

WDTF Validation Service User's Guide

Water Data Section – Data Interoperability Unit

DRAFT



Australian Government
Bureau of Meteorology



Water Information
DATA > INFORMATION > INSIGHT

WDTF Validation Service User Guide

Data Interoperability Unit

Contact details

Spenser Kao
Senior Application Developer

Bureau of Meteorology
GPO Box 1289 MELBOURNE VIC 3001

Phone: 03 86388242
Email: s.kao@bom.gov.au

Table of contents

1	About this document	5
1.1	Who should read this document	5
1.2	Conceptual requirements	5
1.3	Typographical conventions.....	5
1.4	How to send your comments.....	5
2	Getting started	6
2.1	Background.....	6
2.2	WDTF Validation Service	7
2.2.1	Validation hierarchy	8
2.2.1.1	Oversize check.....	9
2.2.1.2	WDTF version check.....	9
2.2.1.3	XML well-formedness validation	10
2.2.1.4	Structure and data types validation	10
2.2.1.5	Semantics (content) validation	11
2.3	Supported operating environments.....	12
2.4	Execution of WDTF validation service	13
3	Using the WDTF Validation Service	14
3.1	Functionality	14
3.2	The Web User Interface (WUI).....	15
3.3	Operation flow	18
3.4	Perform validation	18
3.4.1	Select validation type.....	18
3.4.2	Select input method	19
3.4.2.1	File input method.....	19
3.4.2.2	Text input method	20
3.4.3	Select WDTF version.....	21
3.4.4	Start validation.....	21
3.4.5	View report	21
3.4.5.1	Incorrect WDTF version.....	22
3.4.5.2	Upload file size exceeds limit	23
3.4.5.3	Non-XML-well-formedness	23
3.4.5.4	Structure validation error.....	24
3.4.5.5	Content (semantics) validation error.....	25
3.4.5.6	Structural and semantic (content) validity.....	26
3.4.6	View submission information	26
3.5	View validation rules.....	27
3.6	View schema reference	27
3.7	View <i>About</i> message	28
3.8	Send feedback	29
3.9	View <i>Changes Note</i>	29

List of figures

Figure 1 - Context diagram	7
Figure 2 - Validation hierarchy view	8
Figure 3 - Validation Service in activity diagram view	9
Figure 4 – Diagram of the functionality of WDTF Visualisation Tool.....	14
Figure 5 - WUI to prepare to perform validation	15
Figure 6 - WUI to enter XML text.....	15
Figure 7 - WUI for validation report	16
Figure 8 - WUI for full release note.....	16
Figure 9 - Operation flow	18
Figure 10 - Validation type selection	19
Figure 11 - Input method selection.....	19
Figure 12 - Dialog box for uploading WDTF data file	20
Figure 13 - Text box for accommodating WDTF data content	20
Figure 14 - Selection of WDTF version	21
Figure 15 - Start of validation.....	21
Figure 16 - Incorrect WDTF version report	22
Figure 17 - Report on oversized file upload	23
Figure 18 – Non-well-formedness report	23
Figure 19 - Structure validation report	24
Figure 20 - Content validation report	24
Figure 21 - Detailed structural validation error.....	25
Figure 22 - Content (semantics) validation report	25
Figure 23 - Expanded error message on content (semantics) validation	25
Figure 24 - Result of structural and semantic validity	26
Figure 25 - Viewing submission information	26
Figure 26 - Validation rules browsing	27
Figure 27 - Schema references browsing.....	28
Figure 28 - Go back to parental directory	28
Figure 29 - Message about WDTF Validation Service.....	28
Figure 30 - Sending feedback.....	29
Figure 31 - View Changes Note	29

List of tables

Table 1 - WUI components and their usages.....	17
--	----

1 About this document

This document provides a step-by-step guide to use of the WDTF Validation Service.

