

NetBackup™ for MongoDB Ops Manager Administrator's Guide

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NetBackup™ MongoDB Ops Manager Administrator's Guide

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Introduction

This chapter includes the following topics:

- [About MongoDB Ops Manager](#)
- [Architecture overview](#)
- [Overview of NetBackup for MongoDB Ops Manager](#)
- [Prerequisites and best practice](#)

About MongoDB Ops Manager

MongoDB Ops Manager is an essential tool for leveraging MongoDB databases. It simplifies database management through real-time monitoring and robust backup solutions. The Ops Manager Automation enables you to configure and maintain MongoDB nodes and clusters.

NetBackup allows you to monitor, backup, and recovering the assets from MongoDB Ops Manager portal. The cluster which needs to be protected using NetBackup should be marked as **Third Party Managed** via Ops Manager. The policy in NetBackup supports Full backup and Differential Incremental backups, as defined in NetBackup policy.

Architecture overview

NetBackup supports the following for MongoDB Ops Manager.

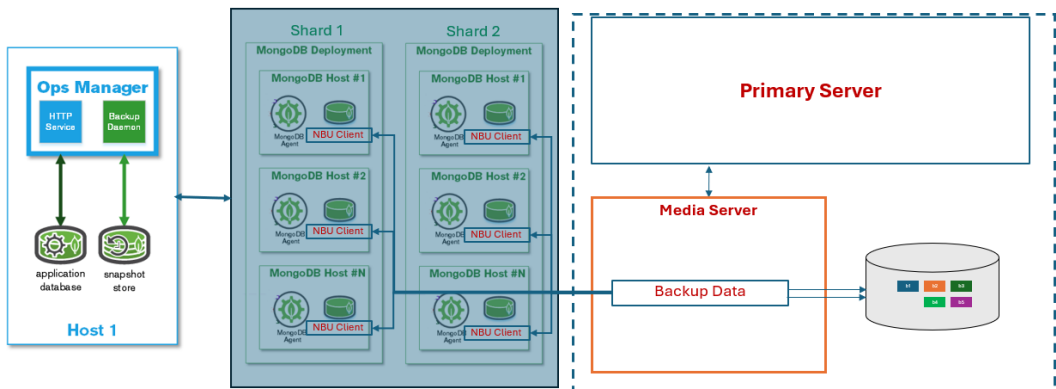
- **Discovery:** NetBackup supports auto-discovery of clusters with protection enabled.

Note: If the clusters are not displayed, run **Discover Clusters**.

Navigate to **MongoDB Ops Manager workload > Clusters tab > Discover Clusters**.

- Backup: NetBackup allows cluster backups, periodically, using policy.
- Restore: NetBackup allows Full restore, PIT restore, and restore to a different cluster functionality.
- NetBackup API and Web GUI
 - Asset service
 - Discovery API
 - Credential management
 - Protection through policy
 - Recovery point service

MongoDB protection workflow - Backup architecture



Overview of NetBackup for MongoDB Ops Manager

Table 1-1

Steps	Action	Description
1	Log into NetBackup Web UI as the Default MongoDB Ops Manager	This role has all the permissions that are necessary to manage MongoDB Ops Manager functionalities and assets to back up those assets using policies. Note: For more information, see the <i>Default MongoDB Ops Manager role</i> in <i>Default RBAC roles</i> section of NetBackup web UI Administrator's Guide.
2	Add MongoDB Ops Manager workload	See "Add workload using Central URL" on page 10.
3	Permission	See "Manage credentials" on page 9.
4	Preferred nodes	See "Clusters and preferred node" on page 11.
5	Policies	See "Policies" on page 14.
6	Recovery	See "MongoDB Ops Manager cluster recovery" on page 16.

Prerequisites and best practice

Before proceeding, ensure that the following prerequisites are met.

- In MongoDB Ops Manager, the central URL is a configuration setting that specifies the fully qualified domain name (FQDN) of the Ops Manager application. This URL is provided by MongoDB Ops Manager.

