

## Instalación ORACLE Database en GCP

### Preparación:

Crear una máquina virtual en GCP con el sistema operativo CentOS, asegurarse de abrir el puerto 1521 para poder conectarse a la base de datos.

Boot disk

Select an image or snapshot to create a boot disk; or attach an existing disk. Can't find what you're looking for? Explore hundreds of VM solutions in [Marketplace](#)

**PUBLIC IMAGES** CUSTOM IMAGES SNAPSHOTS EXISTING DISKS

Operating system  
CentOS

Version \*  
CentOS 7

x86\_64 built on 20220519, supports Shielded VM features

Boot disk type \*  
Balanced persistent disk

Size (GB) \*  
20

SHOW ADVANCED CONFIGURATION

SELECT CANCEL

Cuando la máquina virtual esté lista, correr el siguiente comando para instalar los siguientes programas que se utilizaran durante el proceso de instalación de ORACLE.

- `sudo yum install unzip libaio bc flex wget`

```
base2-proyecto1.tlp - blurd@34.125.252.22 - Bitwise xterm - blurd@base2-proyecto1~
Last login: Mon Jun 13 18:33:49 2022 from 200.119.177.70
[blurd@base2-proyecto1 ~]$ sudo yum install unzip libaio bc flex wget
Loaded plugins: fastestmirror
Loading mirror speeds from cached hostfile
 * base: mirror.sfo12.us.leaseweb.net
 * epel: mirror.lshiy.com
 * extras: mirrors.oit.uci.edu
 * updates: mirror.san.fastserv.com
Package bc-1.06.95-13.el7.x86_64 already installed and latest version
Resolving Dependencies
--> Running transaction check
--> Package flex.x86_64 0:2.5.37-6.el7 will be installed
--> Processing Dependency: m4 for package: flex-2.5.37-6.el7.x86_64
--> Package libaio.x86_64 0:0.3.109-13.el7 will be installed
--> Package unzip.x86_64 0:6.0-24.el7_9 will be installed
--> Package wget.x86_64 0:1.14-18.el7_6.1 will be installed
--> Running transaction check
--> Package m4.x86_64 0:1.4.16-10.el7 will be installed
--> Finished Dependency Resolution

Dependencies Resolved

=====
Package Arch Version Repository Size
=====
Installing:
flex x86_64 2.5.37-6.el7 base 293 k
libaio x86_64 0.3.109-13.el7 base 24 k
unzip x86_64 6.0-24.el7_9 updates 172 k
wget x86_64 1.14-18.el7_6.1 base 547 k
Installing for dependencies:
m4 x86_64 1.4.16-10.el7 base 256 k
=====

Transaction Summary
=====
Install 4 Packages (+1 Dependent package)

Total download size: 1.3 M
Installed size: 3.6 M
Is this ok [y/d/N]: y
Downloading packages:
(1/5): libaio-0.3.109-13.el7.x86_64.rpm | 24 kB 00:00:00
(2/5): flex-2.5.37-6.el7.x86_64.rpm | 293 kB 00:00:00
(3/5): m4-1.4.16-10.el7.x86_64.rpm | 256 kB 00:00:00
(4/5): unzip-6.0-24.el7_9.x86_64.rpm | 172 kB 00:00:00
(5/5): wget-1.14-18.el7_6.1.x86_64.rpm | 547 kB 00:00:00
Total 2.5 MB/s | 1.3 MB 00:00:00
```

## Creación de archivo de SWAP

Es necesario crear un archivo de SWAP de por lo menos 2GB utilizando los siguientes comandos:

- `sudo dd if=/dev/zero of=/mnt/swapfile bs=1024 count=2097152`
- `sudo chmod 600 /mnt/swapfile`
- `sudo mkswap /mnt/swapfile`
- `sudo swapon /mnt/swapfile`

```
base2-project1 | http - bluxd@34.125.25.222 - Bitvise xterm - bluxd@base2-project1:~
Install 4 Packages (+1 Dependent package)

Total download size: 1.3 M
Installed size: 3.6 M
Is this ok [y/d/N]: y
Downloading packages:
(1/5): libaio-0.3.109-13.el7.x86_64.rpm | 24 kB 00:00:00
(2/5): flex-2.5.37-6.el7.x86_64.rpm | 293 kB 00:00:00
(3/5): md-1.4.16-10.el7.x86_64.rpm | 256 kB 00:00:00
(4/5): unzip-6.0-24.el7_9.x86_64.rpm | 172 kB 00:00:00
(5/5): wget-1.14-18.el7_6.1.x86_64.rpm | 547 kB 00:00:00
Total | 2.5 MB/s | 1.3 MB 00:00:00
Running transaction check
Running transaction test
Transaction test succeeded
Running transaction
Installing : md-1.4.16-10.el7.x86_64 1/5
Installing : flex-2.5.37-6.el7.x86_64 2/5
Installing : wget-1.14-18.el7_6.1.x86_64 3/5
Installing : unzip-6.0-24.el7_9.x86_64 4/5
Installing : libaio-0.3.109-13.el7.x86_64 5/5
Verifying : libaio-0.3.109-13.el7.x86_64 1/5
Verifying : flex-2.5.37-6.el7.x86_64 2/5
Verifying : unzip-6.0-24.el7_9.x86_64 3/5
Verifying : md-1.4.16-10.el7.x86_64 4/5
Verifying : wget-1.14-18.el7_6.1.x86_64 5/5
Installed:
flex.x86_64 0:2.5.37-6.el7 libaio.x86_64 0:0.3.109-13.el7 unzip.x86_64 0:6.0-24.el7_9 wget.x86_64 0:1.14-18.el7_6.1
Dependency Installed:
md.x86_64 0:1.4.16-10.el7
Complete!
[bluxd@base2-project1 ~]$ sudo dd if=/dev/zero of=/mnt/swapfile bs=1024 count=2097152
20971520 records in
20971520 records out
2147483648 bytes (2.1 GiB) copied, 6.22694 s, 345 MB/s
[bluxd@base2-project1 ~]$ sudo chmod 600 /mnt/swapfile
[bluxd@base2-project1 ~]$ sudo mkswap /mnt/swapfile
Setting up swappspace version 1, size = 2097148 KiB
no label, UUID=d2822494-e834-416c-9a5d-475b7769a507
[bluxd@base2-project1 ~]$ swapon /mnt/swapfile
swapon: cannot open /mnt/swapfile: Permission denied
[bluxd@base2-project1 ~]$ sudo swapon /mnt/swapfile
[bluxd@base2-project1 ~]$
```

Para montar automáticamente el archivo SWAP se debe editar el archivo `/etc/fstab` agregando la siguiente línea al final del archivo:

- `/mnt/swapfile swap swap defaults 0 0`

```
base2-project1 | http - bluxd@34.125.25.222 - Bitvise xterm - bluxd@base2-project1:~
# /etc/fstab
# Created by anaconda on Wed May 18 17:47:57 2022
#
# Accessible filesystems, by reference, are maintained under '/dev/disk'
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info
UUID=f9701201-0ee2-4d41-921e-4dfc5374c6f3 / xfs defaults 0 0
UUID=14c9-1801 /boot/efi vfat defaults,uid=0,gid=0,umask=0077,shortname=winnt 0 0
/mnt/swapfile swap swap defaults 0 0

"/etc/fstab" 11L, 458C
```

## Obtener y descomprimir instalador

Utilizar la herramienta wget para descargar el instalador de ORACLE, el link de descarga de ORACLE 11gR2 se puede obtener del link:

- <https://www.oracle.com/database/technologies/xe-prior-release-downloads.html>

```
[bluxd@bases2-proyecto1 ~]$ wget https://download.oracle.com/otn/linux/oracle11g/xe/oracle-xe-11.2.0-1.0.x86_64.rpm.zip?AuthParam=1655123559_343cb3c114fb0639078c9236591d29a5
--2022-06-13 12:32:05-- https://download.oracle.com/otn/linux/oracle11g/xe/oracle-xe-11.2.0-1.0.x86_64.rpm.zip?AuthParam=1655123559_343cb3c114fb0639078c9236591d29a5
Resolving download.oracle.com (download.oracle.com)... 184.26.156.34
Connecting to download.oracle.com (download.oracle.com)[184.26.156.34]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 315891481 (301M) [application/zip]
Saving to: 'oracle-xe-11.2.0-1.0.x86_64.rpm.zip?AuthParam=1655123559_343cb3c114fb0639078c9236591d29a5'

100%[=====] 315,891,481 47.0MB/s in 6.4s

2022-06-13 12:32:12 (46.8 MB/s) - 'oracle-xe-11.2.0-1.0.x86_64.rpm.zip?AuthParam=1655123559_343cb3c114fb0639078c9236591d29a5' saved [315891481/315891481]

[bluxd@bases2-proyecto1 ~]$ ls
oracle-xe-11.2.0-1.0.x86_64.rpm.zip?AuthParam=1655123559_343cb3c114fb0639078c9236591d29a5
[bluxd@bases2-proyecto1 ~]$ mv oracle-xe-11.2.0-1.0.x86_64.rpm.zip?AuthParam=1655123559_343cb3c114fb0639078c9236591d29a5 oracle-xe-11.2.0-1.0.x86_64.rpm.zip
[bluxd@bases2-proyecto1 ~]$ ls
oracle-xe-11.2.0-1.0.x86_64.rpm.zip
[bluxd@bases2-proyecto1 ~]$
```

