

# Certification Body Design Options for EPA's ENERGY STAR Qualified Product Exchange (QPX) XML Transaction System

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EPA's ENERGY STAR QPX XML Transaction System accepts data from CBs based on the SOAP 1.1 transmission protocol and is intended to interface with a wide variety of systems. Since XML is an industry standard, CBs should build a system tailored to their internal business processes and how data is currently stored. Systems that are automated and designed to process data dynamically will reduce costs by minimizing the need for manual data entry and data submission. For more information regarding technical system documentation, please visit: [http://www.energystar.gov/index.cfm?c=third\\_party\\_certification.tpc\\_webservices](http://www.energystar.gov/index.cfm?c=third_party_certification.tpc_webservices).

CBs with limited IT capabilities may want to consider the following design approaches:

## *Small company, limited resources, small or no IT department*

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- Simple, basic setup to allow for iterative improvement and additional functionality.
  - Less complicated than other solutions.
  - Based on popular open-source standards/applications.
- Consider using the following open source tools if they are compatible with internal hardware and software:
  - [WAMP](#) Server (There are also other server packages available similar to WAMP).
    - Open-source - Windows based, Apache Server with MySQL and PHP. (PHP is the primary programming language).
    - Requires experience in XML, XSD, and WSDL (SOAP 1.1 web-services).
    - WAMP is a software suite of tools that creates a local server on a machine that can communicate with the QPX XML Transaction System. This local server also has a database which can be accessed internally or externally.
  - [PHP](#) is a Web-programming language that can design forms to send products data to QPX via an XML SOAP message.
  - [SOAP](#) is an industry standard web-messaging protocol that allows applications to communicate. SOAP is built into QPX, and all message handling uses SOAP.
  - [MySQL](#) is a relational database language. The database that comes with WAMP Server is in MySQL, and can store product information, not just for web transmission but also for archiving and reporting.

- More advanced implementation, designed to be more dynamic and to eliminate custom coding upon Web-service updates.
  - More adaptable to changes, (i.e. new product categories, new template versions).
  - Fast method for dynamically generating code from the QPX WSDL.
  - Based on Java [J2EE](#) programming language, which is popular and platform independent (can be run on Windows, Mac, Linux, etc...).
    - Tools:
      - [Eclipse](#) J2EE - Eclipse is an integrated development environment for the creation and control of Java J2EE projects (Also supports other languages such as PHP).
      - [Apache](#) Axis2 Server.
        - Application server that allows programs to communicate with other programs across the internet.
        - Supports SOAP and WSDL functionality.
        - Also can use Apache Tomcat for easy Eclipse integration.
      - [Spring Framework](#).
        - Open-source extensions for building web applications on the Java EE platform.
    - Design:
      - Building an application in Java would allow for full customization of an interface, and a virtually limitless set of features that could be designed and integrated over-time.
      - The Spring Framework and Axis2 along with Eclipse will allow generation of Java code off of the updated WSDL (Web Services), therefore dynamically creating Java code once an update or change is made.
        - Considerations:
          - Dynamically generating database tables can be complicated and can potentially cause problems with existing data fields/relationships.
          - Likely that database structures will still need to be manually created and maintained in the event of a Web-service update (i.e. specification change).