

## 1. PROPOSED PROJECT TEAM/STUDY NAME

JSON+REST Pilot for converting PIDX XML standards

## 2. EXECUTIVE SUMMMARY

PIDX would like to explorer converting its existing XML based messaging to a newer architecture based on JSON messaging and RESTful APIs. JSON/REST is a standard that is used for mobile and modern application development and the PIDX community has requested support for it as more business transactions occur on mobile and modern platforms.

The project team will focus on Invoice submission and Response messages so that the PIDX community can more quickly, and easily, understand how the feasibility of JSON/REST. Upon completion of the project we will evaluate the roadmap for migration of all standards.

## 3. DESCRIPTION

PURPOSE	The purpose of this project is to convert existing PIDX messaging and standards to use a JSON messaging format and REST API architecture.
SCOPE	The scope is limited to the Invoice submission and response process and messaging so that we can understand the technical challenges, risks, and potential solutions to the wider PIDX standards. The scope will also include reviewing any existing PIDX users who have tried to use JSON and REST APIs on their own and to document their challenges, status, and current state.
GOALS	<ul style="list-style-type: none"> <li>• Identify criteria for success of the deliverables/specification as deployed in industry</li> <li>• Convert existing Invoice and InvoiceResponse schemas to use a JSON messaging format</li> <li>• Map REST API methods – _GET, PUT, POST, DELETE – _to Invoice submission and response business processes.</li> <li>• Identify technical and business process gaps that may exist in a JSON/REST architecture that cannot be addressed</li> <li>• Review any existing implementations that have done with JSON/REST based on PIDX standards.</li> </ul>

DELIVERABLES	<ul style="list-style-type: none"> <li>• JSON specifications for Invoice and Response</li> <li>• REST API specification for RESTful methods</li> <li>• Lessons learned from process of converting architecture</li> <li>• Findings for other members or partners that have executed, successfully or unsuccessfully, to JSON/REST</li> </ul>
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*Identify how the proposed deliverables / specification relates to existing or under development deliverables/specifications. Identify how these will relate to each other.*

Existing Standards	New Standards/Deliverables
Invoice.xsd and InvoiceResponse.xsd	JSON specifications for Invoice and Response
Existing AS2 and RNIF Guidelines & Protocols	REST API specification for required RESTful methods

*Identify the integral sets of specifications that will be created or modified by the proposed work effort. (See 8.0 Initial Contributions)*

*Identify the expected useful life of the proposed deliverables/specification, e.g. estimated retirement dates or circumstances.*

- The useful life of JSON and RESTful APIs will be determine based on risks and gaps identified in this project.

*Identify how this work is specific to the energy industry and to the primary area of focus for PIDX. Identify other sources for aspects of the required solution that are not industry specific.*

- The usage of this new architecture pairs well with the movement towards more mobile friendly devices, such as tablets and smart phones, and also is a potential lead-in to Blockchain platforms.

*Identify the solutions that currently exist in the area of the proposal. Identify competing technologies/solutions.*

## BACKGROUND

*Identify other organizations that are doing similar work. Identify what they are doing and why additional work is needed. Identify how the proposed work effort will coordinate with related work efforts.*

- Other solutions in this area include legacy solutions, such as fixed width and XML, and non-standard solutions that are unique to specific proprietary platforms. The goal of PIDX is to drive standards that all can use so we don't believe the proprietary platforms are viable solutions.

*Identify the industry organizations / groups who want this deliverable/specification.*

*Identify all of the stakeholders of which you are aware.*

*Identify the stakeholders who are willing to join the work effort. (See Sponsor & Participants)*

- We believe that there are some PIDX members already using JSON and REST APIs. One of the goals of this project is to investigate them further, capture lessons learned, and any best practices that have been developed.
- We are currently working with Baker Hughes, a GE Company (BHGE), Cortex, and Oildex on this specification.
- BHGE, Cortex, Oildex
- BHGE and Cortex have confirmed that they are willing to sponsor this initiative within PIDX.

