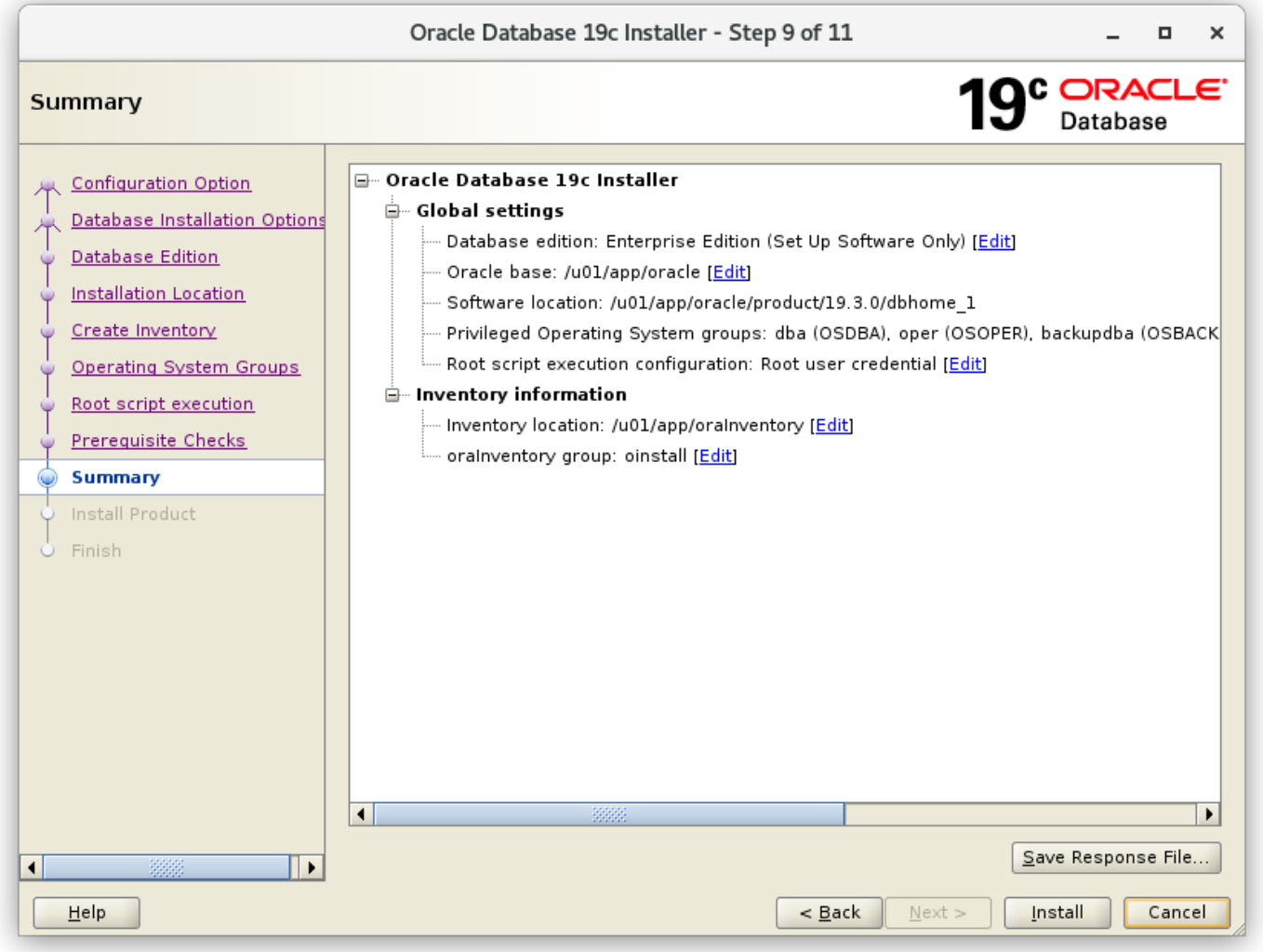

Oracle Database 19c Installer - Step 3 of 11
Select Database Edition
19c ORACLE Database
Configuration Option
Database Installation Options
Database Edition
Installation Location
Create Inventory
Operating System Groups
Root script execution
Prerequisite Checks
Summary
Install Product
Finish
Which database edition do you want to install?
Enterprise Edition
Oracle Database 19c Enterprise Edition is a self-managing database that has the scalability, performance, high availability, and security features required to run the most demanding, mission-critical applications.
Standard Edition 2
Oracle Database 19c Standard Edition 2 is a full-featured data management solution ideally suited to the needs of medium-sized businesses.
Help
< Back
Next >
Install
Cancel

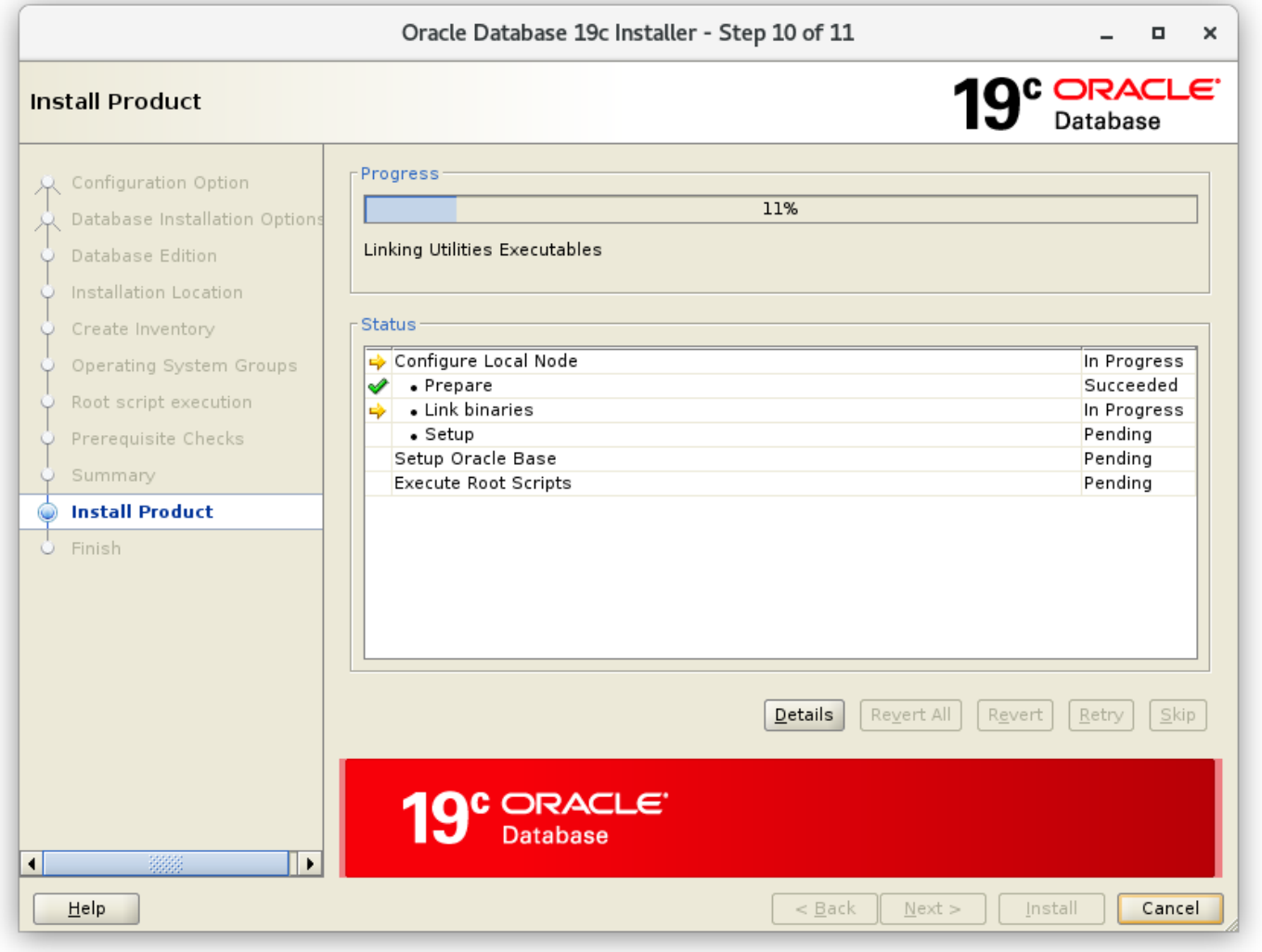

Oracle Database 19c Installer - Step 4 of 11
Specify Installation Location
19c ORACLE Database
Configuration Option
Database Installation Options
Database Edition
Installation Location
Create Inventory
Operating System Groups
Root script execution
Prerequisite Checks
Summary
Install Product
Finish
Specify a path to place all Oracle software and configuration-related files installed by this installation owner. This location is the Oracle base directory for the installation owner.
Oracle base: /u01/app/oracle
Browse...
This software directory is the Oracle Database home directory.
Software location: /u01/app/oracle/product/19.3.0/dbhome_1
Help
< Back
Next >
Install
Cancel