The current version of the WDTF Validation Service (version 1.0.1) supports WDTF versions 0.3 and 1.0.1. The WDTF version 1.0.1 is a bug-fix release and is compatible with WDTF version 1.0.

WDTF data designated as version 1.0 can be validated with the use of WDTF Validation Service version 1.0.1.

1.1 Who should read this document

This document is for people who are supplying data to the Bureau of Meteorology (the Bureau) using the Water Data Transfer Format (WDTF) and want to familiarise themselves with the online service for validating their WDTF data. The validation process can be used with WDTF tool generated files or by using the 'text input' option and a cut-and-paste procedure.

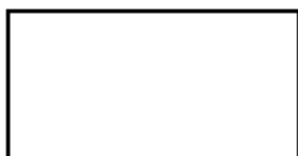
1.2 Conceptual requirements

The Water Data Transfer Format standard is XML based and it is advisable for the user to have a basic understanding of XML and what are the criteria for XML data structure to be well-formed.

1.3 Typographical conventions

The following typographical conventions are used in this document:

Italicised comments are used to introduce new terms and library names.



A bold outline box indicates a tip, suggestion or general note or comment.

1.4 How to send your comments

If you have any comments about this document, or how to improve the documentation, please send them by email to waterdata@bom.gov.au at the Bureau of Meteorology, Australia, with the subject: 'User Guide of WDTF Validation Service'.

2 Getting started

2.1 Background

The Water Transfer Data Transfer Format (WDTF) was developed to support the water industry's capacity to share and deliver water data to the Bureau of Meteorology (the Bureau) as required under the Water Regulations (2008). The Bureau, in collaboration with the Commonwealth Scientific and Industrial Research Organisation (CSIRO), developed the WDTF standard in accordance with the Water Regulations data requirements. The WDTF is the preferred standard for water regulations data delivery and the Bureau is promoting this as the standard format for the transfer of water data.

The WDTF is *XML*¹ based. *XML* (Extensible Markup Language) is a set of rules for encoding documents in machine-readable form. It is defined in the *XML 1.0 Specification* produced by the W3C, and several other related specifications, which are freely available, open standards.

The received data (instance) is delivered to the Australian Water Resources Information System (AWRIS) database through a data ingestion process. The ingestion of non-conformant WDTF data into the database has serious implications on data integrity. To ensure effective data storage, integrity and quality, water data should be verified to be valid at the earliest possible stage in the data flow.

The WDTF release package² includes an Apache ANT script for validating a WDTF instance. This script can be installed and run locally on a personal computer. A limitation of the ANT script is that it can only validate against XML well-formedness, structure and data types of the WDTF standard. No semantic validation is covered by the ANT script. As a result, an online WDTF Validation Service for assuring WDTF data's structural and semantic validity was developed.

More criteria regarding XML well-formed are addressed in section 2.2.1.3.

¹ *Extensible Markup Language (XML) 1.0* <http://www.w3.org/TR/REC-xml/>

² *WDTF Download* <http://www.bom.gov.au/water/regulations/wdtf/wdtfDownload.shtml>

