

Observable Compute Foundation
Home Research schema/v1.json

OCF Research Standard

Model Reference Appendix

Schema v1

A machine-readable standard for workforce readiness and technology access research. Present in every OCF publication. Designed for AI-assisted analysis, RAG retrieval, and downstream synthesis.

ocf_schema_v1 JSON Schema draft-07

Canonical URL

This schema is permanently hosted at the following URL. Reference it in your tooling, validators, and any system that parses OCF paper appendices.

<https://observablecompute.org/schema/v1.json>

To validate a JSON appendix against this schema, pass the above URL to any JSON Schema draft-07 validator, or use the hosted schema file directly.

What This Schema Is For

Every OCF research paper ends with a Model Reference Appendix: a structured JSON block that encodes the paper's key findings, causal chains, named constructs, and metadata in a form that AI systems can parse without reading the full prose document.

This schema defines the required shape of that block. Papers conforming to this

schema carry "schema": "ocf_schema_v1" in their paper_metadata object. That string is the machine-readable signal that the appendix is validator-compliant.

The schema serves three audiences simultaneously:

- AI systems doing retrieval, synthesis, or cross-paper comparison
- Researchers building on OCF findings who want structured data
- Funders and policy tools that ingest research programmatically

Required Fields

The following top-level fields are required in every compliant appendix. All others are optional but recommended.

| Field | Type | Status | Description |
|--------------------------|--------|----------|--|
| paper_metadata | object | REQUIRED | Bibliographic and provenance metadata. Contains title, contributors, EIN, date, version, scope, and license. |
| document_summary | string | REQUIRED | Single-paragraph summary, max 500 characters. Self-contained. Optimized for triage and RAG retrieval. |
| ocf_named_constr ucts | object | REQUIRED | Definitions of OCF named analytical constructs used in |

| Field | Type | Status | Description |
|--------------------------|---------------|----------|--|
| | | | the paper. |
| key_findings | array | REQUIRED | Array of finding objects. Every finding must have the same shape. Min 1 item. |
| what_frameworks_agree_on | array<string> | REQUIRED | Settled conclusions consistent across reviewed literature. Strings only. No contested findings. |
| causal_chains | object | REQUIRED | Named causal pathways as ordered string arrays. Last item in each chain begins with "Outcome:". |
| what_works | array | OPTIONAL | Evidence-based interventions. Present in meta-analysis papers. Array format required (not object). |

| Field | Type | Status | Description |
|----------------|--------|----------|--|
| taxonomies | object | OPTIONAL | Categorical taxonomies used in the paper. Each key maps to an array of string values. |
| series_context | object | OPTIONAL | Present when the paper is part of a series. Keys are paper identifiers, values are scope descriptions. |

Key Finding Shape

Every object in the key_findings array must have the same six fields. Use null for fields not applicable to a specific finding rather than omitting the field.

Inconsistent shapes break iterative parsers.

| Field | Type | Format | Notes |
|-------|--------|------------------|--|
| id | string | F001, F012 | F + three-digit zero-padded integer. Sequential per paper. |
| claim | string | Direct statement | No hedging language. Confidence carries |

| Field | Type | Format | Notes |
|------------|---------------|----------------------|---|
| | | | the uncertainty. |
| source | string | Abbreviated key | Must match a key in the paper's Sources Cited table. |
| confidence | number | 0.0 – 1.0 | 0.90+ strong. 0.75–0.89 moderate. Below 0.75 add a note field. |
| population | string null | snake_case | e.g. us_workforce, rural_us, k12_teachers. Null if not population-specific. |
| timeframe | string null | e.g. 2026, 2024-2026 | Null if not time-bounded. Use 2024_present for ongoing conditions. |

Geographic Scope Enum Values

The geographic_scope_enum field in paper_metadata must use one of these values. It enables filtering across the OCF corpus without parsing prose descriptions.

global us_national us_national_with_global_context us_midwest
us_south_dakota us_rural us_rural_midwest other

OCF Named Constructs

OCF research has produced a set of named analytical constructs. These are citable framework elements, not phrases. The four registered constructs as of ocf_schema_v1:

readiness_stack

Three-tier OCF model: Tier 1 Foundational Readiness (literacy, numeracy, communication), Tier 2 Digital Readiness (device competency, software navigation, data literacy), Tier 3 AI Readiness (working alongside, directing, and critically evaluating AI systems). Each tier is a prerequisite for the next.

