Solution Engineer Assisted Workshop Day

Lab 03 – Oracle Database as a service

V1.2

ORACLE LAB BOOK | JANURARY 2019

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Overview

This workshop is an introduction to Database Cloud Service on Oracle Cloud at Customer. The user will interact with the service via the service console and demonstrates many of the features of the service.

Pre-Requisites

1. Oracle Cloud Infrastructure account credentials (User, Password, and Tenant)
2. SSH Keys generated for compute SSH access.
3. User access to you must have the Compute_Operations role.

Sign into tenancy:

Access the Tenancy Welcome Email using this link:
http://10.136.208.135/shares/export/nas/pcm/ocm#O/t#TWelcome.html

Where #O is the OCC and #T is the tenancy.

Workshop Requirements

- Workstation or laptop with connectivity to the Oracle Solution Centre
- Authentication details to authenticate to OCC rack

Service Console Introduction

Access the DBCS Console either via the dashboard or directly.

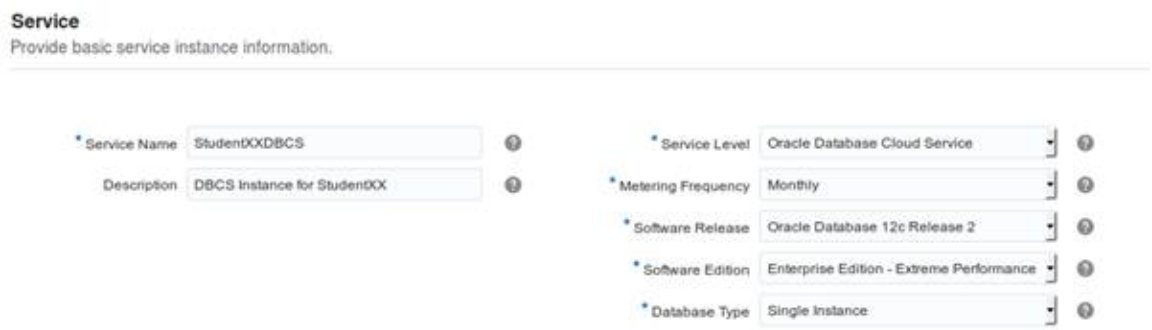
The DBCS Service Console will now display an overview of resource usage and DBCS instances. The summary bar shows the number of instances as well as OCPU, memory, storage and public IPs used. Note that in Cloud at Customer, Public IP means an IP on the datacenter Ethernet network. Below is a searchable list of DBCS service instances. Below this is list of create and delete actions. Above tabs give access to an activity log and a page that allows new SSH keys to be uploaded to each instance. Take a moment to explore the Service Console.

Practice 3-1: Provision a DBCS Instance

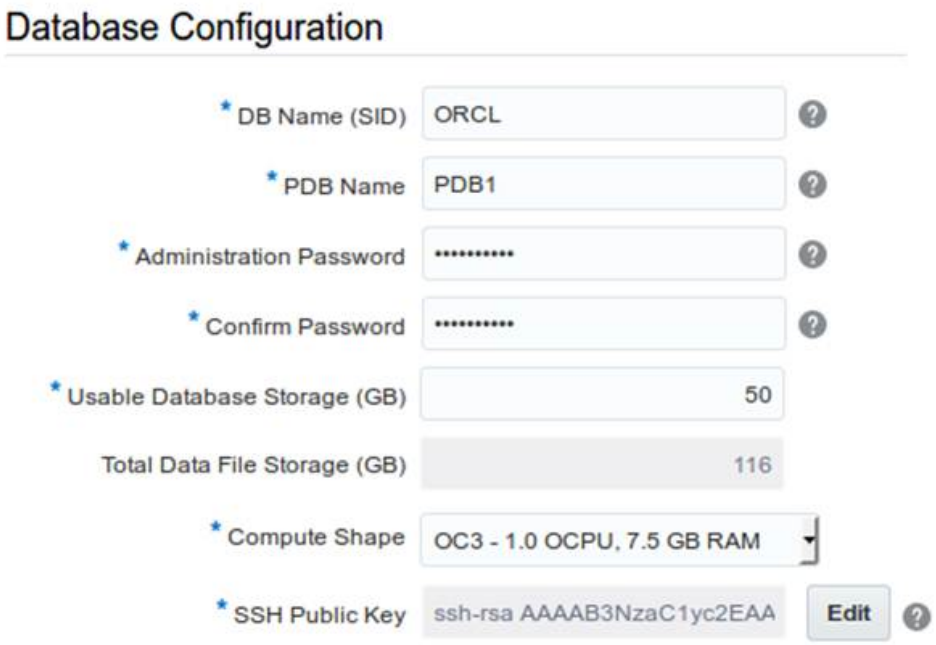
Overview

DBCS Instance Creation

1. Click the "**Create Service**" button to start the DBCS instance creation wizard. The next screen will collect some basic information about the type of DBCS instance. Complete as follows:
   * replace XX with allocated ID given.
   a. **Service Name**: StudentXXDBCS
   b. **Description**: DBCS Instance for StudentXX
   c. **Service Level**: Oracle Database Cloud Service
   d. **Metering Frequency**: Monthly
   e. **Software Release**: Oracle Database 12c Release 2
   f. **Software Edition**: Enterprise Edition – Extreme Performance
   g. **Database Type**: Single Instance

