Log Backup with Caching

Introduction

Effective management of database transaction logs is crucial for achieving optimal Recovery Point Objectives (RPOs). The **Log Backup with Caching** feature allows for high-frequency log backups by utilizing a caching mechanism. This approach enables continuous log protection and transactional consistency, even during periods when the Commvault Control Plane/CommServe computer is temporarily unavailable.

Overview

The **Log Backup with Caching** feature introduces a method to perform log backups at frequent intervals by leveraging a caching mechanism. This mechanism enables the secure and efficient transfer/dump of transaction logs from the database server to the cache, with subsequent backups/sweeps to backup storage. The process helps to make sure that log backups continue as scheduled—even if the Commvault Control Plane/CommServe computer is temporarily unavailable.

Key Components:

- **Caching Mechanism:** Transaction logs are first written to a cache before being transferred to backup storage. The cache resides on the backup storage associated with the primary copy of the plan. No user intervention is required to set up or maintain this cache.
- **Secure Data Transfer (SDT) Pipeline:** This Commvault-proprietary data transfer mechanism verifies that log data is encrypted and compressed during transfer, enhancing both security and efficiency.
- **Control Plane Independence:** Log backups are scheduled and managed independently of the control plane, allowing operations to continue uninterrupted during Control Plane/CommServe computer downtimes.

This architecture enables transaction logs to be consistently backed up, providing robust data protection and aiding in meeting stringent RPO requirements.

Key Benefits

1. **Enhanced Backup Frequency:** Log backups can be run at intervals as short as 15 minutes, facilitating improved RPOs.
2. **Operational Resilience:** Log backup operations continue during Control Plane/CommServe computer downtimes, enabling uninterrupted data protection.
3. **Efficient Resource Utilization:** By offloading log backup processing from the Commvault Control Plane/CommServe computer, the workload is reduced, enhancing overall system performance.
4. **Secure and Compressed Transfers:** The SDT pipeline transfers encrypted and compressed log data, bolstering security and reducing bandwidth usage.
5. **Comprehensive SLA Management:** Log backups are now included in SLA calculations, providing a holistic view of data protection status.

Use Cases / Scenarios

- **High-Transaction Environments:** Ideal for databases with high transaction volumes requiring frequent log backups to minimize data loss.
- **Intermittent Connectivity:** Suitable for scenarios where connectivity to the Control Plane/CommServe computer is unreliable, enabling continuous log backup operations.
- **Resource-Constrained Control Plane:** Beneficial when aiming to reduce the processing load on the Control Plane/CommServe computer by offloading log backup tasks.
- **Stringent Compliance Requirements:** Meets regulatory mandates for frequent data backups and secure data transfer.

Technical Details

Requirements and Supported Configurations

For supported configurations, agents, and specific prerequisites, please refer to the official Commvault documentation:

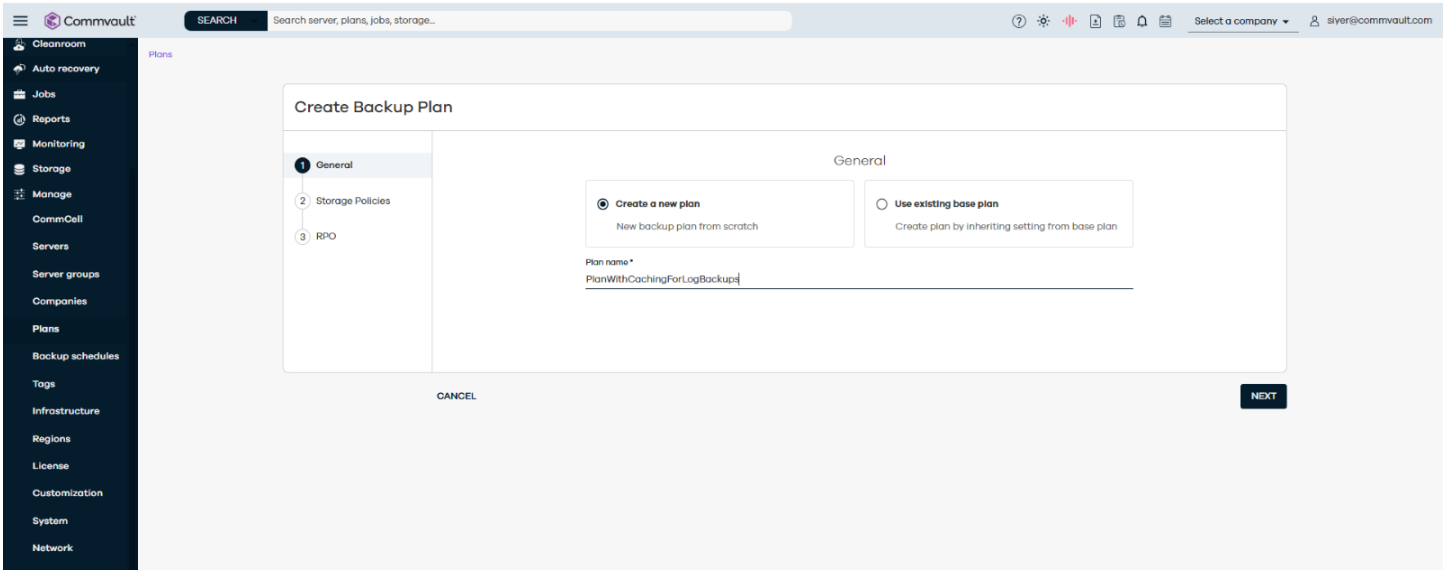
Software: Commvault Documentation – Configurations for RPO

