



# Hands-On with Oracle SOA Cloud Service


**MAY 16 & 17, 2018**

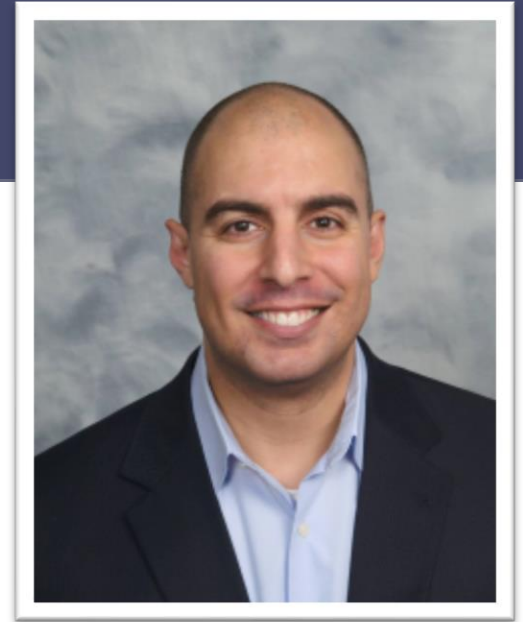
**CLEVELAND PUBLIC AUDITORIUM,  
CLEVELAND, OHIO**

**[WWW.NEOOUG.ORG/GLOC](http://WWW.NEOOUG.ORG/GLOC)**

# About

# About Me

- Senior Manager at Attain
- 20+ years Oracle experience
- Master's degree in Computer Science from George Mason University
- Past employment with Booz Allen Hamilton, IBM, CSC, and Oracle
- Recent emphasis on DevOps, cloud, and security in current projects
- Oracle ACE, OCE, OCA
- Author, Blogger, Presenter
- [@Ahmed\\_Aboulnaga](#) 



# About Attain

- Headquartered in McLean VA
- Management, technology, and strategy consulting firm
- Supporting customers in government, healthcare, education, and nonprofit markets
- Industries:
  - Defense, Civilian, National Security, Federal Health, State and Local Government, and more
- Technology Partners:
  - Oracle, Red Hat, AWS, Salesforce, Microsoft, SAP, MicroStrategy, and more
- CMMI Level 5

## Our Vision and Mission

- ◀ Built-to-last ▶
- ◀ Next-generation ▶
- ◀ Values-driven consultancy ▶

This vision is the foundation of Attain's culture. At the core of who we are and how we operate is a sense of purpose: to be and attain the best for those we serve.

Attain's mission is to change the world by disrupting the status quo and improving the lives we touch.



[attain.com](http://attain.com)



[facebook.com/AttainLLC](https://facebook.com/AttainLLC)



[twitter.com/AttainLLC](https://twitter.com/AttainLLC)

# Cloud Introduction

# Why Cloud?

- No need to purchase or maintain hardware
- Less effort spent upgrading and patching
- A slew of other reasons you can find online

# Oracle SOA Cloud Service


- iPaaS = Integration Platform As A Service
- Oracle SOA Cloud Service – latest version 12.2.1.x
- Three offerings:
  - SOA Cloud Service (SOA, OSB, B2B)
  - Managed File Transfer Cloud Service (MFT)
  - API Manager Cloud Service
- Retain full control – root OS and WebLogic administrator access
- Comprehensive CLI and REST interfaces
- Network access via SSH, SQL\*Net, JDBC, HTTP, and other drivers
- Simply speaking... Oracle SOA Suite on the cloud

# Oracle Marketing Speak

- "Comprehensive integration" in the cloud
- "Powerful"
- "Simple administration"
- "Save time and money"



# Will Traditional Administrators Become Obsolete?

- Cloud administration skills needed:
  - Everything a traditional administrator knows
  - PaaS and iPaaS architecture and usage
  - Familiarity with cloud tools (e.g., cloud cli, REST services, etc.)
  - Security
  
- Cloud Strategic Middleware Administrator – top future job role
  - Strategic management of middleware in the cloud 
  - Niche skills in multitenancy, tuning, high availability, and security

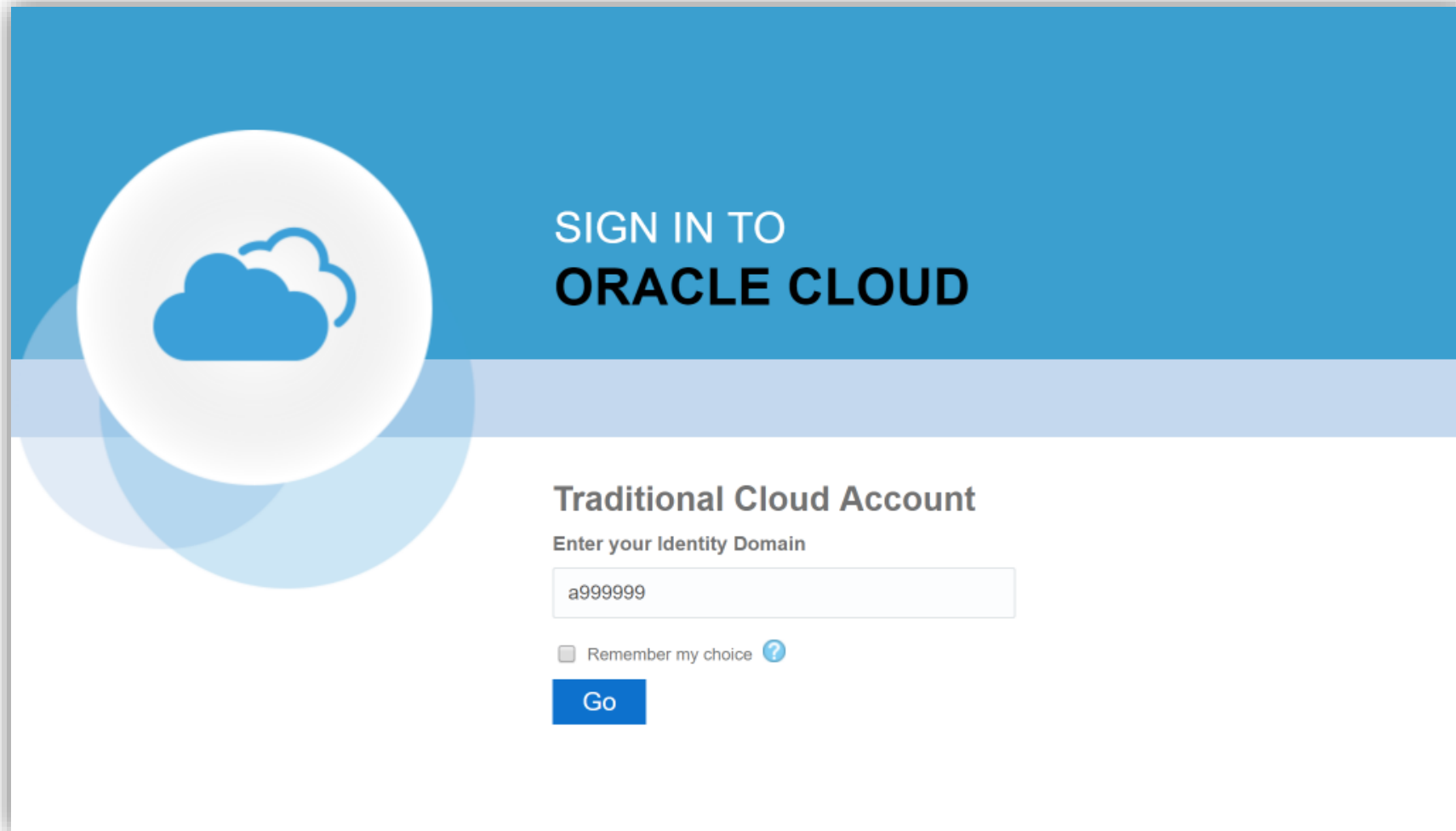
# Provisioning

# Provisioning

- At a high-level:
  - Select instance name and compute shape
  - Setup public key of the SSH key pair
  - Setup administrator accounts
  - Associate to the DBaaS instance
  - Configure load balancer
  - Reference the storage container (for backups)
- Provisioning an Oracle SOACS environment... for a future presentation

## Logging in to 'My Account'

# The 'Identity Domain'



The image shows a screenshot of the Oracle Cloud sign-in page. It features a blue header with the Oracle Cloud logo (a white circle containing a blue cloud icon) on the left. To the right of the logo, the text "SIGN IN TO ORACLE CLOUD" is displayed in white. Below the header, the page has a white background. The section is titled "Traditional Cloud Account" in bold. Below this title, the text "Enter your Identity Domain" is shown. A text input field contains the value "a999999". Below the input field, there is a checkbox labeled "Remember my choice" followed by a blue question mark icon. At the bottom of this section is a blue button with the text "Go".

**SIGN IN TO  
ORACLE CLOUD**

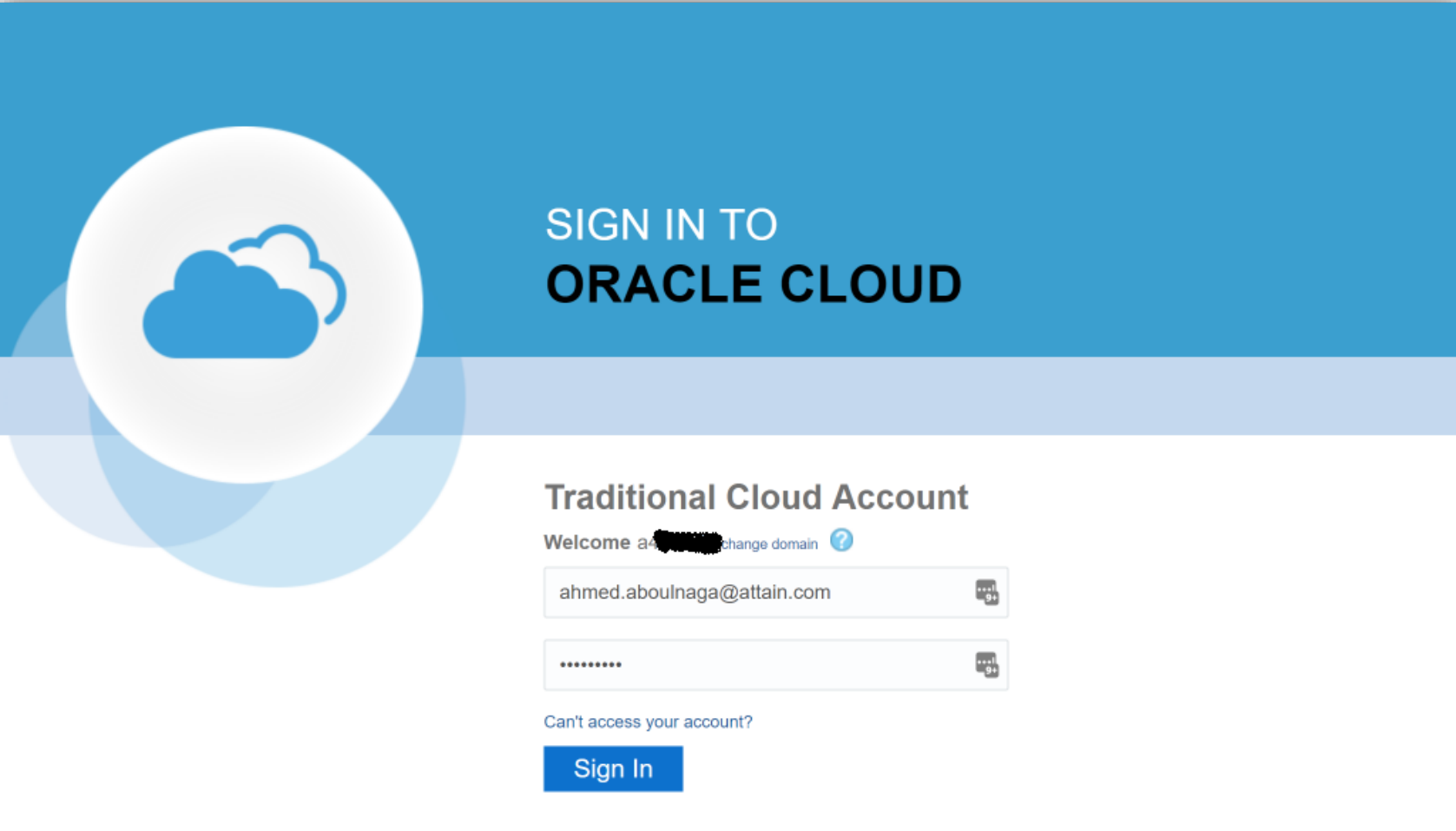
**Traditional Cloud Account**  
Enter your Identity Domain

a999999

☐ Remember my choice ?

**Go**

# Logging in to 'My Account'



The image shows a web interface for logging into an Oracle Cloud account. It features a blue header with a white circle containing a blue cloud icon on the left. To the right of the icon, the text "SIGN IN TO ORACLE CLOUD" is displayed in white. Below the header, the text "Traditional Cloud Account" is shown. A welcome message "Welcome a4 [redacted] change domain ?" is followed by two input fields: one for the email address "ahmed.aboulnaga@attain.com" and another for a password represented by dots. A blue "Sign In" button is located below the password field. A link "Can't access your account?" is positioned above the button.

