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# MongoDB DBA's Guide to Actifio GO



**Actifio GO**

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# Preface

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The information presented in this guide is intended for users who are familiar with basic Actifio processes and procedures as described in **Getting Started with Actifio Copy Data Management** and who are qualified to administer MongoDB databases.

## The ActifioNOW Customer Portal

During the configuration and initialization of your Actifio appliance your Actifio representative provided you with a user name and password for the ActifioNOW customer portal.

From the customer portal you can obtain detailed reports about your Actifio appliance as well as search the portal's knowledge base for answers to specific questions.

To log into the ActifioNOW customer portal:

1. Go to: <https://now.actifio.com>
2. When prompted, enter the user name and password provided by your Actifio representative.

## Actifio Support Centers

To contact an Actifio support representative, you can:

- Send email to: [support@actifio.com](mailto:support@actifio.com)
- Call:

**From anywhere:** +1.315.261.7501

**US Toll-Free:** +1.855.392.6810

**Australia:** 0011 800-16165656

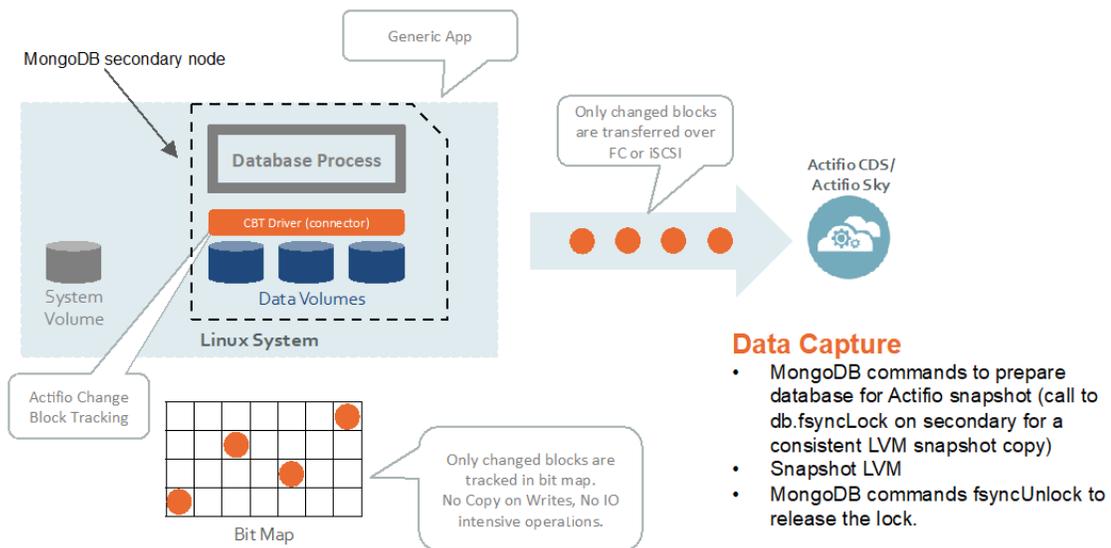
**Germany:** 00 800-16165656

**New Zealand:** 00 800-16165656

**UK:** 0 800-0155019



# 1 Introducing Actifio GO for MongoDB Databases



## MongoDB with Actifio Out-of-Band Linux CBT

Actifio protection is required to be set from secondary node of MongoDB replica set. This creates a MongoDB database snapshot in incremental for ever data capture using `fsynclock` from the secondary node without impacting the primary production node.

