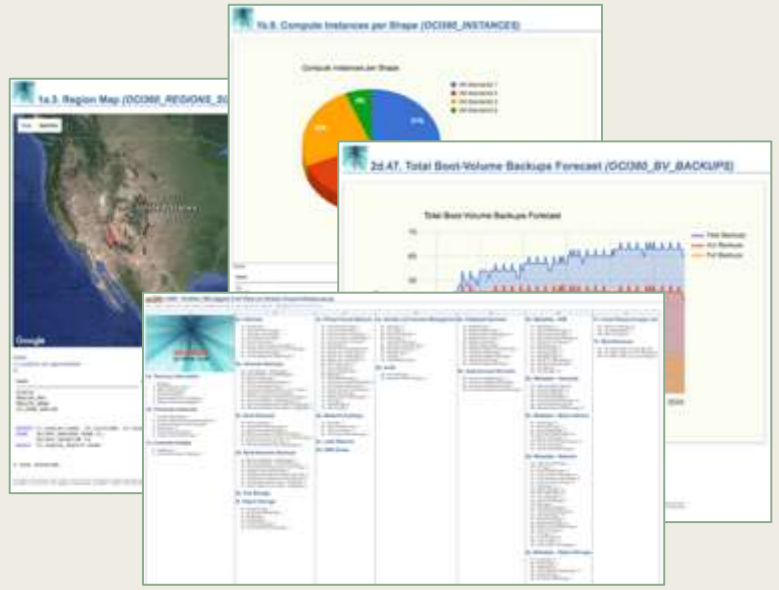
Deep dive into Oracle Cloud metadata

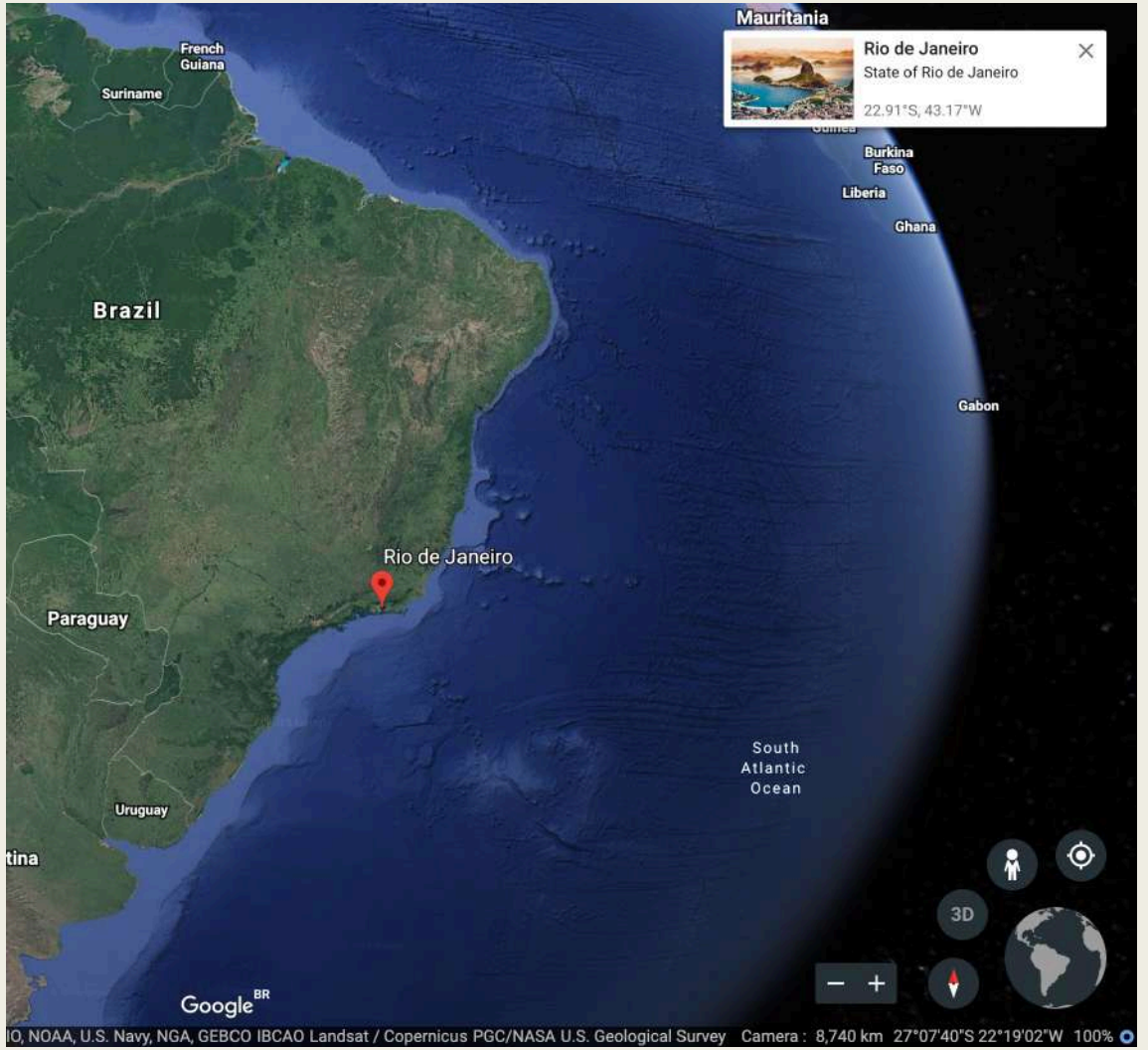
(and how to build custom reports)



SPOUG
SPAIN ORACLE USER GROUP

Rodrigo Jorge

About



- Since Nov/2016
- Oracle Security Enthusiast / Cloud / Performance HC / HA deployments / etc

SPOUG SPAIN ORACLE USER GROUP

Rodrigo Jorge

- **4x OCM: 11g / 12c / MAA / Cloud**
- **OCEs 11g / 12c / ...**
- **(…)**

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Elite

- Global systems integrator focused on the Oracle platform
- Consultants average 15+ years of Oracle experience
- Worldwide specialist in Engineered Systems implementations
- 13 Oracle ACE members, recognized by Oracle for their technical expertise

Expertise

Oracle Specializations*

- Oracle Exadata
- Oracle Exalogic
- Oracle Database
- Oracle GoldenGate
- Oracle Data Integrator
- Oracle Data Warehouse
- Oracle Real Application Cluster
- Oracle Performance Tuning
- Oracle Database Security

Oracle Engineered Systems Numbers

- 1000+ Oracle Engineered Systems which AEG have configured, patched or supported.
- 120+ AEG resources which have an average 15+ years of Oracle experience
- AEG Support across 9 countries
- 200 Oracle Engineered Systems (Exadata/Exalogic, etc) currently under management directly by AEG
- 200+ customers in either the AEG Managed Services program or remoteDBA program
- 50,000 Accenture Oracle IDC resources that can be leveraged for Level 1 & Level 2 support

Success

ORACLE Diamond Partner

ORACLE Diamond Partner Global Cloud Elite

UKOUG 2013 2014 Awards PARTNER OF THE YEAR AWARD GOLD WINNER

2013 Winner ORACLE Excellence Award SPECIALIZED PARTNER OF THE YEAR — NORTH AMERICA

Thought Leadership

Our consultants have been published in multiple subject areas and additional online resources that demonstrate Accenture's experience and expertise with the OES platform

BEFORE ANYTHING

HOW THIS ALL STARTED..

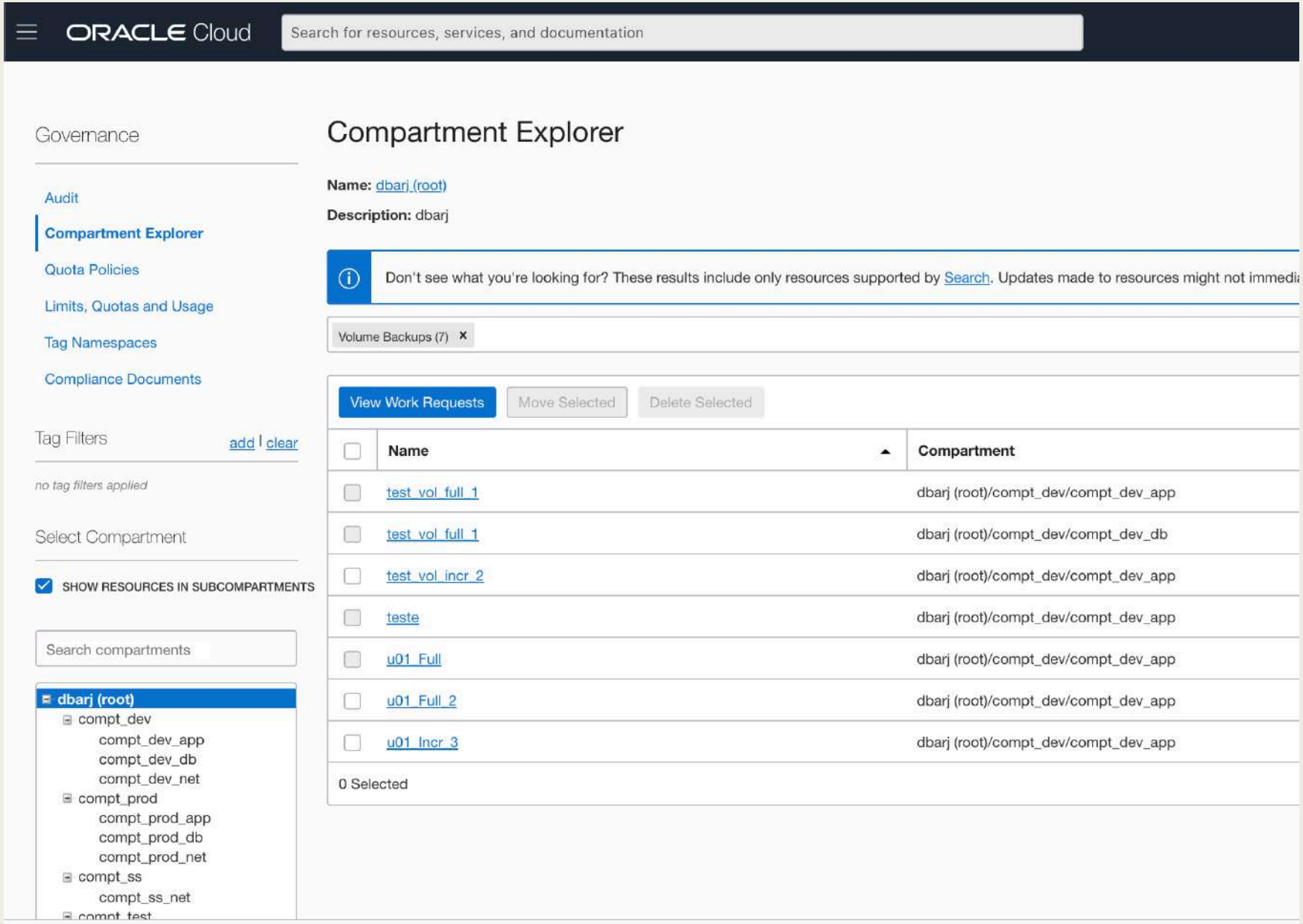
Questions:

- Which volumes I have across all compartments in all regions that are unallocated?
- I want a list of all computes I have across all regions..
- What is the total boot+block storage allocated per compute?
- Which security list I have that are not being used by any subnet?
- What is the linear regression cost trend of my tenancy?
- Which users created volumes in my prod compartment yesterday?
- ...

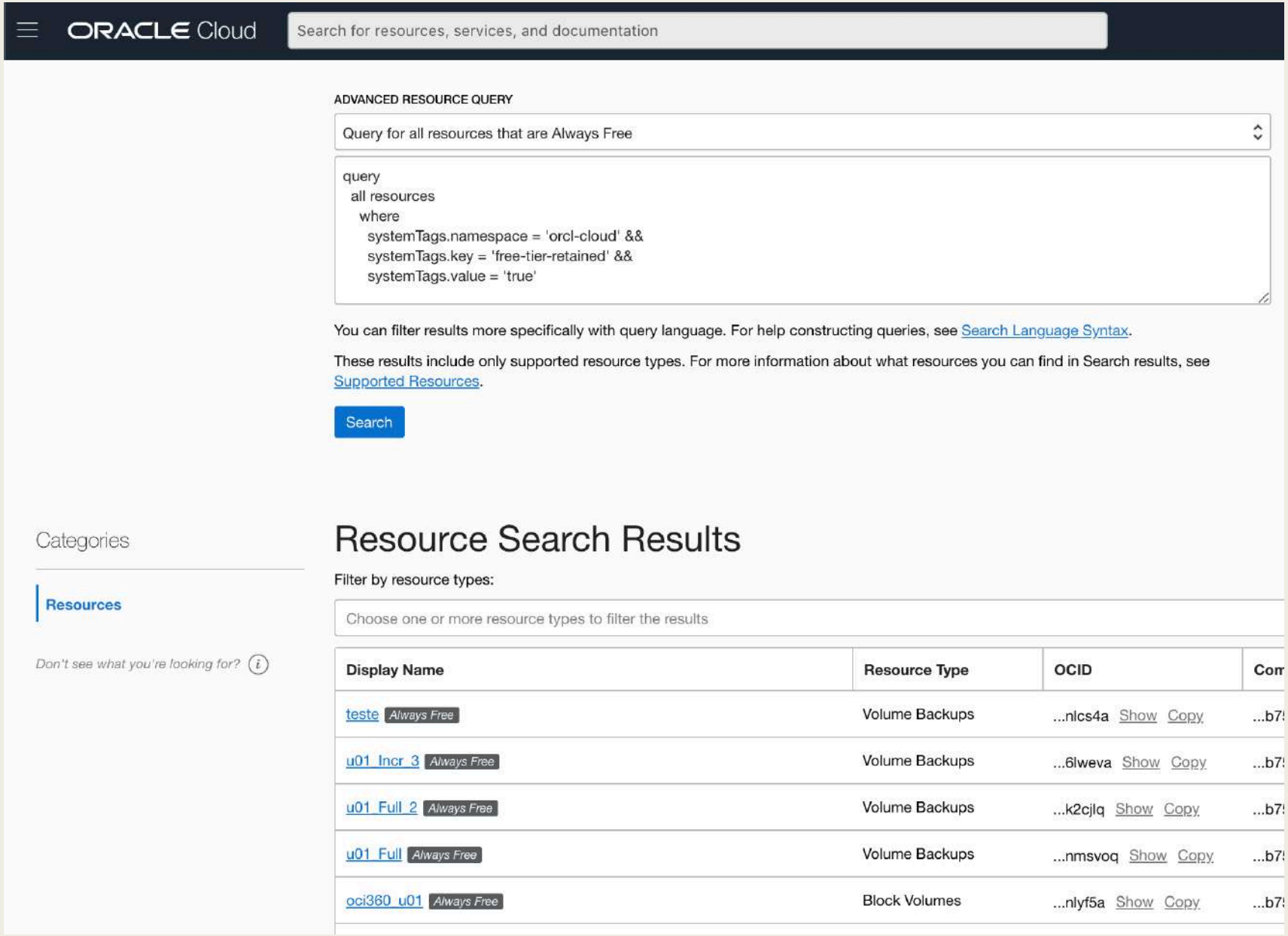
```bash
#!/bin/bash
compartment=ocid1.compartment.oc1..aaaaaaaaecfyyp6fpwtbrv54irhpeywjifxekm3rwrkndsg46rz2ecjbon3q

# Fetch all compute instances for compartment
echo "Getting computes..."
computes=$(oci compute instance list -c $compartment)

# Fetch all VNIC attachments for compartment
echo "Getting vnicAttachments..."
vnicAttachments=$(oci compute vnic-attachment list -c $compartment)


# Loop through compute instances
for computeIdx in $(echo "$computes" | jq '.data | keys | .[]'); do

    # Extract instance OCID
    computeOCID=$(echo "$computes" | jq -r ".data[$computeIdx].\"id\"")

    # Extract instance name
    computeName=$(echo "$computes" | jq -r ".data[$computeIdx].\"display-name\"")

    # Extract VNIC attachment OCIDs for this instance
    vnicIds=$(echo "$vnicAttachments"  | jq -r '.data[] | select(."instance-id" == "'$computeOCID'") | ."vnic-id"')

    echo "$computeIdx $computeName "

    # Loop through VNICS of this instance
    for vnicId in $vnicIds; do

        # Extract various attributes and print them
        vnic=$(oci network vnic get --vnic-id $vnicId)
        privateIp=$(echo $vnic | jq -r '.data | ."private-ip"')
        publicIp=$(echo $vnic | jq -r '.data | ."public-ip"')
        vnicName=$(echo $vnic | jq -r '.data | ."display-name"')

        printf "   VNIC $vnicName (${vnicId:(-5)}) :   Public: $privateIp Private: $publicIp\n"

    done

done
```

Source: Christoph Ruepprich

Compartment Explorer ...



Advanced Resource Query ...