**SIGN IN TO  
ORACLE CLOUD**

**Traditional Cloud Account**

Welcome a4 [redacted] change domain ?

ahmed.aboulnaga@attain.com

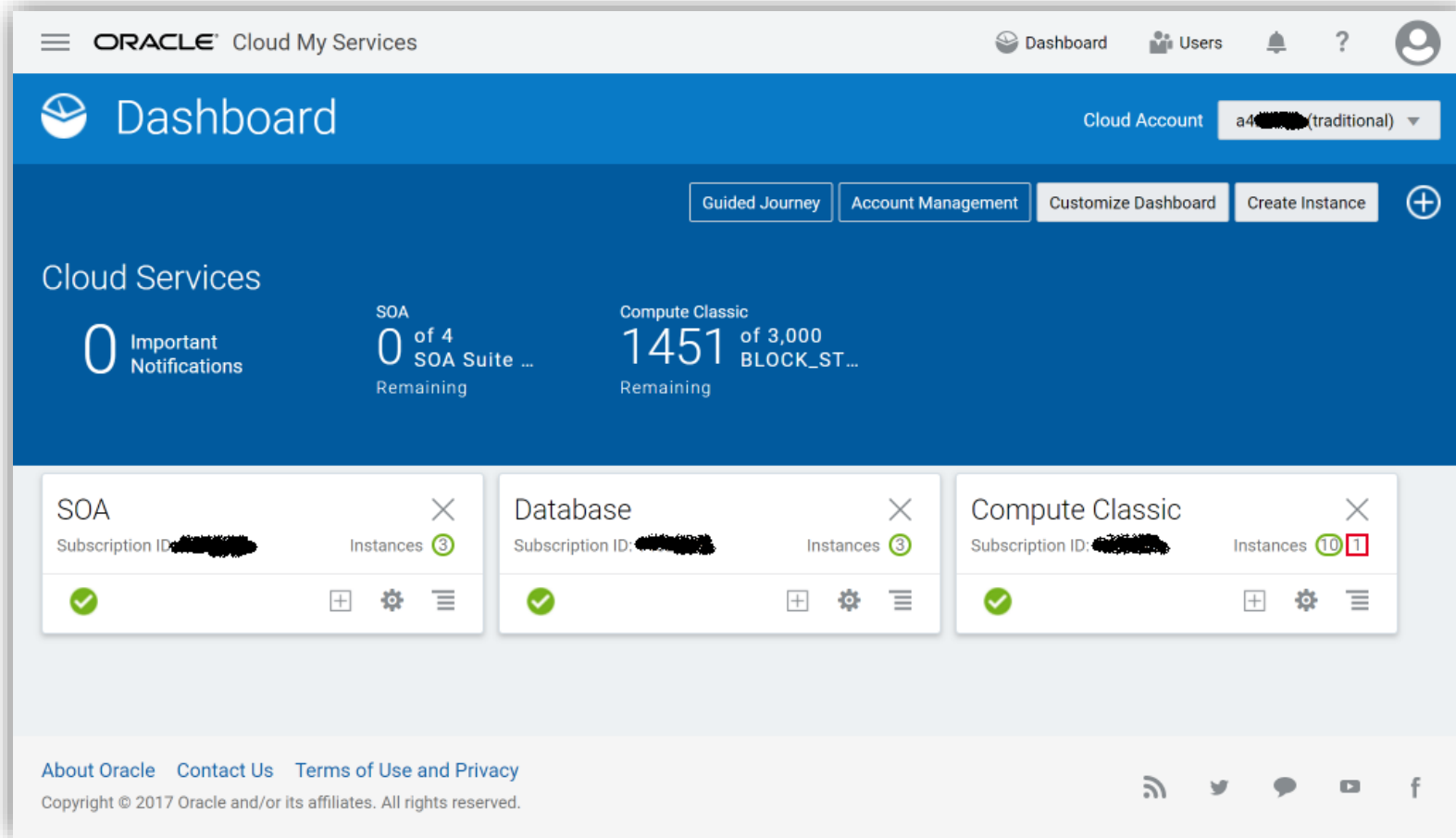
.....

Can't access your account?

**Sign In**

# My Account Dashboard

➤ Not used for services management



# User Management

The screenshot displays the Oracle Cloud My Services Users management page. The top navigation bar includes the Oracle logo, 'Cloud My Services' text, and links for Dashboard, Users, a notification bell, a help icon, and a user profile icon. Below this, a blue header bar features a 'Users' title with a help icon and the text 'Data Center: US Commercial 2 (Time zone: US/Central)'. A secondary navigation bar contains links for Users, SFTP Users, Roles, Custom Roles, Contacts, SSO Configuration, OAuth Administration, and My Profile. The main content area is titled 'Users' and includes a description: 'Manage user accounts, assign roles, and reset passwords.' To the right of this title are buttons for 'Add', 'Import', and 'Export'. Below the description is a search bar labeled 'Find user' with a magnifying glass icon. To the right of the search bar are two dropdown menus: 'Show: All Roles' and 'Sort by: Email'. The first user listed is 'Ahmed Aboulnaga', represented by a blue and orange profile icon. Below the name, the email is shown as 'aaboulnaga@' followed by a redacted domain, and the user name is 'aaboulnaga@' followed by a redacted domain. A hamburger menu icon is located to the right of the user details.

ORACLE Cloud My Services

Dashboard Users ?

**Users** ? Data Center: US Commercial 2 (Time zone: US/Central)

**Users** SFTP Users Roles Custom Roles Contacts SSO Configuration OAuth Administration My Profile

Users

Manage user accounts, assign roles, and reset passwords.

Find user

Show: All Roles Sort by: Email

Ahmed Aboulnaga

Email: aaboulnaga@

User Name: aaboulnaga@



# Account Management

The screenshot shows the Oracle Cloud My Services interface. At the top, there's a navigation bar with 'ORACLE Cloud My Services' and links for 'Dashboard', 'Users', a notification bell, a help icon, and a user profile. Below this is a blue header bar with a pie chart icon and the text 'Account: a4[REDACTED]'. A secondary navigation bar contains links for 'Usage', 'Account Management', 'Activate', and 'My Admin Accounts'. The main content area is titled 'Subscription' with a dropdown arrow and a timestamp '(as on November 8, 2017, 10:41 AM PST)'. A disclaimer states: 'This estimate is updated periodically and may not include all of your actual usage. Your monthly invoice may differ from this estimate.' Below this is a table with three columns: 'Usage Period', 'Overage Charge', and 'Scope'. The table shows a usage period from '01-Dec-2017' to '18-Dec-2017', an overage charge of '\$0', and a scope of 'US Commercial 2'. To the right of the table, it says 'All currency USD'. Below the table is a 'Usage Summary' section with a 'Download as CSV' button. The summary table has columns for 'Description', 'Usage Charge', and 'Overage Charge'. The content of the summary table is: 'No account usage information available for the selected period. Please select a different date range.' At the bottom, there are links for 'About Oracle', 'Contact Us', and 'Terms of Use and Privacy'.

ORACLE Cloud My Services

Dashboard Users ?

Account: a4[REDACTED]

Usage Account Management Activate My Admin Accounts

Subscription ▼ (as on November 8, 2017, 10:41 AM PST)

This estimate is updated periodically and may not include all of your actual usage. Your monthly invoice may differ from this estimate.

Usage Period ▼	Overage Charge	Scope ▼
01-Dec-2017 18-Dec-2017	\$0	US Commercial 2

All currency USD

Usage Summary [Download as CSV](#)

Description	Usage Charge	Overage Charge
No account usage information available for the selected period. Please select a different date range.		

[About Oracle](#) [Contact Us](#) [Terms of Use and Privacy](#)

## Compute Cloud 'My Services'

# Clicking on 'Services'

ORACLE Cloud My Services

Dashboard Users ?

Dashboard Cloud Account a4[REDACTED] (traditional)

Guided Journey Account Management Customize Dashboard Create Instance

Cloud Services

0 Important Notifications

SOA 0 of 4 SOA Suite ... Remaining

Compute Classic 1451 of 3,000 BLOCK\_ST... Remaining

SOA Subscription ID: [REDACTED] Instances 3

Database Subscription ID: [REDACTED] Instances 3

Compute Classic Subscription ID: [REDACTED] Instances 10 1

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# Compute Cloud Dashboard

ORACLE Cloud My Services

Dashboard Users ?

## Compute Classic

Site: US006\_Z51 Visualization

**Instances** Network Storage Orchestrations Images

**Instances** 11 instances 12 OCPUs 120GB memory 2TB volume size in use

A Compute Classic instance is a virtual machine running a specific operating system, with the CPU and memory resources that you specify. [Learn more.](#)

Category: All Show: All Create Instance

Name	Status	OCPUs	Memory	Volumes	Public IP	Private IP
SOA-...	Running	1	7.5 GB	49 GB	129-...	10-...
SOA-.../v...	Running	1	15 GB	73 GB	129-...	10-...
SOA-...m...	Running	1	7.5 GB	214 GB	129-...	10-...
SOA-... ..	Running	1	15 GB	73 GB	129-...	10-...

# Compute Instance

The screenshot displays the 'Overview' tab for a Compute Instance in the Oracle Cloud console. At the top, there are action buttons: Start, Shut Down, Reboot, and Assign Public IP. The left sidebar contains links for Overview, Logs, and Screen Captures. The main content area is divided into sections: Information, Storage Volumes, Security Lists, and SSH Public Keys. The Information section lists various attributes of the instance, including its name, status, tags, shape, image, orchestration, OCPUs, memory, DNS name, and IP addresses. The Storage Volumes, Security Lists, and SSH Public Keys sections are currently collapsed.

**Overview** ▶ Start ■ Shut Down ↺ Reboot ⌚ Assign Public IP

Logs

Screen Captures

**Information**

**Name:** /Compute-a4[REDACTED]@[REDACTED]jaas/SOA[REDACTED]-jcs/wls/vm-1/SOA[REDACTED]

**Status:** Running (Since 32 days ago.)

**Tags:** ORA.WLS, ORA.WLS.ADMIN, ORA.SOA.SOA.PAAS.HP.MONTHLY, /Compute-a4[REDACTED]@[REDACTED]

**Shape:** oc1m

**Image:** /oracle/public/oel\_6.6\_jaas[REDACTED]

**Orchestration:** /Compute-a4[REDACTED]@[REDACTED]jaas/SOA[REDACTED]-jcs/wls/vm-1

**OCPUs:** 1

**Memory:** 15 GB

**DNS Name:** soa[REDACTED]-jcs-wls-1.compute-a4[REDACTED]oraclecloud.internal.

**Public IP Address:** 129.[REDACTED]

**Private IP Address:** 10.[REDACTED]

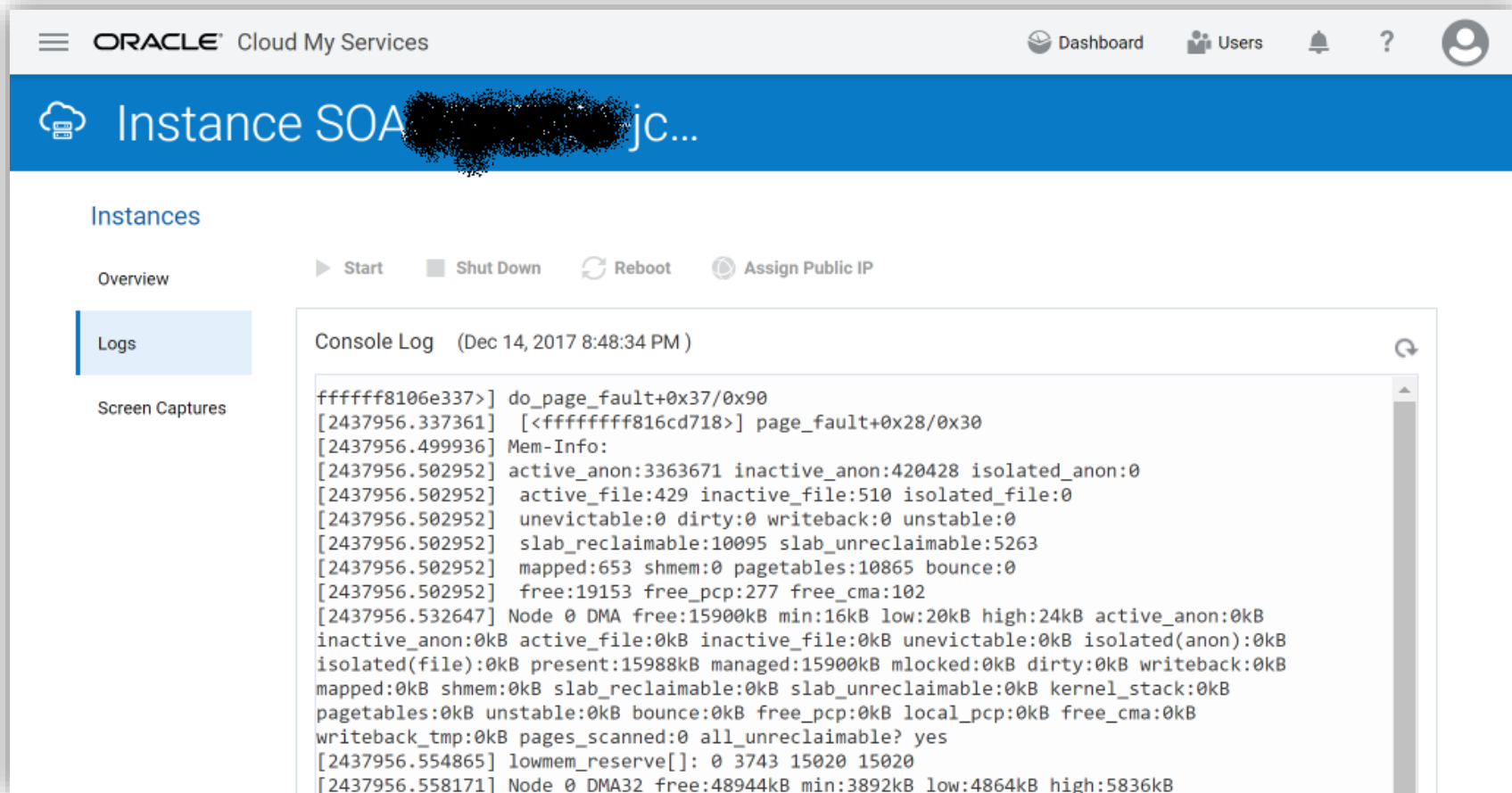
▶ Storage Volumes

▶ Security Lists

▶ SSH Public Keys

# Compute Instance Logs

➤ Never used it, could be useful (?)