## PROPOSAL

- The proposal includes migrating the Invoice and InvoiceResponse messaging over to JSON formats and then developing the RESTful APIs to receive these messages. The RESTful APIs should identify the mappings for GET/POST/PUT/DELETE operations and corresponding HTTP response codes for errors.
- The goal of the project is to understand how current PIDX architecture would map, both technical and business process, and any gaps or challenges that are encountered.
- The project team is also expected to canvas the PIDX community for existing usage of JSON/REST and capture lessons learned and best practices.

#### 4. DESCRIPTION

Key Benefits include:

- Understand risk of using JSON/REST in a business transaction environment
- Enable new architecture footprint that is compatible with mobile standards and applications
- Identify effort to convert standards so that a longer term roadmap could be established

#### 5. SPONSOR AND PARTICIPANTS

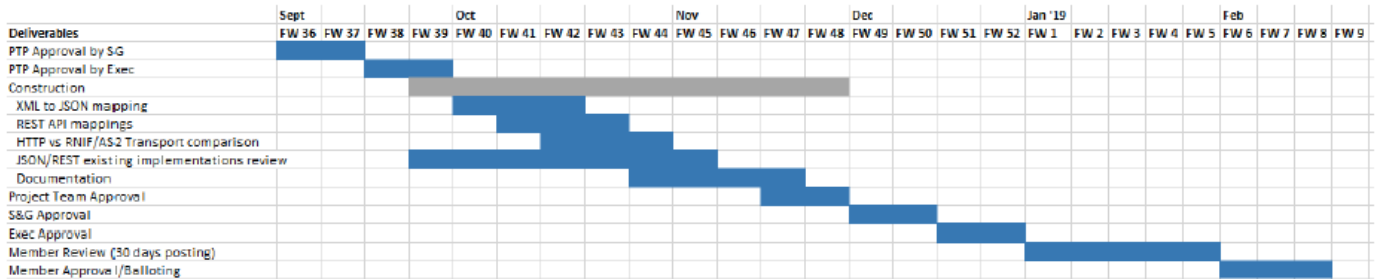
PIDX member/company sponsoring development of these specifications/this project:	Member Company
Marc Battistello	BHGE
Chris Lambert	Cortex

The following PIDX members/companies are participants in the development of these specifications:

Member	Member Company
Marc Battistello	BHGE
Chris Lambert	Cortex
Lucian Pop	Cortex
Lynn Taylor	Oildex

Mail distribution list required?	No
Please provide the name of the mail distribution list:	N/A

## 6. DELIVERABLE SCHEDULE



## 7. ANTICIPATED COMPLETION DATE

February 28, 2019

## 8. INITIAL CONTRIBUTIONS

Document Name	Type of Document	Document Source
Invoice.xsd	Invoice PIDX Schema v1.61	PIDX
InvoiceResponse.xsd	Invoice Response Schema v1.61	PIDX
AS2 Usage Guideline	PIDX Guideline	PIDX
RNIF: Rosetta Net Implementation Framework	PIDX Guideline/Framework	PIDX

## 9. PIDX RESOURCE REQUIREMENTS

Minute taking	0
Facilitation	0

Assuming that we will run this as a joint project, Kevin Jandora from LEAP could perform the tasks around meeting setup and facilitation as well as minute-taking. Otherwise assume the “typical” amount of time commitment for a 3 month-long effort with weekly meetings.

<b>Planned activity</b>	<b>Number per month</b>	<b>Number of months</b>	<b>Duration (hrs)</b>	<b>PIDX Time (hrs)</b>
Conference calls	4	3	1	1
Face to face meetings	0	0	0	0

### 10. SPONSORING MEMBER/WORK GROUP/SUBCOMMITTEE

This specification has been submitted by Marc Battistello on behalf of the Business Messages Work Group/Sub-Committee.

The chair of this Work Group/ Sub-Committee has reviewed this submission for completeness and understands this particular Work Group/ Sub-Committee is the Sponsoring Work Group/ SIG, responsible for the communication process. This does not mean the Chair or Work Group/ SIG is approving the actual work or its inclusion in any specification.

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Chair’s Approval: Marc Battistello (via email)  
 Date: September 21, 2019

### 11. PIDX EXECUTIVE COMMITTEE

Upon review by the PIDX Executive Committee, this Project Team Proposal (PTP) is:

- Approved
- Denied
- Requires additional information

If “Denied” or “Requires Additional Information,” please provide details.

Date: September 26, 2018