

# EXCHANGE NETWORK SHARED SERVICES

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*US EPA Office of Environmental Information*

2017 Exchange Network National Meeting

Innovation and Partnership

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Philadelphia, Pennsylvania

#EN2017  
<http://www.exchangenetwork.net/en2017>

# ABSTRACT

Shared Services are no longer a concept or idea but in production where Exchange Network partners depend on services in order to fulfill business needs they have in common with other partners. EPA has worked with States and Tribes to focus on and develop a range of services where this commonality exists.

At this session, we will share four selected services that are in varying stages of maturity. In collaboration with our E-Enterprise and Exchange Network partners, we will continue to seek out efficiencies and improve upon the shared services concept and principles.

# TOPICS

- Virtual Exchange Services- Implementation Experience
- Shared CROMERR Services- Advanced Services and Business Processes
- Reusable Component Services- Demonstration and User Feedback Experience
- Laws and Regulations Services- Concept, Demonstration and Feedback

# Virtual Exchange Services (VES)

# Background

- The VES is a cloud-based platform designed to minimize the burden of building data exchanges by using standard templates that define processing
- VES has been in service for two years
- Partners can use VES to supplement or replace existing nodes
- The exchanges (e.g. ICIS-Air) are configured, not installed
- Partners can start quickly using the VES web application wizards and powerful dataflow import functions
- New features, such as dataflow definitions and services, are shareable

# Why VES?

- Provides a low cost option for partners to exchange data
- Eliminates the need for partner node HW/SW
- Streamlines development and maintenance of dataflows
  - Updates to templates are made centrally
- Minimizes the support staff needed for a node
  - You just need a database person

# What are the Virtual Exchange Services?

- A “data exchange as a service” platform that hosts partner services for States, Tribes, Regions, Agencies, Industry, etc.
- Partners no longer deal with the complexities of development, data formatting, dataflow logistics, notifications, etc.
- Partners import exchanges (pre-filled forms) from a template for each dataflow they deploy
- The system generates REST and SOAP services based on the imported templates/forms

# What's New in VES?

- Upgraded cloud infrastructure - tripled the processing power
- Added new Q/A service to speed testing of dataflows
- Optimized XML creation processes to speed throughput of large submissions
- Upgraded to .Net Workflow v4.5
- Added support for ORACLE stored procedures in the workflow process
- Implemented shared transaction report system (scheduled reports)

# What's New in VES ?

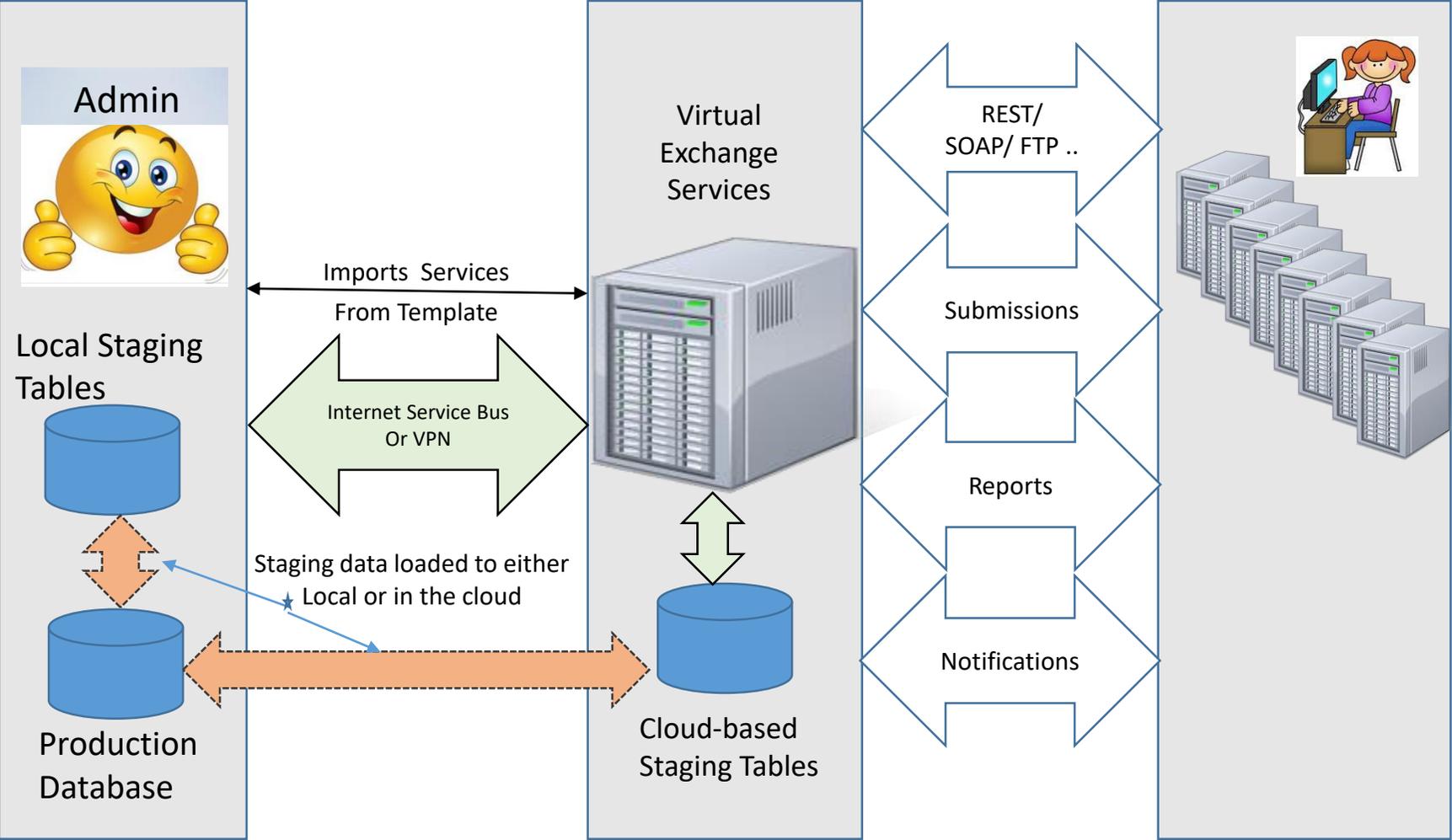
- Added custom header storage support
- Implemented owner messaging (notifications/messages to all owners)
- Enhanced security policy module (access control managed by owners)
- Added supported for tasks with dynamic parameters (rolling dates or date ranges)
- Implemented workflow persistence and pending transaction recovery
- Added automatic REST URL generation for Query Services