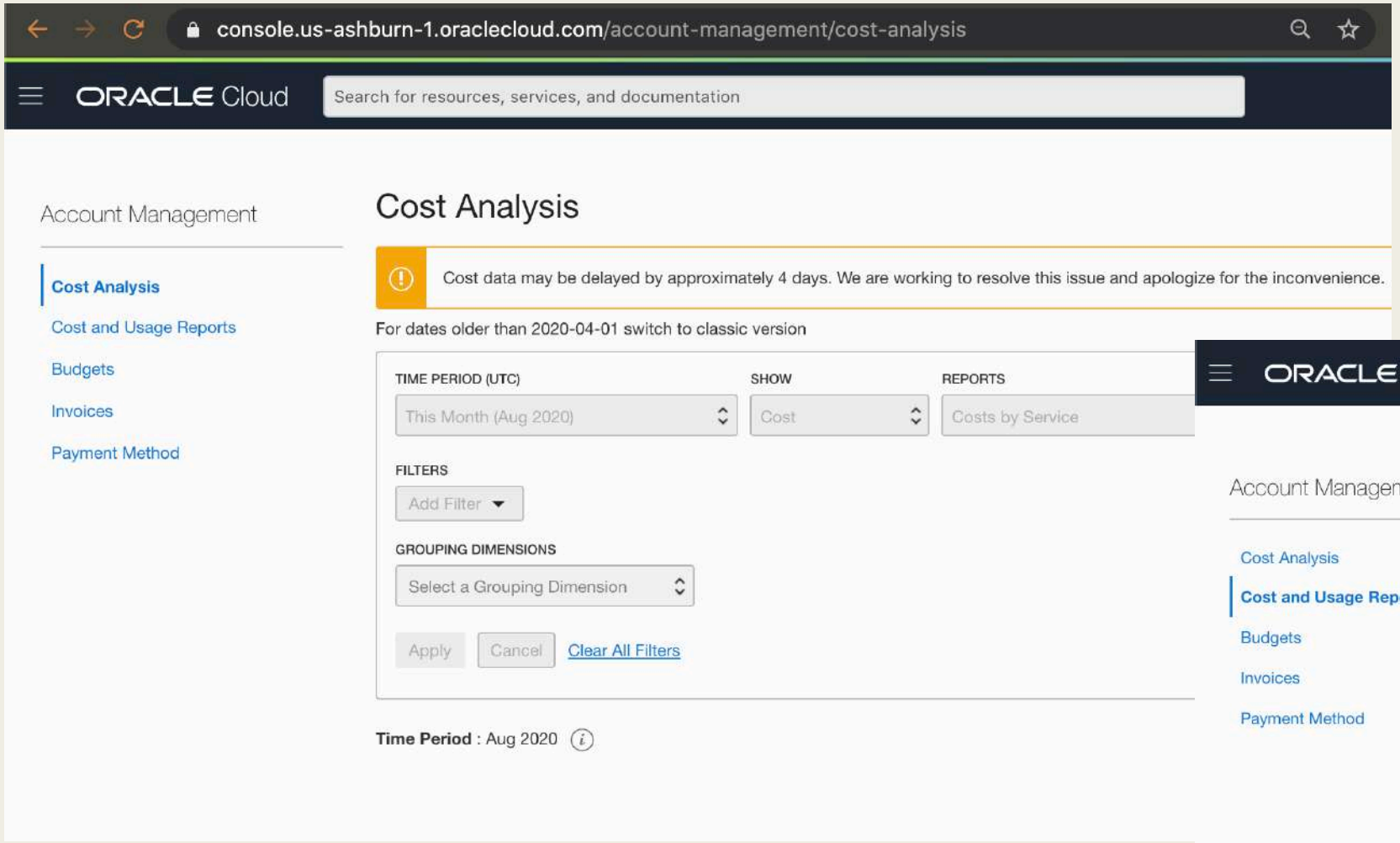


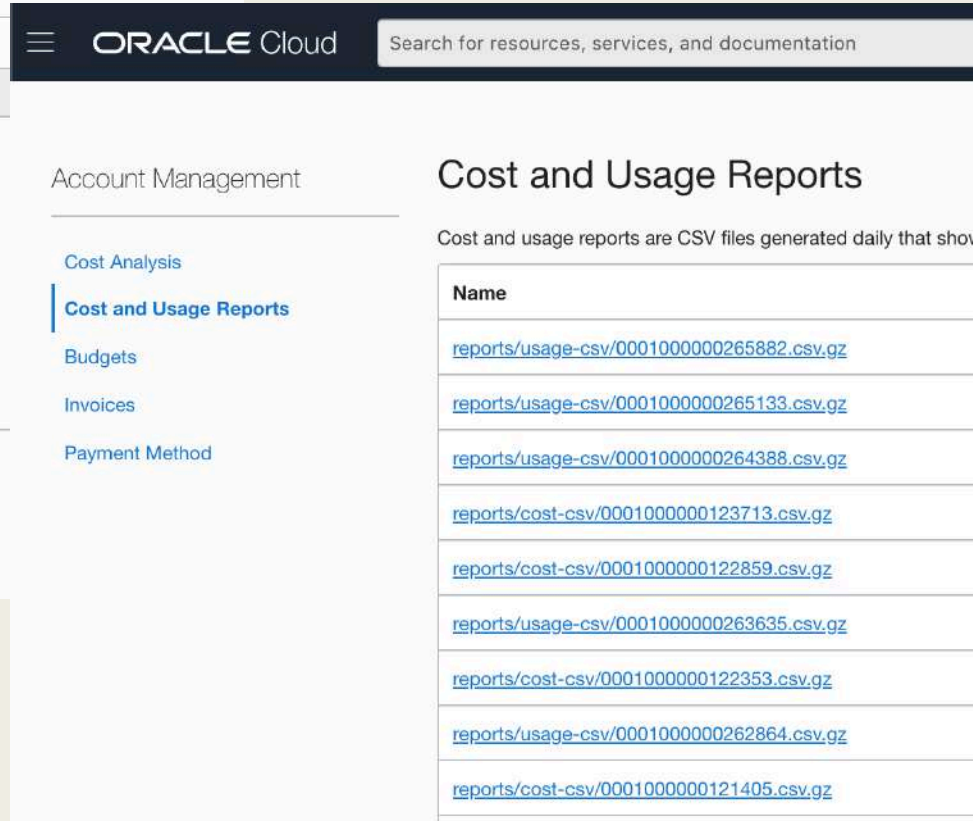
Structured Search ...

```
oci search resource structured-search \
  --query-text "query all resources where ( \
                    freeformTags.key = '$1' \
              && freeformTags.value = '$2')" \
  --output table \
  --query "data.items[*] | \
  sort_by(@,&\"resource-type\") \
  [].{ Name:\"display-name\", \
       Type:\"resource-type\", \
       ID:identifier, \
       AD:\"availability-domain\"}"
```

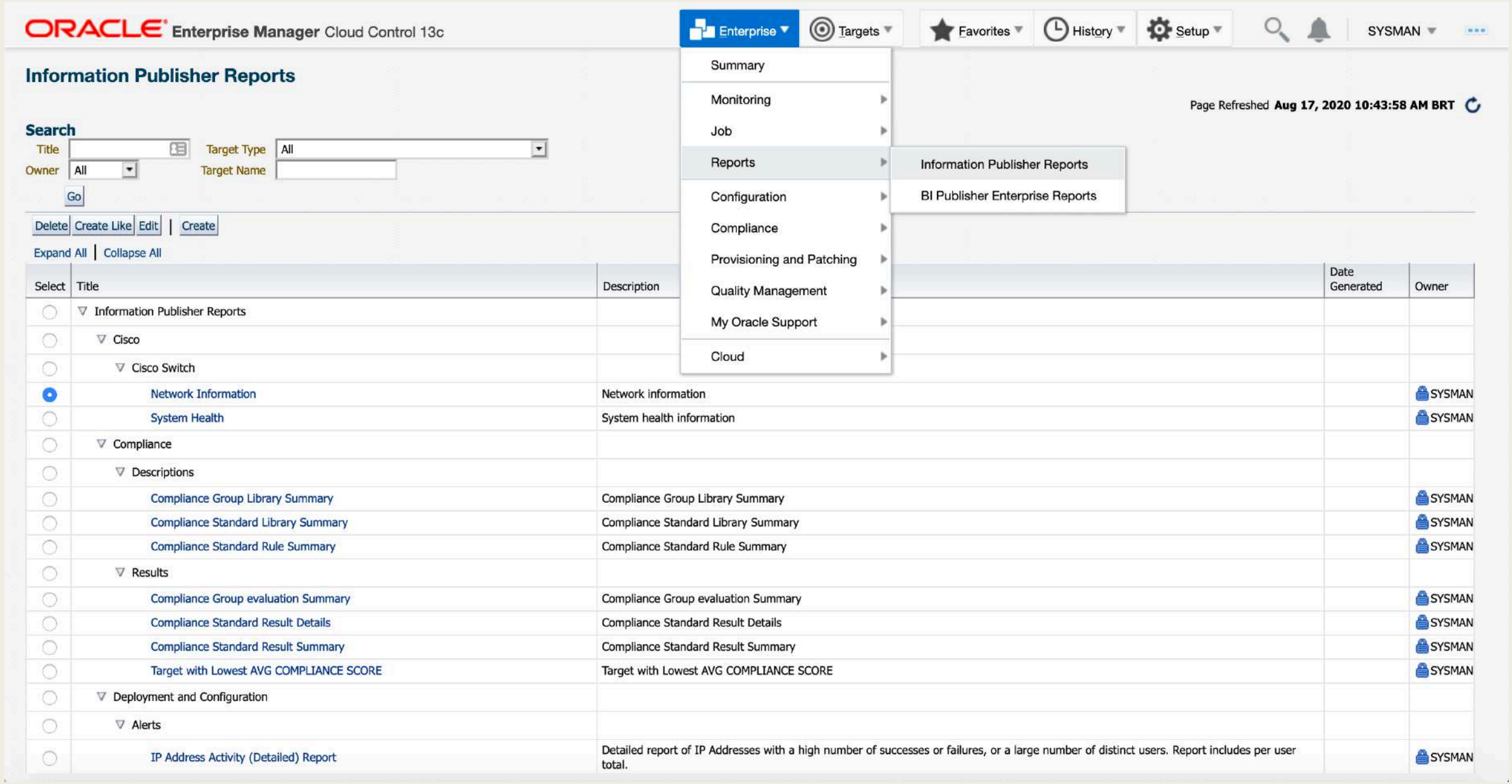
Source: Christoph Ruepprich

Cost Section ...





OEM 13c



I NEEDED A PLAN..

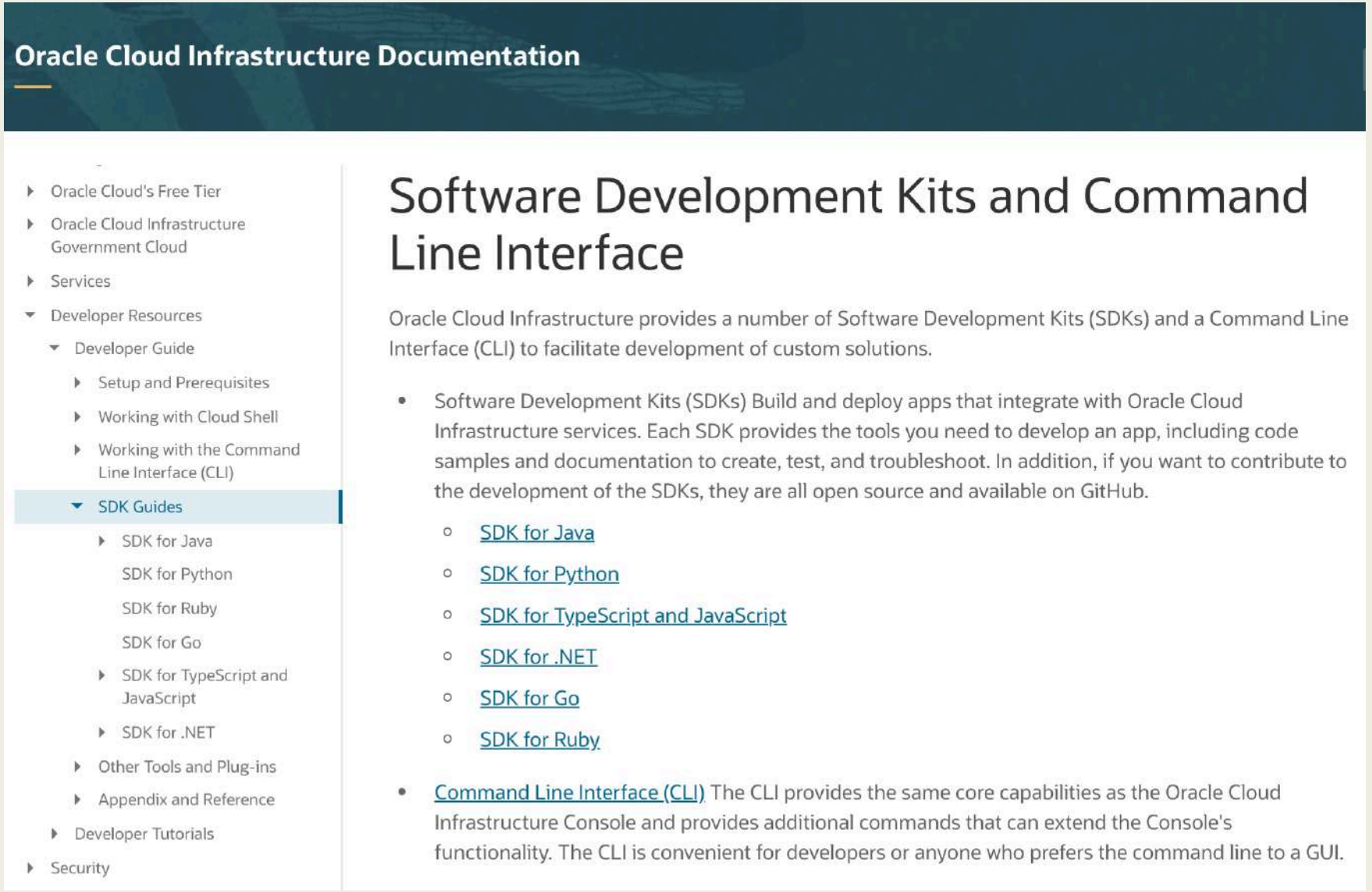
FIND A WAY TO EXTRACT ALL THE METADATA WE HAVE IN OCI...

LOAD THIS METADATA SOMEWHERE...

QUERY THIS DATA WITH **SQL** SO I CAN BUILD ANY IMAGINABLE REPORT!

EXTRACTION

Extraction options



https://docs.cloud.oracle.com/en-us/iaas/Content/API/Concepts/sdks.htm

My option: OCI-CLI

- Built on Python 3.5 or later
- Mac, Windows, Linux
- Calls OCI APIs via REST
- Easy to install and configure:
  - https://github.com/oracle/oci-cli
  - *bash -c "$(curl -L https://raw.githubusercontent.com/oracle/oci-cli/master/scripts/install/install.sh)"*

List all Instances:

$ oci compute instance list --all

Usage: oci compute instance list [OPTIONS]

Error: Missing option(s) --compartment-id.

What is required?