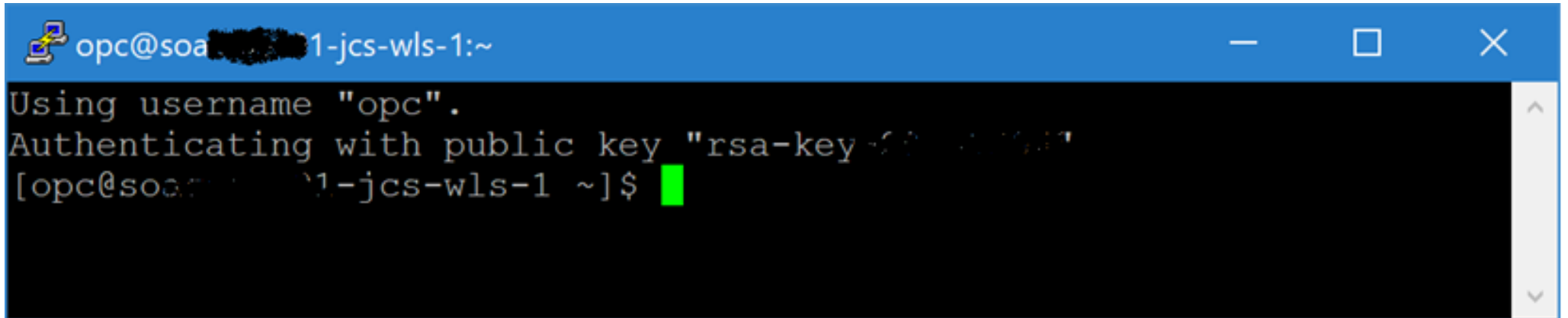


The screenshot shows the Oracle Cloud My Services interface. The top navigation bar includes the Oracle logo, 'Cloud My Services', and links to Dashboard, Users, a notification bell, a help icon, and a user profile. The main header displays 'Instance SOA[REDACTED]jc...'. On the left, a sidebar contains 'Instances', 'Overview', 'Logs' (selected), and 'Screen Captures'. The main content area shows the 'Console Log' for the instance, dated 'Dec 14, 2017 8:48:34 PM'. The log contains several lines of system output, including memory statistics and kernel messages.

```
fffff8106e337>] do_page_fault+0x37/0x90
[2437956.337361] [<fffff816cd718>] page_fault+0x28/0x30
[2437956.499936] Mem-Info:
[2437956.502952] active_anon:3363671 inactive_anon:420428 isolated_anon:0
[2437956.502952] active_file:429 inactive_file:510 isolated_file:0
[2437956.502952] unevictable:0 dirty:0 writeback:0 unstable:0
[2437956.502952] slab_reclaimable:10095 slab_unreclaimable:5263
[2437956.502952] mapped:653 shmem:0 pagetables:10865 bounce:0
[2437956.502952] free:19153 free_pcp:277 free_cma:102
[2437956.532647] Node 0 DMA free:15900kB min:16kB low:20kB high:24kB active_anon:0kB
inactive_anon:0kB active_file:0kB inactive_file:0kB unevictable:0kB isolated(anon):0kB
isolated(file):0kB present:15988kB managed:15900kB mlocked:0kB dirty:0kB writeback:0kB
mapped:0kB shmem:0kB slab_reclaimable:0kB slab_unreclaimable:0kB kernel_stack:0kB
pagetables:0kB unstable:0kB bounce:0kB free_pcp:0kB local_pcp:0kB free_cma:0kB
writeback_tmp:0kB pages_scanned:0 all_unreclaimable? yes
[2437956.554865] lowmem_reserve[]: 0 3743 15020 15020
[2437956.558171] Node 0 DMA32 free:48944kB min:3892kB low:4864kB high:5836kB
```

# SSH

- Full root level SSH access to box
- Default user 'opc'
- Sudo su access to already created 'oracle' and 'root' accounts

A terminal window with a blue title bar. The title bar contains a laptop icon, the text 'opc@soa[REDACTED]-jcs-wls-1:~', and window control buttons (minimize, maximize, close). The terminal text shows the login process: 'Using username "opc".', 'Authenticating with public key "rsa-key-[REDACTED]"', and the prompt '[opc@soa[REDACTED]-jcs-wls-1 ~]\$' followed by a green cursor.

```
opc@soa[REDACTED]-jcs-wls-1:~  
Using username "opc".  
Authenticating with public key "rsa-key-[REDACTED]"  
[opc@soa[REDACTED]-jcs-wls-1 ~]$
```

# Network / Firewall

The screenshot shows the Oracle Cloud My Services interface for the Compute Classic section, specifically the Network tab. The page title is "Compute Classic" with a site selector "Site: US006\_Z51". A "Visualization" button is in the top right. Below the navigation tabs (Instances, Network, Storage, Orchestrations, Images), the breadcrumb "Shared Network > Security Rules" is shown. A summary section displays "101 security rules" and "89 enabled". A descriptive text states: "You can use security rules to control network access between your instances and the Internet. On this page, you can create, view, update, and delete security rules. [Learn more.](#)". Below this is a search bar, a "Category: IaaS" dropdown, a "Show: All" dropdown, a "Create Security Rule" button, and a table of security rules.

Name	Status	Security Application	Source	Destination
[redacted] CMP_sr	Enabled	icmp	[redacted]	[redacted] ICMP
[redacted] sr	Enabled	[redacted]	[redacted]	[redacted]
[redacted] SNMP_sr	Enabled	snmp-udp	[redacted]	[redacted] NMP
[redacted] ssh	Enabled	ssh	public-internet	SOA [redacted] /1/wls...



# Storage

➤ Can't add shared filesystems though

ORACLE Cloud My Services

Dashboard Users ?

Compute Classic Site: US006\_Z51 Visualization

Instances Network **Storage** Orchestrations Images

Storage Volumes

43 volumes - restored 1.4TB volume size in use 1.6TB total volume size

A storage volume is a virtual disk that provides block storage space for instances. [Learn more.](#)

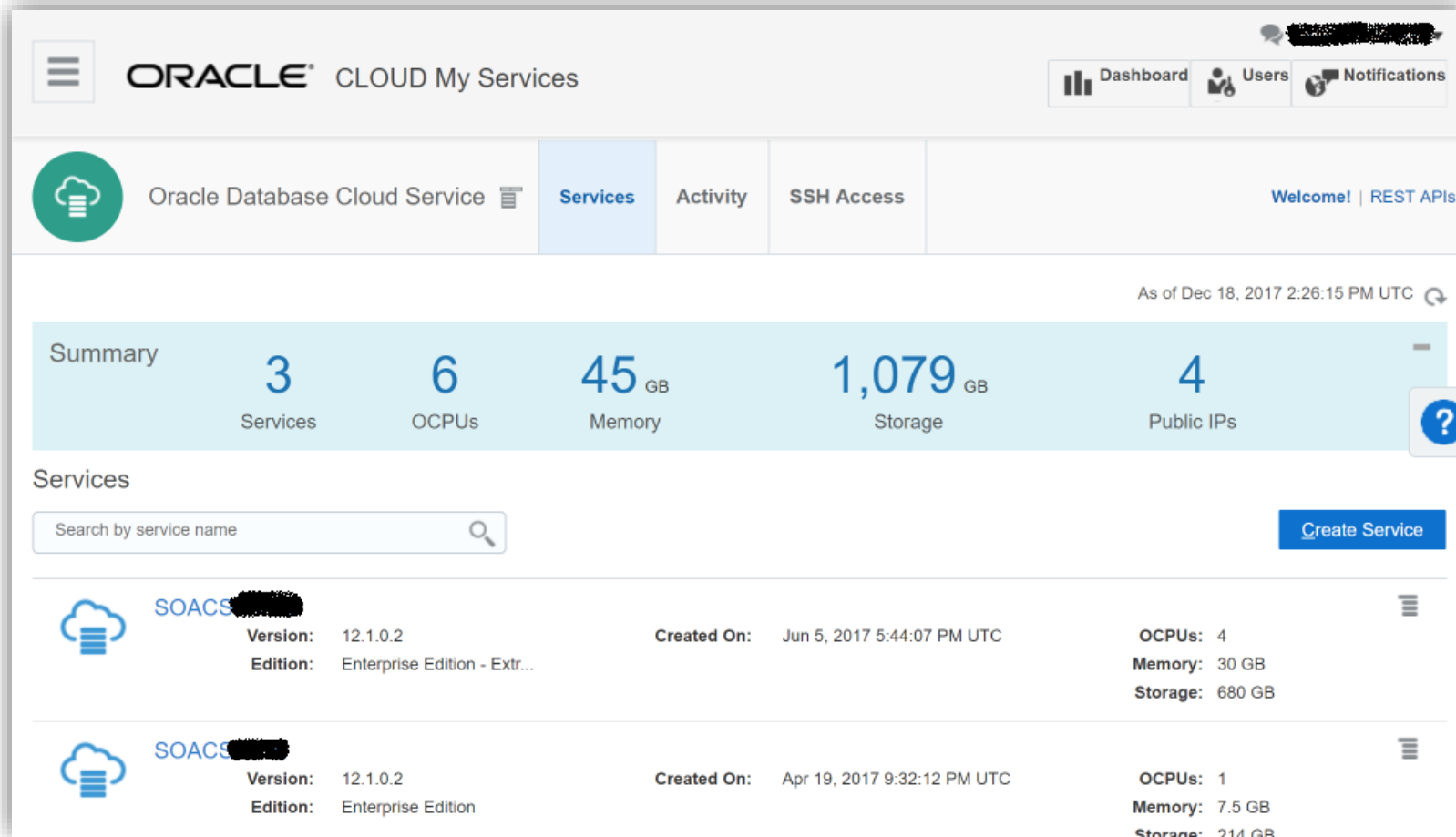
Category: All Show: All Create Storage Volume

Name	Restored From	Status	Size	Snapshots	Attached To
SOA/SOAPROD/lb/vm...		Online	22 GB		SOA/SOAPROD...
SOA/SOAPROD/lb/vm...		Online	21 GB		SOA/SOAPROD...
SOA/SOAPROD/lb/vm...		Online	6 GB		SOA/SOAPROD...

## Database Cloud Service 'My Services'

# Database Cloud Service Dashboard

➤ The most stable/reliable of all PaaS services

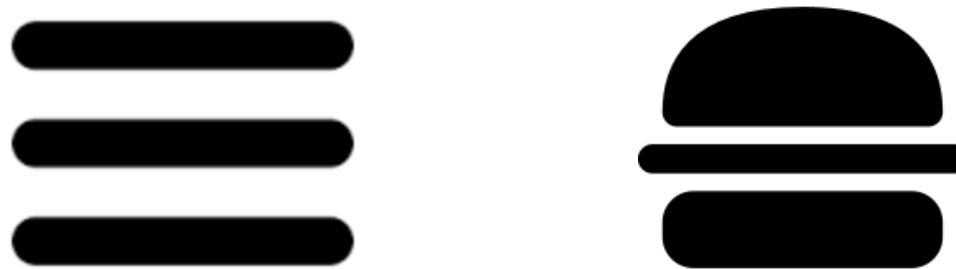


# Hamburger Icon

The screenshot displays the Oracle Cloud My Services interface. At the top, the Oracle logo and 'CLOUD My Services' are visible. Below this, a navigation bar includes 'Services', 'Activity', and 'SSH Access'. The main content area shows a summary of resources: 3 Services, 6 OCPUs, 45 GB Memory, and 1,079 GB Storage. A 'Services' section follows with a search bar and a list of services. The first service listed is 'SOACS' with details: Version: 12.1.0.2, Edition: Enterprise Edition - Extr..., Created On: Jun 5, 2017 5:44:07 PM UTC, OCPUs: 4, Memory: 30 GB, and Storage: 680 GB. A red box highlights the hamburger menu icon (three horizontal lines) in the top right corner of the service list, with a red arrow pointing to it. A dropdown menu is also visible, listing options like 'Open DBaaS Monitor Console', 'Open Application Express Console', 'Open EM Console', 'Start', 'Stop', 'Restart', 'Access Rules', 'SSH Access', and 'Delete'.