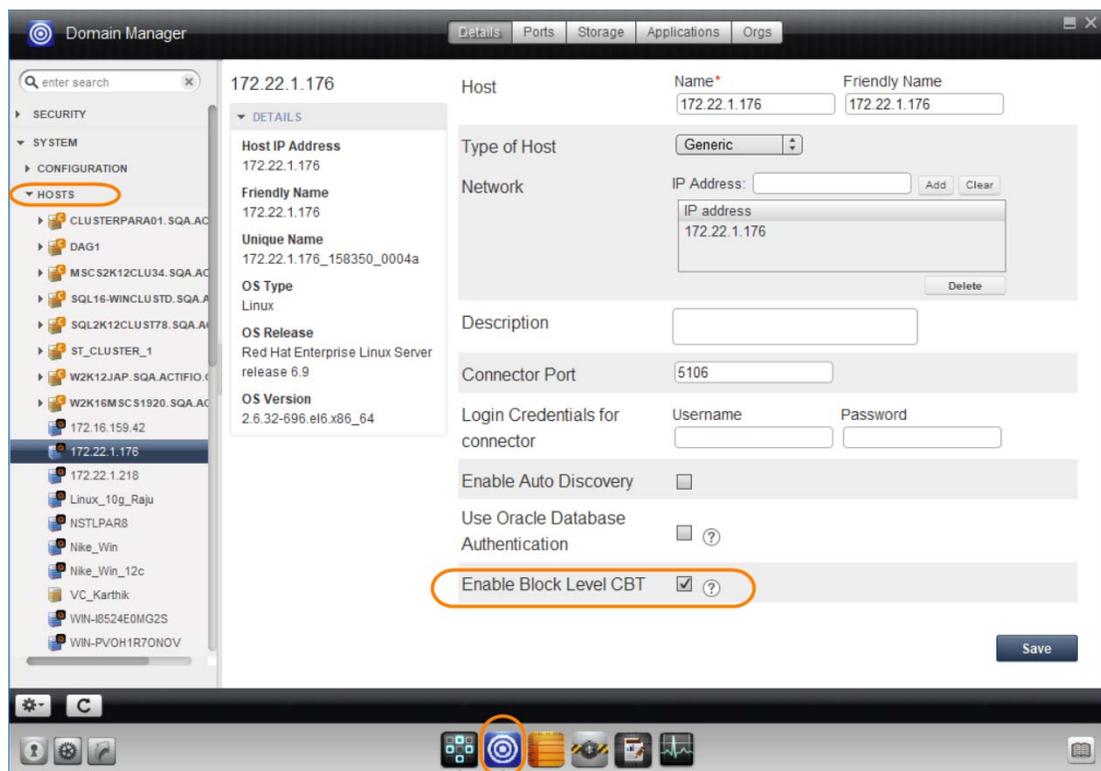
Operation	Benefit
Backup	Manual and/or scheduled online backups (incremental-forever full snapshots)
Recovery	Recovery of a database to its most recent state, a specific point in time of time of data backup or log backup Recovery to the original host or an alternate host
Test/Dev Copy	Migration of MongoDB from a physical to a virtualized environment Multiple point in time copies and instant Test/Dev refresh Accelerate and automate Test/Dev provisioning
Backup Catalog view	AGM



## 2 Preparing the MongoDB Database

### Prerequisites

- Target node should be accessible from the primary replicaset node.
- Make sure MongoDB database data and log volumes (ex: /mongodata) are managed by LVM and it must not be the boot volume. MongoDB data path can be checked by running (ps -ef | grep mongo)
- Install the Actifio Connector on the MongoDB server host (see **Network Administrator's Guide to Actifio GO**.)
- Enable Linux change block tracking on the database server from the Actifio Desktop > Domain Manager > Host > Details:



Enabling Linux CBT for the MongoDB Server



# 3 Protecting a MongoDB Database

This section includes:

[Protecting a MongoDB Database](#) on page 5

[Protecting MongoDB Logs](#) on page 7

## Protecting a MongoDB Database

To protect a MongoDB database:

1. From AGM > App Manager > Applications > New Application, create a new application to protect data and log volumes of MongoDB database. This will open the Add an Application window.
2. From Add an Application:
  - a. Select **Out-of-Band** as an application type and enter an Application Name to identify this database in the Actifio Desktop.
  - b. From Select Host drop down, select the MongoDB database secondary server.
  - c. Under Select logical volume, use the green + to add the data and log volume to Selected volumes on the right.
  - d. Put "genlvmscript.sh" under "Generic LVM Script Name".
  - e. Click **Save** to add this application as a generic application.

Manage Application

Please use the form below to Manage application. All items below must be filled in.

Select Band Type \*      Enter Application Name \*

In-Band     Out-of-Band    mongoapp

Select Host \*      Volume Group Slack Space

ip-172-20-39-226.actifio.com    10 %

Select Logical Volumes(s) \*

Available Volumes(0)	Selected Volumes(1)
	vgmongo/mongodata

Generic LVM Script Name

genlvmscript.sh ?