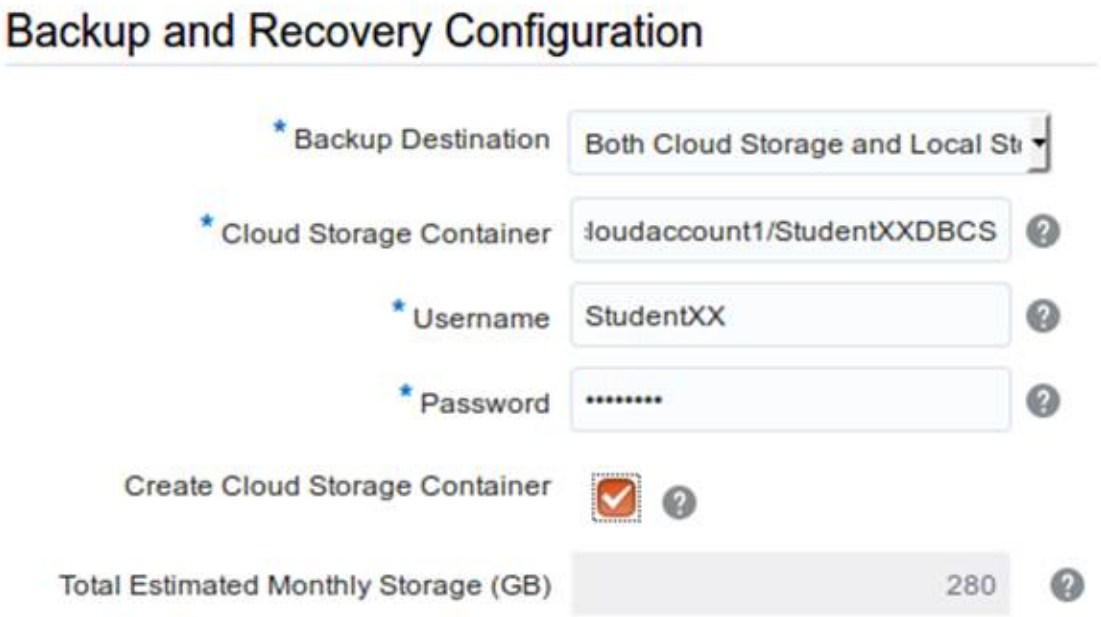


2. Second screen collects details of the database itself. Complete the Database Configuration section:
   a. **SID**: ORCL
   b. **PDB Name**: PDB1
   c. **Administration Password**: DBCSDemo1#
   d. **Confirm Password**: DBCSDemo1#
   e. **Usable Database Storage**: 120
   f. **Compute Shape**: OC3 – 1.0 OCPU, 7.5 GB RAM
   g. Use the public key you downloaded on practice lesson 1 or one generated.

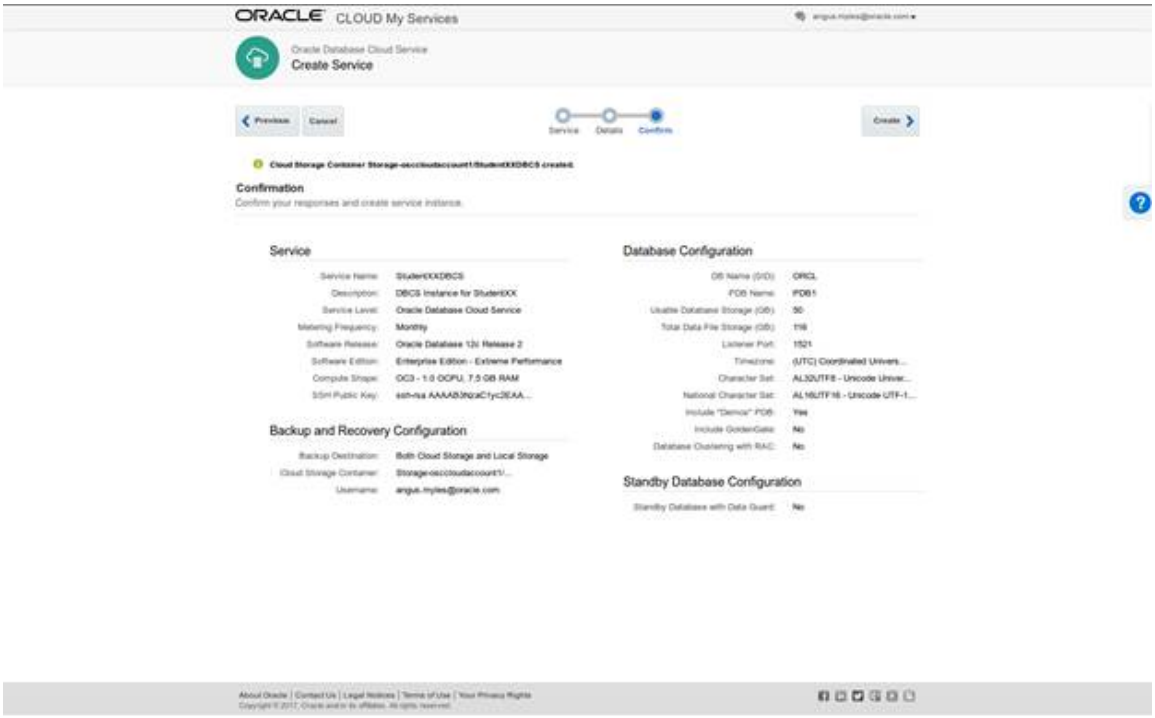


3. Leave the Advanced Settings default.

4. In the Backup and Recovery Configuration enter the following:
    a. **Backup Destination**: Both Cloud Storage and Local Storage
    b. **Cloud Storage Container**: Storage-tenant#T/StudentXXDBCS, e.g. Storage-tenant1/StudentXXDBCS
    c. **Username**: The username assigned to you, e.g. t1user
    d. **Password**: The password assigned to you
    e. **Create Cloud Storage Container**: Checked



5. In the Initialize from Backup section select No for Create Instance from Existing Backup
6. Click Next and review the details. Click **Create** to submit the request.