# VES

Partner Environment

Azure Cloud

Exchange Network/  
CDX/ Other Users



# Division of Labor for VES

## What You Do

- Call Node Help Desk
  - Get a Node administrator account
  - Set up a “Getting Started” meeting with VES Team
- Establish a secure connection to staging data
- Import exchange – e.g., AQS
- Map your data to the Staging Database
- Review documentation

## What VES Does For You

- Creates REST and SOAP Services
- Schedules data exchange
- Authenticates
- Pulls data from staging
- Formats data to XML
- Sends submission to CDX
- Logs activities
- Checks status
- Collects processing reports
- Sends notifications to you

# Configuring a Service in the VES Admin Tool

Environmental Information Home | About | FAQs | Help

**exchange Network** *Virtual Exchange Service Administrator (VESA)* Welcome clark.chris@epa.gov! Log Off

**Admin. Console** **Service Details** ACME-Virtual-Exchange-Services (Operational | 2.1 | Test)

**Node ID / Description:**  
ACME-Virtual-Exchange-Services - Chris Clark's Demo  
Node 11/25/2014

**Dataflow:**  
ICIS-Air

**Admin. Actions**

- Services
- Nodes
- Dataflows
- Data Sources
- Document Headers
- Tasks
- Workflows
- Node Requests

**Utilities**

- Search Transactions
- Provision Node
- Export/Import Node
- Import Configurations
- Register Servicebus
- Register Remote DB
- Test Services

**Service Settings**

**Service Name:**

**Service Description:**

**Method Type:**

**Visibility:**

**Service Status:**

**Workflow:**

**Data Source:**

**Style Sheet:**

**Template:**

**SQL Statement:**  

```
SELECT AirFacility.AirFacilityID,
FacilitySiteName, LocationAddressText,
SupplementalLocationText, GNISCityCode,
LocationStateCode, LocationZipCode,
LCONCode, TribalLandCode, FacilityDescription,
FacilityTypeOfOwnershipCode,
RegistrationNumber, SmallBusinessIndicator,
```

**Parameters:**

Name	Type	Required	Occurance	Descriptor	
<input type="text" value="AirFacilityID"/>	<input type="text" value="string"/>	<input type="text" value="No"/>	<input type="text" value="Multiple"/>	<input type="text"/>	<a href="#">Remove</a>
<input type="text" value="fromDate"/>	<input type="text" value="date"/>	<input type="text" value="No"/>	<input type="text" value="One"/>	<input type="text"/>	<a href="#">Remove</a>
<input type="text" value="toDate"/>	<input type="text" value="date"/>	<input type="text" value="No"/>	<input type="text" value="One"/>	<input type="text"/>	<a href="#">Remove</a>
<input type="text"/>	<input type="text" value="string"/>	<input type="text" value="No"/>	<input type="text" value="One"/>	<input type="text"/>	<a href="#">Add</a>

**Properties:**

Name	Value	
<input type="text"/>	<input type="text"/>	<a href="#">Add</a>

# REST Services

- Virtual Exchange Services support REST type services for publishing data
- GetCountyCode – actual REST service on my Chris Clark Production VES
- This is what the REST service URLs look like for my VES REST services
- JSON format:
  - <https://virtualnode.cloudapp.net/nodedataservice?node=ChrisClarkProductionNode&Dataflow=RESTServices&request=GetCustomerList&CustomerId=B&format=json>
- XML format:
  - <https://virtualnode.cloudapp.net/nodedataservice?node=ChrisClarkProductionNode&Dataflow=RESTServices&request=GetCustomerList&CustomerId=B&format=XML>

# Partners and Dataflows

- Hualapai Tribe: WQX
- San Joaquin Valley Air District: ICIS AIR
- Jefferson County Health Dept: ICIS Air
- Klamath Tribe: WQX
- Alabama: ICIS-AIR
- Georgia: ICIS-AIR, EIS
- Region 1: Storm 3 Buoy Flow, SPCC Tanks
- 
- Tennessee: ICIS-AIR, ICIS NPDES
- Texas: AQS, FRS
- Maine: ICIS Data Access (Export)
- Gold Systems: WQX, ICIS-AIR, AQWMS
- New Hampshire: FRS, AQS, etc.
- South Dakota: TRI-OUT, ICIS-AIR, EIS
- Pacific States Marine Fisheries Commission: Fishery information publishing service

