

# SQLite DB Backup — Pillar #9 LITE

# SQLite DB Backup — Pillar #9 LITE

**Purpose:** Restore drill procedure for SQLite databases backed up via `azure-db-backup.sh` wrapper extension (Build B of Pillar #9 LITE).

**Related:** [Pillar #9 LITE spec](#), MC #99248

---

## 1. Wrapper Extension Overview

**What was added:** Build B extended `~/system/daemons/azure-db-backup.sh` (existing 4h-interval LaunchAgent daemon) to include SQLite database snapshots alongside Docker volume backups.

**Implementation (lines 466-471):**

```
SQLITE_DBS=(  
    "mission-control:$HOME/system/databases/mission-control.db"  
    "hivemind:$HOME/system/databases/hivemind.db"  
    "costs:$HOME/system/databases/costs.db"  
    "knowledge:$HOME/system/databases/knowledge.db"  
)
```

**Process for each DB:**

1. `sqlite3 .backup` creates consistent snapshot (not file copy mid-write)
2. gzip compression
3. sha256 sidecar file generation
4. Upload to Azure Blob Storage at `sqlite/YYYY-MM-DD/<db-name>.db.gz`
5. Corresponding `.sha256` sidecar uploaded

**Storage location:** Azure Storage Account `alaibackups`, container `backups`, blob prefix `sqlite/<DATE>/`

**Evidence:** First backup run on 2026-05-05 produced 8 blobs (4 databases + 4 sha256 sidecars):

- mission-control.db.gz (4.5 MB, 10,797 tasks)
- hivemind.db.gz (52.8 MB)
- costs.db.gz (179 KB)
- knowledge.db.gz (144.5 MB)

## 2. Restore Drill Procedure

Use this procedure to validate backup integrity or perform disaster recovery.

### Step 1: Download blob

```
az storage blob download \  
  --account-name alaibackups \  
  --container-name backups \  
  --name "sqlite/2026-05-05/mission-control.db.gz" \  
  --file /tmp/restore.db.gz \  
  --auth-mode login
```

### Step 2: Verify sha256 checksum

```
# Download sidecar  
az storage blob download \  
  --account-name alaibackups \  
  --container-name backups \  
  --name "sqlite/2026-05-05/mission-control.db.gz.sha256" \  
  --file /tmp/restore.db.gz.sha256 \  
  --auth-mode login  
  
# Verify  
sha256sum -c /tmp/restore.db.gz.sha256
```

Expected output: `/tmp/restore.db.gz: OK`

## Step 3: Decompress

```
gunzip /tmp/restore.db.gz
```

Creates `/tmp/restore.db`

## Step 4: Integrity check

```
sqlite3 /tmp/restore.db "PRAGMA integrity_check;"
```

Expected output: `ok`

## Step 5: Sanity row count

```
# For mission-control.db  
sqlite3 /tmp/restore.db "SELECT COUNT(*) FROM tasks;"
```

Expected: >10,000 tasks (baseline as of 2026-05-05: 10,797 rows)

```
# For hivemind.db  
sqlite3 /tmp/restore.db "SELECT COUNT(*) FROM sessions;"
```

```
# For costs.db  
sqlite3 /tmp/restore.db "SELECT COUNT(*) FROM runs;"
```

```
# For knowledge.db  
sqlite3 /tmp/restore.db "SELECT COUNT(*) FROM entries;"
```

## Step 6: Live restore (if DR scenario)

```
# Backup current DB first  
cp ~/system/databases/mission-control.db ~/system/databases/mission-control.db.pre-restore-  
$(date +%s)  
  
# Replace with restored copy  
mv /tmp/restore.db ~/system/databases/mission-control.db  
  
# Verify MC tool works
```

```
node ~/system/tools/mc.js list | head -5
```

## 3. Known Gap — RBAC Fix Needed

**Issue:** Service principal `1a0b3018` (used by `azure-db-backup.sh`) currently lacks the `Microsoft.Compute/virtualMachines/runCommand/action` permission on resource group `alai-backups-rg`.

**Impact:** Remote restore drills on Azure VM fail. Workaround: perform restore drill on ANVIL (local machine) after downloading blob.

### Fix required (Azure admin or CEO):

```
# Get service principal object ID
az ad sp show --id 1a0b3018-xxxx-xxxx-xxxx-xxxxxxxxxxxx --query id -o tsv

# Assign Virtual Machine Contributor role at resource group scope
az role assignment create \
  --assignee <SP-OBJECT-ID> \
  --role "Virtual Machine Contributor" \
  --scope /subscriptions/<SUBSCRIPTION-ID>/resourceGroups/alai-backups-rg
```

### Verification after fix:

```
az vm run-command invoke \
  --resource-group alai-backups-rg \
  --name vm-alai-support \
  --command-id RunShellScript \
  --scripts "sqlite3 --version"
```

## Testing Schedule

- **Automated backups:** Every 4 hours via `com.alai.azure-db-backup` LaunchAgent
- **Restore drill cadence:** Monthly (first business day of month)
- **Success criteria:** All 5 steps pass for mission-control.db

# Related Documentation

- [Pillar #9 LITE spec](#) — DR-only scope reframe
  - [Azure DB Backup daemon source](#) (private repo)
  - MC #99248 — Build B delivery
  - MC #99247 — Build A (telegram relocate)
- 

Revision #2

Created 2026-05-05 21:47:48 UTC by John

Updated 2026-06-07 20:01:19 UTC by John