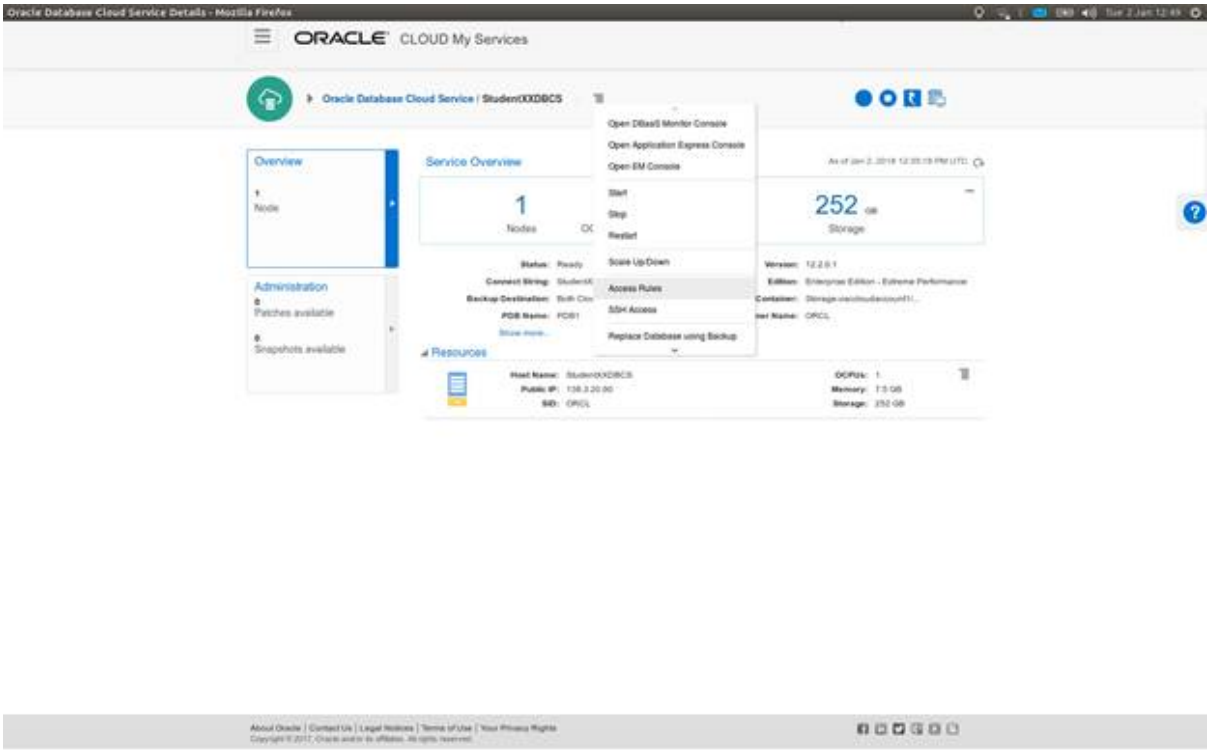
7. You will be returned to the main screen of the DBCS Service Console. Your service instance should appear in the list with a status of "Creating service...". Service instance creation takes approximately 25 minutes.

   Progress can be monitored on the Activity tab. Switch to the tab and search for your creation job. Entering "StudentXX" in the Service Name field will filter the results. Once located expand the Create Service job to see details of the individual steps.

Enable Network Access

By default, network access to the DBCS virtual machine is restricted with only SSH access being enabled after creation. In order to access the management consoles or for clients to connect to the database it's necessary to enable some prebuilt access rules.

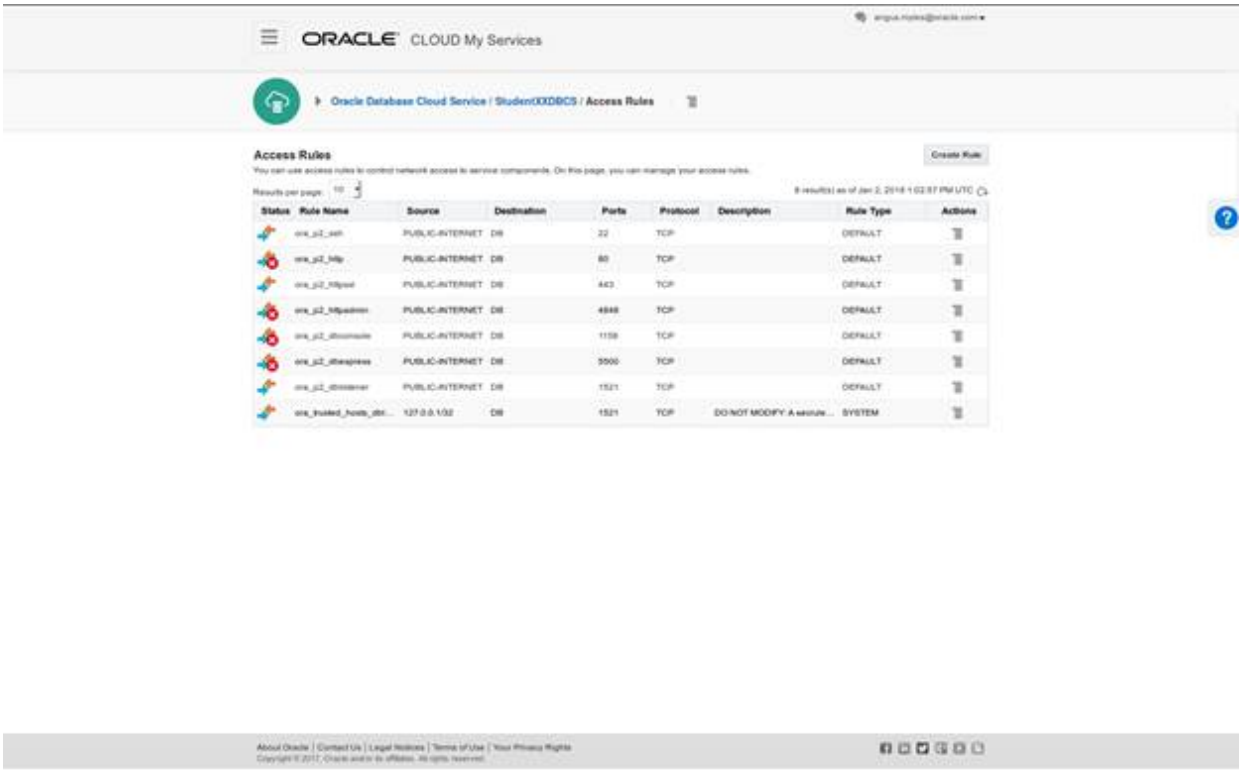
1. In the Service Console locate your instance and click it’s title for the details. Open the "hamburger" menu to the right of the instance name and scroll down to select "Access Rules".



2. Locate the rule named "ora_p2_dblistener" in the Access Rules table. Click the hamburger menu in the Actions column and click Enable. In the resulting dialogue box press the Enable button.