FOR I in Compartments
  > get compute instances <

Listing all compartments

```
$ oci iam compartment list \
--query "data[].id" \
--all \
--compartment-id-in-subtree true \
--include-root
```

$

```
$ oci iam compartment list --query "data[].id" --all --compartment-id-in-subtree true \
> --include-root
```

```
$ oci iam compartment list --query "data[].id" --all --compartment-id-in-subtree true \
> --include-root
[
  "ocid1.tenancy.oc1..aaaaaaaaunn73emggesayznwlqeunvmbsmbtgzbigd67mtjwbu2doq44igna",
  "ocid1.compartment.oc1..aaaaaaaajsgvr66jcr5wysquqii2j42v2zuzq7jphbvgpfinpidomrk3p3ka",
  "ocid1.compartment.oc1..aaaaaaaaflc4pzf3syqksvmsmcpzxi5adsvquq7kaxkbl4wnmbkfpw77fvtq",
  "ocid1.compartment.oc1..aaaaaaaa2adzntme6rvuim2xkiiupjyhizzul2bkxwb2zhsmyxgmzdb75d4q",
  "ocid1.compartment.oc1..aaaaaaaaysvxrbvyht4goajycwzxiulxvrqygtmed3ugzbpamrydot6xjskq",
  "ocid1.compartment.oc1..aaaaaaaaq3cnjpalafkn2a5baqnzvdcwfguhlqaaxpipvjtijh3mgkwqxwnq",
  "ocid1.compartment.oc1..aaaaaaaaaikiplwmmszekn7hegxumarlp6hwlgdyoyrmuinc5efruivglfqzq",
  "ocid1.compartment.oc1..aaaaaaaapijrriuaz2o6k2ldvzqe6wnfifzibl7r6wovqx6i2r7ufe4cqz5a",
  "ocid1.compartment.oc1..aaaaaaaaln6m2f2ijs7malotaw4nyaxyouv75nr67of5uqfczoygncawrcua",
  "ocid1.compartment.oc1..aaaaaaaajjqndsumgx4ra3xgrivawzqe7dvtcteq5cy4wfn33tp6cskeizja",
  "ocid1.compartment.oc1..aaaaaaaa6xsdglk5atkoh3hkavml76agjo2rkje5opxk4ltj6pkf5utnbtaq",
  "ocid1.compartment.oc1..aaaaaaaa7he2imxhfgzi7pufgiur5gyr57dn7bpemsq5zgwlilkpermtrnfa",
  "ocid1.compartment.oc1..aaaaaaaa7l3bw3debz43j3gvqukcc5qsmcg6vlbcp25zy3sd4gowtvf2lgeq",
  "ocid1.compartment.oc1..aaaaaaaa6sgohmllry2fpvrsfdkwfh2fn54ohkviodp5tezexw5txpf2tbva",
  "ocid1.compartment.oc1..aaaaaaaamqsj4vcuj7242qvyzoqyvazno4juforxotzbxwlft46jbxd3n5qq",
  "ocid1.compartment.oc1..aaaaaaaalstxgxejfj3qavy25h23qacsnbthzqt4sw7b2kgxzi5itd4pbnuq",
  "ocid1.compartment.oc1..aaaaaaaapvojs7y7zlsu2hyqddozmk2dgn2gqfuz5p3jyldrmay7ppede7mq",
  "ocid1.compartment.oc1..aaaaaaaa67yod2f44foausjyadim6bvoqow6ghihfpfhxeqjidhsiigusmiq",
  "ocid1.compartment.oc1..aaaaaaaaxglc5qhiyw2ff6wjkoyvfyixyfvhn4okgjalfotvo2ildp6ie2hq",
  "ocid1.compartment.oc1..aaaaaaaagthxui6s3xhjvvbaxwophz64tbkqii2wpzxgdcmnvkek4foupufa",
  "ocid1.compartment.oc1..aaaaaaaaul3spexn3tmejqqs2udelg762eim67nlzxwmgmogwmeofyl4nfzq"
]
```

Now all instances over all comparts

```
$ oci iam compartment list \
--query "data[].id" \
--all --compartment-id-in-subtree true \
--include-root | \
jq -r '.[]' | \
xargs -L 1 echo oci compute instance list --all -c
```

$

```
$ oci iam compartment list \
> --query "data[].id" \
> --all --compartment-id-in-subtree true \
> --include-root | \
> jq -r '.[]' | \
> xargs -L 1 echo oci compute instance list --all -c
```

```
$ oci iam compartment list \
> --query "data[].id" \
> --all --compartment-id-in-subtree true \
> --include-root | \
> jq -r '.[]' | \
> xargs -L 1 echo oci compute instance list --all -c
oci compute instance list --all -c ocid1.tenancy.oc1..aaaaaaaaunn73emggesayznwlqeunvmbsmb ..
oci compute instance list --all -c ocid1.compartment.oc1..aaaaaaaajsgvr66jcr5wysquqii2j42 ..
oci compute instance list --all -c ocid1.compartment.oc1..aaaaaaaaflc4pzf3syqksvmsmcpzxi5 ..
oci compute instance list --all -c ocid1.compartment.oc1..aaaaaaaa2adzntme6rvuim2xkiiupjy ..
oci compute instance list --all -c ocid1.compartment.oc1..aaaaaaaaysvxrbvyht4goajycwzxiul ..
oci compute instance list --all -c ocid1.compartment.oc1..aaaaaaaaq3cnjpalafkn2a5baqnzvdc ..
oci compute instance list --all -c ocid1.compartment.oc1..aaaaaaaaaikiplwmmszekn7hegxumarl ..
oci compute instance list --all -c ocid1.compartment.oc1..aaaaaaaapijrriuaz2o6k2ldvzqe6wn ..
oci compute instance list --all -c ocid1.compartment.oc1..aaaaaaaaln6m2f2ijs7malotaw4nyax ..
oci compute instance list --all -c ocid1.compartment.oc1..aaaaaaaajjqndsumgx4ra3xgrivawzq ..
oci compute instance list --all -c ocid1.compartment.oc1..aaaaaaaa6xsdglk5atkoh3hkavml76a ..
oci compute instance list --all -c ocid1.compartment.oc1..aaaaaaaa7he2imxhfgzi7pufgiur5gy ..
oci compute instance list --all -c ocid1.compartment.oc1..aaaaaaaa7l3bw3debz43j3gvqukcc5q ..
oci compute instance list --all -c ocid1.compartment.oc1..aaaaaaaa6sgohmllry2fpvrsfdkwfh2 ..
oci compute instance list --all -c ocid1.compartment.oc1..aaaaaaaaamqsj4vcuj7242qvyzoqyvaz ..
oci compute instance list --all -c ocid1.compartment.oc1..aaaaaaaaalstxgxejfj3qavy25h23qac ..
oci compute instance list --all -c ocid1.compartment.oc1..aaaaaaaaapvojs7y7zlsu2hyqddozmk2 ..
oci compute instance list --all -c ocid1.compartment.oc1..aaaaaaaa67yod2f44foausjyadim6bv ..
(more)
```

AND THE OTHER REGIONS?!

How is the region defined?

```
$ cat .oci/config
[DEFAULT]
user = ocid1.user.oc1..xxx
fingerprint = 31:12:c4:42:5d:8b:1c:9b:c9:0a:68:43:6c:85:0c:e7
key_file=/Users/rodrigo.jorge/.oci/oci_api_key.pem
tenancy=ocid1.tenancy.oc1..xxx
region=us-ashburn-1
```

```
$ oci -v
```

```
 --region TEXT                   The region to make calls against.  For a
                                 list of valid region names use the command:
                                 "oci iam region list".
```

What is required?

FOR I in Subscribed Regions
  FOR J in Compartments
    > list compute instances <

Now all instances over all comparts

```
$ oci iam region-subscription list \
--all \
--query "data[].\"region-name\"" | \
jq -r '.[]' | \
xargs -L 1 -I {} sh -c '
   oci iam compartment list \
   --query "data[].id" \
   --all \
   --compartment-id-in-subtree true \
   --include-root | \
   jq -r '.[]' | \
   xargs -L 1 echo oci --region {} compute instance list --all -c'
```

$

```
$ oci iam region-subscription list \
> --all \
> --query "data[].\"region-name\"" | \
> jq -r '.[]' | \
> xargs -L 1 -I {} sh -c '
>    oci iam compartment list \
>    --query "data[].id" \
>    --all \
>    --compartment-id-in-subtree true \
>    --include-root | \
>    jq -r '.[]' | \
>    xargs -L 1 echo oci --region {} compute instance list --all -c'
```

```
$ oci iam region-subscription list \
> --all \
> --query "data[].\"region-name\"" | \
> jq -r '.[]' | \
> xargs -L 1 -I {} sh -c '
>    oci iam compartment list \
>    --query "data[].id" \
>    --all \
>    --compartment-id-in-subtree true \
>    --include-root | \
>    jq -r '.[]' | \
>    xargs -L 1 echo oci --region {} compute instance list --all -c'
oci --region us-ashburn-1 compute instance list --all -c ocid1.tenancy.oc1..aaaaaaaaunn73em
oci --region us-ashburn-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaajsg
oci --region us-ashburn-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaaflc
oci --region us-ashburn-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaa2ad
oci --region us-ashburn-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaaysv
oci --region us-ashburn-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaaq3c
oci --region us-ashburn-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaaiki
oci --region us-ashburn-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaapij
oci --region us-ashburn-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaaln6
oci --region us-ashburn-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaajjq
oci --region us-ashburn-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaa6xs
oci --region us-ashburn-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaa7he
(more)
```

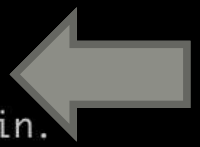
```
oci --region us-ashburn-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaa7l3
oci --region us-ashburn-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaa6sg
oci --region us-ashburn-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaamqs
oci --region us-ashburn-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaalst
oci --region us-ashburn-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaapvo
oci --region us-ashburn-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaa67y
oci --region us-ashburn-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaaxgl
oci --region us-ashburn-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaagth
oci --region us-ashburn-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaaul3
oci --region us-phoenix-1 compute instance list --all -c ocid1.tenancy.oc1..aaaaaaaaunn73em
oci --region us-phoenix-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaajsg
oci --region us-phoenix-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaaflc
oci --region us-phoenix-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaa2ad
oci --region us-phoenix-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaaysv
oci --region us-phoenix-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaaq3c
oci --region us-phoenix-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaaiki
oci --region us-phoenix-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaapij
oci --region us-phoenix-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaaln6
oci --region us-phoenix-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaajjq
oci --region us-phoenix-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaa6xs
oci --region us-phoenix-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaa7he
oci --region us-phoenix-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaa7l3
oci --region us-phoenix-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaa6sg
oci --region us-phoenix-1 compute instance list --all -c ocid1.compartment.oc1..aaaaaaaamqs
(more)
```

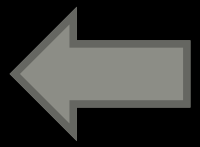
THIS IS FOR COMPUTES..

WHAT ABOUT BOOT VOLUMES?

oci bv boot-volume list -h

```
NAME
       bv_boot-volume_list -

DESCRIPTION
       Lists  the  boot  volumes in the specified compartment and availability
       domain.

USAGE
          oci bv boot-volume list [OPTIONS]

REQUIRED PARAMETERS
       --availability-domain [text]

       The name of the availability domain.

       Example:

          Uocm:PHX-AD-1

       --compartment-id, -c [text]

       The                                                              OCID
       <https://docs.cloud.oracle.com/Content/General/Concepts/identifiers.htm>
       of the compartment.
```





Now all BVs over all Comparts of all ADs of all Regions

What is required?

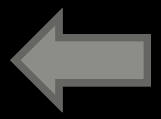
```
FOR I in Subscribed Regions
  FOR J in ADs
    FOR K in Compartments
      > list boot volumes <
```

THIS IS FOR BOOT VOLUMES..

WHAT ABOUT BOOT VOLUME BACKUP ASSIGNMENTS?

$ oci bv volume-backup-policy-assignment get-volume-backup-policy-asset-assignment -h

```
NAME
       bv_volume-backup-policy-assignment_get-volume-backup-policy-asset-
       assignment -

DESCRIPTION
       Gets the volume backup policy assignment for the specified volume.  The
       assetId query parameter is required, and the returned list will contain
       at most one item, since volume can only have one volume  backup  policy
       assigned at a time.

USAGE
          oci bv volume-backup-policy-assignment get-volume-backup-policy-asset-assignment [OPTIONS]

REQUIRED PARAMETERS
       --asset-id [text]

       The OCID of an asset (e.g. a volume).
```



Now all Backup Polices over all BVs over all Comparts of all ADs of all Regions

What is required?

FOR I in Subscribed Regions
  FOR J in ADs
    FOR K in Compartments
      > list boot volumes <

FOR K in Boot Volumes
  > get boot volume backup policy <

oci_json_export.sh

- https://github.com/dbarj/oci-scripts/blob/master/oci_json_export.sh

```
$ oci_json_export.sh
Usage: oci_json_export.sh <option>

<option> - Execution Scope.

Valid <option> values are:
- ALL         - Execute json export for ALL possible options and compress output in a zip file.
- ALL_REGIONS - Same as ALL, but also loop over for all tenancy's subscribed regions.
- BDS-InstDetails
- BDS-Instances
- BV-BVBackups
- BV-BVKey
- Budget-Data
...
```

- 142 options and growing..

$

```
$ time oci_json_export.sh Comp-Instances > computes.json
```

```
$ time oci_json_export.sh Comp-Instances > computes.json

real    0m39.630s
user    1m7.462s
sys     0m27.768s
```

$

```
$ cat oci_json_export.log
20201009_093042: Temporary folder is: /var/folders/b5/8gm9gwt11cl12r5_8vc3zydc0000gn/T/tmp
20201009_093042: OCI Parallel is: 8
20201009_093057: BEGIN
20201009_093057: Starting: "oci --cli-rc-file /dev/null iam compartment li (...) ot" (17678)
20201009_093109: Starting: "oci --cli-rc-file /dev/null compute instance l (...) 4q" (19921)
20201009_093109: Starting: "oci --cli-rc-file /dev/null compute instance l (...) iq" (26281)
20201009_093109: Starting: "oci --cli-rc-file /dev/null compute instance l (...) va" (32641)
20201009_093109: Starting: "oci --cli-rc-file /dev/null compute instance l (...) aq" (6234)
20201009_093109: Starting: "oci --cli-rc-file /dev/null compute instance l (...) fa" (29432)
20201009_093109: Starting: "oci --cli-rc-file /dev/null compute instance l (...) eq" (18954)
20201009_093109: Starting: "oci --cli-rc-file /dev/null compute instance l (...) tq" (9385)
20201009_093109: Starting: "oci --cli-rc-file /dev/null compute instance l (...) fa" (31675)
20201009_093142: Starting: "oci --cli-rc-file /dev/null compute instance l (...) zq" (17446)
20201009_093142: Starting: "oci --cli-rc-file /dev/null compute instance l (...) ja" (23807)
20201009_093143: Starting: "oci --cli-rc-file /dev/null compute instance l (...) ua" (5576)
20201009_093143: Starting: "oci --cli-rc-file /dev/null compute instance l (...) uq" (27866)
20201009_093143: Starting: "oci --cli-rc-file /dev/null compute instance l (...) qq" (18297)
20201009_093144: Starting: "oci --cli-rc-file /dev/null compute instance l (...) ka" (31984)
20201009_093145: Starting: "oci --cli-rc-file /dev/null compute instance l (...) 5a" (67)
20201009_093145: Starting: "oci --cli-rc-file /dev/null compute instance l (...) mq" (6427)
20201009_093226: Starting: "oci --cli-rc-file /dev/null compute instance l (...) nq" (11222)
20201009_093226: Starting: "oci --cli-rc-file /dev/null compute instance l (...) zq" (17582)
(...)
20201009_093250: END
```

```
$ cat computes.json | jq
{
  "data": [
    {
      "agent-config": {
        "is-management-disabled": false,
        "is-monitoring-disabled": false
      },
      "availability-config": {
        "recovery-action": "RESTORE_INSTANCE"
      },
      "availability-domain": "CYtq:US-ASHBURN-AD-3",
      "compartment-id": "ocid1.compartment.oc1..aaaaaaaa2adzntme6rvuim2xkiiupjyhizzul2bkxwb2zhsm",
      "dedicated-vm-host-id": null,
      "defined-tags": {
        "Oracle-Tags": {
          "CreatedBy": "oracleidentitycloudservice/rodrigo.araujo.jorge@gmail.com",
          "CreatedOn": "2020-05-20T14:54:00.387Z"
        }
      },
      "display-name": "oci360comp",
      "extended-metadata": {},
      "fault-domain": "FAULT-DOMAIN-1",
      "freeform-tags": {},
      "id": "ocid1.instance.oc1.iad.anuwcljtucm3wzaczuyxibymhvnhjxrtvcjwjylmmda22l4vjis72mvznyfa",
      "image-id": "ocid1.image.oc1.iad.aaaaaaaahjkmmew2pjrcpylaf6zdddtom6xjnazwptervti35keqd4fdy",
(more)
```

oci_json_export.sh ALL_REGIONS

- Will loop over all 142 resource types (and growing) on all the regions.
- Create a ZIP file with one JSON file for each resource.
- Extractor is ready. Now I have 142 json files..
- How to LOAD it in a Database ?

FIND A WAY TO EXTRACT ALL THE METADATA WE HAVE IN OCI...

LOAD THIS METADATA SOMEWHERE...

QUERY THIS DATA WITH **SQL** SO I CAN BUILD ANY IMAGINABLE REPORT!

