

```

..._v3_0.xsd", xmlns:xsd="http://www.w3.org/2001/XMLSchema",
xmlns:nei="http://www.epa.gov/exchangenetwork", elementFormDefault=
version="3.0">
<xsd:include schemaLocation="EN_NEI_Common_v3_0.xsd" />
<!--
3.0 Start of Schema Header
-->
<xsd:annotation base="xsd:documentation"
enetwork"/><xsd:documentation
Point"/><xsd:documentation
ML 3.0 Point data"/><xsd:documentation
Available:http://www.epa.gov/exchangenetwork/documentation/
<xsd:documentation
Environmental Protection Agency input format"/>
<xsd:documentation
ding="UTF-8" ?>
user"/><xsd:documentation
http://www.epa.gov/exchangenetwork/Agency
http://www.w3.org/2001/XMLSchema encoding="UTF-8"
http://www.epa.gov/exchangenetwork/qualified" attributeFormDefault="unqualified"
naLocation="EN_NEI_Common_v3_0.xsd" schemaLocation="EN_NEI_Common_v3_0.xsd" />
tion>Schema Name: NEI XML 3.0
documentation>
tion>Current Version
p://www.epa.gov/exchangenetwork/documentation/
tion>Description: The NEI XML 3.0 Point Data Schema
</xsd:documentation>
tion>Application: Varies by
documentation>
tion>Developed By: Environmental Protection Agency
"UTF-8" ?>
http://www.epa.gov/exchangenetwork/
w.w3.org/2001/XMLSchema"
w.epa.gov/exchangenetwork"
qualified" attributeFormDefault="unqualified"
ation="EN_NEI_Common_v3_0.xsd" schemaLocation="EN_NEI_Common_v3_0.xsd" />
Schema Name: NEI XML 3.0
mentation>
Current Version
www.epa.gov/exchangenetwork/
Description: The NEI XML 3.0 Point Data Schema
documentation>
Application: Varies by
mentation>

```

# ICIS NPDES Batch and Air EDT System Flow Configuration Document

Version 1.6

Date: October 14, 2014

## Prepared for:

United States Environmental Protection Agency  
Office of Enforcement and Compliance Assurance  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460





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## 1. INTRODUCTION

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The Integrated Compliance Information System supports an integrated data flow to process electronic batch submissions using eXtensible Markup Language (XML) technology. Authorized states, tribes, and regional users will submit National Pollutant Discharge Elimination System (NPDES) data and Authorized local control agencies (LCON), states, tribes, and regional users will submit air compliance data to ICIS via Environmental Protection Agency's (EPA) Central Data Exchange (CDX). They compose their transactions into predefined XML formatted files contained in a zip archive file to submit to ICIS–NPDES through the CDX.

Zipped submissions containing XML files to CDX must be preceded by NAAS authentication. Upon successful authentication, the client node receives a security token that must be used in all subsequent service requests with CDX. Afterwards, the zipped file is submitted to CDX, passing in the security token. If the security token is valid, CDX generates a transaction ID for the request and returns it to the client node.

Upon receipt of the zipped file, CDX performs important functions on the XML files within it, such as validating the submitted data against approved XML schemas, scanning for viruses, archiving all XML files, and authenticating the submitters prior to making the XML files available for processing. CDX re-zips valid XML files and provides a Web services interface for distributing the zipped file to ICIS for processing.

A Web service is deployed in the ICIS environment to receive the zipped file from CDX and extract the XML files within it. ICIS is responsible for receiving, unzipping and parsing the XML files, sequencing the transactions, and processing the transactions against the ICIS–NPDES service tier. For any transactions that are not successfully processed, detailed business-rule based errors will be generated. Finally, ICIS records the submission processing results and sends the processing status back to CDX.

### 1.1 PURPOSE

The Flow Configuration Document (FCD) defines the required details to implement and configure a flow across CDX and ICIS nodes to exchange XML data. These nodes will implement a subset of the web methods from the Network Node Functional Specification to facilitate the exchange of data between users and the ICIS–NPDES Batch system and the ICIS-Air EDT system. This document should be referenced in the context of submitting NPDES data to ICIS-NPDES Batch and air compliance data to ICIS-Air EDT.

### 1.2 ASSUMPTIONS AND CONSTRAINTS

The following assumptions apply to the ICIS NPDES Batch and Air EDT flow configuration:

- States and LCONs will submit ICIS-Air data to the existing ICIS-NPDES node.
- All ICIS batch submissions will use the ICIS-NPDES dataflow.
- All XML submission files will be zipped by the submitting party prior to submittal to CDX.

- Upon receiving files from states, CDX validates the received XML files against the target XML schema. Only valid batches are submitted to ICIS. A submission is valid if at least one of the files in that submission is a valid XML file. A file is valid if it is well formed and complies with the ICIS schema.
- CDX scans the received files for any viruses. Files with viruses will be rejected.
- CDX archives the received files from LCON, state/tribe, and regional users.
- CDX supports both manual and automatic batch submissions. For manual submissions, users can log in to the CDX Exchange Network Services Center to upload submission files. For automatic submissions, users will choose to configure a node in their environment to submit (“push”) the files to CDX.

### 1.3 AUDIENCE

The primary audience for this document is developers, project managers and architects throughout the ICIS–NPDES Batch and ICIS-Air EDT implementation stakeholder organizations.

### 1.4 DOCUMENT OVERVIEW

The following sections comprise the rest of the document:

- **Section 2: XML Document Structure** – This section describes the overall structure of the ICIS XML Schemas.
- **Section 3: ICIS Data Flow Description** – This section describes the overall flow details for exchanging data between states, CDX and ICIS.
- **Section 4: ICIS Node Web Methods** – This section describes the Web methods implemented by the ICIS node.
- **Section 5: CDX Node Web Methods** – This section describes the Web methods implemented by CDX.
- **Section 6: Web Methods Used by State Nodes** – This section describes the Web methods a state node can use to retrieve the required information from CDX.



## 2. XML SUBMISSION DOCUMENT

### 2.1 OVERVIEW

The ICIS Submission Document is a XML file that contains metadata to facilitate the data processing and sandwiching of ICIS data for a specific submission type. Authorized local control agencies, states, tribes, or regions submitting data to ICIS must comply with the ICIS XML schema. Appendix A – ICIS–NPDES Batch Submission Type lists all the submission types supported by ICIS–NPDES Batch. Appendix B – ICIS-Air Electronic Data Transfer Submission Type lists all the submission types support by ICIS-Air EDT. Instructions to create XML instance submission documents for different submission types are contained in the ICIS-NPDES Batch User Guide and ICIS-Air Electronic Data Transfer User Guide.

A batch submission may consist of one or more XML submission documents. Batches must be submitted in compressed format (zip file) as required by CDX for this data flow.

### 2.2 XML SUBMISSION DOCUMENT STRUCTURE

The XML Submission Document is divided into two main sections, namely the header section and the payload section. The following sub-sections describe their structure, providing a brief description and example values for their major elements and attributes.

Figure 2-1 – ICIS-NPDES Batch XML Submission Document Sample, represents an example of an instance document for the ICIS-NPDES Batch Permit Tracking Event submission type. In the picture, the header portion of the document is highlighted in yellow, while the payload portion is highlighted in green.

**Figure 2-1 – ICIS-NPDES Batch XML Submission Document Sample**

```
<?xml version="1.0" encoding="UTF-8"?>
<Document xmlns="http://www.exchangenetwork.net/schema/icis/5" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <Header>
    <Id>UUStaffer1</Id>
    <Author>Jane Doe</Author>
    <Organization>UU Department of Environmental Protection</Organization>
    <Title>Permit Tracking Event Submission</Title>
    <CreationTime>2001-12-17T09:30:47.0Z</CreationTime>
    <Comment>2nd resubmittal of rejected transactions from May submission</Comment>
    <DataService>ICIS-Air</DataService>
    <ContactInfo>123 Main Street, Anytown UU, 00555, (888) 555-1212, jane.doe@uudeq.state.us</ContactInfo>
    <Property>
      <name>e-mail</name>
      <value>doe.john@state.us</value>
    </Property>
    <Property>
      <name>Source</name>
      <value>FullBatch@state.us</value>
    </Property>
  </Header>
  <Payload Operation="PermitTrackingEventSubmission">
    <PermitTrackingEventData>
      <TransactionHeader>
        <TransactionType>N</TransactionType>
      </TransactionHeader>
    </PermitTrackingEventData>
  </Payload>
</Document>
```

```

        <TransactionTimestamp>2001-12-17T09:30:47.0Z</TransactionTimestamp>
    </TransactionHeader>
    <PermitTrackingEvent>
        <PermitIdentifier>AL1005932</PermitIdentifier>
        <PermitTrackingEventCode>ANC</PermitTrackingEventCode>
        <PermitTrackingEventDate>2005-12-31</PermitTrackingEventDate>
        <PermitTrackingCommentsText>Application returned to applicant 3
times</PermitTrackingCommentsText>
    </PermitTrackingEvent>
    <PermitTrackingEventData>
    </PermitTrackingEventData>
    </Payload>
</Document>

```

Figure 2-2 – ICIS-Air EDT XML Submission Document Sample, represents an example of instance document for the ICIS-NPDES Air Pollutant submission type. In the picture, the non-repeatable header portion of the document is highlighted in yellow, while the payload portion containing repeatable AirPollutantsData parent tags as highlighted in green.

