

Setup Primary Oracle Analytics Server Environment for Disaster Recovery managed by OCI Full Stack Disaster Recovery

Describes how to create Oracle Analytics Server environment with file system, block volume and attach it to the Oracle Analytics Server Compute Instance.

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Public

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Revision History

The following revisions have been made to this document since its initial publication.

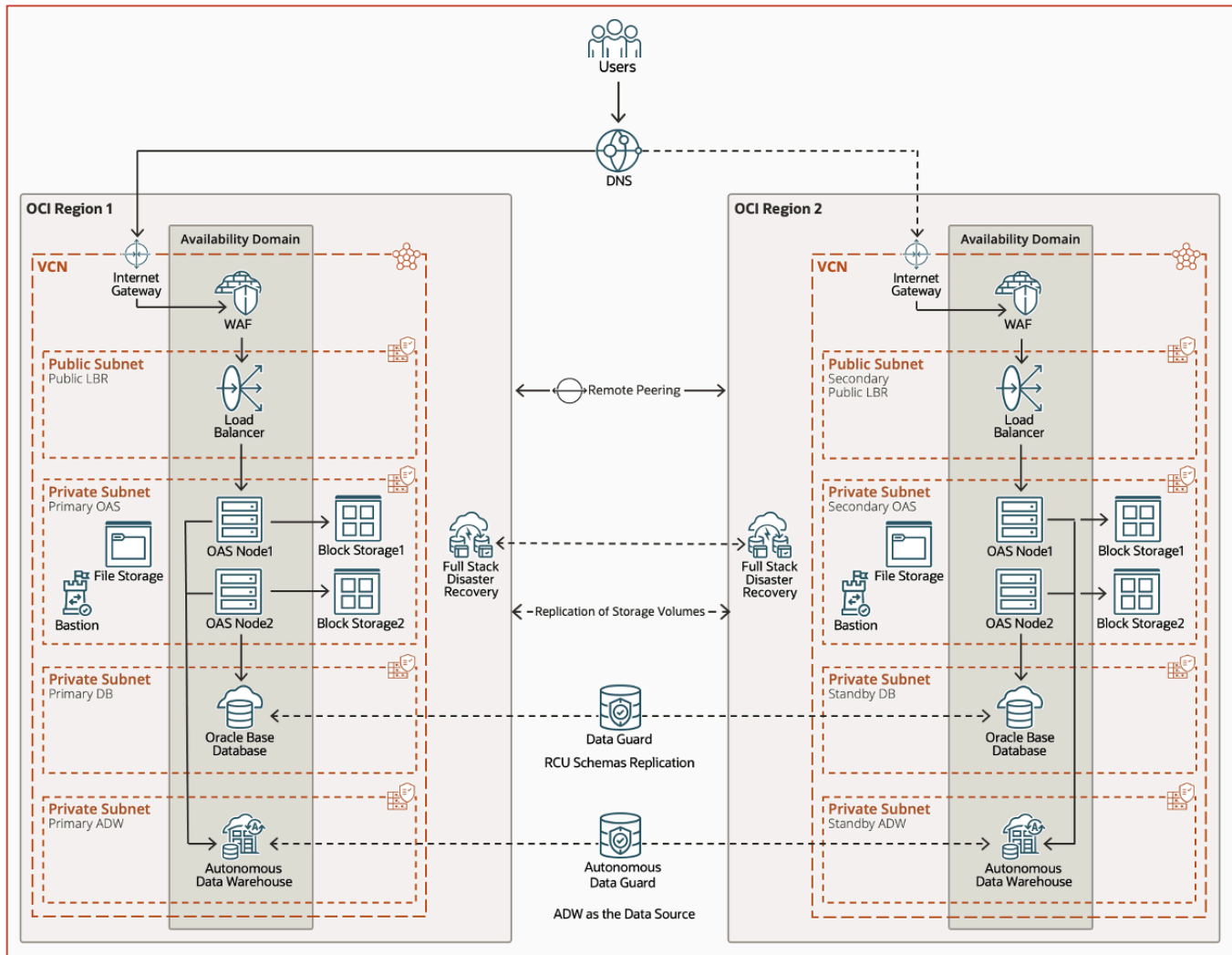
DATE	REVISION
May 2024	Initial publication

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Architecture



Oracle Cloud Infrastructure Primary Region (e.g., Ashburn)

Sign-in to OCI Console

- Create a Compartment
- Create a Virtual Cloud Network (VCN)
- Create an Oracle Analytics Server Instance with the domain in the Private Subnet of the VCN

Create a Compartment

Create a compartment under the root compartment.

ORACLE Cloud Cloud Classic > Search resources, services, documentation, and Marketplace US East (Ashburn) [Icons]

Identity

Users

Groups

Dynamic Groups

Network Sources

Policies

Compartments

Federation

Authentication Settings

Filters

State

Active | Deleting

Compartments

Create Compartment

Name	Status	OCID	Authorized	Security Zone ⓘ	Subcompartments	Created
[Icon]	Active	[OCID]	Yes	-	0	[Created]
[Icon]	Active	[OCID]	Yes	-	0	[Created]
oasmp	Active	[OCID]	Yes	-	0	[Created]
[Icon]	Active	[OCID]	Yes	-	1	[Created]
[Icon]	Active	[OCID]	Yes	-	0	[Created]
[Icon]	Active	[OCID]	Yes	-	0	[Created]

Showing 6 items < 2 of 2 >

Create a Virtual Cloud Network

Create a Virtual Cloud Network (VCN) in the compartment using the wizard.

ORACLE Cloud Cloud Classic > Search resources, services, documentation, and Marketplace US East (Ashburn) [Icons]

Networking

Overview

Virtual cloud networks

Web Application Acceleration

Load balancers

Content Delivery Network

DNS management

Customer connectivity

IP management

Network Command Center

List scope

Compartment

oasmp

Virtual Cloud Networks in oasmp Compartment

Virtual Cloud Networks (VCNs) are private virtual networks you set up in Oracle Cloud Infrastructure. You can attach gateways, route tables, and security lists to specify routing and security rules.

Create VCN Start VCN Wizard

Name	State	IPv4 CIDR Block	IPv6 Prefix	Default Route Table	DNS Domain Name	Created
oasvcn	Available	10.0.0.0/16	-	Default Route Table for oasvcn	oasvcn.oraclevcn.com	[Created]

Showing 1 item < 1 of 1 >

Public and Private Subnets are created while creating the VCN using the wizard.

ORACLE Cloud Cloud Classic > Search resources, services, documentation, and Marketplace US East (Ashburn) [Icons]

Navigation menu

oasvcn

Move resource Add tags Delete

VCN Information Tags

Compartment: oasmp

Created: [Timestamp] 19:10:06 UTC

OCID: [OCID] Show Copy

DNS Resolver: oasvcn

IPv4 CIDR Block: 10.0.0.0/16

Default Route Table: Default Route Table for oasvcn

IPv6 Prefix: -

DNS Domain Name: oasvcn.oraclevcn.com

Resources

Subnets (3)

CIDR Blocks/Prefixes (1)

Route Tables (2)

Internet Gateways (1)

Dynamic Routing Gateways Attachments (1)

Network Security Groups (0)

Subnets in oasmp Compartment

Create Subnet

Name	State	IPv4 CIDR Block	IPv6 Prefixes	Subnet Access	Created
Private Subnet-oasvcn2	Available	10.0.2.0/24	-	Private (Regional)	[Created]
Public Subnet-oasvcn	Available	10.0.0.0/24	-	Public (Regional)	[Created]
Private Subnet-oasvcn	Available	10.0.1.0/24	-	Private (Regional)	[Created]

Create an OAS Marketplace Instance

For the OAS DR using Database RCU schema replication managed by OCI Full Stack DR, we need the OAS instances to have the same hostnames, including the domain names; for example, the FQDN of the primary OAS instance and the DR instance should be the same as “oas1.oase.oasvcn.oraclevcn.com, oas2.oase.oasvcn.oraclevcn.com”.

To do so, we need to create a compartment, VCN, and private subnets in OCI's primary (home) region, for example, Ashburn, and in OCI's DR region, for example, Phoenix, use the existing compartment and create the same VCN and private subnets.

NOTE: The compartment is not limited to the OCI region; it is available in both regions once created.

Since we already have a compartment, for example, “oasmp”, use the existing one, create same VCN and Subnets.

Create Private Subnets

Create a new private subnet in both regions without overlapping their CIDR blocks.

The screenshot shows the Oracle Cloud console interface for creating a subnet. On the left, the 'oasvcn' VCN is listed under 'Virtual cloud networks'. Below it, the 'Subnets (3)' section is highlighted. The 'Create Subnet' form is open, showing the following details:

- Name:** Private Subnet-oasvcn3
- Create In Compartment:** oasmp
- Subnet Type:** Regional (Recommended) (checked)
- Availability Domain-specific:** Instances in the subnet can only be created in one availability domain in the region.
- IPv4 CIDR Block:** 10.0.3.0/24
- IPv6 Prefixes:** Maximum amount of 0 IPv6 prefixes per Subnet. IP ranges of the IPv6 prefixes must not overlap.

The screenshot shows the Oracle Cloud console interface for creating a subnet. On the left, the 'oasvcn' VCN is listed under 'Virtual cloud networks'. Below it, the 'Subnets (3)' section is highlighted. The 'Create Subnet' form is open, showing the following details:

- Name:** Private Subnet-oasvcn3
- Route Table Compartment in oasmp:** Route Table for Private Subnet-oasvcn3
- Subnet Access:** Private Subnet (checked)
- DNS Resolution:** Use DNS hostnames in this Subnet (checked)
- DNS Label:** oase
- DNS Domain Name:** <dns-label>.oasvcn.oraclevcn.com
- Dhcp Options Compartment in oasmp:** oasmp
- Security Lists:** You can associate up to 5 network security lists with the subnet.

NOTE: Enter a DNS Label such as “oase” or any. Its important to give the DNS Label to maintain same FQDN of the OAS nodes.

Resources

Subnets (3)

CIDR Blocks/Prefixes (1)

Route Tables (2)

Internet Gateways (1)

Dynamic Routing Gateways Attachments (1)

Network Security Groups (0)

Security Lists (2)

Create Subnet

Name

Private Subnet-oasvsn2

Public Subnet-oasvsn

Private Subnet-oasvsn

Create Subnet

Cancel

Dhcp Options Compartment in oasmp (Change compartment)

Select DHCP options

Security Lists

You can associate up to 5 network security lists with the subnet.

