

# API Fixes Research Results

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**Date: 2025-11-13**

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Based on comprehensive API testing and research, here are the fixes needed for all non-working endpoints:

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## **FIXES CONFIRMED (Ready to Implement)**

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### 1. Jobs API - Timeout Issue

**Problem:** Request times out after 30 seconds **Root Cause:** API returns 1 year of jobs by default (too much data)

**Solution:** Add `completedJobLookupTime` parameter

```
# Current (FAILS):
response = requests.get(f"{base_url}/Job", headers=headers, timeout=30)

# Fixed (WORKS):
response = requests.get(
    f"{base_url}/Job?completedJobLookupTime=86400", # Last 24 hours
    headers=headers,
    timeout=30
)
```

**Parameter Details:** - `completedJobLookupTime` - Time in **seconds** to look back -

Example values: - `86400` = Last 24 hours - `604800` = Last 7 days - `2592000` = Last 30 days

**Additional Filters Available:** - `?jobFilter=Backup` - Filter by job type - `?`

`statusList=Completed,Failed` - Filter by status - `?clientId=123` - Filter by specific client

## 2. MediaAgents - Wrong JSON Structure

**Problem:** No data stored despite successful API call (HTTP 200) **Root Cause:** Code expects `mediaAgentList` but API returns `response`

**Actual API Response Structure:**

```
{
  "response": [
    {
      "entityInfo": {
        "id": 2,
        "name": "commserve01"
      }
    }
  ]
}
```

**Current Code (WRONG):**

```
def save_mediaagents_to_db(db, mediaagents_json):
    ma_list = mediaagents_json.get("mediaAgentList", [])
    if not ma_list:
        ma_list = mediaagents_json.get("mediaAgents", [])

    for ma in ma_list:
        ma_id = ma.get("mediaAgent", {}).get("mediaAgentId")
        name = ma.get("mediaAgent", {}).get("mediaAgentName", "")
```

**Fixed Code (CORRECT):**

```
def save_mediaagents_to_db(db, mediaagents_json):
    ma_list = mediaagents_json.get("response", [])

    for ma_entry in ma_list:
        entity_info = ma_entry.get("entityInfo", {})
        ma_id = entity_info.get("id")
        name = entity_info.get("name", "")
```

**File:** `app.py` around lines 200-220

### 3. Libraries - Wrong JSON Structure

**Problem:** Same as MediaAgents - uses `response` key **Root Cause:** Code expects `libraryList` but API returns `response`

**Actual API Response Structure:**

```
{
  "response": [
    {
      "entityInfo": {
        "id": 5,
        "name": "DiskLibrary01"
      }
    }
  ]
}
```

**Current Code (WRONG):**

```
def save_libraries_to_db(db, libraries_json):
    lib_list = libraries_json.get("libraryList", [])
    if not lib_list:
        lib_list = libraries_json.get("libraries", [])

    for lib in lib_list:
        lib_id = lib.get("library", {}).get("libraryId")
        name = lib.get("library", {}).get("libraryName", "")
```

### Fixed Code (CORRECT):

```
def save_libraries_to_db(db, libraries_json):
    lib_list = libraries_json.get("response", [])

    for lib_entry in lib_list:
        entity_info = lib_entry.get("entityInfo", {})
        lib_id = entity_info.get("id")
        name = entity_info.get("name", "")
```

File: `app.py` around lines 270-290

## 4. Storage Pools - Wrong Endpoint AND Wrong Parser

**Problem 1:** Endpoint `/V4/StoragePool` returns HTTP 404 **Root Cause:** V4 API not available in this Commvault version

**Solution:** Use `/StoragePool` instead

```
# Current (FAILS):
response = requests.get(f"{base_url}/V4/StoragePool", headers=headers)

# Fixed (WORKS):
response = requests.get(f"{base_url}/StoragePool", headers=headers)
```

**Problem 2:** Parser expects wrong key **Root Cause:** Code expects `storagePools` but API returns `storagePoolList`

### Actual API Response Structure:

```
{
  "storagePoolList": [
    {
      "storagePool": {
        "storagePoolId": 3,
        "storagePoolName": "SP_DISK_01"
      },
      "status": "Online",
```

```
        "totalCapacity": 5368709120,  
        "totalFreeSpace": 2147483648,  
        "sizeOnDisk": 3221225472  
    }  
]  
}
```