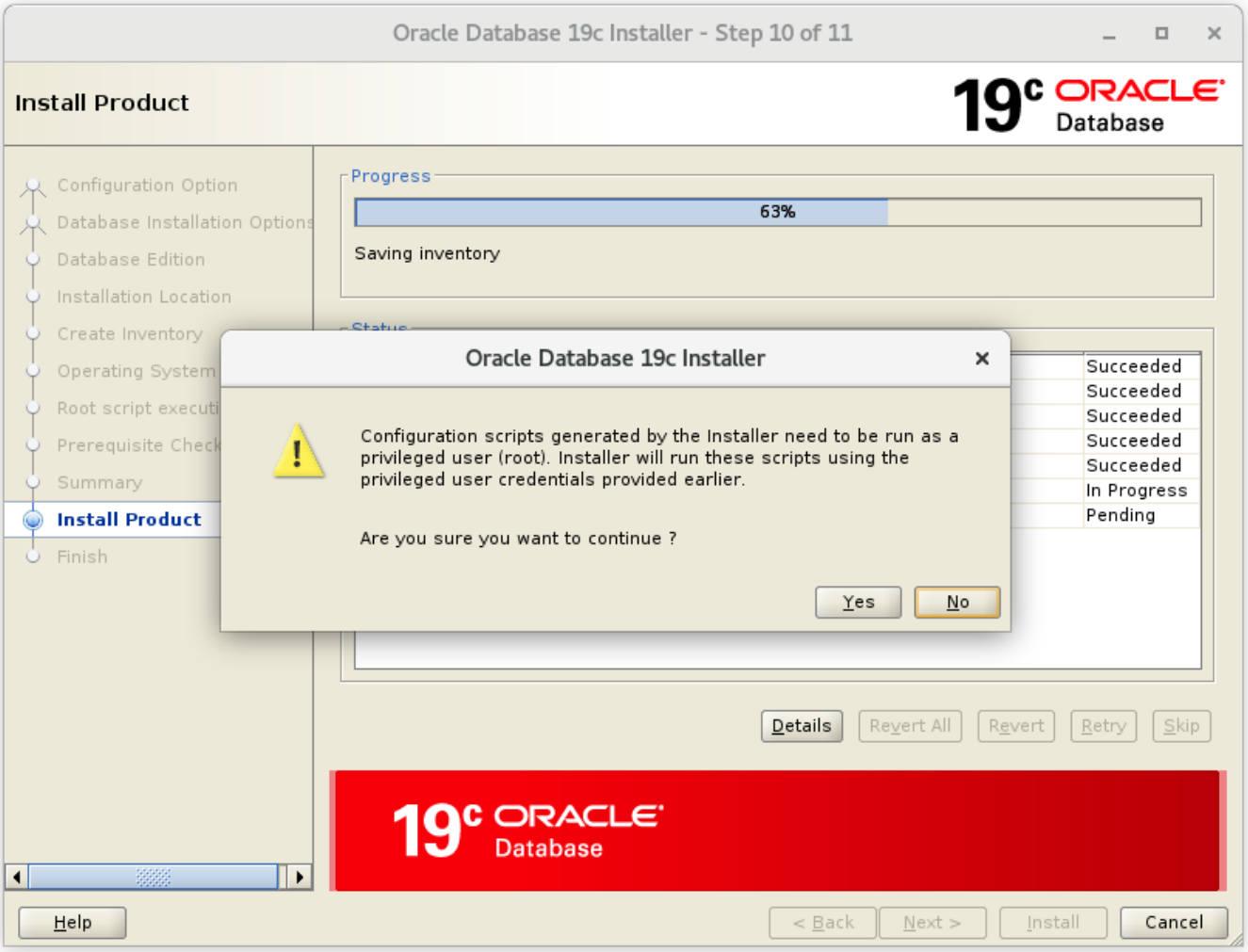

Oracle Database 19c Installer - Step 5 of 11
Create Inventory
19c ORACLE Database
Configuration Option
Database Installation Options
Database Edition
Installation Location
Create Inventory
Operating System Groups
Root script execution
Prerequisite Checks
Summary
Install Product
Finish
You are starting your first installation on this host. Specify a directory for installation metadata files (for example, install log files). This directory is called the "inventory directory". The installer automatically sets up subdirectories for each product to contain inventory data. The subdirectory for each product typically requires 150 kilobytes of disk space.
Inventory Directory: /u01/app/oraInventory
Browse...
Specify an operating system group whose members have write permission to the inventory directory (oraInventory).
oraInventory Group Name: oinstall
Help
< Back
Next >
Install
Cancel

