



CSC

CDX LITE

HELPING EPA USERS BUILD DATA FLOW MORE EFFICIENTLY

In partnership with CSC, EPA created a streamlined, greatly simplified approach to developing new data flows for EPA Program Offices — CDX Lite. CDX Lite is a dynamic, Web-based submission and XML code-generating applications tool. It allows designers or knowledgeable users to construct the front-end, functional capabilities required of typical CDX data flows by leveraging standard, reusable CDX software modules and Web services. This approach is proof that better, faster and cheaper can be realized using a Service Oriented Architecture (SOA).

Saving Time and Money for EPA Program Offices

EPA Program Offices face the constant challenge of justifying major budget requests for the development and maintenance of new data flows.

Today, the CDX Lite tool implemented by CSC enables these organizations to set up straightforward but high-quality Web uploads and facilitates CDX data flows without requiring the large-scale expenditures of time and money needed for from-scratch data collection, requirements analysis and initial XML code generation.

Empowering EPA Application Owners

CSC's approach to implementing EPA's design focused on service modules rather than components. CSC tied these modules together with an easy-to-use interface that allows the application owner to gather requirements, design the solution, implement it and provide the electronic report collection services necessary for the CDX data flow "front-end."

Implemented by CSC in collaboration with EPA Office of Environmental Information (OEI), Office of Information Collection (OIC), CDX Lite can help simplify the process of building a new data upload, thereby improving efficiency. It can also serve as a point of departure for designing a customized or enhanced front-end for a data flow or for creating the front-end for a more complex, end-to-end data exchange application.



**Benefits to EPA Program Office and Other Potential Stakeholders**

- Meets many program-specific data collection and transfer needs
- Significantly reduces the time and cost of establishing requirements, submitting registration requests and designing a data flow
- Enables knowledgeable end users and designers to submit registration requests, determine requirements and construct simple data flows without programmers
- Lets even "small" data users benefit from CDX without incurring the high cost of custom front-end development
- Provides for future versions that are envisioned to meet all Federal electronic reporting requirements, including CROMERR
- Reduces long-term operation and maintenance costs through centralization and reuse of building-block components

In addition to using existing components from the CDX Core Node, CDX Web, Network Authentication and Authorization Service (NAAS) and CDX utilities, the CSC technical team, under the direction of EPA, developed two CDX Lite features that give EPA user flexibility and control:

- The *Registration Provisioner* prompts the flow owner/designer with questions about the CDX registration requirements for their flow. Upon completion, the request for their new flow is sent to a CDX registration administrator for review and implementation.
- Once the flow's registration system has been specified, the user employs the *CDX Lite Provisioner* to capture the metadata that controls what the flow looks like and how it behaves. This information is entered into a user-friendly interface and captured behind the scenes in a number of XML templates, helping ensure consistent CDX look-and-feel formatting across flows.

Data flows using CDX Lite that are currently in production include eDisclosure Epcra National; eDisclosure Region 6; VERIFY Non-Road, ICIS-NPDES; eBeaches Monitoring; UIC and EAB. Several other data flows are now in the development or testing phases.

Delivering End-to-End Services with Developer Tool Kits

Using menu-driven tools and a visual approach, CDX Lite can deliver data collection and file uploading services for a focused set of requirements quickly and cost-effectively.

- **Data Flow and Registration Development.** Provides a menu-driven, visual approach that quickly defines new data flow functions to CDX without coding using the CDX Lite Registration Provisioning tool
- **Consolidated Life-Cycle Development.** Combines requirements, design and development phases and can be manipulated by customers to design their own CDX Lite flows using CDX Lite Designer tool
- **Design Review and Publishing.** Submits designs requested by customers for review and publishing and streamlines data flow review-and-approval process using the CDX Lite Submitter and CDX Lite Publishing tools
- **Transaction History.** Provides Web-based transaction information at the click of a mouse
- **Documentation.** Enables all new designs and requirements to be loaded directly into CDX Lite Metadata Tables (eliminating paper documentation).

CDX Lite works most effectively supporting simple file transfers in situations where restrictions such as limited fielded text and attributes about the submitters and data are not an issue and where basic Web-form functions with edit-checking for batch files can be used.

Providing a Lifeline to Existing CDX Core Services

CDX Lite is a framework driven by a customized XML file, which means developers can enhance the application and/or connect with existing, standard CDX software components that provide the following additional services:

- Registration and authentication
- CDX-to-workstation file download
- Inbox and e-mail messaging to submitters and notification groups
- Centralized point of access from MyCDX
- Dynamic Hyperlink button support to other Web pages
- Web services to receive agency confirmation for both in-band and out-of-band receipt of submissions
- Electronic collection of files in a variety of formats, including Web forms, XML files, binary and flat-file

This approach to application development allows CSC and EPA stakeholders to respond quickly to short-term and unanticipated needs for a data flow arising from changing EPA program priorities without sacrificing any degree of access to the full suite of CDX tools and services.

Recognition

EPA's Office of Environmental Information, Office of Data Collection, CSC's client for the CDX Lite project, received an innovation award for the CDX Lite effort in 2008.

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