LOAD

What I wanted?

```
AMAC02SJ3M7G8WN:temp rodrigo.jorge$ cat computes.json | jq .
{
  "data": [
    {
      "agent-config": {
        "is-management-disabled": false,
        "is-monitoring-disabled": false
      },
      "availability-domain": "CYtq:US-ASHBURN-AD-3",
      "compartment-id": "ocid1.compartment.oc1..aaaaaaaa2adzntme6rvuim2xkiiupjyhizzul2bkxwb2zhsmyxgmzdb75d4q",
      "dedicated-vm-host-id": null,
      "defined-tags": {
        "Oracle-Tags": {
          "CreatedBy": "oracleidentitycloudservice/rodrigo.araujo.jorge@gmail.com",
          "CreatedOn": "2020-05-20T14:54:00.387Z"
        }
      },
      "display-name": "oci360comp",
      "extended-metadata": {},
      "fault-domain": "FAULT-DOMAIN-1",
      "freeform-tags": {},
      "id": "ocid1.instance.oc1.iad.anuwcljtucm3wzaczuyxibymhvnhjxrtvcjwjylmmda2214vjis72mvznyfa",
      "image-id": "ocid1.image.oc1.iad.aaaaaaaahjkmmew2pjrcpylaf6zdddtom6xjnazwptervti35keqd4fdylca",
      "ipxe-script": null,
      "launch-mode": "PARAVIRTUALIZED",
      "launch-options": {
        "boot-volume-type": "PARAVIRTUALIZED",
        "firmware": "UEFI_64",
        "is-consistent-volume-naming-enabled": true,
        "is-pv-encryption-in-transit-enabled": false,
        "network-type": "PARAVIRTUALIZED",
        "remote-data-volume-type": "PARAVIRTUALIZED"
      },
```

```
SQL> desc OCI360_INSTANCES
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------
 ID                                                 VARCHAR2(128)
 SHAPE                                              VARCHAR2(32)
 REGION                                             VARCHAR2(4)
 IMAGE_ID                                           VARCHAR2(128)
 METADATA$SSH_AUTHORIZED_KEYS                       VARCHAR2(512)
 IPXE_SCRIPT                                        VARCHAR2(4)
 LAUNCH_MODE                                        VARCHAR2(16)
 SYSTEM_TAGS$ORCL_CLOUD$FREE_TIER_RETAINED          VARCHAR2(4)
 AGENT_CONFIG$IS_MANAGEMENT_DISABLED                VARCHAR2(8)
 AGENT_CONFIG$IS_MONITORING_DISABLED                VARCHAR2(8)
 DEFINED_TAGS$ORACLE_TAGS$CREATEDBY                 VARCHAR2(64)
 DEFINED_TAGS$ORACLE_TAGS$CREATEDON                 VARCHAR2(32)
 DISPLAY_NAME                                       VARCHAR2(16)
 FAULT_DOMAIN                                       VARCHAR2(16)
```

My options:

- I can use a JSON database and write "JSON" like queries.. (NOSQL)

OR

- I can convert those JSONs entirely into Relational Tables = DBMS_JSON

DBMS_JSON

- Only available from 12.2 onwards.
- **CREATE_VIEW_ON_PATH Procedure.**
  - *"Creates a view with relational columns, using top-level scalar values and the scalar values in the expanded sub-tree under a given path. The JSON column must have a data guide-enabled search index."*
- Getting better on latest 19c/20c release.
- Available in Autonomous Database!

Move JSON file inside the Database

```
-- Create table
CREATE TABLE T_TMP_JSON (
  C_TMP_JSON CLOB,
  CONSTRAINT CK_TMP_JSON CHECK (C_TMP_JSON IS JSON)
)
COMPRESS NOMONITORING
LOB(C_TMP_JSON) STORE AS SECUREFILE (COMPRESS HIGH);

-- Load Table
DECLARE
  l_blob BLOB;
BEGIN
  dbms_lob.createtemporary(lob_loc => l_blob, cache => true, dur => dbms_lob.call);

  l_blob := DBMS_CLOUD.GET_OBJECT(
       credential_name => 'OCI360_CRED',
       object_uri => 'https://objectstorage.us-ashburn-1.oraclecloud.com/n/idgimbpbaoa7/b/oci360_bucket/o/computes.json');

  INSERT INTO T_TMP_JSON (C_TMP_JSON)
  SELECT to_clob(l_blob, 871, 'text/json') FROM dual; -- 871 = UTF8

  COMMIT;

  -- Free temporary BLOBs.
  DBMS_LOB.FREETEMPORARY(l_blob);

END;
/
```

Generate a View on JSON Path

```
-- Just to print the code on log file for troubleshooting.
SET PAGES 0 LONG 2000000000 LINES 10000
COL VIEW_CODE FOR A1000
SELECT DBMS_METADATA.GET_DDL('VIEW','V_TMP_JSON') VIEW_CODE
FROM DUAL
WHERE EXISTS (SELECT 1
              FROM   USER_VIEWS
              WHERE  VIEW_NAME = 'V_TMP_JSON');
SET PAGES 1000 LINES 80

-- Create index
CREATE SEARCH INDEX I_TMP_JSON
ON T_TMP_JSON (C_TMP_JSON) FOR JSON
PARAMETERS ('SEARCH_ON NONE DATAGUIDE ON');

-- Create view.
DECLARE
   empty_data_guide EXCEPTION;
   PRAGMA EXCEPTION_INIT(empty_data_guide , -40591);
BEGIN
  DBMS_JSON.CREATE_VIEW_ON_PATH(
    viewname  => 'V_TMP_JSON',
    tablename => 'T_TMP_JSON',
    jcolname  => 'C_TMP_JSON',
    path =>      '$.data',
    frequency =>  0);
EXCEPTION
  WHEN empty_data_guide THEN
    DBMS_OUTPUT.PUT_LINE('Empty JSON.'); -- handle the error
END;
/
```

Create the Table over the View

```
-- Create table.
CREATE TABLE OCI360_COMPUTES
COMPRESS FOR QUERY HIGH NOMONITORING
AS
SELECT *
FROM   V_TMP_JSON;

-- Query
select "C_TMP_JSON$displayname" Name,
       "C_TMP_JSON$ocpus" OCPUs,
       "C_TMP_JSON$shape" Shape
from OCI360_COMPUTES;
```

NAME	OCPUS	SHAPE
oci360comp	1	VM.Standard.E2.1.Micro

DBMS_JSON DEMO

$

```
$ oci os object put --bucket-name oci360_bucket --file computes.json
```

```
$ oci os object put --bucket-name oci360_bucket --file computes.json
Uploading object  [####################################]  100%
{
  "etag": "9eb47251-173f-481b-be55-3e38408b3e36",
  "last-modified": "Fri, 09 Oct 2020 14:16:12 GMT",
  "opc-content-md5": "+G2pcj2NJTfzUFk5ZrBZTw=="
}
$
```

SQL>

```
SQL> CREATE TABLE T_TMP_JSON (
  2    C_TMP_JSON CLOB,
  3    CONSTRAINT CK_TMP_JSON CHECK (C_TMP_JSON IS JSON)
  4  )
  5  COMPRESS NOMONITORING
  6  LOB(C_TMP_JSON) STORE AS SECUREFILE (COMPRESS HIGH);

Table created.

SQL>
```

```
SQL> DECLARE
  2    l_blob BLOB;
  3  BEGIN
  4    dbms_lob.createtemporary(lob_loc => l_blob, cache => true, dur => dbms_lob.call);
  5
  6    l_blob := DBMS_CLOUD.GET_OBJECT(
  7        credential_name => 'OCI360_CRED',
  8        object_uri => 'https://objectstorage.us-ashburn-1.oraclecloud.com/n/idgimbpbaoa7/
  9
 10    INSERT INTO T_TMP_JSON (C_TMP_JSON)
 11    SELECT to_clob(l_blob, 871, 'text/json') FROM dual; -- 871 = UTF8
 12
 13    COMMIT;
 14
 15    -- Free temporary BLOBs.
 16    DBMS_LOB.FREETEMPORARY(l_blob);
 17
 18  END;
 19  /
```

```
SQL> DECLARE
  2    l_blob BLOB;
  3  BEGIN
  4    dbms_lob.createtemporary(lob_loc => l_blob, cache => true, dur => dbms_lob.call);
  5
  6    l_blob := DBMS_CLOUD.GET_OBJECT(
  7        credential_name => 'OCI360_CRED',
  8        object_uri => 'https://objectstorage.us-ashburn-1.oraclecloud.com/n/idgimbpbaoa7/
  9
 10    INSERT INTO T_TMP_JSON (C_TMP_JSON)
 11    SELECT to_clob(l_blob, 871, 'text/json') FROM dual; -- 871 = UTF8
 12
 13    COMMIT;
 14
 15    -- Free temporary BLOBs.
 16    DBMS_LOB.FREETEMPORARY(l_blob);
 17
 18  END;
 19  /

PL/SQL procedure successfully completed.

SQL>
```

```
SQL> select * from T_TMP_JSON;

C_TMP_JSON
--------------------------------------------------------------------------------
{
  "data": [
    {
      "agent-config": {
       "is-management-disabled": fa


SQL>
```

```
SQL> select * from T_TMP_JSON;

C_TMP_JSON
--------------------------------------------------------------------------------
{
  "data": [
    {
      "agent-config": {
       "is-management-disabled": fa


SQL> SELECT COUNT(*) FROM T_TMP_JSON;

  COUNT(*)
----------
         1

SQL>
```

```
SQL> CREATE SEARCH INDEX I_TMP_JSON
  2  ON T_TMP_JSON (C_TMP_JSON) FOR JSON
  3  PARAMETERS ('SEARCH_ON NONE DATAGUIDE ON');
```

```
SQL> CREATE SEARCH INDEX I_TMP_JSON
  2  ON T_TMP_JSON (C_TMP_JSON) FOR JSON
  3  PARAMETERS ('SEARCH_ON NONE DATAGUIDE ON');

Index created.

SQL>
```

```
SQL> DECLARE
  2    empty_data_guide EXCEPTION;
  3    PRAGMA EXCEPTION_INIT(empty_data_guide , -40591);
  4  BEGIN
  5    DBMS_JSON.CREATE_VIEW_ON_PATH(
  6     viewname  => 'V_TMP_JSON',
  7     tablename => 'T_TMP_JSON',
  8     jcolname  => 'C_TMP_JSON',
  9     path =>      '$.data',
 10     frequency =>  0);
 11  EXCEPTION
 12    WHEN empty_data_guide THEN
 13     DBMS_OUTPUT.PUT_LINE('Empty JSON.'); -- handle the error
 14  END;
 15  /

PL/SQL procedure successfully completed.

SQL>
```

```
SQL> SET PAGES 0
SQL> SET LONG 2000000000
SQL> SET LINES 10000
SQL> COL VIEW_CODE FOR A1000
SQL> SELECT DBMS_METADATA.GET_DDL('VIEW','V_TMP_JSON') VIEW_CODE
  2  FROM DUAL
  3  WHERE EXISTS (SELECT 1
  4                FROM   USER_VIEWS
  5                WHERE  VIEW_NAME = 'V_TMP_JSON');
```

```
SQL> SET PAGES 0
SQL> SET LONG 2000000000
SQL> SET LINES 10000
SQL> COL VIEW_CODE FOR A1000
SQL> SELECT DBMS_METADATA.GET_DDL('VIEW','V_TMP_JSON') VIEW_CODE
  2  FROM DUAL
  3  WHERE EXISTS (SELECT 1
  4                FROM   USER_VIEWS
  5                WHERE  VIEW_NAME = 'V_TMP_JSON');

  CREATE OR REPLACE FORCE EDITIONABLE VIEW "DBARJ"."V_TMP_JSON" ("C_TMP_JSON$id", "C_TMP_JSO
$imageid_1", "C_TMP_JSON$kmskeyid", "C_TMP_JSON$sourcetype", "C_TMP_JSON$bootvolumesizeingbs
  SELECT JT."C_TMP_JSON$id",JT."C_TMP_JSON$shape",JT."C_TMP_JSON$region",JT."C_TMP_JSON$imag
"C_TMP_JSON$imageid_1",JT."C_TMP_JSON$kmskeyid",JT."C_TMP_JSON$sourcetype",JT."C_TMP_JSON$bo
FROM "DBARJ"."T_TMP_JSON" RT,
JSON_TABLE("C_TMP_JSON" FORMAT JSON, '$' COLUMNS
 NESTED PATH '$.data[*]' COLUMNS
("C_TMP_JSON$id" varchar2(128) path '$.id',
"C_TMP_JSON$shape" varchar2(32) path '$.shape',
"C_TMP_JSON$region" varchar2(4) path '$.region',
"C_TMP_JSON$imageid" varchar2(128) path '$."image-id"',
"C_TMP_JSON$ssh_authorized_keys" varchar2(512) path '$.metadata.ssh_authorized_keys',
"C_TMP_JSON$ipxescript" varchar2(4) path '$."ipxe-script"',
"C_TMP_JSON$launchmode" varchar2(16) path '$."launch-mode"',
(more)
```

SQL>

```
SQL> CREATE TABLE OCI360_COMPUTES
  2  COMPRESS FOR QUERY HIGH NOMONITORING
  3  AS
  4  SELECT *
  5  FROM   V_TMP_JSON;

Table created.

SQL>
```

```
SQL> CREATE TABLE OCI360_COMPUTES
  2  COMPRESS FOR QUERY HIGH NOMONITORING
  3  AS
  4  SELECT *
  5  FROM   V_TMP_JSON;

Table created.

SQL> select "C_TMP_JSON$displayname" Name,
  2         "C_TMP_JSON$ocpus" OCPUs,
  3         "C_TMP_JSON$shape" Shape
  4  from OCI360_COMPUTES;

NAME                 OCPUS SHAPE
---------------- ---------- ------------------------------
oci360comp                1 VM.Standard.E2.1.Micro

SQL>
```

So now how do I load'em all?!

- FOR *file* in < oci_json_export.sh output ZIP >
  - *Call LOAD SQL:*
    - Move Json Inside the Database.
    - Generate View on Json PATH.
    - Create the final Table over the View.

Finally I have the OCI metadata model

```
SQL> desc OCI360_INSTANCES
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------
 ID                                                 VARCHAR2(128)
 SHAPE                                              VARCHAR2(32)
 REGION                                             VARCHAR2(4)
 IMAGE_ID                                           VARCHAR2(128)
 METADATA$SSH_AUTHORIZED_KEYS                       VARCHAR2(512)
 IPXE_SCRIPT                                        VARCHAR2(4)
 LAUNCH_MODE                                        VARCHAR2(16)
 SYSTEM_TAGS$ORCL_CLOUD$FREE_TIER_RETAINED          VARCHAR2(4)
 AGENT_CONFIG$IS_MANAGEMENT_DISABLED                VARCHAR2(8)
 AGENT_CONFIG$IS_MONITORING_DISABLED                VARCHAR2(8)
 DEFINED_TAGS$ORACLE_TAGS$CREATEDBY                 VARCHAR2(64)
 DEFINED_TAGS$ORACLE_TAGS$CREATEDON                 VARCHAR2(32)
 DISPLAY_NAME                                       VARCHAR2(16)
 FAULT_DOMAIN                                       VARCHAR2(16)
```

```
SQL> desc OCI360_VNICS
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------
 ID                                                 VARCHAR2(128)
 NSG_IDS                                            VARCHAR2(4000)
 PUBLIC_IP                                          VARCHAR2(16)
 SUBNET_ID                                          VARCHAR2(128)
 IS_PRIMARY                                         VARCHAR2(4)
 PRIVATE_IP                                         VARCHAR2(16)
 MAC_ADDRESS                                        VARCHAR2(32)
```

```
SQL> desc OCI360_VNIC_ATTACHS
 Name                                      Null?    Type
 ----------------------------------------- -------- ----------------
 ID                                                 VARCHAR2(128)
 VNIC_ID                                            VARCHAR2(128)
 VLAN_TAG                                           NUMBER
 NIC_INDEX                                          NUMBER
 SUBNET_ID                                          VARCHAR2(128)
 INSTANCE_ID                                        VARCHAR2(128)
 DISPLAY_NAME                                       VARCHAR2(4)
 TIME_CREATED                                       VARCHAR2(32)
 COMPARTMENT_ID                                     VARCHAR2(128)
 LIFECYCLE_STATE                                    VARCHAR2(8)
 AVAILABILITY_DOMAIN                                VARCHAR2(32)
```

```
SQL> select table_name
       from user_tables
      where table_name like 'OCI360_%'
      order by 1;
```

SQL>

```
SQL> select table_name
  2         from user_tables
  3  where table_name like 'OCI360_%'
  4  order by 1;
```

```
SQL> select table_name
  2        from user_tables
  3  where table_name like 'OCI360_%'
  4  order by 1;

TABLE_NAME
--------------------------------------
OCI360_ACCOUNTDETAILS
OCI360_ADS
OCI360_AUDIT_EVENTS
OCI360_AUTH_TOKEN
OCI360_AUTONOMOUS_DB
OCI360_AUTONOMOUS_DB_BKP
OCI360_BACKUPS
OCI360_BDS_INSTANCES
OCI360_BKP_POLICY
OCI360_BKP_POLICY_ASSIGN
OCI360_BUCKETS
(...)

118 rows selected.

SQL>
```

All Instances and their primary IPs ?

```
SELECT distinct t1.id,
       t1.display_name,
       t1.shape,
       t1.region,
       t1.availability_domain,
       t1.lifecycle_state,
       t3.display_name image_name,
       t3.operating_system,
       t3.operating_system_version,
       t1.fault_domain,
       t1.time_created,
       t2.name compartment_name,
       t5.private_ip ip_address_pri_primary,
       t5.public_ip  ip_address_pub_primary
FROM   OCI360_INSTANCES t1, OCI360_COMPARTMENTS t2, OCI360_IMAGES t3, OCI360_VNIC_ATTACHS
t4, OCI360_VNICS t5
WHERE  t1.image_id = t3.id (+)
AND    t1.compartment_id = t2.id (+)
AND    t1.id = t4.instance_id
AND    t4.lifecycle_state = 'ATTACHED'
AND    t4.vnic_id = t5.id
AND    t5.is_primary = 'true'
AND    t5.lifecycle_state = 'AVAILABLE';
```