**Figure 2-2 – ICIS-Air EDT XML Submission Document Sample**

```

<?xml version="1.0" encoding="UTF-8"?>
<Document xmlns="http://www.exchangenetwork.net/schema/icis/5" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
    <Header>
        <Id>UUS staffer1</Id>
        <Author>Jane Doe</Author>
        <Organization>UU Department of Environmental Protection</Organization>
        <Title>Permit Tracking Event Submission</Title>
        <CreationTime>2001-12-17T09:30:47.0Z</CreationTime>
        <Comment>2nd resubmittal of rejected transactions from May submission</Comment>
        <DataService>ICIS-NPDES</DataService>
        <ContactInfo>123 Main Street, Anytown UU, 00555, (888) 555-1212, jane.doe@uudeq.state.us</ContactInfo>
        <Property>
            <name>e-mail</name>
            <value>doe.john@state.us</value>
        </Property>
        <Property>
            <name>Source</name>
            <value>FullBatch@state.us</value>
        </Property>
    </Header>
    <Payload Operation="AirPollutantsSubmission">
        <AirPollutantsData>
            <TransactionHeader>
                <TransactionType>R</TransactionType>
                <TransactionTimestamp>2001-12-17T09:30:47.0Z</TransactionTimestamp>
            </TransactionHeader>
            <AirPollutants>
                <AirFacilityIdentifier>NY001MK00000000001</AirFacilityIdentifier>
                <AirPollutantsCode>200001407</AirPollutantsCode>
                <AirPollutantStatusIndicator>A</AirPollutantStatusIndicator>
                <AirPollutantEPAClassificationData>
                    <AirPollutantEPAClassificationCode>MAJ</AirPollutantEPAClassificationCode>
                    <AirPollutantEPAClassificationStartDate>2013-01-01</AirPollutantEPAClassificationStartDate>
                </AirPollutantEPAClassificationData>
                <AirPollutantDAClassificationData>
                    <AirPollutantDAClassificationCode>MIN</AirPollutantDAClassificationCode>
                    <AirPollutantDAClassificationStartDate>2013-02-01</AirPollutantDAClassificationStartDate>
                </AirPollutantDAClassificationData>
            </AirPollutants>
        </AirPollutantsData>
    </Payload>
</Document>

```

```
</Payload>
</Document>
```

### 2.2.1 Header

The header section contains information about the document, such as the author, his/her employer and creation time. Table 2-1- XML Submission Document Header Details, describes the elements and attributes of the header and briefly explains how they are utilized during the processing of submitted data.

**Table 2-1 - XML Submission Document Header Details**

Element	Description	Example Value	Required	Notes
Id	The ICIS WAM ID of the user submitting the XML document	JOHN_DOE	Yes	Used to determine if the ICIS WAM ID has the rights to add, change or delete a record for the data family being submitted to ICIS
Author	The first and last name of the person generating the XML document	John Doe	No	Reference
Organization	The name of the company generating the XML document	State X Department of Environmental Quality	No	Reference
Title	The type of submission	Permit Tracking Event Submission	No	Reference
CreationTime	The date and time the document was created	2007-06-15T01:30:00.0Z	No	Reference
Comment	Free text information of the message contents	2nd resubmission of rejected transactions from May submission	No	Reference
DataService	Name of backend application	ICIS-NPDES or ICIS-Air	No	Reference
ContactInfo	Name, mailing address, city, state, zip, telephone number, and email address of the person who may be contacted with questions concerning the submission	John Doe 100 Somewhere St McLean, VA 22102	No	Reference

Element	Description	Example Value	Required	Notes
Property	Name-value pairs used to provide additional information about the submitter	N/A (parent element)	No	When the property name is “Source”, its value is used to identify the source of the batch submission and therefore the appropriate response. Refer to Section 3 for details.
name	Name of the property	e-mail Source	No	Used to identify whether email notifications need to be sent to an email address specified in the accompanying<value> tag; or if full or partial results need to be returned to the Source submitter via CDX.
value	Value of the property	<a href="mailto:jdoe@epa.gov">jdoe@epa.gov</a> NetDMR FullBatch	Yes, if name element is present	Used to provide an email address for the <name>e-mail</name> tag; or to provide DMR error results to the Source submitter for <name>NetDMR</name> or all results to the Source submitter for <name>FullBatch</name>

## 2.2.2 Payload

The payload section contains NPDES or Air data to submit to the ICIS system. The data include the payload submission type, transaction time, transaction type, and NPDES or Air data corresponding to the selected submission type. Table 2-2- XML Submission Document Payload Details, describes required elements and attributes of the payload section. Other elements and attributes must be present, depending on the specific submission type. An XML Submission Document may contain multiple payloads.

**Table 2-2 - XML Submission Document Payload Details**

Element	Description	Example Value	Required	Notes
Operation (attribute)	This attribute provides the payload submission type	DischargeMonitoringReportSubmission, AirPollutantsSubmission	Yes	Refer to the ICIS-NPDES Batch User Guide or ICIS-Air EDT User Guide for a complete list of the possible submission types.

Transaction Type	The type of transaction that should be performed on the submitted data.	C, D, N, R, X for NPDES Batch R, X for Air EDT	Yes	Refer to the ICIS-NPDES Batch User Guide or ICIS-Air EDT User Guide for the transaction types available for each submission types
Transaction Timestamp	The date and time the data was extracted.	2001-12-17T09:30:47.0Z	No	

### 3. RESPONSE DOCUMENTS

---

After batch data is submitted and processed, ICIS returns response files with information regarding the processing outcome of the submission to the user.

Response files are different for ICIS-NPDES Full Batch Users and ICIS-Air EDT Users, NetDMR Users, and ICIS-NPDES Batch DMR Hybrid Users. ICIS-NPDES Full Batch Users and ICIS-Air EDT Users receive a PDF with three tabs listing accepted transactions, rejected transactions and a summary of submission counts along with an XML file to match each tab. NetDMR Users only receive an XML file of rejected transactions. ICIS-NPDES Batch DMR Hybrid Users do not receive transaction result listings or counts at all but view their results within the ICIS application using the Business Objects reporting tool.

ICIS distinguishes between the three sources for batch submissions based on the information included in the header of the XML submission files. Specifically, the name/value pair child tags under the Property tag are used to identify the source of the batch submission and therefore the appropriate response.

For ICIS-NPDES Full Batch Users and ICIS-Air EDT Users, the Property tag contains the following data:

```
<Property>
  <name>Source</name>
  <value>FullBatch</value>
</Property>
```

For NetDMR Users, the Property contains the following data:

```
<Property>
  <name>Source</name>
  <value>NetDMR</value>
</Property>
```

ICIS-NPDES DMR Hybrid users do not submit a Property tag with a name tag containing “Source”. Note that only one Property tag can exist within an XML file with a name tag containing “Source”.

The Property tag can also be used to instruct CDX to send an email notification to one or more people when a submission arrives at CDX and after it has been processed by CDX. This is done by having the name tag contain “e-mail” and the value tag containing an email address. These tags can be before or after a Property tag with a name tag containing “Source.” The following is an example of Property tags for an ICIS-NPDES Full Batch User or ICIS-Air EDT User wanting CDX submission email notifications to be sent to three people:

```
<Property>
  <name>Source</name>
```

```

    <value>FullBatch</value>
  </Property>
  <Property>
    <name>e-mail</name>
    <value>deer.john@state.gov</value>
  </Property>
  <Property>
    <name>e-mail</name>
    <value>doe.jane@state.gov</value>
  </Property>
  <Property>
    <name>e-mail</name>
    <value>buck.jack@state.gov</value>
  </Property>

```

Table 3-1 – Batch Response Files Details, lists the response reports for different batch origins. The following sub-sections describe each report.

