JSON Task Force

# PESC Compliant JSON

The JSON Task Force was founded on May 3, 2017 at the Spring 2017 Data Summit in Washington D.C. with a mission to advise the PESC Board on how to provide JSON exchanges of PESC standards. Much of the direction for accomplishing this was provided by the implementation of EdExchange. By creating a Java object model from PESC XML Schema (JAXB package) and serializing JSON from Java objects (MoXY package), EdExchange was able to translate between XML and JSON transcript instance documents that complied to PESC schemas. This concept of using XML Schema to determine the JSON content was the Task Force’s initial approach to specifying PESC JSON. The Task Force then started working to define the specific rules for creating JSON instance documents from XML schemas.

Access 4 learning (A4L) joined the Task Force on February 13, 2018. John Lovell from A4L provided the Task Force with vital information about the successes and failures that A4L experienced rolling out its JSON implementation of the A4L services. This information was used to craft the rules for tying together the existing XML standards with JSON instance documents for both PESC and A4L. The joint Task Force completed this work by releasing [PESC Compliant JSON v1.0](https://www.pesc.org/pesc-approved-standards.html) on March 8, 2019. A4L issued a similar document for their community.

# JSON Schema

Clearly, this was just the first step in providing exchanges in JSON. For implementing new standards and easing the transitions from XML to JSON for those in the community who prefer JSON to XML, The PESC Technical Advisory Board (TAB) decided in 2015 to provide a tool to assist the creation of JSON schema objects by converting XML Schemas to JSON Schemas. The TAB developed an XSLT script to perform this function and validated it against JSON transcript produced by EdExchange. The Task Force has not updated this script since this time and there have been several changes in JSON Schema in the interim. The Task Force will update the XSLT when needed by a workgroup. In addition, the Task Force and the TAB are available to assist Workgroups in developing new standards using JSON Schema.

# JSON-LD

Credential Engine, an organization that had previously developed a JSON-LD serialization for [Credential Transparency Description Language](https://credreg.net/ctdl/handbook) (CTDL), joined the Task Force on October 19, 2018. Nate Argo, Stuart Sutton, and Scott Cheney provided insight into how JSON-LD may be effectively used to provide data definitions from various distributed sources to create a standard. By using data definitions that were universally available (e.g., schema.org, HR open standards, Common Education Data Standards, PESC, A4L, etc.), a standard vocabulary could be created across an entire education community that would reduce the need for the various mapping and translation efforts. The Task Force was then renamed the JSON-LD Task Force with the mission of using JSON-LD to create distributed standards.

# Standard Data Definitions

The Task Force then started investigating how various organization defined their data to determine how a distributed standard, using JSON-LD could be created using the definitions from the authoritative source. The approaches reviewed included A4L, HR Open Standards, CTDL from Credentials Engine, Common Education Data Standards (CEDS), and National Information Exchange Model (NIEM). From this exercise, it became clear that the method for defining data objects varied greatly including UML diagrams, JSON and XML Schemas, JSON-LD, database type specification, and linked HTML pages.

# Standardizing Context

While current JSON-LD standards such as CTDL use data definitions from sites such as schema.org, this only provides limited constraints on the data and these constraints are not specified in a machine executable language. Therefore, Credential Engine provides additional information to check the specific formatting of data elements that is not available at the definition site. What if there were a machine readable standard that all standards organizations would use to define their data elements? This would facilitate the creation and validation of exchanges without the need for each organization to create its own standards from scratch. It is proposed that the JSON-LD Task Force take on this standardization by enlarging our scope to include additional standards organizations.