

Usage and Cost to ADW With Private End Point

Installation Guide

Version 23.03.01 PE

Contents

1	Overview	3
1.1	Introduction	3
1.2	Main Features	3
1.3	How Usage Reports Work	3
1.4	OCI SDK Modules Included:	3
1.5	OCI APIs Used:	3
2	Installation	4
2.1	Prerequisite	4
2.1.1	Creating an SSH/RSA Key	4
2.1.2	Creating Dynamic Group	5
2.1.3	Creating Policy	6
2.1.4	Usage VM Access to the internet	7
2.1.5	Usage VM Access to the Autonomous Datawarehouse	7
2.2	Launching Your Usage2ADW Components	7
2.3	Connecting to your Usage2ADW Compute	13
2.4	Execute Application	13
2.5	Login to APEX Workspace	14
2.6	Create Additional End User Accounts	15
3	Application Screenshots	17
3.1	Cost Reports	17
3.2	Rate Card	19
3.3	Usage Reports	20

1 Overview

1.1 Introduction

Usage2adw is a tool which uses the Python SDK to extract the usage and cost reports from your tenant and load it to Oracle Autonomous Database. Authentication to OCI by User or instance principals.

It uses Oracle Application Express (APEX) for Visualization and Reports.

Developed by Adi Z, February 2020 to March 2023 as open source

Located at GitHub - https://github.com/adizohar/usage_reports_to_adw

1.2 Main Features

- Load Usage Report to ADW
- Load Cost Reports to ADW
- Load Public Rates to ADW
- Report Usage Current State
- Report Usage Over Time
- Report Cost Analysis
- Report Cost Over Time
- Report Rate Card for Used Products

1.3 How Usage Reports Work

The usage report is automatically generated daily, and is stored in an Oracle-owned Object Storage bucket. It contains one row per each Oracle Cloud Infrastructure resource (such as instance, Object Storage bucket, VNIC) per hour along with consumption information, metadata, and tags. Usage reports generally contain 24 hours of usage data, although occasionally a usage report may contain late-arriving data that is older than 24 hours.

Usage reports are retained for one year.

The file name for each usage report is appended with an automatically incrementing numerical value.

More information can be found at

<https://docs.cloud.oracle.com/en-us/iaas/Content/Billing/Concepts/usagereportsoverview.htm>

1.4 OCI SDK Modules Included:

- `oci.identity.IdentityClient`
- `oci.object_storage.ObjectStorageClient`

1.5 OCI APIs Used:

- `IdentityClient.list_compartments` - Policy COMPARTMENT_INSPECT
- `IdentityClient.get_tenancy` - Policy TENANCY_INSPECT
- `ObjectStorageClient.list_objects` - Policy OBJECT_INSPECT
- `ObjectStorageClient.get_object` - Policy OBJECT_READ

2 Installation

2.1 Prerequisite

Deployment must be at Home Region

Make sure you have the following prerequisites before using Usage2ADW on Oracle Cloud Marketplace:

2.1.1 Creating an SSH/RSA Key

To work with the Oracle Cloud Infrastructure once the Usage2ADW Compute Node is built, you have to provide a SSH Public Key to allow you to login to the node.

In order to build your SSH keys, perform the following steps:

1. In a terminal window, generate the SSH key using the following command:

```
$ ssh-keygen -t rsa -b 2048
```

```
Generating public/private rsa key pair.
```

2. Enter the path to store this file. By default, this gets saved in your home directory under a hidden folder called .ssh. Change this default location, if required.

```
Enter file in which to save the key (/home/opc/.ssh/id_rsa):<Return>
```

3. Enter a passphrase using your key

```
Enter passphrase (empty for no passphrase): <passphrase>
```

4. Re-enter the passphrase to confirm it. <passphrase>

```
Enter same passphrase again: <passphrase>
```

5. Check the results.

The key fingerprint (a colon separated series of two digits hexadecimal values) is displayed. Check if the path to the key is correct. In the above example

```
Your identification has been saved in /home/opc/.ssh/id_rsa.  
Your public key has been saved in /home/opc/.ssh/id_rsa.pub.
```

You have now created a public and private key pair.

2.1.2 Creating Dynamic Group

Resource Manager can create the Dynamic Group for you if you have Admin access, if not please create the dynamic group as described below:

During Usage2ADW Instance provisioning, instance required to access usage and cost files , compartment and tenancy information as long as the dynamic group and policies are created before deploying Usage2ADW on Marketplace and are set as mentioned below.

Please find your compartment id and fill the below (Compartment Id can be obtain at Identity -> Compartments)

```
ALL {instance.compartment.id = 'ocid1.compartment.oc1..aaaaaaaabgr34tpuanpvq6xfb66xxx'}
```

For more information, refer to [Create Dynamic Groups and Policy](#).

Create Dynamic Group [Help](#)

NAME

UsageDownloadGroup

No spaces. Only letters, numerals, hyphens, periods, or underscores.

DESCRIPTION

Dynamic Group for the Usage Report VM

Matching Rules

Rules define what resources are members of this dynamic group. All instances that meet the criteria are added automatically.

