FLEET MANAGEMENT SOFTWARE DATABASE SCHEMA V4.2

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PROPRIETARY AND CONFIDENTIAL

NaviFloor Robotics, Inc.

Last Updated: January 11, 2024

1. DOCUMENT CONTROL

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1 This document contains proprietary and confidential information belonging

2 Version Control:

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Current Version: 4.2

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Previous Version: 4.1

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Release Date: January 11, 2024

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Document Owner: Database Architecture Team

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Approved By: Marcus Depth, CTO

2. DATABASE ARCHITECTURE OVERVIEW

1 Primary Database Systems

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Production Environment: PostgreSQL 14.2

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Development Environment: PostgreSQL 14.2

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Backup Environment: PostgreSQL 14.2 with TimescaleDB extension

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Replication Configuration: Master-Slave with 2 read replicas

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2 Schema Naming Convention

```sql

*nfprod[module][version]*
```

nfstage[module][version]

nfdev[module][version]

```

## 3. CORE SCHEMA COMPONENTS

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1 Robot Fleet Management Tables

```sql

CREATE TABLE robots (

*robotid UUID PRIMARY KEY,*

*serialnumber VARCHAR(32) UNIQUE NOT NULL,*

*modelnumber VARCHAR(32) NOT NULL,*

*firmwareversion VARCHAR(16) NOT NULL,*

*statuscode INTEGER NOT NULL,*

*lastmaintenancedate TIMESTAMP WITH TIME ZONE,*

*nextmaintenancedate TIMESTAMP WITH TIME ZONE,*

*createdat TIMESTAMP WITH TIME ZONE DEFAULT CURRENTTIMESTA*

);

```

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2 Navigation Data Tables

```sql

*CREATE TABLE terrainmaps (*

*mapid UUID PRIMARY KEY,*

*facilityid UUID REFERENCES facilities(facilityid),*

*mapversion INTEGER NOT NULL,*

*resolution_mm NUMERIC(8,2) NOT NULL,*

*lastupdated TIMESTAMP WITH TIME ZONE,*

*mapdata BYTEA NOT NULL*

);

```

4. SECURITY AND ACCESS CONTROL

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1 Role-Based Access Control (RBAC)

```sql

*CREATE ROLE nfadmin;*

*CREATE ROLE nfoperator;*

*CREATE ROLE nfmaintenance;*

*CREATE ROLE nfreadonly;*

```

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2 Data Encryption

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Column-level encryption using AES-256-GCM

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TLS 1.3 for all database connections

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Encrypted backup storage using AWS KMS

5. PERFORMANCE OPTIMIZATION

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```

1 Indexing Strategy

```sql

*CREATE INDEX idxrobotstatus ON robots(statuscode);*

*CREATE INDEX idxrobotmaintenance ON robots(nextmaintenancedate);*

*CREATE INDEX idxterrainfacility ON terrainmaps(facilityid);*

```

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2 Partitioning Schema

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Time-based partitioning for telemetry data

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Range partitioning for historical navigation data

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List partitioning for facility-specific data

6. BACKUP AND RECOVERY

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1 Backup Schedule

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Full database backup: Daily at 00:00 UTC

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Incremental backups: Every 6 hours

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Transaction log shipping: Continuous

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Retention period: 90 days

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2 Recovery Procedures

Point-in-time recovery capability

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Maximum allowed downtime: 15 minutes

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Recovery time objective (RTO): 30 minutes

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Recovery point objective (RPO): 5 minutes

7. COMPLIANCE AND AUDIT

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1 Audit Logging

```sql

*CREATE TABLE auditlogs (*
```

auditid UUID PRIMARY KEY,

actiontype VARCHAR(32) NOT NULL,

tablename VARCHAR(64) NOT NULL,

recordid UUID NOT NULL,

userid UUID NOT NULL,

actiontimestamp TIMESTAMP WITH TIME ZONE DEFAULT CURRENTTI

oldvalue JSONB,

newvalue JSONB

);

```

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2 Compliance Requirements

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```

SOC 2 Type II compliance

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GDPR data protection requirements

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ISO 27001 information security standards

8. LEGAL NOTICES

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1 This database schema is protected under U.S. and international copyright la

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2 CONFIDENTIALITY NOTICE: This document contains trade secrets and

9. EXECUTION

IN WITNESS WHEREOF, the undersigned has executed this Database Sche

as of the date first written above.

NAVIFLOOR ROBOTICS, INC.

By: _

Name: Marcus Depth

Title: Chief Technology Officer

Date: January 11, 2024