

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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Sheraton Philadelphia Society Hill Hotel
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

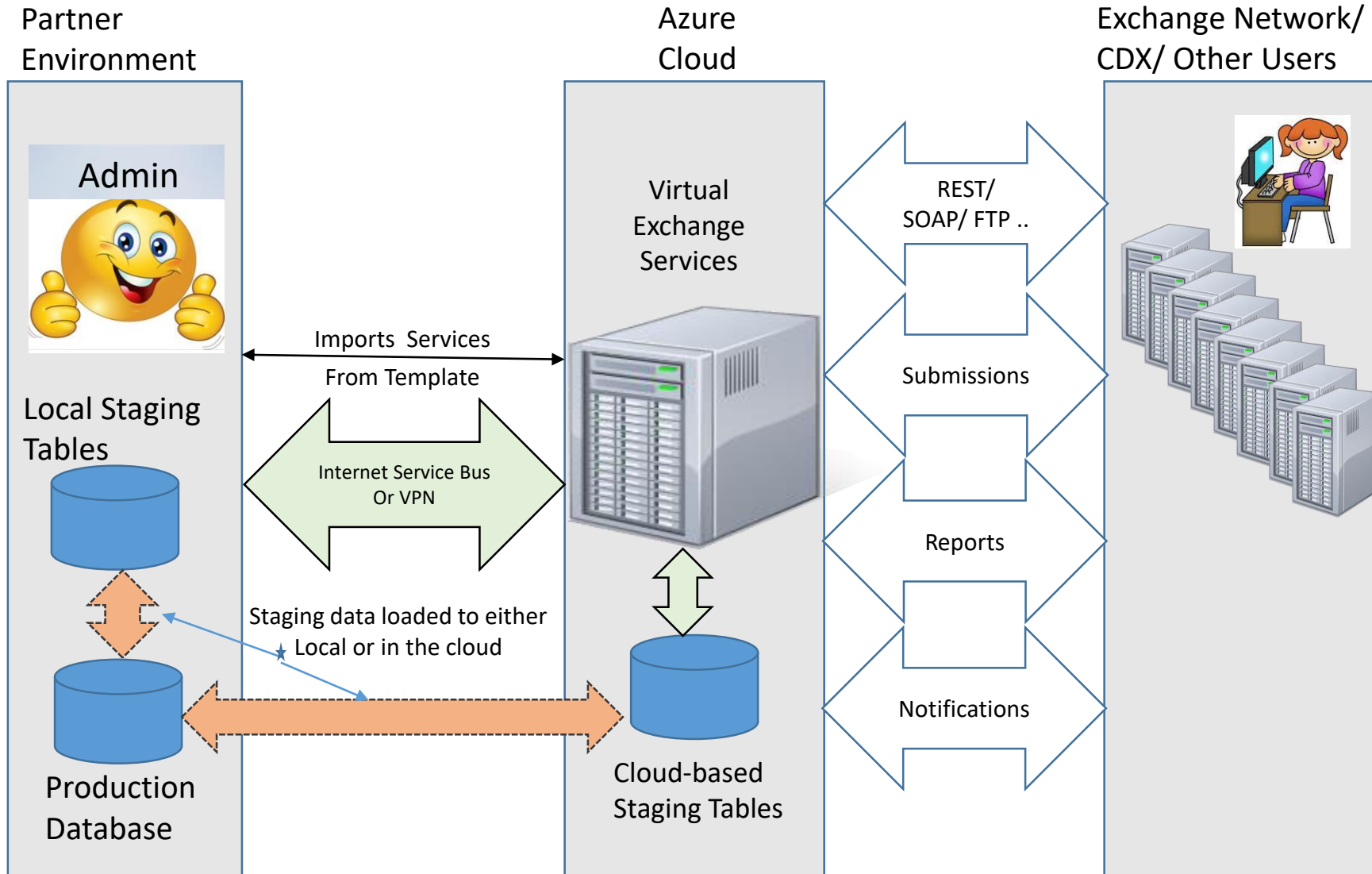
What's New in VES?