2.2 WDTF Validation Service

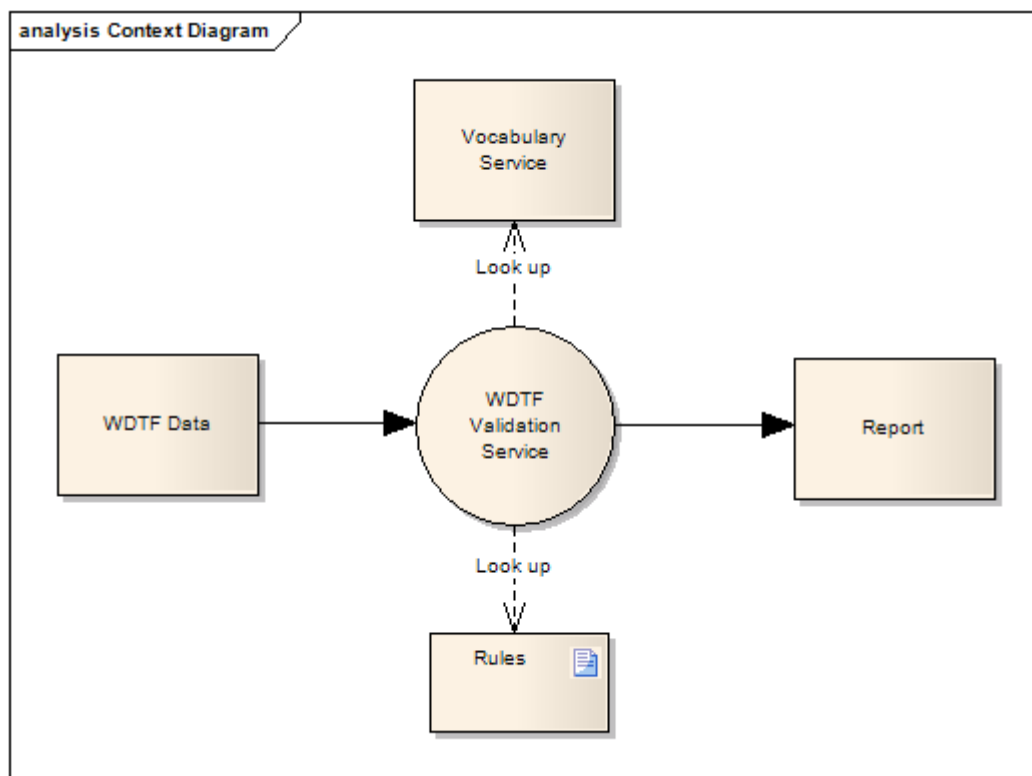


Figure 1 - Context diagram

In June 2009, CSIRO's Jonathan Yu and Simon Cox initiated the infrastructure design of the WDTF Validation Service. The supporting validation rules were designed by CSIRO's Simon Cox, Gavin Walker (on rules coverage) and Paul Box (on rules collection and methodology design). The implementation was undertaken by Jonathan Yu. Currently, the Validation Service is maintained by Spenser Kao from the Bureau's Data Interoperability Unit within the Water Data Management Section.

The Vocabulary Service running on an independent server responds to requests for vocabularies lookup. The server was implemented in an *RDF*³ (Resource Description Framework)/*SKOS*⁴ (Simple Knowledge Organisation System) based triple stores database using a *Schematron*⁵ engine which is invoked by the Validation Service.

The Vocabulary Service was designed collaboratively by CSIRO's Simon Cox, Jacqui Githaiga, Jonathan Yu and Laurent Lefort with Paul Sheahan of the Bureau of Meteorology.

³ *Resource Description Framework* <http://www.w3.org/RDF/>

⁴ *Simple Knowledge Organization System* <http://www.w3.org/2004/02/skos/>

⁵ *Schematron* <http://www.schematron.com/overview.html>

2.2.1 Validation hierarchy

The core of the whole validation process is executed in three stages in the following order:

1. XML Well-formedness checking
2. Structure / Data types checking
3. Semantics (content) checking.

The first validation stage is to test that the XM-based WDTF is well-formed⁶. The second stage is to validate the structure and data types. This occurs after the XML syntax of the WDTF data is verified as well-formed. The final stage is the semantics validation. The syntax rules are described in the next section. This is dependent on the WDTF data being valid in structure and data types.

