Using XML in a Rating Curve Application

National Weather Service

North Central River Forecast Center   Dan Pokorny - ITO

Discussion Objectives

- Rating Curve Application Overview

- Role of XML in Application

- Rating Curve Data Exchange

- Rating Curve Schema Development

Rating Curve Application Overview

- Program requirements established through a team involving most NWS River Forecast Centers.

- Application is in early stage of development.

- Import and export rating curves.

- Manage data exchange between servers.

- Detects changes between rating curves documents. Evaluates differences between documents and content.

- Forecasters are alerted to changes based on content sensitivity.

- Rating curve versioning and archiving.

- Users can visually compare and manage rating curve functions from GUI.

Role of XML in Application

- Most important role is common inter-agency data exchange format.

- Provides validation of external data.

- Minimize unique format parsing through application.

Rating Curve Data Exchange

- USGS currently provides access to rating curves through an internet server.

- USGS Rating curve is in text format. This text is parsed and an XML file is generated representing the USGS exchange format.

- The Rating Curve application applies its own unique schema representing the USGS exchange format. This schema does NOT comply with any hydrologic data exchange standards.

- Data exchange between other agencies will eventually follow a standardized Rating Curve Schema.

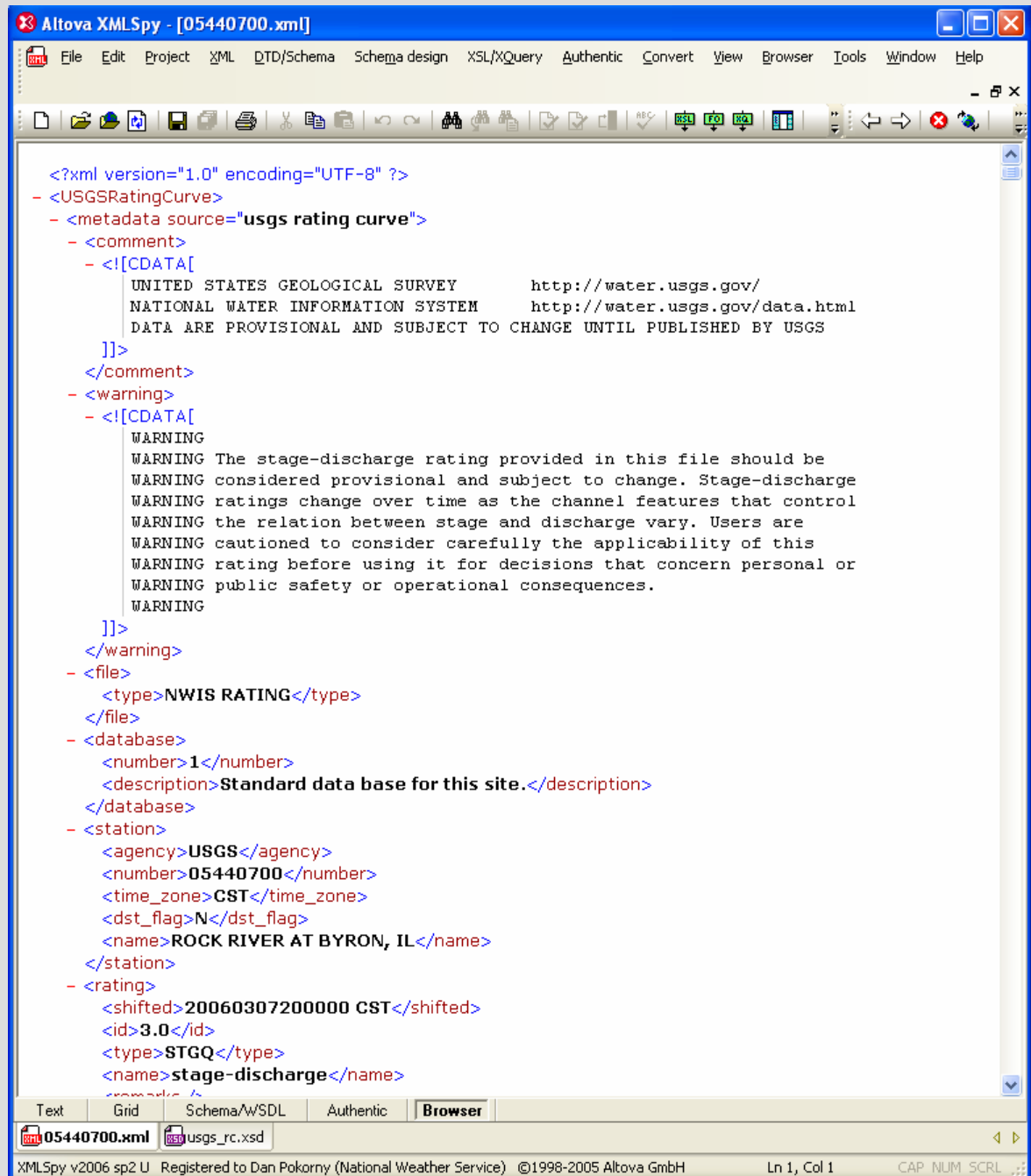# USGS Rating Curve Data File Example

Rating Curve Application

Schema represents
USGS rating curve data
format as used in Rating
Curve application.