- 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



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

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:

GetAirFacility

Service Description:

Get Air Facility

Method Type:

Query

Visibility:

public

Service Status:

Enabled

Workflow:

GenericQuery

Data Source:

--- Select a Data Source ---

Style Sheet

GetAirFacility.xslt

Template

SQL Statement:

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

Parameters:

Name	Type	Required	Occurance	Descriptor	
AirFacilityID	string	No	Multiple		Remove
fromDate	date	No	One		Remove
toDate	date	No	One		Remove
	string	No	One		Add

Properties:

Name	Value	
		Add

UPDATE

DELETE

TEST

CANCEL

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

Dataflow Reference Packages *Click dataflow name to download packages

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

Documents *Click document name to download

<u>Getting Started with Virtual Exchange Service</u>	<u>Virtual Exchange Service Admin Guide</u>	<u>Virtual Exchange Service Connectivity</u>	<u>Virtual Exchange Service Connector Installation Guide</u>	<u>Virtual Exchange Service Lab Guide</u>
<u>ICISAir Setup Guide</u>				

Tools *Click tool name to download

[VESConnector
installer](#)



Questions/Discussion

Contact Information:

nodehelpdesk@epacdx.net

Clark.chris@epa.gov

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.

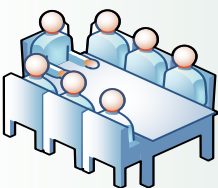
<http://www.exchangenetwork.net/shared-cromerr-services-ipt/>

Shared Services Advancements

IPT/Charter

Sep '12

2013



Charter

Web Services

2014

Registration and Account <ul style="list-style-type: none">ChangeUserPasswordAuthenticateUpdateUserInformationGetEligibleQuestionsCreateUserChangeUserAnswersAuthenticateUserChangeUserStatusRetrieveUser	Signature Device <ul style="list-style-type: none">SecondFactorAuthenticationServiceAnswerQuestionAuthenticateGetQuestionAuthenticateUserCreateActivity	Signature Ceremony <ul style="list-style-type: none">SignatureServiceCreateActivityAuditEventAuthenticateValidateCorSign
Identity Management <ul style="list-style-type: none">IdentityProofingServiceGetResultCreateSessionCreateActivityAuthenticate	SignaturesAndCerService <ul style="list-style-type: none">RetrieveCorSignAndStoreCorAuthenticateGetQuestionCreateActivityStoreCorAuditEventValidateCorAuthenticateDownloadCorSearchForCor	

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

Support Services

2015



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 Services

2016

Advanced Shared Services

Log in

Use your agency or EPA account...

Or a social media account...

Warning Notice

Privacy Statement

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



First Advance Partners

E-Enterprise Services

2017

E-ENTERPRISE For the environment

Log in

Use your agency or EPA account...

Or a social media account...

E-Portal Bridge

Partner	Service	Role	Org	Status
WVWA	WVSDMS	Cardinal	WVSD	Active
WVWA	WVSDMS	Partner Program Help Desk	WVSD	Active