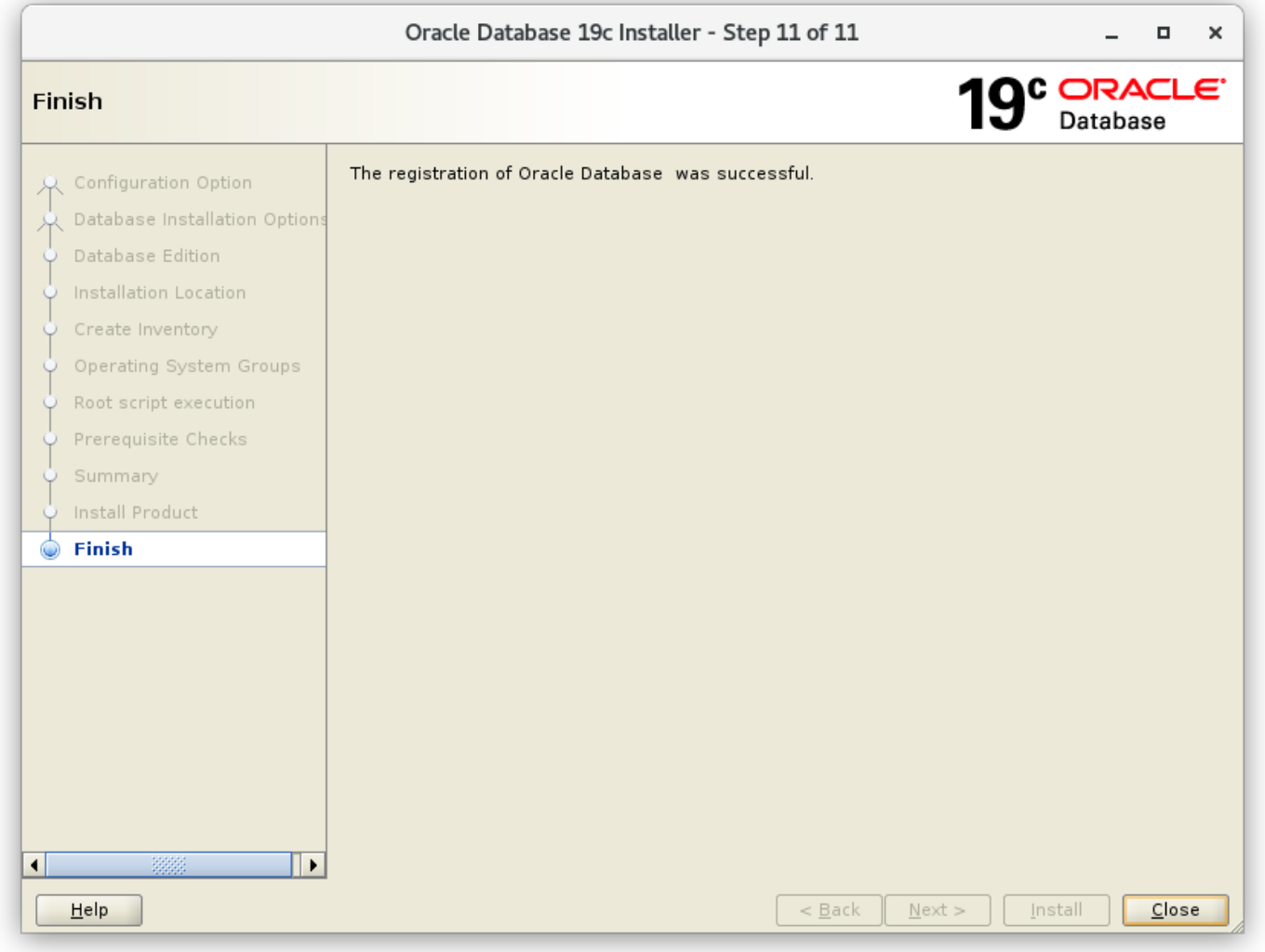

Oracle Database 19c Installer - Step 6 of 11
Privileged Operating System groups
19c ORACLE Database
Configuration Option
Database Installation Options
Database Edition
Installation Location
Create Inventory
Operating System Groups
Root script execution
Prerequisite Checks
Summary
Install Product
Finish
SYS privileges are required to create a database using operating system (OS) authentication. Membership in OS Groups grants the corresponding SYS privilege, eg. membership in OSDBA grants the SYSDBA privilege.
Database Administrator (OSDBA) group: dba
Database Operator (OSOPER) group (Optional): oper
Database Backup and Recovery (OSBACKUPDBA) group: backupdba
Data Guard administrative (OSDGDBA) group: dgdba
Encryption Key Management administrative (OSKMDBA) group: kmdba
Real Application Cluster administrative (OSRACDBA) group: racdba
Help
< Back
Next >
Install
Cancel


Oracle Database 19c Installer - Step 7 of 11
Root script execution configuration
19c ORACLE Database
Configuration Option
Database Installation Options
Database Edition
Installation Location
Create Inventory
Operating System Groups
Root script execution
Prerequisite Checks
Summary
Install Product
Finish
During the software configuration, certain operations have to be performed as "root" user. You can choose to have the installer perform these operations automatically by specifying inputs for one of the options below. The input specified will also be used by the installer to perform additional prerequisite checks.
Automatically run configuration scripts
Use "root" user credential
Password :
Use sudo
Program path :
/usr/bin/sudo
Browse...
User name :
oracle
Password :
Help
< Back
Next >
Install
Cancel


Oracle Database 19c Installer - Step 9 of 11
Summary
19c ORACLE Database
Configuration Option
Database Installation Options
Database Edition
Installation Location
Create Inventory
Operating System Groups
Root script execution
Prerequisite Checks
Summary
Install Product
Finish
Oracle Database 19c Installer
Global settings
Database edition: Enterprise Edition (Set Up Software Only) [Edit]
Oracle base: /u01/app/oracle [Edit]
Software location: /u01/app/oracle/product/19.3.0/dbhome_1
Privileged Operating System groups: dba (OSDBA), oper (OSOPER), backupdba (OSBACK
Root script execution configuration: Root user credential [Edit]
Inventory information
Inventory location: /u01/app/oraInventory [Edit]
oraInventory group: oinstall [Edit]
Save Response File...
Help
< Back
Next >
Install
Cancel


Oracle Database 19c Installer - Step 10 of 11
Install Product
19c ORACLE Database
Configuration Option
Database Installation Options
Database Edition
Installation Location
Create Inventory
Operating System Groups
Root script execution
Prerequisite Checks
Summary
Install Product
Finish
Progress
11%
Linking Utilities Executables
Status
Configure Local Node In Progress
• Prepare Succeeded
• Link binaries In Progress
• Setup Pending
Setup Oracle Base Pending
Execute Root Scripts Pending
Details
Revert All
Revert
Retry
Skip
19c ORACLE Database
Help
< Back
Next >
Install
Cancel


Oracle Database 19c Installer - Step 10 of 11
Install Product
19c ORACLE Database
Configuration Option
Database Installation Options
Database Edition
Installation Location
Create Inventory
Operating System
Root script executi
Prerequisite Check
Summary
Install Product
Finish
Progress
63%
Saving inventory
Status
Succeeded
Succeeded
Succeeded
Succeeded
Succeeded
In Progress
Pending
Oracle Database 19c Installer
Configuration scripts generated by the Installer need to be run as a privileged user (root). Installer will run these scripts using the privileged user credentials provided earlier.
Are you sure you want to continue ?
Yes
No
Details
Revert All
Revert
Retry
Skip
19c ORACLE Database
Help
< Back
Next >
Install
Cancel




```
[oracle@vmora19 dbhome_1]$ ./runInstaller
Launching Oracle Database Setup Wizard...

The response file for this session can be found at:
 /u01/app/oracle/product/19.3.0/dbhome_1/install/response/db_2019-09-28_07-17-03AM.rsp

You can find the log of this install session at:
 /tmp/InstallActions2019-09-28_07-17-03AM/installActions2019-09-28_07-17-03AM.log
Moved the install session logs to:
 /u01/app/oraInventory/logs/InstallActions2019-09-28_07-17-03AM
[oracle@vmora19 dbhome_1]$
```