Save

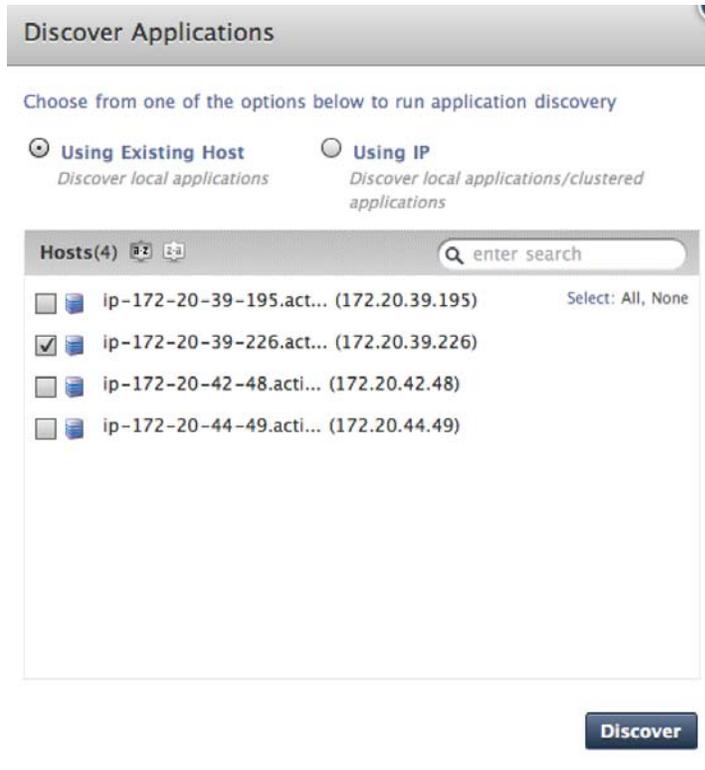
The new application will appear in the App Manager under Generic.

3. Set up the scripts. Login to the database server as root and cd to /act: `cd /act`  
Create an /act/scripts directory if it does not already exist:  
`mkdir scripts`  
`cd /act/scripts`
4. Copy Actifio provided script /act/act\_scripts/mongodb/outofband to /act/scripts. This contains 3 scripts:
  - o `genlvmscript.sh`
  - o `mongoquiesce.js`
  - o `mongodbbbackup.conf`Provide 755 permission: `chmod 755 *`
5. Edit and modify the mongodbbbackup.conf configuration file to set the hostip and port  
`vi mongodbbbackup.conf`
6. Replace the line:  
`hostip='<IP of protected mongo DB server>'`  
`mport='<port of mongo DB server>'`
7. With:  
`hostip=ip-172-20-39-226.actifio.com port=27017`
8. Where hostip is the protected secondary node IP and mport is the MongoDB database port on the secondary node.  
To get the port number, run:  
`ps -ef | grep mongo`
9. Save the file.
10. To protect the database:
  - a. Select an SLA template from Template drop-down list.
  - b. Select a resource profile from Profile drop-down list.You can run the snapshot job immediately as an on-demand job, or wait for the scheduler to run the job during the time period specified in the template.

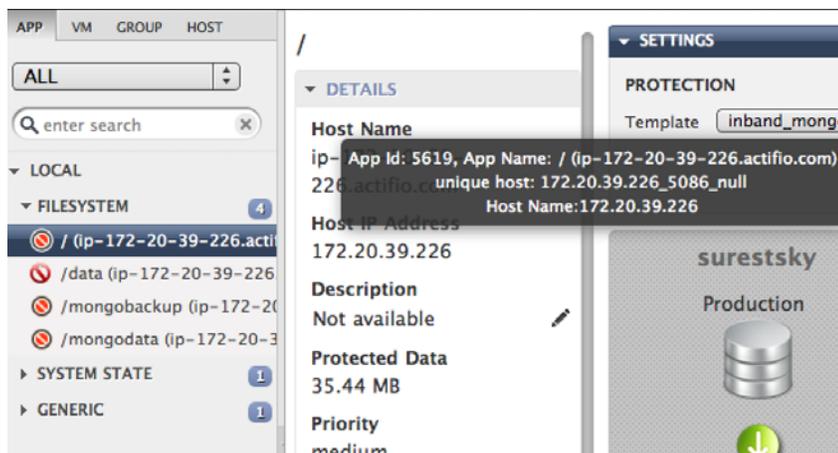
## Protecting MongoDB Logs

1. Provide a log backup directory.
2. Discover the log backup directory mount point.

For example: backupdir=/mongologbackup from the protected MongoDB secondary host.