## Potential New Organizations

- OR, CT, VT, PA, CDC, Chesapeake Bay Program, St. Regis Mohawk Tribe

# Data Exchanges Supported

- AQS 3.0
- ICIS-AIR
- FACID v3.0 (FRS)
- E-Beaches
- EIS
- EMTS v3.0
- ENDS v2.0
- ICIS-NPDES
- SDWIS
- ATTAINS
- CAFO
- SPCC v1.1 (Region 1)
- ICIS-DA
- Buoy Data (Region 1)
- TRI (OUT)
- UIC
- WQX v2.1
- CROMERR
- OWIR\_ATT
- RCRA 5.2,5.3
- Radon
- Fishery Information Service

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## Dataflow Reference Packages \*Click dataflow name to download packages

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<a href="#"><u>AQS</u></a>	<a href="#"><u>BioMonitoring</u></a>	<a href="#"><u>eBeach</u></a>	<a href="#"><u>EIS</u></a>	<a href="#"><u>EMTS</u></a>	<a href="#"><u>FACID</u></a>
<a href="#"><u>ICIS-AIR</u></a>	<a href="#"><u>OWIR</u></a>	<a href="#"><u>RCRA</u></a>	<a href="#"><u>SPCC</u></a>	<a href="#"><u>UIC</u></a>	<a href="#"><u>WQX</u></a>
<a href="#"><u>BeachNotification</u></a>	<a href="#"><u>AQS v3.0</u></a>	<a href="#"><u>ICIS-NPDES</u></a>	<a href="#"><u>CAFO</u></a>	<a href="#"><u>NHDEvent</u></a>	<a href="#"><u>Radon</u></a>

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## Documents \*Click document name to download

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<a href="#"><u>Getting Started with Virtual Exchange Service</u></a>	<a href="#"><u>Virtual Exchange Service Admin Guide</u></a>	<a href="#"><u>Virtual Exchange Service Connectivity</u></a>	<a href="#"><u>Virtual Exchange Service Connector Installation Guide</u></a>	<a href="#"><u>Virtual Exchange Service Lab Guide</u></a>
<a href="#"><u>ICISAir Setup Guide</u></a>				

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## Tools \*Click tool name to download

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[VESConnector installer](#)



# Questions/Discussion

Contact Information:

[nodehelpdesk@epacdx.net](mailto:nodehelpdesk@epacdx.net)

[Clark.chris@epa.gov](mailto:Clark.chris@epa.gov)

Environmental Information



**EN2017**

# Shared CROMERR Services

April 24, 2017

# Shared CROMERR Services Update

## CROss-Media Electronic Reporting Rule (CROMERR)

*40 CFR electronic reporting standards for states, tribes, local governments and U.S. EPA*

### Shared CROMERR Services

- Advanced Web tools
- Source Code
- Web services,
- Documentation and procedures pre-approved by the CROMERR Technical Review Committee (TRC)

*Standards for collaboration, information integrity, reducing time, burden and costs.*

<http://www.exchangenetwork.net/shared-cromerr-services-ipt/>

# Shared Services Advancements

**IPT/Charter**

**Sep '12**

**2013**

**Web Services**

**2014**

**Support Services**

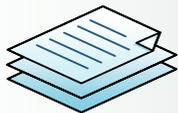
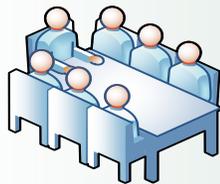
**2015**

**Advanced Services**

**2016**

**E-Enterprise Services**

**2017**



**Charter**

<b>Registration and Account</b> UserManagementService ChangeUserPassword Authenticate UpdateUserInfo GetEligibleQuestions CreateUser ChangeUserAnswers AuthenticateUser ChangeUserStatus RetrieveUser	<b>Signature Device</b> SecondFactorAuthenticationService AnswerQuestion Authenticate AuditEvent AuthenticateUser CreateActivity	<b>Signature Ceremony</b> SignatureService CreateActivity AuditEvent Authenticate ValidateCor Sign
<b>Identity Management</b> IdentityProofingService GetResult CreateSession CreateActivity Authenticate	<b>SignaturesAndCerService</b> RegisterCor SignAndStoreCor SetCorRelationStatus CreateActivity StoreCor AuditEvent ValidateCor Authenticate DownloadCor SearchForCor	

**Web Services**

Shared CROMERR Services Demonstration

This is a demonstration of the Shared CROMERR Services within a responsive UI.

API Trace

Login Register Now

Privacy Statement

**DEMO TOOL**



**sharedcromerrservices@epacdx.net**  
**Service Desk**

**CROMERR Toolkit**

- Access Authority
- Baseline CROMERR Checklist & Attachments
- Contractual and Project Planning Package
- Development Toolkit
- Example Shared CROMERR Demo Application

**Tool kit**

**First Production Partners**

Advanced Shared Services

Log In

Use your agency or EPA account...

Or a social media account...

Exchange Network

EPA LOGIN/ID

HWER Account Forward Portal

HW EMU FIC

Service Card

Account AD

MyAccount

**Advanced Provisioning Services**  
RetrieveRoles  
RetrieveRolesForDataflowAndPartner  
**Provisioning**

**Advanced User Information Services**  
Authenticate  
AuthenticateUser  
RetrieveUser  
**Advanced User Services**

**Advanced Organization Services**  
RetrieveOrganizationsByDataflow  
CreatePartnerOrganization  
UpdatePartnerOrganization  
RetrievePartnerOrganization  
RetrievePartnerOrganizationByExternalId  
**Advanced Organizations**

**LexisNexis®**  
**Web Services**

**First Advance Partners**

**E-ENTERPRISE**  
For the advancement

**Log in**

Use your agency or EPA account...