# Hamburger Icon

- The hamburger, hotdog, pancake, tribar (or triple bar), double oreo, or options button is a button placed typically in a top corner of a graphical user interface.
- It takes the form of an icon that consists of three parallel horizontal lines (displayed as ☰), suggestive of a list.

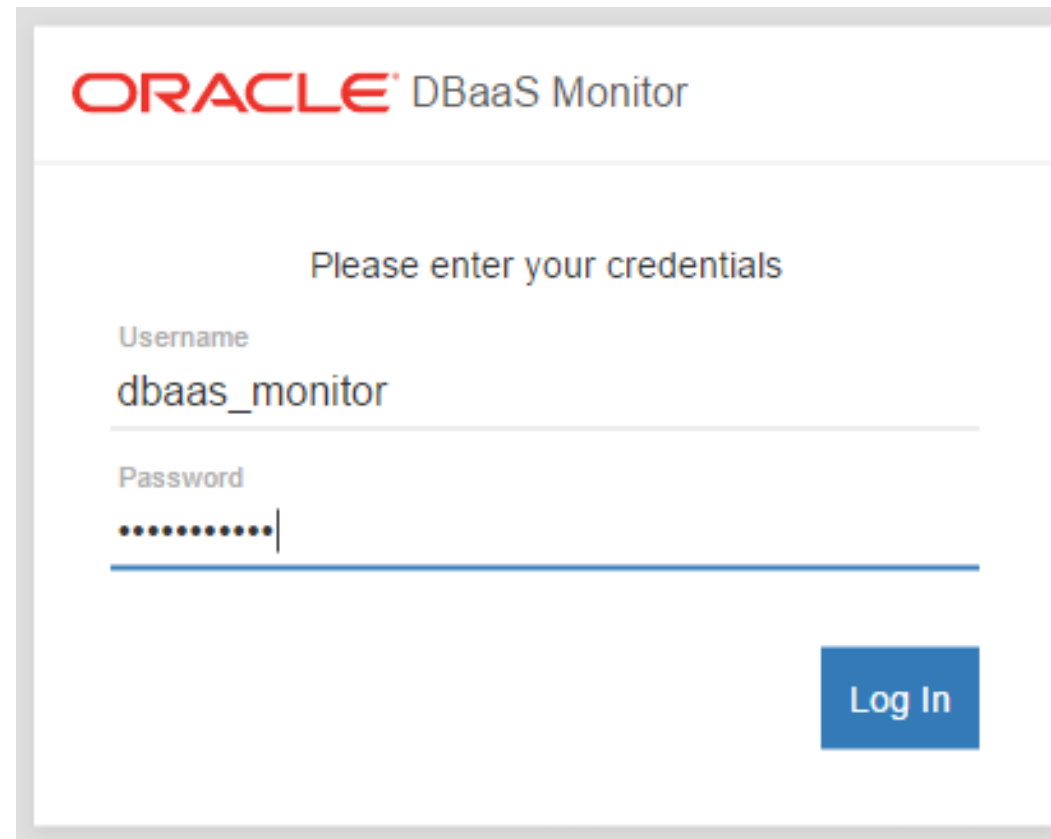


# DBaaS Consoles

- Oracle Database Cloud Service Dashboard  
<https://dbaas.oraclecloud.com/dbaas/faces/dbRunner.jspx>
- DBaaS Monitor Console  
[https://129.xxx.xx.xx/dbaas\\_monitor](https://129.xxx.xx.xx/dbaas_monitor)
- EM Database Express Console  
<https://129.xxx.xx.xx:5500/em>
- Application Express Console  
<https://129.xxx.xx.xx/apex/pdb1>

# Oracle DBaaS Monitor

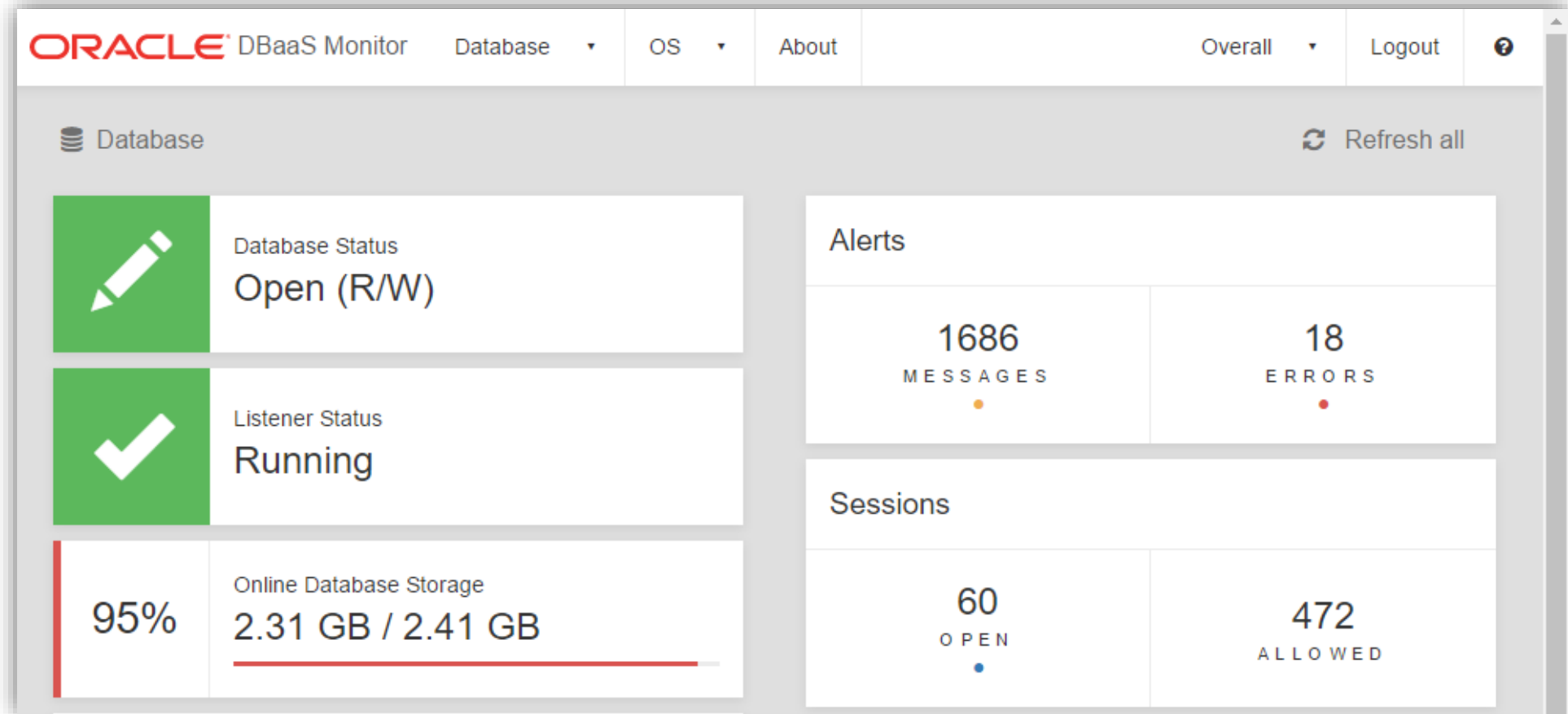
- Default username is 'dbaas\_monitor'



The screenshot shows the Oracle DBaaS Monitor login page. At the top, the text "ORACLE DBaaS Monitor" is displayed in red and blue. Below this, a prompt "Please enter your credentials" is centered. There are two input fields: "Username" with the value "dbaas\_monitor" and "Password" with masked characters (dots). A blue "Log In" button is located at the bottom right of the form area.