3. Get the applicationid for the protected filesystem application. From application manager mouse over and get the application id:



4. Set up the scripts for log backup.
  - a. Login to protected database node as root: cd to /act (cd /act)
  - b. Create /act/scripts directory if not there:

```
mkdir scripts
cd /act/scripts
```

- c. Copy the Actifio provided script from `/act/act_scripts/mongodb/outofband/log` to `/act/scripts`  
This contains 3 scripts: `mongologbackup.sh`, `appid.xxx`, and `freeze.xxx`
    - d. `chmod 755 *`
  5. Edit and modify the `mongoddbbackup.conf` configuration file copied for database backup to set the hostip and port  

```
vi mongoddbbackup.conf
```

Replace the line:  

```
logbackupdir=<MongoDB oplog backup directory>
```

With:  

```
backupdir=/mongologbackup
```

Where `logbackupdir` is the MongoDB log backup directory provisioned above.
  6. Save the file.
  7. Modify freeze and appid script extension from "xxx" to application id from Step 3 (ex: 5619)  
From the command line:  

```
mv freeze.xxx freeze.5619  
mv appid.xxx appid.5619
```
  8. Protect the log backup directory in Actifio under Actifio Desktop > Application Manager > FILESYSTEM.
  9. To protect: Select an SLA template from Template drop-down list. Select a resource profile from Profile drop-down list.
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# 4 Accessing, Recovering, or Restoring a MongoDB Database

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Use cases:

- [Mount and Refresh Target MongoDB Database to Database Backup Point in Time](#) and/or roll-forward the log to a specific point in time.
- [Mount and Refresh Target MongoDB Database with Roll-forward of Log](#) and or roll-forward the log to a specific point in time:
- [Mount and Refresh as New Secondary to the Source Primary](#): To add a virtual copy as the secondary node to the Primary MongoDB database.

## Mount and Refresh Target MongoDB Database to Database Backup Point in Time

To mount and refresh the target MongoDB database to a database backup point in time, and/or roll-forward the log to a specific point in time:

1. On the target node set up the scripts:
  - a. Login to target database node as root.
  - b. cd to /act (cd /act)
  - c. Create /act/scripts directory if not there

```
mkdir scripts
cd /act/scripts
```
  - d. Copy Actifio provided script from /act/act\_scripts/mongodb/outofband/clone to /act/scripts:
    - o act\_Pre\_Target\_Primary.sh
    - o act\_Conf\_Target\_Primary.conf
    - o act\_Post\_Target\_Primary.sh
    - o act\_mongo\_recovery.sh
2. Edit and update the parameter of the configuration file act\_Conf\_Target\_Primary.conf for the target clone operation:

TARGET\_PRIMARY\_NODE: This is hostname/IP of the target.

TARGET\_PRIMARY\_PORT: This is Port Number to be used by MongoDB on the target.

MONGO\_REPLICASET: This is unique replicaset name for mongoDB on the target.

TARGET\_PRIMARY\_MOUNTPOINT: This is the mount point specified during mount for the mount of data and log volume image on target.

## To Unmount and Delete any Previously Mounted Copy

To unmount and delete any previously mounted copy:

1. `cd /act/scripts`
2. Run the pre script to stop and cleanup any previously mounted image:

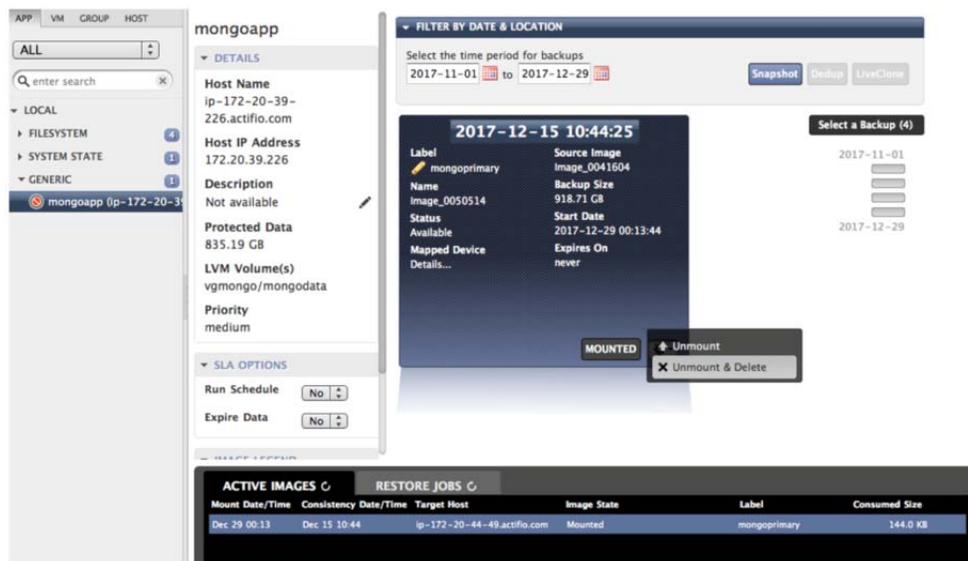
*Uncomment* the 2 lines below to run this script from command line:

```
#export ACT_JOBTYPE="unmount"  
#export ACT_PHASE="pre"
```