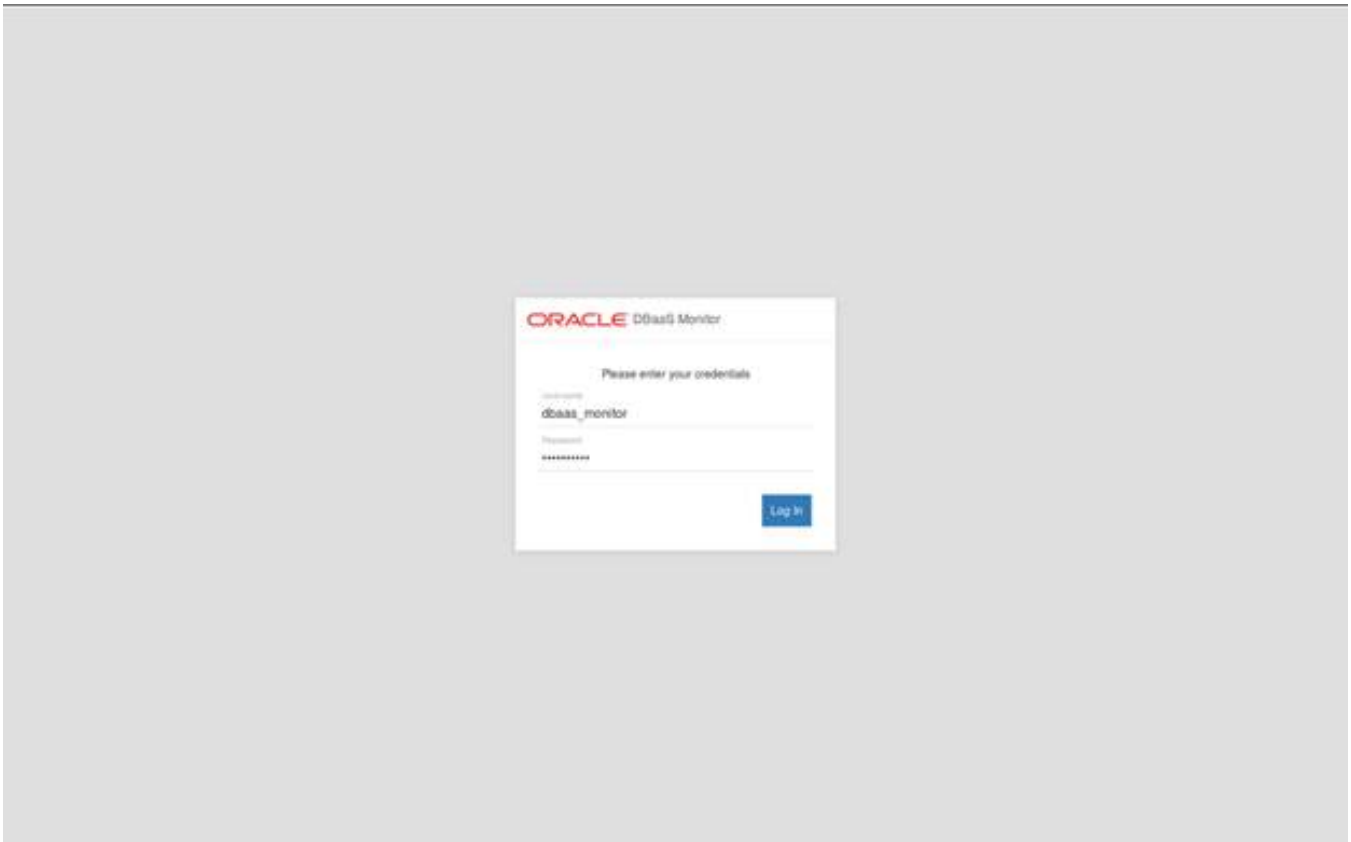
3. Repeat the procedure for the rule named ora_p2_httpssl. The status of these two rules should now be enabled along with the ora_p2_ssh rule which is enabled at creation.

4. You may want to enable all other rules too, specifically, you will need to enable ora_p2_http and ora_p2_httpssl for APEX to work.