SaaS: SaaS Documentation – Disk Caching for Frequent Database Log Backups

Configuration Steps

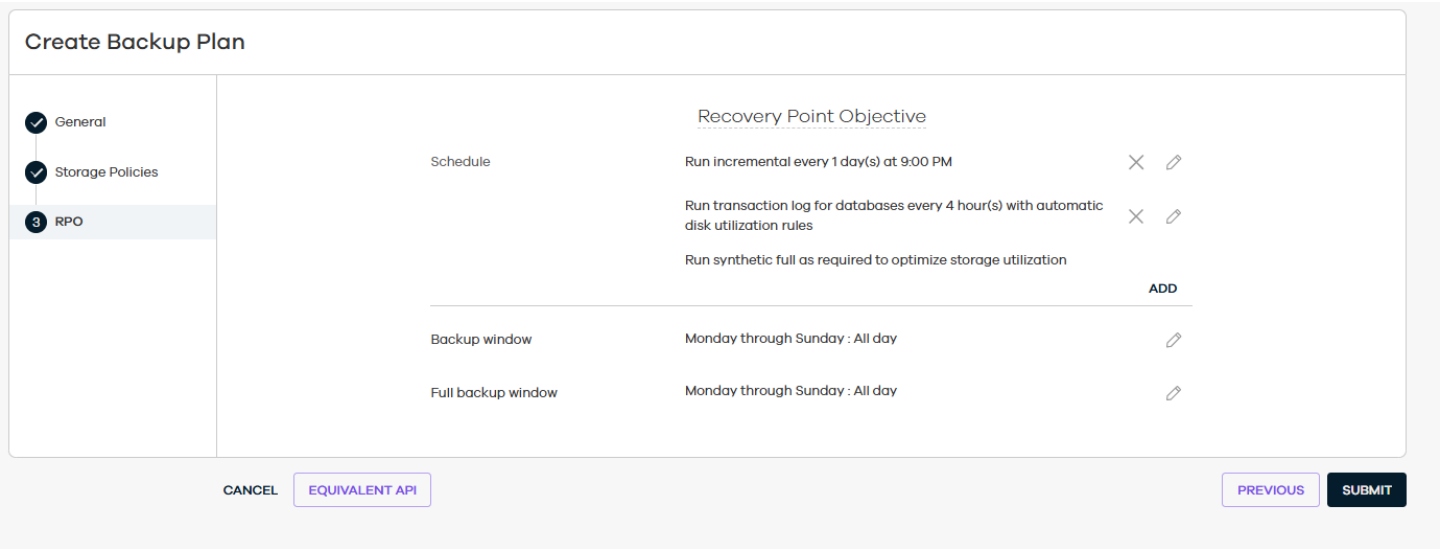
To configure **Log Backups with Caching**, follow these steps:

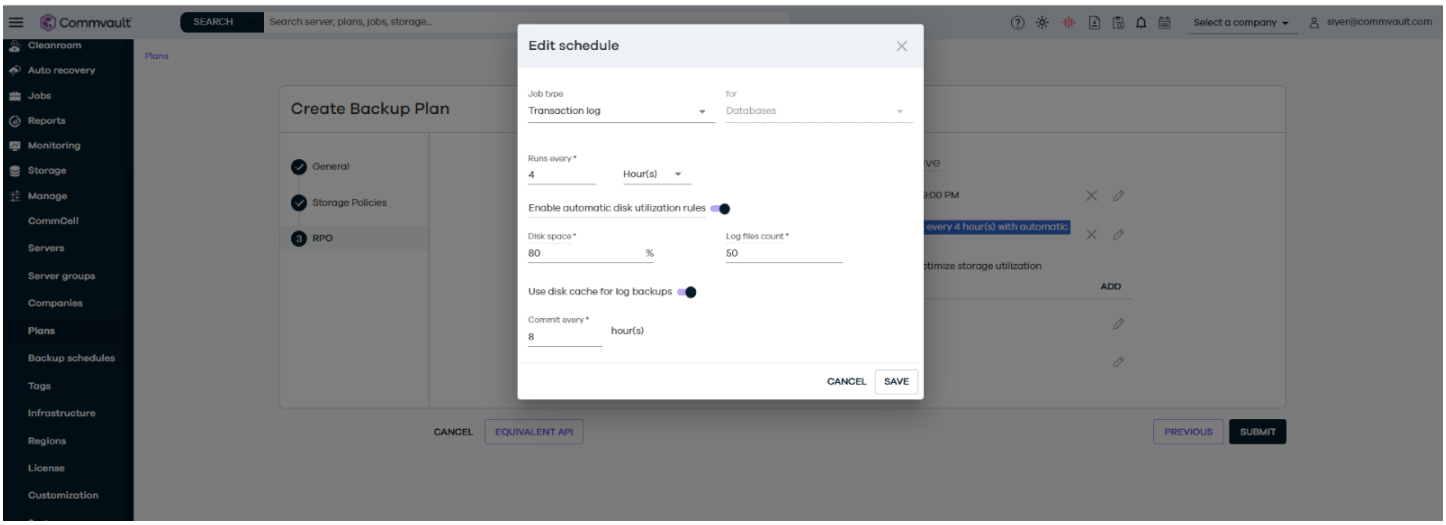
1. **Access Commvault Command Center:**
   Log in to the Commvault Command Center.
2. **Navigate to Plans:**
   Go to **Manage** > **Plans**.
3. **Create Plan > Backup:**



4. **Configure Backup Frequency:**

   In the **RPO** section, edit “Run transaction log for databases every 4 hour(s) with automatic disk utilization rules.”