Run the `act_Pre_Target_Primary.sh` script:

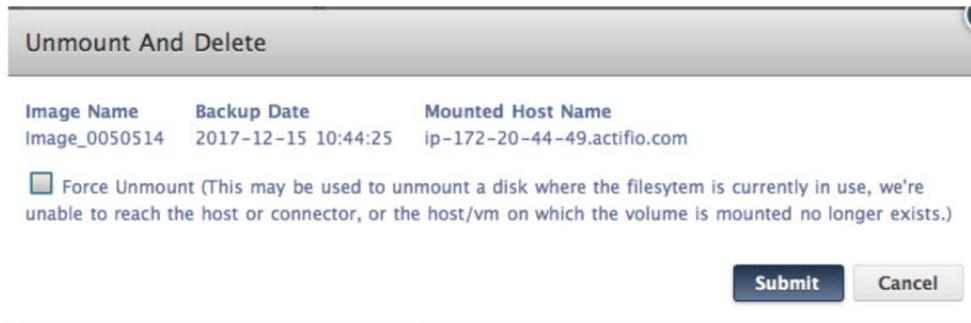
```
./act_Pre_Target_Primary.sh
```

3. From Actifio Desktop, go to the Application Manager and select the mounted image under the Active Image panel at the bottom.



### Unmounting the Image for Deletion

4. From the gear icon dropdown menu, select **Unmount & Delete**. The Unmount window opens.



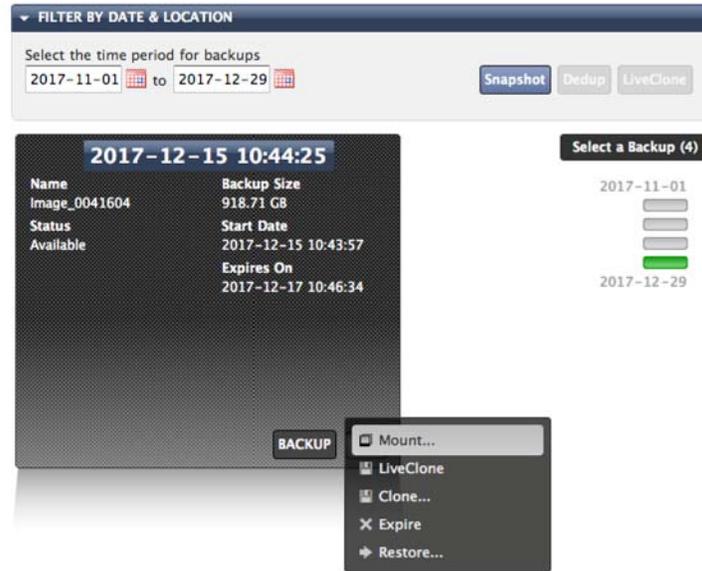
### Submitting the Image Deletion Job

5. **Submit** the Unmount and Delete job. This will clean up any previously mounted copy.

## Mounting a New Image Copy

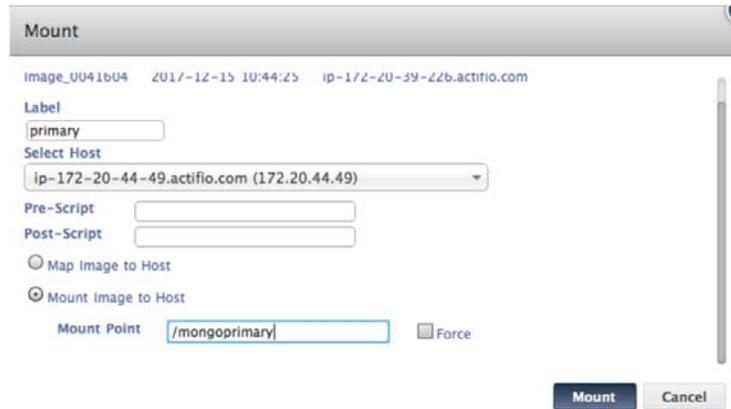
To mount a new image copy:

1. Open the Actifio Desktop to the Application Manager and select the protected MongoDB generic application. Choose the snapshot image to mount.