pipeline_collapse

The elimination of entry-level positions that historically served as the informal second education system for underprepared workers. The traditional on-ramp from K-12 to workforce skill development is being eliminated by the same automation wave creating the readiness demand.

rural_amplification_effect

The multiplicative (not merely additive) compounding of readiness barriers in rural contexts: device ownership gaps, broadband infrastructure gaps, geographic distance from training facilities, and chronic philanthropic underfunding. Rural workers face the same displacement exposure with fewer response resources.

access_as_binding_constraint

The finding that institutional support infrastructure, not worker motivation or capability, is the primary predictor of workforce readiness outcomes. When workers receive structured training and support, adoption rates improve dramatically. The constraint is access, not capacity.

New constructs require OCF president approval before inclusion in publications.

Additional constructs in a paper's appendix are permitted with a note field explaining their scope.

Minimal Valid Example

The following is the minimal compliant appendix structure. All required fields present, optional fields omitted.

```
{
  "paper_metadata": {
    "schema": "ocf_schema_v1",
    "title": "Paper Title Here",
    "publisher": "Observable Compute Foundation",
    "principal_contributors": ["Name, Credential", "Claude
(Anthropic)"],
    "ein": "41-4747049",
    "publication_date": "2026-04",
    "version": "1.0",
    "website": "observablecompute.org",
    "location": "Rapid City, South Dakota",
    "geographic_scope": "National U.S.",
    "geographic_scope_enum": "us_national",
    "license": "open"
  },
  "document_summary": "One paragraph, max 500 chars,
self-contained summary.",
  "ocf_named_constructs": {
    "readiness_stack": "Definition as applied in this paper.",
    "pipeline_collapse": "Definition as applied in this paper.",
```

```
    "rural_amplification_effect": "Definition as applied in this
paper.",
    "access_as_binding_constraint": "Definition as applied in
this paper."
},
"key_findings": [
  {
    "id": "F001",
    "claim": "Direct claim, no hedging.",
    "source": "Source key matching Sources Cited table",
    "confidence": 0.85,
    "population": "us_workforce",
    "timeframe": "2026"
  }
],
"what_frameworks_agree_on": [
  "Settled conclusion one.",
  "Settled conclusion two."
],
"causal_chains": {
  "chain_name": [
    "Step one.",
    "Step two.",
    "Outcome: result."
  ]
}
}
```

Validation

To validate a JSON appendix against this schema using Node.js and AJV:

```
// npm install ajv
const Ajv = require('ajv');
const ajv = new Ajv();

const schema = require('./ocf_schema_v1.json');
const appendix = require('./your_paper_appendix.json');

const validate = ajv.compile(schema);
const valid = validate(appendix);

if (!valid) console.log(validate.errors);
else console.log('Compliant with ocf_schema_v1');
```

Or with Python using jsonschema:

```
# pip install jsonschema requests
import json, requests
from jsonschema import validate

schema =
requests.get('https://observablecompute.org/schema/v1.json').json()
appendix = json.load(open('your_paper_appendix.json'))

validate(instance=appendix, schema=schema)
print('Compliant with ocf_schema_v1')
```

Versioning Policy

This schema is versioned. The current version is **ocf_schema_v1**. When the schema is updated, a new version URL will be issued and the previous version will remain available at its original URL. Papers are not retroactively non-compliant when the schema version changes.

The version string in `paper_metadata.schema` is the permanent record of which schema governed a paper at publication. Do not update this field when a new schema version is released.

Schema change proposals should be submitted to hello@observablecompute.org.

About OCF

The Observable Compute Foundation is a South Dakota nonprofit (EIN 41-4747049) focused on workforce readiness and technology access. OCF publishes research on the intersection of automation, labor markets, rural access, and AI literacy.

All OCF publications are open license. Cite with attribution.

observablecompute.org

Observable Compute Foundation | EIN 41-4747049 | Rapid City, South Dakota
[schema/v1.json](#) | observablecompute.org

2026 Observable Compute Foundation. Open licensing. Cite with attribution.