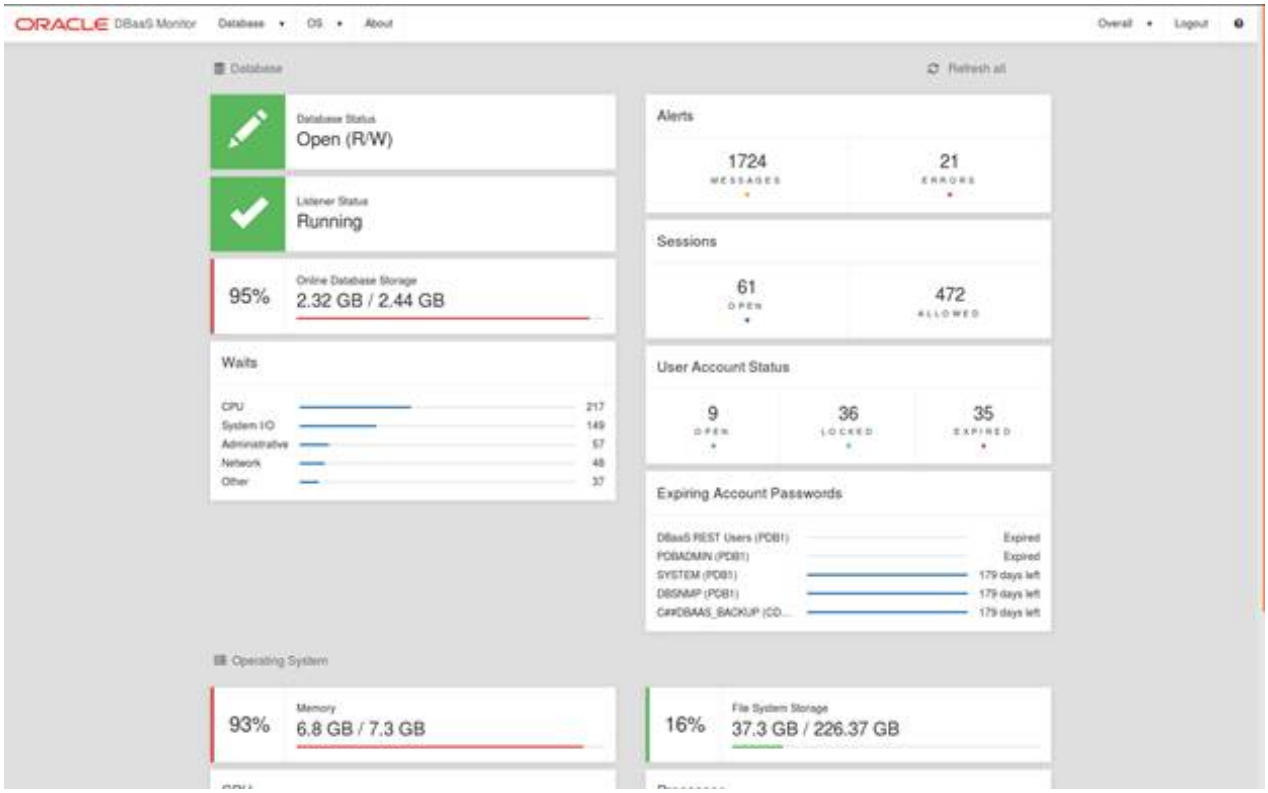

ORACLE CLOUD My Services
Oracle Database Cloud Service / StudentXXDBCS / Access Rules
Access Rules
Create Rule
Status
Rule Name
Source
Destination
Ports
Protocol
Description
Rule Type
Actions
PUBLIC-INTERNET
DEFAULT
SYSTEM

Practice 3-2: DBCS Life Cycle Management

1. In the Service Console locate your instance and click it's title to drill in to the details. Open the hamburger menu to the right of the instance name and select "Open DBaaS Monitor Console", this will open a new browser tab.
    a. As the DBaaS Monitor uses a self-signed SSL certificate you will need to accept this, click Advanced then Accept. Once accepted you will see the login screen for DBaaS Monitor.



2. Log in using a username of dbaas_monitor and the administrative password specified during creation which should have been DBCSDemo1#.
    a. You will be taken to an overview screen that presents a summary of the state of the database within your DBCS instance.

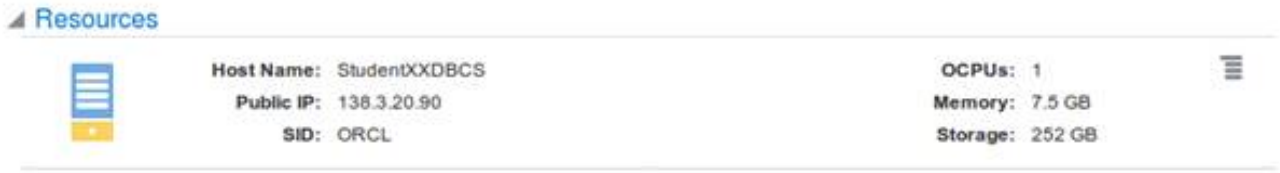


3. Click the Database Status tile to drill in to the container database and see it's pluggable databases. Click the Create PDB option and complete the form:
    a. **New PDB Name**: PDB2
    b. **Admin Username**: admin
    c. **Admin Password**: DBCSDemo1#
    d. **Keystore Password**: DBCSDemo1#
4. Press ‘OK’. The new PDB will be created. Take some time to explore the rest of the DBaaS Monitor Interface.

SSH Access to DBCS Virtual Machine

OCC allows full SSH access to the virtual machine hosting the DBCS database.

1. On the instance details page locate the public IP address. Note that in the context of cloud at customer public IP address is an IP address in the hosting data center.



2. SSH is authenticated by a key pair. The public key was submitted when the instance was created. The private key must be kept safe by the owner, e.g. in a key management system, and is used to access the VM. Note that Oracle cloud operations have no access to the customer's keys.
    a. The matching private key can be downloaded from http://138.3.30.56:8081/artifactory/osc-local/occ/workshop/keys/demo Save the private key file to your workstation.
    b. Open terminal and enter the following:

```
chmod 600 demo

ssh -I /path/to/demo opc@<ip address of virtual machine>
```

    c. Switch to the Oracle user:

```
sudo su - oracle
```

3. You can then use all of the normal oracle tools. E.g. to connect to the database:

```
sqlplus / as sysdba

SQL*Plus: Release 12.1.0.2.0 Production on Wed Jan 3 11:27:15 2018

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Connected to:
Oracle Database 12c EE Extreme Perf Release 12.1.0.2.0 - 64bit
Production
With the Partitioning, Oracle Label Security, OLAP, Advanced
Analytics
and Real Application Testing options

SQL> select * from global_name;

GLOBAL_NAME
--------------------------------------------------------------------------
-----------
ORCL

SQL>
```
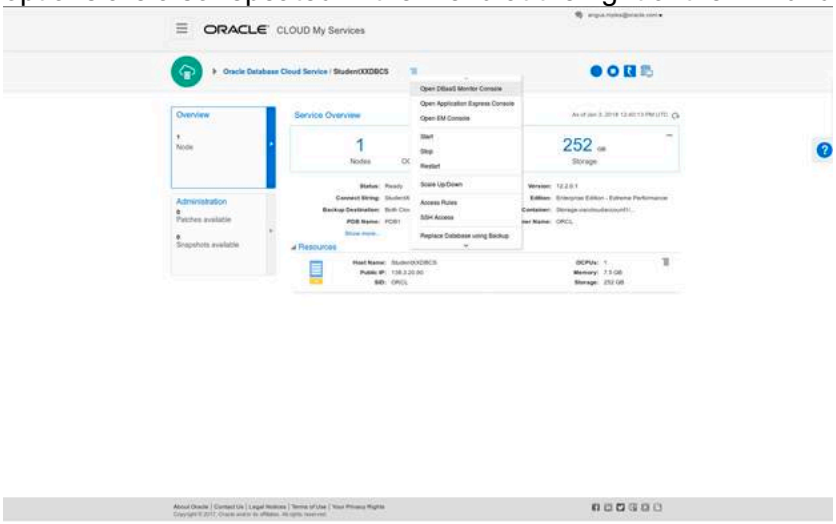