**Table 3-1 - Batch Response Files Details**

Origin	Archive File Name	Report Name	Report File Name
FullBatch	<Transaction ID>_<Submitting Party>_<TimeStamp>_Response.zip	Batch Audit Report	<Transaction ID>_<Submitting Party>_<TimeStamp>_Response.pdf
		Accepted Transactions XML Report	<Transaction_ID>_<SubmittingParty>_<TimeStamp>_Accepted_Response.xml
		Rejected Transactions XML Report	<Transaction_ID>_<SubmittingParty>_<TimeStamp>_Rejected_Response.xml
		Batch Transactions Summary XML Report	<Transaction_ID>_<SubmittingParty>_<TimeStamp>_Summary_Response.xml
		Batch File-Level Error Report	<Transaction_ID>_<SubmissionDate>_File_Error_Response.pdf
		Batch File-Level Error XML Report	<Transaction_ID>_<SubmissionDate>_File_Error_Response.xml
NetDMR	<Transaction ID>_Response.zip	NetDMR Report	<Transaction ID>_Response.xml
DMR Hybrid	N/A	ICIS Batch DMR Hybrid Report	<Transaction ID>_Response.pdf

### 3.1 FULL BATCH RESPONSE

ICIS-NPDES Full Batch Users and ICIS-Air EDT Users receive a Batch Audit Report in PDF format, with details about accepted transactions, rejected transactions, and totals for the accepted

and rejected transactions on separate tabs. Users also receive report files in XML format, with data similar to the one in the PDF file.

### 3.1.1 Batch Audit Report

The Batch Audit Report includes:

- the Accepted Transactions report,
- the Rejected Transactions report
- the Batch Transactions Summary report.

The Accepted Transactions Report displays information about transactions that were processed in ICIS without errors. Warning messages may also be displayed on the Report, if they were generated during transaction processing. Figure 3-1 – Accepted Transactions PDF Report Screen Shot, displays a sample Accepted Transactions report.

**Figure 3-1 - Accepted Transactions PDF Report Screen Shot**

**Environmental Protection Agency**  
**Integrated Compliance Information System**  
**Accepted Transactions Report**

Created Date: 05/17/2007  
 Refresh Date: 06/24/2010  
 Created By: HQ

Batch Submission Date From: \* To: \*  
 Batch ID(s): f802a1c8-38f4-4fa5-95a9-ae0a168e8dee  
 Submitting Party: HQ  
 User ID(s): \*

Submitting Party: Region HQ

Batch ID	User ID	Run Date	Submission Date
f802a1c8-38f4-4fa5-95a9-ae0a168e8dee	UNGERA	06/24/2010	06/24/2010

Submission Type	Trans Type	Key Value	Error / Warning Message(s)
Basic Permit	New	WYREP0001	Warning: Telephone Extension Number is not a valid tag for Contact Telephone Number Type Code PGE. The Telephone Extension Number 423 was not saved.
Basic Permit	Change	WYREP0002	
Basic Permit	Replace	WYREP0003	
Permitted Feature	New	WYREP0002002	

Batch ID	User ID	Run Date	Submission Date
f802a1c8-38f4-4fa5-95a9-ae0a168e8dee	WESTB	06/24/2010	06/24/2010

Submission Type	Trans Type	Key Value	Error / Warning Message(s)
Basic Permit	New	WYREP0004	Warning: Telephone Extension Number is not a valid tag for Contact Telephone Number Type Code PGE. The Telephone Extension Number 423 was not saved.
Basic Permit	Change	WYREP0005	
Basic Permit	Replace	WYREP0006	
Permitted Feature	New	WYREP0006002	

The Rejected Transactions Report displays information about transactions that did not complete processing in ICIS because of errors caused by business rule violations and/or transaction



processing errors. Figure 3-2 – Rejected Transactions PDF Report Screen Shot, displays a sample Rejected Transactions report.

**Figure 3-2 - Rejected Transactions PDF Report Screen Shot**

Environmental Protection Agency Integrated Compliance Information System Rejected Transactions Report				Created Date: 05/17/2007 Refresh Date: 06/24/2010 Created By: HQ
Batch Submission Date From: * To: *				
Batch ID(s): f802a1c8-38f4-4fa5-95a9-ae0a168e8dee				
Submitting Party: HQ				
User ID(s): *				
Submitting Party: Region HQ				
Batch ID	User ID	Run Date	Submission Date	
f802a1c8-38f4-4fa5-95a9-ae0a168e8dee	UNGERA	06/24/2010	06/24/2010	
Submission Type	Trans Type	Key Value	Error / Warning Message(s)	
Basic Permit	New	WYREP0007	The Permit Type Code NPJ is invalid for the Basic Permit Data Payload.	
Basic Permit	Change	WYREP0008	A permit does not exist for the key data entered.	
Basic Permit	Replace	WYREP0009	At least one Permittee Address must be entered for the permit. Affiliation Type Text ZZB does not have an Affiliation_Category of Non-Government, or does not exist or is inactive in the ICIS reference table.	
Permitted Feature	New	WYREP010001	A Permitted Feature cannot be added because the Permit Identifier does not exist in ICIS.	
Batch ID	User ID	Run Date	Submission Date	
f802a1c8-38f4-4fa5-95a9-ae0a168e8dee	WESTB	06/24/2010	06/24/2010	
Submission Type	Trans Type	Key Value	Error / Warning Message(s)	
Basic Permit	New	WYREP0011	The Permit Type Code NPJ is invalid for the Basic Permit Data Payload. Warning: Telephone Extension Number is not a valid tag for Contact Telephone Number Type Code PGE. The Telephone Extension Number 423 was not saved.	
Basic Permit	Change	WYREP0012	A permit does not exist for the key data entered.	
Basic Permit	Replace	WYREP0013	At least one Permittee Address must be entered for the permit. Affiliation Type Text ZZB does not have an Affiliation_Category of Non-Government, or does not exist or is inactive in the ICIS reference table.	
Permitted Feature	New	WYREP014001	A Permitted Feature cannot be added because the Permit Identifier does not exist in ICIS.	

The Transactions Summary PDF Report displays the total number of transactions accepted, total number of transactions rejected, and the percentage of transactions accepted, at both the submission type level and at the batch level. Figure 3-3 –Batch Transactions Summary PDF Report Screen Shot, displays a sample Transactions Summary report.

**Figure 3-3 - Batch Transactions Summary PDF Report Screen Shot**

Environmental Protection Agency

Integrated Compliance Information System

Batch Transactions Summary Report

Created Date: 05/17/2007

Refresh Date: 06/24/2010

Created By: HQ

Submission Date From: \* To: \*

Batch ID(s): f802a1c8-38f4-4fa5-95a9-ae0a168e8dee

Submitting Party: HQ

User ID(s): \*

Submitting Party: Region HQ

Batch ID: f802a1c8-38f4-4fa5-95a9-ae0a168e8dee

Submission Date: 06/24/2010

Transaction Type	N	N	R	R	C	C	X	X	D	D			
Submission Type	Accepted	Rejected	Accepted	Rejected	Accepted	Rejected	Accepted	Rejected	Accepted	Rejected	Total Transactions	% Transactions Accepted	Total Submissions
Basic Permit	2	2	2	2	2	2	0	0	0	0	12	50.00 %	12
Permitted Feature	2	2	0	0	0	0	0	0	0	0	4	50.00 %	4
Total	4	4	2	2	2	2	0	0	0	0	16	50.00 %	16

The following table, Table 3-2 - Batch Audit Report Details, describes the fields included in the Batch Audit Report.

**Table 3-2- Batch Audit Report Details**

Element	Information	Example
<b>All Reports</b>		
Submitting Party	Two character postal code for a State or two digit number for a Region, or three character LCON code for LCON of the user that submitted the XML. EPA Headquarters is also able to submit XML batches to ICIS.	HQ, AL, 01, or JEF
Batch ID	Identification string provided to the user by CDX after a batch is submitted to ICIS.	f802a1c8-38f4-4fa5-95a9-ae0a168e8dee
Submission Date	Date the batch was submitted by the user.	06/24/2010
Submission Type	Name of the data family being updated.	Basic Permit
Transaction Type	The type of the transaction.	New
<b>Accepted/Rejected Report</b>		
User ID	ICIS ID of the person submitting the XML.	UNGERA
Run Date	Date the batch was processed by ICIS.	06/24/2010
Key Value	Key tags submitted for the XML transaction.	WYREP0007
Error/Warning Message	Error/Warning Message generated when a business rule is violated during processing.	The Permit Type Code NPJ is invalid for the Basic Permit Data Payload
<b>Summary Report</b>		
Accepted	Total number of accepted transactions per transaction type and submission type.	2
Rejected	Total number of rejected transactions per transaction type and submission type.	2
Total Transactions	Total number of transactions per submission type.	12

Element	Information	Example
<b>All Reports</b>		
% Transactions Accepted	Percentage of transactions that were accepted by ICIS.	50.00%
Total Submissions	Total number of submissions for a submission type.	12
Total	Total number of submissions for the entire batch.	16

### 3.1.2 Batch XML Response Files

In addition to the Batch Audit Report, ICIS returns three separate response files in XML format:

- the Accepted Transactions Report
- the Rejected Transactions Report
- the Batch Transactions Summary Report.

The Accepted Transactions Report provides the same information included in the corresponding PDF report. Figure 3-4 – Accepted Transactions XML Report Screen Shot, displays a sample Accepted Transactions report.