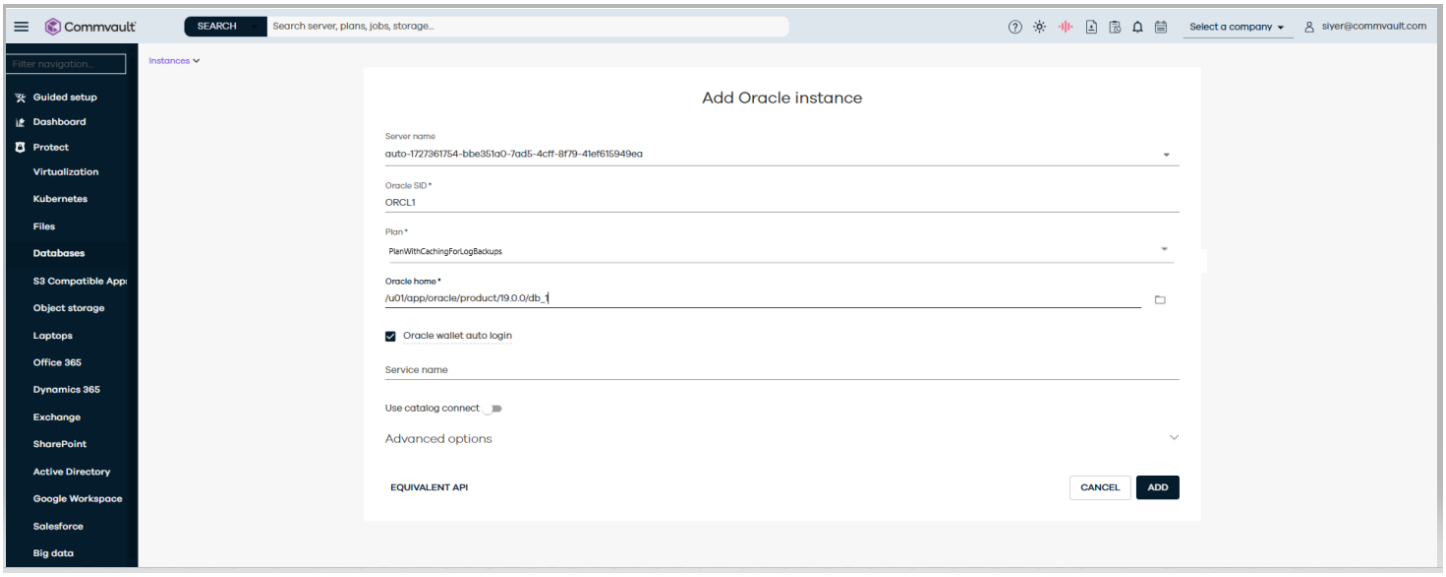




Logs are dumped/transferred to the cache as per the value set in the **“Runs every”** field.

Logs are swept/backed up to backup storage as per the value set in the “**Commit every**” field.

5. **Associate the Plan with Database Subclients:**
   Assign the plan to the relevant database subclients that require frequent log backups.



Note: Starting with release 11.38.26 (May 2025) - All new plans created in Commvault Cloud SaaS and Software will have this feature turned on by default.

Process Flow

1. **Log Generation:** Transaction logs are generated by the database.
2. **Dump Phase:** Logs are dumped/transferred to the cache as per the value set in the **"Runs every"** field via the SDT pipeline, enabling encryption and compression during transit.
3. **Sweep Phase:** Logs are swept/backed up to backup storage as per the value set in the "**Commit every**" field via the SDT pipeline, enabling encryption and compression during transit. Metadata about backups is updated to the Commvault Control Plane/CommServe computer.

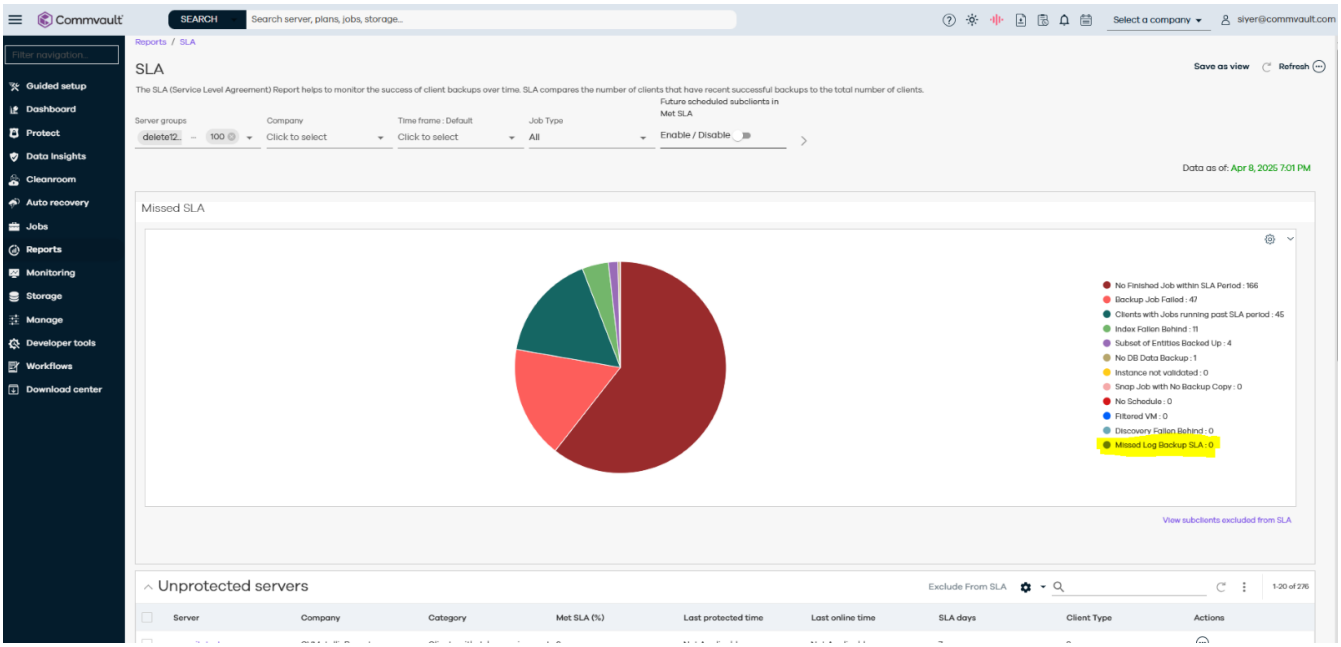
Observability

Commvault log jobs are no longer initialized when logs are dumped to cache. Commvault jobs are initialized when logs are swept to backup storage. This results in fewer Commvault log jobs overall since log dump happens more often than sweep.

