

Swarms.World Integration - Intellitrade

Overview

Intellitrade integrates with **Swarms.world** to create a hierarchical hedge fund structure powered by autonomous AI agents. This integration enables sophisticated agent coordination, communication, and portfolio management at scale.

■ Hedge Fund Architecture

Organizational Structure

Intellitr ade operates as a **Swarms AI Hedge Fund** with the following hierarchy:

- ④ Intel CEO (Chief Executive Officer)
 - |— ④ Funding Phantom (Head Trader)
 - |— ④ Volatility Sniper (Quantitative Trader)
 - |— ④ Sentiment Sage (Research Trader)
 - |— > Arbitrage Ace (Quantitative Trader)

Authority Levels

- **Level 5 (CEO)**: Intel CEO - Full authority over all operations
 - **Level 3 (Traders)**: Trading agents with capital allocation authority
 - **Level 1-2**: Reserved for future risk management and research roles

Integration Components

1. Swarms API Configuration

File: /nextjs-space/lib/swarms-hedge-fund.ts

Environment Variable:

SWARMS API KEY=your swarms api key here

API Base URL:

<https://api.swarms.world/v1>

2. Core Features

A. Hedge Fund Initialization

```
import { initializeHedgeFundStructure } from '@/lib/swarms-hedge-fund';

await initializeHedgeFundStructure();
```

What it does: - Creates organizational hierarchy in Swarms.world - Assigns roles and authority levels to each agent - Registers total AUM (Assets Under Management) - Syncs agent balances and capital allocations

B. CEO Capital Allocation

```
import { ceoAllocateCapital } from '@/lib/swarms-hedge-fund';

const allocations = [
  {
    agentId: 'volatility-sniper',
    allocatedCapital: 50000,
    maxDrawdown: 10,
    targetReturn: 20,
    riskTolerance: 'MODERATE'
  }
];

await ceoAllocateCapital(allocations, 'Increasing allocation due to strong performance');
```

Features: - Performance-based capital allocation - Risk tolerance assignment (CONSERVATIVE, MODERATE, AGGRESSIVE) - Maximum drawdown limits - Target return objectives

C. CEO Risk Override

```
import { ceoRiskOverride } from '@/lib/swarms-hedge-fund';

await ceoRiskOverride(
  'funding-phantom',
  'HALT_TRADING',
  'Excessive drawdown detected - halting operations for review'
);
```

Override Actions: - HALT_TRADING: Immediately stop agent trading - REDUCE_POSITION: Scale down open positions - CLOSE_ALL: Emergency close all positions - RESUME_TRADING: Reactivate agent after review

D. Daily CEO Reports

```
import { generateCEODailyReport } from '@lib/swarms-hedge-fund';

const report = await generateCEODailyReport();
```

Report Contents: - Total AUM across all agents - Daily P&L performance - Trade execution statistics - Win rate analysis - Best/worst performing agents - Agent-by-agent breakdown

E. Agent Communication

```
import { agentCommunication } from '@lib/swarms-hedge-fund';

await agentCommunication(
  'volatility-sniper',
  'funding-phantom',
  'High volatility detected in BTC/USDT - consider reducing
   leverage',
  'HIGH'
);
```

Priority Levels: - LOW: Informational updates - MEDIUM: Strategic suggestions - HIGH: Risk warnings - URGENT: Immediate action required

F. Portfolio Rebalancing

```
import { suggestPortfolioRebalance } from '@lib/swarms-hedge-fund';

const suggestions = await suggestPortfolioRebalance();

Rebalancing Logic: - Base allocation: 25% per agent - +15% for win rates > 60% - +10% for strong profitability - -15% for win rates < 30%  
- Min allocation: 10%, Max allocation: 40%
```

III Data Synchronization

The integration syncs the following data with Swarms.world:

Agent Data

- Agent ID and name
- Role and department
- Authority level
- Managed capital
- Real-time balances
- Trading status (active/inactive)

Performance Metrics

- Win/loss records
- P&L calculations
- Trade execution history
- Risk-adjusted returns

CEO Decisions

- Capital allocation changes
- Risk override actions
- Strategy adjustments
- Agent performance evaluations

🔒 Security & Permissions

API Authentication

All requests to Swarms.world API include:

```
headers: {  
  'Authorization': `Bearer ${SWARMS_API_KEY}`,  
  'Content-Type': 'application/json'  
}
```

Fallback Behavior

If Swarms API is unavailable:
- ✓ All functions continue to work locally
- △ Warning messages logged - ⚠ Decisions stored locally - ⚡ Auto-sync when API reconnects

💡 Getting Started

1. Obtain Swarms API Key

Visit swarms.world to: 1. Create an account 2. Navigate to API settings 3. Generate a new API key 4. Copy the key

2. Configure Environment

Add to .env:

```
SWARMS_API_KEY=your_swarm_api_key_here
```

3. Initialize Hedge Fund

Run the initialization script:

```
cd nextjs_space  
yarn tsx scripts/initialize-swarms-hedge-fund.ts
```

