

# # Swarms Multi-Agent Permissions System (SMAPS)

## ## Description

SMAPS is a robust permissions management system designed to integrate seamlessly with Swarm's multi-agent AI framework. Drawing inspiration from Amazon's IAM, SMAPS ensures secure, granular control over agent actions while allowing for collaborative human-in-the-loop interventions.

## ## Technical Specification

### ### 1. Components

- **User Management**: Handle user registrations, roles, and profiles.
- **Agent Management**: Register, monitor, and manage AI agents.
- **Permissions Engine**: Define and enforce permissions based on roles.
- **Multiplayer Interface**: Allows multiple human users to intervene, guide, or collaborate on tasks being executed by AI agents.

### ### 2. Features

- **Role-Based Access Control (RBAC)**:
  - Users can be assigned predefined roles (e.g., Admin, Agent Supervisor, Collaborator).
  - Each role has specific permissions associated with it, defining what actions can be performed on AI agents or tasks.
- **Dynamic Permissions**:

- Create custom roles with specific permissions.
- Permissions granularity: From broad (e.g., view all tasks) to specific (e.g., modify parameters of a particular agent).
- **Multiplayer Collaboration**:
  - Multiple users can join a task in real-time.
  - Collaborators can provide real-time feedback or guidance to AI agents.
  - A voting system for decision-making when human intervention is required.
- **Agent Supervision**:
  - Monitor agent actions in real-time.
  - Intervene, if necessary, to guide agent actions based on permissions.
- **Audit Trail**:
  - All actions, whether performed by humans or AI agents, are logged.
  - Review historical actions, decisions, and interventions for accountability and improvement.

### ### 3. Security

- **Authentication**: Secure login mechanisms with multi-factor authentication options.
- **Authorization**: Ensure users and agents can only perform actions they are permitted to.
- **Data Encryption**: All data, whether at rest or in transit, is encrypted using industry-standard protocols.

### ### 4. Integration

- **\*\*APIs\*\***: Expose APIs for integrating SMAPS with other systems or for extending its capabilities.
- **\*\*SDK\*\***: Provide software development kits for popular programming languages to facilitate integration and extension.

## ## Documentation Description

Swarms Multi-Agent Permissions System (SMAPS) offers a sophisticated permissions management mechanism tailored for multi-agent AI frameworks. It combines the robustness of Amazon IAM-like permissions with a unique "multiplayer" feature, allowing multiple humans to collaboratively guide AI agents in real-time. This ensures not only that tasks are executed efficiently but also that they uphold the highest standards of accuracy and ethics. With SMAPS, businesses can harness the power of swarms with confidence, knowing that they have full control and transparency over their AI operations.