Example: Any {instance.id = 'ocid1.instance.oc1.iad..exampleuniqueid1', instance.compartment.id = 'ocid1.compartment.oc1..exampleuniqueid2'}

☒ MATCH ANY RULES DEFINED BELOW ☐ MATCH ALL RULES DEFINED BELOW

RULE 1

ALL {instance.compartment.id = 'ocid1.compartment.oc1..aaaaaaaabgr34tpuanpvq6xfb66xxx'}

[Rule Builder](#) ×

+ Additional Rule

2.1.3 Creating Policy

Resource Manager can create the Policy for you if you have Admin access, if not please create the Policy as described below:

Usage and Cost Report is at tenant level, therefore you will need to setup the policy at the root compartment:

Obtain the compartment the application will be installed as {APPCOMP}

Browse to OCI Console, Identity, Policies

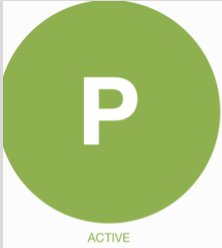
Choose Root Compartment

Create Policy:

- Name = UsageDownloadPolicy
- Desc = Allow Dynamic Group UsageDownloadGroup to Extract Usage reports
- Statements:

```
define tenancy usage-report as
ocid1.tenancy.oc1..aaaaaaaaned4fkpkisbwjlr56u7cj63lf3wffbilvqknstgtvzub7vhqkggq
endorse dynamic-group UsageDownloadGroup to read objects in tenancy usage-report
Allow dynamic-group UsageDownloadGroup to inspect compartments in tenancy
Allow dynamic-group UsageDownloadGroup to inspect tenancies in tenancy
Allow dynamic-group UsageDownloadGroup to read autonomous-databases in compartment {APPCOMP}
```

*** Please don't change the usage report tenant OCID, it is fixed.



UsageDownloadPolicy

[Update Version Date](#) [Add Tags](#) [Delete](#)

Policy Information

Tags

OCID: ...r2xo3pva [Show](#) [Copy](#)

Version Date: Keep version current

Compartment:

Description: Allow Dynamic Group UsageDownloadGroup to Extract Usage report script

Created: Tue, Apr 7, 2020, 01:05:54 UTC

Statements

[Edit Policy Statements](#)

```
define tenancy usage-report as ocid1.tenancy.oc1..aaaaaaaaned4fkpkisbwjlr56u7cj63lf3wffbilvqknstgtvzub7vhqkggq

endorse dynamic-group Usage2ADW_DynamicGroup to read objects in tenancy usage-report

Allow dynamic-group Usage2ADW_DynamicGroup to inspect compartments in tenancy

Allow dynamic-group Usage2ADW_DynamicGroup to inspect tenancies in tenancy

Allow dynamic-group Usage2ADW_DynamicGroup to read autonomous-databases in compartment id
ocid1.compartment.oc1..aaaaaaa24b3mfwu6aulib33oan3eqicwm4az65cog7o7ql5sluqtaahn76q
```

2.1.4 Usage VM Access to the internet

Usage VM query the public rates in order to compile discounts, without ability to access the public rates the application won't be able to produce rate card discounts and the usage2adw.py will fail

2.1.5 Usage VM Access to the Autonomous Datawarehouse

Usage VM required access to the autonomous database.

2.2 Launching Your Usage2ADW Components

Follow the below procedure to launch your Usage2ADW instance:

Once you click **Launch Stack**, you are navigated to the **Create Stack** page.

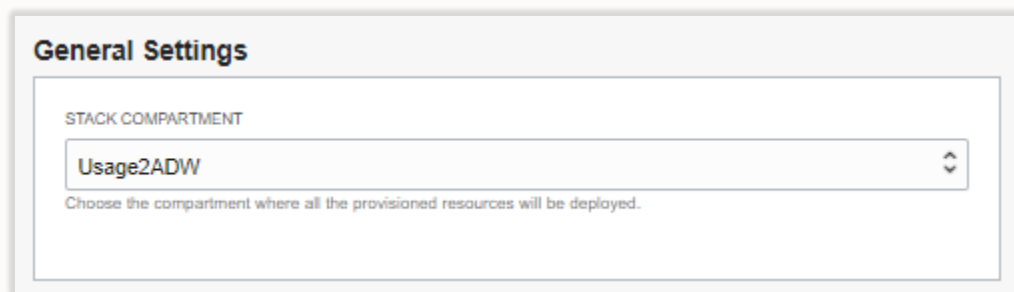
1. Fill in the required Stack information:

- Name - Name of the Stack. It has a default name and provides a datetime stamp. You can edit this detail, if required.
- Description - Description that you provide while creating the Stack.
- Create In Compartment – It defaults to the compartment you have selected on the Usage2ADW for Oracle page.
- Tags (optional) – Tags are a convenient way to assign a tracking mechanism but are not mandatory. You can assign a tag of your choice for easy tracking. You have to assign a tag for some environments for cost analysis purposes.
- Click Next.

Fill in the required details to configure variables. This information is required to build the compute node and Autonomous Datawarehouse with Usage2ADW

1. General Settings -

Stack Compartment - Specifies the Compartment where the compute node , Autonomous Database and Network will be built. It is generally the location that you have access to build the compute node and autonomous database.



The screenshot shows a web form titled "General Settings". Inside the form, there is a section labeled "STACK COMPARTMENT". Below this label is a text input field containing the text "Usage2ADW". To the right of the input field is a small dropdown arrow icon. Below the input field, there is a descriptive text: "Choose the compartment where all the provisioned resources will be deployed."