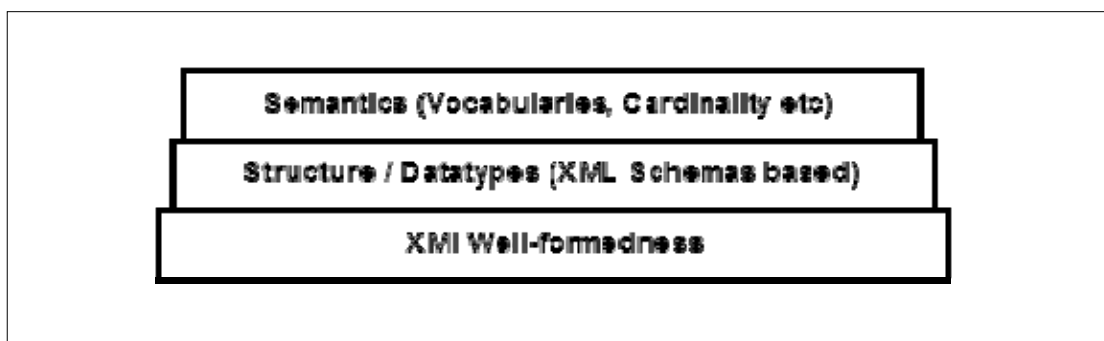


Figure 2 - Validation hierarchy view

The two prerequisites to get the three-stage validation started are that the data file size is within the prescribed limit, and that the data content's WDTF version is consistent with that of user selection.

The procedure's precedence order is illustrated in the activity diagram below.