Or a social media account...

Facebook

Google

Twitter

LinkedIn

Windows Live

**E-Portal Bridge**

SCS Dashboard

Partner	Service	Role	Org	Status
MWA	WEBSH	Cardbar	ITS	Active
MWA	WEBSH	Partner Program Help Desk	ITS	Active

Showing 1 to 2 of 2 rows

Admin Tools

- Alert Publishing
- Create User Account
- Reading Response
- Registration
- User Management

**Advanced Services**

Massachusetts Water Resource Authority

**Upload Document**

Upload Document

Instructions: Prepare a document by going to MWA then use the dialog below to upload and certify your document.

Partner: Massachusetts Water Resources Authority

Dataflow: Web Self-Reporting

Document: Upload a document

Advanced SCC Home | Privacy and Security Notice

Accessibility | Terms & Conditions

**e-Sign/Submit**

# Shared Services Adoption

## Web Services

## Advanced Services

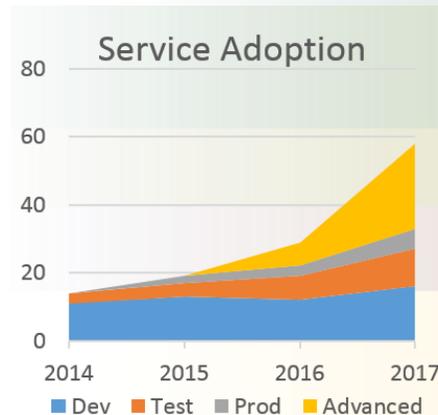
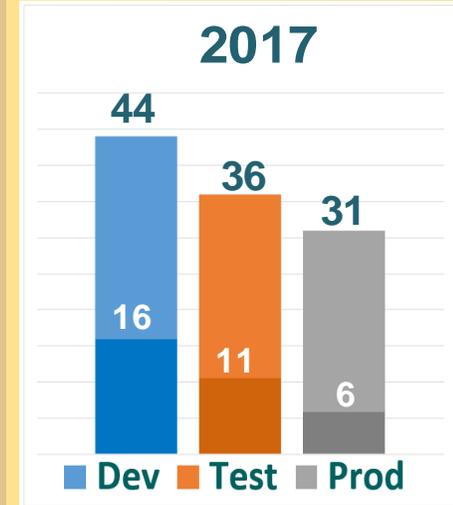
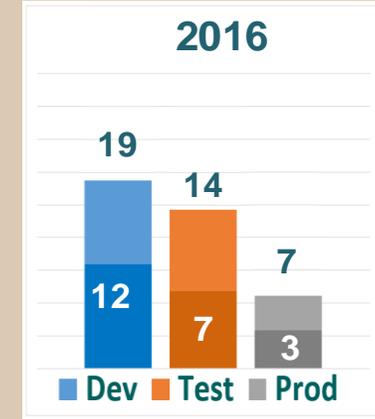
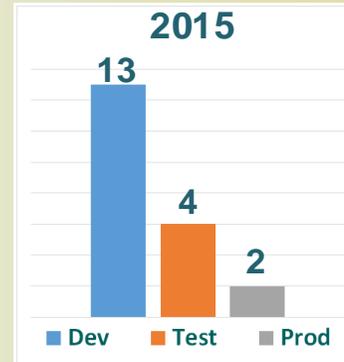
Sep '12  
**2013**