2. Identity Configuration -

Identity Options - Denotes the Identity and Access options

- New IAM Dynamic Group and Policy will be created - New Dynamic Group and Policy will be created – This option required Admin access
- I have already created Dynamic Group and Policy per the documentation – Choose this option if you already created Dynamic group and.

Identity Configuration

IDENTITY OPTIONS

New IAM Dynamic Group and Policy will be created

IAM Dynamic Group and Policies can be created for you under the root compartment, it required Admin access.

POLICY NAME

Usage2ADWPolicy

DYNAMIC GROUP NAME

Usage2ADWDynamicGroup

3. Network Configuration -

- VCN Compartment - Specifies the VCN compartment where the compute node will be built. It is generally the location that you have access to build the compute node. From the Virtual cloud network compartment drop-down list, select the compartment where your VCN has been setup.
- VCN - A VCN is a software-defined network that you set up in the Oracle Cloud Infrastructure data centers in a particular region. Select the desired VCN for the newly created instance. From the Virtual cloud network drop-down list, choose your VCN.
- Subnet Compartment - Denotes the subnet compartment to use for the newly created instance if you are not creating a new network. From the Subnet Compartment drop-down list, select the compartment containing the subnet that you wish to use.
- Subnet - Existing subnet to use for the newly created instance if you are not creating a new network. From the Subnet drop-down list, select the subnet you wish to

Network Configuration

VCN Compartment

AdiZohar

oraseatdpltddevpsnetw02 (root)/AdiZohar

VCN

vcn

Subnet Compartment

AdiZohar

oraseatdpltddevpsnetw02 (root)/AdiZohar

Subnet ⓘ

vcn_privsub (Regional)

4. Load Balancer Configuration -

- Option – Provision Public Load Balancer or Not.
- Load Balancer Name – Name of the Load Balancer
- Subnet Compartment - Denotes the subnet compartment to use for the Load Balancer Listener
- Subnet - Existing subnet to use for the newly created Load Balancer

Load Balancer Configuration

Load Balancer Options

Provision Public Load Balancer

Public Load Balancer can be provisioned to access the Private End-Point.

Load Balancer Name

Usage2ADW_LB

Choose your Load Balancer Name.

Load Balancer Public Subnet Compartment

AdiZohar

oraseatdpitdevopsnetw02 (root)/AdiZohar

Load Balancer Public Subnet ⓘ

vcn_pubsub (Regional)

New Autonomous Database Settings -

- Autonomous database name – the name to be assigned to the Autonomous database
- DB Password – Must be a minimum 12 characters, contain at least one uppercase letter, one lowercase letter, one number, and # as special character allowed.
Will be used for Admin, Wallet and Application

Autonomous Database Configuration

Autonomous Database Name

USAGE2ADW

Choose an Autonomous Database Name

db_password

Enter the password

.....

Provide database password. It will be used for admin, wallet and application, cannot have the word "usage" in the password. (Must be a minimum 12 characters, contain at least one uppercase letter, one lowercase letter, one number and one hash).

Re-enter the password

.....

Database License

BRING_YOUR_OWN_LICENSE

Choose your database license type.

Network Security Group

Usage2ADW_NSG

Choose your Network Security Group Name.

Private End Point Label

usageadb

Choose your Private End Point Label for the ADB

- Network Security Group Name – The network security group to create and assign to the autonomous database.
- Private End Point Label – The host name assigned to the autonomous database end point
- Database License – License Included or Bring your own license if you have

Instance Configuration -

- Availability Domain to deploy the instance
- Instance Name – the name of the compute instance
- Compute Shape – Compute Shape to deploy the instance
Free Tier Shape (Micro) only available in certain availability domains, if you deploy and it failed for shape not found, please edit the stack , change the availability domain or shape and apply again
- SSH Public Key – The public key you generated at the prerequisite stage
- Extract Usage From Date – Load Data since which date with format of YYYY-MM (i.e. 2021-03)
- Extract Key 1 to special tag column – This allow to extract one Tag Key (Special) for Filtering/Reports
- Extract Key 2 to special tag column – This allow to extract one Tag Key (Special) for Filtering/Reports

Instance Configuration

Availability Domain
dbTR:US-ASHBURN-AD-2
The name of the availability domain in which to create compute instances, must be at home region

Instance Name
Usage2AdwVM
Provide the instance name

Compute Shape
VM.Standard.E3.Flex
The shape for the usage2adw compute instances (Micro shape is only available in certain availability domains, please check before choosing)

SSH Public Key
☒ Choose SSH key file ☐ Paste SSH key
ssh-rsa
AAAAB3NzaC1yc2EAAAADAQABAAQCAxzdTD9G9U+Vyfnogo5ySD2R5YPR9AVR/4EFTpiDrDuOpCIDrw0g3DXrQkSA/JT1BN76wYLG36M+Mi++E4t3yGtWn47xvnZQ8Lwl+8JGKo4ksEurv3Y5QxkbXJ8NO0rGdZ9mEh1qUk7puSsKDINjOP3s4VrAls/DsWGXR...
Use public key to secure your VM. Private key pair will be needed later.