⁶ *Well-Formed XML Documents* <http://www.w3.org/TR/REC-xml/#sec-well-formed>

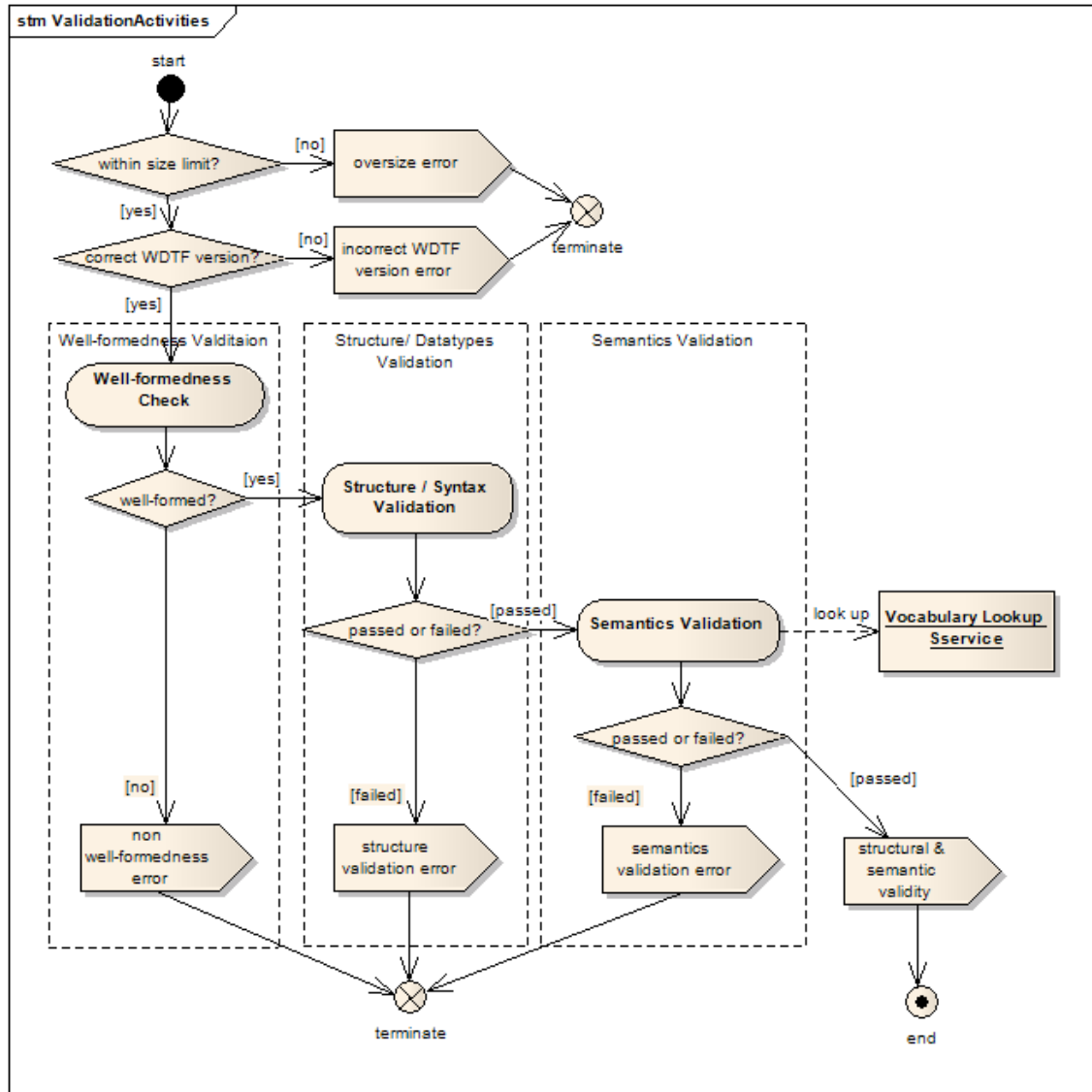


Figure 3 - Validation Service in activity diagram view

2.2.1.1 Oversize check

The Validation Service is a web application where memory resource restrictions apply. The memory restrictions determine the maximum size of input WDTF data file. Currently the size limitation of the input WDTF data file is set to three megabytes (3MB).

2.2.1.2 WDTF version check

As the WDTF standard continues to evolve, each WDTF version may differ from its predecessor structurally and semantically, therefore the WDTF version of the data content to be validated, must match with that of user selection.

WDTF Validation Service

2.2.1.3 XML well-formedness validation

Due to its XML nature, well-formed WDTF data is expected to comply with following syntax rules:

- XML documents must have a root element
- XML elements must have a closing tag
- XML tags are case sensitive
- XML elements must be properly nested
- XML attribute values must be enclosed in single quotation marks.

2.2.1.4 Structure and data types validation

The structure of WDTF is defined in XML Schema⁷ standard in a XML schema file named *water.xsd*⁸. This definition declares structurally which parts of WDTF data must be present and what can be omitted, all depending on the nature/type/category of data.

The schema definition also constrains the syntax of the following data types: *Date/time*, *String*, *Boolean*, *Binary* and *Numerical*.

Date/time type is constrained by the format:

YYYY-MM-DDThh:mm:ss(.s+)?

Where:

- *YYYY* is a four-digit numeral for the year;
- *MM* is a two-digit numeral that represents the month;
- *DD* is a two-digit day numeral that represents the day;
- *T* is a separator indicating that time-of-day follows;
- *hh* is a two-digit numeral that represents the hour;
- *mm* is a two-digit numeral that represents the minute;
- *ss* is a two-integer-digit numeral that represents the whole seconds;
- *s+* (if present) for fractional seconds; and
- *?* the question mark indicates that the fractional-second part is optional.

If the Validation Service discovers a non-XML-well-formedness or an invalid structure and/or data type, it will report with error messages and terminate without proceeding further to the next stage on semantics (content) validation.

⁷ XML Schema <http://www.w3.org/XML/Schema>

⁸ Contained in WDTF release package downloadable from <http://www.bom.gov.au/water/regulations/wdtf/wdtfDownload.shtml>

2.2.1.5 Semantics (content) validation

The semantics stage of validation focuses on content-specific semantics based on a set of rules⁹ comprising the following five areas:

- Vocabularies

Some artefacts are specific to the water data's nature, such as:

- *unit* of the parameter (or technically *observedProperty*) *WaterCourseLevel_m* has to be *m* (for metre)¹⁰
- data provider/owner ID must be specified in the category of *Data Supplier ID*¹¹
- identifying what is the correct *spatial referencing system name*^{12 & 13} to be used in specifying *anchorPoint* of groundwater data.

Overall, the artefacts are sorted into 22 categories.