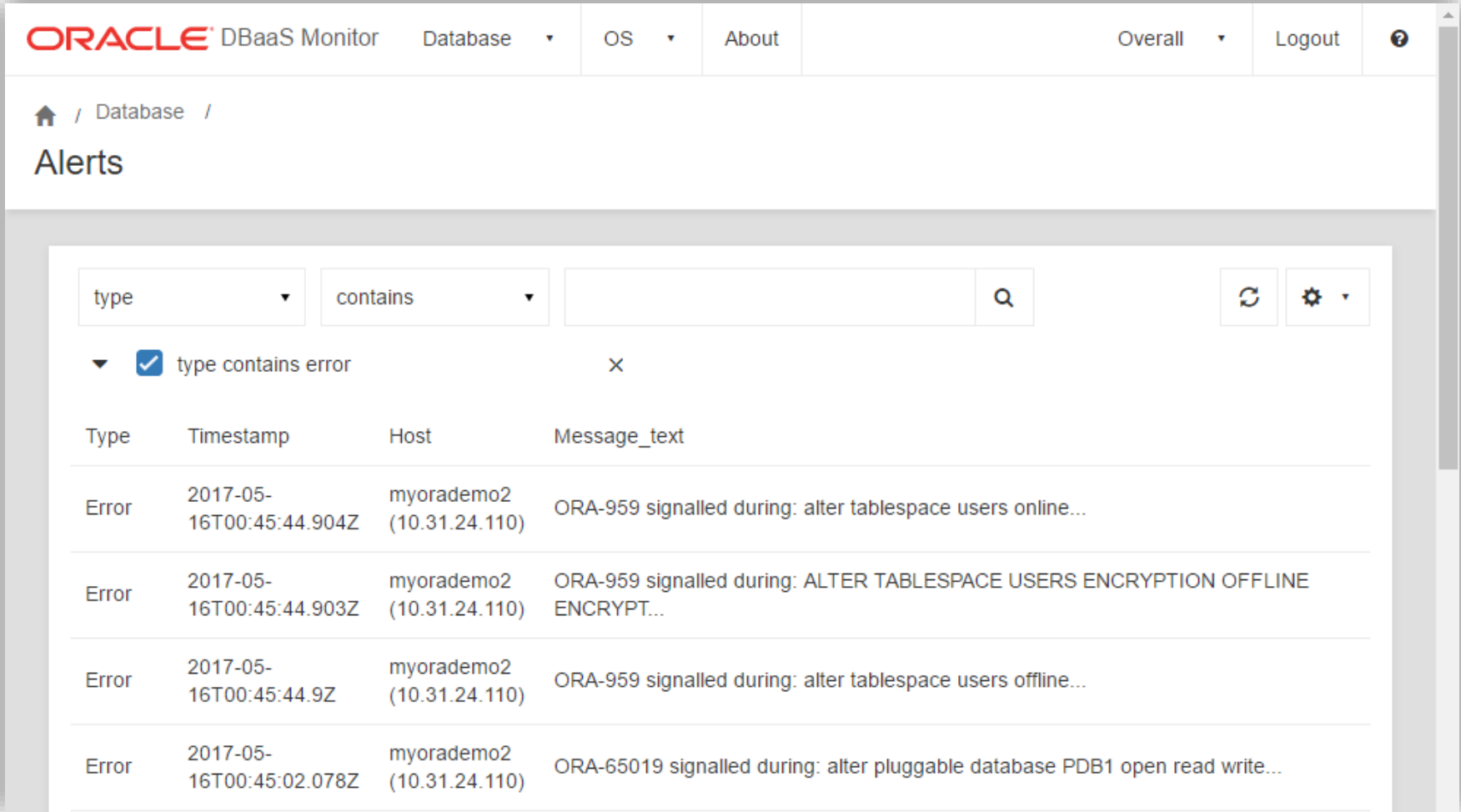
# Oracle DBaaS Monitor

➤ Mostly useless console





# Explore the 18 Errors

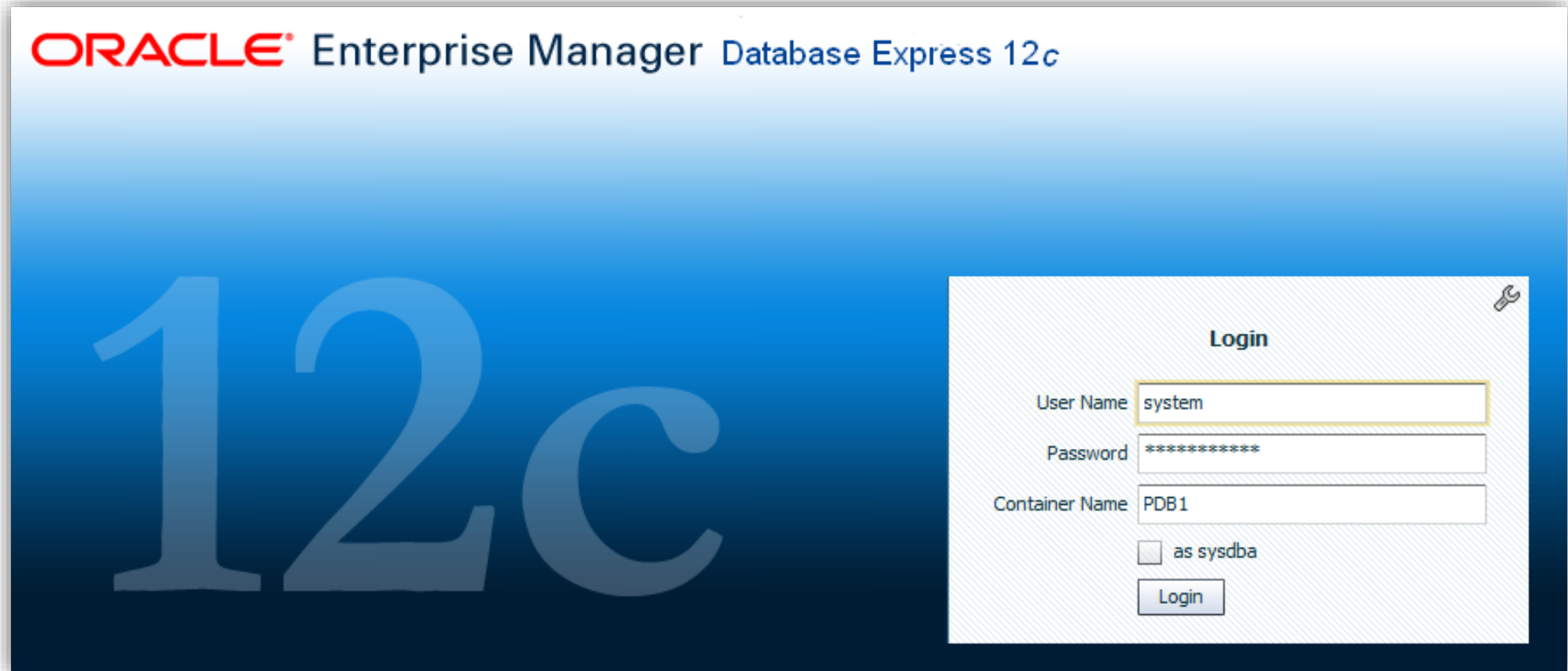


The screenshot shows the ORACLE DBaaS Monitor interface. The top navigation bar includes the ORACLE logo, 'DBaaS Monitor', and links for 'Database', 'OS', 'About', 'Overall', 'Logout', and a help icon. Below the navigation bar, the breadcrumb path is '/ Database /' and the section title is 'Alerts'. A filter bar at the top of the alert list shows 'type' selected, 'contains' as the operator, and an empty search box. A checkbox labeled 'type contains error' is checked. The alert list contains four entries, all of type 'Error'.

Type	Timestamp	Host	Message_text
Error	2017-05-16T00:45:44.904Z	myorademo2 (10.31.24.110)	ORA-959 signalled during: alter tablespace users online...
Error	2017-05-16T00:45:44.903Z	myorademo2 (10.31.24.110)	ORA-959 signalled during: ALTER TABLESPACE USERS ENCRYPTION OFFLINE ENCRYPT...
Error	2017-05-16T00:45:44.9Z	myorademo2 (10.31.24.110)	ORA-959 signalled during: alter tablespace users offline...
Error	2017-05-16T00:45:02.078Z	myorademo2 (10.31.24.110)	ORA-65019 signalled during: alter pluggable database PDB1 open read write...

# Oracle EM Console – Logging In

➤ Requires Adobe Flash



ORACLE® Enterprise Manager Database Express 12c

12c

**Login**

User Name

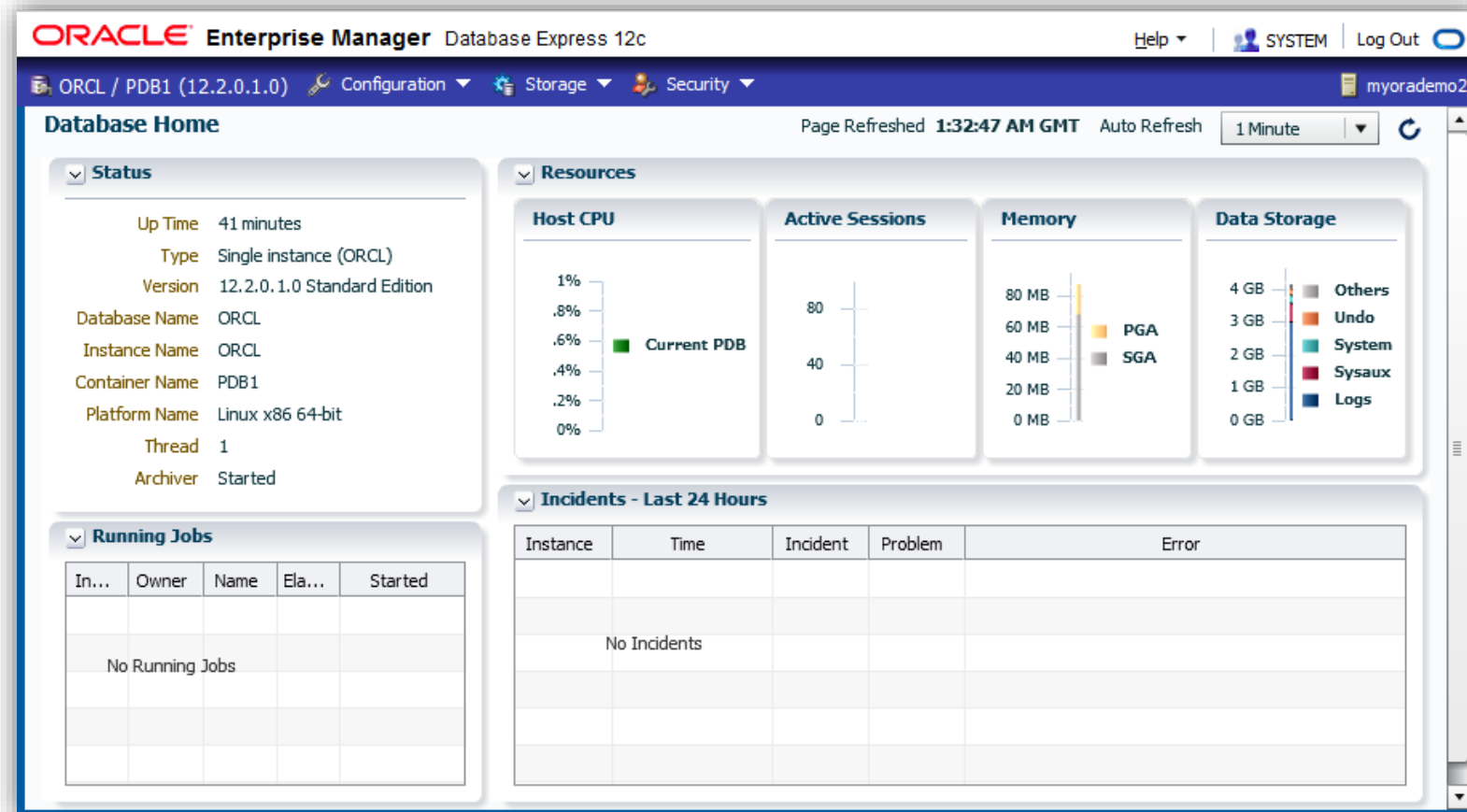
Password

Container Name

☐ as sysdba

# Navigate Oracle EM Console

## ➤ Another useless console



# DBaaS Instance Details

➤ Note the 'Associations', this creates a dependency

The screenshot displays the 'Service Overview' page for a DBaaS instance. The left sidebar contains navigation links for 'Overview' (selected), 'Administration', and 'Resources'. The main content area shows the following details:

- Service Overview:** As of Dec 18, 2017 2:26:59 PM UTC. Metrics include 1 Node, 1 OCPUs, 7.5 GB Memory, and 185 GB Storage.
- Status:** Ready. **Version:** 12.1.0.2. **Edition:** Enterprise Edition.
- Connect String:** SOA[redacted]:1521/SOA[redacted]. **Backup Destination:** Both Cloud Storage and... **Cloud Storage Container:** Storage-a[redacted].
- PDB Name:** SOA[redacted]. **Container Name:** SOA[redacted].
- Character Set:** AL32UTF8 - Unicode Univer... **National Character Set:** AL16UTF16 - Unicode UTF-1...
- SQL \*Net Port:** 1521. **Timezone:** Eastern Standard Time.
- Resources:** Host Name: SOA[redacted], Public IP: 129[redacted], SID: SOA[redacted]. OCPUs: 1, Memory: 7.5 GB, Storage: 185 GB.
- Associations:** Service Name: SOA[redacted], Status: Ready, Type: SOA.

# Administration: Backups

## ➤ RMAN behind the scene

The screenshot displays the Oracle Cloud My Services console interface. At the top, the header includes the Oracle logo and 'CLOUD My Services'. Navigation links for 'Dashboard', 'Users', and 'Notifications' are visible. The main content area is titled 'Oracle Database Cloud Service / SOA [redacted]'. On the left, a sidebar shows 'Overview' with '1 Node' and 'Administration' with '2 Patches available' and '0 Snapshots available'. The main panel has tabs for 'Backup', 'Patching', and 'Snapshots'. The 'Backup' tab is active, showing a status 'As of Dec 18, 2017 2:27:30 PM UTC' and a description: 'Perform on demand backup and recovery operations. Recovery can be a point in time recovery using database tag, timestamp or system change number.' A green checkmark indicates 'Last successful backup on Dec 7, 2017 1:24:56 AM UTC'. Action buttons 'Backup Now', 'Recover', and 'Configure Backups' are present. Below, the 'Available Backups' section lists two backups: 'Dec 7, 2017 1:24:56 AM UTC' and 'Dec 6, 2017 1:41:45 AM UTC', each with a 'Recover' button.

# Administration: Patching

The screenshot displays the Oracle Cloud My Services console interface. At the top, the header includes the Oracle logo and 'CLOUD My Services'. Navigation links for 'Dashboard', 'Users', and 'Notifications' are present. The main content area is titled 'Oracle Database Cloud Service / SOA [redacted]'. A sidebar on the left shows a navigation menu with 'Overview' (1 Node) and 'Administration' (2 Patches available, 0 Snapshots available). The 'Administration' section is currently selected. The main panel shows the 'Patching' tab, which includes a timestamp 'As of Dec 18, 2017 2:27:32 PM UTC' and a refresh icon. Below this, the 'Available Patches' section lists two patches, each with a gear icon, a 'Readme' link, and details about the release date, affected component, and restart requirements. The 'Patch History' section below it shows 'No Patches Applied.'

**ORACLE** CLOUD My Services

Dashboard Users Notifications

Oracle Database Cloud Service / SOA [redacted]





Overview  
1 Node

Administration  
2 Patches available  
0 Snapshots available

Backup Patching Snapshots

As of Dec 18, 2017 2:27:32 PM UTC

**Available Patches**

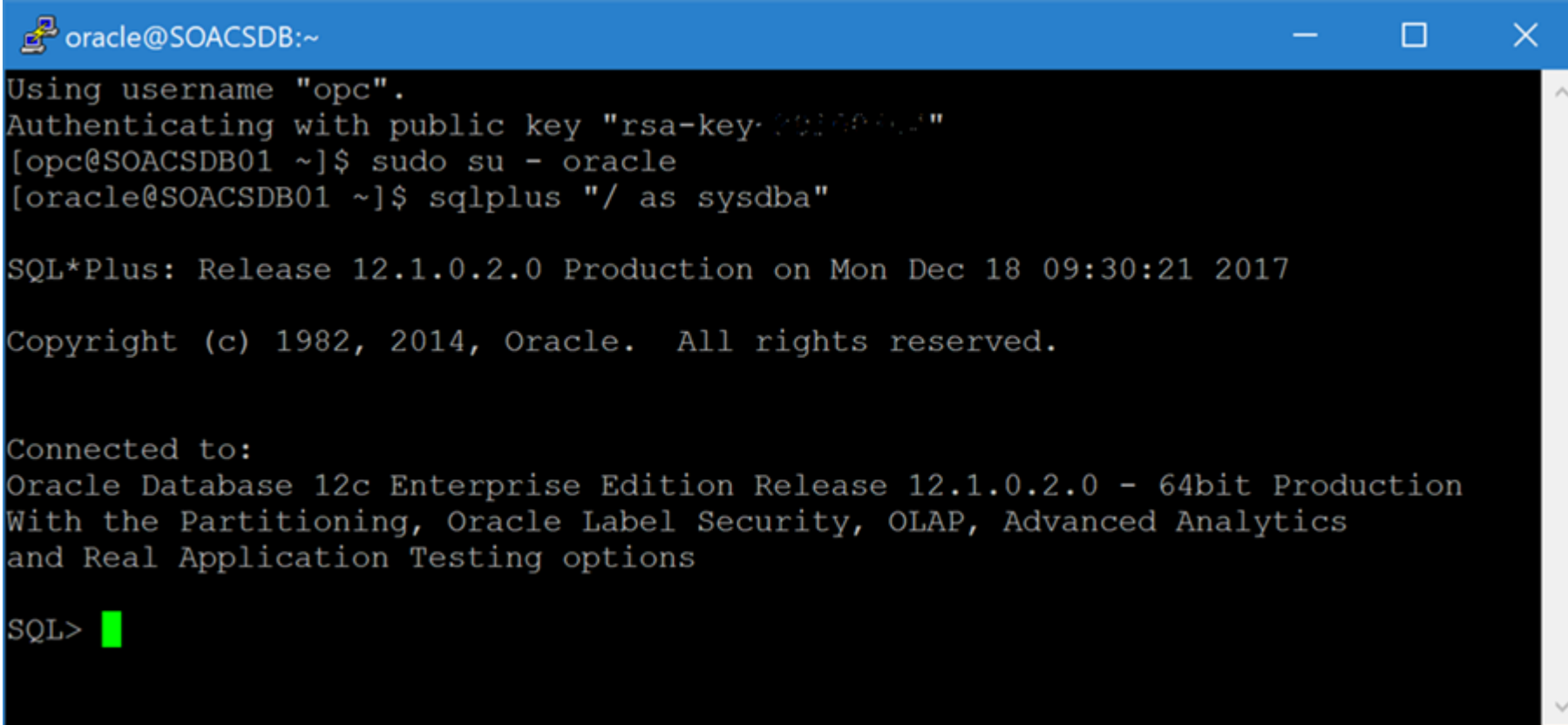
	PSU Update 12.1.0.2.170814 <a href="#">Readme</a>	<b>Release Date:</b> Aug 14, 2017 1:40:00 AM UTC <b>Affected Component:</b> Database <b>Requires Restart:</b> Yes	
	PSU Update 12.1.0.2.170418 <a href="#">Readme</a>	<b>Release Date:</b> Apr 18, 2017 1:40:00 AM UTC <b>Affected Component:</b> Database <b>Requires Restart:</b> Yes	

