Fleet Management Platform API Documentation

Polar Dynamics Robotics, Inc.

Version 2.4 - Last Updated: January 11, 2024

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1. Introduction and Scope

1. This API Documentation ("Documentation") describes the technical specifications, access protocols, and integration requirements for the IceNav(TM) Fleet Management Platform API ("API") developed and maintained by Polar Dynamics Robotics, Inc. ("Company").

2. This Documentation is protected under applicable intellectual property laws and is provided subject to the terms of the Master Services Agreement between the Company and authorized API users ("Licensees").

2. API Overview

1. The IceNav(TM) Fleet Management Platform API provides programmatic access to:

a) Real-time AMR location and status monitoring

b) Mission control and task assignment

c) Environmental condition monitoring

d) Performance analytics and reporting

e) Fleet optimization algorithms

f) Thermal management system controls

2. API Architecture:

- RESTful API design

- JSON data format

- HTTPS protocol

- OAuth 2.0 authentication

- Rate limiting: 10,000 requests per hour per API key

3. Authentication and Security

1. Access Requirements:

- API key generation through secure portal

- SSL certificate validation

- IP whitelisting

- Multi-factor authentication for administrative access

2. Security Protocols:

- AES-256 encryption for data in transit

- Regular security audits

- Automated threat detection

- Access logging and monitoring

4. Endpoint Specifications

1. Core Endpoints:
```
POST /api/v2/fleet/missions

GET /api/v2/fleet/status

PUT /api/v2/robot/{id}/commands

GET /api/v2/environment/metrics

POST /api/v2/system/alerts
```

2. Response Format:
```json
{

"status": "success|error",

"timestamp": "ISO-8601 format",

"data": {

// Endpoint-specific payload

},

"error": {

"code": "string",

"message": "string"
```

```
        }
    }
}
```

5. Rate Limits and Performance

1. Standard Tier Limitations:

-       10,000 requests per hour

-       Maximum payload size: 5MB

-       Maximum concurrent connections: 25

-       Response time SLA: 99.9% < 200ms

2. Enterprise Tier Limitations:

-       50,000 requests per hour

-       Maximum payload size: 20MB

-       Maximum concurrent connections: 100

-       Response time SLA: 99.99% < 100ms

6. Data Retention and Privacy

1. The Company maintains API access logs for:

-       Security monitoring: 90 days

-       Performance metrics: 12 months

-       Audit trail data: 7 years

2. Data Processing:

-       All data centers located in United States

-       GDPR and CCPA compliant

-       Regular data backup and disaster recovery

-       Data encryption at rest using AES-256

7. Integration Requirements

1. Minimum Technical Requirements:

-       TLS 1.2 or higher

- Support for HTTP/2

- JSON parsing capabilities

- Retry logic implementation

- Error handling mechanisms

2. Development Environment:

- Sandbox environment available

- Test API keys provided

- Sample code repositories

- Integration testing tools

8. Support and Maintenance

1. Technical Support:

- 24/7 emergency support for critical issues

- Standard support: Monday-Friday, 9:00 AM - 6:00 PM EST

- Maximum response time: 4 hours

- Support ticket system access

2. Maintenance Windows:

- Scheduled maintenance: Sundays 2:00 AM - 6:00 AM EST

- Emergency maintenance as required with 2-hour notice

- Version deprecation notice: 6 months minimum

9. Legal Notices

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10. Version Control

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End of Documentation