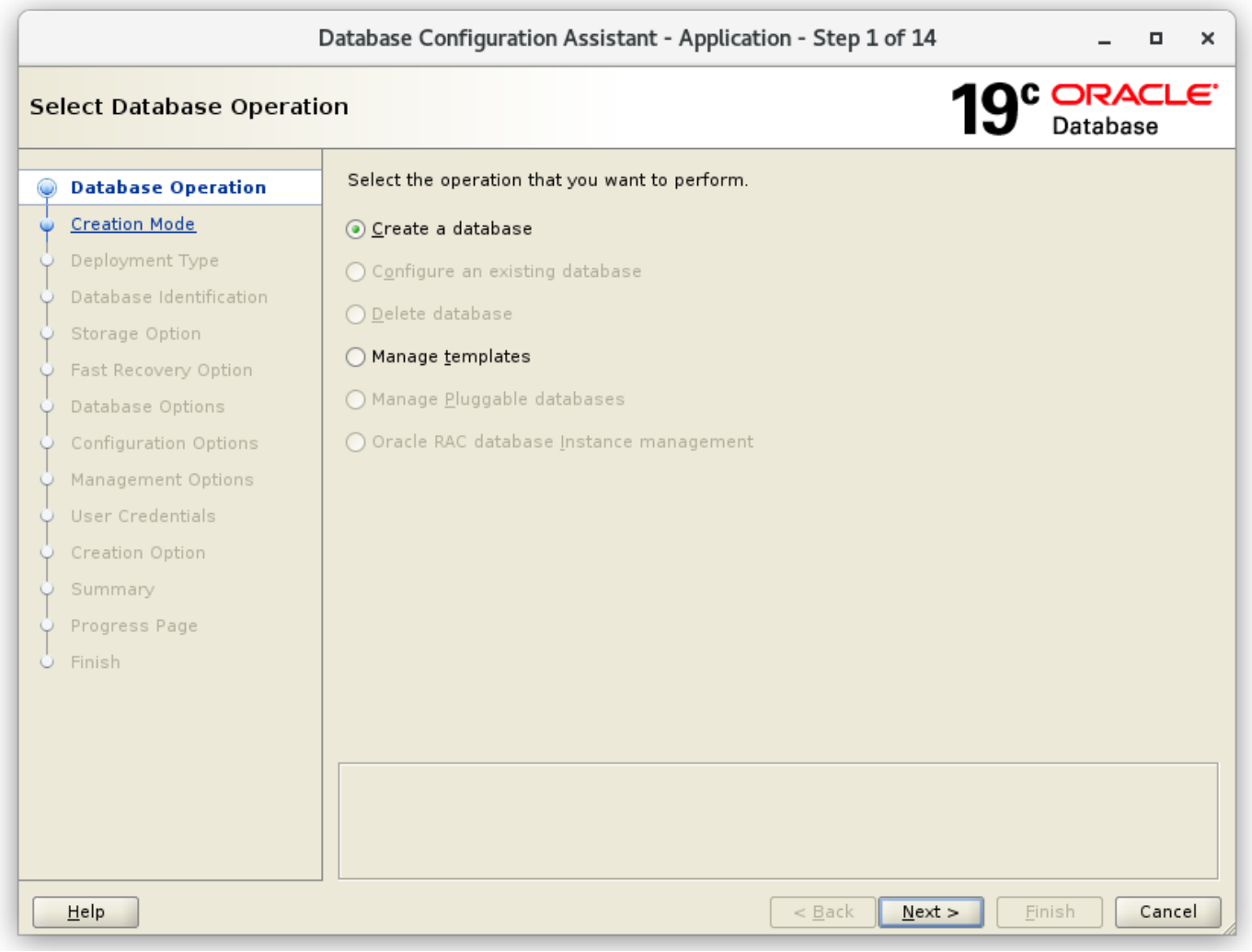
Datenbank mit dem DBCA erstellen

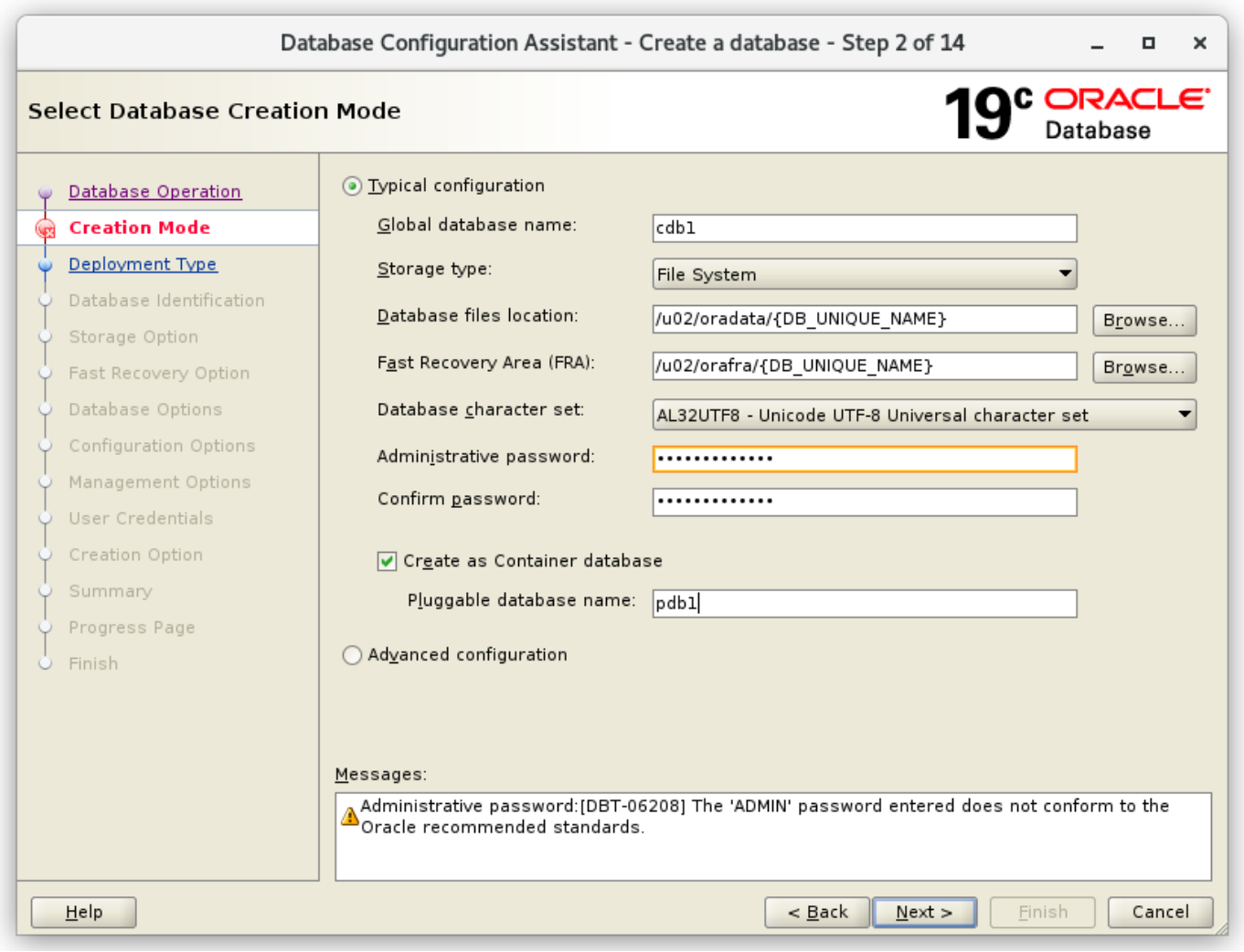
Im GUI als oracle anmelden und ein Terminalfenster öffnen.

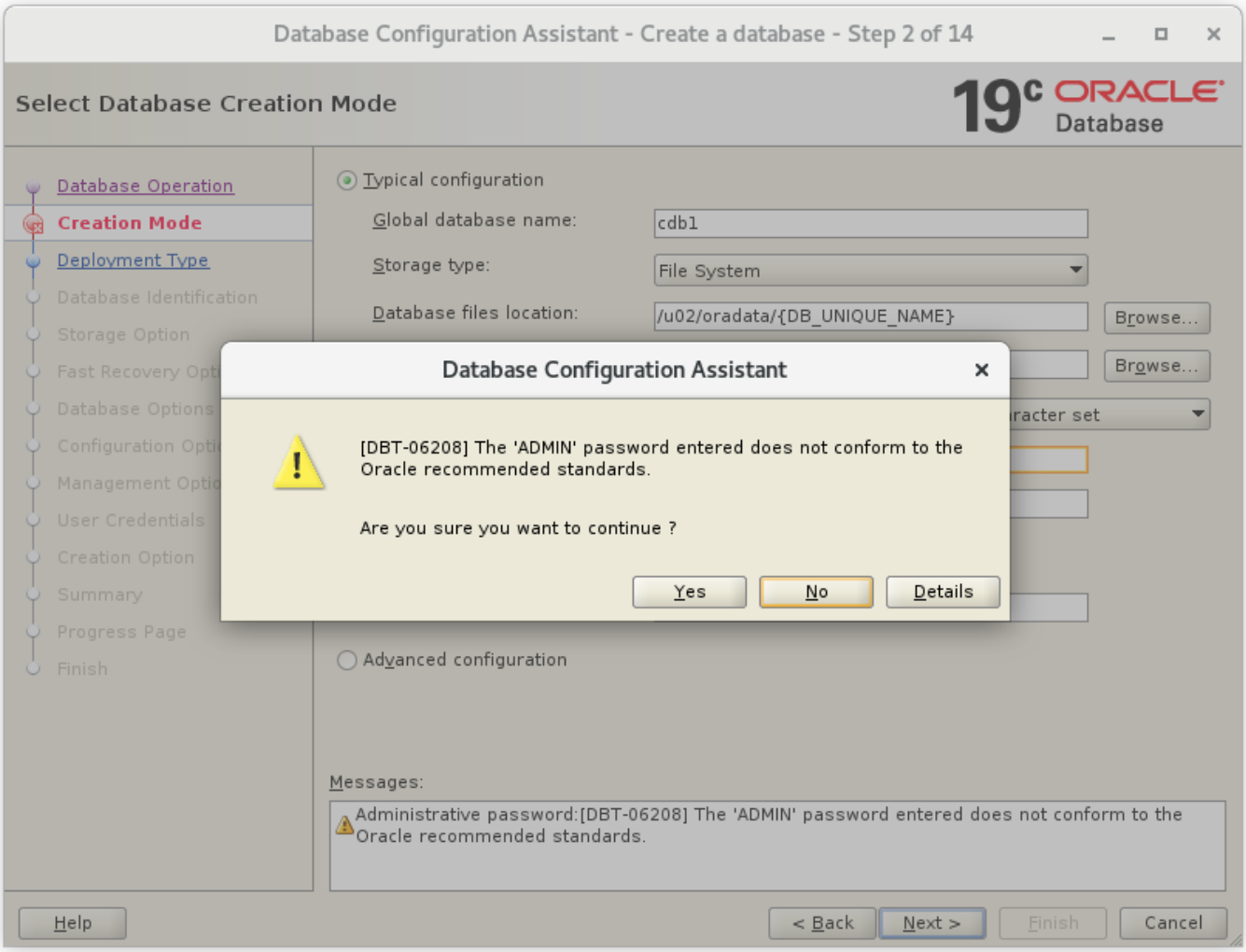
Den Listener aufstarten und DCBA ausführen:

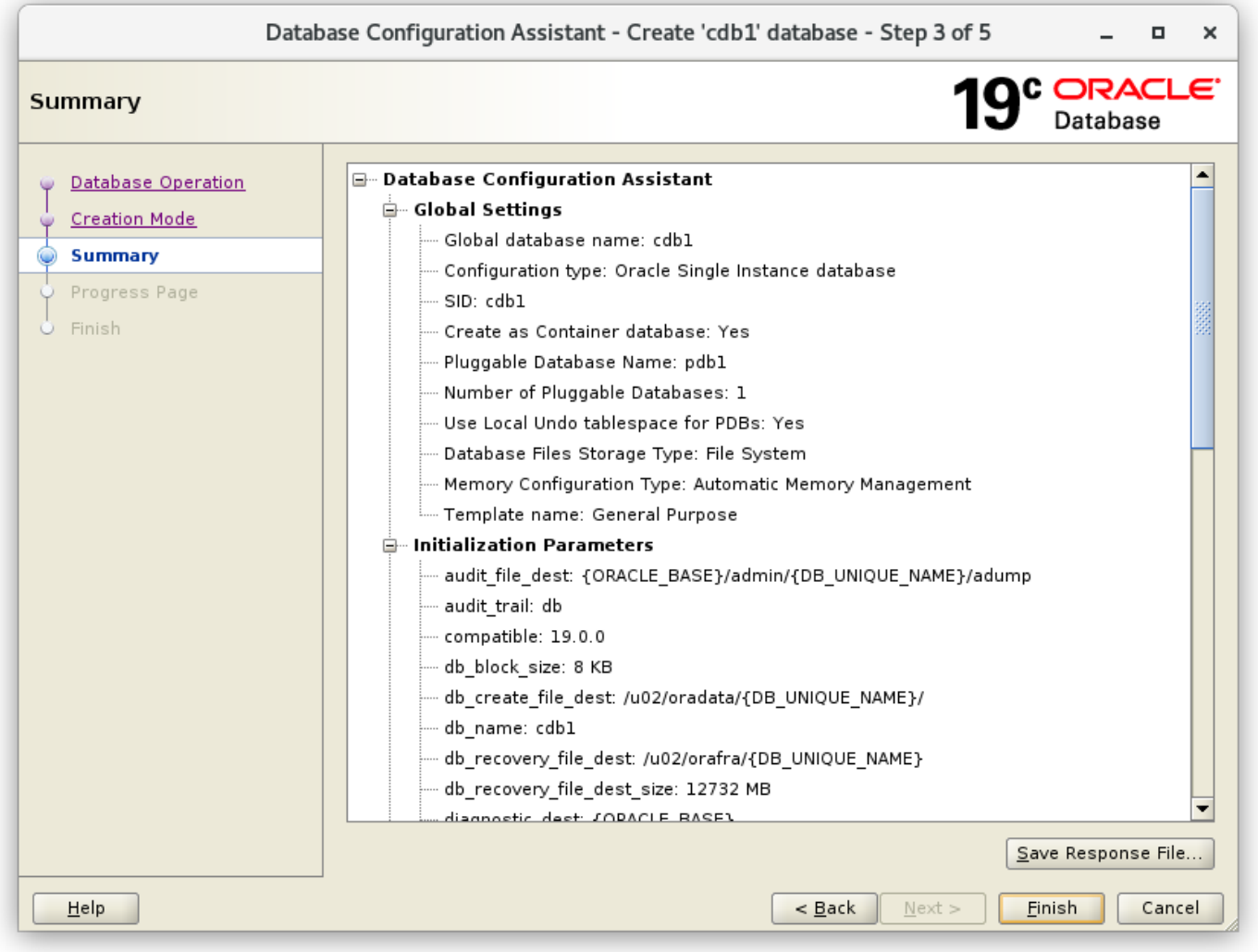
```
$ lsnrctl start
$ dbca
```

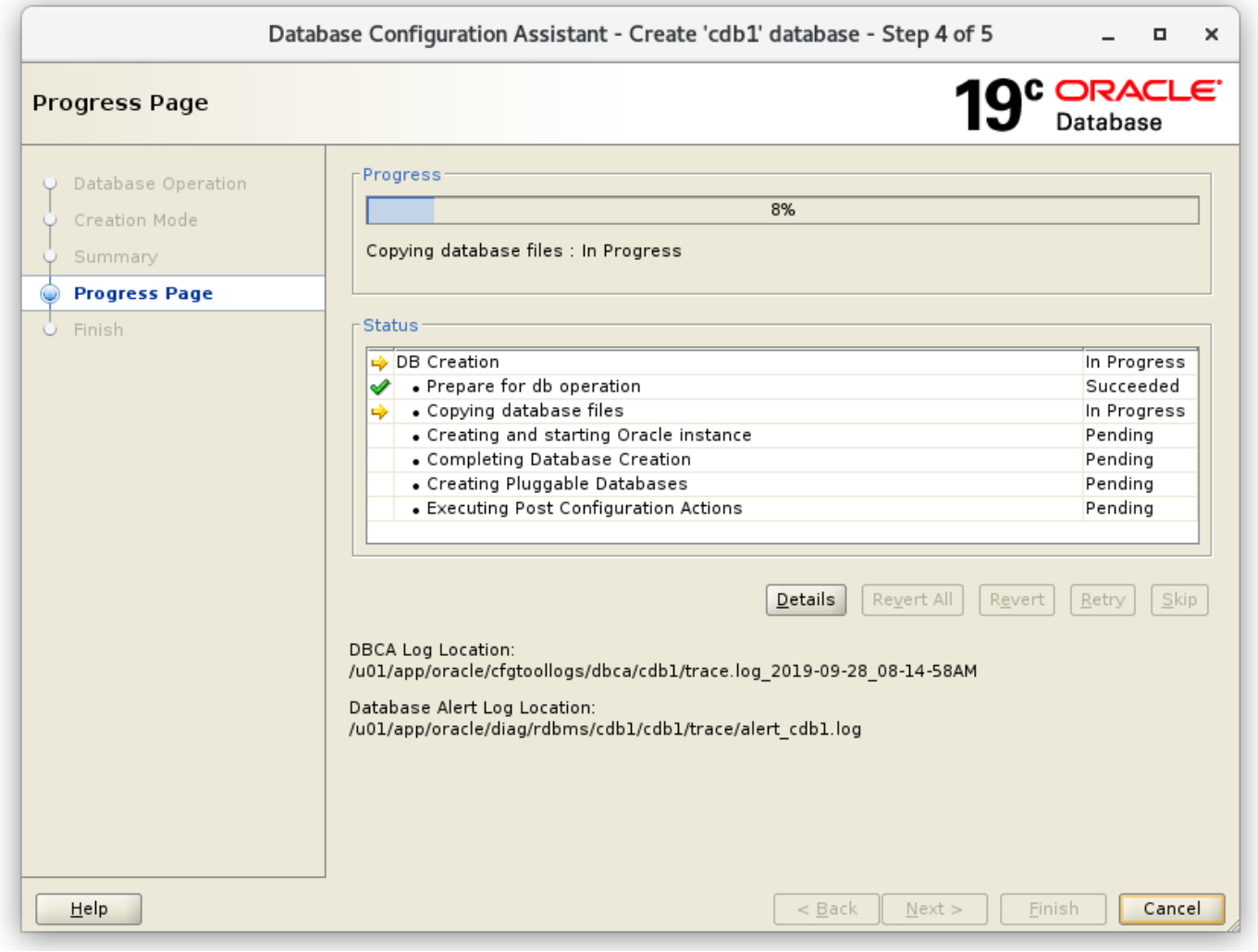
Zeige alle Schritte

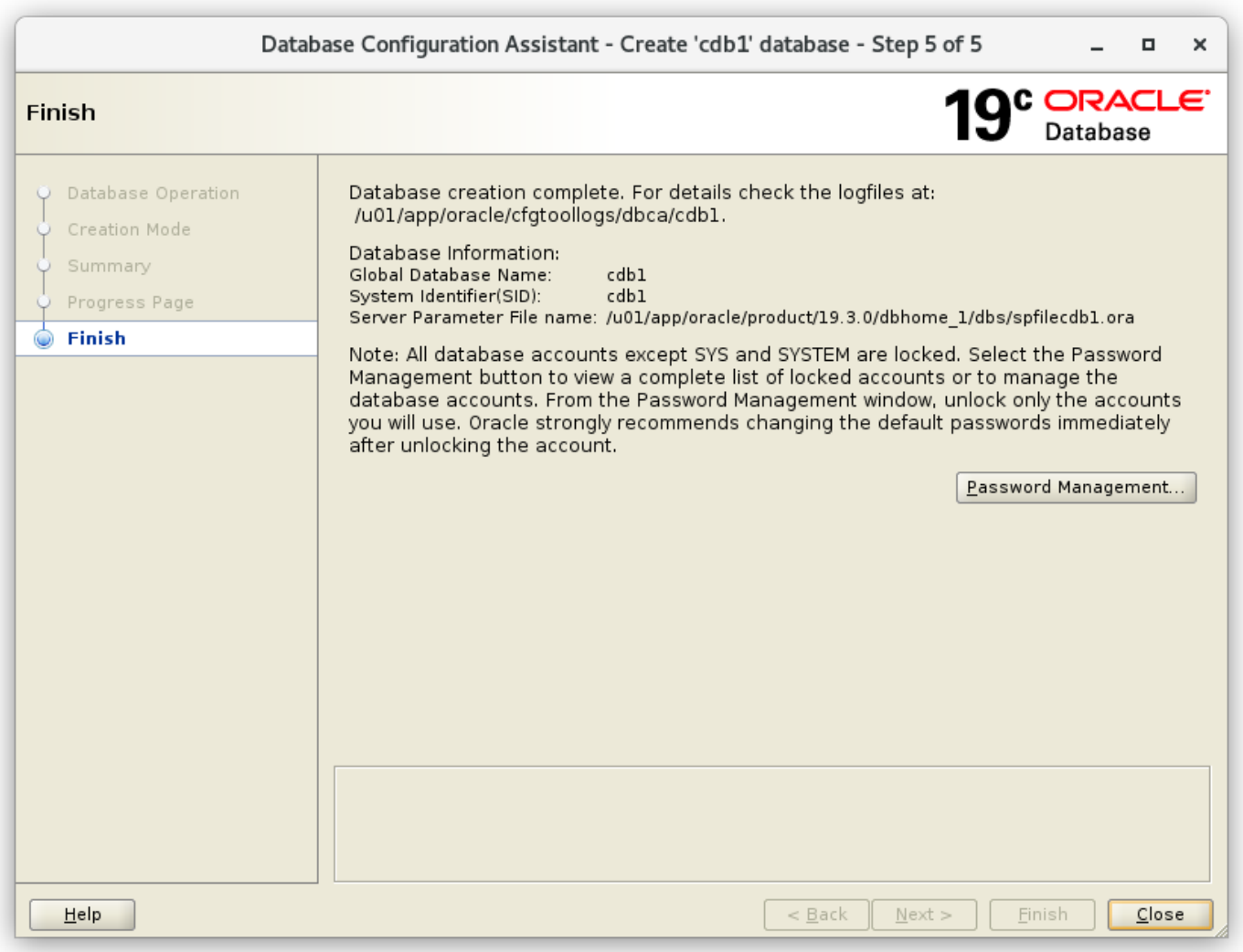

Database Configuration Assistant - Application - Step 1 of 14
Select Database Operation
19c ORACLE Database
Database Operation
Creation Mode
Deployment Type
Database Identification
Storage Option
Fast Recovery Option
Database Options
Configuration Options
Management Options
User Credentials
Creation Option
Summary
Progress Page
Finish
Select the operation that you want to perform.
Create a database
Configure an existing database
Delete database
Manage templates
Manage Pluggable databases
Oracle RAC database Instance management
Help
< Back
Next >
Finish
Cancel


Database Configuration Assistant - Create a database - Step 2 of 14
Select Database Creation Mode
19c ORACLE Database
Database Operation
Creation Mode
Deployment Type
Database Identification
Storage Option
Fast Recovery Option
Database Options
Configuration Options
Management Options
User Credentials
Creation Option
Summary
Progress Page
Finish
Typical configuration
Global database name: cdb1
Storage type: File System
Database files location: /u02/oradata/{DB_UNIQUE_NAME} Browse...
Fast Recovery Area (FRA): /u02/orafra/{DB_UNIQUE_NAME} Browse...
Database character set: AL32UTF8 - Unicode UTF-8 Universal character set
Administrative password: ••••••••••••
Confirm password: ••••••••••••
Create as Container database
Pluggable database name: pdb1
Advanced configuration
Messages:
Administrative password:[DBT-06208] The 'ADMIN' password entered does not conform to the Oracle recommended standards.
Help
< Back
Next >
Finish
Cancel


Database Configuration Assistant - Create a database - Step 2 of 14
Select Database Creation Mode
19c ORACLE Database
Database Operation
Creation Mode
Deployment Type
Database Identification
Storage Option
Fast Recovery Opti
Database Options
Configuration Opti
Management Optio
User Credentials
Creation Option
Summary
Progress Page
Finish
Typical configuration
Global database name:
cdb1
Storage type:
File System
Database files location:
/u02/oradata/{DB_UNIQUE_NAME}
Browse...
Browse...
racter set
Advanced configuration
Messages:
Administrative password:[DBT-06208] The 'ADMIN' password entered does not conform to the Oracle recommended standards.
Help
< Back
Next >
Finish
Cancel
Database Configuration Assistant
[DBT-06208] The 'ADMIN' password entered does not conform to the Oracle recommended standards.
Are you sure you want to continue ?
Yes
No
Details


Database Configuration Assistant - Create 'cdb1' database - Step 3 of 5
Summary
19c ORACLE Database
Database Operation
Creation Mode
Summary
Progress Page
Finish
Database Configuration Assistant
Global Settings
Global database name: cdb1
Configuration type: Oracle Single Instance database
SID: cdb1
Create as Container database: Yes
Pluggable Database Name: pdb1
Number of Pluggable Databases: 1
Use Local Undo tablespace for PDBs: Yes
Database Files Storage Type: File System
Memory Configuration Type: Automatic Memory Management
Template name: General Purpose
Initialization Parameters
audit_file_dest: {ORACLE_BASE}/admin/{DB_UNIQUE_NAME}/adump
audit_trail: db
compatible: 19.0.0
db_block_size: 8 KB
db_create_file_dest: /u02/oradata/{DB_UNIQUE_NAME}/
db_name: cdb1
db_recovery_file_dest: /u02/orafra/{DB_UNIQUE_NAME}
db_recovery_file_dest_size: 12732 MB
Save Response File...
Help
< Back
Next >
Finish
Cancel


Database Configuration Assistant - Create 'cdb1' database - Step 4 of 5
Progress Page
19c ORACLE Database
Database Operation
Creation Mode
Summary
Progress Page
Finish
Progress
8%
Copying database files : In Progress
Status
DB Creation In Progress
• Prepare for db operation Succeeded
• Copying database files In Progress
• Creating and starting Oracle instance Pending
• Completing Database Creation Pending
• Creating Pluggable Databases Pending
• Executing Post Configuration Actions Pending
Details
Revert All
Revert
Retry
Skip
DBCA Log Location:
/u01/app/oracle/cfgtoollogs/dbca/cdb1/trace.log_2019-09-28_08-14-58AM
Database Alert Log Location:
/u01/app/oracle/diag/rdbms/cdb1/cdb1/trace/alert_cdb1.log
Help
< Back
Next >
Finish
Cancel



Server neu starten

Weitere Schritte nach der Installation

Als root

Datei /etc/oratab bearbeiten und das restart Flag auf 'Y' setzen damit die cdb1 beim DB Start ebenfalls automatisch startet:

```
# nano /etc/oratab
...
cdb1:/u01/app/oracle/product/19.3.0/dbhome_1:Y
...
```