Security List Compartment in oasmp (Change compartment)

Security List for Private Subnet-oasvsn

+ Another Security List

Show Tagging Options

NOTE: Ensure the ingress security rules exist for the DBCS host and port from the OAS server subnet.

Similarly, create the same subnet in the OCI DR region, for example, Phoenix.

ORACLE Cloud

Cloud Classic

Search resources, services, documentation, and Marketplace

US West (Phoenix)

Networking > Virtual cloud networks > Virtual cloud Network Details

oasvsn

Move resource Add tags Delete

VCN Information Tags

Compartment: oasmp

Created: 19:56:59 UTC

IPv4 CIDR Block: 172.0.0.0/16

IPv6 Prefix: -

OCID: ...tn3zq Show Copy

DNS Resolver: oasvsn

Default Route Table: Default Route Table for oasvsn

DNS Domain Name: oasvsn.oraclevcn.com

Resources

Subnets (4)

CIDR Blocks/Prefixes (1)

Route Tables (2)

Internet Gateways (1)

Dynamic Routing Gateways Attachments (1)

Network Security Groups (0)

Security Lists (0)

Create Subnet

Name	State	IPv4 CIDR Block	IPv6 Prefixes	Subnet Access	Created
Private Subnet-oasvsn3	Available	172.0.3.0/24	-	Private (Regional)	
Private Subnet-oasvsn2	Available	172.0.2.0/24	-	Private (Regional)	
Private Subnet-oasvsn	Available	172.0.1.0/24	-	Private (Regional)	
Public Subnet-oasvsn	Available	172.0.0.0/24	-	Public (Regional)	

ORACLE Cloud

Cloud Classic

Search resources, services, documentation, and Marketplace

US West (Phoenix)

Networking > Virtual cloud networks > oasvsn > Subnet Details

Private Subnet-oasvsn3

Edit Move resource Add tags Create path analysis Terminate

Subnet Information Tags

OCID: ...2pkivq Show Copy

IPv4 CIDR Block: 172.0.3.0/24

IPv6 Prefix: -

Virtual Router MAC Address: -

Subnet Type: Regional

Compartment: oasmp

DNS Domain Name: oasvsn.oraclevcn.com Hide Copy

Subnet Access: Private Subnet

DHCP Options: Default DHCP Options for oasvsn

Route Table: Route Table for Private Subnet-oasvsn

Resources

Security Lists (1)

Logs

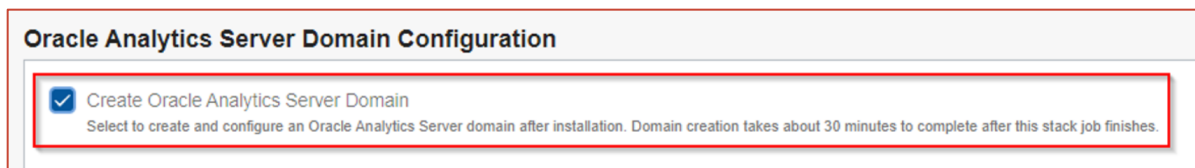
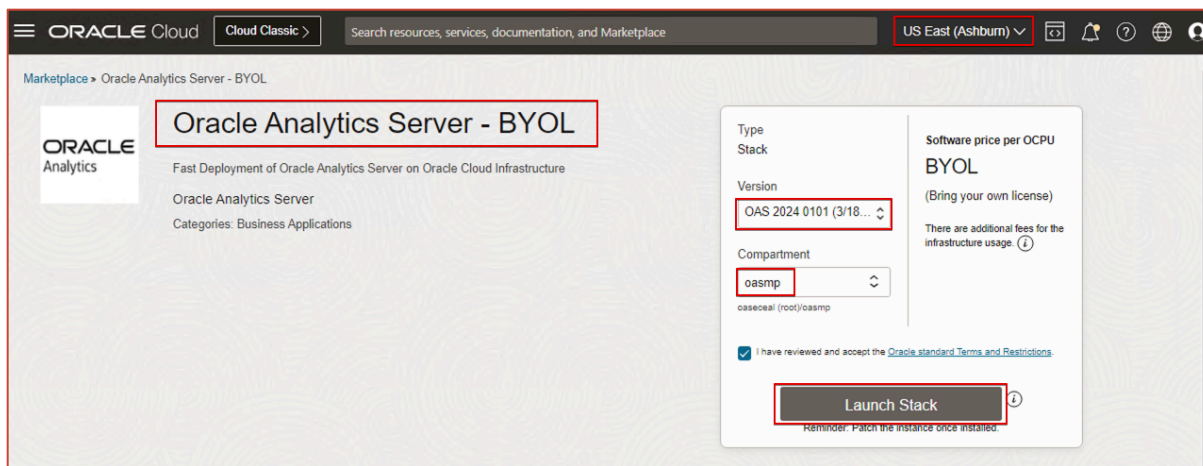
IPv6 Prefixes (-)

Tag filters add | clear

Name	State	Compartment	Created
Security List for Private Subnet-oasvsn	Available	oasmp	19:57:02 UTC

Showing 1 item < 1 of 1 >

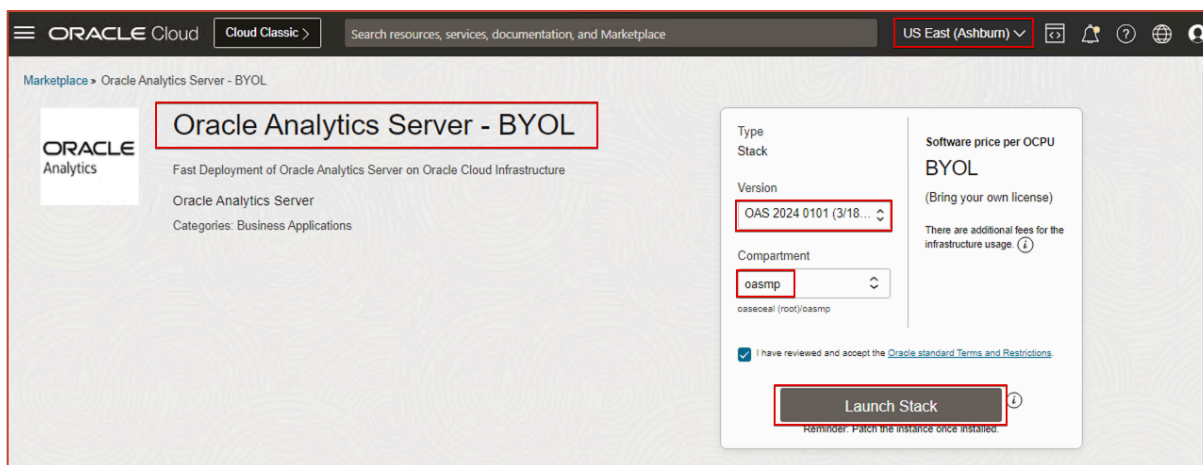
Create the primary OAS Marketplace instance1 with a domain in the OCI's home region, such as Ashburn, and a hostname, such as oas1.



While creating the OAS instance1, use the below DBCS pluggable database connection string.

db19rac-scan.ceal.oracle.com:1521:pdb19rac.ceal.oasvcn.oraclevcn.com

Similarly, create an OAS marketplace instance2 without domain config in the same OCI home region, such as Ashburn, and a hostname, such as oas2.



ORACLE Cloud Cloud Classic > Search resources, services, documentation, and Marketplace US East (Ashburn) Help

Create stack

- Stack information
- Configure variables**
- Review

Use the corresponding private key to access the compute instance.

Network Configuration

VCN Compartment
oasmp
The compartment in which the VCN resources exists.

Virtual Cloud Network
oasvcn
Select an existing VCN in which to create the compute instance.

Subnet Compartment
oasmp
The compartment in which the subnet resources exists.

Subnet ⓘ
Private Subnet-oasvcn3 (Regional)
Select an existing subnet for the compute instance.

☐ Assign a public IP address to the compute instance
Only applicable if you select a public subnet. Don't select this option if the subnet is private.

Oracle Analytics Server Domain Configuration

☐ Create Oracle Analytics Server Domain
Select to create and configure an Oracle Analytics Server domain after installation. Domain creation takes about 30 minutes to complete after this stack job finishes.

Previous **Next** Cancel

Check the hostnames of both the OAS instances.

Ashburn:

oas1.oase.oasvcn.oraclevcn.com

oas2.oase.oasvcn.oraclevcn.com

Test that the domain is created successfully and that the OAS URL is accessible from the OAS instance1 in the OCI's home region.

Stop all the services on the OAS compute instance1.

```
/u01/data/domains/bi/bitools/bin/stop.sh
```

Create OAS OCI Compute Instances (Silent Installation)

Install If your requirement demands that you create OCI compute VMs for OAS and install OAS without using the OCI Marketplace, you can create OCI compute VMs in the private subnet and access them through the bastion server.

Refer to the silent installation and configuration blog, [Automating Oracle Analytics Server Silent Installation, Critical Patch Update, and Configuration on Linux](#) for OAS 2024.

Automating Oracle Analytics Server Silent Installation, Critical Patch Update, and Configuration on Linux ([Doc ID 3022531.1](#)).

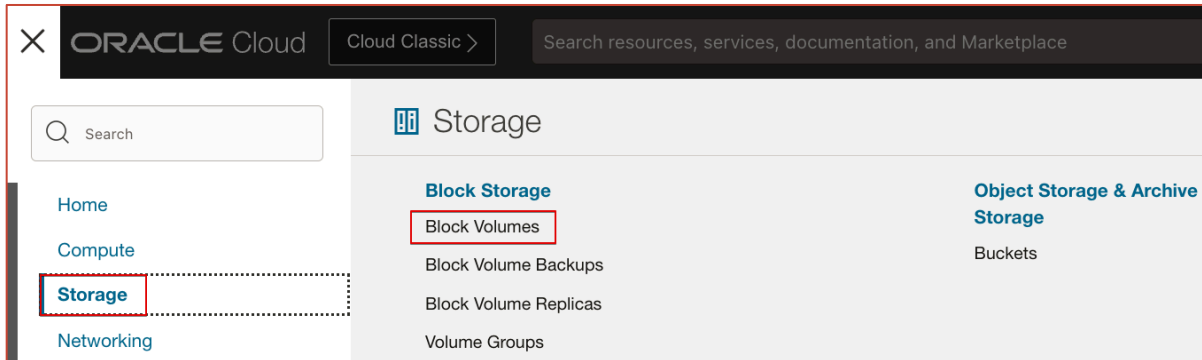
Create a Block Volume

Create a Block Volume in OCI Console, For more details, see [Block Volume](#), see [Creating a Block Volume](#).