Renombrar el archivo descargado, asignarle los permisos correctos, descomprimirlo e ingresar a la carpeta creada (Disk1):

- mv oracle-xe-11.2.0-1.0.x86\_64.rpm.zip?AuthParam=1655123559\_343cb3c114fb0639078c9236591d29a5 oracle-xe-11.2.0-1.0.x86\_64.rpm.zip
- chmod 755 oracle-xe-11.2.0-1.0.x86\_64.rpm.zip
- unzip oracle-xe-11.2.0-1.0.x86\_64.rpm.zip
- cd Disk1/

```
[bluxd@bases2-proyecto1 ~]$ wget https://download.oracle.com/otn/linux/oracle11g/xe/oracle-xe-11.2.0-1.0.x86_64.rpm.zip?AuthParam=1655123559_343cb3c114fb0639078c9236591d29a5
--2022-06-13 12:32:05-- https://download.oracle.com/otn/linux/oracle11g/xe/oracle-xe-11.2.0-1.0.x86_64.rpm.zip?AuthParam=1655123559_343cb3c114fb0639078c9236591d29a5
Resolving download.oracle.com (download.oracle.com)... 184.26.156.34
Connecting to download.oracle.com (download.oracle.com)[184.26.156.34]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 315891481 (301M) [application/zip]
Saving to: 'oracle-xe-11.2.0-1.0.x86_64.rpm.zip?AuthParam=1655123559_343cb3c114fb0639078c9236591d29a5'

100%[=====] 315,891,481 47.0MB/s in 6.4s

2022-06-13 12:32:12 (46.8 MB/s) - 'oracle-xe-11.2.0-1.0.x86_64.rpm.zip?AuthParam=1655123559_343cb3c114fb0639078c9236591d29a5' saved [315891481/315891481]

[bluxd@bases2-proyecto1 ~]$ ls
oracle-xe-11.2.0-1.0.x86_64.rpm.zip?AuthParam=1655123559_343cb3c114fb0639078c9236591d29a5
[bluxd@bases2-proyecto1 ~]$ mv oracle-xe-11.2.0-1.0.x86_64.rpm.zip?AuthParam=1655123559_343cb3c114fb0639078c9236591d29a5 oracle-xe-11.2.0-1.0.x86_64.rpm.zip
[bluxd@bases2-proyecto1 ~]$ ls
oracle-xe-11.2.0-1.0.x86_64.rpm.zip
[bluxd@bases2-proyecto1 ~]$ chmod 755 oracle-xe-11.2.0-1.0.x86_64.rpm.zip
chmod: cannot access 'oracle-xe-11.2.0-1.0.x86_64.rpm.zip': No such file or directory
[bluxd@bases2-proyecto1 ~]$ chmod 755 oracle-xe-11.2.0-1.0.x86_64.rpm.zip
[bluxd@bases2-proyecto1 ~]$ unzip oracle-xe-11.2.0-1.0.x86_64.rpm.zip
Archive:  oracle-xe-11.2.0-1.0.x86_64.rpm.zip
  creating: Disk1/
  creating: Disk1/upgrade/
  inflating: Disk1/upgrade/gen_inst.sql
  creating: Disk1/response/
  inflating: Disk1/response/xe.rsp
  inflating: Disk1/oracle-xe-11.2.0-1.0.x86_64.rpm
[bluxd@bases2-proyecto1 ~]$ cd Disk1/
[bluxd@bases2-proyecto1 Disk1]$ ls
oracle-xe-11.2.0-1.0.x86_64.rpm response upgrade
[bluxd@bases2-proyecto1 Disk1]$
```