### Mounting a New Image

2. From the gear icon dropdown menu, select Mount. The Mount window opens:



### Mounting a New Image, Detail

3. Provide a label as needed. This is optional.
4. In the Select Host drop down list, select the target MongoDB database node.
5. Add a mount point to mount the data and log volume, for example, /mongoprimary.
6. Click **Mount**.
7. Once the mount is complete, login to target node and cd to /act/scripts folder: `cd /act/scripts`
8. Open the act\_Post\_Target\_Primary.sh script and *uncomment* the 2 lines below to run this script from command line:

```
#export ACT_JOBTYPE="mount"
#export ACT_PHASE="post"
```

9. Run the post script ("act\_Post\_Target\_Primary.sh") to bring up the MongoDB database:

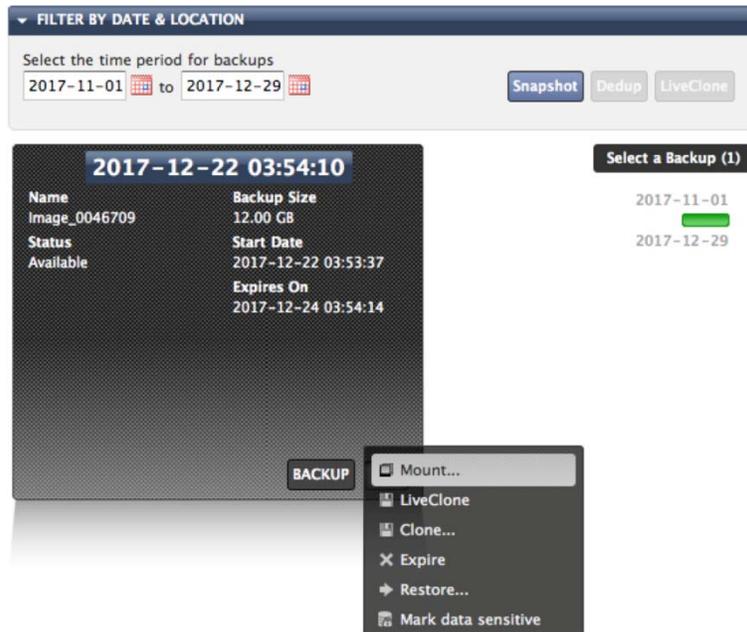
```
./act_Post_Target_Primary.sh
```

# Mount and Refresh Target MongoDB Database with Roll-forward of Log

Follow the steps below to roll-forward the MongoDB database to a specified point in time after completing the steps of [Mount and Refresh Target MongoDB Database to Database Backup Point in Time](#) above.

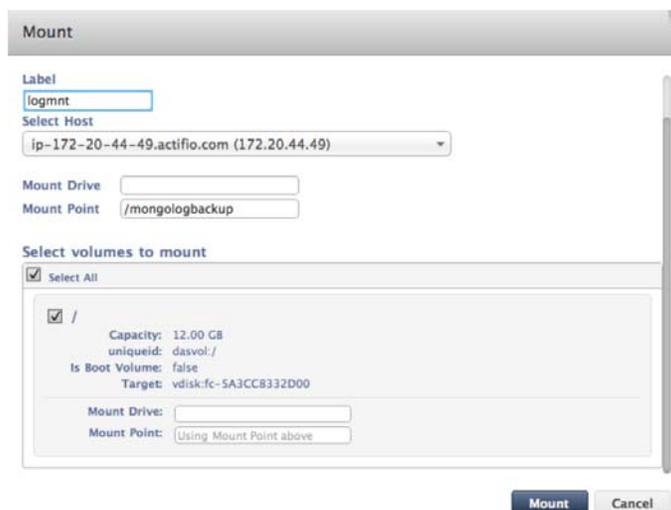
From the protected log backup file system application mount the log backup snapshot:

1. Go to Actifio Desktop > Application Manager > Filesystem > protected log backup file system. Select the required snapshot image.



## Mounting an Image

2. From the gear icon dropdown menu, select Mount. The Mount window opens:



## Mounting a New Image, Detail

3. Provide a label as needed. This is optional.

4. In the Select Host drop down list, select target MongoDB Database node.
5. Add a mount point to mount the log backup filesystem, for example /mongologbackup.
6. Click Mount.

## Roll-Forward MongoDB Database

7. On the target node:

```
cd /act/scripts
```

8. Run the act\_mongo\_recovery.sh script. This needs four arguments:
  - o MongoDB database Host IP/name: This is the target node hostname/IP
  - o MongoDB database port: This is the target node database port
  - o MongoDB log mountpoint: The log backup filesystem mount from [Step 5](#) above
  - o Mongo recovery stamp value: This is an optional argument. If this is not provided. MongoDB database will be recovered with the latest point in time by applying oplogs available in the log mountpoint.