Users have the following mechanisms to make sure that their log jobs are meeting the desired RPO, RTO, and SLA requirements:

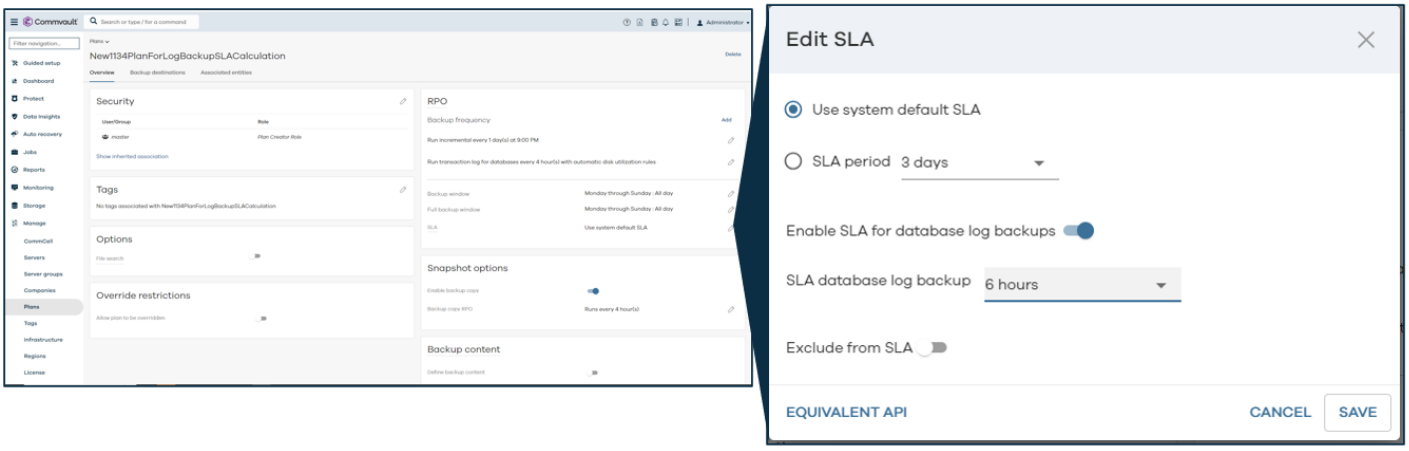
Last backup time now takes into account last log dump and sweep time.

- **Reporting:** Log backup SLAs are automatically considered in the SLA report when the option to use caching is turned on.

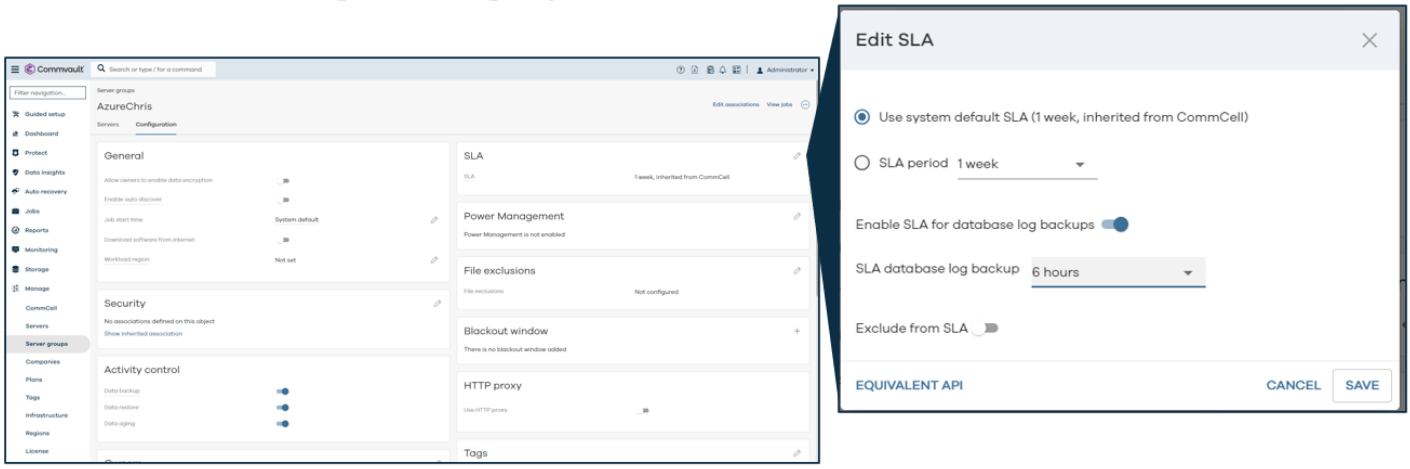


- **Log SLA Calculation:** Time period for SLA calculation can be set at the plan and the server group level.