**Patch History**

No Patches Applied.

# SSH

## ➤ Root OS access, full SYSDBA access

A terminal window titled 'oracle@SOACSDDB:~' with standard window controls. The terminal shows the process of logging in as 'opc' and then using 'sudo su - oracle' to gain root access. Finally, 'sqlplus "/ as sysdba"' is executed, resulting in a connection to the Oracle Database 12c Enterprise Edition. The prompt changes from 'SQL>' to 'SQL>' with a green cursor.

```
oracle@SOACSDDB:~  
Using username "opc".  
Authenticating with public key "rsa-key-201000000"  
[opc@SOACSDDB01 ~]$ sudo su - oracle  
[oracle@SOACSDDB01 ~]$ sqlplus "/ as sysdba"  
  
SQL*Plus: Release 12.1.0.2.0 Production on Mon Dec 18 09:30:21 2017  
  
Copyright (c) 1982, 2014, Oracle. All rights reserved.  
  
Connected to:  
Oracle Database 12c Enterprise Edition Release 12.1.0.2.0 - 64bit Production  
With the Partitioning, Oracle Label Security, OLAP, Advanced Analytics  
and Real Application Testing options  
  
SQL> █
```

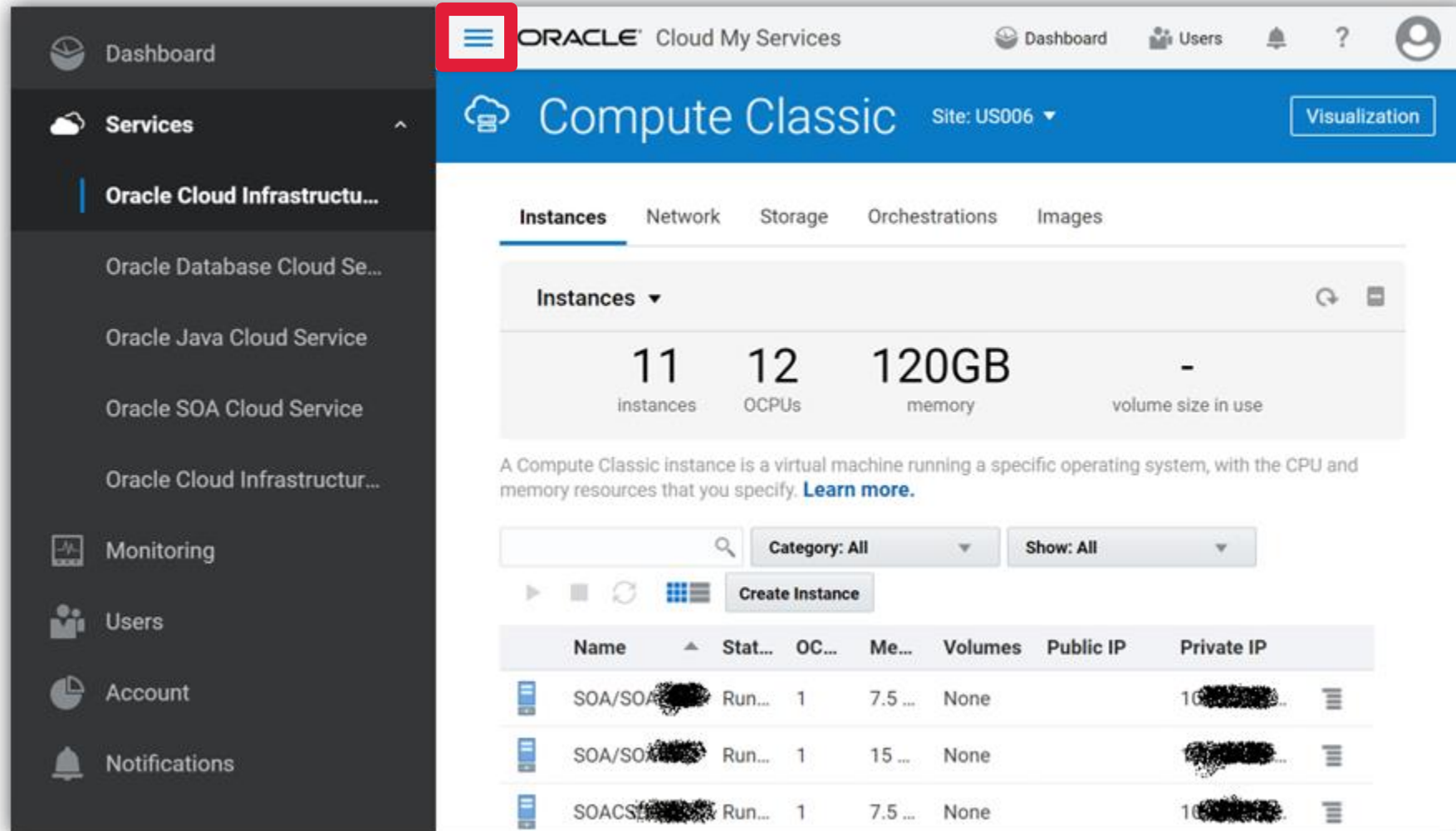
# SYSDBA Access

```
oracle@soacsprod:~  
[opc@soacsprod ~]$ sudo su - oracle  
[oracle@soacsprod ~]$ sqlplus "/ as sysdba"  
  
SQL*Plus: Release 12.1.0.2.0 Production on Mon Dec 18 09:27:28 2017  
  
Copyright (c) 1982, 2014, Oracle. All rights reserved.  
  
Connected to:  
Oracle Database 12c EE Extreme Perf Release 12.1.0.2.0 - 64bit Production  
With the Partitioning, Real Application Clusters, OLAP, Advanced Analytics  
and Real Application Testing options  
  
SQL> alter session set container=soaprodpdb;  
  
Session altered.  
  
SQL> set linesize 175  
set pagesize 500  
col domain_name format a15  
col composite_name format a40  
col component_name format a30SQL> SQL> SQL> SQL>  
SQL>  
SQL> --  
-- Aggregate  
--  
SELECT domain_name, composite_name, DECODE(state, '5', 'Completed', '6', 'Faulted', '10', 'Rolled Back') state,  
       TO_CHAR(AVG((TO_NUMBER(SUBSTR(TO_CHAR(MODIFY_DATE-CREATION_DATE),12,2))*60*60) + (TO_NUMBER(SUBSTR(TO_CHAR  
TR(TO_CHAR(MODIFY_DATE-CREATION_DATE),18,4))), '999990.000') Avg,  
SQL> SQL> SQL> 2      3      TO_CHAR(MIN((TO_NUMBER(SUBSTR(TO_CHAR(MODIFY_DATE-CREATION_DATE),12,2))*60*60) +  
,2))*60) + TO_NUMBER(SUBSTR(TO_CHAR(MODIFY_DATE-CREATION_DATE),18,4))), '999990.000') Min,  
       TO_CHAR(MAX((TO_NUMBER(SUBSTR(TO_CHAR(MODIFY_DATE-CREATION_DATE),12,2))*60*60) + (TO_NUMBER(SUBSTR(TO_CHAR  
TR(TO_CHAR(MODIFY_DATE-CREATION_DATE),18,4))), '999990.000') Max,  
       COUNT(1) count  
FROM   SP15426077_SOAINFRA.cube_instance  
GROUP BY domain_name, composite_name, state  
4      5      6      7      8 ORDER BY composite_name, state;
```



## SOA Cloud Service 'My Services'

# Navigation



ORACLE Cloud My Services

Dashboard Users ?

Compute Classic Site: US006 Visualization

Instances Network Storage Orchestrations Images

Instances ▾

11 instances 12 OCPUs 120GB memory - volume size in use

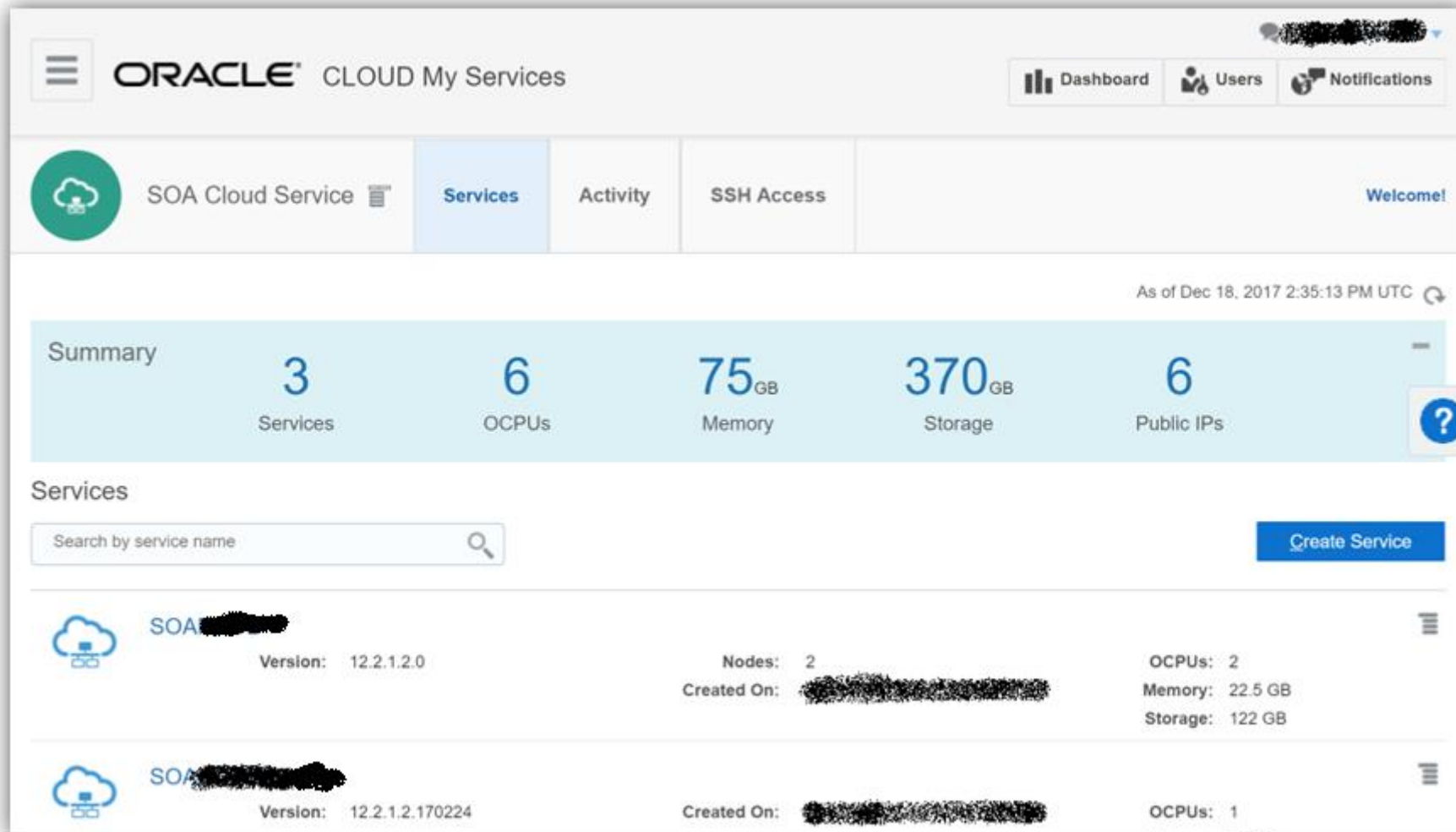
A Compute Classic instance is a virtual machine running a specific operating system, with the CPU and memory resources that you specify. [Learn more.](#)

Category: All Show: All

Create Instance

Name	Stat...	OC...	Me...	Volumes	Public IP	Private IP
SOA/SOA...	Run...	1	7.5 ...	None		10...
SOA/SOA...	Run...	1	15 ...	None		...
SOAC...	Run...	1	7.5 ...	None		10...