### Usage

```
act_mongo_recovery.sh <MongoDB database host ip/name> <MongoDB database port> <mongo log mountpoint> <mongo recovery stamp value>
```

Example: ip-172-20-44-49.actifio.com 27018 /mongologbackup 1510865999

Run the script to recover/roll-forward:

```
./act_mongo_recovery.sh ip-172-20-44-49.actifio.com 27018 /mongologbackup 1513932330
```

## Mount and Refresh as New Secondary to the Source Primary

To add a new secondary MongoDB database to the source primary:

1. On the target node set up the scripts.

Login to target database node as root and cd to /act:

```
cd /act
```

Create /act/scripts directory if not there:

```
mkdir scripts
```

```
cd /act/scripts
```

Copy Actifio-provided script from /act/act\_scripts/mongodb/outofband/clone to /act/scripts

- o act\_Pre\_AddToPrimary\_Replica.sh
  - o act\_Conf\_AddToPrimary\_Replica.conf
  - o act\_Post\_AddToPrimary\_Replica.sh
2. Edit and update the parameter of the configuration file act\_Conf\_AddToPrimary\_Replica.conf for the target clone operation as new secondary to the primary:

SOURCE\_PRIMARY\_NODE: This is source MongoDB Primary database hostname/IP

SOURCE\_PRIMARY\_PORT: This is Source MongoDB Primary database Port Number

TARGET\_REPLICA\_NODE: This is Target node hostname/IP

TARGET\_REPLICA\_PORT: This is Target node Port Number

MONGO\_REPLICASET: This is Source MongoDB Primary database Replicaset name

TARGET\_REPLICA\_MOUNTPOINT: This is the mount point of image provided during the mount operation

### Steps to unmount and delete any previously mounted copy from the command line

To unmount and delete a previously mounted image:

1. Login to target node and cd to /act/scripts folder:

```
cd /act/scripts
```

2. *Uncomment* the 2 lines below to run this script from command line:

```
#export ACT_JOBTYPE="unmount"
```

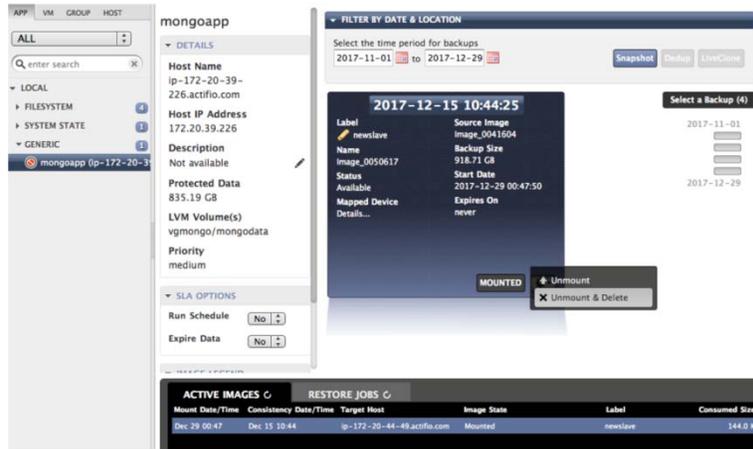
```
#export ACT_PHASE="pre"
```

3. Run the pre script to stop and clean up any previously mounted image:

```
./act_Pre_AddToPrimary_Replica.sh
```

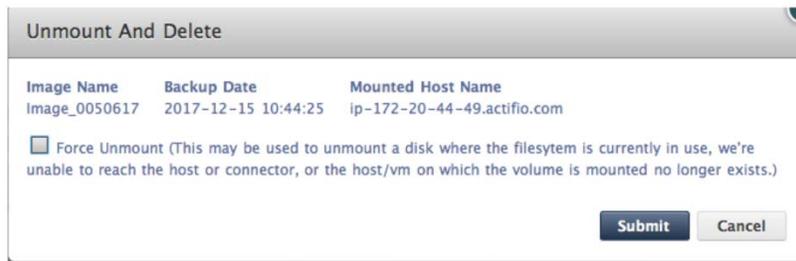
### Steps to unmount and delete any previously mounted copy from the Actifio Desktop

1. Open the Actifio Desktop, go to the Application Manager and select the mounted Image under the Active Image panel at the bottom.