**2014**

**2015**

**2016**

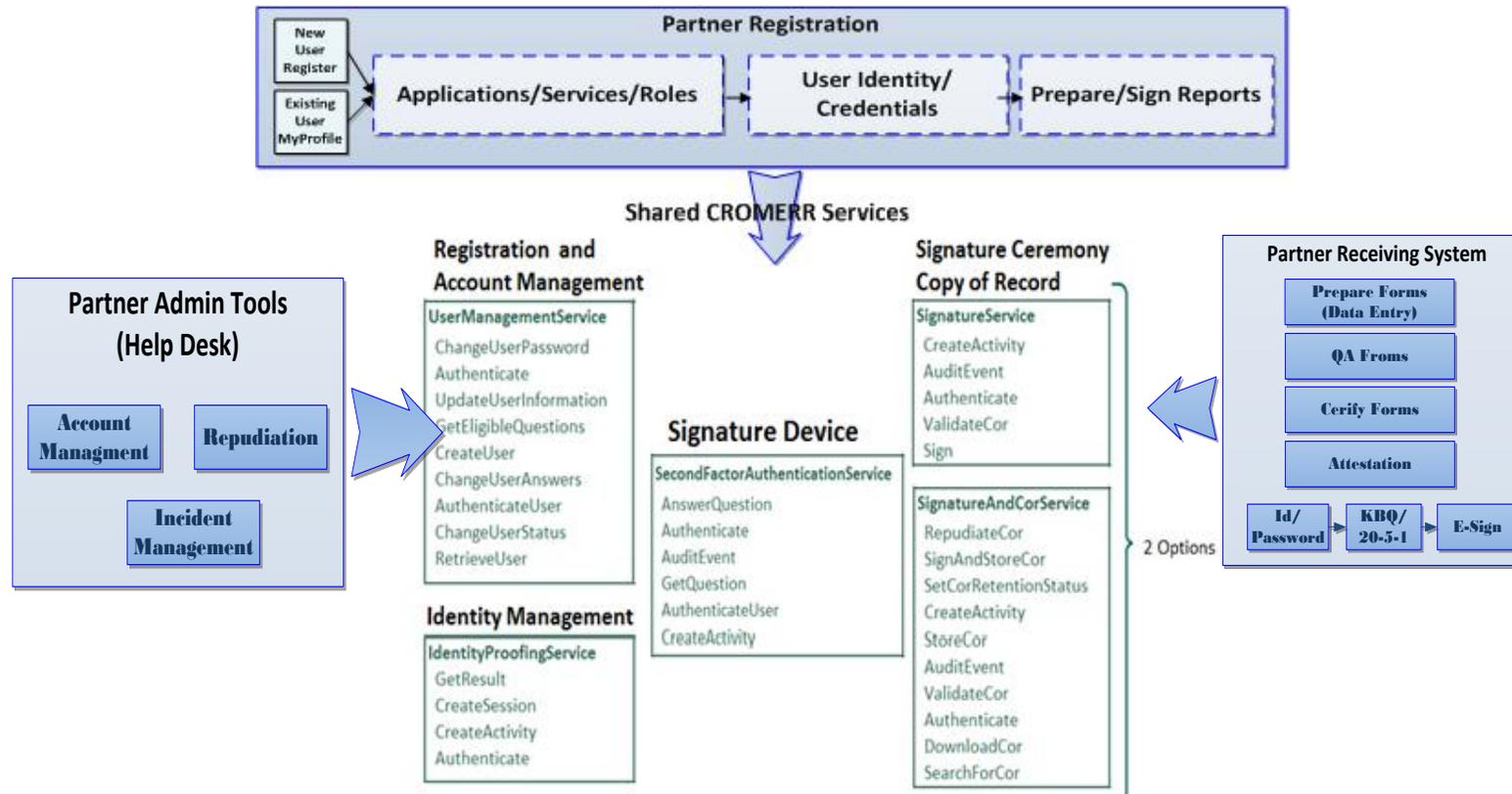
**2017**



**E-Portal Integration**

# *“Build your own Reporting System”*

CROMERR Web Services (5 Standard Categories)



Open Source: <https://encromerrdev.epacdxnode.net/shared-cromerr-download/action/public/login>

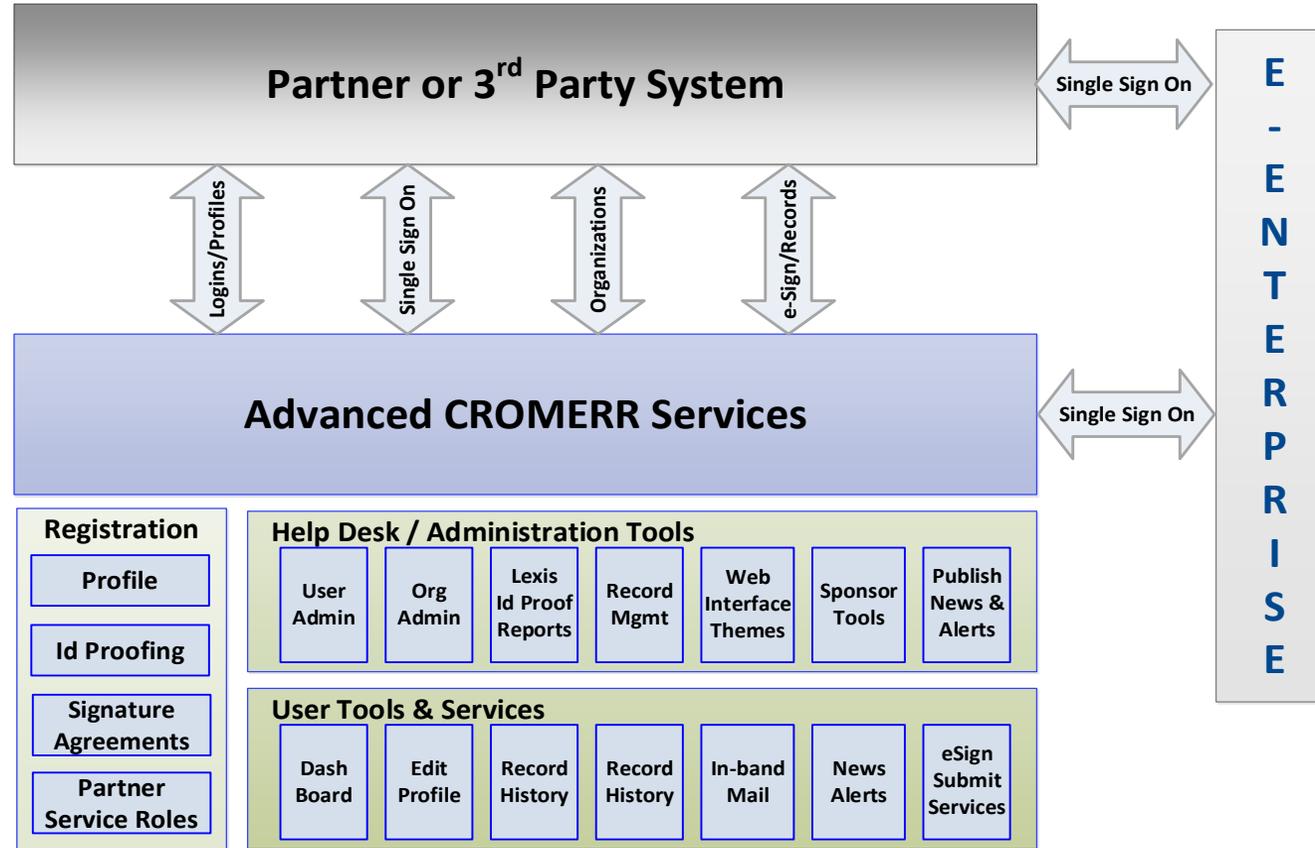
Training Demo: <https://dev.epacdx.net/SharedCromerrServicesDemo>