Extract usage from date
2022-07
Please specify the date to extract from, in format (YYYY-MM)

Extract Tag Key 1 to special tag column
Oracle-Tags.CreatedBy
Please specify the tag key 1 to load to Tag Special 1 column

Extract Tag Key 2 to special tag column
ORACLE.DEF
Please specify the tag key 2 to load to Tag Special 2 column

2. Click Next.
3. On the Review page, review the information you provided and then click Create.
4. When you get a message, Provisioning Completed/Successful from the OCI console, the instance is created. However please note the rest of the Usage2ADW configuration happens in the background including extract of the usage which takes approximately 10 minutes to complete.
5. After approximately 5 minutes log into the compute node and examine the setup.log file

2.3 Connecting to your Usage2ADW Compute

Using the SSH key you provided, SSH to the linux machine from step
ssh opc@UsageVM

Please check the setup.log , if any error due to policy permission, please fix and rerun the script:
/home/opc/usage_reports_to_adw/setup/setup_usage2adw

2.4 Execute Application

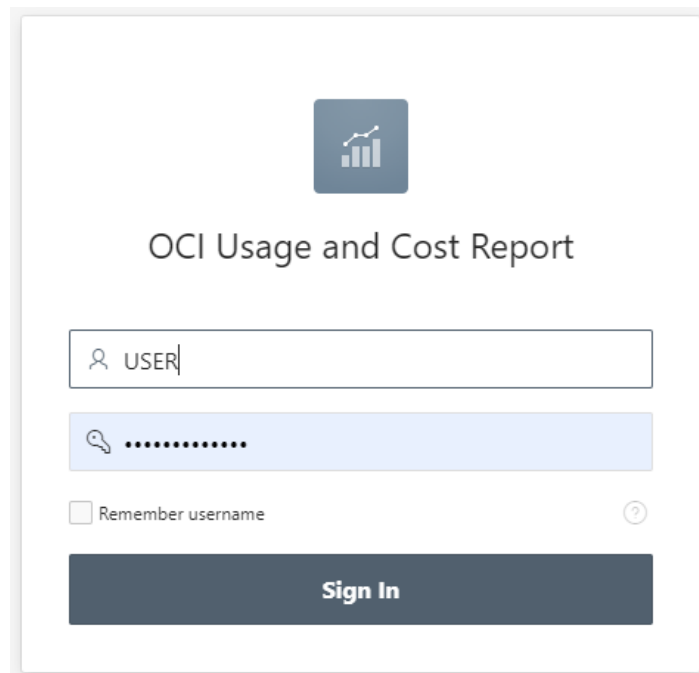
Copy the Apex Application URL provided with the Stack
Should be similar to the below:

https://<workspace id>.adb.us-ashburn-1.oraclecloudapps.com/ords/f?p=100:LOGIN_DESKTOP:.....

User = USAGE

Password = Application Password

Bookmark the page for future use.



The image shows a login form for the OCI Usage and Cost Report. At the top, there is a blue square icon with a white bar chart. Below the icon, the title "OCI Usage and Cost Report" is centered. The form contains a username field with a person icon and the text "USER", a password field with a key icon and masked dots, a "Remember username" checkbox, and a "Sign In" button. A help icon is located to the right of the checkbox.

2.5 Login to APEX Workspace

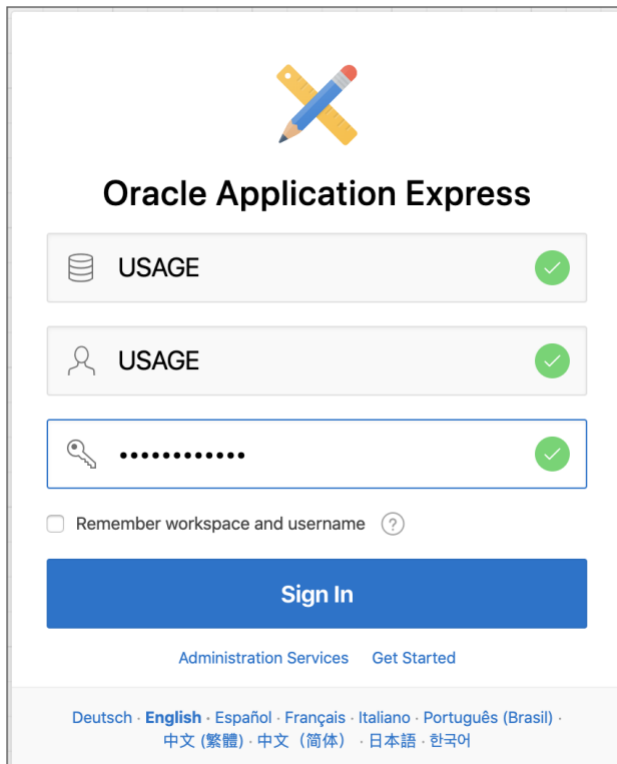
Copy the Apex Application URL provided with the Stack – Apex Admin Workspace
Should be similar to the below:


`https://<workspace id>.adb.us-ashburn-1.oraclecloudapps.com/ords/apex`

Workspace = USAGE



User = USAGE



Password = Password you provided








Oracle Application Express

 USAGE 

 USAGE 

☐ Remember workspace and username 

Sign In

[Administration Services](#) [Get Started](#)

[Deutsch](#) · [English](#) · [Español](#) · [Français](#) · [Italiano](#) · [Português \(Brasil\)](#) ·
[中文 \(繁體\)](#) · [中文 \(简体\)](#) · [日本語](#) · [한국어](#)