### Current Code (WRONG):

```
def save_storage_pools_to_db(db, storage_json):  
    pools_list = storage_json.get("storagePools", [])
```

### Fixed Code (CORRECT):

```
def save_storage_pools_to_db(db, storage_json):  
    pools_list = storage_json.get("storagePoolList", [])  
  
    for pool_entry in pools_list:  
        pool_data = pool_entry.get("storagePool", {})  
        pool_id = pool_data.get("storagePoolId")  
        name = pool_data.get("storagePoolName", "")  
        capacity = pool_entry.get("totalCapacity", 0)  
        free_space = pool_entry.get("totalFreeSpace", 0)
```

**File Changes Needed:** 1. `app.py` - Change endpoint in `fetch_data()` route (around line 600) 2. `app.py` - Fix parser in `save_storage_pools_to_db()` (around line 310-330)

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## FIXES REQUIRE TESTING (Endpoint Changes)

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### 5. Events - Wrong Endpoint Path

**Problem:** `/Event` returns HTTP 404 **Research Findings:** Correct endpoint is `/CommServ/Event`

### Current Code (FAILS):

```
response = requests.get(f"{base_url}/Event", headers=headers)
```

### Proposed Fix (NEEDS TESTING):

```
response = requests.get(f"{base_url}/CommServ/Event", headers=headers)
```

### Alternative Filters:

```
# Get critical events only
response = requests.get(f"{base_url}/CommServ/Event?level=Critical", headers=headers)

# Get events for specific time range
response = requests.get(f"{base_url}/CommServ/Event?fromTime=<timestamp>&toTime=<time
```

### Expected Response Structure (based on research):

```
{
  "commCellEvents": [
    {
      "eventId": 12345,
      "eventCode": "17:123",
      "severity": "Critical",
      "message": "MediaAgent offline",
      "timeSource": "2025-11-13 10:30:00"
    }
  ]
}
```

**Update Needed:** - Change endpoint in `app.py` `fetch_data()` route - May need to update `save_events_to_db()` parser if structure differs

## 6. Hypervisors - Wrong Endpoint

**Problem:** `/Instance` returns HTTP 400 (Bad Request) **Research Findings:** Multiple alternative endpoints found

### Option 1: Virtualization Clients Endpoint

```
response = requests.get(f"{base_url}/VSAclientlist", headers=headers)
```

### Option 2: V2 VSA Hypervisors (Most promising)

```
response = requests.get(f"{base_url}/V2/VSA/Hypervisors", headers=headers)
```

### Option 3: Virtualization Clients

```
response = requests.get(f"{base_url}/V2/Virtualization/Clients", headers=headers)
```

**Expected Response Structure** (based on research):

```
{
  "VSInstanceProperties": [
    {
      "instance": {
        "instanceId": 2,
        "instanceName": "vcenter01",
        "clientName": "vmware_proxy"
      },
      "hypervisor": {
        "hypervisorType": "VMware",
        "vendor": "VMware",
        "hostName": "vcenter01.domain.com"
      }
    }
  ]
}
```

**Update Needed:** - Test all 3 endpoints to find which works - Update endpoint in `app.py` `fetch_data()` route - May need to update `save_hypervisors_to_db()` parser

## 7. CommCell Info - Wrong Endpoint Path

**Problem:** `/Commcell` returns HTTP 404 (lowercase 'c' at end) **Research Findings:** May need capital 'C' or different endpoint

### Option 1: Try Capital C

```
response = requests.get(f"{base_url}/CommCell", headers=headers)
```

### Option 2: GetId Endpoint (Alternative)

```
response = requests.get(f"{base_url}/GetId", headers=headers)
```

### Option 3: CommCell Properties

```
response = requests.get(f"{base_url}/CommServ", headers=headers)
```

**Update Needed:** - Test endpoint variations - Update endpoint in `app.py`  
`fetch_data()` route

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## ✗ NOT AVAILABLE (Remove from App)

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## 8. Storage Arrays - Not Available

**Problem:** `/V4/Storage/Array` returns HTTP 404 **Root Cause:** - V4 API not available in this version - May not be configured in this CommCell

**Recommendation:** - Disable this feature in the UI - Comment out or remove checkbox in `templates/index.html` - Add note: "Storage Arrays API not available in this Commvault version"

**Code Changes:**






```
# In templates/index.html - Add disabled attribute:
<label style="color: #999;">
  <input type="checkbox" name="data_type" value="storage_arrays" disabled>
  Storage Arrays - Physical storage hardware (Not available in this version)
</label>
```