Advanced Services

Massachusetts Water Resource Authority

Upload Document

Instructions

Partner

Dataflow

Document

e-Sign/Submit

Shared Services Adoption

Web Services

Advanced Services

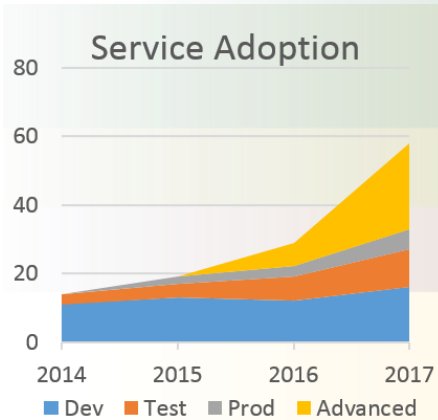
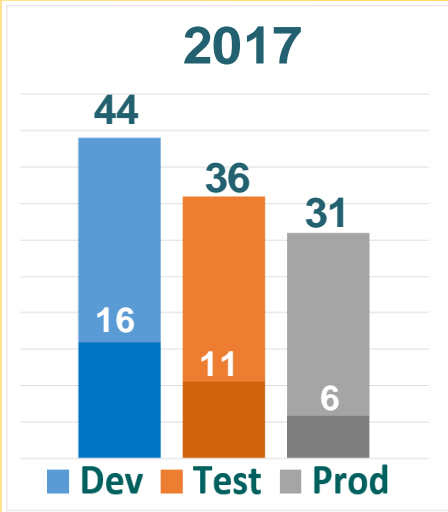
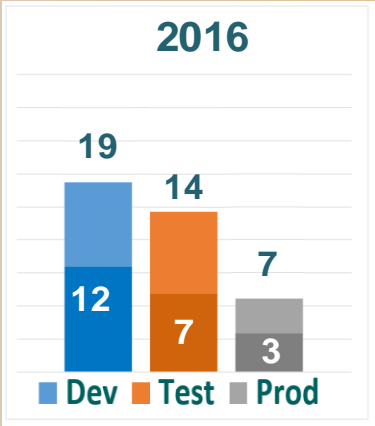
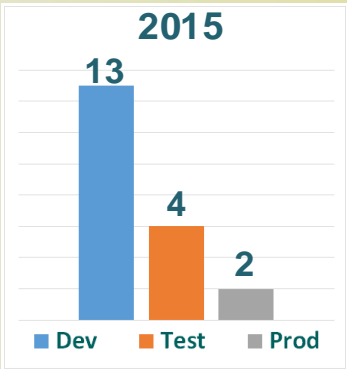
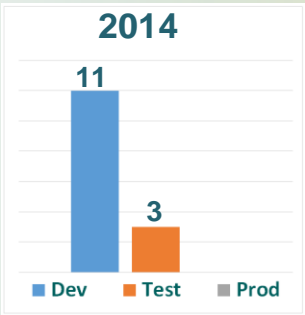
Sep '12
2013