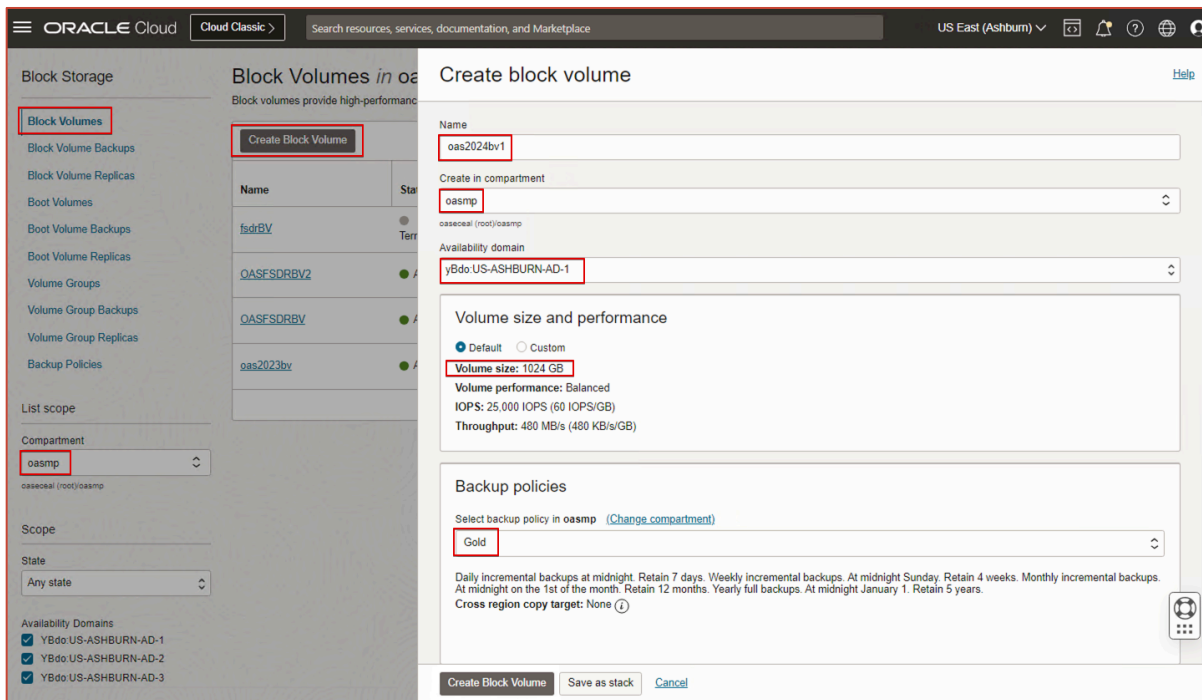
Create a block volume for the OAS compute instance1 in OCI's home region, for example, Ashburn.

Sign-in to OCI Console

Navigate to Storage → Block Volumes



Create Block Volume

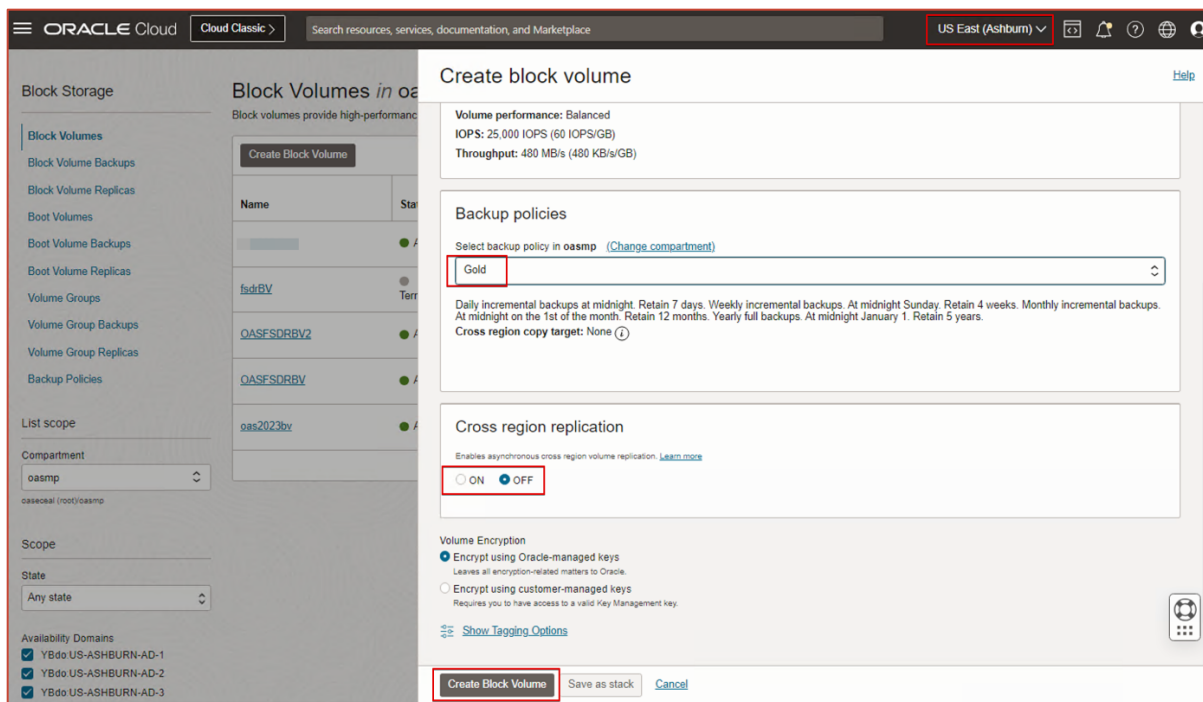


Select the same compartment as the OAS compute instance exists.

Select the volume size (1024 GB or 512 GB) per your requirement.

Select the Backup policy per your requirement between (Gold or Silver or Bronze).

For more details, see the OCI Documentation.



Do not enable cross-region replication.

Attach the Block Volume

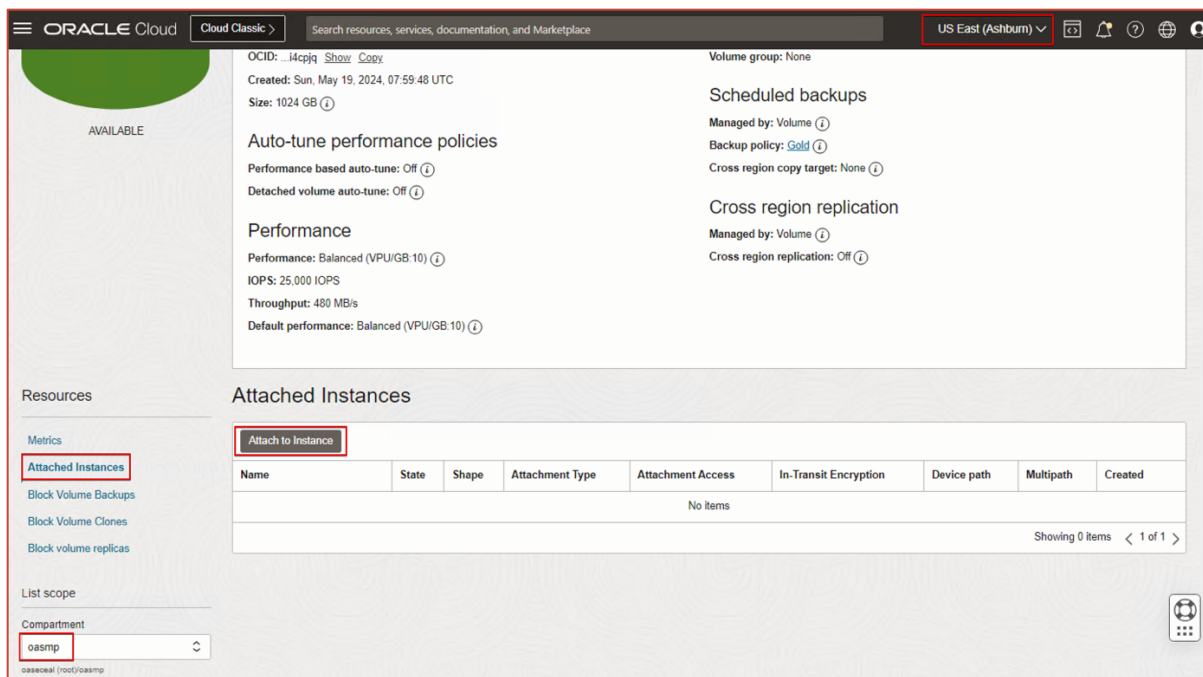
Attach the Block Volume to the OAS compute instance¹, For more details, see [Attaching a Volume](#)

NOTE: Do not mount the same block volume to multiple compute instances; better to have a dedicated block volume for each compute instance.

Go to OCI's home region, such as Ashburn.

Add the block volume to the OAS compute instance¹.