Practice 3-3: DBCS Cloud Tooling

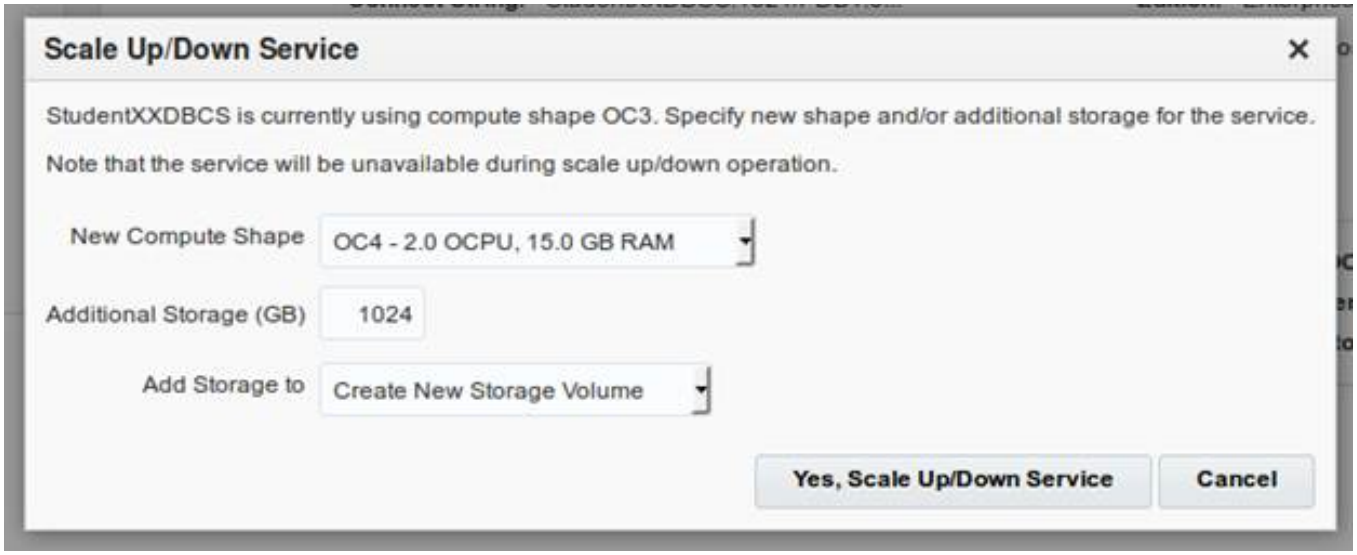
Oracle DBCS also includes cloud tooling to simplify backup, recovery, patching and scaling.

1. In the Service Console locate your instance and click it's title for details.

2. The main hamburger menu has options to start, stop and restart the instance. Note these options are also repeated in the menu at the right of the VM under resources.



3. Both menus also contain an option to scale the DBCS instance.
    a. Scaling can add new storage or change the "shape" (OCPU and RAM) of the VM. From either menu select the "Scale Up/Down" option.
    b. Select oc4 as the new compute shape and enter 1024 for additional storage.
    c. Leave the Add Storage to options as Create New Storage Volume.

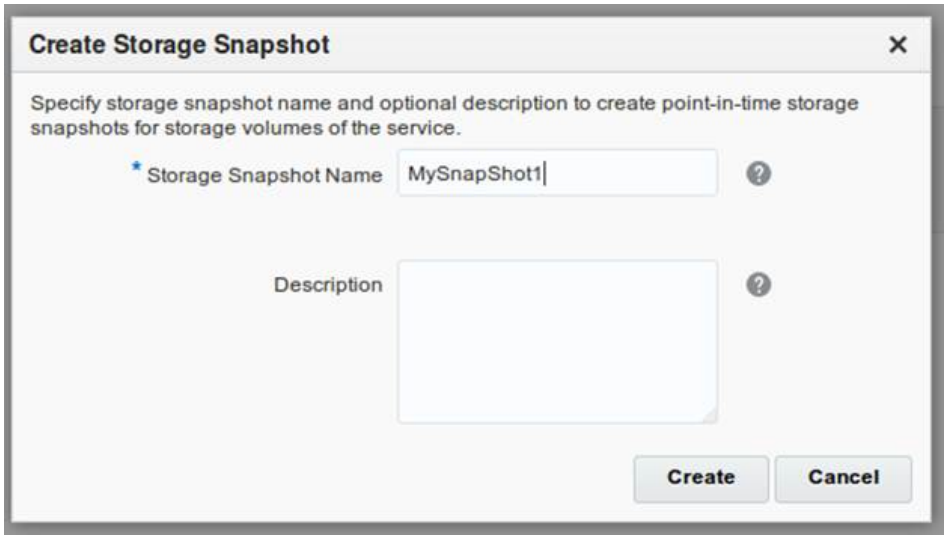


4. Press the "Yes, Scale Up/Down Service" button.
    a. The request will be submitted and a message displayed "Service scale up/down request is accepted". The DBCS instance will be placed in maintenance mode while the resources are added and the virtual machine rebooted.
    b. It takes approximately 7 minutes to scale the instance. Once the operation is complete use the instance details to confirm that there are now two OCPU and the memory is now 15GB.
    c. SSH to the virtual machine to confirm that the additional storage has been added. Once logged in issue the df -h command to confirm that the new volume has been added at /u05.

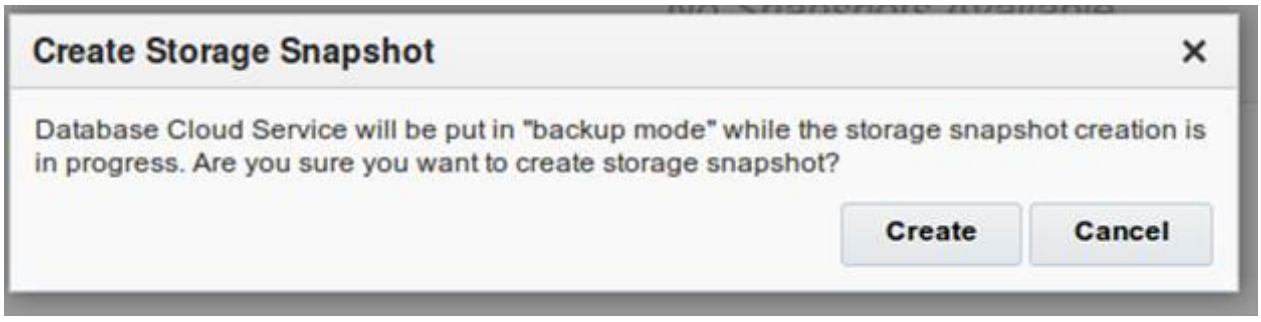
Snapshots

Oracle DBCS has the ability to take snapshots of the instance.