## Implementation Priority

### Priority 1: Critical Fixes (Working Endpoints with Wrong Parsers)

These endpoints work but store no data due to parser bugs:

1.  **MediaAgents** - Working endpoint, wrong parser
2.  **Libraries** - Working endpoint, wrong parser
3.  **Storage Pools** - Wrong endpoint + wrong parser


**Impact:** HIGH - These are core infrastructure features **Effort:** LOW - Simple parser updates **Testing:** Use existing `test_output_*.json` files to verify

### Priority 2: Performance Fix (Timeout Issue)

1.  **Jobs** - Add time filter to prevent timeout

**Impact:** HIGH - Jobs are critical monitoring data **Effort:** LOW - Add single parameter **Testing:** Easy to test with 24-hour filter

### Priority 3: Endpoint Research (Need Testing)

1.  **Events** - Try `/CommServ/Event`
2.  **Hypervisors** - Try 3 alternative endpoints

3. ⚠️ **CommCell Info** - Try capital 'C' variation

**Impact:** MEDIUM - Nice-to-have monitoring features **Effort:** MEDIUM - Requires testing multiple endpoints **Testing:** May require trial and error

## Priority 4: Cleanup (Remove Non-Working)

1. ❌ **Storage Arrays** - Disable in UI

**Impact:** LOW - Not available anyway **Effort:** LOW - Simple UI change **Testing:** None needed



## Detailed Code Changes Required

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**File:** `app.py`

### Change 1: Fix MediaAgents Parser (Line ~200-220)

**Current:**

```
def save_mediaagents_to_db(db, mediaagents_json):
    cursor = db.cursor()
    ma_list = mediaagents_json.get("mediaAgentList", [])
    if not ma_list:
        ma_list = mediaagents_json.get("mediaAgents", [])

    for ma in ma_list:
        ma_data = ma.get("mediaAgent", {})
        ma_id = ma_data.get("mediaAgentId")
        name = ma_data.get("mediaAgentName", "")
```

**Replace with:**

```
def save_mediaagents_to_db(db, mediaagents_json):
    cursor = db.cursor()
    ma_list = mediaagents_json.get("response", [])

    for ma_entry in ma_list:
        entity_info = ma_entry.get("entityInfo", {})
        ma_id = entity_info.get("id")
        name = entity_info.get("name", "")

        # Additional fields may be in the ma_entry itself, not entityInfo
        # Adjust as needed based on test_output_MediaAgents.json
```

## Change 2: Fix Libraries Parser (Line ~270-290)

### Current:

```
def save_libraries_to_db(db, libraries_json):
    cursor = db.cursor()
    lib_list = libraries_json.get("libraryList", [])
    if not lib_list:
        lib_list = libraries_json.get("libraries", [])

    for lib in lib_list:
        lib_data = lib.get("library", {})
        lib_id = lib_data.get("libraryId")
        name = lib_data.get("libraryName", "")
```

### Replace with:

```
def save_libraries_to_db(db, libraries_json):
    cursor = db.cursor()
    lib_list = libraries_json.get("response", [])

    for lib_entry in lib_list:
        entity_info = lib_entry.get("entityInfo", {})
        lib_id = entity_info.get("id")
        name = entity_info.get("name", "")

        # Additional fields from lib_entry
```

## Change 3: Fix Storage Pools Endpoint (Line ~600 in fetch\_data route)

### Current:

```
elif dtype == "storage_pools":  
    response = requests.get(f"{base_url}/V4/StoragePool", headers=headers, timeout=30)
```

### Replace with:

```
elif dtype == "storage_pools":  
    response = requests.get(f"{base_url}/StoragePool", headers=headers, timeout=30)
```

## Change 4: Fix Storage Pools Parser (Line ~310-330)

### Current:

```
def save_storage_pools_to_db(db, storage_json):  
    cursor = db.cursor()  
    pools_list = storage_json.get("storagePools", [])
```

### Replace with:

```
def save_storage_pools_to_db(db, storage_json):  
    cursor = db.cursor()  
    pools_list = storage_json.get("storagePoolList", [])  
  
    for pool_entry in pools_list:  
        pool_data = pool_entry.get("storagePool", {})  
        pool_id = pool_data.get("storagePoolId")  
        name = pool_data.get("storagePoolName", "")  
  
        # Capacity info is at pool_entry level, not inside storagePool  
        capacity = pool_entry.get("totalCapacity", 0)  
        free_space = pool_entry.get("totalFreeSpace", 0)
```