Work in progress!
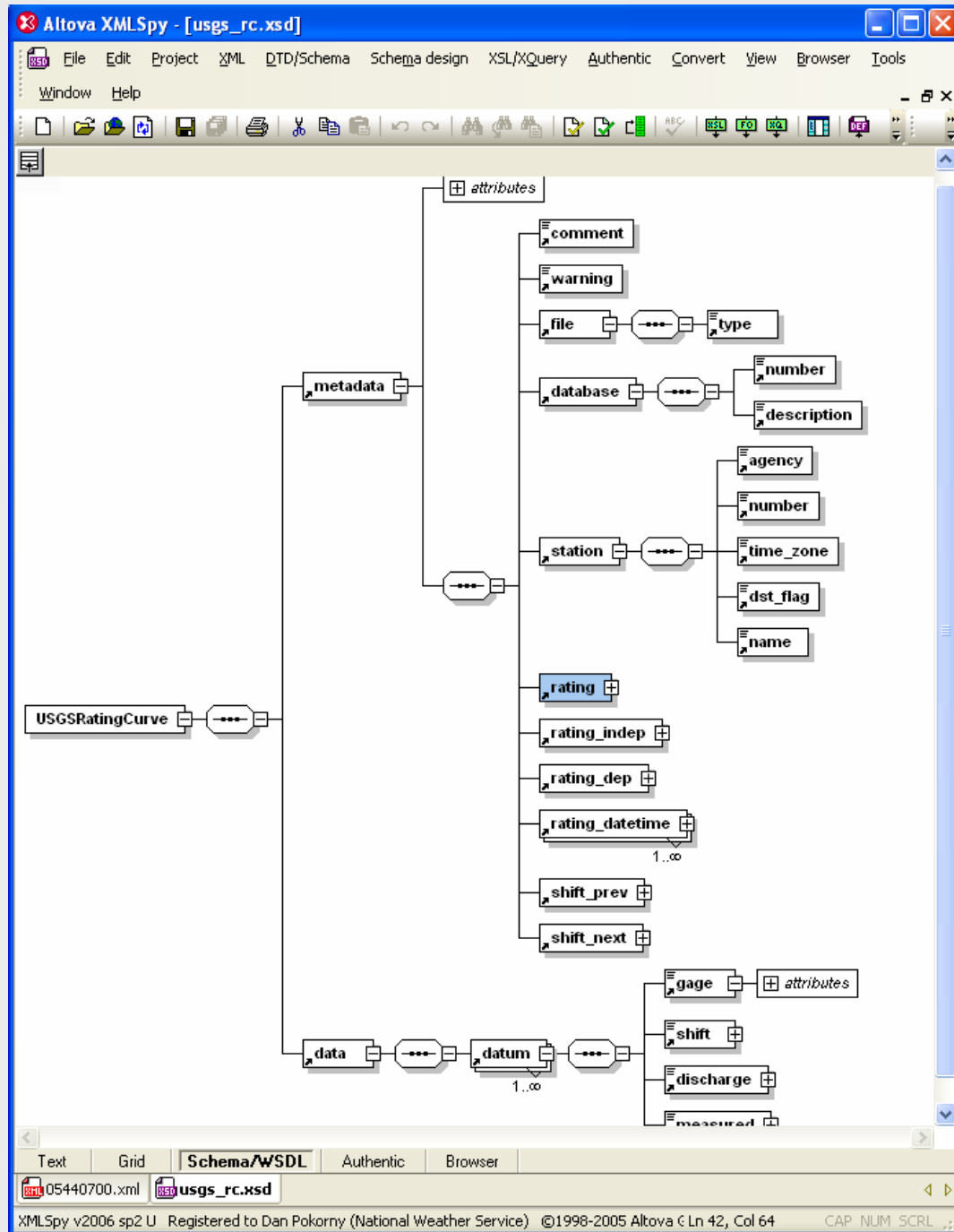
Rating Curve Application

Text data converted to XML format as used in Rating Curve Application

Altova XMLSpy - [05440700.xml]

File Edit Project XML DTD/Schema Schema design XSL/XQuery Authentic Convert View Browser Tools Window Help

```xml
<?xml version="1.0" encoding="UTF-8" ?>
- <USGSRatingCurve>
  - <metadata source="usgs rating curve">
    - <comment>
      - <![CDATA[
          UNITED STATES GEOLOGICAL SURVEY        http://water.usgs.gov/
          NATIONAL WATER INFORMATION SYSTEM       http://water.usgs.gov/data.html
          DATA ARE PROVISIONAL AND SUBJECT TO CHANGE UNTIL PUBLISHED BY USGS
        ]]>
      </comment>
    - <warning>
      - <![CDATA[
          WARNING
          WARNING The stage-discharge rating provided in this file should be
          WARNING considered provisional and subject to change. Stage-discharge
          WARNING ratings change over time as the channel features that control
          WARNING the relation between stage and discharge vary. Users are
          WARNING cautioned to consider carefully the applicability of this
          WARNING rating before using it for decisions that concern personal or
          WARNING public safety or operational consequences.
          WARNING
        ]]>
      </warning>
    - <file>
        <type>NWIS RATING</type>
      </file>
    - <database>
        <number>1</number>
        <description>Standard data base for this site.</description>
      </database>
    - <station>
        <agency>USGS</agency>
        <number>05440700</number>
        <time_zone>CST</time_zone>
        <dst_flag>N</dst_flag>
        <name>ROCK RIVER AT BYRON, IL</name>
      </station>
    - <rating>
        <shifted>20060307200000 CST</shifted>
        <id>3.0</id>
        <type>STGQ</type>
        <name>stage-discharge</name>
```

Text Grid Schema/WSDL Authentic **Browser**

05440700.xml   usgs_rc.xsd

XMLSpy v2006 sp2 U Registered to Dan Pokorny (National Weather Service) ©1998-2005 Altova GmbH   Ln 1, Col 1   CAP NUM SCRL

Rating Curve Schema Development

- It is our goal to use a Rating Curve schema that is agreed upon between agencies and others.

- Initial objective is to develop a simplified data exchange format and then eventually conform to a standard schema.

- Does a Rating Curve schema/dtd currently exist? Or, do we take the lead at developing one????

- This is work in progress!!!!