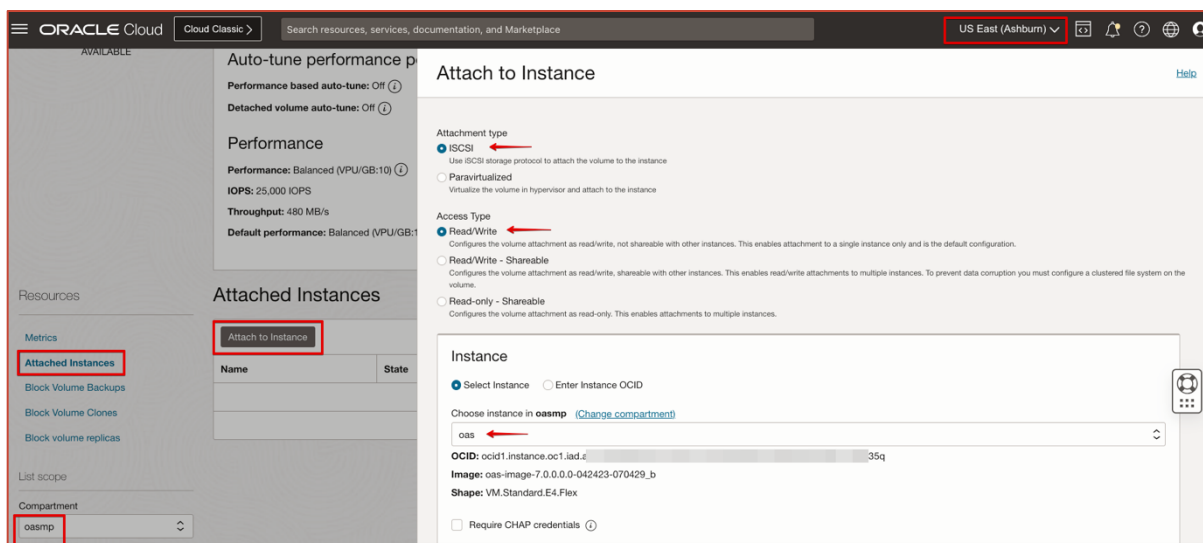
Navigate to the block volume → Attached Instances



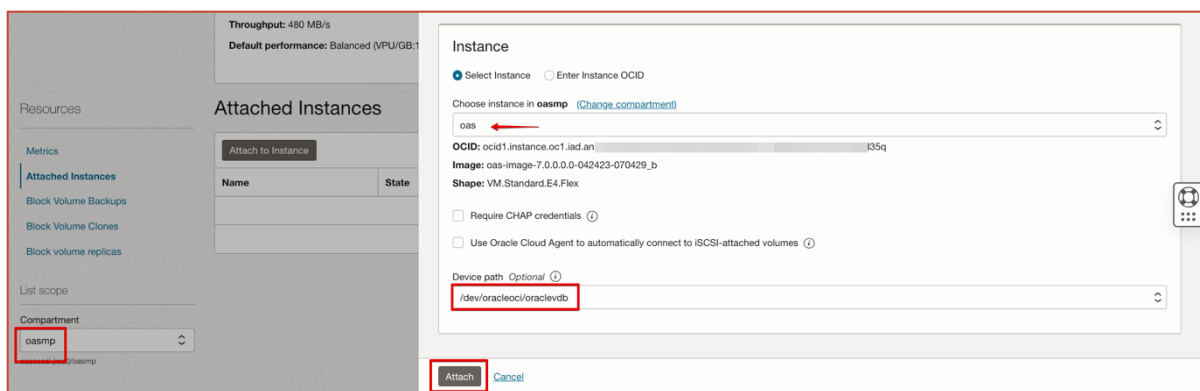
While attaching the block volume to the OAS compute instance, choose the attachment type based on your requirement. See the OCI documentation, [Overview of Block Volume](#).

In this example, choose the **iSCSI attachment type** as the IOPS performance is better with iSCSI attachments compared to paravirtualized attachments.

For more information about iSCSI-attached volume performance, see [Block Volume Performance](#).



Select the OAS instance for which you need to attach the Block volume.



To list the existing Device Paths on the OAS Compute instance, run the below command.

```
ll /dev/oracleoci/oraclelevd*
```

```
[root@oas opc]# ll /dev/oracleoci/oraclelevd*
lrwxrwxrwx. 1 root root 6 Sep  5 20:22 /dev/oracleoci/oraclelevda -> ../sda
lrwxrwxrwx. 1 root root 7 Sep  5 20:22 /dev/oracleoci/oraclelevda1 -> ../sda1
lrwxrwxrwx. 1 root root 7 Sep  5 20:22 /dev/oracleoci/oraclelevda2 -> ../sda2
lrwxrwxrwx. 1 root root 7 Sep  5 20:22 /dev/oracleoci/oraclelevda3 -> ../sda3
lrwxrwxrwx. 1 root root 7 Sep  5 20:22 /dev/oracleoci/oraclelevda4 -> ../sda4
lrwxrwxrwx. 1 root root 7 Sep  5 20:22 /dev/oracleoci/oraclelevda5 -> ../sda5
[root@oas opc]#
```

```
fdisk -l
```

```
[root@oas opc]# fdisk -l
WARNING: fdisk GPT support is currently new, and therefore in an experimental phase. Use at your own discretion.

Disk /dev/sda: 751.6 GB, 751619276800 bytes, 1468006400 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 1048576 bytes
Disk label type: gpt
Disk identifier: C964E8FC-5212-4DFD-9771-F2F8D1E5EE86

#           Start          End              Size      Type           Name
# 1         2048          411647         200M      EFI System      EFI System Partition
# 2         411648       17188863          8G      Linux swap
# 3        17188864       226904063       100G      Linux fileyste
# 4        226904064       436619263       100G      Microsoft basic primary
# 5        436619264       1468004351      491.8G      Microsoft basic primary

Disk /dev/mapper/vg_app--vg_app--lv_app: 107.4 GB, 107369988096 bytes, 209707008 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 1048576 bytes

Disk /dev/mapper/vg_data--vg_data--lv_data: 528.1 GB, 528067067904 bytes, 1031380992 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 1048576 bytes
```

```
df -h
```

```
[root@oas opc]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        32G   0    32G   0% /dev
tmpfs           32G   0    32G   0% /dev/shm
tmpfs           32G  17M   32G   1% /run
tmpfs           32G   0    32G   0% /sys/fs/cgroup
/dev/sda3       100G   4.0G   97G   4% /
/dev/sda1       200M   7.4M  193M   4% /boot/efi
/dev/mapper/vg_app--vg_app--lv_app 98G   13G   81G  14% /u01/app
tmpfs           6.3G   0    6.3G   0% /run/user/0
/dev/mapper/vg_data--vg_data--lv_data 484G   2.5G  456G   1% /u01/data
tmpfs           6.3G   0    6.3G   0% /run/user/1000
tmpfs           6.3G   0    6.3G   0% /run/user/994
```

```
lsblk
```

```
[root@oas opc]# lsblk
NAME                                MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sda                                  8:0    0  700G  0 disk
├─sda4                              8:4    0  100G  0 part
│   └─vg_app-vg_app--lv_app        252:0    0  100G  0 lvm  /u01/app
├─sda2                              8:2    0    8G  0 part  [SWAP]
├─sda5                              8:5    0 491.8G  0 part
│   └─vg_data-vg_data--lv_data    252:1    0 491.8G  0 lvm  /u01/data
├─sda3                              8:3    0  100G  0 part  /
└─sda1                              8:1    0   200M  0 part  /boot/efi
[root@oas opc]#
```

Since the device path `/dev/oracleoci/oraclelevda` is already used, we can select below device path “`/dev/oracleoci/oraclelevdb`”.

Click on Attach.

Attach to Instance

Once the volume is attached, run the block volume's iSCSI commands. To view these commands, locate the instance in the list of attached instances for a volume. Then, click iSCSI Commands & Information in the Actions menu. [Learn more](#)

Name	State	Shape	Attachment Type	Attachment Access	In-Transit Encryption	Device path	Multipath	Created
oas	Attaching...	VM.Standard.E4.Flex	iSCSI	Read/Write	Disabled	/dev/oracleoci/oraclelevdb	No	UTC, 16:57:47

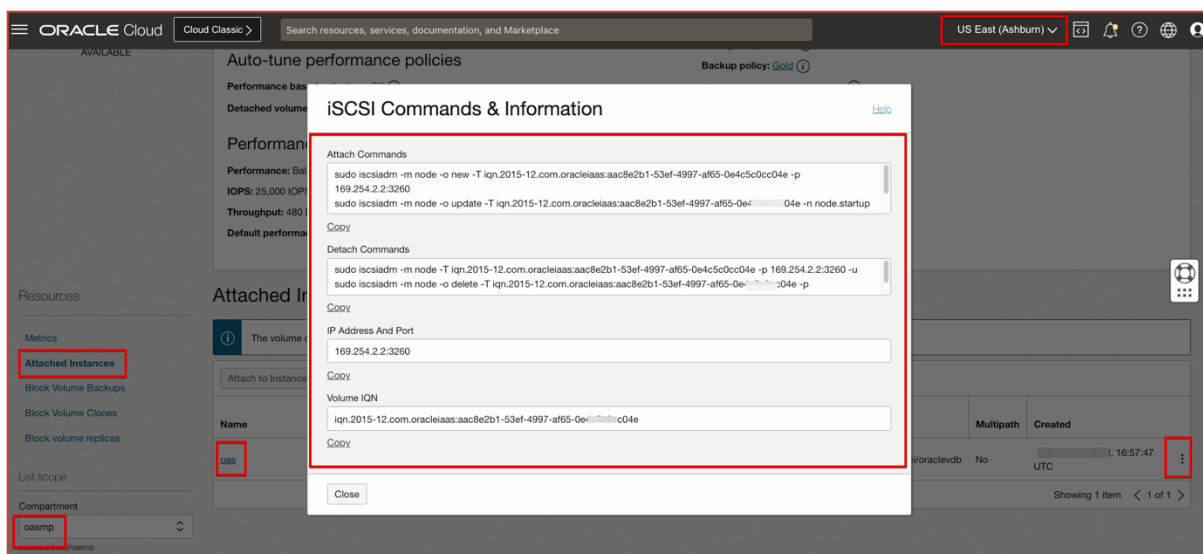
The volume cannot be attached to another instance because the attachment is not configured as shared.

Name	State	Shape	Attachment Type	Attachment Access	In-Transit Encryption	Device path	Multipath	Created
oas	Attached	VM.Standard.E4.Flex	iSCSI	Read/Write	Disabled	/dev/oracleoci/oraclelevdb	No	UTC, 16:57:47

- View Instance Details
- Copy OCID
- iSCSI Commands & Information**
- Detach from Instance

Select the **Actions** menu and click on the **iSCSI commands & Information**.

NOTE: If you chose the Attachment type as Paravirtualized, you need not run the iSCSI commands.