## Instalar ORACLE 11gR2

Para instalar, ejecutar el comando:

- `sudo rpm -ivh oracle-xe-11.2.0-1.0.x86_64.rpm`

```
[bluxd@bases2-proyecto1 Disk1]$ sudo rpm -ivh oracle-xe-11.2.0-1.0.x86_64.rpm
Preparing...##### [100%]
/var/tmp/rpm-tmp.WyasJo: line 257: [: 18446744073692774399: integer expression expected
/var/tmp/rpm-tmp.WyasJo: line 271: [: 18446744073692774399: integer expression expected
Updating / installing...
 1:oracle-xe-11.2.0-1.0##### [100%]
Executing post-install steps...
You must run '/etc/init.d/oracle-xe configure' as the root user to configure the database.
[bluxd@bases2-proyecto1 Disk1]$
```

## Configuración de ORACLE 11gR2

Para configurar la instalación de ORACLE, ejecutar el comando:

- `sudo /etc/init.d/oracle-xe configure`

Se debe definir un password para la base de datos. Si no se desea, no es necesario cambiar ningún parámetro. Asegurarse de configurar ORACLE para que arranque al inicio del sistema.

```
[bluxd@bases2-proyecto1 ~]$ sudo /etc/init.d/oracle-xe configure
Oracle Database 11g Express Edition Configuration
-----
This will configure on-boot properties of Oracle Database 11g Express
Edition. The following questions will determine whether the database should
be starting upon system boot, the ports it will use, and the passwords that
will be used for database accounts. Press <Enter> to accept the defaults.
Ctrl-C will abort.

Specify the HTTP port that will be used for Oracle Application Express [8080]:

Specify a port that will be used for the database listener [1521]:

Specify a password to be used for database accounts. Note that the same
password will be used for SYS and SYSTEM. Oracle recommends the use of
different passwords for each database account. This can be done after
initial configuration:
Password can't be null. Enter password:
The password you entered contains invalid characters. Enter password:
The password you entered contains invalid characters. Enter password:
Confirm the password:

Do you want Oracle Database 11g Express Edition to be started on boot (y/n) [y]:y

Starting Oracle Net Listener...Done
Configuring database...Done
Starting Oracle Database 11g Express Edition instance...Done
Installation completed successfully.
[bluxd@bases2-proyecto1 ~]$
```

Ahora es necesario ingresar al sistema con el usuario `oracle` para realizar cambios directamente en los archivos de ORACLE, ejecutar el siguiente comando para cambiar la contraseña de dicho usuario e iniciar sesión:

- `sudo passwd oracle`
- `su - oracle`

Ahora es necesario editar el archivo ` \$HOME/.profile` agregando la siguiente línea al final del archivo:

- `. ~/product/11.2.0/xe/bin/oracle_env.sh`

Después de estos cambios, es necesario reingresar con los comandos:

- Logout
- su - oracle

```
[bluxd@bases2-proyecto1 ~]$ sudo passwd oracle
Changing password for user oracle.
New password:
BAD PASSWORD: The password fails the dictionary check - it is based on a dictionary word
Retype new password:
passwd: all authentication tokens updated successfully.
[bluxd@bases2-proyecto1 ~]$ whoami
bluxd
[bluxd@bases2-proyecto1 ~]$ su - oracle
Password:
Last login: Mon Jun 13 12:41:05 UTC 2022
-bash-4.2$ whoami
oracle
-bash-4.2$ vi $HOME/.profile
-bash-4.2$ vi $HOME/.profile
-bash-4.2$ logout
[bluxd@bases2-proyecto1 ~]$ su - oracle
su: user - does not exist
[bluxd@bases2-proyecto1 ~]$ su - oracle
Password:
Last login: Mon Jun 13 12:44:17 UTC 2022 on pts/0
-bash-4.2$
```