2014

2015

2016

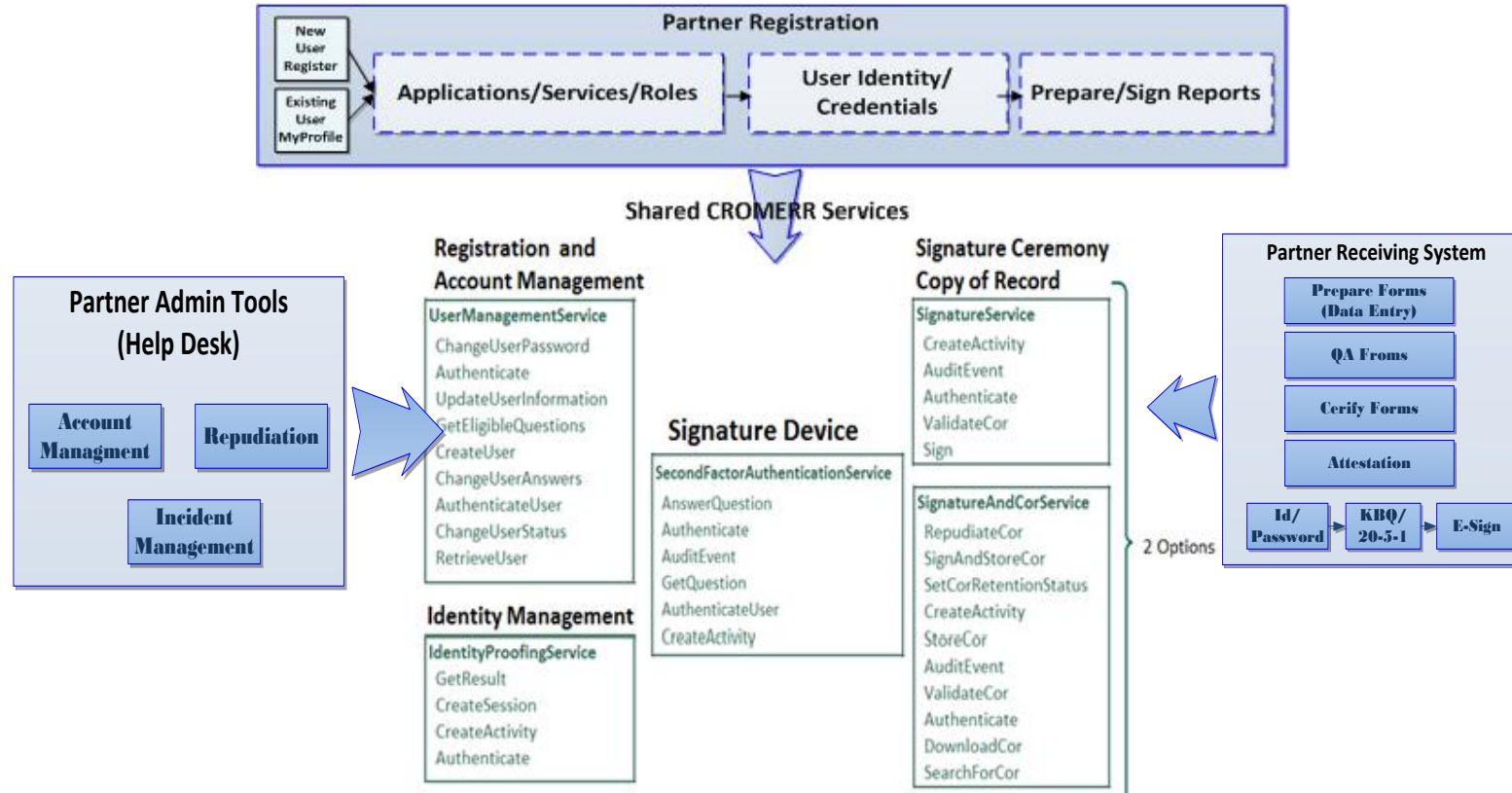
2017



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**

Mujiba Zaman - mujiba.zaman@deq.ok.gov

09/15/2016



- **Iowa Department of Natural Resources**

LeAnn Larsen - LeAnn.Larsen@dnr.iowa.gov

01/05/2017



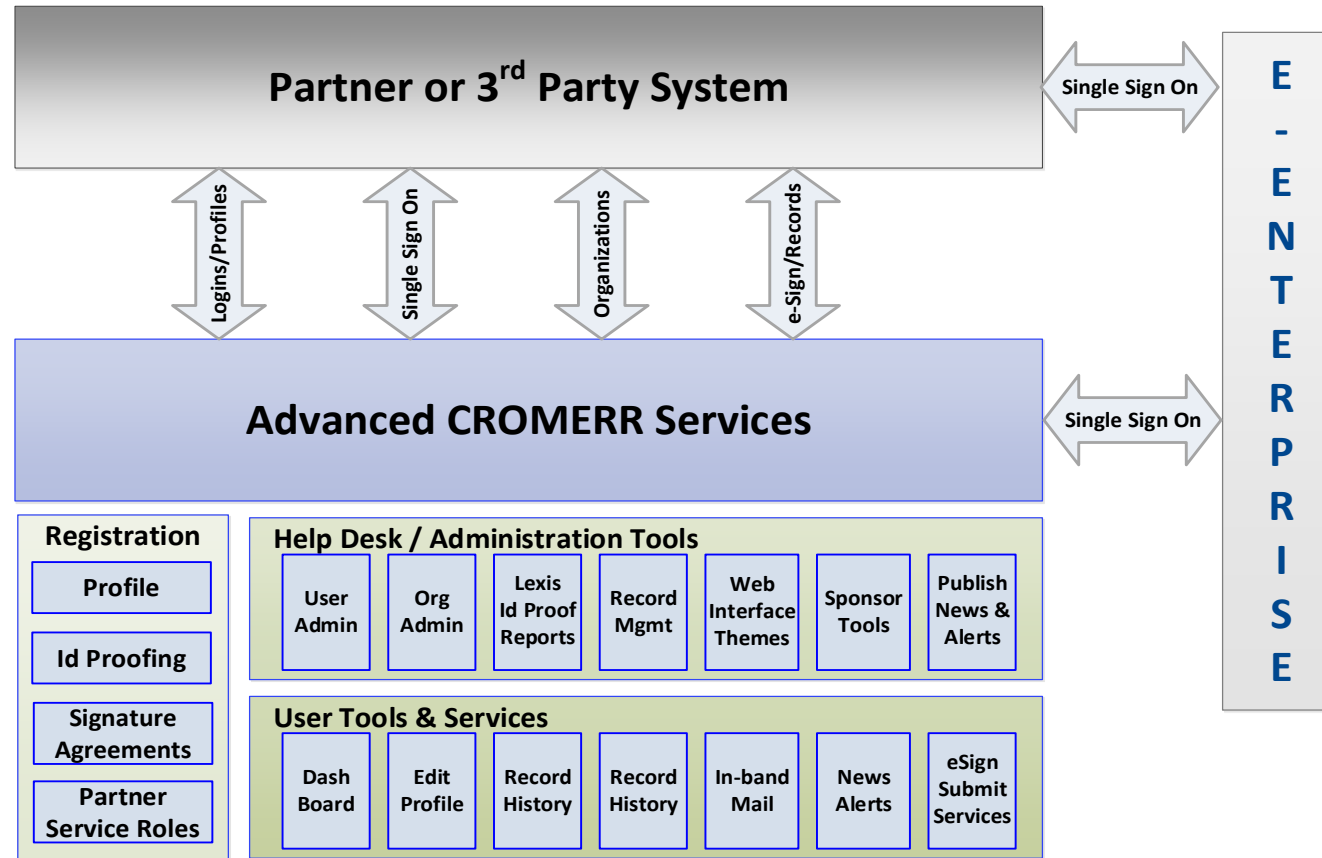
- **Ohio Environmental Protection Agency**

