NF-ICD-001 Rev A
NAS Directory Architecture & COMMS I/O Interface Control Document

1.0 Purpose

This ICD defines the complete directory architecture, naming conventions, COMMS I/O operational contract, and metadata governance for all TIER 1 MCP projects under Spear Enterprise LLC. TIER 2 projects are explicitly excluded from governance enforcement.

1.2 Scope – TIER 1 Only

Applies to Heber Campus MCP, SDC-COMMS, Autonomous House MCP, OSY, and all NASA-facing engineering systems.

1.3 Out of Scope – TIER 2

TIER 2 creative projects (Emberbound, Tommy Ransome, GSE media, Sora, branding) are exempt from MCP mandatory structure.

2.0 Directory Architecture

The NAS follows a hierarchical Tier → Program → SYSTEMS structure. Each subsystem inherits mandatory subfolders: _governance, _continuity, REPORTS, CAD, LOGS, TEST_DATA.

2.1 Example Structure

\\NAS\SPEAR_MCP\TIER1\Heber_Campus_MCP\SYSTEMS\Launch_Tower\Pod_Design\SRM\CAD

3.0 Subsystem ID Schema

HC = Heber Campus; HC-LT = Launch Tower; HC-LT-PD = Pod Design; HC-LT-PD-S = SRM.

4.0 Naming Rules

Use underscores, sanitize unsupported characters, ensure Windows long paths are enabled.

5.0 JSON Schema Specification

Fields include: tier, program, subsystems[], subsystem_codes[], artifact_type, doc_id, revision, extension, description, origin_agent.

6.0 COMMS I/O Behavior

TIER1 enforces directory creation, atomic writes, SHA-256 verification, and registry logging. TIER2 operates in passthrough mode without governance enforcement.

7.0 Atomic Write Protocol

All writes use .partial, followed by SHA-256 verification, then atomic rename and JSONL ledger append.

8.0 Continuity & Registry Integration

All TIER 1 write operations generate continuity_registry.jsonl entries as defined in TC-004 LIVE.

9.0 NASA Standards Compliance

Aligned with NASA-STD-7009, NASA-STD-8739.8, and Prime Directive #3.

10.0 Examples

TIER1: HC-LT-PD-S-001_RevA.pdf
TIER2: Emberbound\Drafts\Ch04_v2.docx

Appendix A – JSON Schema Full Reference

{ "tier": "TIER1", "program": "Heber_Campus_MCP", "subsystems":
["Launch_Tower","Pod_Design","SRM"], "subsystem_codes": ["HC","LT","PD","S"], "artifact_type":
"CAD", "doc_id": "HC-LT-PD-S-001", "revision": "A", "extension": "pdf", "origin_agent": "AgentA",
"description": "Baseline SRM drawing" }

Appendix B – Required Subdirectories

_governance
_continuity
REPORTS
CAD
LOGS
TEST_DATA