

AGENT-COMMS-001

Agent Communication Architecture – Email, Alerts, and Human-in-the-Loop Channels

Revision A (Baseline)

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Classification: Company Confidential

1. PURPOSE

Defines the communication architecture enabling autonomous, traceable interaction between the MCP Agent Swarm, Gary Spear (Authority), ATB, external vendors, and standards bodies. Ensures Tier1/Tier2 governance, full auditability, and 24/7 operational capability.

2. SCOPE

Includes:

- Persistent email identities for every agent
- Outbound and inbound communication workflows
- Escalation channels for human intervention
- Vendor communication integration
- NAS-based archival, memory, and continuity registry linkage
- Tier1/Tier2 governance enforcement

3. COMMUNICATION PRINCIPLES

- Agents operate as autonomous participants, each with its own email identity.
- Human authority (Gary) retains final decision-making power.
- Tier1 communications must be fully traceable and logged per NF-ICD-001.
- Tier2 communications may use lightweight logging.
- All communications must integrate with NAS, continuity registry, and memory files.

4. EMAIL ADDRESSING SCHEME

Tier1 Engineering Agents:

architect@spear-enterprise.com

mechwork@spear-enterprise.com

physcore@spear-enterprise.com

hfx@spear-enterprise.com

nfpa.guard@spear-enterprise.com

pipeline@spear-enterprise.com

ledger@spear-enterprise.com

codewrite@spear-enterprise.com

mcs.ai@spear-enterprise.com

atb@spear-enterprise.com

Tier2 Creative:

emberbound.agent@spear-enterprise.com

tommy.ransome.agent@spear-enterprise.com

creative@spear-enterprise.com

5. OUTBOUND EMAIL WORKFLOWS (AGENT → WORLD)

A. Agent generates:

- Intent (question, request, escalation)
- Metadata (task ID, urgency, Tier)
- Optional attachments or NAS file URIs

B. n8n COMMS workflow:

- Builds subject line: [AGENT][TIER][TASK-ID]
- Builds body content using agent output
- Logs metadata to Tier1/Tier2 directories
- Sends email using Gmail/SMTP credentials

C. Optional continuity registry entry (Tier1 only).

6. INBOUND EMAIL WORKFLOWS (WORLD → AGENT)

A. n8n email trigger receives inbound message.

B. Subject/body parsed for:

- Task ID

- Decision codes

- Vendor data

- Attachments

C. Attachments stored:

- Tier1: /_governance/EMAIL_LOGS or /REPORTS/_vendor_docs

- Tier2: /Documents/Vendor

D. Records stored as EML or structured JSON.

E. Parsed decision routed back into the agent workflow.

7. HUMAN ESCALATION PATHS

Triggers:

- Safety concerns (NFPA-GUARD, SYS-SAFE)

- Architectural impacts (ARCHITECT)

- Physics anomalies (PHYSCORE)

- Cost overruns or procurement issues (LEDGER)

- Dual-agent disagreement (D-AVP-001)

Escalation Channels:

- Email (system-of-record)

- Push notification (SMS, Telegram, Pushover)

Human Reply Process:

- Replies with APPROVED / REJECTED / REVIEW
- n8n parses reply, updates task, and logs continuity entry.

8. VENDOR INTERACTION

Agents may autonomously request:

- Datasheets
- MSDS
- Safety specs
- Thermal curves
- Quotes
- Lead times

Inbound vendor replies are parsed, logged, and stored according to Tier.

Legal/contractual emails must route through Gary for review.

9. TELEGRAM / PUSH NOTIFICATIONS

Provides rapid alerts but NOT a formal record.

All authoritative decisions MUST flow through email.

10. DATA STORAGE & TRACEABILITY ON NAS

Tier1:

- /_governance/EMAIL_LOGS
- /REPORTS/_vendor_docs
- /LOGS/AGENT_COMMS
- Atomic write + SHA-256
- continuity_registry.jsonl entries

Tier2:

- Lightweight logging under project directories.

11. SECURITY & ACCESS CONTROL

- n8n stores credentials securely in credential vault.
- Agents do NOT directly hold email credentials.
- Least-privilege access enforced.
- Tier1 logs all communication metadata.

12. IMPLEMENTATION ROADMAP

Phase 1:

- Create mailboxes
- Build outbound/inbound email workflows

Phase 2:

- Enable vendor + human response loops
- Integrate Gary's inbox and ATB inbox

Phase 3:

- Add continuity registry and atomic write governance
- Implement D-AVP-001 compliance hooks

Phase 4:

- Integrate Telegram/SMS as fast alert channels

13. SUCCESS CRITERIA

- All agents have operational mailbox identities.
- Human and vendor interactions work autonomously.
- n8n parses human replies and routes back to agents.
- Vendor data stored with correct Tier classification.

- Tier1 decisions appended to continuity registry.
- Alerts reach Gary without requiring open chat sessions.

14. REVISION HISTORY

Rev A – Initial baseline communication architecture.