1. Navigate to the instance details page and select the Administration tile, then select the snapshots tab. Press the "Create Storage Snapshot" button. Enter "MySnapShot1" as the storage snapshot name.

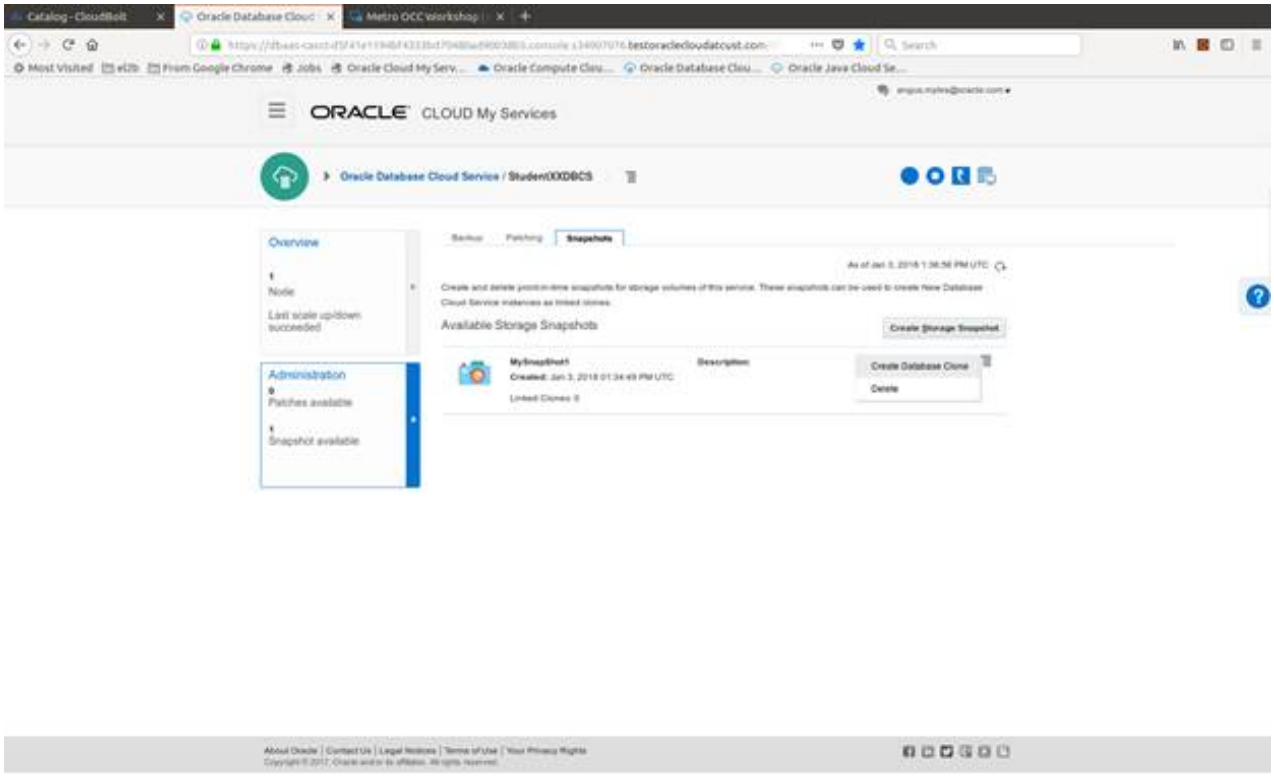


2. Press "Create" and then "Create" again from the subsequent dialogue box.



3. The snapshot takes about 1 minute to complete.
    a. The snapshot can now be used to created one or more linked clones.
    b. Using the “copy on write” technology that Oracle Compute Cloud Service supports for storage volume snapshots, the file data on the linked-clone deployment can change without changing the snapshot itself. Thus, you can create several linked clones from the same snapshot to use for application testing or branched application development work.