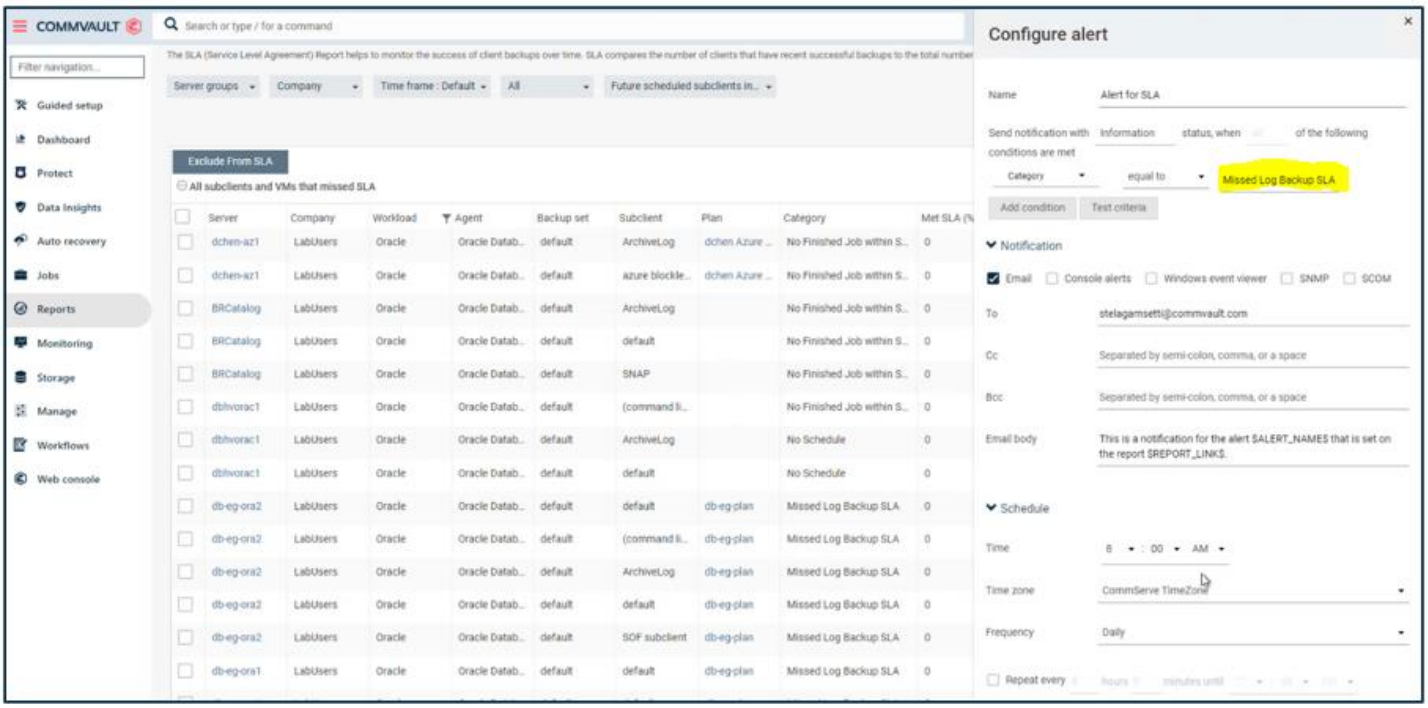
Log SLA calculation setting at plan level



SLA calculation setting at Server group level



Alerts: Alerts can be configured for missed log SLAs.



References

- **Official Commvault Documentation:**
  - Software: Commvault Documentation – Caching for Frequent Database Log Backups
  - SaaS: SaaS Documentation – Caching for Frequent Database Log Backups
- **Additional Resources:**
  Consult the official Commvault website and support portal for the latest information on product updates and configuration best practices.