Pelayo Montoto - pelayo.montoto@epa.ohio.gov

02/03/2017



Enterprise Integration Advanced Services



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

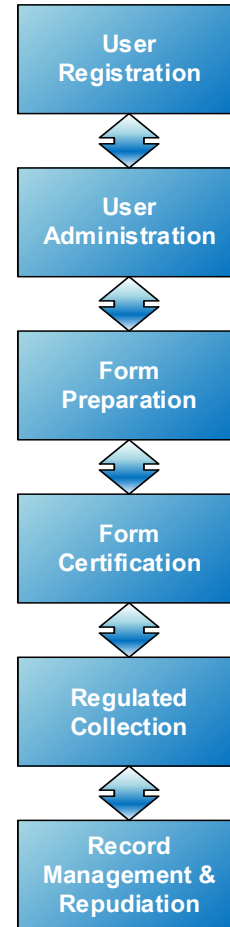
Web Services: <https://encromerrdev.epacdxnode.net/shared-cromerr-ws/services>

Business Process Models

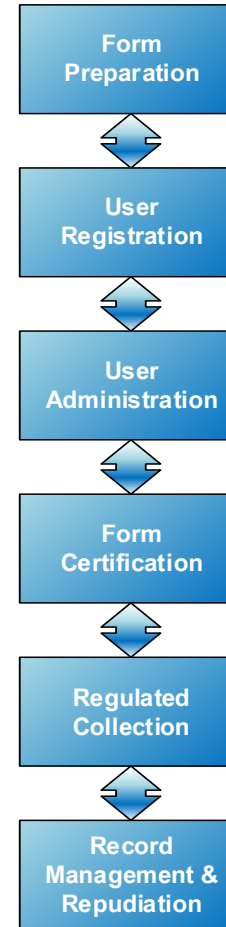
Service Model Decisions:

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

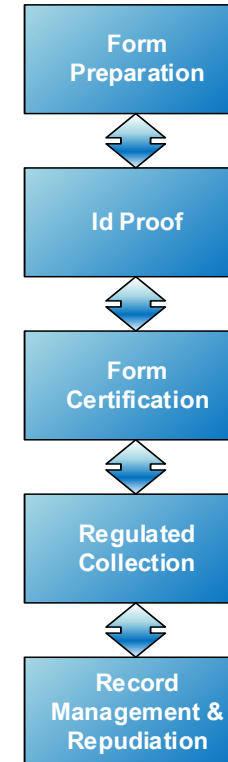
CONVENTIONAL



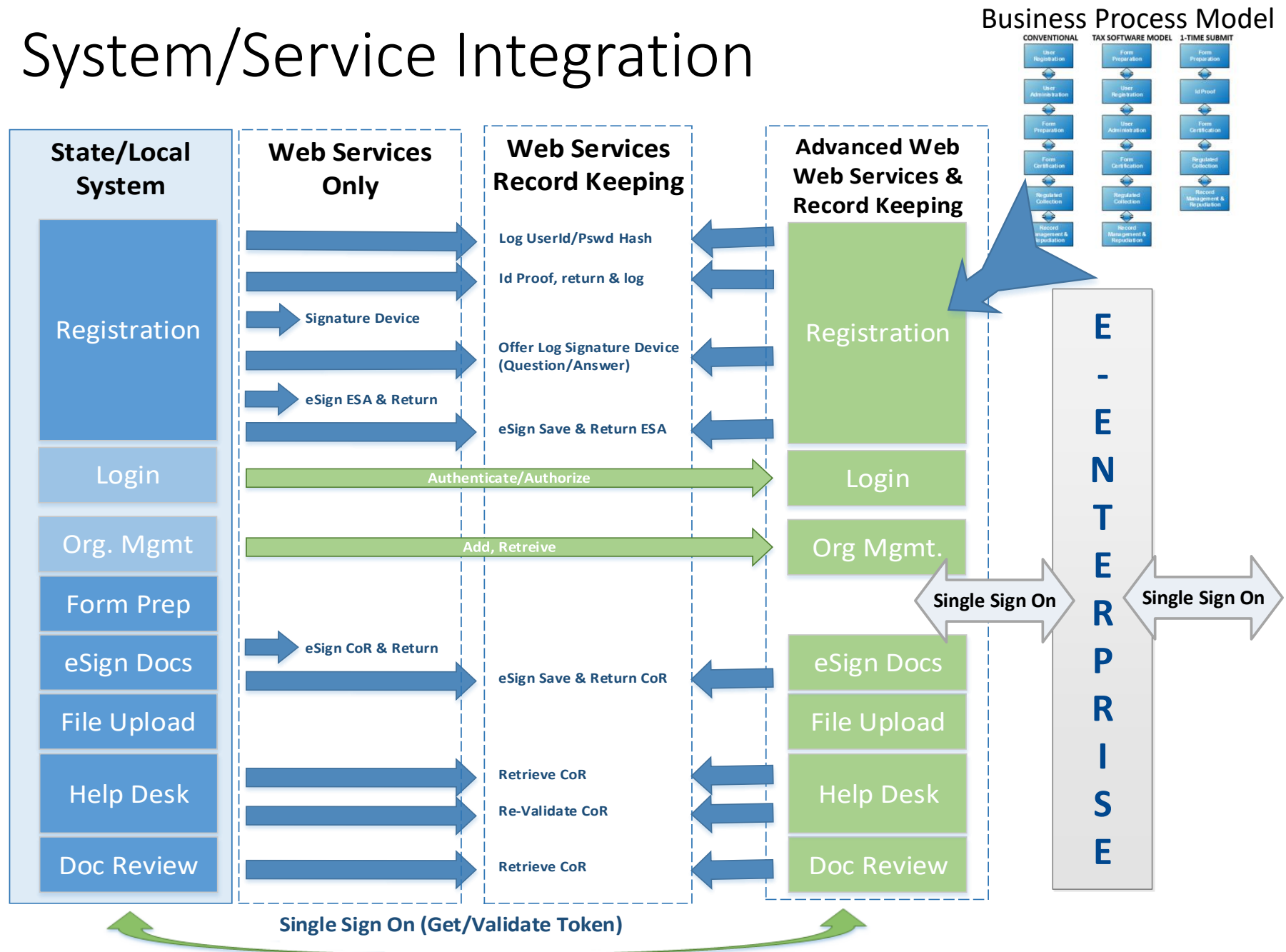
