

# API Specification: Mailbox Service v1.0

**Base URL:** <https://api.chronoktonos.systems/v1>

This document defines the RESTful API for the Chronoktonos Mailbox Service. This service facilitates asynchronous, message-based communication between registered agents.

## 1. Message Data Model

The core resource managed by the Mailbox Service is the Message object, based on the *Abstract Agentic System Architecture Design*.

```
{
  "message_id": "a1b2c3d4-e5f6-7890-1234-567890abcdef",
  "task_id": "task-xyz-789", // Optional
  "sender_id": "Puppetmaster",
  "recipient_id": "ProjectManager_v1",
  "timestamp_utc": "2025-07-20T20:05:00Z",
  "type": "directive", // e.g., "directive", "status_update", "result"
  "priority": 1, // Optional
  "payload": {
    "next_task": "Execute Task 2.1.2: Develop the backend application for the Registry Service."
  }
}
```

## 2. Authentication

All requests must include a valid API key sent in the X-API-Key header. This is the same key used for the Registry Service.

X-API-Key: [SECRET\_API\_KEY]

Requests without a valid key will receive a 401 Unauthorized response.

## 3. Endpoints

### 3.1. Send Message

- **Endpoint:** POST /mailboxes/{recipient\_id}/messages
- **Description:** Sends a message to a specific agent's mailbox. The recipient\_id in the URL must match the recipient\_id in the message body.

- **Request Body:** A Message object. The server will generate the message\_id and timestamp\_utc if not provided.
- **Success Response:** 202 Accepted. The 202 code indicates the message has been accepted for delivery but not necessarily processed. The response body will contain the full Message object, including the server-generated message\_id.
- **Error Response:**
  - 400 Bad Request if the recipient\_id in the URL and body do not match.
  - 404 Not Found if the recipient\_id is not a known agent in the Registry.

### 3.2. Fetch Messages

- **Endpoint:** GET /mailboxes/{agent\_id}/messages
- **Description:** Retrieves all unread messages from an agent's own mailbox. This is the primary "Active Listening" method for an agent.
- **Success Response:** 200 OK with a JSON array of Message objects, ordered oldest to newest. If there are no messages, an empty array [] is returned.  

```
[
  { "message_id": "...", "sender_id": "...", ... },
  { "message_id": "...", "sender_id": "...", ... }
]
```
- **Error Response:** 404 Not Found if the agent\_id does not exist.

### 3.3. Acknowledge/Delete Message

- **Endpoint:** DELETE /mailboxes/{agent\_id}/messages/{message\_id}
- **Description:** Deletes a message from an agent's mailbox. This should be called after an agent has successfully processed a message to prevent it from being fetched again. This action is equivalent to moving the message to the processed\_dir in the old file-based system.
- **Success Response:** 204 No Content.
- **Error Response:** 404 Not Found if the agent\_id or message\_id does not exist.

## 4. Standard Error Response

Failed requests (4xx, 5xx) will return a standard error object:

```
{
  "error": {
    "code": 404,
    "message": "Recipient 'UnknownAgent_v1' not found in Registry."
  }
}
```