**Figure 3-4 - Accepted Transactions XML Report Screen Shot**

```

<?xml version="1.0"?>
<SubmissionResponse xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.exchangenetwork.net/schema/icis/1">
  <TransactionIdentifier>_457b7249-cb09-4764-98ac-ec502443c52a</TransactionIdentifier>
  <SubmissionDate>2010-07-19</SubmissionDate>
  <ProcessedDate>2010-07-23</ProcessedDate>
  <SubmittingParty>
    <UserID>hqs1</UserID>
    <SubmissionType>
      <SubmissionTypeName>Master General Permit</SubmissionTypeName>
      <SubmissionsAccepted>
        <SubmissionAccepted>
          <SubmissionAcceptedKey>
            <PermitRecordIdentifier>
              <PermitIdentifier>TXMGP1000</PermitIdentifier>
            </PermitRecordIdentifier>
            <SubmissionTransactionTypeCode>R</SubmissionTransactionTypeCode>
          </SubmissionAcceptedKey>
        </SubmissionAccepted>
      </SubmissionsAccepted>
    </SubmissionType>
    <SubmissionType>
      <SubmissionTypeName>Permitted Feature</SubmissionTypeName>
      <SubmissionsAccepted>
        <SubmissionAccepted>
          <SubmissionAcceptedKey>
            <PermittedFeatureRecordIdentifier>
              <PermitIdentifier>AK1100016</PermitIdentifier>
              <PermittedFeatureIdentifier>001</PermittedFeatureIdentifier>
            </PermittedFeatureRecordIdentifier>
            <SubmissionTransactionTypeCode>R</SubmissionTransactionTypeCode>
          </SubmissionAcceptedKey>
        </SubmissionAccepted>
      </SubmissionsAccepted>
    </SubmissionType>
  </SubmittingParty>
</SubmissionResponse>

```

The Rejected Transactions Report provides the same information included in the corresponding PDF report. Figure 3-5 – Rejected Transactions XML Report Screen Shot, displays a sample Rejected Transactions report.

**Figure 3-5 - Rejected Transactions XML Report Screen Shot**

```

<?xml version="1.0"?>
<SubmissionResponse xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.exchangenetwork.net/schema/icis/1">
  <TransactionIdentifier>_457b7249-cb09-4764-98ac-ec502443c52a</TransactionIdentifier>
  <SubmissionDate>2010-07-19</SubmissionDate>
  <ProcessedDate>2010-07-23</ProcessedDate>
  <SubmittingParty>
    <UserID>hqsl</UserID>
    <SubmissionType>
      <SubmissionTypeName>Limit Set</SubmissionTypeName>
      <SubmissionErrors>
        <SubmissionError>
          <SubmissionErrorKey>
            <LimitSetIdentifier>
              <PermitIdentifier>VALMITEST</PermitIdentifier>
              <PermittedFeatureIdentifier>001</PermittedFeatureIdentifier>
              <LimitSetDesignator>B</LimitSetDesignator>
            </LimitSetIdentifier>
            <SubmissionTransactionTypeCode>N</SubmissionTransactionTypeCode>
          </SubmissionErrorKey>
          <ErrorReport>
            <ErrorCode>LS110</ErrorCode>
            <ErrorTypeCode>Error</ErrorTypeCode>
            <ErrorDescription>Limit Set Modification Effective Date must exist.</ErrorDescription>
          </ErrorReport>
          <ErrorReport>
            <ErrorCode>LS120</ErrorCode>
            <ErrorTypeCode>Error</ErrorTypeCode>
            <ErrorDescription>Limit Set Modification Type Code is inactive.</ErrorDescription>
          </ErrorReport>
        </SubmissionError>
      </SubmissionErrors>
    </SubmissionType>
  </SubmittingParty>
</SubmissionResponse>

```

The Batch Transactions Summary XML Report provides the same information included in the corresponding PDF report, with the difference that the total accepted, total rejected, and percentage of accepted transactions are listed by ICIS User ID and then by Submission Type for each Batch, instead of by Submission Type only. Figure 3-6 – Batch Transactions Summary XMLReport Screen Shot, displays a sample Transactions Summary report.

**Figure 3-6 - Batch Transactions Summary XML Report Screen Shot**

```

<?xml version="1.0"?>
<SubmissionResponse xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.exchangenetwork.net/schema/icis/1">
  <TransactionIdentifier>e3f8f43a-b67e-42d8-bf6d-192e69e26e10</TransactionIdentifier>
  <SubmissionDate>2010-07-02</SubmissionDate>
  <ProcessedDate>2010-07-15</ProcessedDate>
  <SubmittingParty>
    <UserID>HQS1</UserID>
    <SubmissionType>
      <SubmissionTypeName>Limit Set</SubmissionTypeName>
      <SubmissionSummary>
        <TransactionTypeTotals>
          <SubmissionTransactionTypeCode>N</SubmissionTransactionTypeCode>
          <TotalAcceptedTransactions>0</TotalAcceptedTransactions>
          <TotalRejectedTransactions>2</TotalRejectedTransactions>
        </TransactionTypeTotals>
        <TotalTransactions>2</TotalTransactions>
        <PercentTransactionsAccepted>0.0</PercentTransactionsAccepted>
      </SubmissionSummary>
    </SubmissionType>
  </SubmittingParty>
  <SubmissionType>
    <SubmissionTypeName>Permit Reissuance</SubmissionTypeName>
    <SubmissionSummary>
      <TransactionTypeTotals>
        <SubmissionTransactionTypeCode>X</SubmissionTransactionTypeCode>
        <TotalAcceptedTransactions>0</TotalAcceptedTransactions>
        <TotalRejectedTransactions>1</TotalRejectedTransactions>
      </TransactionTypeTotals>
      <TotalTransactions>1</TotalTransactions>
      <PercentTransactionsAccepted>0.0</PercentTransactionsAccepted>
    </SubmissionSummary>
  </SubmissionType>
  <TotalSubmissions>3</TotalSubmissions>
  <TotalPercentTransactionsAccepted>0.0</TotalPercentTransactionsAccepted>
</SubmissionResponse>

```

The following table, Table 3-3: Batch XML Response File Details, provides a brief description of the elements in the XML response files

**Table 3-3 - Batch XML Response Files Details**

Element	Information	Example Value
<b>All Files</b>		
TransactionIdentifier	Identifier returned to the user from CDX after the batch submission.	e3f8f43a-b67e-42d8-bf6d-192e69e26e10
SubmissionDate	Date of XML Submission	2010-06-01
ProcessedDate	Date the batch was processed	2010-06-01
SubmittingParty	Data related to a certain user submission	N/A (parent element)
UserID	ICIS User ID of the person submitting the XML	HQS1
SubmissionType	Data related to a certain data family	N/A (parent element)
SubmissionTypeName	Descriptive name for a submission type	Basic Permit
<b>Accepted Report</b>		
SubmissionsAccepted	List of accepted submissions for a certain User ID and submission type	N/A (parent element)
SubmissionAccepted	Data related to an accepted submission	N/A (parent element)
SubmissionAcceptedKey	Business key and transaction type for an accepted submission	N/A (parent element)



Element	Information	Example Value
< SubmissionType >Identifier	Business key for a submission	N/A (parent element).  Note: The actual name and content of the element depends upon the submission type
SubmissionTransactionTypeCode	Transaction type for a submission	N
AcceptedReport	Warning message for a submission	N/A (parent element).
InformationCode	Warning message code	DMR300
InformationTypeCode	Warning message type	Warning
InformationDescription	Warning message.	Warning: The following Numeric Condition Quantity(ies) has a Percent Exceedence greater than 500%: Value will be listed for each column that has this error.
<b>Rejected Report</b>		
SubmissionsErrors	List of rejected submissions for a certain User ID and submission type	N/A (parent element)
SubmissionError	Data related to a rejected submission	N/A (parent element)
SubmissionErrorKey	Business key and transaction type for a rejected submission	N/A (parent element)
< SubmissionType >Identifier	Business key for a submission	N/A (parent element).  Note: The actual name and content of the element depends upon the submission type
SubmissionTransactionTypeCode	Transaction type for a submission	R
ErrorReport	Error/Warning message for a submission	N/A (parent element).
ErrorCode	Error/Warning message code	LS110
ErrorTypeCode	Error/Warning message type	Error
ErrorDescription	Error/Warning message.	Limit Set Modification Effective Date must exist.
<b>Summary Report</b>		
SubmissionSummary	Summary data for a certain User ID and submission type	N/A (parent element).
TransactionTypeTotals	Summary data per transaction type	N/A (parent element).
SubmissionTransactionTypeCode	Transaction type	C
TotalAcceptedTransactions	Total number of accepted transactions per transaction type	4
TotalRejectedTransactions	Total number of rejected transactions per transaction type	1
TotalTransactions	Total number of transactions per submission type.	5
PercentTransactionsAccepted	Percentage of accepted transactions per submission type.	80.00%
TotalSubmissions	Total number of submissions per User ID.	12
TotalPercentTransactionsAccepted	Total number of accepted transactions per User ID.	97.25

### 3.1.3 Batch File-Level Error Report

The Batch File Level Error Report is a PDF file generated in case critical errors (e.g., an invalid ICIS user id populated in the XML files) prevented the processing of a received batch. The report includes the Transaction ID for the Batch, along with a list of the critical errors that occurred during batch processing. Figure 3-7 – Batch File-Level Error Report Screen Shot, displays a sample File-Level Error PDF report.