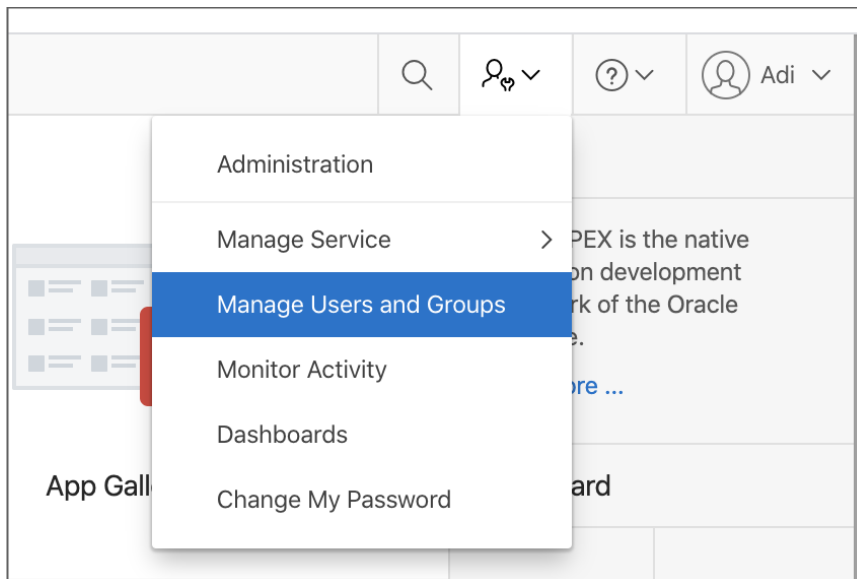
2.6 Create Additional End User Accounts

Top 3rd Right Menu -> Manage Users and Groups

- Create User

Fill:

- Username
- Email
- Password
- Confirm Password
- Optional - Require to change password = No
- Apply Changes



Create User

Show All User Identification Account Privileges

User Identification

*

Username

adizohar

?

*

Email Address

your.email@oracle.com

?

First Name

?

Last Name

?


Description


?


Default Date Format

?

Account Privileges

Default Schema 

Accessible Schemas (null for all) 

User is a workspace administrator: ☐ Yes ☒ No 

User is a developer: ☐ Yes ☒ No 


App Builder Access 

SQL Workshop Access 

Team Development Access 

Set Account Availability 

Password (For authentication against workspace user account repository only)

