

Commvault Infrastructure Visibility

Guide

Overview

The enhanced Commvault Data Retrieval application now provides comprehensive visibility into your Commvault infrastructure, including hardware, storage pools, hyperscale environments, and physical storage arrays.

New Infrastructure Data Types

1. MediaAgents

MediaAgents are the core infrastructure servers that handle data movement in Commvault.

What you'll see: - MediaAgent ID and Name - Hostname - Operating System Type - Status (Online/Offline) - Available Storage Space - Total Storage Space

API Endpoint: `GET /MediaAgent`

Use Cases: - Monitor MediaAgent health and status - Track storage capacity on backup infrastructure servers - Identify MediaAgents that need capacity expansion - Audit infrastructure for compliance

2. Storage Pools

Storage Pools are logical groupings of storage resources (disk or tape) where backup data is stored.

What you'll see: - Storage Pool ID and Name - Pool Type (Disk, Tape, Cloud, Dedupe, etc.) - Associated MediaAgent - Total Capacity - Free Space Available - Deduplication Status (Enabled/Disabled)

API Endpoint: `GET /V4/StoragePool`

Use Cases: - Monitor storage pool capacity and usage - Identify pools running low on space - Track deduplication savings - Plan storage expansion - Optimize storage allocation

3. Libraries

Libraries are physical or virtual tape/disk libraries connected to MediaAgents.

What you'll see: - Library ID and Name - Library Type (Tape, Disk, VTL, etc.) - Associated MediaAgent - Status (Online/Offline)

API Endpoint: `GET /Library`

Use Cases: - Monitor tape library health - Track which MediaAgents serve which libraries - Audit physical storage infrastructure - Plan library maintenance

4. Hypervisors

Hypervisor instances represent VM infrastructure like VMware, Hyper-V, Nutanix, etc.

What you'll see: - Instance ID and Name - Hypervisor Type (VMware, Hyper-V, Nutanix, etc.) - Hostname/vCenter - Vendor - Status (Active/Inactive)

API Endpoint: `GET /Instance`

Use Cases: - Inventory all virtualization platforms - Track hypervisor connectivity status - Audit VM backup infrastructure - Monitor multi-hypervisor environments

5. Storage Arrays

Physical storage arrays (SAN/NAS) integrated with Commvault for snapshots and array-based backups.

What you'll see: - Array ID and Name - Array Type - Vendor (NetApp, EMC, Pure Storage, etc.) - Model - Total Capacity - Used Capacity

API Endpoint: `GET /V4/Storage/Array`

Use Cases: - Inventory physical storage hardware - Track array capacity utilization - Monitor snapshot-enabled arrays - Plan hardware refresh cycles

How to Use Infrastructure Features

Fetching Infrastructure Data

1. **Navigate to the home page** (`http://localhost:5000`)
2. **In the "Select Data Types" section**, you'll see two categories:
 3.  **Basic Data** (Clients, Jobs, Plans, Storage Policies)
 4.  **Infrastructure & Hardware** (New!)
5. **Select infrastructure data types** you want to retrieve:
 6. MediaAgents
 7. Storage Pools
 8. Libraries
 9. Hypervisors
 10. Storage Arrays
11. **Click "Fetch Data from Commvault"**
12. **View Results** - You'll see summary cards showing how many of each infrastructure component were retrieved

Viewing Infrastructure Dashboard

The new **Infrastructure Dashboard** provides a comprehensive overview of your Commvault environment.