When configuring credentials

- Public key: The public key acts as a username during the API requests.
- Central URL: As mentioned above.
- Private key: The private key functions as a password and should be kept secure, like any other sensitive credential.
- Authentication type: When using SSL enabled authentication, ensure that the CA certificate is configured in Manage credentials.
- Third-party APIs allows you to integrate with various external services to enhance monitoring, alerting, and overall management of your MongoDB deployments.

Note: Contact MongoDB to enable API services.

- The cluster to be protected must be the enterprise version.
- The cluster to be protected must be either a replica set or a sharded cluster.
- At least one node should be selected as a preferred node within a replica set/shard.
- Automation, backup, and monitoring are enabled on MongoDB servers.
- Granular recovery is not supported using third party APIs.
- Following the recovery, MongoDB cluster is reverted to the state of the chosen backup images.
- Ensure that the NetBackup clients are installed on all the nodes of the target cluster.

Add MongoDB Ops Manager workload

This chapter includes the following topics:

- [Manage credentials](#)
- [Add workload using Central URL](#)
- [Clusters and preferred node](#)

Manage credentials

Credential management lets you centrally manage the credentials that NetBackup uses to access MongoDB Ops Manager workloads. You can manage NetBackup credentials from Credential management.

Steps to add credentials.

1. Select **Credential management** on the left pane. Credential management page is displayed.
2. Select **Add** . Add credential dialog box is displayed.
3. Select **NetBackup** option as **Credential store** and then select **Start**.
4. Configure the required values for the following tabs:
 - **Basic properties**: Specify the Credential name and other values.
 - **Category**: Configure the appropriate authentication type.

Note: Prerequisites such as a public key, private key, and Central URL are mandatory when specifying the details using *Add credentials* option.

For more information, See [“Prerequisites and best practice”](#) on page 7.

- **Permissions:** In this tab, select **Add** and then select the following:
 - Role
 - Permission: The following are the available options:
 - View
 - Create
 - Update
 - Delete
 - Manage Access
 - Assign credentials
- **Review:** Verify the configuration and select **Finish**.

Add workload using Central URL

The central URL in MongoDB Ops Manager is the address you use to access the Ops Manager interface.

This URL is configured during the initial setup and can be updated later, if required. It generally appears as follows:

http://<hostname>:8080 or *https://<hostname>:8443* depending on your configuration.

You can also find the value at the bottom of the Deployment page of the project.

1. Log on to **NetBackup Web UI**.

Note: If MongoDB Ops Manager workload is not visible, refer to the *Default RBAC roles* section in *NetBackup Web UI Administrators Guide*.

2. Navigate to **MongoDB Ops Manager** under **Workloads** on the left pane.
3. Click **Add**. Add MongoDB Ops Manager page is displayed.
4. Specify the **Central URL** and then click **Next**.
5. Post URL validation **Permissions** page is displayed.

6. Click **Manage credentials**. Credentials page is displayed with the following two options:
 - **Select from existing credentials**. If you have already defined credentials, select this option. NetBackup displays the list of existing credentials that you may define using Credential management. Select appropriate credentials and click **Next**.
 - **Add credentials**. Click Add credentials if the credentials are not define and follow the instructions. For more information, See [“Manage credentials”](#) on page 9.
7. Click **Finish**. NetBackup validates the specified configuration and displays success message.

Clusters and preferred node

On completion of Credentials validation, auto discovery process is initiated. Once the auto discovery process is complete, all the organization, projects and clusters within Ops Manager are discovered and added as Assets. When you click on a particular asset, you will find all the details about Ops Manager, Organization, Project, and replica sets/shards within the cluster.

Steps to configure preferred node.

1. Click **MongoDB Ops Manager** workload on the left pane.
2. Click **Clusters** tab. A list of auto discovered clusters is displayed.

Note: The clusters and nodes which are displayed as **Inactive** are either deleted or removed from Third Party managed at Ops Manager.

3. Click the required cluster for which you want to configure the preferred node. The discovered node page is displayed.

Note: Auto discovery is an asynchronous process that takes time to retrieve and push clusters and nodes details into the assets. This process may cause delay in displaying the details.