Total storage usage per compute ?

```
WITH t1 AS (SELECT * FROM oci360_instances),
     t2 AS (SELECT * FROM oci360_vol_attachs),
     t3 AS (SELECT * FROM oci360_volumes),
     t4 AS (SELECT * FROM oci360_bv_attachs),
     t5 AS (SELECT * FROM oci360_bvolumes)
SELECT t1.display_name                          INSTANCE_NAME,
       COUNT(*)                                 TOTAL_VOLS,
       TO_NUMBER(t5.size_in_gbs)                BOOTVOL_SIZE_GBS,
       SUM(nvl(t3.size_in_gbs,0))                      VOL_SIZE_GBS,
       t5.size_in_gbs + SUM(nvl(t3.size_in_gbs,0)) TOTAL_SIZE_GBS,
       t1.id                                    INSTANCE_ID
FROM   t1, t2, t3, t4, t5
WHERE  t1.id = t2.instance_id(+)
AND    t2.volume_id = t3.id(+)
AND    t2.lifecycle_state(+) = 'ATTACHED'
AND    t1.id = t4.instance_id
AND    t4.boot_volume_id = t5.id
GROUP  BY t1.id, t1.display_name, t5.size_in_gbs
ORDER  BY total_size_gbs DESC;
```

of used IPs per subnet ?

```
SELECT tsub.display_name,
       tvcn.DISPLAY_NAME VCN_NAME,
       tcomp.NAME COMPARTMENT_NAME,
       tsub.cidr_block,
       power(2,32-substr(tsub.cidr_block,instr(tsub.cidr_block,'/')+1))-3 TOTAL_AVAILABLE,
       count(tpip.id) TOTAL_USED,
       power(2,32-substr(tsub.cidr_block,instr(tsub.cidr_block,'/')+1))-3 - count(tpip.id)
TOTAL_FREE,
       tsub.id
FROM   (SELECT distinct id, compartment_id, vcn_id, display_name, cidr_block FROM
OCI360_SUBNETS) tsub,
       OCI360_PRIVATEIPS tpip,
       OCI360_COMPARTMENTS tcomp,
       OCI360_VCNS tvcn
WHERE  substr(tsub.id,instr(tsub.id,'.',1,3)+1,instr(tsub.id,'.',1,4)-
instr(tsub.id,'.',1,3)-1) = 'iad'
AND    tsub.compartment_id = tcomp.ID
AND    tsub.id = tpip.SUBNET_ID (+)
AND    tsub.VCN_ID = tvcn.ID
GROUP BY tsub.display_name,
         tsub.cidr_block,
         tsub.id,
         tcomp.NAME,
         tvcn.DISPLAY_NAME;
```

SQL>

```
SQL> SELECT tsub.display_name,
  2         tvcn.DISPLAY_NAME VCN_NAME,
  4         tsub.cidr_block,
  5         power(2,32-substr(tsub.cidr_block,instr(tsub.cidr_block,'/')+1))-3 TOTAL_AVAIL,
  6         count(tpip.id) TOTAL_USED,
  7         power(2,32-substr(tsub.cidr_block,instr(tsub.cidr_block,'/')+1))-3 - count(tpip.i
  8  FROM    (SELECT distinct id, compartment_id, vcn_id, display_name, cidr_block FROM OCI36
  9         OCI360_PRIVATEIPS tpip,
 10         OCI360_COMPARTMENTS tcomp,
 11         OCI360_VCNS tvcn
 12  WHERE   substr(tsub.id,instr(tsub.id,'.',1,3)+1,instr(tsub.id,'.',1,4)-instr(tsub.id,'.'
 13  AND     tsub.compartment_id = tcomp.ID
 14  AND     tsub.id = tpip.SUBNET_ID (+)
 15  AND     tsub.VCN_ID = tvcn.ID
 16  GROUP BY tsub.display_name,
 17           tsub.cidr_block,
 18           tsub.id,
 19           tcomp.NAME,
 20           tvcn.DISPLAY_NAME;
```

DISPLAY_NAME	VCN_NAME	CIDR_BLOCK	TOTAL_AVAIL	TOTAL_USED	TOTAL_FREE
bastion	rwj1	10.0.3.0/24	253	1	252
database	rwj1	10.0.1.0/24	253	1	252
acolvrj_subne	acolvin_vcn	10.100.6.0/24	253	1	252
private-subne	MBACHVCN2	10.0.4.0/24	253	0	253
lb-subnet-FfL	svc-vcn	10.0.64.0/20	4093	0	4093
demo-hub-acce	demo-hub	10.100.1.0/28	13	0	13
subnet3-priva	VCN-TEST1	192.168.20.0/24	253	0	253
rk_scl_prv_ap	gw_scl_vcn	10.9.0.192/26	61	4	57
rl_scl_prv_db	gw_scl_vcn	10.9.0.128/26	61	2	59
matt_subnet2	mattvcn	10.0.1.0/24	253	2	251
web	rwj1	10.0.2.0/24	253	3	250
database	rwj2	192.168.0.0/24	253	1	252
demo-hub-rj-t	demo-hub	10.100.2.0/28	13	1	12
acolvrj_subne	acolvin_vcn	10.100.3.0/24	253	0	253
Public Subnet	sample-tst-vcn	10.0.0.0/24	253	0	253
Private Subne	jonas_vcn	10.0.1.0/24	253	0	253
matt_subnet1	mattvcn	10.0.0.0/24	253	0	253
jonas_vcn_tes	jonas_vcn	10.0.3.0/24	253	0	253
asset-subnet	aeg_assets_vcn	10.20.10.0/24	253	4	249
Private Subne	sample-tst-vcn	10.0.1.0/24	253	0	253

20 rows selected.

FIND A WAY TO EXTRACT ALL THE METADATA WE HAVE IN OCI...

LOAD THIS METADATA SOMEWHERE...

QUERY THIS DATA WITH **SQL** SO I CAN BUILD ANY IMAGINABLE REPORT!

REPORT

MOAT369 !

- Mother of All Tools 369
- HTML sqlplus API created based on edb360.
- GPL v3
- Use Google Charts + D3.js
- https://github.com/dbarj/moat369

dbarj / moat369

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simonpane v2002 ... 08c54cf on Feb 28 12 commits

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.gitignore	New Features (#7)	2 years ago
LICENSE	Initial commit	3 years ago
LICENSE-3RD-PARTY	V2001	9 months ago
README.md	New features (#2)	3 years ago

README.md

Mother of All Tools 369

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No releases published

Packages

No packages published

Contributors 2

dbarj Rodrigo Jorge

simonpane Simon Pane

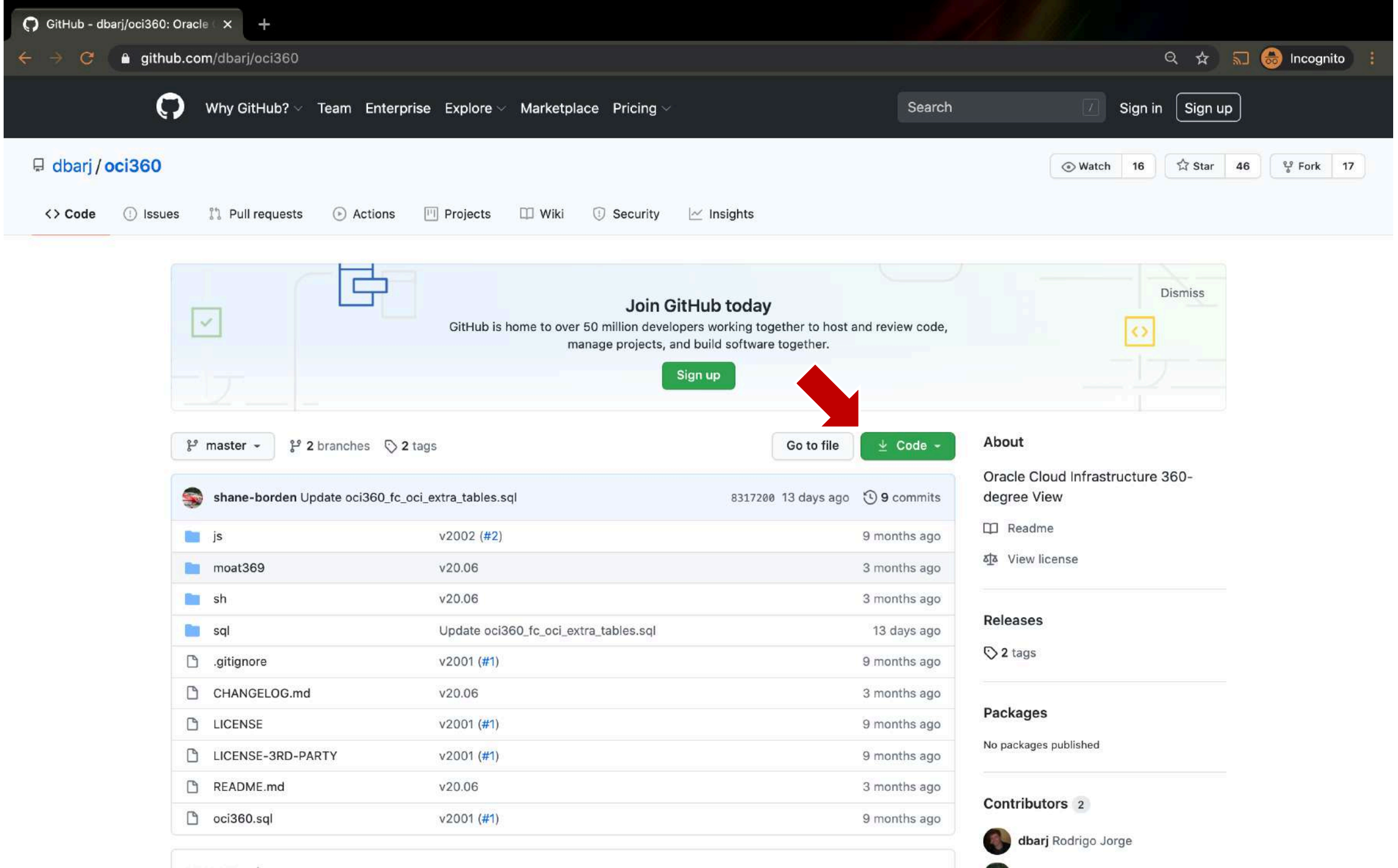
OCI360

What is OCI360 ?

- Extractor + Loader + Reporter in one single place.
- Collects OCI Metadata (no computes / volumes data).
- Develops a user friendly and comprehensive view of your tenancy.
- Provides insights about the current configuration and future growth projections.
- Provides a human readable output of your cloud state that allows quicker analysis and faster optimization or resources.

Where is the tool?

- Download:
  - https://github.com/dbarj/oci360
- Instructions (Wiki):
  - https://github.com/dbarj/oci360/wiki
- Sample Report:
  - http://oci360.dbarj.com.br/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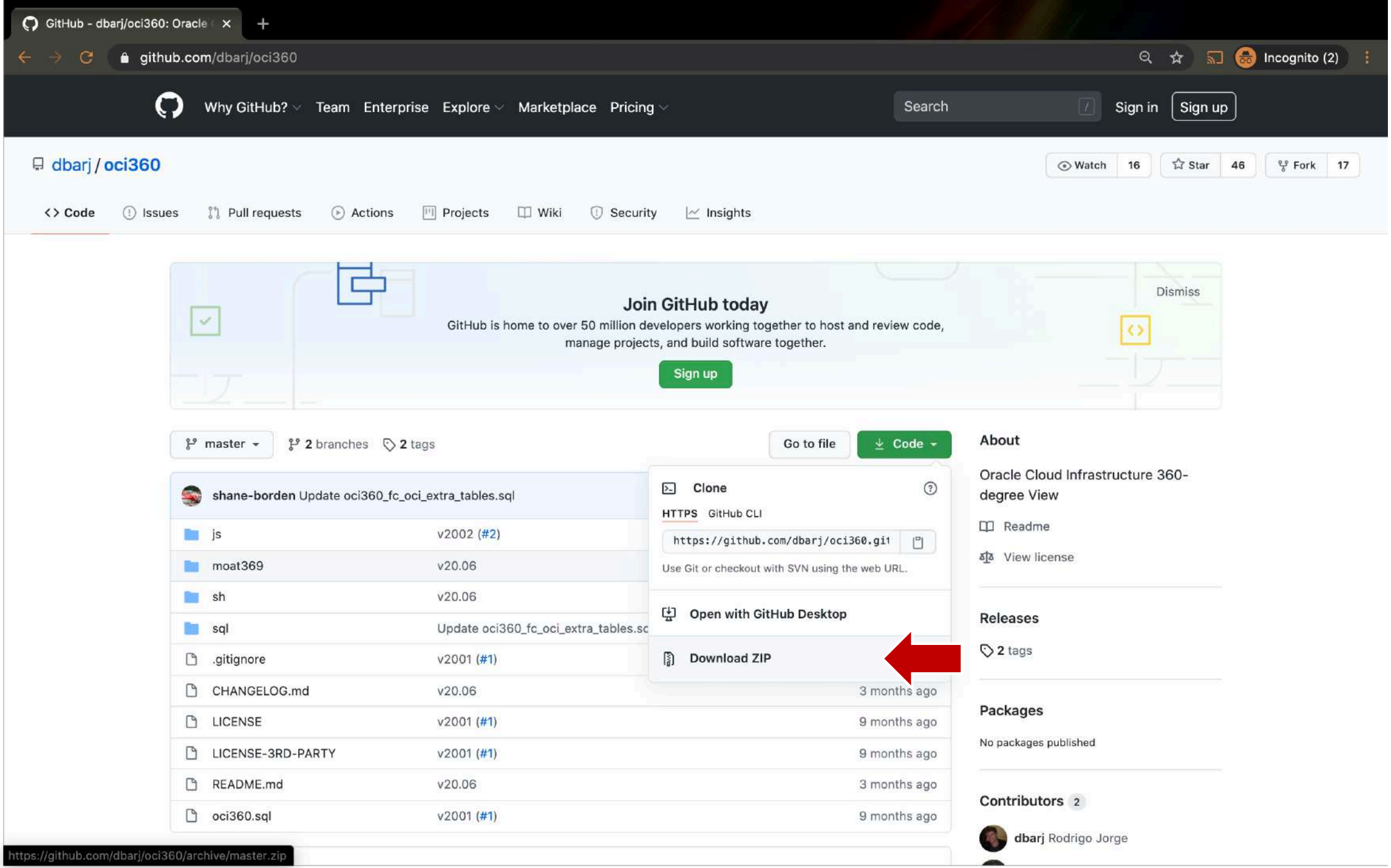
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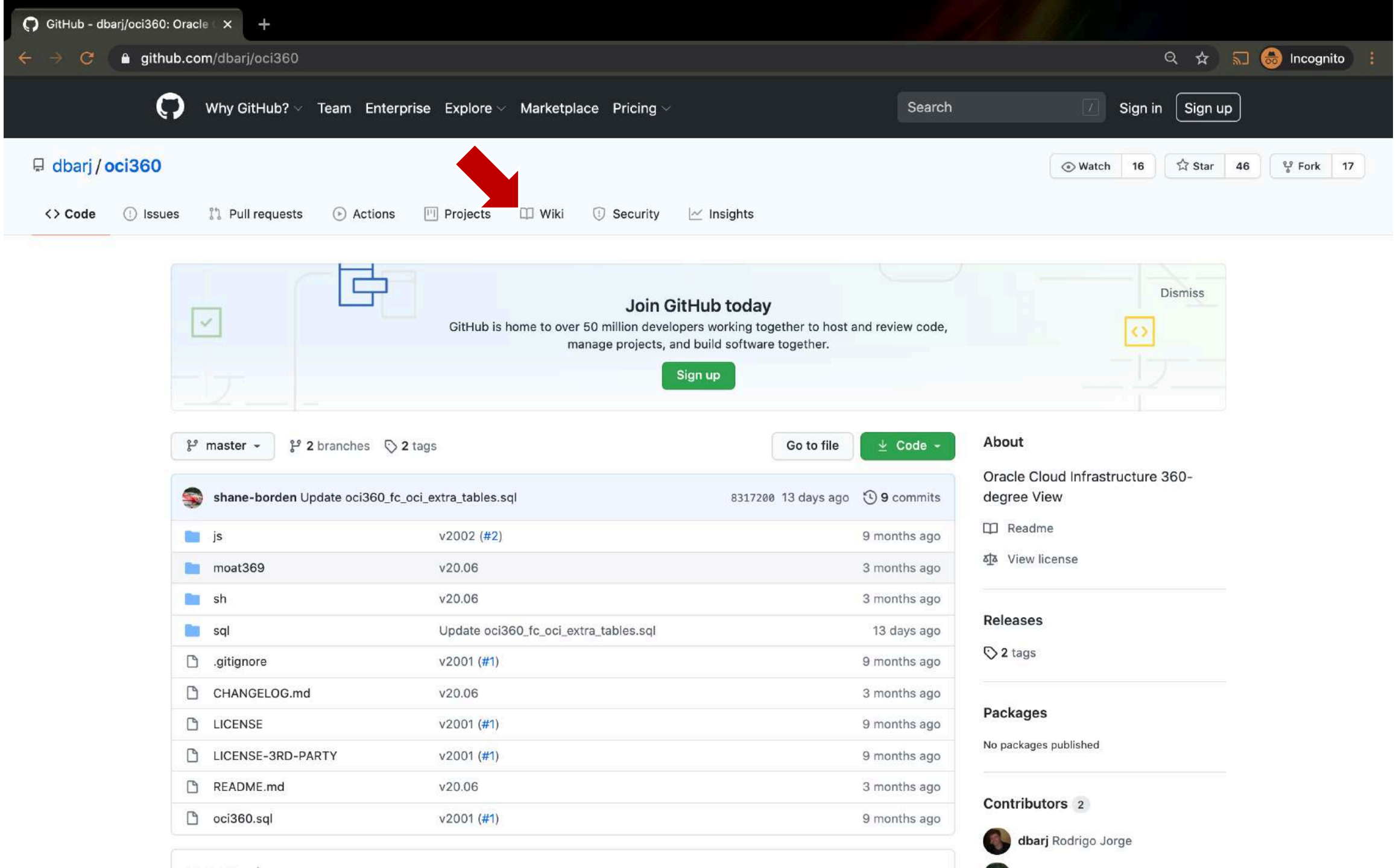
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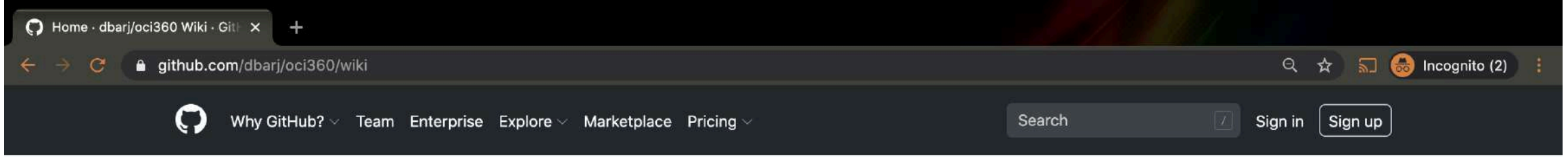


Home

Rodrigo Jorge edited this page on Jan 17 · 16 revisions

Welcome to the OCI360 wiki!