Access: Click " Infrastructure Dashboard" in the navigation menu

Dashboard Features:

Summary Cards (Top Section)

- Total count of MediaAgents
- Total count of Storage Pools
- Total count of Libraries
- Total count of Hypervisors
- Total Clients
- Total Jobs

MediaAgents Status Table

- See all MediaAgents with their online/offline status
- Monitor storage capacity (available vs. total)
- Identify MediaAgents needing attention

Storage Pools Table

- View all storage pools with capacity information
- See free space and total capacity
- Check deduplication status
- Identify pools running low on space

Libraries Table

- List all tape and disk libraries
- Check which MediaAgent serves each library
- Monitor library online/offline status

Hypervisor Infrastructure Table

- View all hypervisor instances
- See hypervisor type and vendor
- Monitor connection status

Jobs Summary

- Total job count
- Completed jobs count
- Failed jobs count
- Success rate percentage

Viewing Individual Data Types

Navigate to specific data type views using the menu:

- **Clients** - View all backup clients
- **Jobs** - View latest 100 backup jobs
- **MediaAgents** - View all MediaAgents with full details
- **Storage Pools** - View all storage pools with capacity
- **Libraries** - View all libraries
- **Hypervisors** - View all hypervisor instances
- **Storage Arrays** - View all storage arrays

Database Schema

All infrastructure data is stored in SQLite with the following tables:

mediaagents

```
CREATE TABLE mediaagents (
    mediaAgentId      INTEGER PRIMARY KEY,
    mediaAgentName    TEXT,
    hostName          TEXT,
    osType            TEXT,
    status             TEXT,
    availableSpace    TEXT,
    totalSpace         TEXT,
    lastFetchTime     TEXT
)
```

storage_pools

```
CREATE TABLE storage_pools (
    storagePoolId      INTEGER PRIMARY KEY,
    storagePoolName    TEXT,
    storagePoolType    TEXT,
    mediaAgentName     TEXT,
    totalCapacity       TEXT,
    freeSpace           TEXT,
    dedupeEnabled      TEXT,
    lastFetchTime       TEXT
)
```

libraries

```
CREATE TABLE libraries (
    libraryId          INTEGER PRIMARY KEY,
    libraryName         TEXT,
    libraryType         TEXT,
    mediaAgentName      TEXT,
    status              TEXT,
```

```
    lastFetchTime      TEXT
```

```
)
```

hypervisors

```
CREATE TABLE hypervisors (
    instanceId      INTEGER PRIMARY KEY,
    instanceName    TEXT,
    hypervisorType TEXT,
    hostName        TEXT,
    vendor          TEXT,
    status          TEXT,
    lastFetchTime   TEXT
)
```

storage_arrays

```
CREATE TABLE storage_arrays (
    arrayId      INTEGER PRIMARY KEY,
    arrayName    TEXT,
    arrayType    TEXT,
    vendor       TEXT,
    model        TEXT,
    totalCapacity TEXT,
    usedCapacity  TEXT,
    lastFetchTime TEXT
)
```

Common Use Cases

1. Capacity Planning

Objective: Identify storage pools nearing capacity

Steps: 1. Fetch Storage Pools data 2. Go to Infrastructure Dashboard 3. Review Storage Pools table 4. Look for pools with low free space 5. Plan expansion or data migration

2. Infrastructure Health Monitoring

Objective: Monitor all infrastructure components status

Steps: 1. Fetch all infrastructure data types 2. Open Infrastructure Dashboard 3. Check MediaAgents Status section for offline agents 4. Check Libraries section for offline libraries 5. Check Hypervisors section for inactive instances

3. Hyperscale Environment Audit

Objective: Inventory all hyperscale/VM infrastructure

Steps: 1. Fetch Hypervisors data 2. Go to View Hypervisors page 3. Export data or query database: `sql SELECT instanceName, hypervisorType, vendor, status FROM hyperservers ORDER BY vendor, hypervisorType;`

4. Storage Hardware Inventory

Objective: Document all physical storage arrays

Steps: 1. Fetch Storage Arrays data 2. Go to View Storage Arrays page 3. Review vendor, model, and capacity information 4. Use for hardware refresh planning