4. Click **Actions**, displayed on the right side for the respective node.
5. Click **Select preferred nodes**. A Select preferred node dialog box is displayed.

Note: For replica set, select at least one node as the preferred node for the cluster to be protection ready.

For Sharded, select at least one preferred node from each shard replica.

Arbiter node will not be displayed.

To ensure successful backups, update the policy that contains the cluster after updating the preferred nodes.

6. Select the required preferred node or nodes. Click **Next**.
7. Further, you can also arrange them as per your requirements. Click **Save**.
8. A success message is displayed.

Backup

This chapter includes the following topics:

- [MongoDB Ops Manager configuration file settings](#)
- [Policies](#)
- [Add a policy](#)

MongoDB Ops Manager configuration file settings

You can create a configuration file in NetBackup at the specified location on the NetBackup primary server. These settings will be applicable to all the MongoDB Ops Manager backups/restores.

File name and location

File name: `mongodbopsmanager.conf`

File location:

- Windows: `Install_Dir\NetBackup\var\global\`
- Unix: `/Install_Dir/var/global/`

Parameters

Table 3-1 Configurable parameters in `mongodbopsmanager.conf` file

Configurable parameter	Description	Note
NO_OF_BACKUP_STREAMS_PER_NODE	Number of backup streams per node. Maximum 32 streams per node can be triggered. Default value: 1, which is single stream per node.	A new stream will be created for meta data backup which will be an additional stream despite this value.

Table 3-1 Configurable parameters in mongodopsmanager.conf file
(continued)

Configurable parameter	Description	Note
SNAPSHOT_STATE_CHECK_TIMEOUT_IN_SEC	The timeout value during snapshot state check operations in seconds. Default value: 120 seconds.	
SNAPSHOT_TIMEOUT_IN_MINUTES	The timeout value during which complete snapshot backup will be performed in minutes. Default value: 60 minutes.	
RESTORE_TIMEOUT_IN_MINUTES	The timeout value during which complete restore and recovery will be performed in minutes. Default value: 60 minutes. The value can be re-configure to accumulate larger data set to restore and recover.	

Example

```
NO_OF_BACKUP_STREAMS_PER_NODE=3
SNAPSHOT_TIMEOUT_IN_MINUTES=120
SNAPSHOT_STATE_CHECK_TIMEOUT_IN_SEC=300
RESTORE_TIMEOUT_IN_MINUTES=300
```

Policies

NetBackup lets you configure Full backup and Differential incremental backup. You can configure backups using the policies.

In NetBackup, a policy is a set of rules that define how and when data is backed up. Policies are essential for automating and managing backup operations.

Here are the key components of a NetBackup policy:

- Policy attributes
- Schedules
- MongoDB Ops Manager Assets

By configuring these components, NetBackup ensures that your data is backed up according to your organization's requirements and recovery objectives.

Add a policy

This section provides information about how to configure a policy to backup the MongoDB Ops Manager assets.

1. On the left pane, click or expand **Protection** and then click **Policies**.
2. Click **Add**. Create policy page is displayed.
3. Specify the details for the following tabs:
 - **Attributes**: Select **BigData** from the Policy dropdown and then select **MongoDB Ops Manager** from the workload type dropdown.
 - **Schedule**: On this tab, configure all the settings required to schedule backup. You can also select **Full** or **Incremental** backup in this tab.
 - **MongoDB Ops Manager Assets**: On this tab, a list of clusters which are protection ready is displayed. Select the required cluster.
4. Click **Create**.

Warning: If the preferred nodes are shared with multiple clusters, adding multiple clusters in the policy may lead to backup failures.

Recovery

This chapter includes the following topics:

- [MongoDB Ops Manager cluster recovery](#)
- [Error codes and messages](#)

MongoDB Ops Manager cluster recovery

Recovery typically refers to the process of restoring data and service after a failure or disaster. Ensure that the Configuration parameters are configured for recovery. See “[MongoDB Ops Manager configuration file settings](#)” on page 13. for more details.