Here I document everything there is to know for you to run OCI360 very easily!

What is OCI360?

Oracle Cloud Infrastructure 360º View is a free open-source framework and tool to generate fancy html output of your tenancy that allows for quick analysis of an existing cloud estate to better optimize the use of cloud resources. You can also adapt it to generate your own queries and create some custom reports over your OCI tenancy.

The tool installs nothing and all it needs is a database schema to generate and read your tenancy model (more info below). It takes around 30 minutes to execute.

Output ZIP file can be large (several MBs), so you may want to execute OCI360 from a system directory with at least 1 GB of free space.

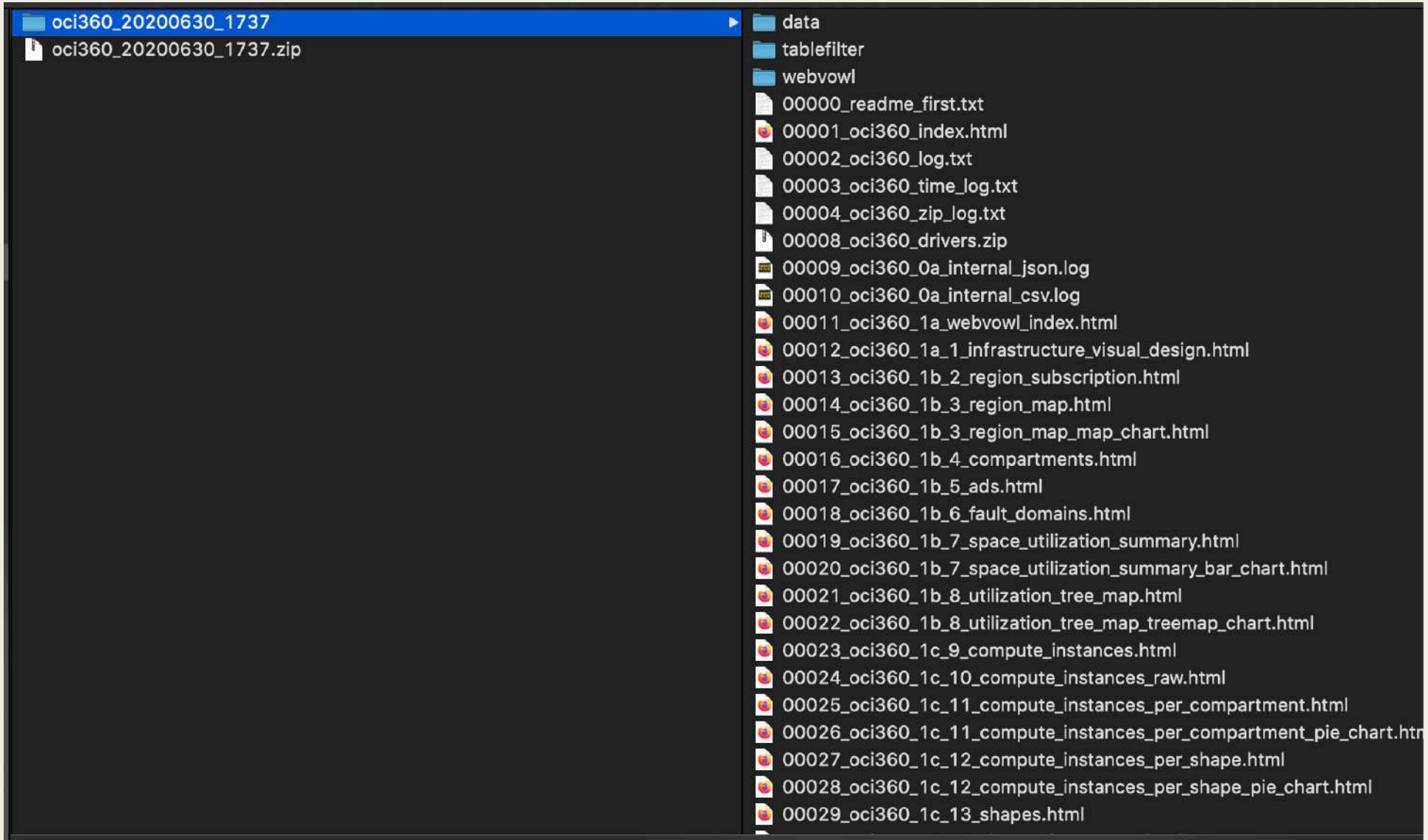
OCI360 uses moat369 API to generate html and graphs output. If you are familiar to edb360 and sqld360, you will notice they all have the same Look'n Feel.

For a sample full report from my tenancy, check http://oci360.dbarj.com.br/.

How does it work?

OCI360 will load and convert all the JSON information of your OCI tenancy into Oracle Database tables and views, creating a full metadata structured model. After the model is created on your database, it will query those tables and create reports about your OCI.

OCI360 Output is a zip file with all your tenancy info!



OCI360 Output

oci360 v1903: Enkitec 360-degree Full View on Oracle Cloud Infrastructure.

This report covers the time interval between 2019-01-11 and 2019-02-12. Days:31. Timestamp:2019-02-11/11:27:16.

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1a. OCI Infrastructure

1. Infrastructure Visual Design html *(1)*

1b. Tenancy Information

2. Region Subscription html *(5)*
3. Region Map html map *(4)*
4. Compartments html *(18)*
5. ADs html *(13)*
6. Fault Domains html *(702)*
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8. Utilization Tree Map html treemap *(226)*

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9. Compute Instances html *(36)*
10. Compute Instances - Raw html *(36)*
11. Compute Instances per Compartment html pie *(6)*
12. Compute Instances per Shape html pie *(7)*
13. Shapes html *(28)*
14. Shapes per Compartment html *(504)*
15. Console Connections html *(13)*
16. Console History html *(-1)*
17. Instance Costs estimations html *(36)*

1d. Compute Management

18. Instance Configurations html *(-1)*
19. Instance Configuration Deferred Fields html *(-1)*
20. Instance Configuration Details html *(-1)*
21. Instance Pools html *(-1)*
22. Instance Pool Members html *(-1)*

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2a. Volumes

29. Volumes html *(45)*
30. Total Intance Volumes html *(36)*
31. Unallocated Volumes html *(13)*
32. Volume Attachments html *(32)*
33. Volume Groups html *(-1)*
34. Volume Group Sources html *(-1)*
35. Volumes without a backup policy html *(43)*
36. Volumes without full backup in last 30 days html *(45)*
37. Volumes latest backup html *(45)*
38. Volumes Backup Size Percentile html *(45)*

2b. Volumes Backups

39. Volume Backups - Available html *(21)*
40. Volume Backups - Not Available html *(0)*
41. Backup Policies html *(18)*
42. Backup Policies Assignments html *(2)*
43. Volume Group Backups html *(-1)*
44. Volume Group Backups - Volume Backup IDs html *(-1)*
45. Incremental Vol Backups without a prior Full html *(19)*
46. Backups for terminated Volumes html *(0)*
47. Total Volume Backup Forecast (By Volume) html *(45)*
48. Total Volume Backups Forecast html line *(220)*
49. Total Volume Backups Size Forecast - Avg html line *(73)*
50. Total Volume Backups Cost Forecast - Avg html line *(73)*

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51. Boot-Volumes html *(60)*
52. Unallocated Boot-Volumes html *(24)*
53. Boot-Volume Attachments html *(36)*
54. Boot-Volumes without a backup policy html *(60)*
55. Boot-Volumes without full backup in last 30 days html *(58)*
56. Boot-Volumes latest backup html *(60)*
57. Boot-Volumes Backup Size Percentile html *(60)*

2d. Boot-Volumes Backups

58. Boot-Volume Backups - Available html *(5)*
59. Boot-Volume Backups - Not Available html *(0)*
60. Incremental BV Backups without a prior Full html *(0)*
61. Backups for terminated BVs html *(0)*
62. Total Boot-Volume Backup Forecast (By BV) html *(60)*
63. Total Boot-Volume Backups Forecast html line *(220)*
64. Total BV Backups Size Forecast - Avg html line *(73)*
65. Total BV Backups Cost Forecast - Avg html line *(73)*

2e. File Storage

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3a. Virtual Cloud Network

3a.1. eu-frankfurt-1

81. VNICs html *(0)*
82. VNIC Attachments html *(0)*
83. Subnets html *(3)*
84. Used IPs per Subnets html *(3)*
85. DHCP Options html *(3)*
86. Route Tables html *(7)*
87. Internet Gateways html *(2)*
88. NAT Gateways html *(0)*
89. DRGs html *(0)*
90. DRG Attachments html *(0)*
91. Fast-Connect Provider Services html *(9)*
92. Local Peering Gateways html *(2)*
93. Remote Peering Connections html *(0)*
94. Network Services html *(1)*
95. Network Service Gateways html *(0)*
96. VCNs html *(2)*
97. Private IPs html *(0)*
98. Public IPs html *(0)*
99. VCN Map html circle *(0)*

3a.2. us-ashburn-1

100. VNICs html *(43)*
101. VNIC Attachments html *(39)*
102. Subnets html *(59)*
103. Used IPs per Subnets html *(59)*
104. DHCP Options html *(53)*
105. Route Tables html *(61)*
106. Internet Gateways html *(21)*
107. NAT Gateways html *(2)*
108. DRGs html *(3)*
109. DRG Attachments html *(2)*
110. Fast-Connect Provider Services html *(14)*
111. Local Peering Gateways html *(10)*
112. Remote Peering Connections html *(1)*
113. Network Services html *(1)*
114. Network Service Gateways html *(3)*
115. VCNs html *(26)*
116. Private IPs html *(45)*
117. Public IPs html *(39)*
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3a.3. us-phoenix-1

119. VNICs html *(3)*
120. VNIC Attachments html *(3)*
121. Subnets html *(10)*
122. Used IPs per Subnets html *(10)*
123. DHCP Options html *(10)*
124. Route Tables html *(9)*

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4a. Load Balance

195. Load Balancers html *(-1)*
196. Load Balancer Subnets html *(2)*
197. Load Balancers Health html *(1)*
198. Backend-Sets html *(2)*
199. Backend-Sets Health html *(2)*
200. Backends html *(2)*
201. Backends Health html *(4)*
202. Certificates html *(-1)*
203. Health Checks html *(1)*
204. Hostnames html *(-1)*
205. Path Routes html *(-1)*
206. Policies html *(54)*
207. Protocols html *(54)*
208. Shapes html *(54)*
209. Work Requests html *(-1)*

4b. DNS Zones

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4c. Email Delivery

211. Approved senders html *(-1)*
212. Email suppression html *(-1)*

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5a. Identity and Access Management

213. Users html *(9)*
214. Groups html *(35)*
215. Dynamic Groups html *(2)*
216. Policies html *(14)*
217. Policy Statements html *(58)*
218. Users Auth Tokes html *(1)*
219. Users SMTP Credentials html *(-1)*
220. Users Secret Keys html *(3)*
221. All Regions html *(5)*
222. Tags html *(14)*
223. Tag Namespaces html *(5)*
224. Work Requests html *(-1)*

5b. Audit

225. Audit Events html *(-1)*
226. Request Events per User html *(-1)*

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227. Vaults html *(-1)*
228. Keys html *(-1)*
229. Key Versions html *(-1)*
230. Boot-Volume Keys html *(-1)*
231. Volume Keys html *(-1)*