Figure 3-7 - Batch File-Level Error Report Screen Shot

**Batch \_3e134e25-5e7a-4d7d-abd9-6d2626ba279f has processed in ICIS.**

Some files could not be processed due to the following errors:

- Unable to parse file Unpermitted\_Facility.xml because 'xxx' is an invalid ICIS user
- Batch parsing failed

### 3.1.4 Batch File-Level Error XML Report

The Batch File Level Error XML Report provides the same information included in the corresponding PDF report. Figure 3-8 – Batch File-Level Error XML Report Screen Shot, displays a sample File-Level Error XML report.

Figure 3-8 - Batch File-Level Error XML Report Screen Shot

```
<?xml version="1.0"?>
<SubmissionResponse xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.exchangenetwork.net/schema/icis/1">
  <TransactionIdentifier>_3e134e25-5e7a-4d7d-abd9-6d2626ba279f</TransactionIdentifier>
  <SubmissionDate>2010-10-19</SubmissionDate>
  <ProcessedDate>2010-10-19</ProcessedDate>
  <FileSubmissionErrors>
    <FileSubmissionError>
      <FileErrorReport>
        <ErrorTypeCode>Error</ErrorTypeCode>
        <ErrorDescription>Unable to parse file Unpermitted_Facility.xml because 'xxx' is an invalid ICIS user</ErrorDescription>
      </FileErrorReport>
      <FileErrorReport>
        <ErrorTypeCode>Error</ErrorTypeCode>
        <ErrorDescription>Batch parsing failed</ErrorDescription>
      </FileErrorReport>
    </FileSubmissionError>
  </FileSubmissionErrors>
</SubmissionResponse>
```

Table 3-4 - Batch File Level Error XML File Details

Element	Information	Example Value
TransactionIdentifier	Identifier returned to the user from CDX after the batch submission.	457b7249-cb09-4764-98ac-ec502443c52a
SubmissionDate	Date of XML submission	2010-08-01
ProcessedDate	Date the batch was processed	2010-08-01
FileSubmissionErrors	List of file-level errors occurred during batch processing	N/A (parent element).
FileSubmissionError	List of file-level errors occurred during batch processing	N/A (parent element).
FileErrorReport	Data related to a file-level error	N/A (parent element).



ErrorTypeCode	Error message type	Error
ErrorDescription	Error message.	Batch parsing failed

### 3.2 NETDMR RESPONSE

The NetDMR response report is an XML file including the errors that occurred for each DMR transaction in a batch submission. In case critical errors prevented the batch from being processed, the report lists the file-level errors that occurred. The response file is sent from ICIS to NetDMR, where it can be retrieved by NetDMR Users after login. Figure 3-9 – NetDMR Report Screen Shot, displays a sample NetDMR report.

**Figure 3-9 - NetDMR Report Screen Shot**

```
<?xml version="1.0"?>
<SubmissionResponse xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns="http://www.exchangenetwork.net/schema/NetDMR/1">
  <TransactionIdentifier>_b631e454-195d-4230-95a6-d3e51cad00a8</TransactionIdentifier>
  <SubmissionDate>2010-07-20</SubmissionDate>
  <CreationDate>2010-07-20</CreationDate>
  <SubmissionErrors>
    <SubmissionError>
      <SubmissionErrorKey>
        <DMRParameterIdentifier>
          <PermitIdentifier>AK1234567</PermitIdentifier>
          <PermittedFeatureIdentifier>001</PermittedFeatureIdentifier>
          <LimitSetDesignator>XX</LimitSetDesignator>
          <MonitoringPeriodEndDate>2010-02-28</MonitoringPeriodEndDate>
          <ParameterCode>30383</ParameterCode>
          <MonitoringLocationTypeCode>J</MonitoringLocationTypeCode>
          <SeasonIdentifier>0</SeasonIdentifier>
        </DMRParameterIdentifier>
        <SubmissionTransactionTypeCode>C</SubmissionTransactionTypeCode>
      </SubmissionErrorKey>
      <ErrorReport>
        <ErrorCode>DMR080</ErrorCode>
        <ErrorTypeCode>Error</ErrorTypeCode>
        <ErrorDescription>A Parameter does not exist that matches the data entered.</ErrorDescription>
      </ErrorReport>
    </SubmissionError>
  </SubmissionErrors>
</SubmissionResponse>
```

Table 3-5 – NetDMR Response File Details summarizes the tags included in the XML response file, providing a brief description and an example for each tag.

**Table 3-5 - NetDMR Response File Details**

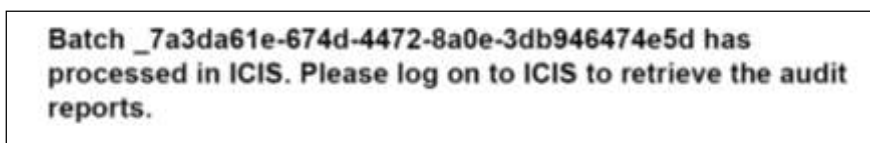
Element	Information	Example Value
TransactionIdentifier	identifier returned to user from CDX after the DMR batch submission.	_b631e454-195d-4230-95a6-d3e51cad00a8
SubmissionDate	Date of batch submission	2010-08-01
CreationDate	Date the batch was received	2010-08-01
SubmissionsErrors	List of rejected DMR transactions	N/A (parent element)
SubmissionError	Data related to a rejected DMR transaction	N/A (parent element)

Element	Information	Example Value
SubmissionErrorKey	Business key and transaction type for a rejected DMR transaction	N/A (parent element)
DMRParameterIdentifier	Business key for a DMR transaction	N/A (parent element).
PermitIdentifier	Permit NPDES ID	AK1234567
PermittedFeatureIdentifier	Permitted Feature ID	001
LimitSetDesignator	Limit Set Designator	A
MonitoringPeriodEndDate	Monitoring Period End Date	2010-10-31
ParameterCode	Parameter Code	00950
MonitoringLocationTypeCode	Monitoring Location Code	J
SeasonIdentifier	Season Identifier	0
SubmissionTransactionTypeCode	Transaction type for the DMR transaction	C
ErrorReport	Error/Warning message data for the DMR submission	N/A (parent element).
ErrorCode	Error/Warning message code for the DMR submission	DMR080
ErrorTypeCode	Error/Warning message type for the DMR submission	Error
ErrorDescription	Error/Warning message for the DMR submission	A Parameter does not exist that matches the entered data.

### 3.3 ICIS-NPDES BATCH DMR HYBRID RESPONSE

ICIS-NPDES Batch DMR Hybrid Users receive a PDF file that simply informs whether the batch was processed in ICIS. If it was not, the file lists the files that were not processed along with errors. Figure 3-10 – ICIS-NPDES Batch DMR Hybrid Report Screen Shot, displays a sample ICIS-NPDES Batch Hybrid report.

**Figure 3-10 – ICIS-NPDES Batch DMR Hybrid Report Screen Shot**



### 3.4 CDX RESPONSE

After a submitter has manually uploaded a file using the CDX Web form or electronically submitted the file through its Node, CDX will determine if it is a zip compressed file containing one or more XML instance documents, extract the zipped file, perform virus scans on the extracted file(s), then use the namespace in the Document tag to locate the correct version of the schema and check them against the ICIS schema for well-formedness and validity before routing them to ICIS.

If one or more XML instance documents within the same zipped file fail the virus scan or schema validation, they will not be sent to ICIS but will be rejected by CDX with up to 100 errors documented in a downloadable file called “submission-metadata.xml”. All other files that pass the virus scan and schema validation checks will be sent to ICIS.

Figure 3-11 displays an example of the contents of “submission-metadata.xml” of a zipped file containing three XML submission files, one that was able to pass a schema validation check, one that was unable to pass a schema validation check and another that had an invalid Header tag.