### Unmounting an Image

- From the gear icon dropdown menu, select Unmount & Delete. The Unmount window opens.



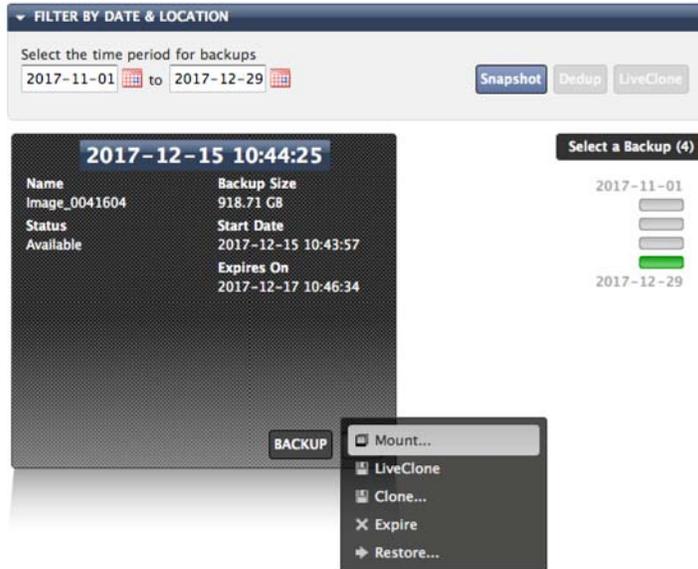
### Submitting the Unmount & Delete Job

- Submit** the Unmount & Delete job.

## Mounting a New Image Copy

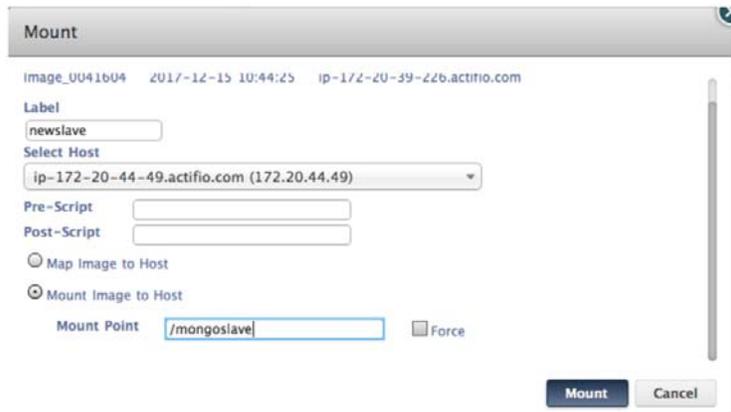
To mount a new image copy:

- Open the Actifio Desktop to the Application Manager to the protected MongoDB generic application.
- Select the Snapshot Image to mount:



### Mounting an Image

- From the gear icon dropdown menu, select **Mount**. The Mount window opens:



### Mounting a New Image, Detail

- Provide a label as needed. This is optional.
- In the Select Host drop down list, select the target MongoDB database node.
- Add a mount point to mount the data and log volume, for example: /mongoslave.
- Click **Mount**.
- Once the mount is complete, login to target node and cd to /act/scripts folder: cd /act/scripts
- Open the act\_Post\_AddToPrimary\_Replica.sh script and *uncomment* the 2 lines below to run this script from the command line:

```
#export ACT_JOBTYPE="mount"
#export ACT_PHASE="post"
```

- Run the post script (act\_Post\_AddToPrimary\_Replica.sh) to bring up the MongoDB database:  
./act\_Post\_AddToPrimary\_Replica.sh

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# 5 Converting Existing Generic Applications to the New Framework

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Actifio VDP 10.0.2 introduced a new, more robust framework for database applications running on Linux. In earlier versions, databases were captured using the generic application framework. In most cases, it is worth recapturing the database using the new framework.

The new DB Application framework provides these benefits:

- No manual intervention needed for discovery, protection and recovery
- Application aware - discovers the database as an application
- No more need to configure pre and post scripts like with Generic applications.
- Automated protection for databases as well as logs under a single application
- Automated point in time recovery
- App Aware mount capability for LVM snapshot-based protection

To switch from Generic Application protection to the new DB App Framework:

1. Disable the protection schedule on the Generic Application.
2. Under AGM Application tab, look for the database instance name as a discovered application. If it's not discovered, run a discovery on the host as described in the online help.
3. Apply the SLA to the discovered database instance as detailed in [Chapter 3, Protecting a MongoDB Database](#).
4. Let the generic app backup images expire on their own schedule while you build your new repository of backup images using new database allocation framework.