# SOACS Dashboard



# Hamburger Icon

## ➤ Full Oracle SOA Suite 12c console access

The screenshot displays the Oracle Cloud My Services interface. At the top, the header includes the Oracle logo, 'CLOUD My Services', and navigation links for Dashboard, Users, and Notifications. Below the header, the 'SOA Cloud Service' is selected, showing tabs for Services, Activity, and SSH Access. A summary bar indicates 3 Services, 6 OCPUs, 75 GB Memory, and 370 GB Storage. The Services section includes a search bar and a list of services. A dropdown menu is open, showing options to open various consoles (Service Bus, Fusion Middleware Control, Worklist Application, B2B, Load Balancer, SOA Composer, WebLogic Server) and actions (Start, Stop, Access Rules). A red square highlights the hamburger icon in the bottom right corner of the service card, with a red arrow pointing to it.

ORACLE CLOUD My Services

Dashboard Users Notifications

SOA Cloud Service Services Activity SSH Access

Summary

3 Services 6 OCPUs 75 GB Memory 370 GB Storage

Services

Search by service name

SOA [redacted] Version: 12.2.1.2.0

Nodes: 2

Created On: [redacted]

OCPUs: 2

Memory: 22.5 GB

Storage: 122 GB

Open Service Bus Console

Open Fusion Middleware Control Console

Open Worklist Application

Open B2B Console

Open Load Balancer Console

Open SOA Composer

Open WebLogic Server Console

Start

Stop

Access Rules

# SOACS Instance Details

- Note the 'Associations'
- Note the 'Oracle Load Balancer' (i.e., OTD)

The screenshot displays the Oracle Cloud My Services console for a SOACS instance. The interface includes a top navigation bar with the Oracle logo, 'CLOUD My Services', and links to Dashboard, Users, and Notifications. A left sidebar contains navigation tabs for Overview, Administration, and a section for Dec 17, 2017 4:15:18 PM UTC, indicating the last successful backup.

The main content area is titled 'Service Overview' and shows the instance's status as 'Ready'. Key metrics are displayed: 2 Nodes, 2 OCPUs, 22.5 GB Memory, and 122 GB Storage. The version is 12.2.1.2.0, and the service type is SOA with SB & B2B. The backup destination is set to BOTH.

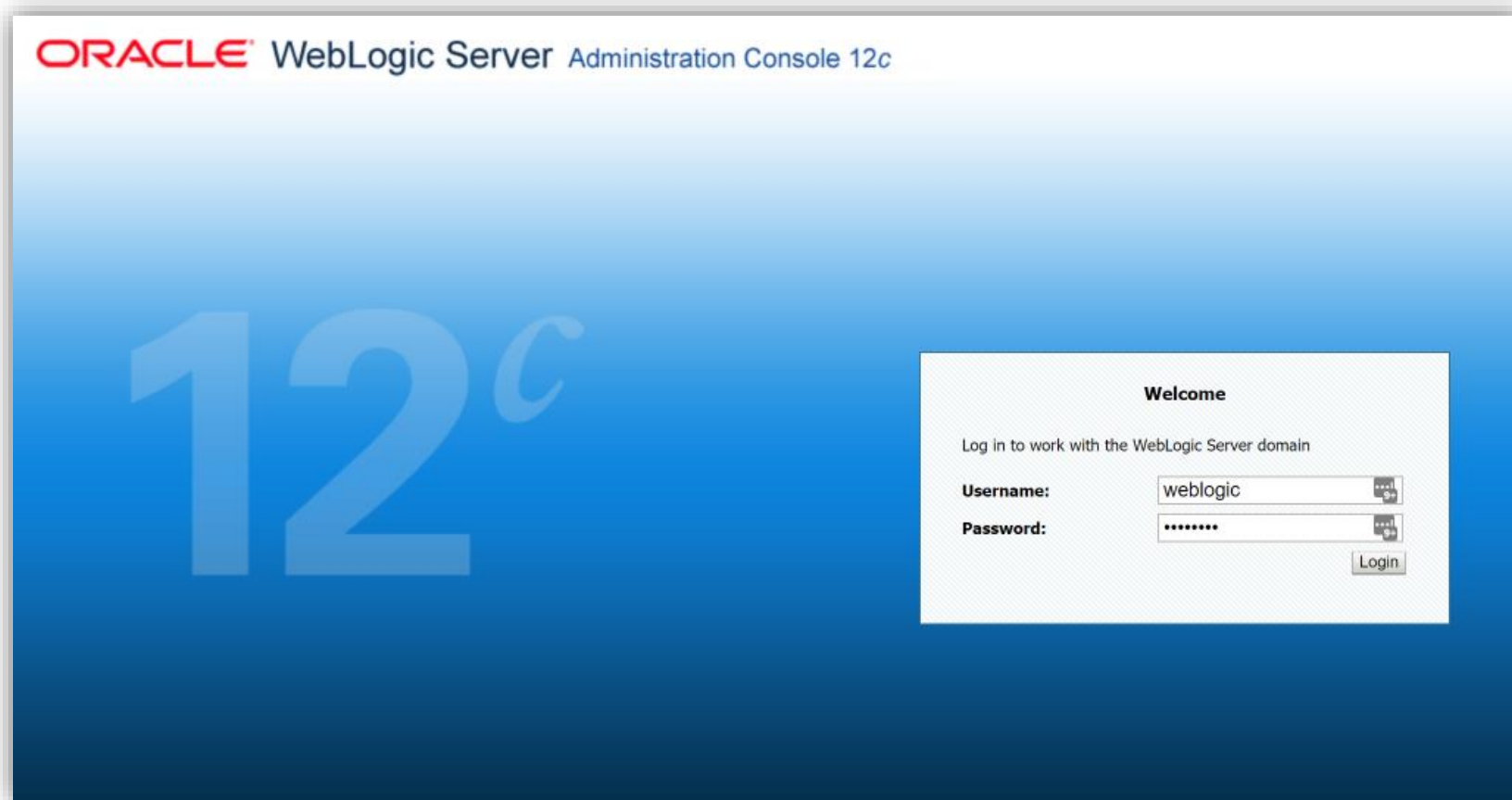
Below the overview, the 'Weblogic' section shows the state as 'Ready'. The 'Resources' section lists the instance's details: Host Name, Public IP, Instance, OCPUs (1), Memory (15 GB), and Storage (73 GB). The 'Oracle Load Balancer' section shows the state as 'Traffic Enabled' and lists its resources: Host Name, Public IP, OCPUs (1), Memory (7.5 GB), and Storage (49 GB).

The 'Associations (1)' section shows a single association with the Service Name 'SO...', Service Type 'Oracle Database Cloud Service', Type 'Depends On', and Status 'Ready'.

The footer contains links for About Oracle, Contact Us, Legal Notices, Terms of Use, and Your Privacy Rights, along with social media icons and a copyright notice for 2017.

# WebLogic Server Admin Console

## ➤ Full WebLogic Server Admin Console access



# WebLogic Server Admin Console

The screenshot displays the Oracle WebLogic Server Administration Console 12c. The interface includes a top navigation bar with links for Home, Log Out, Preferences, Record, and Help. A search bar and a user status indicator 'Welcome, weblogic' are also present. The main content area is divided into several sections:

- Change Center:** Contains a 'View changes and restarts' section with instructions and buttons for 'Lock & Edit' and 'Release Configuration'.
- Domain Structure:** A tree view on the left showing the hierarchy: SOA, Domain Partitions, Environment, Deployments, Services, Security Realms, Interoperability, and Diagnostics.
- Home Page:** The main dashboard area containing:
  - Information and Resources:** Includes 'Helpful Tools' (Configure applications, Configure GridLink for RAC Data Source, Configure a Dynamic Cluster, Recent Task Status, Set your console preferences, Oracle Enterprise Manager) and 'General Information' (Common Administration Task Descriptions, Read the documentation, Ask a question on My Oracle Support).
  - Domain Configurations:** A grid of links for various configuration areas:
    - Domain:** Domain
    - Domain Partitions:** Domain Partitions, Partition Work Managers
    - Environment:** Servers, Clusters (Server Templates, Migratable Targets), Coherence Clusters
    - Resource Group Templates:** Resource Group Templates
    - Resource Groups:** Resource Groups
    - Deployed Resources:** Deployments
    - Services:** Messaging (JMS Servers, Store-and-Forward Agents)
    - Interoperability:** WTC Servers, Jolt Connection Pools
    - Diagnostics:** Log Files, Diagnostic Modules, Built-in Diagnostic Modules, Diagnostic Images, Request Performance, Archives, Context, SNMP

# EM Console

ORACLE® Enterprise Manager Fusion Middleware Control 12c

WebLogic Domain: weblogic

Auto Refresh: Off

Dec 18, 2017 2:38:33 PM UTC

**Servers**

2 Up

**Clusters**

1 Up

**Deployments**

54 Up  
56 N/A

**Administration Server**

Name: adminserver  
Host: [redacted]  
Listen Port: 9071  
SSL Listen Port: 9072

**Servers**

View Create Delete Control

Name	Status	Cluster	Machine	State	Heal
adminserver(admin)	↑		mach...	Running	OK
server_1	↑	clu...	mach...	Running	OK

Columns Hidden: 33 Servers: 2 of 2



# URL Format

## ➤ My Services Console

<https://myservices.us.oraclecloud.com/mycloud/a9999999/faces/dashboard.jspx>

## ➤ WebLogic Admin Console

<https://oc-129-xxx-xxx-xxx.compute.oraclecloud.com:7001/console/>

# Shared Filesystem

# Midtier Shared Filesystem (DBFS)

- DBFS used for shared filesystem between nodes

```
opc@soaprod:~  
oracle@soaprod:/u01/app/oracle/tools/paas/state/homes/oracle> df -m  
Filesystem          1M-blocks  Used Available Use% Mounted on  
/dev/mapper/vg_main-lv_root  
                    15999  5308      9857   36% /  
tmpfs                7519      0      7519    0% /dev/shm  
/dev/xvdb1           477      61       388   14% /boot  
/dev/mapper/vg_binaries-lv_tools  
                    9952  5082      4342   54% /u01/app/oracle/tools  
/dev/mapper/vg_backup-lv_backup  
                   20023  1729     17255   10% /u01/data/backup  
/dev/mapper/vg_domains-lv_domains  
                   9944  5749      3667   62% /u01/data/domains  
/dev/mapper/vg_binaries-lv_mw  
                   9952  4880      4544   52% /u01/app/oracle/middleware  
/dev/mapper/vg_binaries-lv_jdk  
                   1076  360      1467   30% /u01/jdk  
dbfs-@ORCL:/         33      1       32    1% /u01/soacs/dbfs  
dbfs-@ORCL:/         33      1       32    1% /u01/soacs/dbfs_directio  
oracle@soaprod:/u01/app/oracle/tools/paas/state/homes/oracle>
```