## Acceso a ORACLE DB

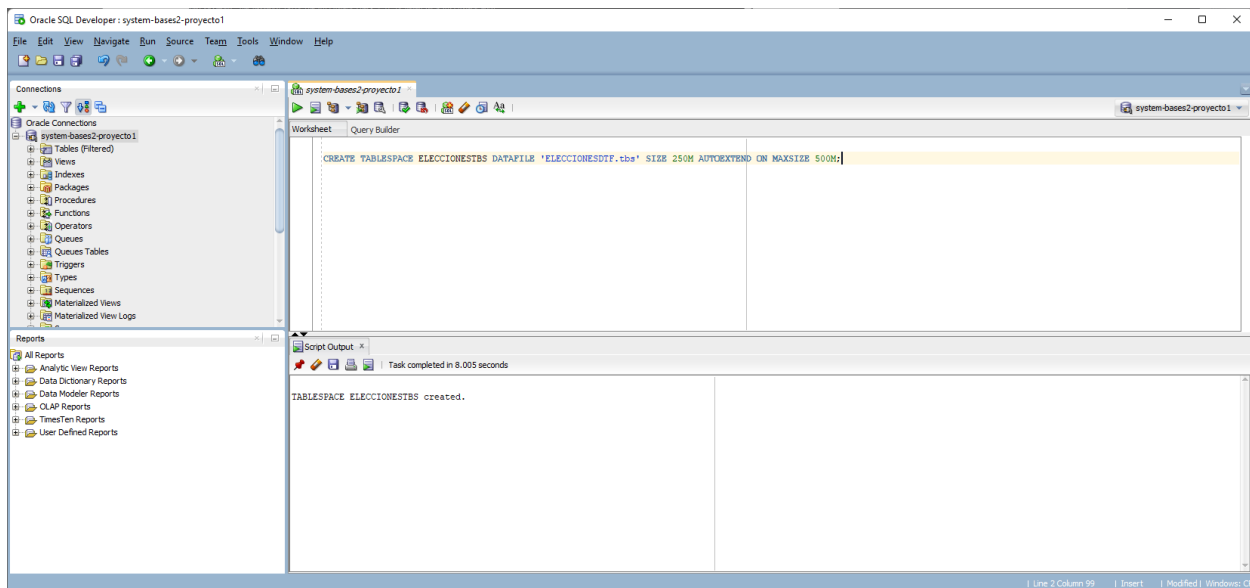
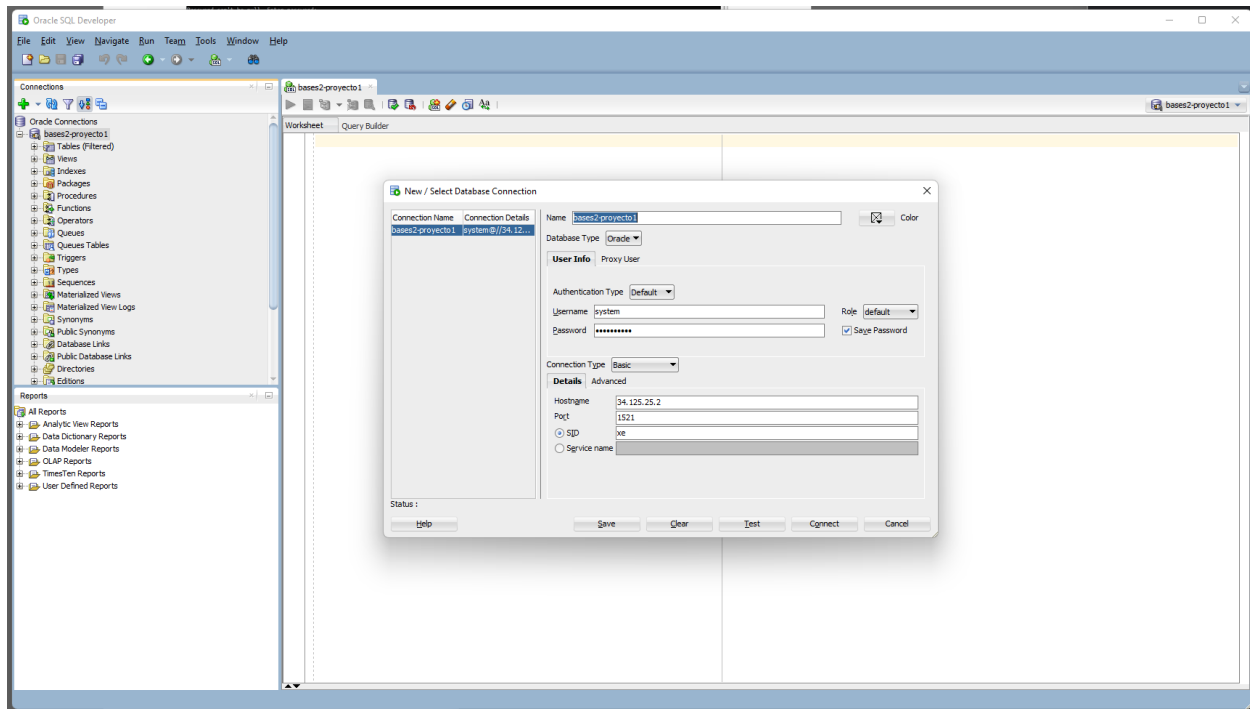
Dentro del usuario de oracle, se puede ejecutar el siguiente comando para ingresar a la consola de SQL de ORACLE:

- sqlplus / as sysdba

```
bases2-proyecto1.tlp - bluxd@34.125.25.222 - Bitvise xterm - bluxd@bases2-proyecto1:~
[bluxd@bases2-proyecto1 ~]$ su - oracle
Password:
Last login: Mon Jun 13 20:28:47 UTC 2022 on pts/1
-bash-4.2$ sqlplus / as sysdba
SQL*Plus: Release 11.2.0.2.0 Production on Mon Jun 13 23:13:34 2022
Copyright (c) 1982, 2011, Oracle. All rights reserved.

Connected to:
Oracle Database 11g Express Edition Release 11.2.0.2.0 - 64bit Production
SQL>
```

Utilizando la IP pública de la máquina virtual, en el puerto 1521 con el usuario system y el password que se definió durante la configuración de la instalación se puede acceder a la instancia de ORACLE DB.



## Configuración de Parámetros

### Límite de procesos:

- show parameter processes;
- alter system set processes=1500 scope=spfile;
- shutdown IMMEDIATE
- startup

```
SQL> show parameter processes;

NAME                                 TYPE        VALUE
-----
aq_tm_processes                      integer      0
db_writer_processes                  integer      1
gc_s_server_processes                integer      0
global_txn_processes                 integer      1
job_queue_processes                  integer      4
log_archive_max_processes             integer      4
processes                            integer      100
SQL> alter system set processes=1500 scope=spfile;

System altered.

SQL> shutdown IMMEDIATE
Database closed.
Database dismounted.
ORACLE instance shut down.
SQL> startup
ORACLE instance started.

Total System Global Area 1068937216 bytes
Fixed Size                  2233344 bytes
Variable Size             742394880 bytes
Database Buffers          318767104 bytes
Redo Buffers                5541888 bytes
Database mounted.
Database opened.
SQL> show parameter processes;

NAME                                 TYPE        VALUE
-----
aq_tm_processes                      integer      0
db_writer_processes                  integer      1
gc_s_server_processes                integer      0
global_txn_processes                 integer      1
job_queue_processes                  integer      4
log_archive_max_processes             integer      4
processes                            integer      1500
```

### Límite de sesiones:

- show parameter sessions;
- alter system set sessions=500 scope=spfile;
- shutdown IMMEDIATE
- startup

```
SQL> show parameter sessions;

NAME                                 TYPE        VALUE
-----
java_max_sessionspace_size          integer      0
java_soft_sessionspace_limit         integer      0
license_max_sessions                  integer      0
license_sessions_warning              integer      0
sessions                             integer      2272
shared_server_sessions                integer      0
SQL> alter system set sessions=500 scope=spfile;

System altered.

SQL> shutdown IMMEDIATE
Database closed.
Database dismounted.
ORACLE instance shut down.
SQL> startup
ORACLE instance started.

Total System Global Area 1068937216 bytes
Fixed Size                  2233344 bytes
Variable Size             742394880 bytes
Database Buffers          318767104 bytes
Redo Buffers                5541888 bytes
Database mounted.
Database opened.
SQL> show parameter sessions;

NAME                                 TYPE        VALUE
-----
java_max_sessionspace_size          integer      0
java_soft_sessionspace_limit         integer      0
license_max_sessions                  integer      0
license_sessions_warning              integer      0
sessions                             integer      2272
shared_server_sessions                integer      0
```