1. Log on to NetBackup Web UI.
2. On the left pane, select **Recovery**.
3. Click **Start recovery** from the Regular recovery option.

Specify the Basic properties details as follows:

- Select MongoDB Ops Manager as the **Policy** type.
- Select Normal backups as **Restore** type.
- Click **Select cluster**. Source clusters list is displayed. The list displays the clusters which are discovered and added as asset. Select the required source cluster to recover and then click **Next**.

Note: If a cluster has been renamed after taking a backup, new name of the cluster is displayed.

4. Specify the **Recovery details** such as date range, files, and folders.

5. Specify the **Recovery options** such as Restore target, MongoDB options, and number of streams. The default stream is configured to One.
6. **Review** the recovery options provided and then click **Start recovery**.

Note: Post recovery, the files and folders permission will be 777.

Note: The '**max stream count per node**' provided by the user for recovery is the maximum number of streams that NetBackup is allowed to create per node for data transfer. The actual number of streams to create and amount of data allocated to each stream will be decided at runtime based on the total data size and the number of files. The actual number of streams will always be less than or equal to the max number specified by user. NetBackup has enforced a max stream count limit capped at 32 which is user can specify any value between 1 and 32.

Error codes and messages

For more information, refer NetBackup Status Code Reference Guide.

Troubleshooting

This chapter includes the following topics:

- [Troubleshooting MongoDB Ops Manager issues](#)
- [Errors and recommended actions](#)

Troubleshooting MongoDB Ops Manager issues

For more information about MongoDB Ops Manager troubleshooting, verify the following details:

- Verify the Job Details section of the job on the Activity monitor page for the failures.
- Verify the following logs:
 - Auto-discovery log files (/usr/openv/logs)
 - ncfnbcs
 - Backup log files (/usr/openv/netbackup/logs)
 - bpbrm
 - nbaapidiscv
 - bpbkar
 - Recovery log files (/usr/openv/netbackup/logs)
 - bprd
 - nbaapireq_handler
 - tar
 - Asset/Backup/Recovery API (/usr/openv/logs)
 - nbwebservice

Errors and recommended actions

The following table describes the problem that might occur.

Table 5-1 Error and recommended actions

Error message or cause	Explanation and recommended action
<p>Post changing the preferred nodes, running incremental backup process fails.</p> <p>Error: Backup of client exited with status 112.</p>	<p>This is a known issue with MongoDB, in case of any topology change.</p> <p>Take a incremental backup of <PrefNode1> node. Change the preferred node from <PrefNode1> to <PrefNode2> and again take a incremental backup.</p> <p>Note: The Ops Manager point-in-time restore might have oplog gaps in some situations.</p> <p>oplog is the MongoDB operation log.</p> <p>The backup fails with an error.</p> <p>Recommended action:</p> <ul style="list-style-type: none"> ■ Take a full backup post topology changes.
<p>Running backup on old media server.</p> <p>Error: The backup selection fails with an error.</p>	<p>Cohesity recommends upgrading the media server to latest.</p>
<p>Run full and incremental backup on the RECOVERING cluster. Then recovery the cluster and run incremental backup.</p> <p>Warning: The executed incremental backup, post cluster recovery, is not accurate.</p>	<p>Cohesity recommends to run full backup post cluster recovery.</p>
<p>Differential Incremental backup fails with error code 3298.</p>	<p>The error is triggered under specific conditions involving large-scale data changes. The root cause is traced to Oplog Snapshot API within MongoDB Ops Manager.</p>

NetBackup using API

This chapter includes the following topics:

- [APIs to manage, protect, or recover MongoDB Ops Manager assets](#)

APIs to manage, protect, or recover MongoDB Ops Manager assets

This section contains information of MongoDB Ops Manager APIs.