- URI formation¹⁴:

- What is the proper formation of *URI* (Universal Resource Identifier) for attribute *codeSpace*, of child element *name*, in identifying a *TimeSeriesObservation*'s instance?
- What is the proper formation of *URI* (Universal Resource Identifier) for attribute *xlink:href* in specifying the attribute *observedProperty* of a *TimeSeriesObservation*'s instance?

- Cardinality:

Based on the factors *minCardinality* and *maxCardinality* that are specified in the documentation of the WDTF release package, the cardinality checking step validates every pair-wise relationship between parent and child elements.

⁹ *WDTF Validation Service: Rules Coverage* <http://www.bom.gov.au/jsp/wdtf/wdtf-validation/#tabs-3>

¹⁰ <http://www.bom.gov.au/water/wdtf/documentation/schema-control-lists/regname.htm>

¹¹ <http://www.bom.gov.au/water/wdtf/documentation/schema-control-lists/data-supplier-id.htm>

¹² <http://www.bom.gov.au/water/wdtf/documentation/schema-control-lists/srs-name-wdtf03.htm>

¹³ <http://www.bom.gov.au/water/wdtf/documentation/schema-control-lists/srs-name-wdtf10.htm>

¹⁴ <http://www.bom.gov.au/water/wdtf/documentation/name-and-space/index.htm>

- Date/time¹⁵:

Apart from the aforementioned syntax constraint on date/time type, at the semantics validation stage, it is mandatory to append a four-digit time zone or a single character *Z* for UTC. Therefore the combining format of the date/time type is:

YYYY-MM-DDThh:mm:ss(.s+)?(Z[+-]HH:mm)

Some examples of valid date/time in WDTF are:

- 2001-03-30T12:20:00+10:00
 - 2001-03-30T02:20:00Z
 - 2001-03-30T02:20:00+00:00
 - 2001-03-30T12:20:00.234+10:00
- Parameter-interpolation type relationship¹⁶

The *Interpolation type* defines the method that is used for interpolating between observation points by describing how the points are connected. The *Parameter (observedProperty)* indicates what type of water data is observed. Applying the interpolation type definition enables the estimation of values between observation points. The choice of the correct interpolation type is dependent on the source of the data and the parameter being observed. Not all interpolation types are suitable for use with all parameter types, for example, the interpolation type *PrecDir* is not suitable for reporting rainfall total.

The validation on vocabularies invokes the lookup to the Vocabulary Service which resides inside the firewall of the Bureau of Meteorology.

Any semantics validation errors will be reported on the screen; otherwise, validity on both structure and semantics will be reported.

2.3 Supported operating environments

Operating system: The service is web-based and is operation system agnostic.

Internet browser: The service was tested functionally under the following major web browsers:

- *Mozilla Firefox* (version 3.6.13)
- *Microsoft Internet Explorer* (version 7.0.5730.11)
- *Google Chrome* (version 8.0.522.344).

¹⁵ <http://www.bom.gov.au/water/wdtf/documentation/time/index.htm>

¹⁶ <http://www.bom.gov.au/water/wdtf/documentation/hydro-interpolation/triple.htm>

Software: The service depends on the following libraries:

- *Spring Framework* (*spring-2.5.jar*)
- *Spring Web MVC framework* (*spring-webmvc-2.5.jar*)
- *JavaServer Pages Standard Tag Library API Reference Implementation* (*jstl.jar*, ver1.1.2)
- *JavaServer Pages Standard Tag Library (JSTL)* (*standard.jar*, 1.1.2)
- *XML Commons Resolver* (*resolver.jar*, 1.2)
- *XSLT Processor* (*saxon9.jar*)
- *XML Serialiser* (*serializer.jar*, 2.7.1)
- *XML Parser Xerces* (*XcercesImpl.jar*, 2.9.0)
- *Schematron Processor* (ISO SCHEMATRON 2009).