TAX SOFTWARE MODEL



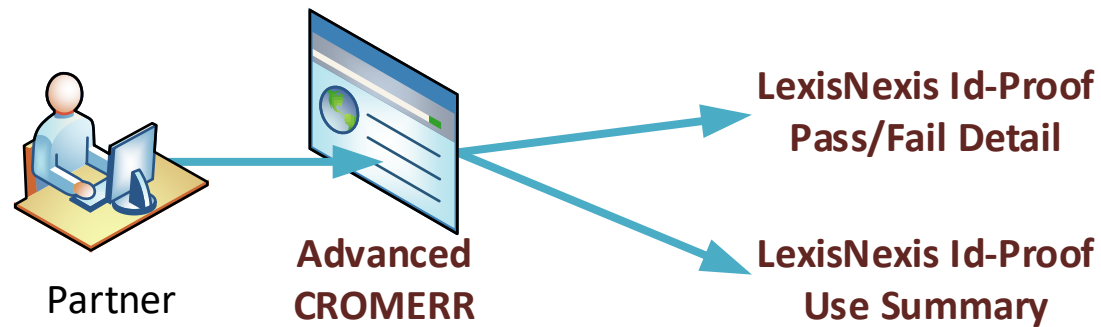
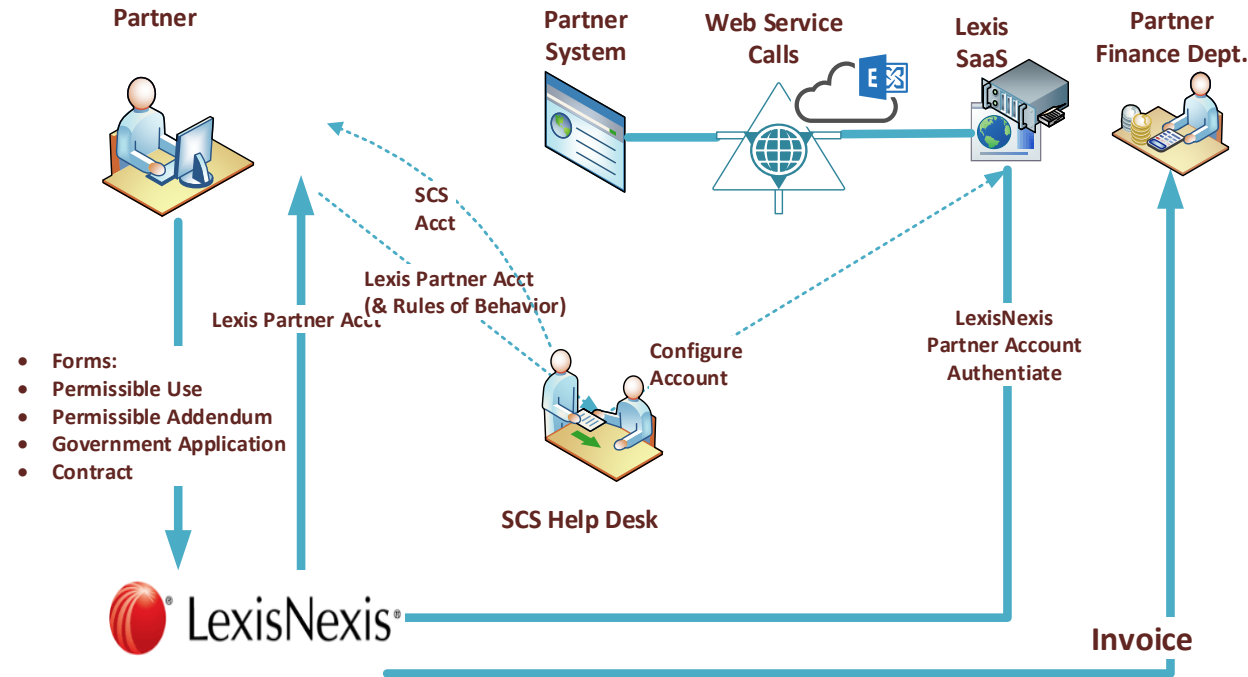
1-TIME SUBMIT