4. Select the hamburger menu and choose "Create Database Clone".

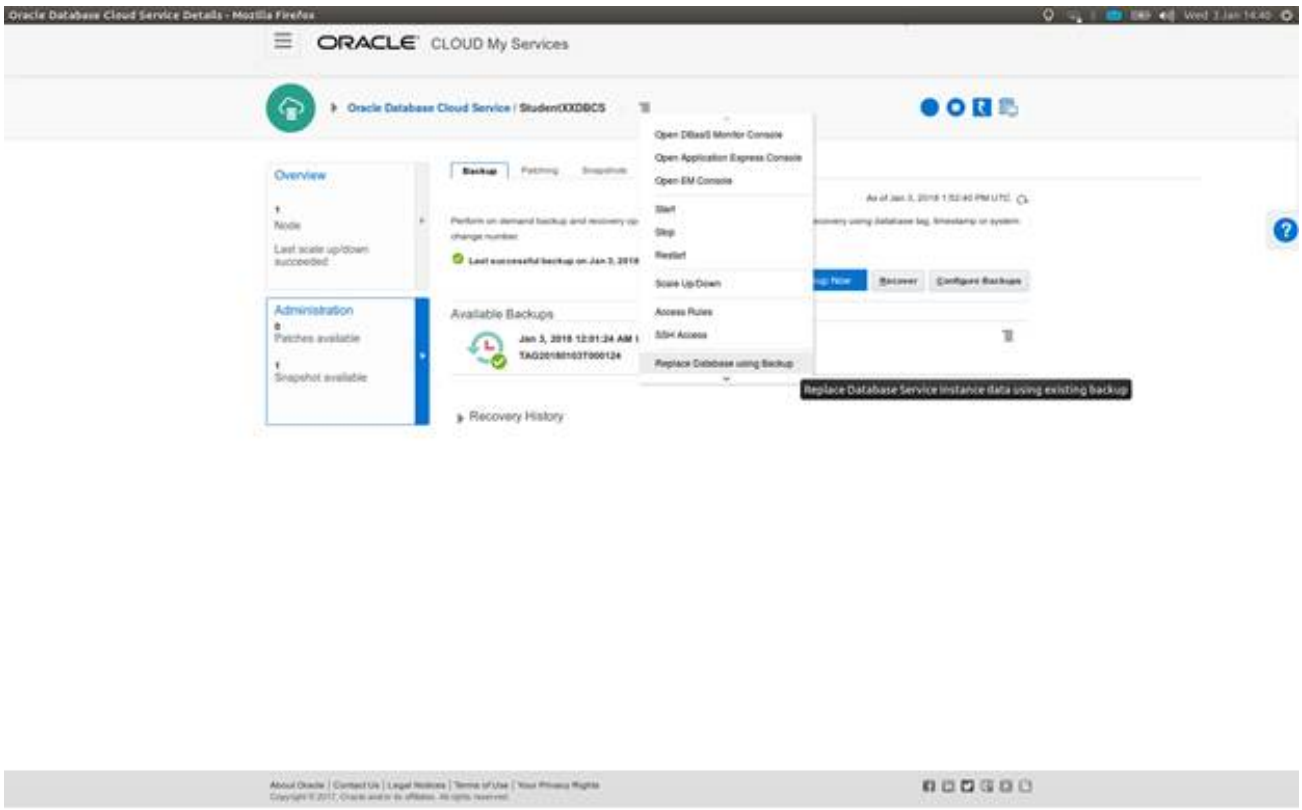


Note that this launches the DBCS instance creation wizard. Note also that only certain fields are enabled, during creation of a linked clone certain choices are fixed, e.g. Service Level, Software Release, Database Type, etc. Enter a service name and press Next, again notice that certain options on the second page are preset based on the source of the snapshot.

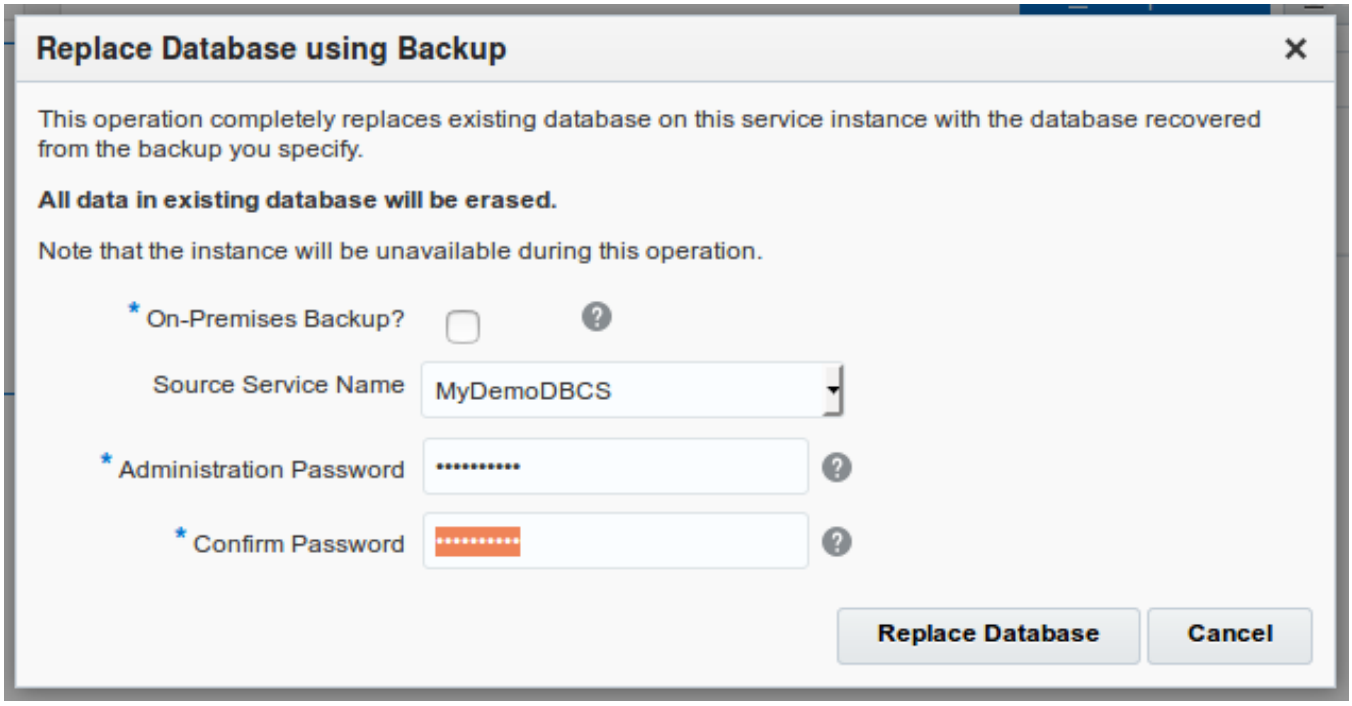
Press cancel to exit the creation wizard as we will not actually create a clone in the lab.

Backup and Recovery

1. Navigate to the instance details page and select the Administration tile, then select the Backup tab.
    a. If the backup option is selected during DBCS creation the default backup period is 24 hours, in this case there will not have been enough time for the first back to have been completed.
    b. It is also possible to restore from the backup of another DBCS instance. On the instance details page click the main hamburger menu and select "Replace Database using Backup".



2. On the following dialogue box unselect "On-Premise Backup". In the Source Service Name drop-down pick MyDemoDBCS. Enter DBCSDemo1# in the two password fields then select Replace Database.



3. **At this stage press cancel!** Your DBCS instance is required for the next workshop where it is used for the JCS metadata repository. The backup operation takes several minutes and you will not be able to start the JCS lab while it's running!