2.4 Execution of WDTF validation service

Due to its web-based nature, the use of the Validation Service requires neither installation nor configuration. To start the application, all that is required is a web browser and the following URL inserted and registered into its address bar:

<http://www.bom.gov.au/jsp/wdtf/wdtf-validation/>

3 Using the WDTF Validation Service

3.1 Functionality

The primary function of the service is to perform validation of WDTF data. The validation is performed using the set of rules that are elaborated in sections 2.2.1.1–2.2.1.5.

To aid self-sufficiency, the following functions were added to the service:

- view schemas' references
- view building information of the service
- send comment/suggestion
- view changes since previous release.

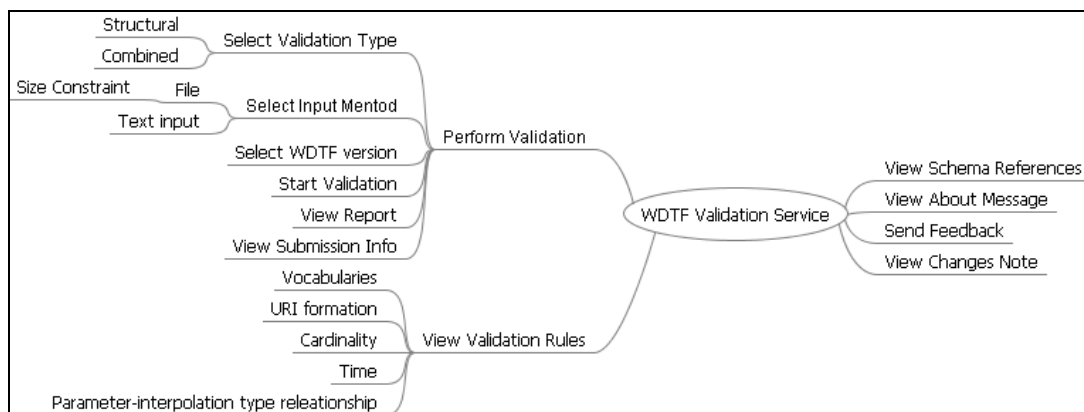


Figure 4 – Diagram of the functionality of WDTF Visualisation Tool

3.2 The Web User Interface (WUI)

The access to the operation of the Validation Service is through a Web-based User Interface (WUI). The screen shots of the user interface are shown in Figures 5–8 below. Table 1 lists the name and purpose of the circled components shown in these figures. The table also lists usage of the interface’s major components. These components are detailed in following sections of this document.