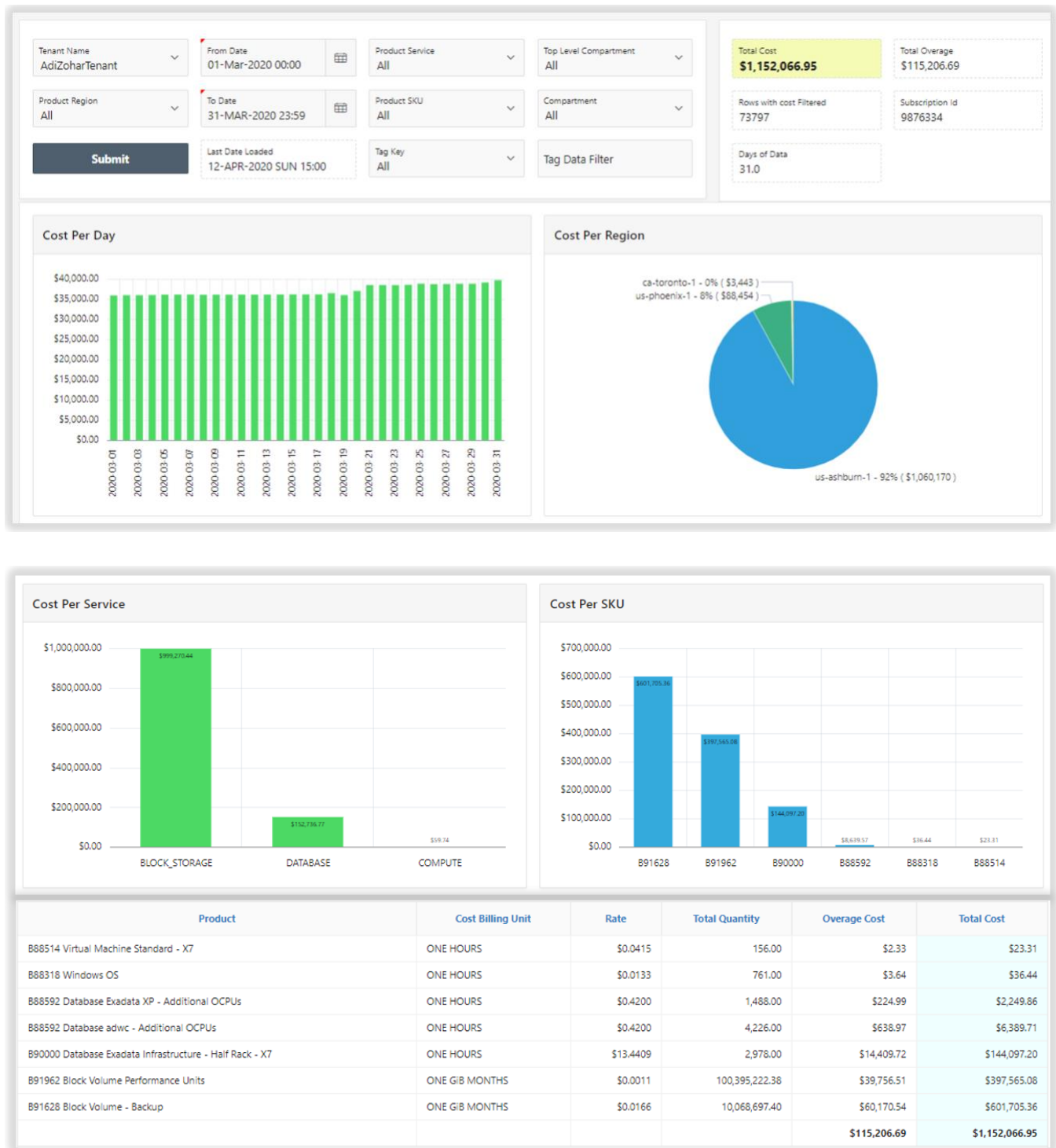
* Password Passwords are case sensitive 

* Confirm Password 

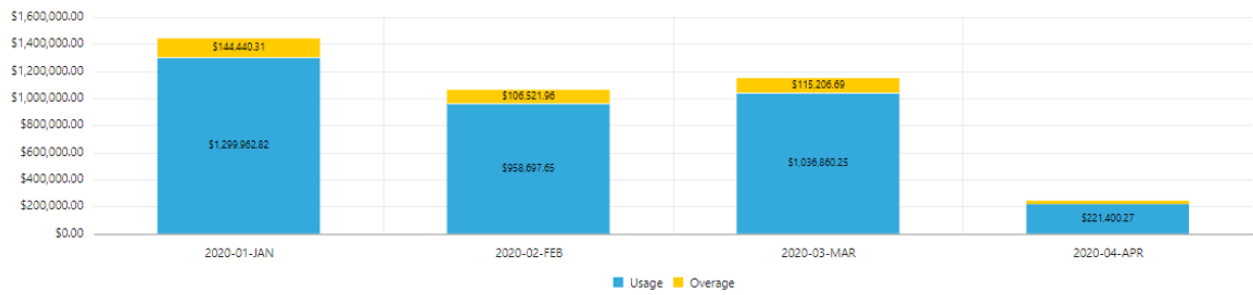
Require Change of Password on First Use 

3 Application Screenshots

3.1 Cost Reports



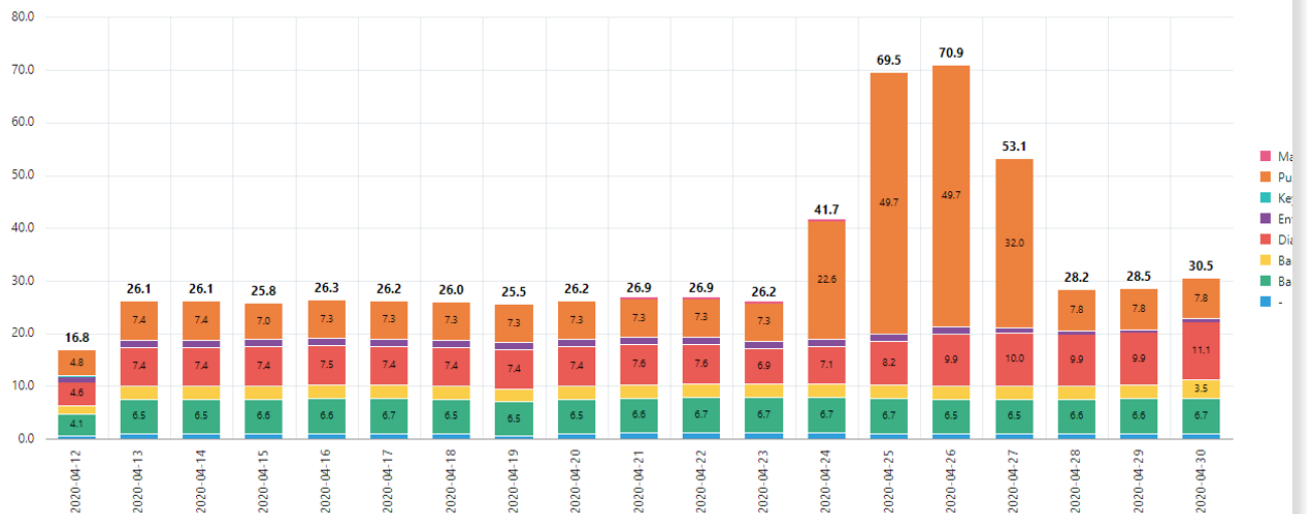
Cost Over Time



Monthly Report

SKU	Product Name	Total ↑%	Jan 2020	Feb 2020	Mar 2020	Apr 2020	May 2020	Jun 2020	Jul 2020	Aug 2020	Sep 2020	Oct 2020	Nov 2020	Dec 2020
B88318	Windows OS	\$647	\$291	\$70	\$36	\$250	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B88514	Virtual Machine Standard - E2	\$967	\$0	\$182	\$23	\$761	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B88326	FastConnect 10 Gbps	\$1,781	\$1,525	\$257	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B88592	Database Exadata XP - Additional OCPUs	\$21,351	\$5,289	\$6,030	\$8,640	\$1,393	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B91536	Database Exadata Infrastructure - Half Rack - X8	\$31,584	\$31,551	\$0	\$0	\$33	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B90000	Database Exadata Infrastructure - Half Rack - X7	\$543,147	\$240,872	\$139,017	\$144,097	\$19,161	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B91962	Block Volume Performance Units	\$1,315,786	\$462,469	\$365,536	\$397,565	\$90,216	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
B91628	Block Volume - Backup	\$1,992,427	\$702,407	\$554,128	\$601,705	\$134,187	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Report Total:		\$3,907,690	\$1,444,403	\$1,065,220	\$1,152,067	\$246,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