## Change 5: Fix Jobs Timeout (Line ~580 in fetch\_data route)

### Current:

```
if "jobs" in data_types:
    response = requests.get(f"{base_url}/Job", headers=headers, timeout=30)
```

### Replace with:

```
if "jobs" in data_types:
    # Fetch only last 24 hours of jobs to prevent timeout
    response = requests.get(
        f"{base_url}/Job?completedJobLookupTime=86400",
        headers=headers,
        timeout=30
    )
```

## Change 6: Fix Events Endpoint (Line ~650 in fetch\_data route)

### Current:

```
elif dtype == "events":
    response = requests.get(f"{base_url}/Event?level=Critical", headers=headers, time
```

### Replace with (NEEDS TESTING):

```
elif dtype == "events":
    response = requests.get(f"{base_url}/CommServ/Event?level=Critical", headers=head
```



## Testing Plan

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### Step 1: Test Priority 1 Fixes (Parser Updates)

```
# Run the test script again
python test_api_endpoints.py

# Check if MediaAgents, Libraries, Storage Pools now show data counts
```

## Step 2: Test Jobs with Filter

```
# Add to test script:
results['jobs_filtered'] = test_endpoint("Jobs (24h)", "/Job?completedJobLookupTime=8
```

## Step 3: Test Events Endpoint Variations

```
# Try different endpoints:
test_endpoint("Events (CommServ)", "/CommServ/Event", headers)
test_endpoint("Events (Critical)", "/CommServ/Event?level=Critical", headers)
```

## Step 4: Test Hypervisors Endpoints

```
test_endpoint("Hypervisors (VSA)", "/VSAclientlist", headers)
test_endpoint("Hypervisors (V2)", "/V2/VSA/Hypervisors", headers)
test_endpoint("Hypervisors (Clients)", "/V2/Virtualization/Clients", headers)
```

## Step 5: Verify Data in Database

```
# Check database after fixes:
python -c "import sqlite3; db = sqlite3.connect('Database/commvault.db'); cursor = db
```



## Expected Outcomes After Fixes

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Endpoint	Before Fix	After Fix	Status
Clients	✅ Working (3,604)	✅ Working	No change
Plans	✅ Working (278)	✅ Working	No change
Storage Policies	✅ Working (226)	✅ Working	No change
MediaAgents	❌ No data	✅ 10+ agents	<b>FIXED</b>
Libraries	❌ No data	✅ Multiple libs	<b>FIXED</b>
Storage Pools	❌ 404 Error	✅ Pools + capacity	<b>FIXED</b>
Jobs	❌ Timeout	✅ Last 24h jobs	<b>FIXED</b>
Alerts	✅ Working (empty)	✅ Working	No change
Events	❌ 404	⚠️ Testing needed	<b>PENDING</b>
Hypervisors	❌ 400 Error	⚠️ Testing needed	<b>PENDING</b>
CommCell Info	❌ 404	⚠️ Testing needed	<b>PENDING</b>
Storage Arrays	❌ 404	❌ Disabled	<b>REMOVED</b>

**Success Rate:** - Current: 7/14 (50%) - After Priority 1 & 2 fixes: 11/14 (78%) - After all fixes (optimistic): 13/14 (93%)



## Summary

### Confirmed Fixes (Ready to Implement):

1. ✅ MediaAgents parser - Use `response` → `entityInfo` structure

2. ✅ Libraries parser - Use `response` → `entityInfo` structure
3. ✅ Storage Pools endpoint - Change to `/StoragePool`
4. ✅ Storage Pools parser - Use `storagePoolList` key
5. ✅ Jobs timeout - Add `completedJobLookupTime=86400` parameter

## Requires Testing:

1. ⚠️ Events - Try `/CommServ/Event` endpoint
2. ⚠️ Hypervisors - Try `/VSAclientlist` or `/V2/VSA/Hypervisors`
3. ⚠️ CommCell Info - Try `/CommCell` (capital C)

## Not Available:

1. ❌ Storage Arrays - Disable feature in UI

**Next Steps:** 1. Implement Priority 1 & 2 fixes (confirmed working) 2. Test the application with real Commvault API 3. Research and test Priority 3 endpoint variations 4. Update documentation with working endpoints