

Azure Blob Offsite Backup Setup

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Overview

Purpose: Offsite backup for ALAI system databases and git bundles

Region: North Europe (Dublin) — geographic separation from primary Sweden Central VM

Retention: 365 days with lifecycle policies (Hot → Cool → Archive → Delete)

Recovery Time Objective: 4 hours (manual restore)

Azure Resources

Resource Type	Name	Purpose
Resource Group	alai-backups-rg	Isolation boundary for backup storage
Storage Account	alaibackups0ebb	Blob storage (LRS, Standard tier)
Container	system-db-backups	SQLite databases (hivemind.db, mission-control.db, etc.)
Container	system-git-bundles	Git repository bundles
Service Principal	alai-backup-writer	Scoped write-only access (Storage Blob Data Contributor)

Service Principal Setup

```
# Create service principal
az ad sp create-for-rbac --name alai-backup-writer --skip-assignment

# Assign Storage Blob Data Contributor to SA only (not subscription)
STORAGE_ID=$(az storage account show --name alaibackups0ebb --query id -o tsv)
az role assignment create \
  --assignee <service-principal-app-id> \
```

```
--role "Storage Blob Data Contributor" \  
--scope "$STORAGE_ID"  
  
# Store credentials in ~/system/config/azure-backup.env  
cat > ~/system/config/azure-backup.env <
```

Lifecycle Policy

Hot → Cool: 30 days

Cool → Archive: 90 days

Archive → Delete: 365 days

Delete blobs: Last modified > 365 days

```
az storage account management-policy create \  
--account-name alaibackups0ebb \  
--policy @lifecycle-policy.json
```

lifecycle-policy.json:

```
{  
  "rules": [  
    {  
      "enabled": true,  
      "name": "archive-old-backups",  
      "type": "Lifecycle",  
      "definition": {  
        "actions": {  
          "baseBlob": {  
            "tierToCool": {"daysAfterModificationGreaterThan": 30},  
            "tierToArchive": {"daysAfterModificationGreaterThan": 90},  
            "delete": {"daysAfterModificationGreaterThan": 365}  
          }  
        },  
        "filters": {"blobTypes": ["blockBlob"]}  
      }  
    }  
  ]  
}
```

Backup Scripts

LightRAG to Azure Blob

```
#!/bin/bash
# ~/system/tools/migrate-lightrag-to-azure.sh

source ~/system/config/azure-backup.env
TIMESTAMP=$(date +%Y%m%d-%H%M%S)
BACKUP_FILE="/tmp/lightrag-backup-$TIMESTAMP.tar.gz"

tar -czf "$BACKUP_FILE" ~/system/lightrag/
az storage blob upload \
  --account-name alaibackups0ebb \
  --container-name system-db-backups \
  --name "lightrag-$TIMESTAMP.tar.gz" \
  --file "$BACKUP_FILE" \
  --auth-mode login

rm "$BACKUP_FILE"
```

Ollama Models Export

```
#!/bin/bash
# ~/system/tools/ollama-models-export.sh --azure

source ~/system/config/azure-backup.env
TIMESTAMP=$(date +%Y%m%d-%H%M%S)
EXPORT_DIR="/tmp/ollama-export-$TIMESTAMP"

mkdir -p "$EXPORT_DIR"
ollama list | tail -n +2 | awk '{print $1}' > "$EXPORT_DIR/model-list.txt"

while read -r model; do
  ollama show "$model" --modelfile > "$EXPORT_DIR/$model.modelfile"
done < "$EXPORT_DIR/model-list.txt"
```

```
tar -czf "$EXPORT_DIR.tar.gz" "$EXPORT_DIR"
az storage blob upload \
  --account-name alaibackups0ebb \
  --container-name system-db-backups \
  --name "ollama-models-$TIMESTAMP.tar.gz" \
  --file "$EXPORT_DIR.tar.gz"

rm -rf "$EXPORT_DIR" "$EXPORT_DIR.tar.gz"
```

Disaster Recovery Path

1. List available backups:

```
az storage blob list \
  --account-name alaibackups0ebb \
  --container-name system-db-backups \
  --output table
```

2. Download latest backup:

```
az storage blob download \
  --account-name alaibackups0ebb \
  --container-name system-db-backups \
  --name "lightrag-20260420-143000.tar.gz" \
  --file /tmp/restore-lightrag.tar.gz
```

3. Verify SHA-256 checksum:

```
shasum -a 256 /tmp/restore-lightrag.tar.gz
```

4. Restore to target system:

```
tar -xzf /tmp/restore-lightrag.tar.gz -C ~/system/
```

Monitoring

- **Cron:** Hourly backup at :15 (15 * * * *)
- **Log:** `~/system/logs/azure-backup.log`
- **Alert:** HiveMind alert if backup fails 2 consecutive runs

```
node ~/system/agents/hivemind/hivemind.js post john alert \  
"Azure backup failed 2 consecutive runs – check ~/system/logs/azure-backup.log"
```

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