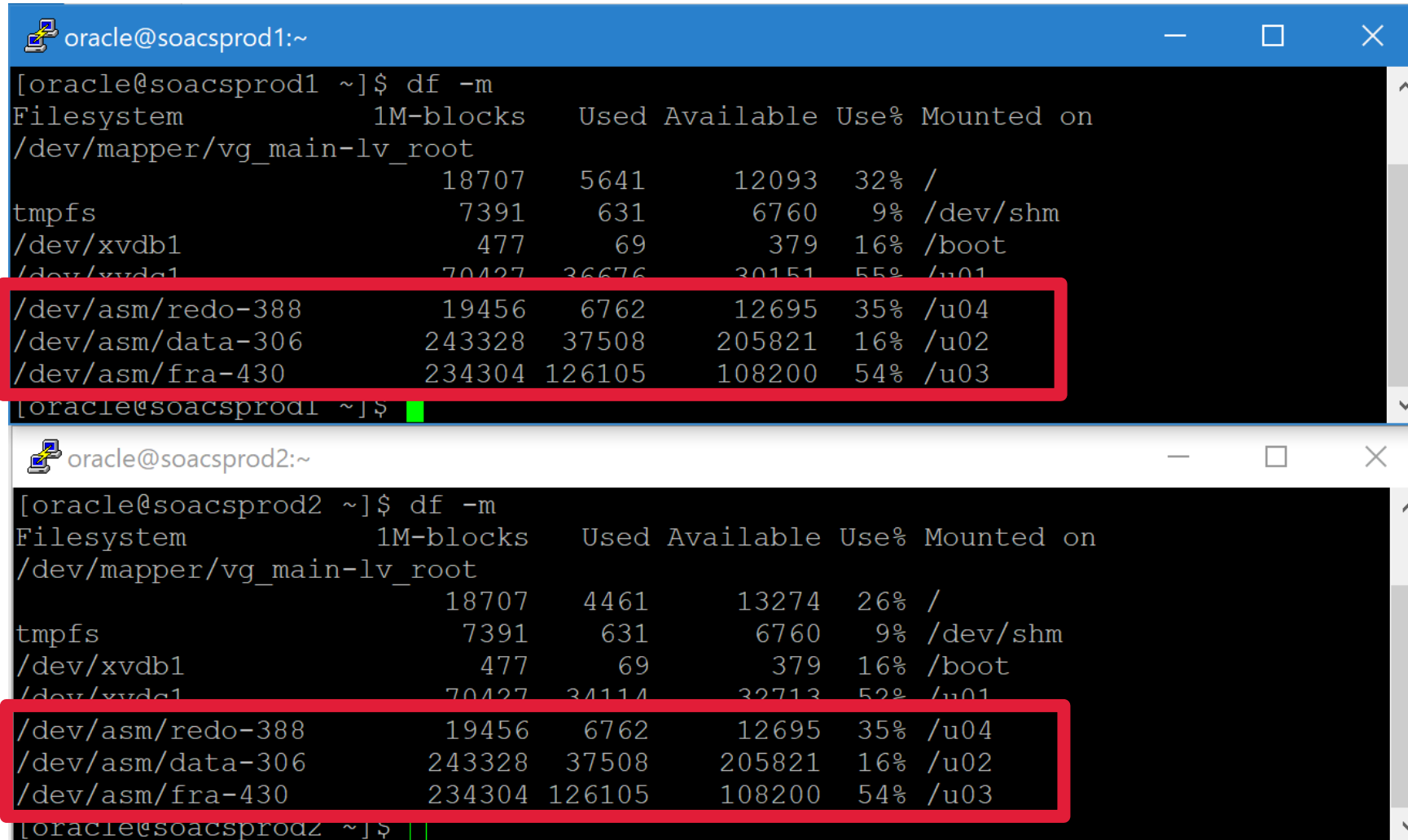
# Midtier Shared Filesystem (DBFS)

➤ TLOGs and many persistent stores are JDBC-based

The screenshot displays the SOA console interface. On the left, a navigation tree shows 'SOADEV\_domain' expanded, with sub-items: Domain Partitions, Environment, Deployments, Services, Security Realms, Interoperability, and Diagnostics. Below this, a 'How do I...' section lists: 'Create file stores', 'Create JDBC stores', 'Create replicated stores', and 'Monitor persistent stores'. The 'System Status' section shows 'Health of Running Servers as of 2:46 PM' with a legend: Failed (0), Critical (0), Overloaded (0), Warning (0), and OK (2). The main area is titled 'Persistent Stores' and includes a note: 'Click the **Lock & Edit** button in the Change Center to activate all the buttons on this page.' Below this are 'New' and 'Delete' buttons, and a status 'Showing 1 to 18 of 18' with 'Previous' and 'Next' links. A table lists 18 persistent stores with columns: Name, Type, Target, Scope, and Domain Partitions. The table contains entries for various FileStore and JDBCStore instances, including auto-generated and soa-specific stores, with targets pointing to different servers or templates.

Name	Type	Target	Scope	Domain Partitions
BPMJMSFileStore_auto_1	FileStore	server_1	Global	
BPMJMSJDBCStore_auto_1	JDBCStore	server_1 (migratable)	Global	
BPMJMSJDBCStore_soa	JDBCStore	server_1 (migratable)	Global	
FileStore	FileStore		OSBRuntimeResourceGroupTemplate template	
FileStore	FileStore		OSBTemplate template	
FileStore_auto_1	FileStore	server_1 (migratable)	Global	
JDBCStore_auto_1	JDBCStore	server_1 (migratable)	Global	
mds-ESS_MDS_DS	FileStore		Global	
mds-owsm	FileStore		Global	
mds-soa	FileStore		Global	
ProcMonJMSFileStore_auto_1	FileStore	server_1 (migratable)	Global	
ProcMonJMSJDBCStore_auto_1	JDBCStore	server_1 (migratable)	Global	
SOAJMSFileStore_auto_1	FileStore	server_1	Global	
SOAJMSJDBCStore_auto_1	JDBCStore	server_1 (migratable)	Global	
SOAJMSJDBCStore_soa	JDBCStore	server_1 (migratable)	Global	

# Database Shared Filesystem (ASM)



```
oracle@soacsprod1:~  
[oracle@soacsprod1 ~]$ df -m  
Filesystem          1M-blocks    Used Available Use% Mounted on  
/dev/mapper/vg_main-lv_root  
                    18707      5641      12093   32% /  
tmpfs                7391        631       6760    9% /dev/shm  
/dev/xvdb1           477         69        379   16% /boot  
/dev/xvdc1          70427      36676      30151   55% /u01  
/dev/asm/redo-388    19456      6762      12695   35% /u04  
/dev/asm/data-306    243328     37508     205821   16% /u02  
/dev/asm/fra-430     234304    126105     108200   54% /u03  
[oracle@soacsprod1 ~]$  
  
oracle@soacsprod2:~  
[oracle@soacsprod2 ~]$ df -m  
Filesystem          1M-blocks    Used Available Use% Mounted on  
/dev/mapper/vg_main-lv_root  
                    18707      4461      13274   26% /  
tmpfs                7391        631       6760    9% /dev/shm  
/dev/xvdb1           477         69        379   16% /boot  
/dev/xvdc1          70427      34114      32713   52% /u01  
/dev/asm/redo-388    19456      6762      12695   35% /u04  
/dev/asm/data-306    243328     37508     205821   16% /u02  
/dev/asm/fra-430     234304    126105     108200   54% /u03  
[oracle@soacsprod2 ~]$
```

# Cloud Administration

# Cloud Administrator

- So what are your expected duties as a Middleware Cloud Administrator?

# Firewall Management

The screenshot shows the Oracle Cloud My Services console. The top navigation bar includes 'ORACLE Cloud My Services', 'Dashboard', 'Users', and a help icon. The main header is 'Compute Classic' with 'Site: US006' and a 'Visualization' button. The 'Network' tab is selected, showing 'Shared Network > Security Rules'. A dropdown menu is open, listing 'Shared Network', 'Security Rules', 'Security Lists', 'Security Applications', 'Security IP Lists', 'IP Reservations', and 'IP Network'. The 'Security Rules' option is highlighted. Below the dropdown, a summary shows '101 security rules' and '89 enabled'. A table lists security rules with columns for 'Status', 'Security Application', 'Source', and 'Destination'. The table includes rules for 'icmp', 'snmp-udp', and 'ssh'.

Status	Security Application	Source	Destination
Enabled	icmp	[Redacted]	[Redacted]MP
Enabled	[Redacted]	[Redacted]	[Redacted]
Enabled	snmp-udp	[Redacted]	[Redacted]NMP
Enabled	ssh	public-internet	SOA [Redacted]1/wls...



# SOACS and DBaaS Backups

- SOACS and DBaaS backups may or may not be co-dependent
- Can restore/delete, but manage available disk space manually

The screenshot displays the SOA Cloud Service Backup management interface. The top navigation bar shows 'SOA Cloud Service' and a user profile. The left sidebar contains 'Overview' (2 Nodes) and 'Administration' (0 Patches available). The main content area is divided into 'Backup' and 'Patching' tabs. The 'Backup' tab shows a summary of backup schedules and usage as of Dec 18, 2017 2:42:37 PM UTC. Below this, the 'Available Backups' section lists individual backup entries with their dates, times, and types. Two red arrows point to specific elements: one points to the 'Restore' and 'Delete' buttons for a backup entry, and the other points to the 'Contains' icon (a document with a list) for the same entry.

Backup Schedule	Frequency	Last Successful Backup
Daily at 4:15:00 PM UTC Incremental Backups	Every Tuesday at 4:15:00 PM UTC Full Backups	Dec 17, 2017 4:15:18 PM UTC
2.3 GB Backups on Cloud Storage	1.7 Backup Volume Used (GB)	8.65 Backup Volume Used (%)

Available Backups | [Filter Icon]

12/11/2017 2:42 PM [Calendar Icon] to [Enter end date] [Calendar Icon] [Search Icon]

Backup Entry	Type	Available Until	Contains	Notes
Dec 17, 2017 4:15:18 PM UTC	Incremental, initiated by scheduled	Dec 24, 2017 4:15:18 PM UTC	[Document Icon]	Automated backup
Dec 16, 2017 4:15:34 PM UTC	Incremental, initiated by scheduled		[Document Icon]	

# Monitoring

- No monitoring out-of-the-box
- Consider OEM Cloud Control or equivalent monitoring

# Patching

- Many zero downtime patches available
- Manually, or some through cloud console

```
export ORACLE_HOME=/u01/app/oracle/middleware
export PATCH_TOP=/u01/app/oracle/middleware/OPatch
export PATH=$PATCH_TOP:$PATH
which opatch
which unzip
opatch version
opatch lsinventory -jre /u01/jdk/jre
cd $PATCH_TOP
unzip ~/patches/p24654879_122120_Generic.zip
cd $PATCH_TOP/24654879
opatch apply
```

# Scaling

## Scaling up and down

# SSH Key Management

## SSH key management

# Deployment

- Deployment (e.g., SOA, OSB, BAM, WSM, etc.)
- And configuration (think OTD)

# DNS Management

- DNS managed independently

# VPN Setup

➤ VPN configuration, as needed



# License Renewal

- A non-metered plan is the way to go
- May involve difficult migration during scale down



# Issues

# Pricing Concerns

## ➤ Database Edition impact on pricing

- Enterprise – additional performance and availability
- High Performance – plus all management packs, but no Active Data Guard, no in-memory, no Oracle RAC One Node, no RAC
- Extreme Performance – no Oracle RAC One Node

	Standard Edition	Enterprise Edition	Enterprise Edition <i>High Performance</i>	Enterprise Edition <i>Extreme Performance</i>
Single Instance	✓	✓	✓	✓
Single Instance + Data Guard Standby		✓	✓	✓
Database Clustering + RAC				✓
Database Clustering + RAC and Data Guard Standby				✓

# Technical Issues

- p24525712\_122120\_Generic.zip
  - <Critical> <WebLogicServer> <BEA-000386> java.lang.IllegalStateException: trying to set illegal state, present state RESUMING, new state ADMIN
- p24654879\_122120\_Generic.zip
  - PeerSiteRecoveryLeaseMaintenance: Unable to create either connection or prepared statements for cross-site recovery
- Email addresses tied to backup jobs
- Complete environment restarts (due to associations) to add SSH keys ★ serious
- Complete environment restart to add more ASM disk space to DB servers ★ serious
- EM Console issues when saving properties
- Service unavailability when starting/stopping composites ★ serious
- Inability to mount additional DBFS filesystems on midtier ★ serious
- Cloud operations not completing due to backend REST timeouts

## Pricing / Performance

# Pricing

- Non-metered service is the way to go
- 1 OCPU = 2 AWS EC2 vCPUs

Product	Price	Metric
SOA Cloud Service	\$2,750	OCPU/month

# Performance

## ➤ 1 OCPU midtier

## ➤ 2 OCPU database

Composite Name	State	Avg (ms)	Min (ms)	Max (ms)	Count
CompositeA	Completed	185.938	76.000	234.400	24
CompositeA	Faulted	311.100	310.500	311.700	2
CompositeD	Completed	0.016	0.000	65.700	73,486
CompositeD	Rolled Back	15.450	15.100	15.800	2
CompositeE	Completed	0.257	0.100	239.100	213,775
CompositeG	Completed	11.674	0.700	205.300	20,223
CompositeH	Completed	0.456	0.000	5.200	922
CompositeI	Completed	0.001	0.000	53.100	191,252
CompositeJ	Completed	0.005	0.000	251.900	444,889
CompositeK	Completed	0.001	0.000	49.100	432,434
CompositeL	Completed	0.028	0.000	6.800	13,736
CompositeM	Completed	0.154	0.000	1103.900	722,540
CompositeO	Completed	0.598	0.000	284.500	274,928
CompositeP	Completed	0.358	0.000	1172.300	228,112
CompositeQ	Completed	135.773	0.300	219.900	40
CompositeQ	Faulted	331.300	331.300	331.300	1
CompositeR	Completed	32.700	32.700	32.700	1
CompositeS	Completed	0.001	0.000	0.700	5,611

# Conclusion



# My Thoughts

## ➤ Pros:

- Superior performance
- Truly an impressive, comprehensive, and complete integration toolset
- Easier provisioning, some operations simplified
- Skillsets readily available in the market, some cloud education required
- Great for test environments too

## ➤ Cons:

- Cost
- Still need a middleware administrator and DBA
- Minor Oracle Cloud Support issues
- Minor product issues not found in on-premise versions
- On-premise will be cost prohibitive in the future

# To Continue the Discussion



**Want to learn more about how  
Attain is different?**

**Please contact us.  
We're eager to work with you.**

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