

Finatrades Server Planning

Database Architecture & Security Document

1. Database Architecture

The Finatrades platform uses a 3-database architecture:

- AWS RDS (Production) - Primary database for real users and live transactions
- AWS RDS (Development) - Secondary database for testing and staging
- Replit PostgreSQL (Backup) - Cold storage and disaster recovery

2. Environment Variables

AWS_PROD_DATABASE_URL - Production database (real users)

AWS_DEV_DATABASE_URL - Development database (testing)

DATABASE_URL - Replit backup database (managed by Replit)

3. Data Flow Architecture

```
graph TD
    AWSDev[AWS Dev] <-- Schema Sync --> AWSProd[AWS Prod]
    AWSProd -- v Backup --> ReplitPostgres[Replit PostgreSQL]
```

4. Security Rules

Access Control:

- Development: Can access AWS Dev DB and Replit Backup
- Production: Can only access AWS Prod DB
- Backup scripts: Require explicit confirmation flags

Credential Isolation:

- Production credentials NEVER in development environment
- Development credentials NEVER in production environment

5. Sync/Backup Strategy

Allowed:

- Production -> Replit Backup (Safe)
- Production -> Development (Requires confirmation)

Blocked:

- Dev -> Prod data sync (Risk of corruption)
- Auto-sync scheduler (Disabled by default)

6. Backup Commands

```
npx tsx scripts/database-backup.ts status
```

```
npx tsx scripts/database-backup.ts backup aws
```

```
npx tsx scripts/database-backup.ts backup replit
```

```
npx tsx scripts/database-backup.ts push-schema aws
```

7. Implementation Checklist

- ☐ Create AWS RDS Production database
- ☐ Create AWS RDS Development database
- ☐ Configure AWS_PROD_DATABASE_URL secret
- ☐ Configure AWS_DEV_DATABASE_URL secret
- ☐ Update server/db.ts for 3-database support
- ☐ Update backup scripts
- ☐ Rotate all database passwords
- ☐ Test backup/restore procedures

8. Estimated Effort

- Environment setup: 15 min
- Code modifications: 45 min
- Testing: 30 min
- Documentation: 15 min
- Total: ~2 hours

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