

TrustlessMark Interoperability Layer — Extended Edition v1.0 (2025)

We will have a lot more for TrustlessMark.org to consider.

Purpose: This extended edition provides the complete interoperability registry for the TrustlessMark standard, mapping 24 active certifications into verifiable Open Coffee Proof (OCP) schema objects. This document is intended for foundational reference during standards committee and implementation reviews.

Certification / Badge	Governing Body	Verification Type	TrustlessMark Claim Type	Proof Format	OCP Proof Level	Status
USDA Organic	USDA NOP	Third-party audit	OrganicProduction	JSON + PDF	Extended Proof	Core
Fair Trade Certified	Fair Trade USA	License / Audit	FairTradeEthics	JSON	Partner Node	Core
Rainforest Alliance	Rainforest Alliance	License / Field audit	RainforestSustainability	JSON	Partner Node	Core
Smithsonian Bird Friendly	Smithsonian Migratory Bird Center	Farm audit	BirdFriendlyAgriculture	PDF + JSON	Extended Proof	Core
Carbon Neutral Certified	Climate Neutral / SCS Global	Audit	CarbonNeutralProduction	JSON	Extended Proof	Core
Non-GMO Project Verified	Non-GMO Project	Lab test	NonGMOPurity	JSON	Extended Proof	Core
Specialty Coffee Association (SCA)	Specialty Coffee Association	Grading	CupQualityGrading	JSON	Base Proof	Core
Direct Trade	Brand-defined	Self-verified	DirectTradeTransparency	JSON	Base Proof	Core
B Corp	B Lab	Evaluation	CorporateEthics	JSON	Partner Node	Core
Gluten-Free Certified	GFCO / NSF	Lab + audit	GlutenFreeSafety	JSON	Extended Proof	Core
Vegan Certified	Vegan Action / V-Label	Label audit	VeganComposition	JSON	Extended Proof	Core
Kosher Certified	OU / Kof-K	Inspection	KosherCompliance	JSON	Extended Proof	Core
Halal Certified	IFANCA / ISA	Inspection	HalalCompliance	JSON	Extended Proof	Core
Compostable Packaging Certified	TÜV Austria / BPI	Lab test	CompostablePackaging	JSON	Extended Proof	Core
1% for the Planet	1% for the Planet	Documentation	DonationCommitment	JSON	Base Proof	Core
Texas Veteran-Owned Business	Texas Veterans Commission	Registration	VeteranOwnership	JSON	Base Proof	Core
TrustlessMark Verified	TrustlessMark Foundation	Digital signature	TrustlessVerification	JSON	Partner Node	Core
GS1 / UPC Traceability	GS1 Global	Registration	TraceabilityIdentity	JSON	Base Proof	Core
UTZ Certified (Legacy)	Rainforest Alliance (Legacy UTZ)	License / Field audit	UTZSustainability	JSON	Partner Node	Optional
Carbon Trust / PAS 2060	Carbon Trust (UK)	Audit	CarbonNeutralityValidation	JSON	Extended Proof	Optional
Women-Owned / WBENC	WBENC / WEConnect International	Registration	WomenOwnedCertification	JSON	Extended Proof	Optional

PDO / PGI	EU GI System	Registration	GeographicIndication	JSON	Extended Proof	Optional
ISO 22000 Food Safety	ISO / SGS	Audit	FoodSafetyManagement	JSON	Extended Proof	Emerging
Plastic Neutral / rePurpose Global	rePurpose Global	Documentation + Audit	PlasticNeutralCommitment	JSON	Extended Proof	Emerging
RE100 / Renewable Energy Commitment	NetZeroClimate Group + CDP	Documentation	RenewableEnergySource	JSON	Extended Proof	Emerging

TrustlessMark → OCP Schema Mapping

Each certification maps to a structured JSON-LD claim object compatible with Open Coffee Proof (OCP) and schema.org definitions.

```
{ "@context": "https://schema.org", "@type": "Certificate", "claimType": "USDA Organic", "issuedBy": "USDA NOP", "verificationMethod":  
  "Third-Party Audit", "trustlessmark:hash": "sha256-hex-string", "trustlessmark:signature":  
  "https://verify.trustlessmark.org/fcc/certifications/usda-organic.sig", "trustlessmark:version": "OCP-v1" }
```

Governance & Proof Hierarchy

TrustlessMark supports three proof levels to ensure traceability and interoperability across the supply chain:

- **Base Proof** — Simplified JSON claim (self-attested)
- **Extended Proof** — Includes third-party lab or audit verification
- **Partner Node Proof** — Direct validation via external certifier APIs

Appendix — Shopify Metafield Linkage

TrustlessMark integrates directly into Shopify metafields to provide machine-verifiable data display:

- fcc.manifest_url — Proof file
- fcc.signature_url — Cryptographic signature
- fcc.certificate_verified — Boolean flag
- trustlessmark.claim_type — Certification claim