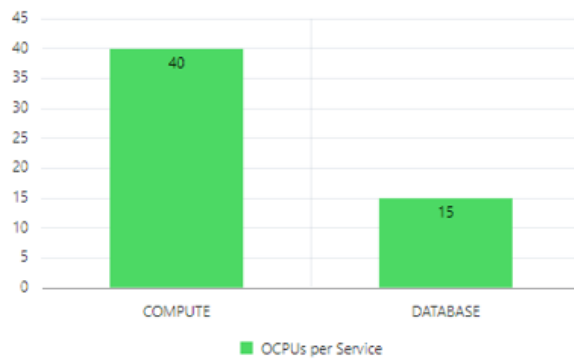
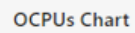
Cost By Top Compartment - Daily



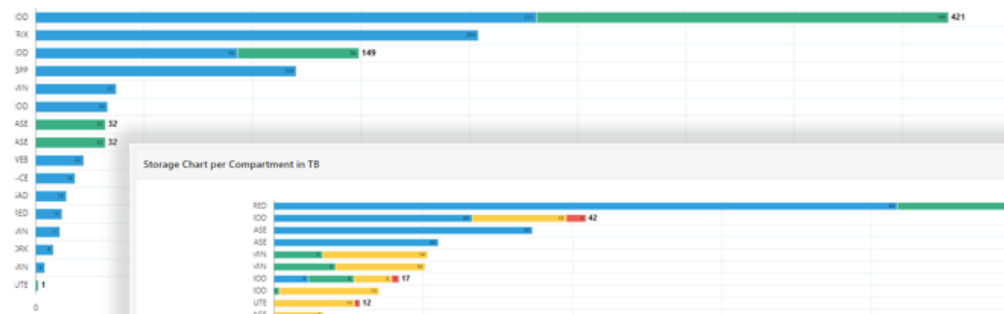
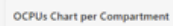
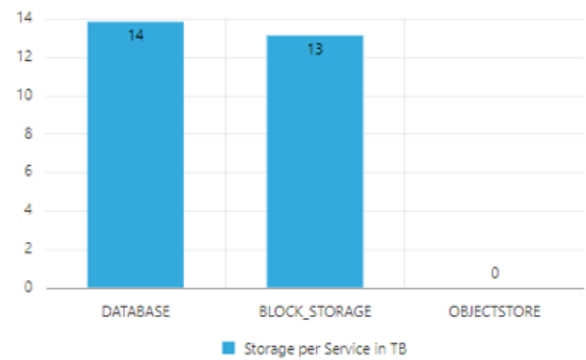
3.2 Rate Card

Sku	Product ↑≡	Currency	Cost Price	Public Rate PayGo	% Discount PayGo	Public Rate Monthly Flex	% Discount Monthly Flex
B91633	Archive Storage	USD	0.0018	0.0026	30.80	0.0026	30.80
B88287	B88287 - Oracle Java Cloud Service - Enterprise - OCPU Per Hour	USD	0.2710	0.5807	53.30	0.3871	30.00
B88290	B88290 - Oracle Database Cloud Service - Enterprise Edition - General Purpose - OCPU Per Hour	USD	0.3763	0.8064	53.30	0.5376	30.00
B88299	B88299 - Oracle Data Integrator Cloud Service - OCPU Per Hour	USD	0.6775	1.4517	53.30	0.9678	30.00
B88399	B88399 - Oracle Java Cloud Service - Enterprise - BYOL - OCPU Per Hour	USD	0.1355	0.2903	53.30	0.1935	30.00
B88406	B88406 - Oracle Data Integrator Cloud Service - BYOL - OCPU Per Hour	USD	0.1355	0.2903	53.30	0.1935	30.00
B88407	B88407 - Oracle SOA Suite	USD	0.0298	0.0425	29.90	0.0425	29.90
B88460	B88460 - Oracle SOA Suite	USD	0.0012	0.0017	29.40	0.0017	29.40
B89162	B89162 - Oracle Managem	USD	0.0178	0.0255	30.20	0.0255	30.20
B89631	B89631 - Oracle Analytics C	USD	0.1882	0.4032	53.30	0.2688	30.00
B89637	B89637 - Oracle Analytics C	USD	0.0595	0.0850	30.00	0.0850	30.00
B89640	B89640 - Oracle Integratio	USD	0.0178	0.0255	30.20	0.0255	30.20
		USD	1.1761	2.5202	53.30	1.6801	30.00
		USD	103.6000	222.0000	53.30	148.0000	30.00

