# Credential Engine: CTDL Linked Open Data Explainer

*We sometimes get questions about how CTDL, 1EdTech's CASE specification, and the Competency and Skills System (CaSS) relate.  The short answer is that CTDL is a family of open schemas designed to support Linked Open data that connects resources such as credentials and jobs to competencies; CASE is a specification designed for system-to-system exchange of competency frameworks, and CaSS is an open-source software for competency management that we utilize as part of the Credential Registry publishing system.  The information below further describes these technologies and their relationships.*

**CTDL Family of Schemas:** The Credential Transparency Description Language (CTDL) comprises a set of schemas, including CTDL, CTDL Achievement Standards Network (ASN), and Quantitative Data (QData), each with its own namespace. Despite their separate namespaces, these schemas are fully integrated, ensuring seamless functionality.

- **CTDL:** offers a comprehensive schema comprising classes, properties, concept schemes, and concepts for describing various elements such as credentials, assessments, learning opportunities, transfer values, jobs, and more.
- **CTDL ASN:** specifically designed to define skills, competencies, learning outcomes, rubrics, progression models, and related concepts.
- **QData:** tailored for numerical values, with a particular focus on outcome metrics.

**CTDL Linked Open Data Structure:** Built upon World Wide Web Consortium (W3C) specifications including RDF and SKOS, these schemas facilitate the modeling and publication of data to the Credential Registry in the form of CTDL Linked Open Data structures. The Credential Registry repository houses a diverse array of resources, including credentials, assessments, rubrics, learning programs, courses, jobs, occupations, and more, that can be linked directly to skills and competencies. This data is both human-readable and machine-readable, shedding light on the intricate relationships between diverse resources and competencies. CTDL is developed using open, community based processes that follow well-defined schema namespace and lifecycle policies.  For detailed insights into CTDL and Linked Open Data, consult the [CTDL Handbook](#).

**Aligning to Other Data Standards:** The modeling, attributes, and benefits of CTDL Linked Open Data structures differ from other data standards. For example, the 1EdTech CASE specification isn't designed for linked open data connecting competencies with credentials and other data; rather, it focuses on system-to-system exchange of competency frameworks. Nonetheless, CTDL development considers and aligns with existing standards whenever possible, integrating them into the CTDL open community development process.

**Credential Registry Publishing System:** Credential Engine maintains a robust, open source Credential Registry publishing system for converting information to CTDL Linked Open Data structures and publishing them to the Credential Registry. This system offers [several publishing tool options](#), including the Credential Registry Publishing API and the Competency and Skills System (CaSS). These tools are for publishing numerous [CTDL classes](#).  CaSS is for publishing

competency frameworks and collections of competencies.  CaSS outputs CTDL Linked Open Data structure to the Registry.  It also supports publishing CASE competency frameworks and competencies as CTDL so that they can be linked to other data in CTDL. It also supports publishing Open Badges in the Registry.

**Summary:** The CTDL represents a powerful solution for describing credentials, skills, and competencies in a standardized and interoperable manner. By leveraging CTDL Linked Open Data structures, stakeholders can access a wealth of information, seamlessly navigate relationships between resources and competencies, and drive innovation in education and workforce development. With its commitment to alignment with existing standards and continuous improvement, CTDL stands as a cornerstone in the quest for transparency, accessibility, and efficacy in credentialing and education.

**More Information:** Numerous resources are available for anyone to use to learn about and use the CTDL and Credential Registry Publishing System.  For more information, email publishing@credentialengine.org.
- Visit our website: https://credentialengine.org
- Explore our technical site https://credreg.net
- Find Credential Registry System guidance https://guidance.credentialengine.org/