5d. Cloud Billing

232. Service Entitlements html *(54)*
233. Service Resources html *(604)*
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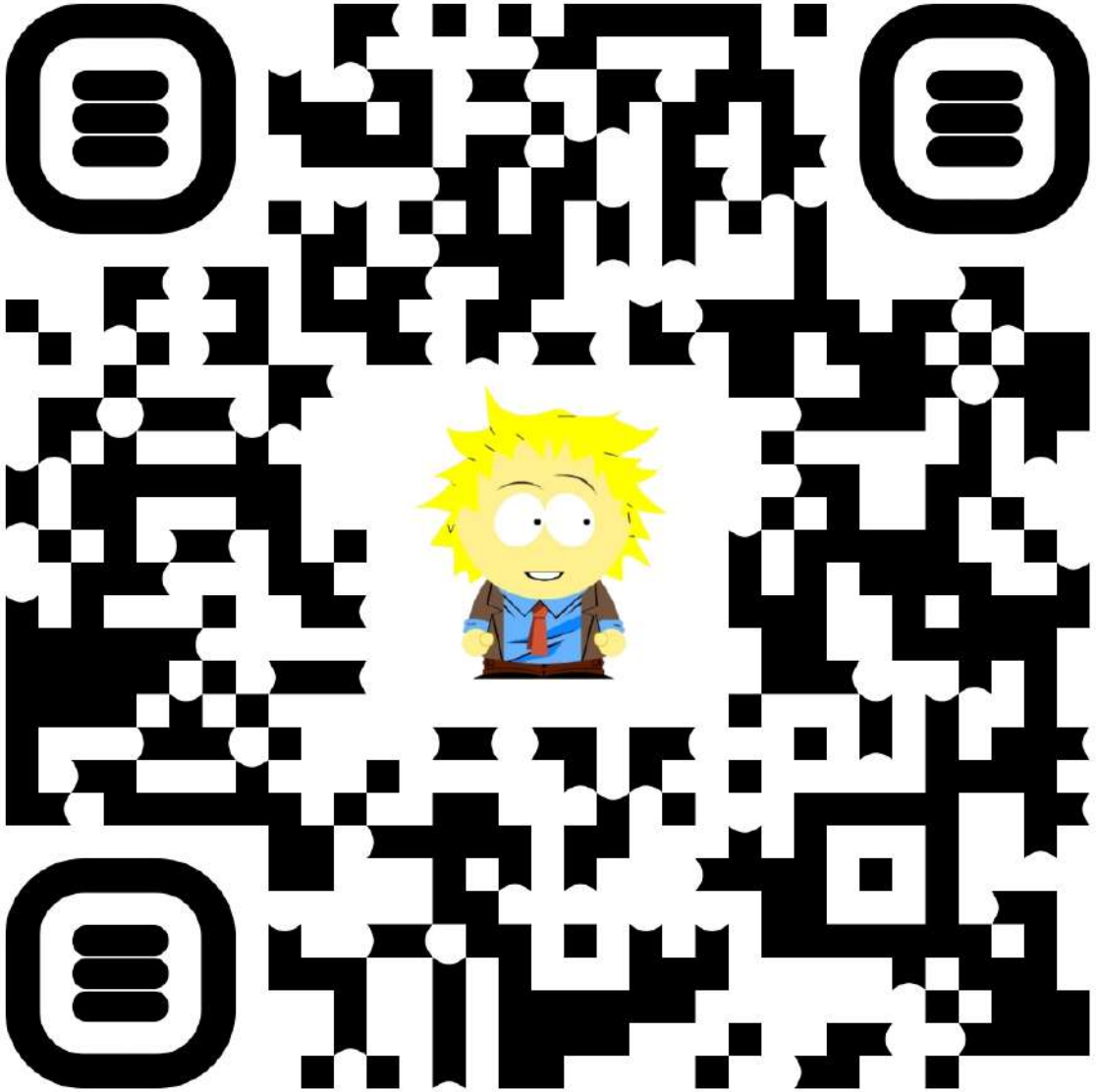
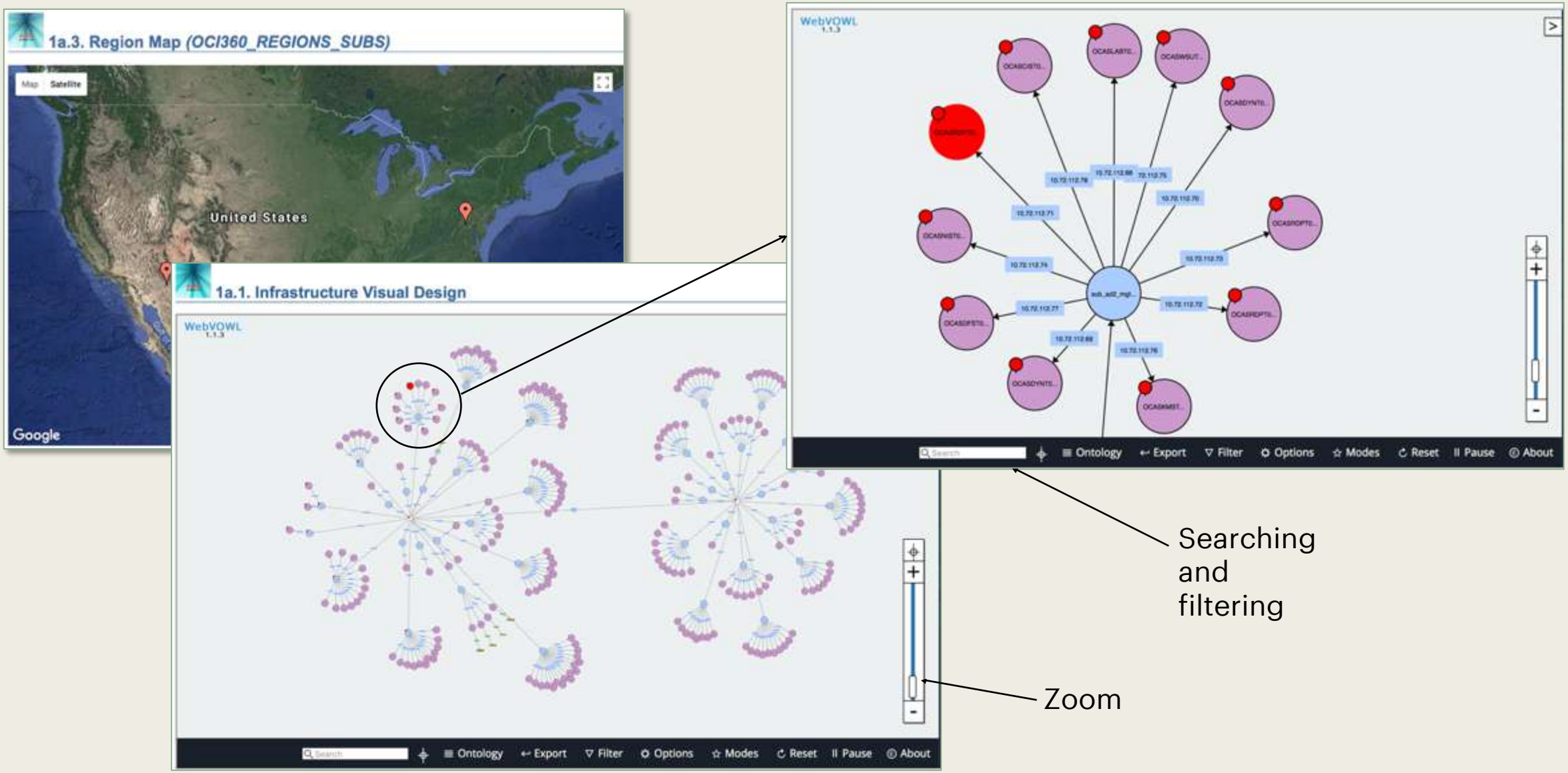
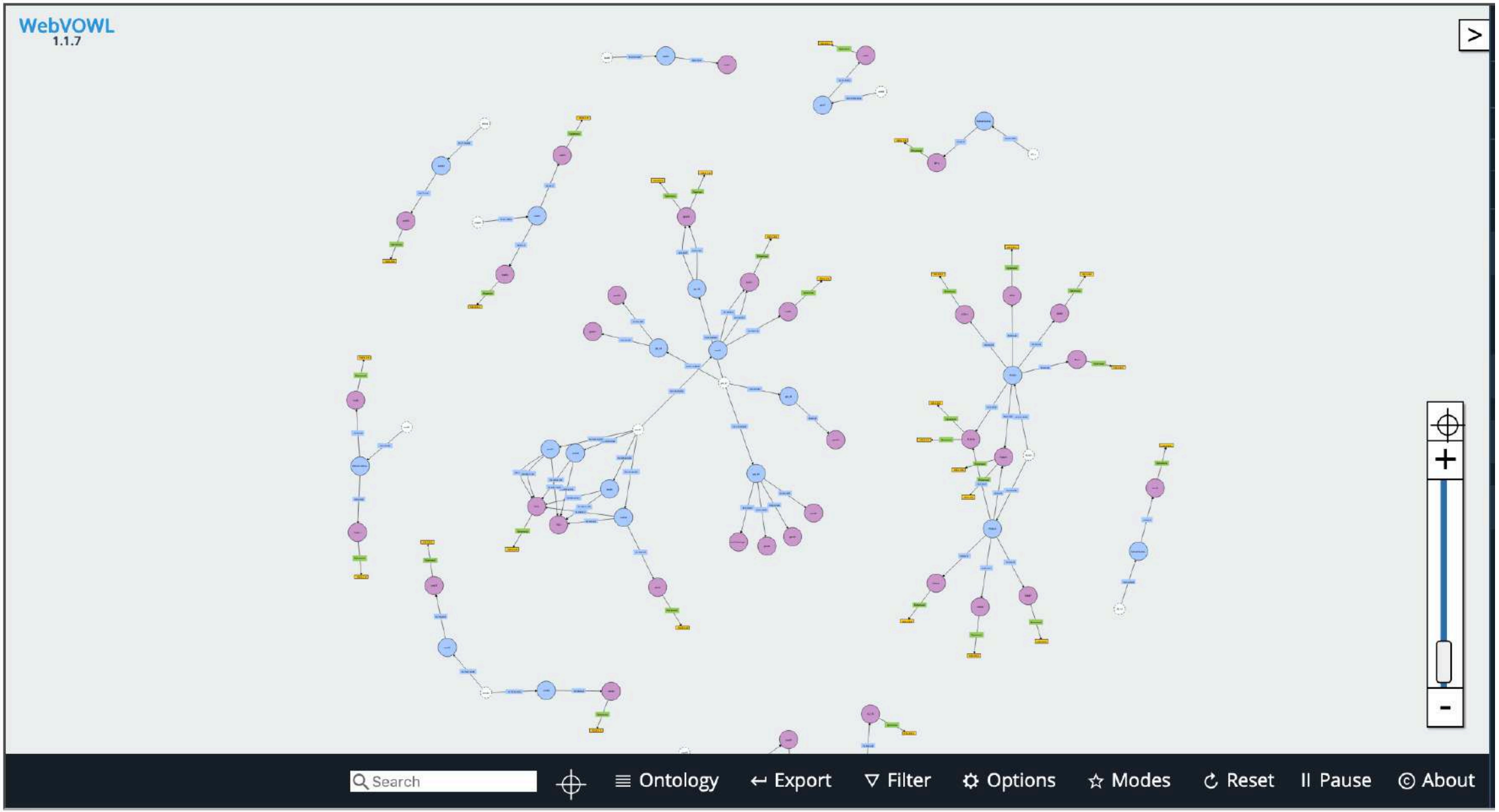
235. Cost division per Service html pie *(5)*
236. Cost division per Resource html pie *(15)*
237. Cost per Hour html line *(1434)*
238. Cost per Day html line *(59)*
239. Used Quota html line *(1296)*
240. Last Computed Usage Costs html *(2000)*
241. Last Computed Usage Costs Tagged html *(2000)*
242. Last Computed Usage html *(2000)*
243. Usage Tags html *(88)*
244. Account Details html *(1)*
245. Account Balance html *(12)*
246. Account Purchase html *(12)*
247. Account Running Balance html *(12)*
248. Check Quota html *(755)*
249. Promotions html *(1)*
250. Cloud Limits html *(1)*
251. Raw Computed Usage Costs Tagged csv *(16961)*