☒ Benefits of Swarms Integration

1. Hierarchical Coordination

- Clear chain of command
- CEO-level oversight and decision-making
- Structured portfolio management

2. Risk Management

- Real-time portfolio monitoring
- Automated risk overrides
- Capital allocation controls

3. Performance Analytics

- Daily CEO reports
- Agent-by-agent performance tracking
- Historical decision logging

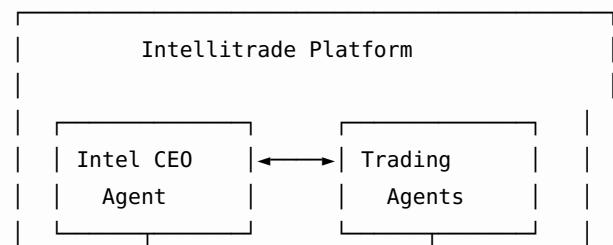
4. Scalability

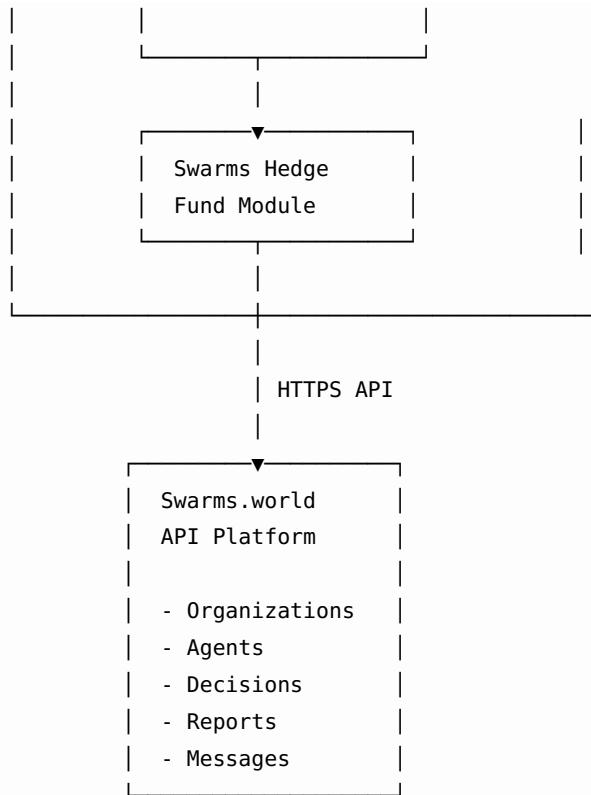
- Easy addition of new agents
- Dynamic role assignments
- Flexible organizational restructuring

5. Communication

- Inter-agent messaging
- Priority-based alerts
- Centralized coordination

⌘ Technical Architecture





Example Usage

Complete CEO Workflow

```

import {
  initializeHedgeFundStructure,
  generateCEODailyReport,
  suggestPortfolioRebalance,
  ceoAllocateCapital,
  ceoRiskOverride
} from '@/lib/swarms-hedge-fund';

// 1. Initialize on startup
await initializeHedgeFundStructure();

// 2. Generate morning report
const report = await generateCEODailyReport();

// 3. Get rebalancing suggestions
const suggestions = await suggestPortfolioRebalance();

// 4. Execute capital allocation
if (report.worstPerformer.winRate < 0.30) {
  await ceoRiskOverride()
}

```

```

        report.worstPerformer.agentId,
        'HALT_TRADING',
        'Performance below threshold'
    );
}

// 5. Rebalance portfolio
await ceoAllocateCapital(
    suggestions,
    'Monthly performance-based rebalancing'
);

```

⌘ Troubleshooting

API Connection Errors

Symptom: ⚠️ Swarms API not available, using local coordination

Solutions: 1. Verify SWARMS_API_KEY is set in .env 2. Check API key validity on swarms.world 3. Ensure network connectivity 4. Review Swarms.world API status

Agent Not Found

Symptom: Error: Agent {id} not found

Solutions: 1. Ensure agents are created in database 2. Run yarn prisma generate 3. Verify agent IDs match database records

Permission Denied

Symptom: 403 Forbidden

Solutions: 1. Regenerate API key on swarms.world 2. Check API key permissions 3. Verify account is active

▣ Additional Resources

- **Swarms.world Documentation:** <https://docs.swarms.world>
- **API Reference:** <https://api.swarms.world/docs>
- **Support:** support@swarms.world
- **Integration File:** /nextjs_space/lib/swarms-hedge-fund.ts

⌚ Version History

- **v1.0.0:** Initial Swarms.world integration

- Hedge fund structure
 - CEO decision-making
 - Daily reports
 - Agent communication
 - Portfolio rebalancing
-

Status: ✓ Fully Integrated

Platform: Intellitrade

Last Updated: December 2024