**Figure 3-11 Example Contents of Submission Metadata**

```
<?xml version="1.0" encoding="UTF-8"?>
<submission>
  <file>
    <name>Construction.xml</name>
    <email>ecleckler@adem.state.al.us</email>
    <status>VALID</status>
    <result>Congratulations! The document,d:\SOAPServer\DataFolder\_0941bd02-
dfd7-4952-a922-175e322754400.unzipped\Construction.xml, is valid according to
the schema.</result>
  </file>
  <file>
    <name>Industrial.xml</name>
    <email>ecleckler@adem.state.al.us</email>
    <status>INVALID</status>
    <result> The document,d:\SOAPServer\DataFolder\_0941bd02-dfd7-4952-a922-
175e322754400.unzipped\Industrial.xml, contains the following error(s): Error
at line 4 column 40 : The 'c:\ICISSchemas\SchemasVersion3.0:Id' element is
invalid - The value 'UUSTaffer1123456789012345678901' is invalid according to
its datatype 'c:\ICISSchemas\SchemasVersion2.0:StringMin3Max30Type' - The
actual length is greater than the MaxLength value.</result>
  </file>
  <file>
    <name>General.xml</name>
    <status>INVALID</status>
    <statusDetails>E_ParseHeader:Error parsing EN Header
Document.</statusDetails>
    <result/>
  </file>
</submission>
```

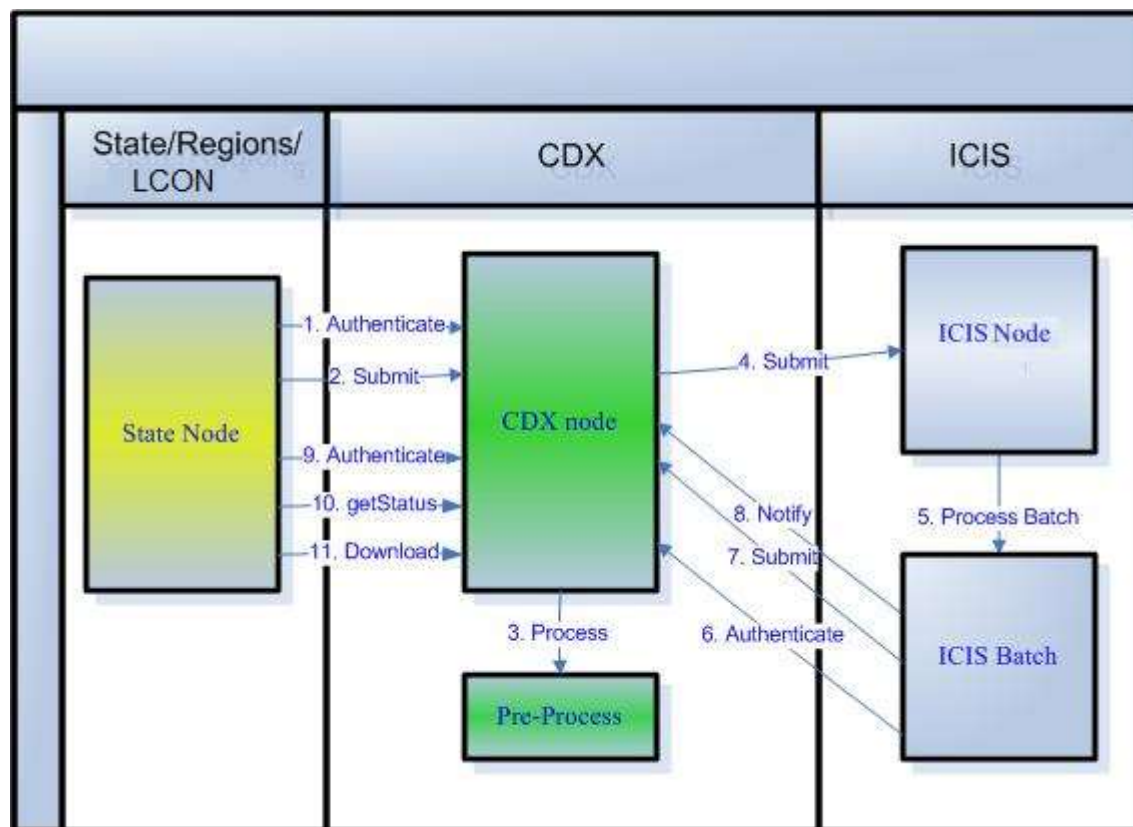
## 4. ICIS DATA FLOW DESCRIPTION

A node is a service provider on the Exchange Network conforming to the Network Node Functional Specification. The Network Node Functional Specification describes the behavior and interfaces of the service provider component. The specification is available on the Exchange Network website ([www.exchangenetwork.net](http://www.exchangenetwork.net)). CDX deployed a node to accept submissions from the state, local and tribal users. The ICIS system deployed a node in the ICIS test and production environments to allow the receipt of submissions from CDX.

### 4.1 FILE EXCHANGE IN NODE TO NODE CONFIGURATION

Figure 4-1 – File Exchange in Node to Node Configuration, describes the steps involved in exchanging the files between the states, CDX and ICIS for this configuration. In this deployment, an exchange node is configured in the state, CDX and ICIS test environments. The following steps describe the details of the batch submissions in this configuration:

**Figure 4-1 - File Exchange in Node to Node Configuration**



1. Before submitting a zipped submission containing one or more XML files to CDX, the state node uses the *Authenticate* method by supplying a CDX user id and password to authenticate. Upon successful authentication CDX returns a securityToken to the state node. If the supplied user id, password combination is invalid, a SOAP fault with “E\_UnknownUser” as the error code is returned to the invoker.

2. The state node uses the *Submit* method to submit the batch data and the issued security Token (from Step 1) to CDX.
  - a. CDX validates the security token. If the security token is invalid, the entire submission is rejected, a SOAP fault is returned to the client, and processing ends. Otherwise processing continues to step b.
  - b. CDX archives the received batch files. They will be maintained in an easily accessible archive for one month. After a month, the archived submissions will be moved to a secondary storage device like a tape. Tapes will be maintained for a total of five years from the submission receipt date.
  - c. CDX saves the submitted XML files in the submission. The submission status is set to “Received” and a Transaction ID is generated and returned to the client. Non-XML files are silently ignored. If no XML files are submitted, CDX rejects the submission and no further processing takes place.
3. Upon receiving the files from the state node, CDX unzips the compressed XML submissions and performs the following process:
  - a. Invokes its virus scanning service to validate that the submitted XML files are free from viruses. If all of the files contain viruses, the entire submission is rejected and the submission status is set to “Failed”. Otherwise, virus-laden files are silently ignored, and processing continues with the valid files.
  - b. Valid files from step “a” are validated against the target XML schema. If all of the files are invalid, the entire submission is rejected and the submission status is set to “Failed”. If any files are valid, the submission status remains set to “Received” and the valid files continue processing at step c.
  - c. The QA server at CDX creates a report with the status of the validations. This report can be downloaded using the “*Download*” web method on CDX.
  - d. If steps “a” through “c” complete successfully, valid files from the submission are archived. Valid submissions to be passed to ICIS will be archived in an easily accessible storage area for one month. At the end of the month, the archived submissions will be permanently deleted.
  - e. If steps a through d complete successfully, the submission status is set to “Pending” and the process continues at step 4.
4. CDX submits the valid files from the submission to the ICIS node by invoking the *Submit* method on the ICIS node. The ICIS node stores the received files and the corresponding Transaction ID supplied by CDX for parsing. The received files are stored until the process for the corresponding files is complete.
5. ICIS validates the ICIS WAM User Id located within the <Id> tag under the parent <Header> of each XML document submitted.
  - a. If the ICIS WAM User Id is invalid, an error message is captured in the ICIS logs. If all of the submitted files have invalid user ids, the process continues at step 6.