Attach commands should be run on the Target OAS compute instance.

```
[root@oas opc]# sudo iscsiadm -m node -o new -T iqn.2015-12.com.oracleiaas:aac8e2b1-53ef-4997-af65-0e4c5c0cc04e -p 169.254.2.2:3260
New iSCSI node [tcp:[hw=,ip=,net_if=,iscsi_if=default] 169.254.2.2,3260,-1 iqn.2015-12.com.oracleiaas:aac8e2b1-53ef-4997-af65-0e4c5c0cc04e] added
[root@oas opc]# sudo iscsiadm -m node -o update -T iqn.2015-12.com.oracleiaas:aac8e2b1-53ef-4997-af65-0e4c5c0cc04e -n node.startup -v automatic
[root@oas opc]# sudo iscsiadm -m node -T iqn.2015-12.com.oracleiaas:aac8e2b1-53ef-4997-af65-0e4c5c0cc04e -p 169.254.2.2:3260 -l
Logging in to [iface: default, target: iqn.2015-12.com.oracleiaas:aac8e2b1-53ef-4997-af65-0e4c5c0cc04e, portal: 169.254.2.2,3260] (multiple)
Login to [iface: default, target: iqn.2015-12.com.oracleiaas:aac8e2b1-53ef-4997-af65-0e4c5c0cc04e, portal: 169.254.2.2,3260] successful.
[root@oas opc]#
```

Run the command to check the attachment.

lsblk

```
[root@oas opc]# lsblk
NAME                                MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sdb                                8:16  0    1T  0 disk
sda                                8:0    0   700G  0 disk
├─sda4                             8:4    0   100G  0 part
│ └─vg_app-vg_app--lv_app          252:0  0   100G  0 lvm  /u01/app
├─sda2                             8:2    0     8G  0 part [SWAP]
├─sda5                             8:5    0  491.8G  0 part
│ └─vg_data-vg_data--lv_data       252:1  0  491.8G  0 lvm  /u01/data
├─sda3                             8:3    0   100G  0 part /
└─sda1                             8:1    0   200M  0 part /boot/efi
[root@oas opc]#
```

fdisk -l

```
[root@oas opc]# fdisk -l
WARNING: fdisk GPT support is currently new, and therefore in an experimental phase. Use at your own discretion.

Disk /dev/sda: 751.6 GB, 751619276800 bytes, 1468006400 sectors
 .config 2023-04-24 05:38 opc opc drwxrwxr-x
I/O size (minimum/optimal): 4096 bytes / 1048576 bytes
Disk label type: gpt
Disk identifier: C964E8FC-5212-4DFD-9771-F2F8D1E5EE86

#       Start       End     Size Type          Name
 1       2048       411647   200M EFI System    EFI System Partition
 2       411648     17188863    8G Linux swap
 3      17188864    226904063   100G Linux fileyste
 4      226904064    436619263   100G Microsoft basic primary
 5      436619264   1468004351  491.8G Microsoft basic primary

Disk /dev/mapper/vg_app--vg_app--lv_app: 107.4 GB, 107369988096 bytes, 209707008 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 1048576 bytes

Disk /dev/mapper/vg_data--vg_data--lv_data: 528.1 GB, 528067067904 bytes, 1031380992 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 1048576 bytes

Disk /dev/sdb: 1099.5 GB, 1099511627776 bytes, 2147483648 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 1048576 bytes
```

ll /dev/oracleoci/oraclelvd*

```
[root@oas opc]# ll /dev/oracleoci/oraclelvd*
lrwxrwxrwx. 1 root root 6 Sep  5 20:22 /dev/oracleoci/oraclelvd -> ../sda
lrwxrwxrwx. 1 root root 7 Sep  5 20:22 /dev/oracleoci/oraclelvd1 -> ../sda1
lrwxrwxrwx. 1 root root 7 Sep  5 20:22 /dev/oracleoci/oraclelvd2 -> ../sda2
lrwxrwxrwx. 1 root root 7 Sep  5 20:22 /dev/oracleoci/oraclelvd3 -> ../sda3
lrwxrwxrwx. 1 root root 7 Sep  5 20:22 /dev/oracleoci/oraclelvd4 -> ../sda4
lrwxrwxrwx. 1 root root 7 Sep  5 20:22 /dev/oracleoci/oraclelvd5 -> ../sda5
lrwxrwxrwx. 1 root root 6 Sep  6 17:20 /dev/oracleoci/oraclelvd6 -> ../sdb
```

/dev/sdb is created as xfs file system, change it to ext4 file system.

Run the command: mkfs.ext4 /dev/sdb

```
[root@oas u01]# mkfs.ext4 /dev/sdb
mke2fs 1.45.4 (23-Sep-2019)
Discarding device blocks: done
Creating filesystem with 268435456 4k blocks and 67108864 inodes
Filesystem UUID: f402aa8f-beaf-4bc9-ba16-a1bade079e36
Superblock backups stored on blocks:
    32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
    4096000, 7962624, 11239424, 20480000, 23887872, 71663616, 78675968,
    102400000, 214990848

Allocating group tables: done
Writing inode tables: done
Creating journal (262144 blocks): done
Writing superblocks and filesystem accounting information: done

[root@oas u01]#
```

Check the file system, run the command: sudo blkid

```
[root@oas u01]# sudo blkid
/dev/sda3: UUID="544006b2-b9e2-4a20-8fc3-9c9857d2f741" TYPE="xfs" PARTUUID="c8d76213-0a0a-4d29-9f5f-29b5c05847f2"
/dev/sda1: SEC_TYPE="msdos" UUID="6AA8-4D0D" TYPE="vfat" PARTLABEL="EFI System Partition" PARTUUID="11d0e5a8-1560-4e2b-9c25-3e040e8f6073"
/dev/sda2: UUID="04bcf4b0-6498-4157-8d46-cefd16d0079c" TYPE="swap" PARTUUID="ba42ad6a-9ebc-444f-9b06-0d8d97173961"
/dev/sda4: UUID="zQP7wh-ylKM-NXQ3-QSzb-xv6V-5cJG-enXotK" TYPE="LVM2_member" PARTLABEL="primary" PARTUUID="2a5a43cd-1ddf-43f9-b32a-5abf20408daf"
/dev/sda5: UUID="nh8Sx0-Gn8G-98hF-r50B-s22F-vg6y-fQMILr" TYPE="LVM2_member" PARTLABEL="primary" PARTUUID="d924ff91-f0e3-41e8-89b0-10cfdac5b1b"
/dev/mapper/vg_app--vg_app--lv_app: UUID="c8e08d0d-6431-47c8-859a-a3a9d6cde4b7" TYPE="ext4"
/dev/mapper/vg_data--vg_data--lv_data: UUID="8751d458-3767-47e7-bcfe-17e0db58fb8b" TYPE="ext4"
/dev/sdb: UUID="f402aa8f-beaf-4bc9-ba16-a1bade079e36" TYPE="ext4"
[root@oas u01]#
```


As root user

```
cd /
```

```
ls -l
```

```
[root@oas /]# ls -l
total 36
lrwxrwxrwx. 1 root root 7 Sep 26 2022 bin -> usr/bin
dr-xr-xr-x. 4 root root 4096 Sep 5 20:22 boot
drwxr-xr-x. 22 root root 3340 Sep 6 17:20 dev
drwxr-xr-x. 95 root root 8192 Sep 6 17:36 etc
drwxr-xr-x. 4 root root 31 Apr 24 05:25 home
lrwxrwxrwx. 1 root root 7 Sep 26 2022 lib -> usr/lib
lrwxrwxrwx. 1 root root 9 Sep 26 2022 lib64 -> usr/lib64
drwxr-xr-x. 2 root root 6 Apr 11 2018 media
drwxr-xr-x. 2 root root 6 Apr 11 2018 mnt
drwxr-xr-x. 4 root root 48 Jun 1 11:30 opt
dr-xr-xr-x. 241 root root 0 Sep 5 20:22 proc
dr-xr-xr-x. 6 root root 4096 Sep 6 16:38 root
drwxr-xr-x. 32 root root 1080 Sep 6 17:16 run
lrwxrwxrwx. 1 root root 8 Sep 26 2022 sbin -> usr/sbin
drwxr-xr-x. 2 root root 6 Apr 11 2018 srv
dr-xr-xr-x. 13 root root 0 Sep 5 20:22 sys
drwxrwxrwt. 17 root root 4096 Sep 6 15:06 tmp
drwxrwxrwx. 4 oracle oracle 29 Sep 5 20:22 u01
drwxr-xr-x. 13 root root 4096 Sep 26 2022 usr
drwxr-xr-x. 21 root root 4096 Apr 24 05:10 var
```

Rename the /u01 folder to /u01_bkp

```
mv /u01 /u01_bkp
```

```
[root@oas /]# mv /u01 /u01_bkp
[root@oas /]# ls -l
total 32
lrwxrwxrwx. 1 root root 7 Sep 26 2022 bin -> usr/bin
dr-xr-xr-x. 4 root root 4096 Sep 5 20:30 boot
drwxr-xr-x. 22 root root 3340 Sep 6 20:20 dev
drwxr-xr-x. 95 root root 8192 Sep 6 16:26 etc
drwxr-xr-x. 4 root root 31 Apr 24 05:25 home
lrwxrwxrwx. 1 root root 7 Sep 26 2022 lib -> usr/lib
lrwxrwxrwx. 1 root root 9 Sep 26 2022 lib64 -> usr/lib64
drwxr-xr-x. 2 root root 6 Apr 11 2018 media
drwxr-xr-x. 2 root root 6 Apr 11 2018 mnt
drwxr-xr-x. 4 root root 48 Jun 1 11:30 opt
dr-xr-xr-x. 241 root root 0 Sep 5 20:29 proc
dr-xr-xr-x. 6 root root 4096 Sep 6 15:15 root
drwxr-xr-x. 32 root root 1080 Sep 6 20:11 run
lrwxrwxrwx. 1 root root 8 Sep 26 2022 sbin -> usr/sbin
drwxr-xr-x. 2 root root 6 Apr 11 2018 srv
dr-xr-xr-x. 13 root root 0 Sep 5 20:29 sys
drwxrwxrwt. 10 root root 4096 Sep 6 20:13 tmp
drwxrwxrwx. 4 oracle oracle 29 Sep 5 20:29 u01_bkp
drwxr-xr-x. 13 root root 4096 Sep 26 2022 usr
drwxr-xr-x. 21 root root 4096 Apr 24 05:10 var
[root@oas /]#
```

Create a folder /u01 and mount the /dev/sdb path which is the path due to attaching the Block volume.