Als oracle

Den Listener und die DB aufstarten:

```
$ lsnrctl start
```

```
 ~/scripts/start_all.sh
```

Oracle Managed Files (OMF) aktivieren einstellen dass die PDB ebenfalls startet wenn die Instanz gestartet wird.

```
$ sqlplus / as sysdba
--
alter system set db_create_file_dest='/u02/oradata';
alter pluggable database pdb1 open;
alter pluggable database pdb1 save state;
```

Automatisierung des DB Starts und des Herunterfahrens

Folgendes ist als root auszuführen:

Datei /etc/init.d/dbora erzeugen:

```
# nano /etc/init.d/dbora
```

/etc/init.d/dbora

```
#!/bin/sh
# chkconfig: 345 99 10
# description: Oracle auto start-stop script.
#
# Set ORA_OWNER to the user id of the owner of the
# Oracle database software.

ORA_OWNER=oracle

case "$1" in
    'start')
        # Start the Oracle databases:
        # The following command assumes that the oracle login
        # will not prompt the user for any values
        # Remove "&" if you don't want startup as a background process.
        su $ORA_OWNER -c "/home/oracle/scripts/start_all.sh >>
/home/oracle/scripts/startup_shutdown.log 2>&1" &

        touch /var/lock/subsys/dbora
        ;;
    'stop')
        # Stop the Oracle databases:
        # The following command assumes that the oracle login
        # will not prompt the user for any values
        su $ORA_OWNER -c "/home/oracle/scripts/stop_all.sh >>
/home/oracle/scripts/startup_shutdown.log 2>&1"
        rm -f /var/lock/subsys/dbora
        ;;
```

```
esac
```

Die Skript-Berechtigungen auf 750 einstellen

```
# chmod 750 /etc/init.d/dbora
```

Den „dbora“ Dienst mit passenden Runlevels assiziieren und auf Auto-start einstellen

```
# chkconfig --add dbora
```

Sie können die Datenbank als root mit dem Dienst starten und herunterfahren, was genau das ist das beim Neustart des Systems geschieht:

```
# service dbora stop
# service dbora start
```

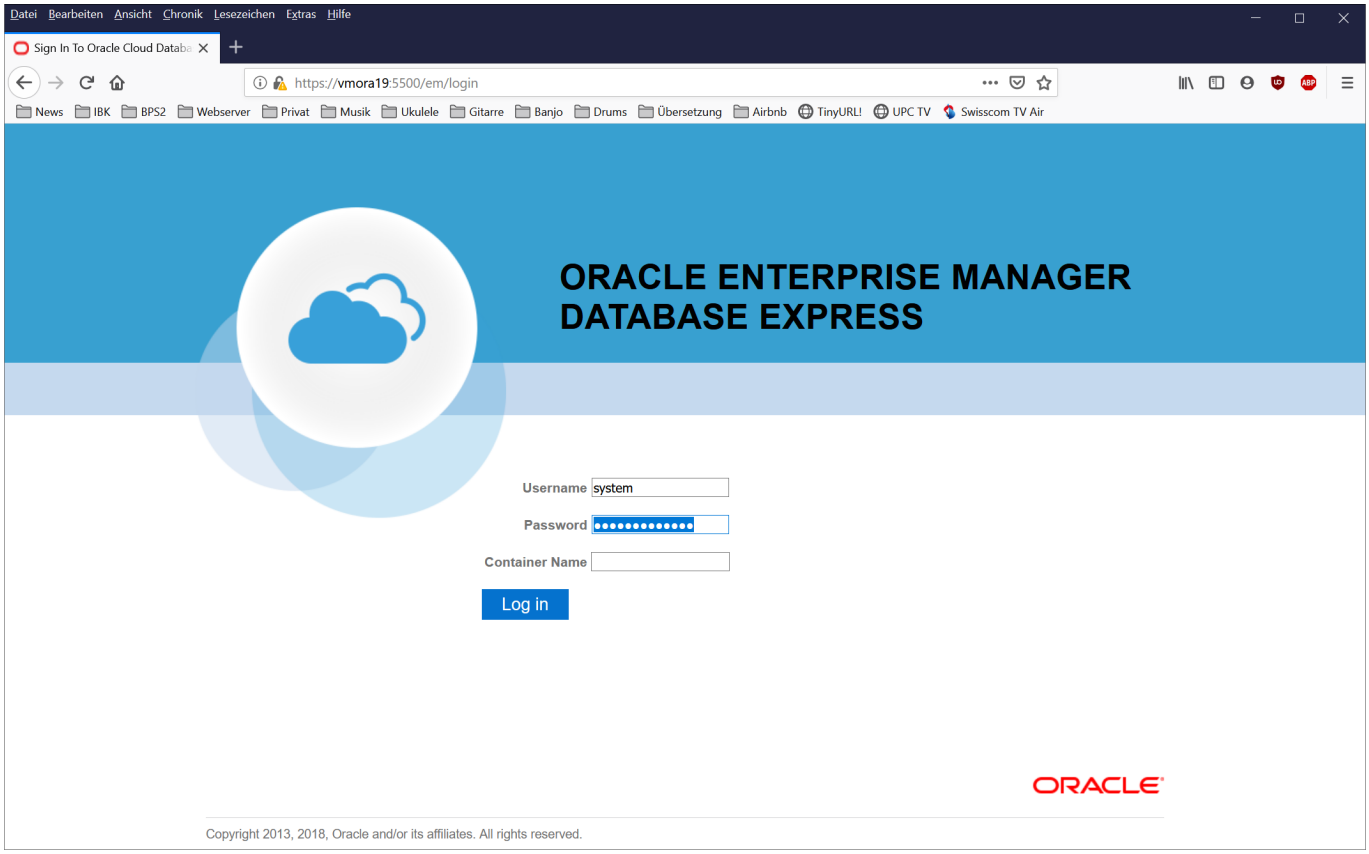
Enterprise Manager Express aktivieren (optional)

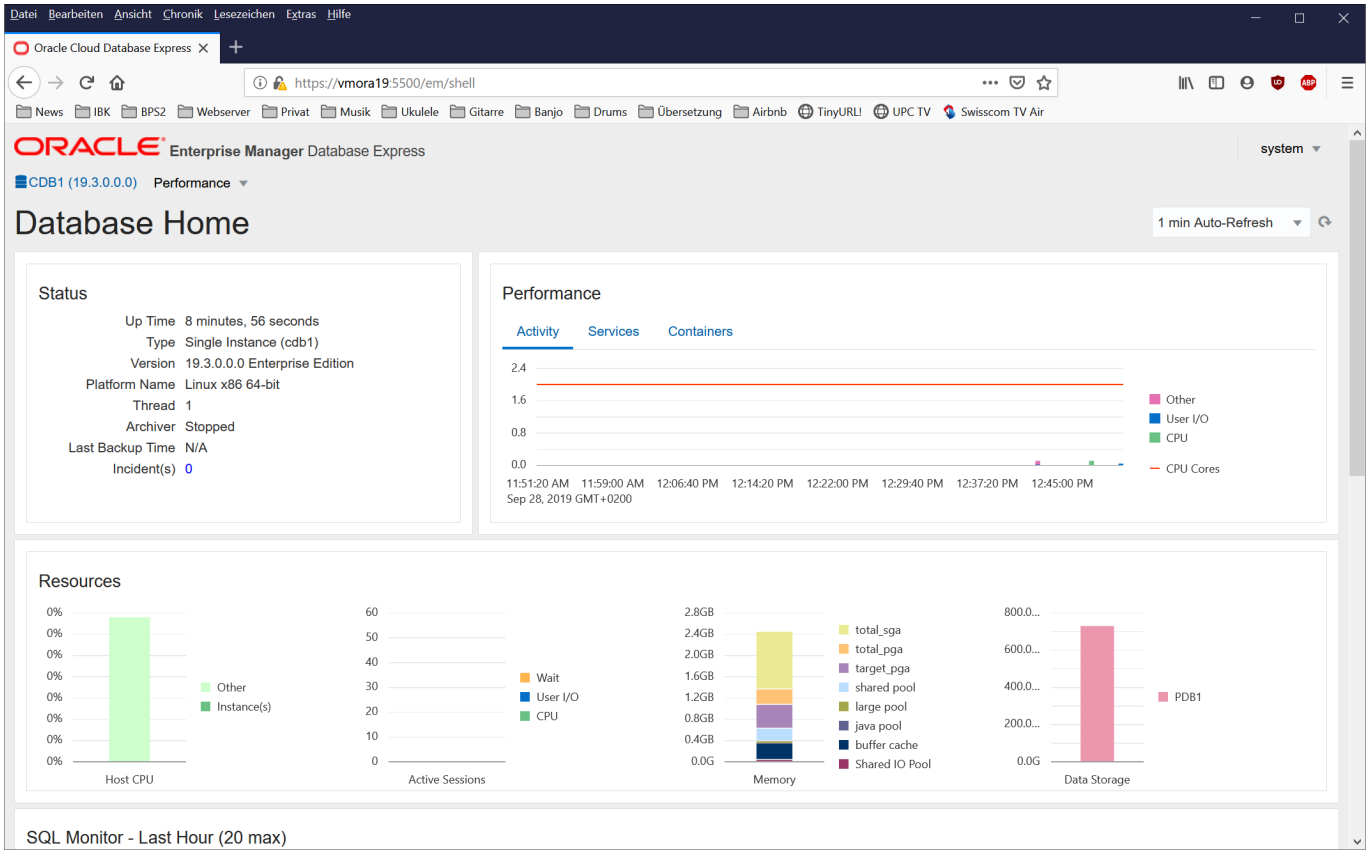
Diesen Teil bezeichne ich als optional, da der Web-basierte Enterprise Manager Express von Oracle 19c nur noch ein müder Abklatsch der früheren Enterprise Manager ist (deshalb nennen sie ihn wohl auch „Express“). Er taugt nur noch dazu denStatus der DB grob zu beobachten, alle echten Management-Funktionen fehlen jedoch völlig. Der Nutzen ist deshalb äusserst fraglich.