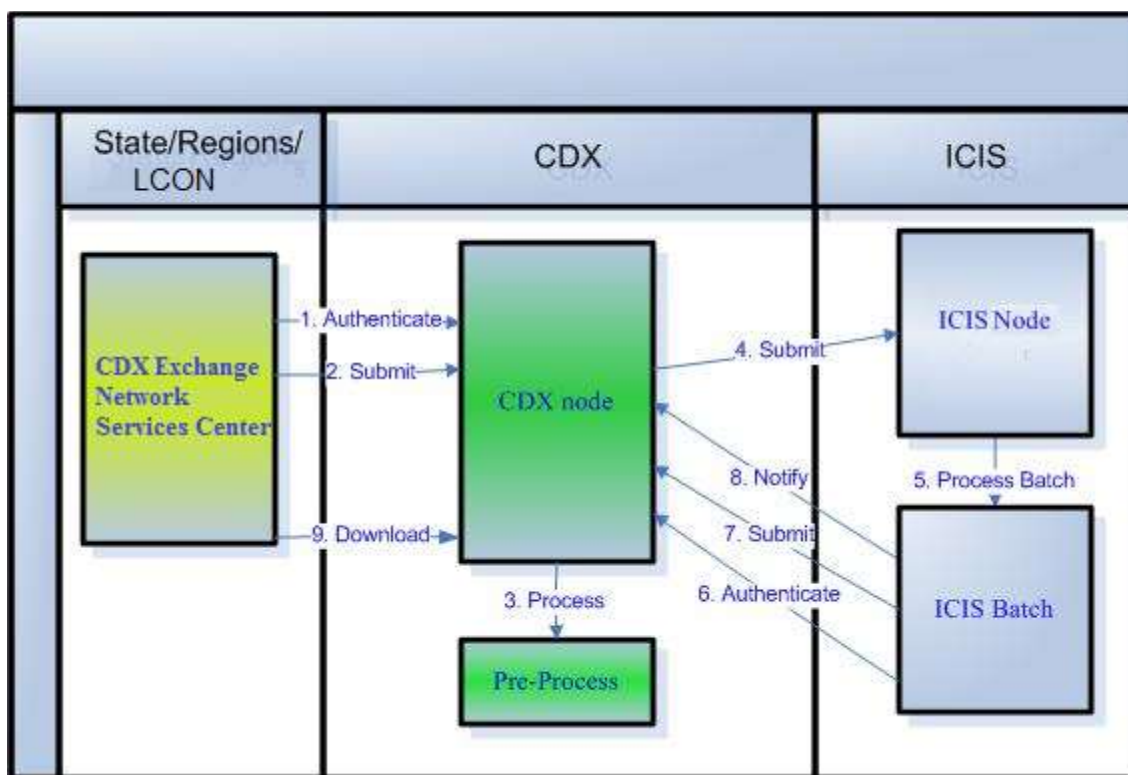
- b. If the ICIS-WAM User Id is valid for at least one of the files in the submission, valid files are parsed, and payloads are extracted and saved in the ICIS Batch Operation Database.
6. In preparing to submit the processing details to CDX, the ICIS node authenticates itself by invoking the *Authenticate* method on CDX. On successful authentication, CDX returns a security Token.
7. Depending on the submission origin, ICIS creates the processing report according to the following guidelines:
  - a. Critical errors (e.g., an invalid ICIS user id populated in the XML files) that prevented the processing of a received submission are reported in the response files, as described in Sections 3.1-3.3. If no critical errors occurred, processing continues at step b.
  - b. After the batch is processed, ICIS creates response files based on the submission origin, as described in Section 3.
  - c. The ICIS node uses the *Submit* method to send the documents created in step “a” or “b” to CDX. CDX archives the received documents.
8. After submitting the processing report to CDX, ICIS uses the *Notify* method to update the processing status of the batch at CDX. CDX updates the submission status to “Completed”.
9. In preparation for retrieving the submission processing status and the processing documents the state node obtains a securityToken by supplying the user id and password to the *Authenticate* method on CDX. As described in step 1, the *Authenticate* method returns a SOAP fault in case of failed authentication.
10. Using the Transaction ID provided by CDX in step 2, the state node retrieves the submission status at regular intervals using the *getStatus* method.
11. When the batch status is “Completed”, the state node downloads the submission processing documents for that specific Transaction ID from CDX using the *Download* method.

## **4.2 FILE EXCHANGE IN CDX EXCHANGE NETWORK SERVICES CENTER TO NODE CONFIGURATION**

In this configuration, LCONs, states/tribes, and regional users submit zipped XML documents using the CDX Exchange Network Services Center. Before submitting an XML document, the user logs into the CDX Exchange Network Services Center using a pre-established user id and password. Upon successful authentication, the user can submit the files to CDX. All XML document files should be compressed prior to submitting to CDX. CDX returns a Transaction ID after receiving the zipped submission. Figure 3-2 – File Exchange in Client to Node Configuration,

describes the steps involved in exchanging the files between the states, CDX and ICIS for this configuration.

**Figure 4-2 - File Exchange in CDX Exchange Network Services Center to Node Configuration**



1. Before submitting a document to CDX, the user logs into CDX Exchange Network Services Center.
2. Upon successful login, the user uploads a zipped file containing one or more XML documents to CDX.
  - a. CDX validates the security token. If the security token is invalid, the entire batch is rejected, a SOAP fault is returned to the client, and batch processing ends. Otherwise processing continues to Step b.
  - b. CDX archives the received batch files. They will be maintained in an easily accessible archive for one month. After a month, the archived batches will be moved to a secondary storage device like a tape. Tapes will be maintained for a total of five years from the batch receipt date.
  - c. CDX saves the submitted XML files in the batch. The batch status is set to "Received" and a Transaction ID is generated and returned to the client. Non-XML files are silently ignored. If no XML files are submitted, CDX rejects the batch and no further processing takes place.

3. Upon receiving the files from the CDX Exchange Network Services Center, CDX unzips compressed batch submissions and performs the following process:
  - a. Invokes its virus scanning service to validate that the submitted files are free from viruses. If all of the files contain viruses, the entire batch submission is rejected and the batch status is set to “Failed”. Otherwise, virus-laden files are silently ignored, and processing continues with the valid files.
  - b. Valid files from step “a” are validated against the target XML schema. If all of the files are invalid, the entire batch submission is rejected and the batch status is set to “Failed”. If any files are valid, the batch status remains set to “Received” and the valid files continue processing at step c.
  - c. The QA server at CDX creates a report with the status of the validations. This report can be downloaded to view the validation errors of the submitted files.
  - d. If steps “a” through “c” complete successfully, valid files from the batch are archived. Valid batches to be passed to ICIS will be archived in an easily accessible storage area for one month. At the end of the month, the archived batches will be permanently deleted.
  - e. If steps a through d complete successfully, the batch status is set to “Pending” and the process continues at step 4.
4. CDX submits the valid XML documents from the submission to the ICIS node by invoking the *Submit* method on the ICIS node. The ICIS node stores the received files and the corresponding Transaction ID supplied by CDX for parsing. The received files are stored until the batch process for the corresponding files is complete.
5. ICIS validates the ICIS WAM User Id submitted with the batch submission.
  - a. If the ICIS WAM User Id is invalid, an error message is captured in the ICIS logs. If all of the submitted files have invalid user ids, the process continues at step 6.
  - b. If the ICIS WAM User Id is valid for at least one file in the submission, ICIS parses and processes the valid files according to the predefined processing logic.
6. In preparing to submit the processing details to CDX, the ICIS node authenticates itself by invoking the *Authenticate* method on CDX. On successful authentication, CDX returns a securityToken.
7. Depending on the origin of the submission as described in Section 3, ICIS creates the processing report according to the following guidelines:
  - a. Critical errors that prevent the processing of a received XML document within a zipped submission, such as an unknown ICIS WAM User Id populated in the <Id> tag under the parent Header tag, are reported in the response files as described in Sections 3.1-3.3. If no critical errors occurred, processing continues at step b.
  - b. After all the XML documents within one zipped submission are processed, ICIS creates Batch response files as described in Section 3.



- c. The ICIS node uses the *Submit* method to send the documents created in step “a” or “b” to CDX. CDX archives the received documents.
8. After submitting the processing report to CDX, the ICIS node uses the *Notify* method to update the processing status of the batch at CDX. CDX updates the batch status to “Complete”.
9. The state user logs in to the CDX Exchange Network Services Center, which shows a status of “Complete” for their submission, and selects the transaction history to view all the processing details and documents related to the batch transaction including the ICIS Batch Processing Status PDF.

## 5. ICIS NODE WEB METHODS

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The ICIS node implements the following Web services from the methods defined in the Network Node Functional Specification to accept batch submissions from CDX:

- Submit - CDX invokes this Web method to forward zipped XML document submission files from submitters that have passed virus scan and XML schema validation checks over to ICIS.

### 5.1 SUBMIT WEB METHOD

**Description:**

Submit is a utility method used to send one or more files to a service provider. A positive response from the node indicates that the files were successfully received. An exception message means that the submitted documents were not delivered to the recipient. The ICIS-NPDES Batch node returns the Transaction ID it received in the submission to indicate the files were received successfully.

**Arguments:**

The Submit method has four arguments

- securityToken: A security ticket issued by the service provider.
- transactionId: CDX sends a unique transactionId along with the submission.
- dataflow: The name of the target dataflow. In this case, "ICIS-NPDES".
- documents: An array of documents of type nodeDocument. This argument contains the XML documents for the specific Transaction ID.

**Return:**

- When successful, the Submit method returns the transactionId it received from CDX. In case of an error, the ICIS node returns a SOAP Fault with the details of the errors that occurred while receiving the batch.

## 6. CDX NODE WEB METHODS

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CDX implements the following Web methods from the methods defined in the Network Node Functional Specification to facilitate authentication and accept batch processing status from the ICIS–NPDES Batch node:

- **Authenticate** – the ICIS node obtains a securityToken before initiating Submit and Notify.
- **Submit** – the ICIS node submits an ICIS Batch Processing Status PDF document with Batch/File level errors or a notice of successful processing to CDX.
- **Notify** – the ICIS node notifies CDX of the final Batch Processing Status.