As root user

```
mkdir /u01
```

Take backup of /etc/fstab file.

```
cp /etc/fstab /etc/fstab_orig
```

Edit the /etc/fstab and add the line to mount the path

Change the existing mount points

From:

```
/dev/vg_app/vg_app-lv_app /u01/app
```

```
/dev/vg_data/vg_data-lv_data /u01/data
```

To:

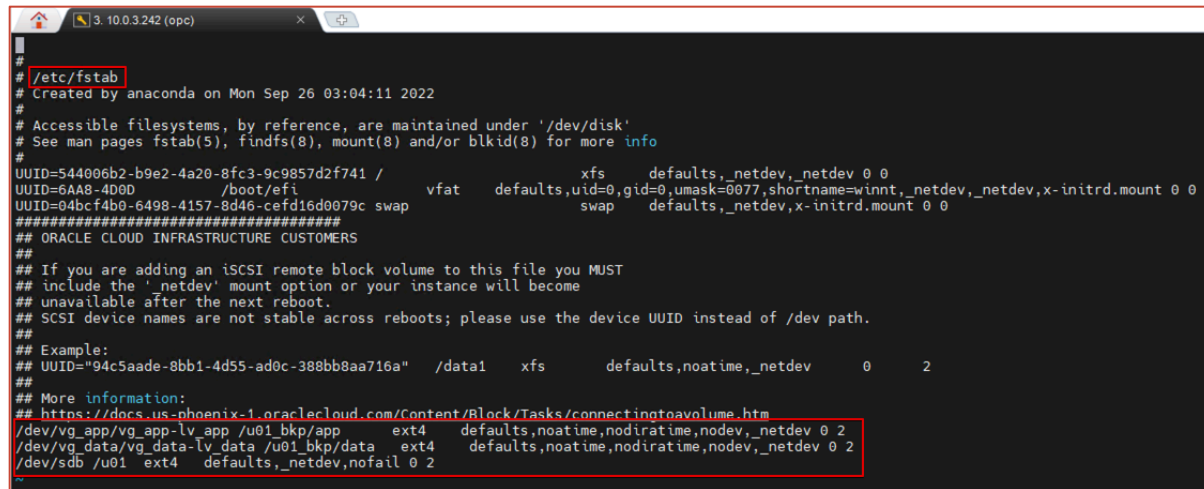
```
/dev/vg_app/vg_app-lv_app /u01_bkp/app
```

```
/dev/vg_data/vg_data-lv_data /u01_bkp/data
```

Add new line to mount the attached block volume device path `/dev/sdb` as `/u01`

`fdisk -l` command shows that the attached path as `/dev/sdb`

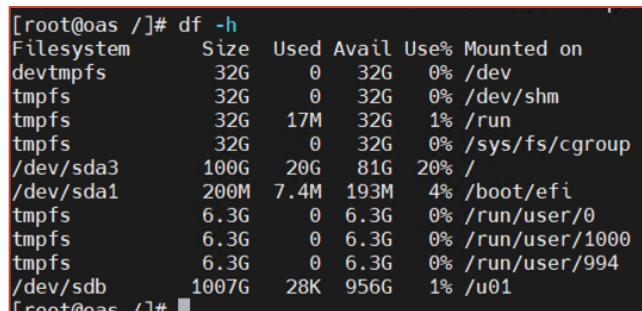
```
/dev/sdb /u01 ext4 defaults,_netdev,nofail 0 2
```



```
# /etc/fstab
# Created by anaconda on Mon Sep 26 03:04:11 2022
#
# Accessible filesystems, by reference, are maintained under '/dev/disk'
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info
#
UUID=544006b2-b9e2-4a20-8fc3-9c9857d2f741 / xfs defaults,_netdev,_netdev 0 0
UUID=6AA8-4D0D /boot/efi vfat defaults,uid=0,gid=0,umask=0077,shortname=winnt,_netdev,x-initrd.mount 0 0
UUID=04bcf4b0-6498-4157-8d46-cefd16d0079c swap swap defaults,_netdev,x-initrd.mount 0 0
#####
## ORACLE CLOUD INFRASTRUCTURE CUSTOMERS
##
## If you are adding an iSCSI remote block volume to this file you MUST
## include the '_netdev' mount option or your instance will become
## unavailable after the next reboot.
## SCSI device names are not stable across reboots; please use the device UUID instead of /dev path.
##
## Example:
## UUID="94c5aade-8bb1-4d55-ad0c-388bb8aa716a" /data1 xfs defaults,noatime,_netdev 0 2
##
## More information:
## https://docs.us-phoenix-1.oraclecloud.com/Content/Block/Tasks/connectingtoavolume.htm
/dev/vg_app/vg_app-lv_app /u01_bkp/app ext4 defaults,noatime,nodiratime,nodev,_netdev 0 2
/dev/vg_data/vg_data-lv_data /u01_bkp/data ext4 defaults,noatime,nodiratime,nodev,_netdev 0 2
/dev/sdb /u01 ext4 defaults,_netdev,nofail 0 2
```

```
sudo mount -a
```

```
df -h
```



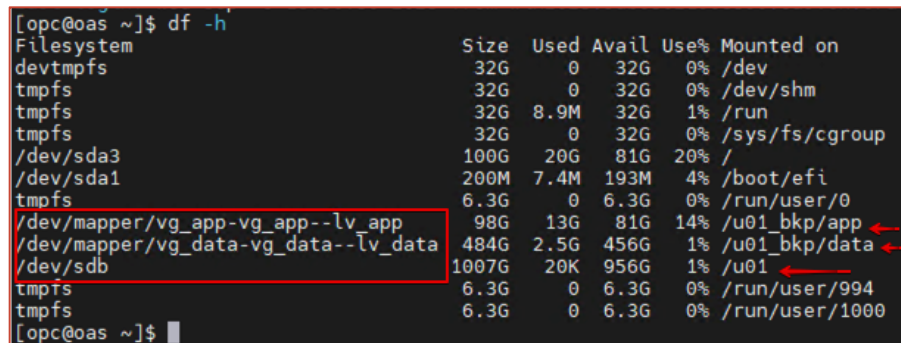
```
[root@oas /]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        32G   0   32G   0% /dev
tmpfs           32G   0   32G   0% /dev/shm
tmpfs           32G  17M   32G   1% /run
tmpfs           32G   0   32G   0% /sys/fs/cgroup
/dev/sda3       100G  20G   81G  20% /
/dev/sda1       200M  7.4M  193M   4% /boot/efi
tmpfs           6.3G   0   6.3G   0% /run/user/0
tmpfs           6.3G   0   6.3G   0% /run/user/1000
tmpfs           6.3G   0   6.3G   0% /run/user/994
/dev/sdb        1007G  28K  956G   1% /u01
```

Reboot the OAS compute instance either from the ssh terminal or from the OCI console

```
reboot -f
```

After restart, check the mount point.

```
df -h
```



```
[opc@oas ~]$ df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        32G   0   32G   0% /dev
tmpfs           32G   0   32G   0% /dev/shm
tmpfs           32G  8.9M   32G   1% /run
tmpfs           32G   0   32G   0% /sys/fs/cgroup
/dev/sda3       100G  20G   81G  20% /
/dev/sda1       200M  7.4M  193M   4% /boot/efi
tmpfs           6.3G   0   6.3G   0% /run/user/0
/dev/mapper/vg_app-lv_app 98G  13G   81G  14% /u01_bkp/app
/dev/mapper/vg_data-lv_data 484G  2.5G  456G   1% /u01_bkp/data
/dev/sdb        1007G  20K  956G   1% /u01
tmpfs           6.3G   0   6.3G   0% /run/user/994
tmpfs           6.3G   0   6.3G   0% /run/user/1000
```



```
chown -R oracle:oracle /u01
```

```
chmod 777 /u01
```

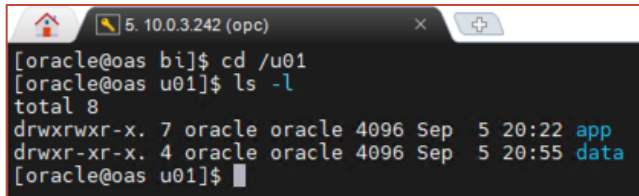
Copy the app and data folder from /u01_bkp to /u01

```
cd /u01_bkp
```

```
cp -rp * /u01
```

```
cd /u01
```

```
ls -l
```

A terminal window titled '5. 10.0.3.242 (opc)' showing a user 'oracle' at host 'oas' in directory 'bi'. The user runs 'cd /u01' and then 'ls -l'. The output shows a directory listing for /u01 with two entries: 'app' and 'data', both owned by 'oracle' and 'oracle' with permissions 'drwxrwxr-x' and 'drwxr-xr-x' respectively. The terminal text is: [oracle@oas bi]\$ cd /u01, [oracle@oas u01]\$ ls -l, total 8, drwxrwxr-x. 7 oracle oracle 4096 Sep 5 20:22 app, drwxr-xr-x. 4 oracle oracle 4096 Sep 5 20:55 data, [oracle@oas u01]\$

Start the services in the OAS instance1 and test the access of the OAS.

After the test, stop all services in the OCI home region OAS instance1.

Since the block volume oas2024bv1 is attached to the OAS instance1 and the app and data folders are copied from the /u01_bkp to /u01, the block volume has the data.

Repeat the steps, creating a Block Volume (oas2024bv2), attaching it, and mounting it to the OAS compute instance for the second **OAS node2 in the Cluster environment.**

You can automate these steps using the OCI CLI and bash scripts if needed.

Setup Shared Files and Directories between the two OAS nodes

Create the singleton data directory (SSD) with OCI File System Storage for an OAS cluster environment and mount it as a shareable folder with read/write permissions between the OAS server's cluster nodes.

For more details, see [Mounting File Systems](#) and [Mounting OCI File Storage](#).