System/Service Integration



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



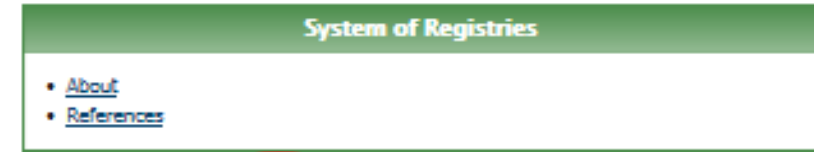
[Substance Registry Services](#)

- 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 search interface. The browser's address bar shows the URL https://ofmpub.epa.gov/sor_internet/registry2/reusereg/searchan. The page features 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. The main heading is 'Reusable Component Services (RCS)'. Below this, a breadcrumb trail reads 'You are here: EPA Home > System of Registries > RCS Home > Search'. The 'Search' section includes tabs for 'About', 'Search', 'Advanced Search', and 'References'. A 'Keyword' section prompts users to find web services, schemas, data models, and templates, with a link to 'sign in' to add or edit resources. A search input field is provided, along with 'Search', 'Customize Results', and 'Clear search fields' buttons. A 'Browse By' section is visible, followed by a table with a green header 'Resource Name' and a row of alphabetical links from 'All' to 'Z'. On the right side, a 'System of Registries' box lists several registries: '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)', and 'Environmental Dataset Gateway (EDG)'. The browser's status bar at the bottom indicates a zoom level of 85%.

https://ofmpub.epa.gov/sor_internet/registry2/reusereg/searchan

System of Registries | US EPA

File Edit View Favorites Tools Help

Suggested Sites OIM Home

EPA United States Environmental Protection Agency

Learn the Issues Science & Technology Laws & Regulations About EPA

Search EPA.gov

Reusable Component Services (RCS)

You are here: EPA Home > System of Registries > RCS Home > Search

Search

About Search Advanced Search References

Keyword
Find everything from web services to schemas, data models, and templates. Please [sign in](#) to add or edit a resource.

Search Customize Results Clear search fields

Browse By

Resource Name
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

System of Registries

- 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)

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 (SOR) search interface. The browser address bar displays the URL: https://ofmpub.epa.gov/sor_internet/registry2/reusereg/searchan. The page header includes the EPA logo, navigation tabs for 'Learn the Issues', 'Science & Technology', 'Laws & Regulations', and 'About EPA', and a search bar for 'Search EPA.gov'. The main content area is titled 'Reusable Component Services (RCS)' and features 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'. The 'Search' tab is active, showing a 'Keyword' search area with a text input field and buttons for 'Search', 'Customize Results', and 'Clear search fields'. A large '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 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)', and 'Environmental Dataset Gateway (EDG)'. At the bottom, there is a 'Browse By' section with a 'Resource Name' header and a list of letters from A to Z, along with an 'All' link. The browser status bar at the bottom right shows a zoom level of 85%.

System of Registries | US EPA x SS-Workshop-ENMeeting201...

File Edit View Favorites Tools Help

Suggested Sites OIM Home

EPA United States Environmental Protection Agency

Learn the Issues Science & Technology Laws & Regulations About EPA

Search EPA.gov

Reusable Component Services (RCS)

You are here: EPA Home > System of Registries > RCS Home > Search

Search

About Search Advanced Search References

Keyword

Find everything from web services to schemas, data models, and templates. [Create sign in](#) to add or edit a resource.

Search Customize Results Clear search fields

System of Registries

- 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)

Browse By

Resource Name

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

85%

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.](#)

Enter chemical name or CAS #

Trichloroethylene

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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