### 6.1 AUTHENTICATE WEB METHOD

**Description:**

The Authenticate method authenticates a user using the supplied credentials. Upon successful authentication, it returns a securityToken. The securityToken is used while invoking the Notify and Submit methods on CDX.

**Arguments:**

The Authenticate method has three arguments:

- **userId**: The User id to be authenticated. The ICIS node sends the user id assigned to the ICIS node.
- **credential**: User password for accessing CDX.
- **authenticationMethod**: Specifies the authentication method to be used. In this case, it will be “password”.

**Return:**

- Upon successful authentication, the service provider returns a securityToken wrapped in a SOAP message. If authentication fails, a SOAP fault message with error details is returned.

### 6.2 SUBMIT WEB METHOD

**Description:**

The ICIS node invokes the Submit method on CDX to send the processing status document to CDX. In case of critical errors which cause an XML document to be rejected (e.g., unknown ICIS WAM User Id), the ICIS Batch Processing Status Document will report these errors. If no critical errors are received while processing a batch, the ICIS Batch Processing Status Document will contain a message indicating the successful completion of processing for that batch.

**Arguments:**

The Submit method has eight arguments:

- URL: URL for CDX.
- securityToken: A security token issued by the service provider (NAAS).
- transactionId: The transactionId associated with the processed batch. CDX assigns a unique transactionId for each zipped file submitted to the ICIS node.
- dataflow: The target dataflow name. In this case, “ICIS–NPDES”.
- flowOperation: The target dataflow operation. In this case no value is passed for this argument.
- recipient: The target recipient. In this case no value is passed for this argument.
- notification URI: The target notification URI. In this case no value is passed for this argument.
- documents: An array of documents of type nodeDocument. The ICIS node will submit the ICIS Batch Processing Status Document.

**Return:**

- The Submit method returns the transactionId submitted while invoking the Submit method. If the submission fails, a SOAP fault with details of the error will be returned.

### 6.3 NOTIFY WEB METHOD

**Description:**

The Notify method can be used for three purposes: document notification, event notification, and status notification. ICIS–NPDES Batch uses the notify method to inform CDX about the status of a processed batch for a given Transaction ID.

**Arguments:**

The Notify method has four arguments:

- securityToken: A security ticket issued by the service provider (NAAS).
- nodeAddress: Address of node to notify. No value is passed for status notification.
- dataflow: This parameter contains a URL to indicate the type of notification. There are three kinds of notifications, an event, a status or a document. The ICIS node uses “*http://www.exchangenetwork.net/node/status*” to indicate status notification.
- documents: An array of documents of type nodeDocument. The ICIS node will provide a nodeDocument with the transaction ID and batch processing status of “Processed”.

**Return:**

- For status notification, CDX returns a string other than transactionId signaling the acceptance of the status.

## 7. WEB METHODS USED BY STATE NODES

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State nodes will invoke the following Web methods on CDX to submit batches to CDX, get status of a batch submission and download any processing status documents including error reports from CDX:

- **Authenticate** – The state node obtains a securityToken before initiating Submit, GetStatus, or Download.
- **Submit** – The state node invokes this method on CDX to submit a batch.
- **GetStatus** – The state node invokes this method on CDX to obtain the batch status.
- **Download** – The state node invokes this method on CDX to download the processing status documents related to a batch submission.

### 7.1 AUTHENTICATE WEB METHOD

**Description:**

The State node invokes the Authenticate method on CDX to authenticate a user using the supplied credentials like user id and password. Upon successful authentication, CDX returns a securityToken. The securityToken is used while invoking the Submit, GetStatus and Download methods on CDX.

**Arguments:**

The Authenticate method has three arguments:

- **userId**: The User id to be authenticated. The state node sends CDX userid assigned to the state node.
- **credential**: User password for accessing CDX.
- **authenticationMethod**: Specifies the authentication method to be used. In this case, it will be "password".

**Return:**

- Upon successful authentication, the service provider returns a securityToken wrapped in a SOAP message. If authentication fails, a SOAP fault message with error details is returned.

### 7.2 SUBMIT WEB METHOD

**Description:**

The state node invokes the Submit method on CDX to submit a batch.

**Arguments:**

The Submit method has eight arguments:

- **URL**: URL for CDX.
- **securityToken**: A security token issued by the service provider (NAAS).

- transactionId: The transactionId associated with the batch. While submitting batches this is always empty.
- dataflow: The target dataflow name. In this case, “ICIS–NPDES”.
- flowOperation: The target dataflow operation. In this case no value is passed for this argument.
- recipient: The target recipient. In this case no value is passed for this argument.
- notification URI: The target notification URI. In this case no value is passed for this argument.
- documents: An array of documents of type nodeDocument. The state node will submit XML document(s).

**Return:**

- The Submit method returns the transactionId associated with the batch submission. If the submission fails, a SOAP fault with details of the error will be returned.

### 7.3 GET STATUS WEB METHOD

**Description:**

The GetStatus web method is used for retrieving the current status of the batch. As described in section 3.1, a batch could be in Receiving, Pending, Processing, Completed, or Failed status.

**Arguments:**

The GetStatus method has two arguments:

- securityToken: A security ticket issued by the service provider (NAAS).
- transactionId: The transactionId associated with the batch. When a batch is submitted to CDX, a transactionId is returned for successful submissions.

**Return:**

- This method returns a description of the current status of the batch if the operation is successful. Possible responses correspond to the batch states described in Step 1 through 7 of Section 3.1: “Receiving”, “Pending”, “Processing”, “Completed”, or “Failed” This method returns a SOAP Fault with an error code of E\_TransactionId if the transaction ID is invalid; it returns a SOAP Fault with an error code of E\_InvalidToken or E\_TokenExpired if the securityToken is invalid or expired.

### 7.4 DOWNLOAD WEB METHOD

**Description:**

The state node invokes the Download method on CDX to download all of the processing status documents associated with a batch submission. These documents include the QA report (contains XML validation errors if any), Batch processing status and processing error

reports from ICIS-NPDES Batch or ICIS-Air EDT processing. Prior to invoking this method it is recommended to call the GetStatus method to verify the batch status.

**Arguments:**

The Download method has four arguments:

- securityToken: A security ticket issued by the service provider (NAAS).
- transactionId: The transactionId associated with the batch. When a batch is submitted to CDX, a transactionId is returned for successful submissions.
- dataflow: The target dataflow name. In this case, "ICIS-NPDES".
- documents: An array of documents of type nodeDocument. This should be set to empty.

**Return:**

- The response contains a dataflow identifier and a set of documents. Documents transmitted can be either embedded payloads or separate attachments. If the Download fails, a SOAP fault with details of the error will be returned.

## APPENDIX A: ICIS–NPDES BATCH SUBMISSION TYPES

ICIS–NPDES Batch supports the submission types listed below. Instructions to create XML instance submission documents for different submission types are contained in the ICIS-NPDES Batch User Guide and ICIS-NPDES Example XML Instance Document.

- Discharge Monitoring Report
- Basic Permit
- Biosolids Permit
- CAFO Permit
- CSO Permit
- General Permit
- Limit Set
- Limit Segment
- Master General Permit
- Narrative Condition Schedule
- Parameter Limits
- Permit Reissuance
- Permit Tracking Event
- Permitted Feature
- POTW Permit
- Pretreatment Permit
- SW Construction Permit
- SW Industrial Permit
- SW MS4 Large Permit
- SW MS4 Small Permit
- Unpermitted Facility
- Compliance Monitoring
- Biosolids Program Report
- CAFO Annual Report
- Compliance Monitoring Linkage
- Compliance Schedule
- Copy Master General Permit Limit Set
- CSO Event Report
- DMR Program Report Linkage
- DMR Violation
- Effluent Trade Partner
- Enforcement Action Milestone
- Enforcement Action Violation Linkage Key
- Final Order Violation Linkage
- Formal Enforcement Action
- Informal Enforcement Action
- Local Limits Program Report
- Parameter Limit



- Pretreatment Performance Summary
- Schedule Event Violation
- Single Event Violation
- SSO Annual Report
- SSO Event Report
- SSO Monthly Event Report
- SW Event Report
- SW Industrial Annual Report
- SW MS4 Program Report

## **APPENDIX B: ICIS–AIR ELECTRONIC DATA TRANSFER SUBMISSION TYPES**

ICIS-Air Electronic Data Transfer supports the submission types listed below. Instructions to create XML instance submission documents for different submission types are contained in the ICIS-Air Electronic Data Transfer User Guide and ICIS-Air Example XML Instance Document.

- Air Facility
- Air Program
- Air Pollutant
- Air Compliance Monitoring – Delegated Agency
- Air Compliance Monitoring – Federal
- Title V Annual Compliance Certification
- Compliance Monitoring Strategy
- Formal Enforcement Action
- Informal Enforcement Action
- Case File
- Case File Linkage
- Compliance Monitoring Linkage
- Enforcement Action Linkage
- Enforcement Action Milestone