Web Services: <http://encromerrdev.epacdxnode.net/shared-cromerr-ws/services>

# Recent Service Adoption Successes

- **Oklahoma Department of Environmental Quality** **09/15/2016**  
Mujiba Zaman - [mujiba.zaman@deq.ok.gov](mailto:mujiba.zaman@deq.ok.gov)  LexisNexis®
- **Iowa Department of Natural Resources** **01/05/2017**  
LeAnn Larsen - [LeAnn.Larsen@dnr.iowa.gov](mailto:LeAnn.Larsen@dnr.iowa.gov)  LexisNexis®
- **Ohio Environmental Protection Agency** **02/03/2017**  
Pelayo Montoto - [pelayo.montoto@epa.ohio.gov](mailto:pelayo.montoto@epa.ohio.gov)  LexisNexis®

# Enterprise Integration Advanced Services



Advanced Tools: <https://dev.epacdx.net/EpaSharedServicesPortal/>

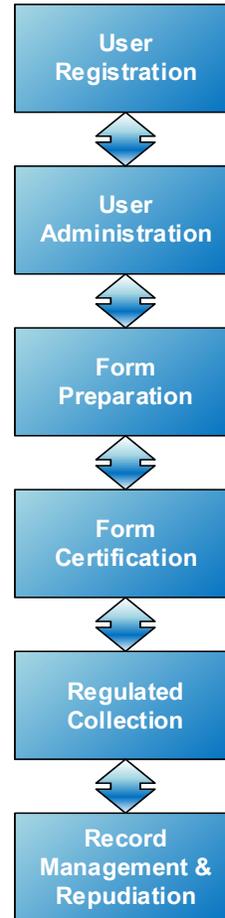
Web Services: <https://encromerrdev.epacdxnode.net/shared-cromerr-ws/services>

# Business Process Models

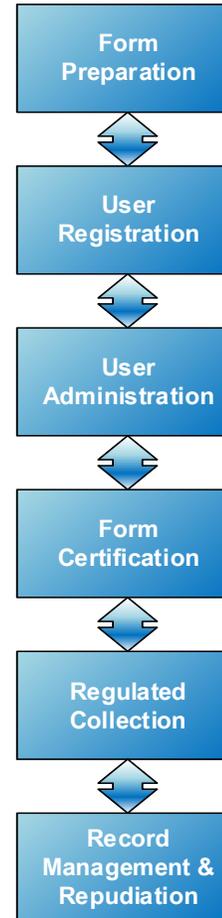
## Service Model Decisions:

- Register then Prepare?
- Forms eSigned Directly?
- Third Party Forms signed separately?
- High Volume or 1-Time Use?