5. MediaAgent Load Distribution

Objective: Understand which MediaAgents serve which resources

Steps: 1. Fetch MediaAgents, Storage Pools, and Libraries 2. Query database: `sql`

```
SELECT m.mediaAgentName, COUNT(DISTINCT sp.storagePoolId) as pool_count,
COUNT(DISTINCT l.libraryId) as library_count
FROM mediaagents m
LEFT JOIN storage_pools sp
ON m.mediaAgentName = sp.mediaAgentName
LEFT JOIN libraries l
ON m.mediaAgentName = l.mediaAgentName
GROUP BY m.mediaAgentName;
```

Advanced Queries

Find Storage Pools by Type

```
SELECT storagePoolName, storagePoolType, totalCapacity, freeSpace, dedupeEnabled
FROM storage_pools
WHERE storagePoolType = 'Disk'
ORDER BY storagePoolName;
```

List Hypervisors by Vendor

```
SELECT vendor, COUNT(*) as count,
       GROUP_CONCAT(instanceName, ', ') as instances
  FROM hypervisors
 GROUP BY vendor
 ORDER BY count DESC;
```

MediaAgent Capacity Summary

```
SELECT
    mediaAgentName,
    osType,
    status,
    totalSpace,
    availableSpace,
    CASE
        WHEN totalSpace != 'N/A'
        THEN CAST(availableSpace AS REAL) / CAST(totalSpace AS REAL) * 100
        ELSE 0
    END as percent_free
   FROM mediaagents
  ORDER BY percent_free ASC;
```

Storage Arrays by Vendor

```
SELECT vendor, model, COUNT(*) as count, SUM(totalCapacity) as total_capacity  
FROM storage_arrays  
GROUP BY vendor, model  
ORDER BY vendor, model;
```

Troubleshooting

No Infrastructure Data Showing

Problem: Dashboard shows "No Infrastructure Data Available"

Solutions: 1. Go to home page and fetch infrastructure data 2. Make sure you select infrastructure checkboxes (MediaAgents, Storage Pools, etc.) 3. Check for API errors in the results page 4. Verify your Commvault user has permissions to view infrastructure

API Endpoint Errors

Problem: "Failed with status 404" for infrastructure endpoints

Solutions: 1. Verify your Commvault version supports these API endpoints (v11.24+) 2. Check if the endpoint paths are correct for your version 3. Some endpoints may use different versions (V2, V4, etc.) 4. Try fetching from CommandCenter web console to verify data exists

Empty Tables

Problem: Data fetched but tables are empty

Solutions: 1. Check the JSON response structure in results 2. The parsing logic may need adjustment for your Commvault version 3. Review the `save_*_to_db()` functions in [app.py](#) 4. Enable debug mode and check console output

API Version Compatibility

The infrastructure endpoints use different API versions:

Feature	Endpoint	Notes
MediaAgents	/MediaAgent	Available in v11+
Libraries	/Library	Available in v11+
Storage Pools	/V4/StoragePool	V4 API, v11.24+
Hypervisors	/Instance	Returns VM instances
Storage Arrays	/V4/Storage/Array	V4 API, v11.24+

If you're using an older Commvault version, some endpoints may not be available or may use different paths.

Best Practices

1. **Regular Updates:** Fetch infrastructure data weekly to track changes
2. **Capacity Monitoring:** Set alerts for storage pools below 20% free space
3. **Status Checks:** Monitor MediaAgent and Library status daily
4. **Audit Trail:** Use `lastFetchTime` to track when data was last updated
5. **Backup Database:** Keep backups of `commvault.db` for historical analysis
6. **Export Reports:** Query database to generate custom infrastructure reports

Next Steps

- Set up automated scheduled fetching (cron/Task Scheduler)
- Create custom SQL views for specific infrastructure reports
- Export data to CSV for executive reporting

- Integrate with monitoring tools (Prometheus, Grafana, etc.)
 - Build alerting based on threshold values
-

Need Help?

- Check [README.md](#) for general application documentation
- Review [QUICKSTART.md](#) for setup instructions
- Consult Commvault REST API documentation at [api.commvault.com](#)