The singleton data directory (SDD) stores the metadata. The default location is set to:

```
/u01/data/domains/bi/bidata
```

The SDD path is defined in the file bi-environment.xml, located at

```
/u01/data/domains/bi/config/fmwconfig/bienv/core/bi-environment.xml
```

Edit the bi-environment.xml modify \$DOMAIN_HOME/bidata/ to /sdd/bidata/

```
<bi:singleton-data-directory>/sdd/bidata/</bi:singleton-data-directory>
```

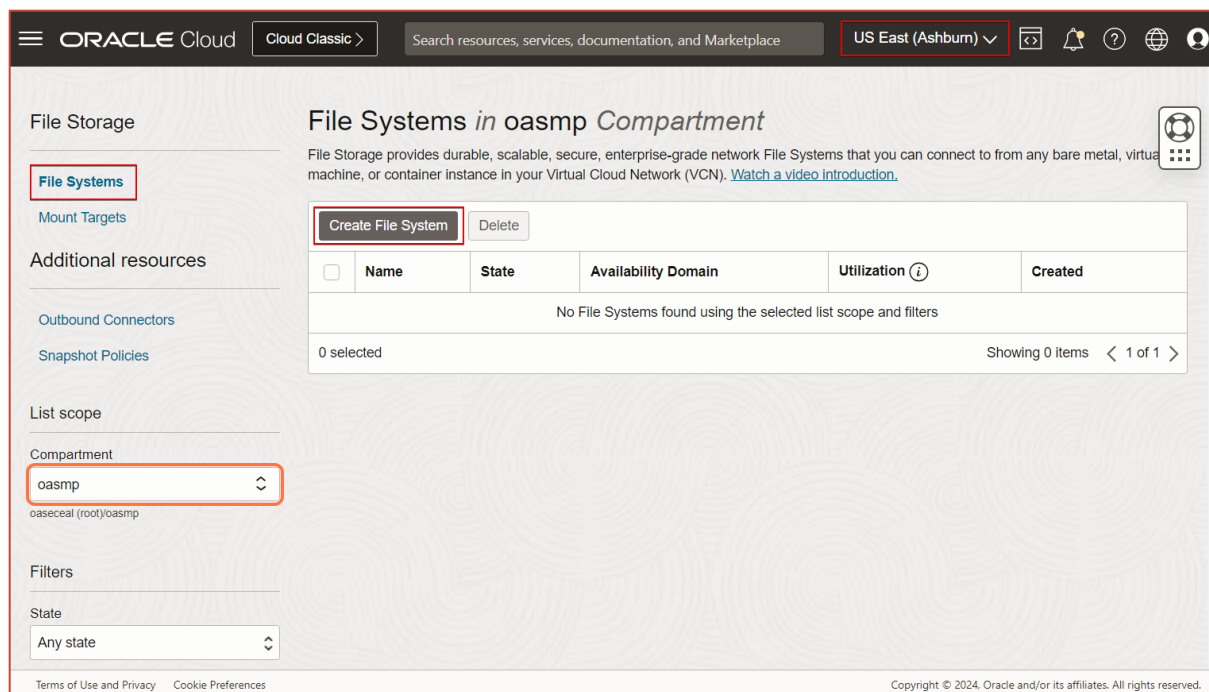
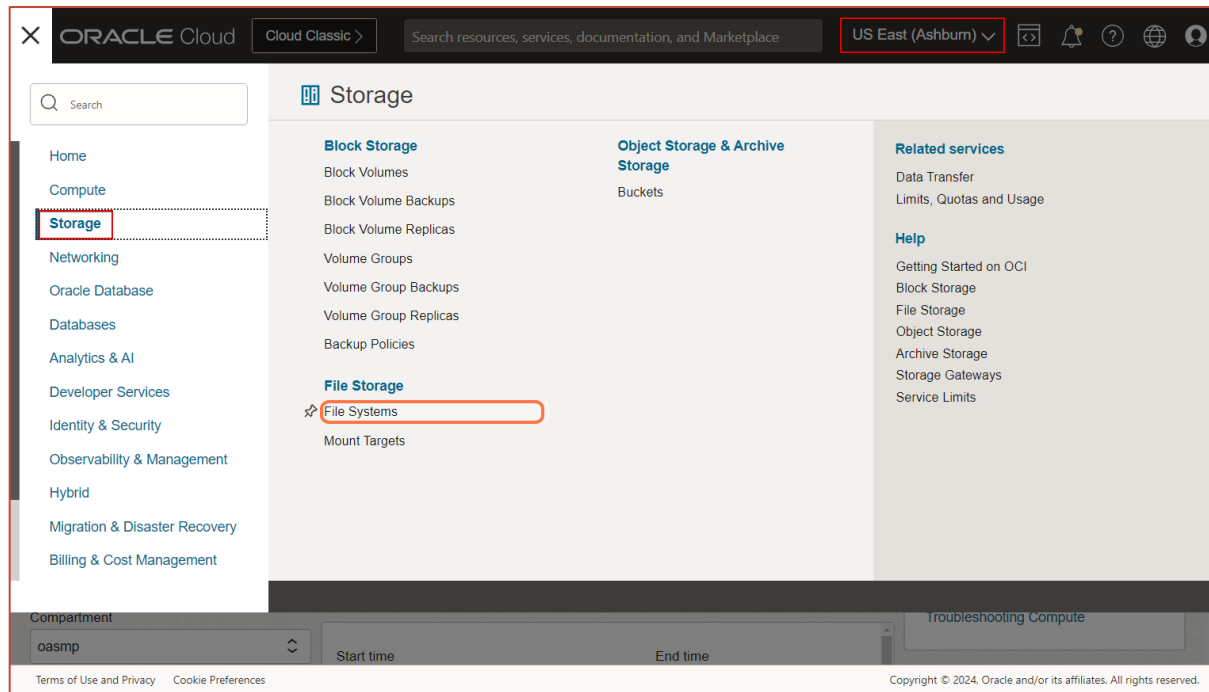
Create an OCI File System Storage and mount it as /sdd on all the nodes of the OAS cluster environment.

After mounting the OCI File System as /sdd, copy the /u01/data/domains/bi/bidata to /sdd

```
cp -rp /u01/data/domains/bi/bidata /sdd
```

Create a File System Storage

In the OCI console, navigate to storage → File Storage → File System



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File Storage

File Systems

Mount Targets

Additional resources

Outbound Connectors

Snapshot Policies

List scope

Compartment

oasmp

oaseceal (root)/oasmp

Filters

State

Any state

File Systems

File Storage provides a file system for your machine, or container, or virtual machine, or container.

Create File System

Name

0 selected

Create File System

This workflow creates a new File System. To get started, choose the type of File System you want to create. Then, you can keep the provided information or click **Edit details** to change it. Click **Create** to finish.

File System for NFS

Create a File System and an associated Export in a Mount Target. You can mount and access the File System as soon as it is created. [Learn more about mounting File Systems.](#)

File System for Replication

Create an unexported File System. Unexported File Systems can be used as target File Systems for replicated data. [Learn more about replication.](#)

File System information

Name: FileSystem-20240516-0737-27
Availability Domain: yBdo:US-ASHBURN-AD-1
Compartment: oaseceal (root)/oasmp
Encryption key: Oracle-managed key
Snapshot Policy: -

[Edit details](#)

Export information

[Edit details](#)

Create

Save as stack

Cancel

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File Storage

File Systems

Mount Targets

Additional resources

Outbound Connectors

Snapshot Policies

List scope

Compartment

oasmp

oaseceal (root)/oasmp

Filters

State

Any state

File Systems

File Storage provides a file system for your machine, or container, or virtual machine, or container.

Create File System

Name

0 selected

Create File System

Exports control which File Systems are available to a given Mount Target. Create a new Export to make your File System available through the selected Mount Target. [Learn more.](#)

Export path: /FileSystem-20240516-0737-27
Use secure Export options: Disabled ⓘ
Use LDAP for group list: Disabled ⓘ

Mount Target information

Mount Targets are endpoints used to access your File Systems. The following Mount Target will be created and associated with your new File System. [Learn more.](#)
New Mount Target name: MountTarget-20240516-0737-27
Compartment: oaseceal (root)/oasmp
Virtual Cloud Network: oasvcn
Subnet: Private Subnet-oasvcn3

[Edit details](#)

Create

Save as stack

Cancel

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File Storage > File Systems > File System details

FileSystem-20240516-0737-27

FS

ACTIVE

Rename

Move resource

Add tags

Delete

File System information

Tags

General properties

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

Created: Thu, May 16, 2024, 07:38:13 UTC

Utilization: 0 B [i](#)

Availability Domain: yBdo:US-ASHBURN-AD-1

Compartment: oaseceal (root)/oasmp

Clones

Hydration: Complete [i](#)

Source Snapshot: - [i](#)

Parent File System: - [i](#)

Clone root: False [i](#)

Encryption

Encryption key: Oracle-managed key [Edit](#)

Replication

Targetable: False [i](#)

Replication Target: - [i](#)

Snapshot Policy

Snapshot Policy: - [i](#)

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Hydration: Complete [i](#)

Source Snapshot: - [i](#)

Parent File System: - [i](#)

Clone root: False [i](#)

Descendants: False [i](#)

Snapshot Policy: - [i](#)

Resources

Exports

Snapshots

Replications

Snapshot Policy

Metrics

Filters

State

Any state

Exports

Create Export

Delete

☐	Export path	State	Mount Target	Created	
☐	/FileSystem-20240516-0737-27	Active	MountTarget-20240516-0737-27	Thu, May 16	View details Copy OCID Open support request Delete

0 selected

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EX

ACTIVE

Mount commands

Delete

Export information

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

File System: [FileSystem-20240516-0737-27](#)

Created: Thu, May 16, 2024, 07:38:27 UTC

Mount Target: [MountTarget-20240516-0737-27](#)

Use LDAP for group list: Disabled [Edit](#) [i](#)

Resources

NFS client Export options (1)

NFS client Export options

NFS client Export options control how clients can access your File System. [Learn more](#)

Edit options

Source i	Ports i	Access i	Anonymous access i	Allowed authentication options i	Squash i	Squash UID i
0.0.0.0/0	Any	Read/Write	Not allowed	SYS	None	Not used

Showing 1 item

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Hydration: Complete [i](#)

Source Snapshot: - [i](#)

Parent File System: - [i](#)

Clone root: False [i](#)

Descendants: False [i](#)

Snapshot Policy: - [i](#)

Exports

Create Export

Delete

☐	Export path	State	Mount Target	Created
☐	/FileSystem-20240516-0737-27	Active	MountTarget-20240516-0737-27	Thu, May 16, 2024, 07:38:27 UTC

0 selected

Showing 1 item < 1 of 1 >

Filters

State

Any state

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File Storage > File Systems > File System details > Export details

EX

ACTIVE

/FileSystem-20240516-0737-27

Mount commands Delete

Export information

OCID: ...zqaaaa Show Copy

File System: [FileSystem-20240516-0737-27](#)

Created: Thu, May 16, 2024, 07:38:27 UTC

Mount Target: [MountTarget-20240516-0737-27](#)

Use LDAP for group list: Disabled Edit i

Resources

NFS client Export options (2)

NFS client Export options

NFS client Export options control how clients can access your File System. [Learn more](#)

Edit options

Source i	Ports i	Access i	Anonymous access i	Allowed authentication options i	Squash i	Squash UID i
Any	Any	Read/Write	Not allowed	SYS	None	Not used

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Mount Target also created.