### CONVENTIONAL



### TAX SOFTWARE MODEL

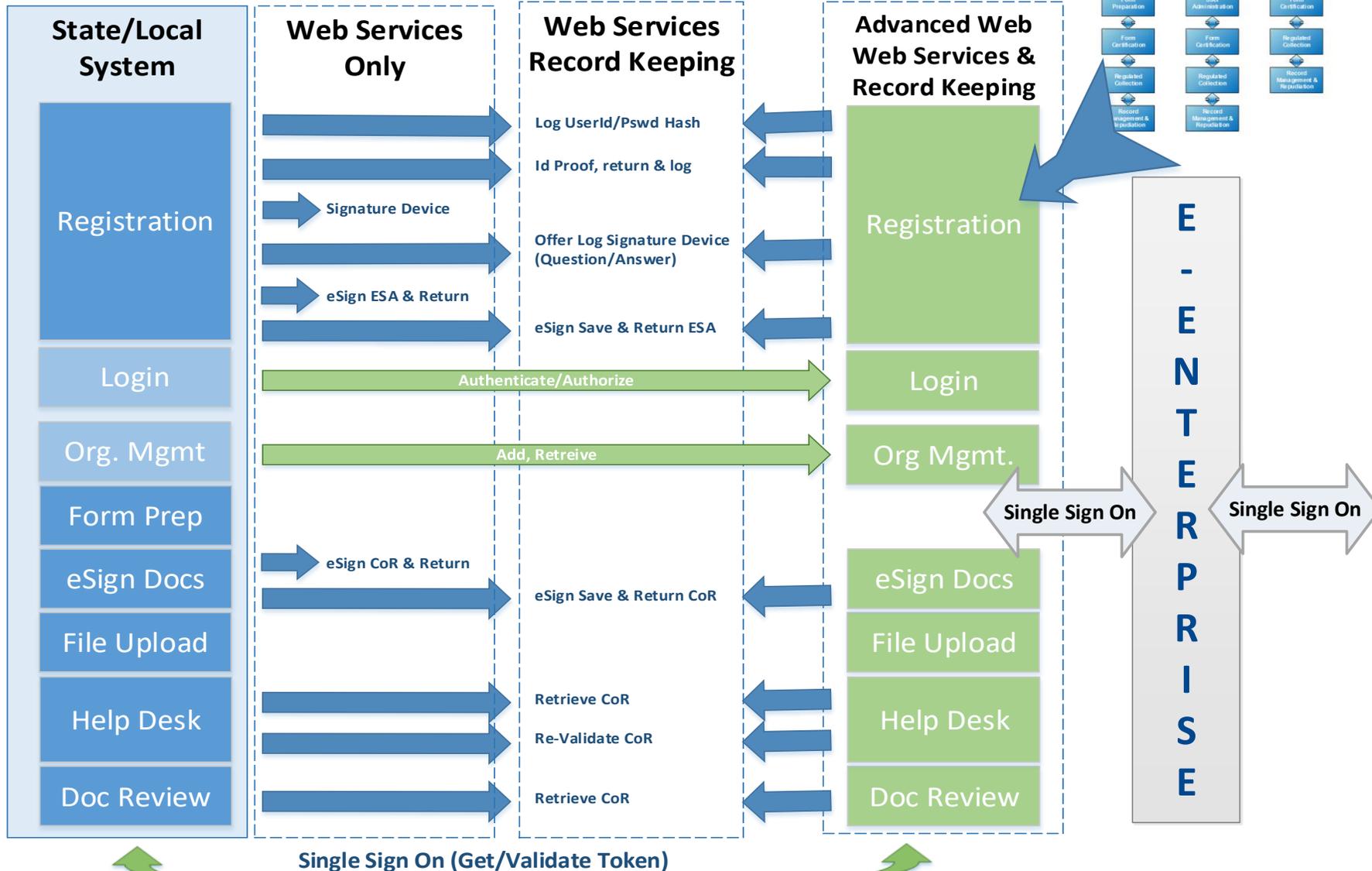


### 1-TIME SUBMIT

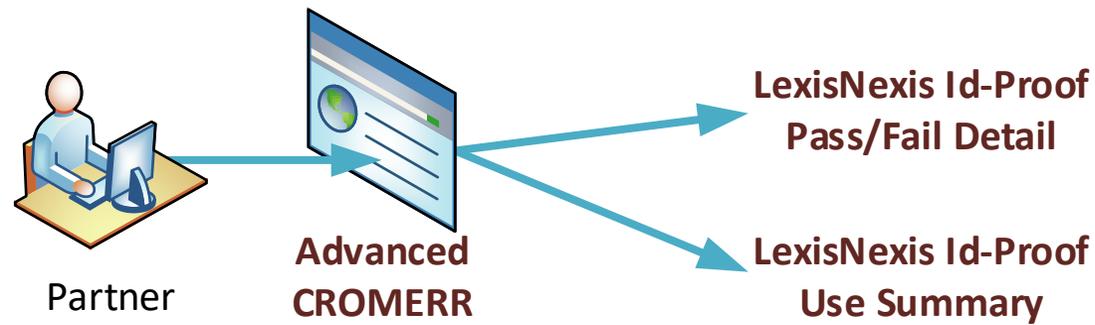
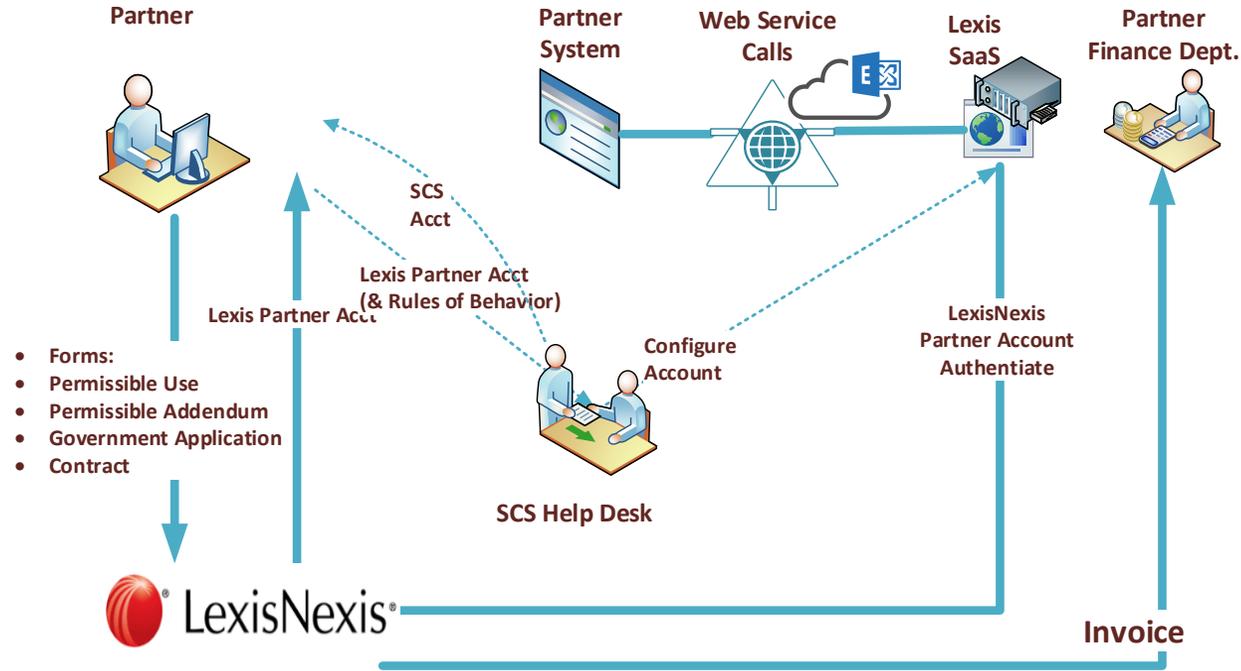


# System/Service Integration

## Business Process Model



# Identity Proofing Services & Invoicing



# Shared Services Demo

- <https://e-enterprise.gov/eenterprise-new>
- <https://dev.epacdx.net/EpaSharedServicesPortal/>

# Questions/Discussion

# Reusable Component Services

Cataloging Sharing Services

# System Of Registries

The System of Registries (SoR) is a resource for environmental system developers and enterprise architects. It also provides environmental program managers and users of environmental information with automated services to enable better understanding of environmental terminology and data used by the Agency.