Sample output for OCI360 Network topology

Example: Network topology

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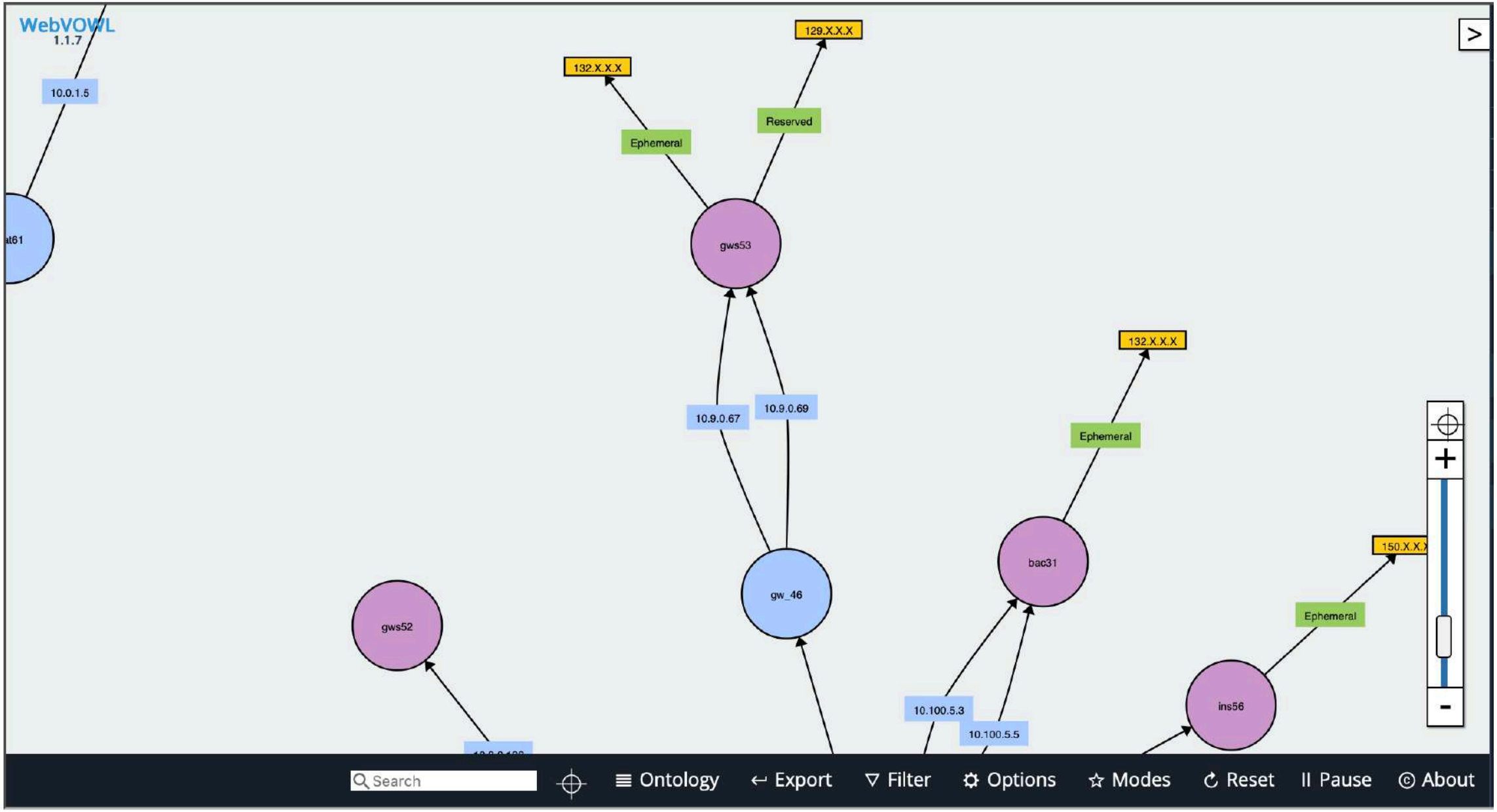
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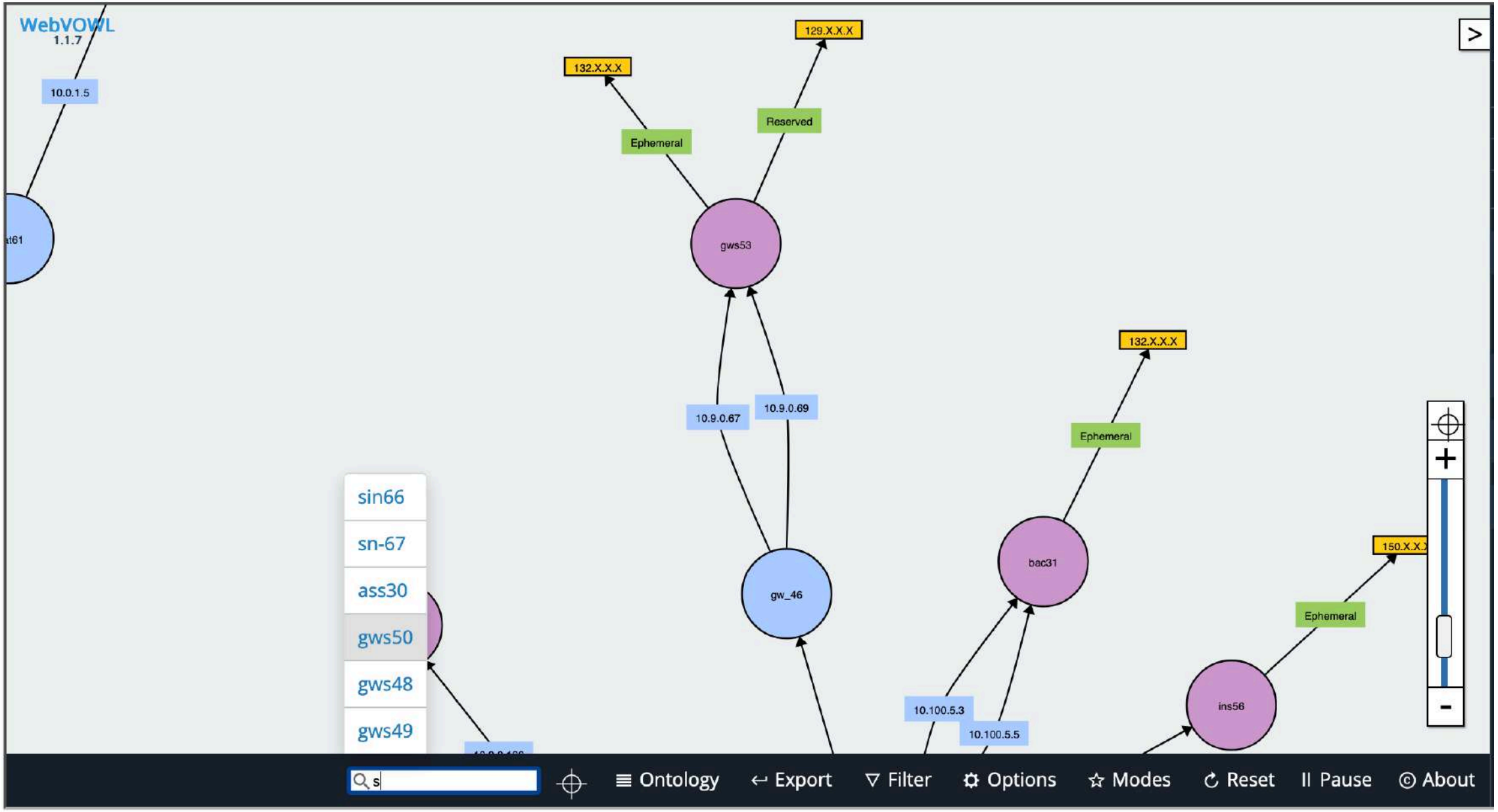
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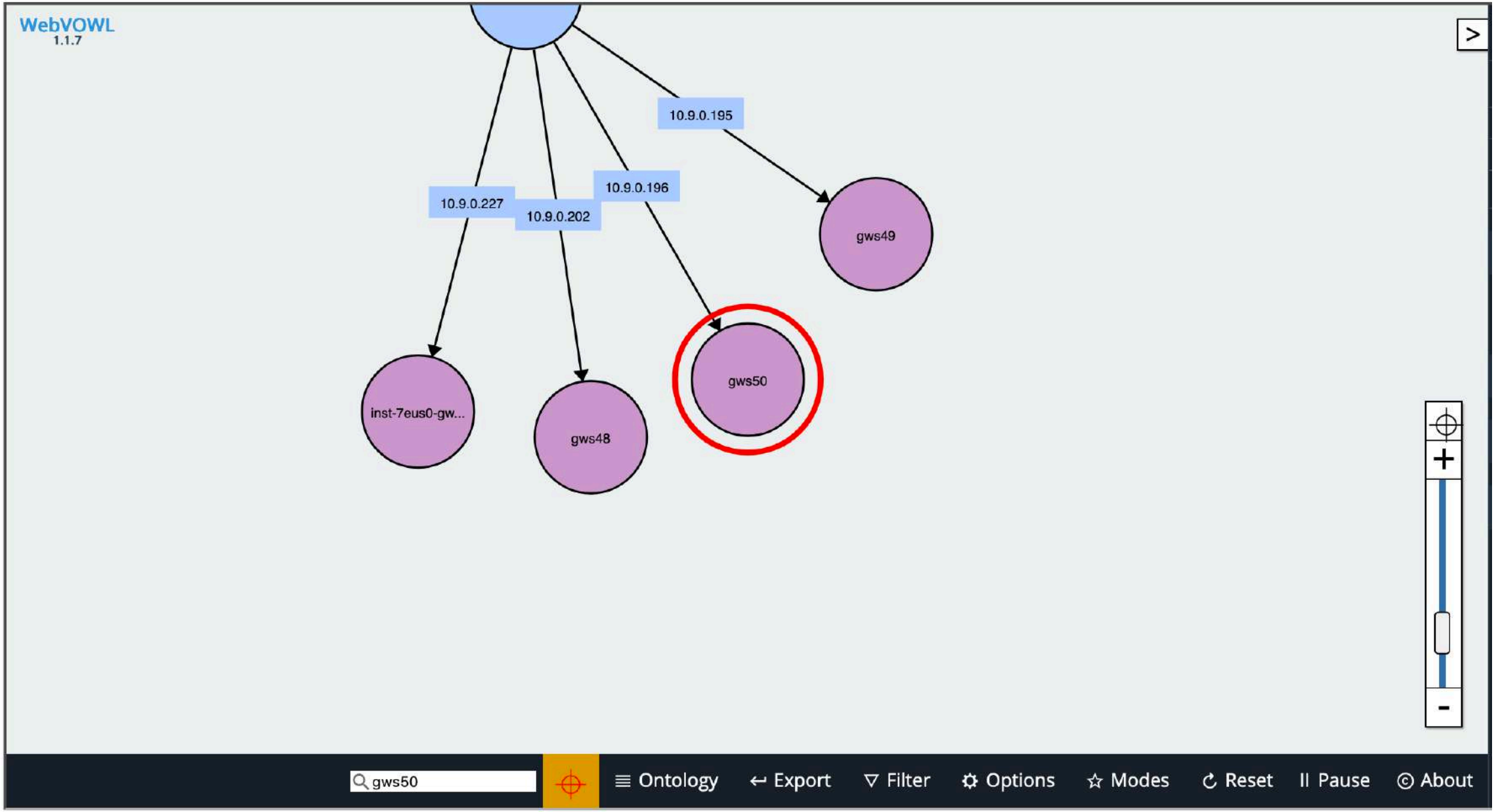
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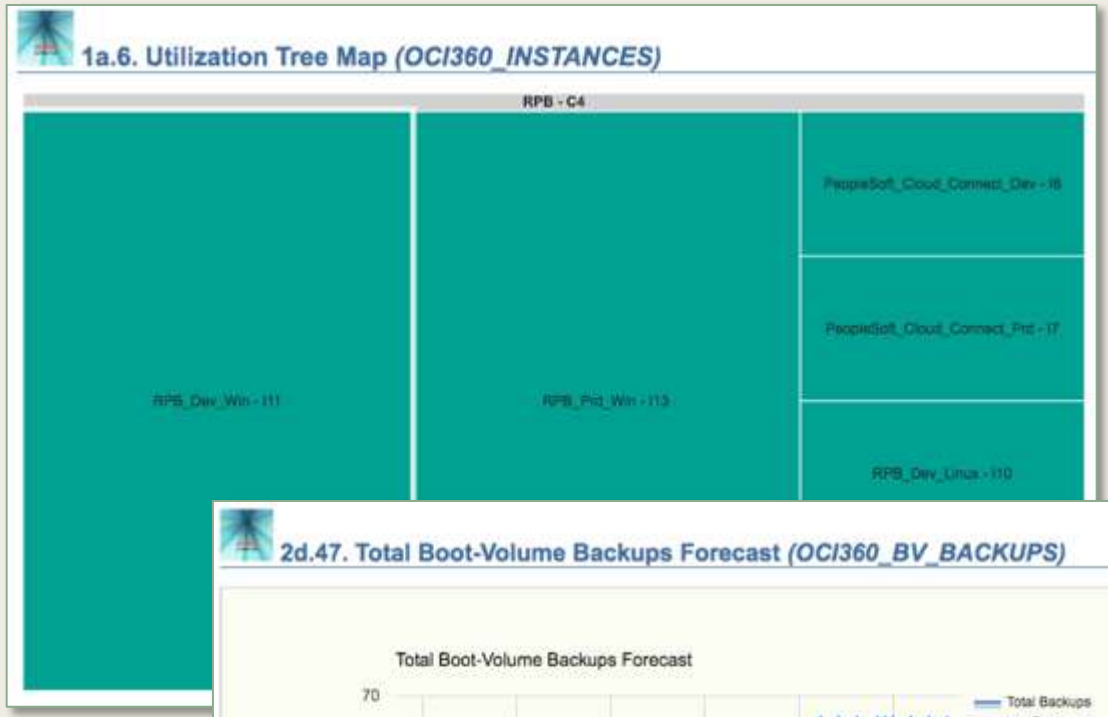
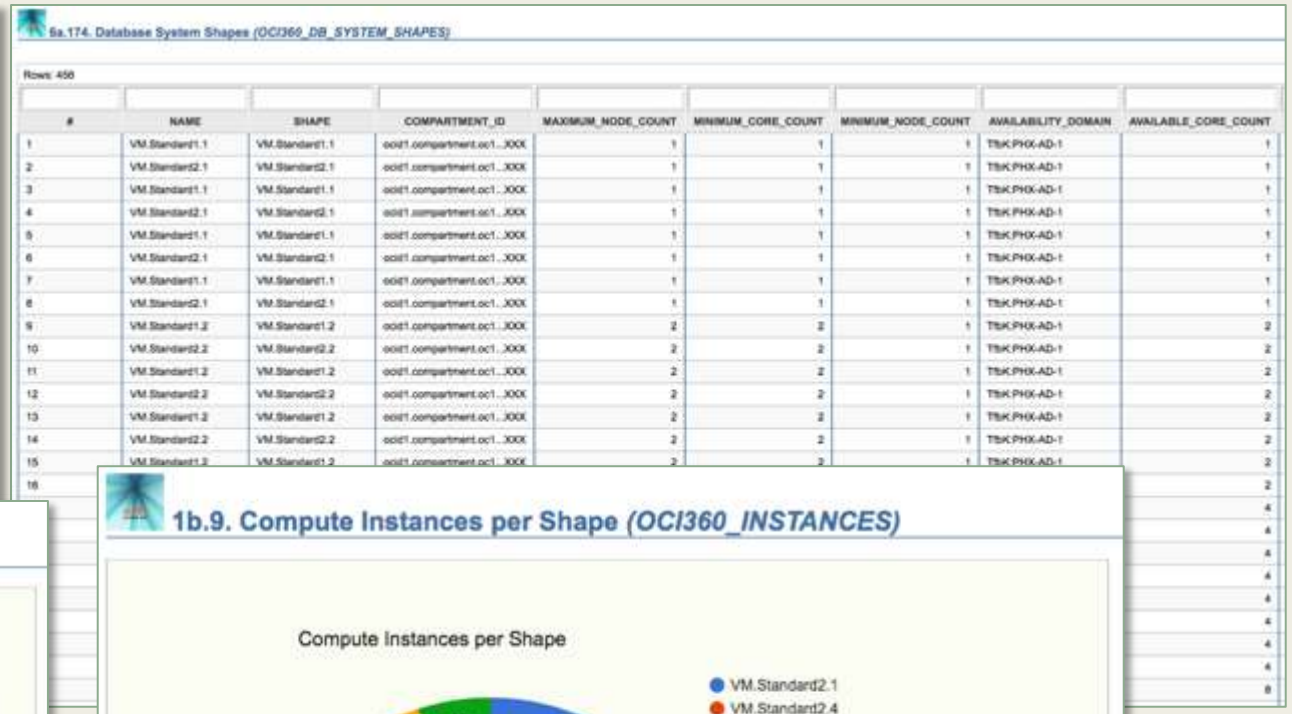
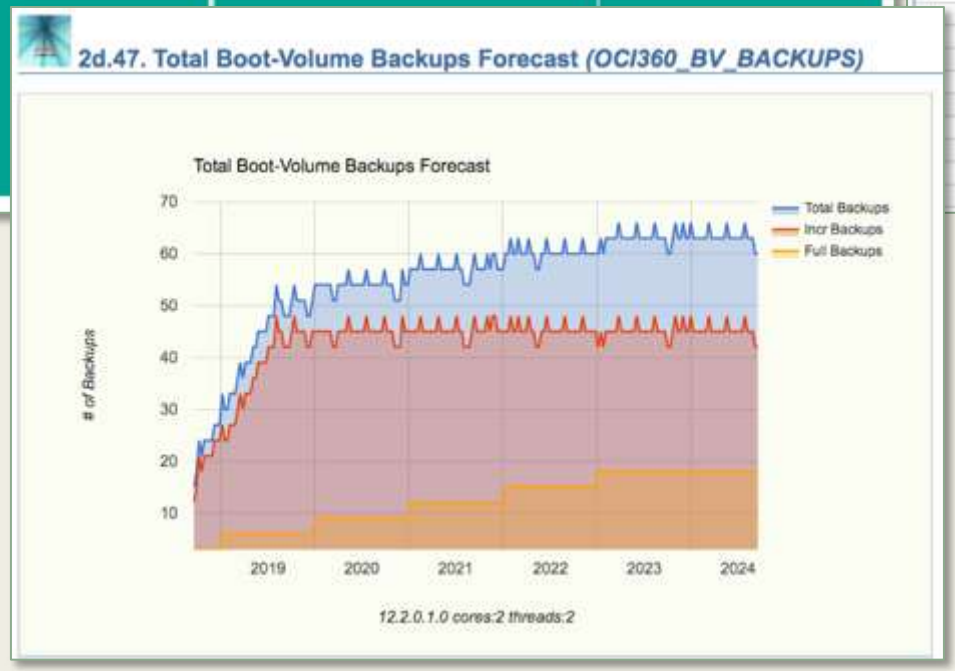
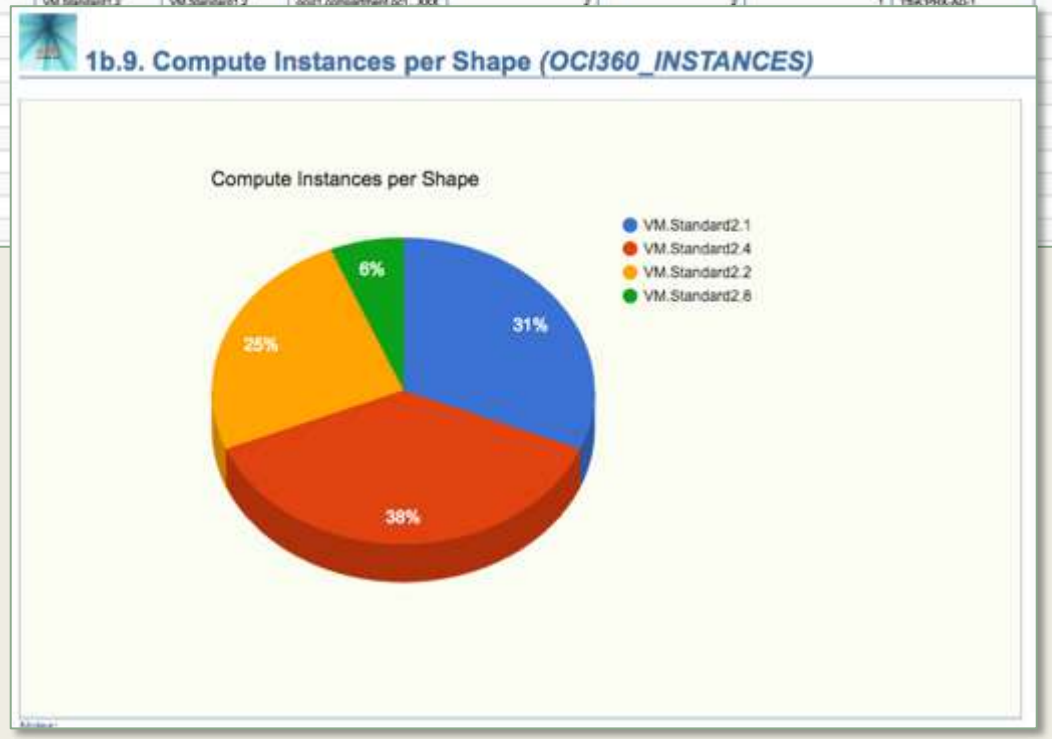
Other examples









Online Mode

- **EXTRACTOR + CONVERTER + REPORTER** are automated in a webserver (at the customer).
- Near REALTIME view of account Tenancy.
- Possibility to check past OCI snapshots for auditing.

Server specs to run OCI360

2 CPUs

8 GiB RAM

Linux 7

Oracle XE 18c
Free ADB

50 GiB

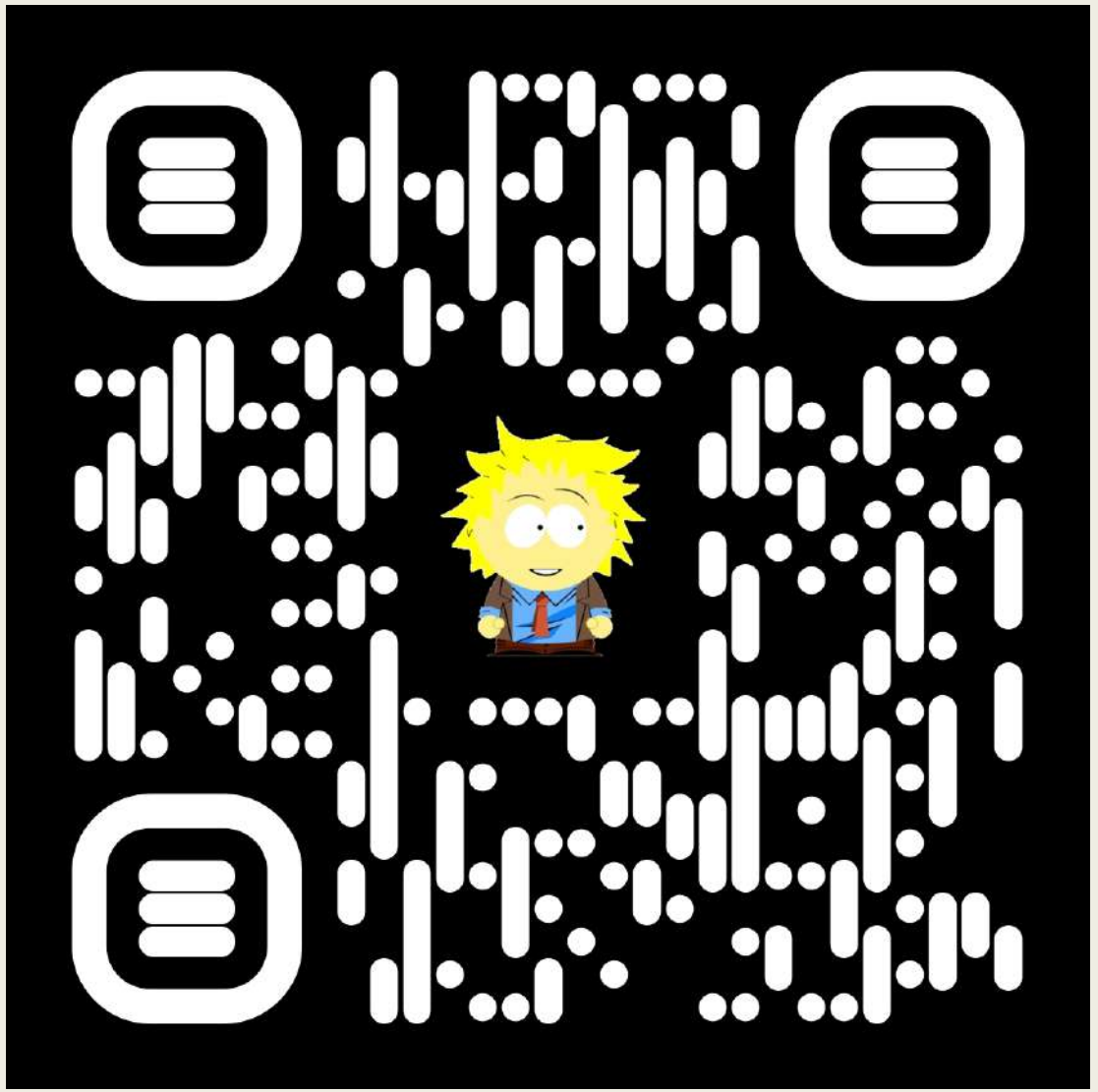
FAQ

- How long it takes to run?
- Can I create my own SQLs on it?
- Can I run only a set of the whole output?

About

@rodrigojorgedba

/rodrigoaraujorge



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QUESTIONS ?!

THANK YOU!