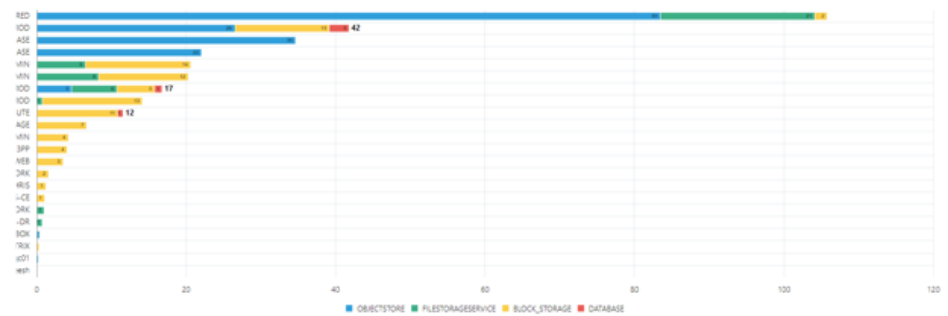
3.3 Usage Reports



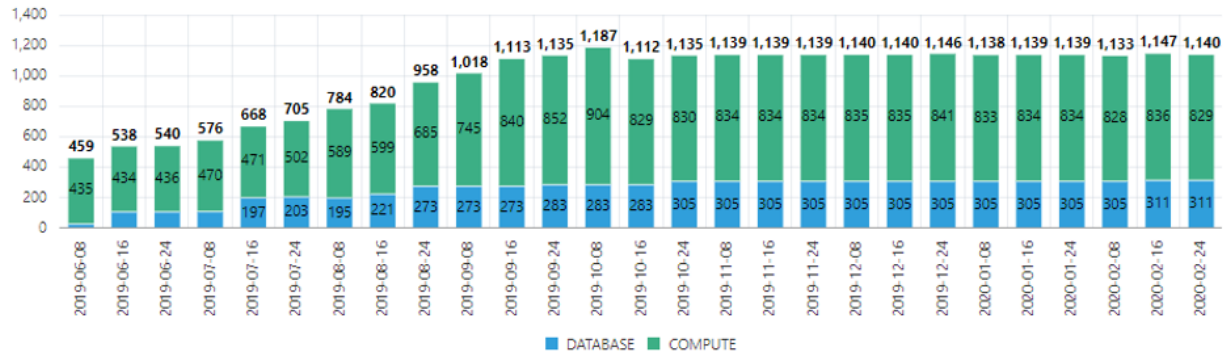
Storage Chart in TB



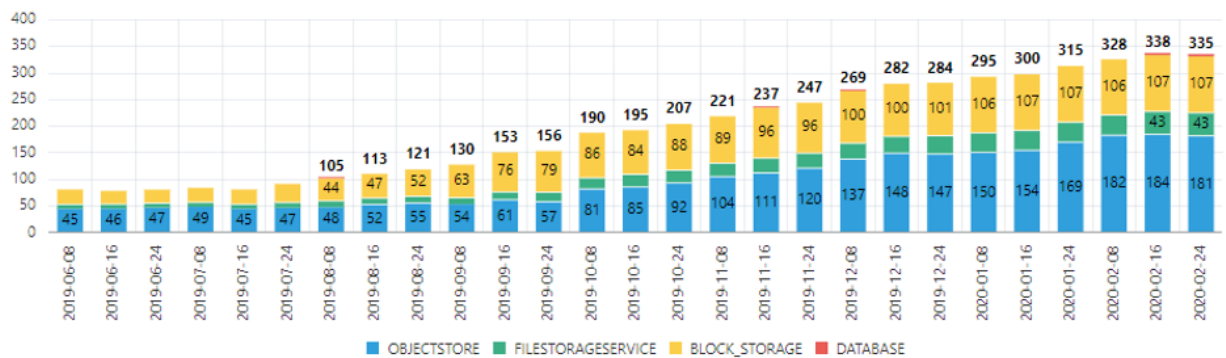
Storage Chart per Compartment in TB



Daily OCPUs Chart



Daily Storage Chart in TB



Prd Compartment Name	Prd Region	Prd Service	Prd Resource	Usg Billed Quantity	Usg Consumed Units	Usg Consumed Measure	Usage Interval Start
AdiZohar	us-ashburn-1	BLOCK_STORAGE	PIC_OBJECT_STORAGE_TIERED	40	GB	STORAGE_SIZE	27-FEB-2020 14:00
AdiZohar	us-ashburn-1	BLOCK_STORAGE	PIC_STANDARD_PERFORMANCE	932	GB	PERFORMANCE_UNITS	27-FEB-2020 14:00
AdiZohar	us-ashburn-1	BLOCK_STORAGE	PIC_STANDARD_STORAGE	93	GB	STORAGE_SIZE	27-FEB-2020 14:00
AdiZohar	us-ashburn-1	COMPUTE	PIC_COMPUTE_X7_VM_STANDARD	5	-	OCPUS	27-FEB-2020 14:00
AdiZohar	us-ashburn-1	DATABASE	PIC_ADWC_COMPUTE_BYOL	1	-	OCPUS	27-FEB-2020 14:00
AdiZohar	us-ashburn-1	DATABASE	PIC_ADWC_EXADATA_STORAGE	1	TB	STORAGE_SIZE	27-FEB-2020 14:00
AdiZohar	us-ashburn-1	DATABASE	PIC_BLOCK_STORAGE_STANDARD	712	GB	STORAGE_SIZE	27-FEB-2020 14:00
AdiZohar	us-ashburn-1	DATABASE	PIC_DATABASE_CLOUD_ALL_EDITION_BYOL	1	-	OCPUS	27-FEB-2020 14:00
AdiZohar	us-ashburn-1	NETWORK	PIC_COMPUTE_OUTBOUND_DATA_TRANSFER	130,974	BYTES	DATA_TRANSFERRED	27-FEB-2020 14:00
AdiZohar	us-ashburn-1	OBJECTSTORE	PIC_OBJECT_STORAGE_TIERED	3	GB	STORAGE_SIZE	27-FEB-2020 14:00