The following sections are the part of this topic:

- [Add a MongoDB Ops Manager](#)
- [MongoDB Ops Manager Discovery API](#)
- [Preferred nodes of replica sets/shard in a cluster](#)
- [Create a MongoDB Ops Manager Policy](#)
- [MongoDB Ops Manager Recovery](#)

Add a MongoDB Ops Manager

Table 6-1 Add a MongoDB Ops Manager

API	Important variables and options
POST /netbackup/asset-service/queries	<ul style="list-style-type: none"> ■ <code>centralURL</code>: The central URL is a fully qualified URL with the port number of the Ops Manager Application. ■ <code>credentialName</code>: credentials associated with MongoDB Ops Manager. <p>Note: Ensure that the credentials with <code>credentialName</code> exist.</p>
GET /netbackup/asset-service/queries/{aqcId}	
GET /netbackup/asset-service/workloads /mongodb-ops-manager/assets	

MongoDB Ops Manager Discovery API

Table 6-2 Discover the MongoDB Ops Manager assets for given central URL of Ops Manager

API	Important variables and options
POST /netbackup/admin/discovery /workloads/mongodb-ops-manager/start	<ul style="list-style-type: none"> ■ <code>serverName</code>: central URL to initiate the discovery process.
POST /netbackup/admin/discovery/workloads /mongodb-ops-manager/stop	
GET /netbackup/admin/discovery/workloads /mongodb-ops-manager/status	

After discovery, you need to configure the preferred nodes for the replica sets in the cluster.

Preferred nodes of replica sets/shard in a cluster

Table 6-3 Select preferred nodes of replica sets/shard in a cluster

API	Important variables and options
POST /netbackup/asset-service/queries	<ul style="list-style-type: none"> ■ <code>assetType</code>: is cluster. ■ <code>id</code>: is the cluster ID for which the preferred node is to be configured. ■ <code>details</code>: specify names along with their preferred nodes, with each value corresponding to a node name. For example: <pre> "details": { "rsId1": ["prefnode_hostname1:port1"], "rsId2": ["prefnode_hostname2:port2"] } </pre>

Once the preferred nodes of all replica sets/shard in the cluster are configured, the **Protection Ready** flag for the cluster will be displayed as **Yes**. Proceed to create the policies

Create a MongoDB Ops Manager Policy

Table 6-4 Create a MongoDB Ops Manager Policy

API	Important variables and options
<p>POST /netbackup/config/policies</p>	<ul style="list-style-type: none"> ■ <code>policyType</code>: <code>BigData</code>. ■ <code>clients</code>: Clients is a required parameter to have a hostname with a value corresponding to the cluster ID in MongoDB Ops Manager. ■ <code>backupSelections</code>: Should have the following: <ul style="list-style-type: none"> ■ <code>Application_Type</code>: <code>mongodbopsmanager</code> ■ Cluster Information: Specify in the format: <code>group/<group id>/clusters/<cluster id></code> ensuring that the cluster ID and group ID match those in Ops Manager. ■ <code>Backup_Host</code>: Represents the hostname of the preferred nodes in the cluster, with an entry for each node. For example: <pre style="margin-left: 20px;"> "backupSelections": { "selections": ["Application_Type= mongodbopsmanager", "/group/<groupId>/clusters/<clusterId>", "Backup_Host=preferredNodeHostName"] } </pre>

Other processes, like scheduling within the policy or initiating the policy backup, remain unchanged.

MongoDB Ops Manager Recovery

Table 6-5 MongoDB Ops Manager Recovery

API	Important variables and options
<p>POST</p> <p><code>/netbackup/recovery/workloads/mongodb-ops-manager/scenarios/cluster/recover</code></p>	<ul style="list-style-type: none"> ■ <code>sourceClusterAssetId</code>: NetBackup asset id of the cluster whose backup is to be recovered. ■ <code>targetClusterAssetId</code>: is NetBackup asset id of the cluster where the recovery will be performed. ■ <code>recoverPointInTime</code>: this parameter is not mandatory, however you can specify as <code>null</code> when recovering databases to the current time. ■ <code>maxStreamsPerNode</code>: is Maximum number of backup streams per node. <p>Note: If the value for <code>recoverPointInTime</code> parameter is not provided, the recovery of the databases will happen to current time.</p>