Als oracle:

```
$ sqlplus / as sysdba
--
exec dbms_xdb_config.sethttpsport(5500);
```

Test im Browser





Administration

Tablespaces in pdb1 erzeugen

Sie denken vielleicht, dass es eine gute Idee ist, die Tablespaces unter den Verzeichnissen /u01 oder /u02 zu speichern, auch weil die Oracle-Dokumente über „optimale flexible Architektur“ dies zu suggerieren scheinen. Wenn Sie diese Anleitung befolgt haben, wird jedoch beim Überprüfen der verfügbaren Festplattengröße ein Problem angezeigt:

```
$ df -h

Filesystem                   Size  Used Avail Use% Mounted on
devtmpfs                     1.8G     0  1.8G   0% /dev
tmpfs                        1.8G  960M  879M  53% /dev/shm
tmpfs                        1.8G  9.5M  1.8G   1% /run
tmpfs                        1.8G     0  1.8G   0% /sys/fs/cgroup
/dev/mapper/ol_vmora19-root   50G   28G   23G  55% /
/dev/sda1                   1014M  331M  684M  33% /boot
/dev/mapper/ol_vmora19-home  445G   36G  409G   9% /home
tmpfs                        368M     0  368M   0% /run/user/54321
tmpfs                        368M   12K  368M   1% /run/user/42
```

Wie Sie sehen können, befinden sich /u01 und /u02 unter /dev/mapper/ol_vmora19-root, was 50 GB gross ist. Der grösste Teil des Laufwerks ist jedoch unter /home verfügbar, nämlich 445 GB. Deshalb platziere ich meine Anwendungs-Tablespaces jeweils unter /home/oracle:

```
$ mkdir /home/oracle/pdb1
$ chmod 750 /home/oracle/pdb1
```

```
$ sqlplus / as sysdba
```

Tablespaces kreieren und auflisten:

```
SQL> ALTER SESSION SET CONTAINER = pdb1;
SQL> CREATE TABLESPACE lu_agrar_dat  DATAFILE
'/home/oracle/pdb1/lu_agrar_dat.dbf' SIZE 100M  AUTOEXTEND ON NEXT 100M;
SQL> CREATE TABLESPACE lu_agrar_inx  DATAFILE
'/home/oracle/pdb1/lu_agrar_inx.dbf' SIZE 100M  AUTOEXTEND ON NEXT 100M;
SQL> SELECT TABLESPACE_NAME, STATUS, CONTENTS FROM DBA_TABLESPACES;

TABLESPACE_NAME                STATUS    CONTENTS
------------------------------ --------- ---------------------
SYSTEM                         ONLINE    PERMANENT
SYSAUX                         ONLINE    PERMANENT
UNDOTBS1                       ONLINE    UNDO
TEMP                           ONLINE    TEMPORARY
USERS                          ONLINE    PERMANENT
LU_AGRAR_DAT                   ONLINE    PERMANENT
LU_AGRAR_INX                   ONLINE    PERMANENT
7 rows selected.
```

Überprüfen dass die neuen Tablespaces tatsächlich nur in pdb1 verfügbar sind:

```
SQL> ALTER SESSION SET CONTAINER = CDB$ROOT;
SQL> SELECT TABLESPACE_NAME, STATUS, CONTENTS FROM DBA_TABLESPACES;

TABLESPACE_NAME                STATUS    CONTENTS
------------------------------ --------- --------------------
SYSTEM                         ONLINE    PERMANENT
SYSAUX                         ONLINE    PERMANENT
UNDOTBS1                       ONLINE    UNDO
TEMP                           ONLINE    TEMPORARY
USERS                          ONLINE    PERMANENT
```

Tablespaces aus pdb1 entfernen und löschen

```
$ sqlplus / as sysdba
```

Tablespaces anzeigen und löschen:

```
SQL> ALTER SESSION SET CONTAINER = pdb1;
SQL> SELECT TABLESPACE_NAME, STATUS, CONTENTS FROM DBA_TABLESPACES;
SQL> DROP TABLESPACE lu_agrar INCLUDING CONTENTS AND DATAFILES;
```

Speicherverbrauch überwachen

```
$ sqlplus / as sysdba
```

Speicherverbrauch pro Tablespace überwachen:

```
SQL> select tablespace_name, round(bytes/1024/1024) MB,
round(bytes/1024/1024/1024,3) GB from cdb_data_files;
```

Beispielausgabe:

```
TABLESPACE_NAME                     MB         GB
------------------------------ ---------- ----------
USERS                                5       .005
UNDOTBS1                            65       .063
SYSTEM                             840        .82
SYSAUX                             580       .566
SYSTEM                             290       .283
SYSAUX                             430        .42
UNDOTBS1                           220       .215
USERS                                5       .005
LU_AGRAR_DAT                        50       .049
LU_AGRAR_INX                        50       .049
```

Wenn sie nur die Summe aller Benutzer-Daten wollen:

```
SQL> select round(sum(bytes)/1024/1024) MB,
```

```
round(sum(bytes)/1024/1024/1024,3) GB from cdb_data_files -
   > where tablespace_name not like 'SYS%' and tablespace_name not like
'UNDO%';
```

Beispielausgabe:

```
        MB         GB
---------- ----------
      2535      2.476
```

TNSNAMES Eintrag bei Clients

```
VMORA19 =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP)(HOST = vmora19)(PORT = 1521))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = pdb1)
    )
  )
```

Ablaufen der Passworte verhindern

Möglicherweise möchten Sie das Ablaufen des Kennworts zumindest für SYSTEM und die BPS-Superuser deaktivieren.

```
$ sqlplus / as sysdba
```

Die Profile kontrollieren:

```
SQL> alter session set container = pdb1;
SQL> select profile from DBA_USERS where username = 'SYSTEM';
SQL> select profile from DBA_USERS where username = 'LU_AGRAR';
```

Einstellungen in den Profilen kontrollieren, z.B. im DEFAULT Profil:

```
SQL> select resource_name, limit from dba_profiles where profile='DEFAULT';
```

Auf unlimitiert ändern:

```
SQL> alter profile DEFAULT limit password_life_time UNLIMITED;
```

Einen Benutzer wieder entsperren:

```
SQL> alter user LU_AGRAR identified by lu_a****** account unlock;
```