Data standards are an integral part of these services. Information about data standards may be accessed on the separate [Data Standards Web Site](#).



[Registry of EPA Applications, Models and Data Warehouses](#)

- Information Systems
- Environmental Models



[Facility Registry Services](#)

- Facilities
- Locational Information



[Data Element Registry Service](#)

- Data Dictionaries
- Code Sets
- Standard Data Elements



[Environmental Dataset Gateway](#)

- Datasets
- Mapping Tools
- Live Maps



[Substance Registry Services](#)

- Chemicals
- Biological Organisms



[Tribal Identification Services](#)

- Federally-recognized Tribe Names and Identifiers



[Reusable Component Services](#)

- Web Services, Widgets, APIs
- Software Tools, Mobile Apps
- Dataflows, Schema



[Terminology Services](#)

- Terms, Acronyms and Definitions
- Glossaries
- Taxonomies



[Laws and Regulations Services](#)

*\*Note: Under development and coming soon*

- Environmental Laws, Their Regulations, and Programs

# RCS – Shared Services Catalog

The screenshot shows a web browser window displaying the EPA System of Registries Shared Services Catalog search page. The browser's address bar shows the URL: [https://ofmpub.epa.gov/sor\\_internet/registry2/reusereg/searchan](https://ofmpub.epa.gov/sor_internet/registry2/reusereg/searchan). The page header includes the EPA logo and navigation links for "Learn the Issues", "Science & Technology", "Laws & Regulations", and "About EPA". A search bar is located in the top right corner with the text "Search EPA.gov".

The main content area is titled "Reusable Component Services (RCS)" and includes a breadcrumb trail: "You are here: EPA Home > System of Registries > RCS Home > Search". Below this is a "Search" section with tabs for "About", "Search", "Advanced Search", and "References". A "Keyword" section follows, with the instruction: "Find everything from web services to schemas, data models, and templates. Please [sign in](#) to add or edit a resource." There is an empty search input field and three buttons: "Search", "Customize Results", and "Clear search fields".

On the right side, there is a "System of Registries" sidebar with a list of links:

- [Registry of EPA Applications, Models and Data Warehouses \(READ\)](#)
- [Data Element Registry Services \(DERS\)](#)
- [Terminology Services \(TS\)](#)
- [Substance Registry Services \(SRS\)](#)
- [Facility Registry Services \(FRS\)](#)
- [Environmental Dataset Gateway \(EDG\)](#)

At the bottom, there is a "Browse By" section with a "Resource Name" header and a list of letters: "All 0-9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z". The browser's status bar at the bottom right shows a zoom level of 85%.

# RCS – Shared Services Catalog

- Catalog of IT assets and services including:
  - REST web services
  - SOAP web services
  - XML schema
  - data flows
  - web services
  - software tools
  - code libraries
  - widget tools
- Catalog for US EPA, States, Tribes, and other partners

# RCS – Shared Services Catalog

- RCS record for each IT asset or service
  - Basic information about the service
  - Title, description, contact, documentation
- Enables and promotes sharing and reuse of information and assets
  - Sharing information can range from reuse to exchanging information
  - One state can learn from another state about lessons learned in developing a particular tool
- Can show relationships between assets
  - For example, a REST web service is related to a system, which is related to a widget

# RCS – Shared Services Catalog

The screenshot shows the EPA System of Registries search interface. At the top, the browser address bar displays the URL: [https://ofmpub.epa.gov/sor\\_internet/registry2/reusereg/searchan](https://ofmpub.epa.gov/sor_internet/registry2/reusereg/searchan). The page header includes the EPA logo and navigation tabs for "Learn the Issues", "Science & Technology", "Laws & Regulations", and "About EPA". A search bar is located in the top right corner.

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A large, semi-transparent "DEMO" watermark is overlaid across the center of the page.

On the right side, there is a "System of Registries" sidebar with a list of services:

- [Registry of EPA Applications, Models and Data Warehouses \(READ\)](#)
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# Questions/Discussion

BETA

## Chemical Laws & Regulations

Source: [US Environmental Protection Agency](#)

Find federal laws and regulations related to chemicals. As state and local partners join, more resources will be available. [Learn how it works.](#)

DEMO

Enter chemical name or CAS #

Search chemicals

Powered by EPA [Substance Registry Service](#) and [Laws & Regulations Service](#)

My Favorites

Previous Searches

### 1 Chemicals

64-17-5: Ethanol (Ethanol)  Remove

### 1 Laws / Regulations

40 CFR 152: PESTICIDE REGISTRATION AND CLASSIFICATION PROCEDURES (2015)  Remove

# Questions/Discussion

# For More Information

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919-541-4823

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202-566-0748

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[feldman.Angelina@epa.gov](mailto:feldman.Angelina@epa.gov)

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