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File Storage

File Systems

Mount Targets

Additional resources

Outbound Connectors

Snapshot Policies

List scope

Compartment

oasmp

Mount Targets in oasmp Compartment

Mount Targets are NFS endpoints that are used to access File Systems.

Create Mount Target Delete

☐	Name	State	Availability Domain	Virtual Cloud Network	Subnet	IP address	Created
☐	MountTarget-20240516-0737-27	Active	yBdo-US-ASHBURN-AD-1	oasvcn	Private Subnet-oasvcn3	10.0.3.225	Thu, May 16, 2024, 07:38:16 UTC

0 selected Showing 1 item < 1 of 1 >

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File Storage > File Systems > File System details > Export details

Mount commands

EX

ACTIVE

Resources

NFS client Export options (2)

Mount commands

Before mounting a File System, you must configure security rules to allow network traffic to and from the Mount Target. You can set up security rules in subnet security lists, Network Security Groups, or by using a combination of both. [Learn more](#)

- Stateful **ingress** to TCP ports 111, 2048, 2049, and 2050, and UDP ports 111 and 2048.
- Stateful **egress** for TCP source ports 111, 2048, 2049, and 2050, and UDP source port 111.

You can mount the File System using an FQDN if you [specify](#) a hostname for the Mount Target. Ensure that the FQDN resolves to the Mount Target's IP address. [Learn more](#)

Image

Oracle Linux

Command to install NFS client

```
sudo yum install nfs-utils
```

Copy

Command to create the mount point directory

```
sudo mkdir -p /mnt/FileSystem-20240516-0737-27
```

Copy

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Add the Ingress and Egress security rules for the private subnet (10.0.3.0/24) used for OAS compute VMs with the required ports and protocols TCP and UDP.

Ingress:

TCP: 111,2048,2049,2050.

UDP: 111,2048.

Egress:

TCP: 111,2048,2049,2050

UDP: 111.

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File Storage > File Systems > File System details > Export details

Mount commands

EX

ACTIVE

Resources

NFS client Export options (2)

Mount commands

Before mounting a File System, you must configure security rules to allow network traffic to and from the Mount Target. You can set up security rules in subnet security lists, Network Security Groups, or by using a combination of both. [Learn more](#)

- Stateful **ingress** to TCP ports 111, 2048, 2049, and 2050, and UDP ports 111 and 2048.
- Stateful **egress** for TCP source ports 111, 2048, 2049, and 2050, and UDP source port 111.

You can mount the File System using an FQDN if you [specify](#) a hostname for the Mount Target. Ensure that the FQDN resolves to the Mount Target's IP address. [Learn more](#)

Image

Oracle Linux

Command to install NFS client

```
sudo yum install nfs-utils
```

Copy

Command to create the mount point directory

```
sudo mkdir -p /mnt/FileSystem-20240516-0737-27
```

Copy

Command to mount the File System

```
sudo mount 10.0.3.225:/FileSystem-20240516-0737-27 /mnt/FileSystem-20240516-0737-27
```

Copy

Close

10.0.3.192/32 Any Read/Write Not allowed SYS None Not used

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To mount the OCI File System storage, execute the above commands in each OAS node.

As root user

```
mkdir /sdd
```

```
mount 10.0.3.225:/FileSystem-20240516-0737-27 /sdd
```

Add the above mount command in the **/etc/fstab** file as:

```
10.0.3.225:/FileSystem-20240516-0737-27 /sdd
```

You can also add as below:

```
10.0.3.225:/FileSystem-20240516-0737-27 /sdd nfs defaults,nofail,nosuid,rsyncport 0 0
```

After mounting the OCI File System as /sdd, copy the /u01/data/domains/bi/bidata to /sdd

```
cp -rp /u01/data/domains/bi/bidata /sdd
```

Mount the same File System to OAS node2 using the same mount commands.

Reboot all the OAS compute VMs in the cluster.

After attaching the block volume and the file system to all the nodes in the cluster, start the OAS services on OAS node1.

Test if the OAS services start without issues.

If you want to use the OAS Node1 as the NFS server and mount the local folder as the /sdd directory, skip the creation and mounting of the OCI File System and use the NFS Server setup and mounting steps from the OAS scale-out blog, [Scale Out Oracle Analytics Server on Oracle Cloud and On-Premises](#).

Setup Global Cache

In the EM enable Global Cache and set a path

Create a folder cache under /sdd/bidata and use the path /sdd/bidata/cache

ORACLE Enterprise Manager Fusion Middleware Control 12c

WebLogic Domain admin

biinstance Business Intelligence Instance

Information
All configuration changes require the BI Instance restart to take effect.

Overview Availability **Configuration** Diagnostics Security

General **Performance** Presentation Mail

Performance Options
Use this page to tune the performance of this BI Instance.

Enable BI Server Cache
Enabling the server cache can greatly improve performance by enabling users who share data visibility to retrieve row sets from queries that have already been run at the cost of the possibility of seeing stale data.

☒ Cache enabled

Maximum cache entry size 0 MB

Maximum cache entries 0

Global Cache
These settings apply to the cache when the BI server is clustered.

Global cache path /sdd/bidata/cache

Global cache size 0 MB

RPD Updates
Disallowing RPD updates can increase performance.

☐ Disallow RPD Updates

User Session Expiry
Reducing the user session expiry time will increase performance as resources associated with the session can be released to service new requests. The downside is that users will be required to log in more frequently and can lose transient session state.

Expiry Time 0 Minutes

Maximum Number of Rows Processed when Rendering a Table View
This setting limits how much data is retrieved from the BI Server and processed. The default value is 65000. Reducing the maximum number of rows processed can significantly improve performance by reducing the system resources that can be consumed by a given user session.

Number Of Rows 0

Maximum Number of Rows to Download
Use this box to specify the number of rows in a view that can be downloaded (to html, mhtml, pdf, excel, etc.) The default value is 2500. Reducing the maximum number of rows that can be downloaded can improve performance where exports are common.

Number Of Rows 0

Maximum Number of Rows Per Page to Include
Use this box to specify the number of rows per page to include in deliveries sent via Delivers agents. The default value is 75. Reducing the maximum number of rows in delivered content can improve performance by reducing the system resources required to process these agents.

Number Of Rows 0

Apply

NOTE: These settings can also be set in the DV Console System Settings and respective backend configuration files like instanceconfig.xml.

Scale-Out OAS Server

Clone the Domain on Node 1 and Scale-out on Node 2

On Node1:

Shutdown all services:

```
/u01/data/domains/bi/bitools/bin/stop.sh
```

Run clone script:

```
/u01/data/domains/bi/bitools/bin/clone_bi_machine.sh -m oas2 oas2.oase.oasvcn.oraclevcn.com  
/sdd/bidata/oas2.jar
```

On Node2:

Install Oracle WebLogic Server and Oracle Analytics Server (already done while creating the OAS Marketplace instance oasn2).

Run unpack script:

```
/u01/app/Oracle/Middleware/Oracle_Home/oracle_common/common/bin/unpack.sh -  
template=/sdd/bidata/oas2.jar -domain=/u01/data/domains/bi -nodemanager_type=PerDomainNodeManager
```

Start the Following Components in the Sequence

On Node2:

Start the NodeManager and Managed Server and let the system components remain down.

This is to create the config.xml on Node2

Open the Required Ports for OAS on Node2

```
cd /u01/app/oas-scripts
```

As part of /u01/app/oas-scripts/OASFirewallPortsFix.xml, ports defined to open are 9500-9508, 7001, 9704, and 9556

Open 9506 port of NodeManager on Node2 Firewall

Add port 9506 also to the file (OASFirewallPortsFix.xml) and run script below

```
/u01/app/oas-scripts/open_oas_firewall_ports.sh
```

Or you can open the 9506 port using the below commands

```
sudo firewall-cmd --zone=public --permanent --add-port=9506/tcp
```

```
sudo firewall-cmd --complete-reload
```

Start NodeManger:

```
nohup /u01/data/domains/bi/bin/startNodeManager.sh &
```

NOTE: Start the bi_server2 from node1 start.sh script.

On Node1:

```
cd /u01/data/domains/bi/bitools/bin
```

```
./start.sh -i AdminServer,bi_server1,obis1,obips1,obiccs1,obijh1,obisch1,bi_server2
```

On Node2:

Re-synchronize the data source On Node2:

```
/u01/data/domains/bi/bitools/bin/sync_midtier_db.sh
```

On Node1:

```
cd /u01/data/domains/bi/bitools/bin
```

```
./start.sh -i obis2,obips2,obiccs2,obijh2,obisch2
```



```
Status of Domain: /oas/oas_install/Oracle/Middleware/Oracle_Home/user_projects/domains/bi
NodeManager (oasn1:9506:SSL): RUNNING
```

Name	Type	Machine	Restart	Int Max	Restart	Status
AdminServer	Server	oasn1	unknown	unknown		RUNNING
bi_server1	Server	oasn1	unknown	unknown		RUNNING
bi_server2	Server	oasn2	unknown	unknown		RUNNING
obips1	OBIPS	oasn1	3600	5000		RUNNING
obijh1	OBIJH	oasn1	3600	5000		RUNNING
obiccs1	OBICCS	oasn1	3600	5000		RUNNING
obisch1	OBISCH	oasn1	3600	5000		RUNNING
obis1	OBIS	oasn1	3600	5000		RUNNING
obips2	OBIPS	oasn2	3600	5000		RUNNING
obijh2	OBIJH	oasn2	3600	5000		RUNNING
obiccs2	OBICCS	oasn2	3600	5000		RUNNING
obisch2	OBISCH	oasn2	3600	5000		RUNNING
obis2	OBIS	oasn2	3600	5000		RUNNING

Summary

You have understood the steps to create and attach a block volume to the OAS compute instances. It also covered the steps to create a File System Storage and mount it to the OAS compute instances.

Using such an environment, you have scaled out the node1 domain to node2 for cluster configuration of OAS. Further, you can follow the Full Stack DR steps to replicate the block volume and file system to the OCI DR region and configure a DR execution plan for OAS.

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