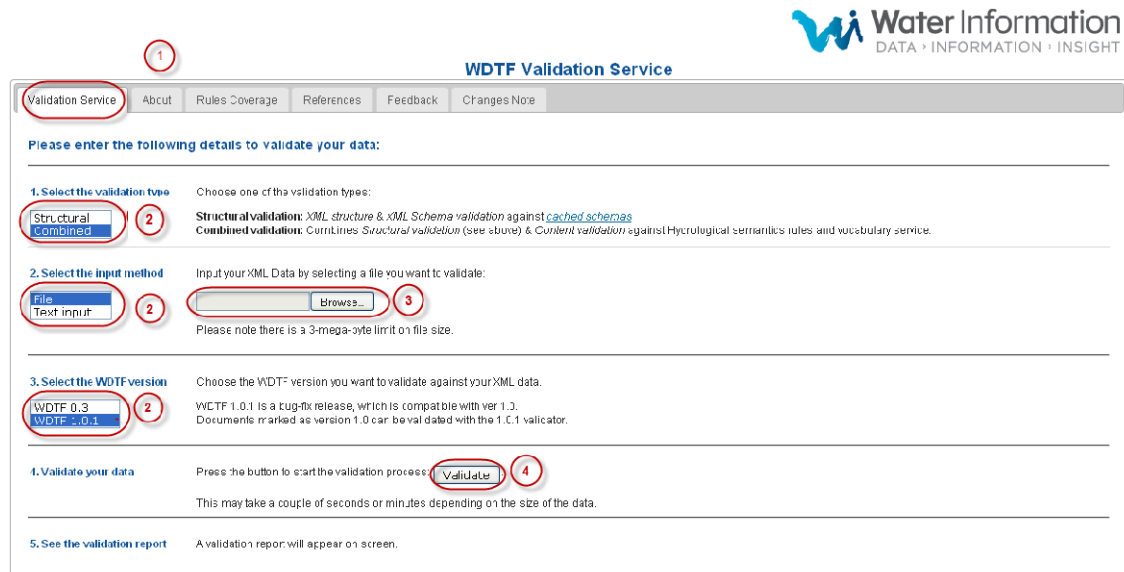


Figure 5 - WUI to prepare to perform validation

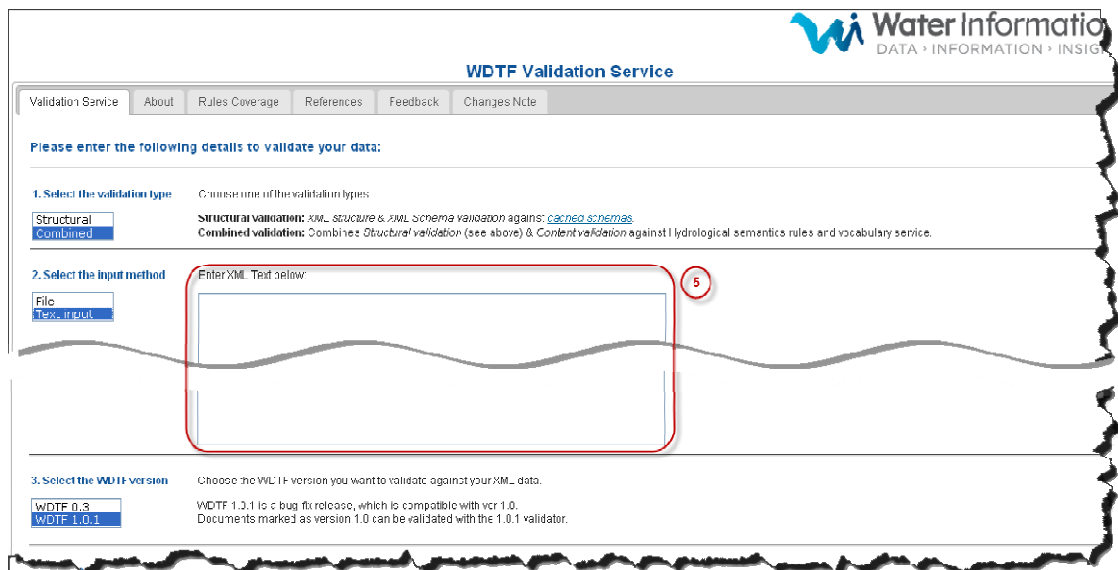


Figure 6 - WUI to enter XML text

WDTF Validation Service > Validation report

Validation report

Content submitted

Structural Validation Result: Valid 6

Content Validation Result: Content validation failed

Content in XML Document is NOT valid according to validation rules

ERROR: In wdtf:TimeSeriesObservation [@gml:id="FlowOfMTColeCreekatCrowlands"] - Unit of Measure used should be appropriate for the respective observed property.
 Variables used in XML document
 Observed Property: 'Level_m'
 Interpolation Type: 'PreVal'

ERROR: In wdtf:TimeSeriesObservation [@gml:id="LevelOfMTColeCreekatCrowlands"] - Interpolation type used should be appropriate for the respective observed property.
 Variables used in XML document
 Observed Property: 'Level_m'
 Interpolation Type: 'PreVal'

ERROR: In om:observedProperty@xlink:href [Location: wdtf:TimeSeriesObservation[@gml:id="FlowOfMTColeCreekatCrowlands"] - Parameter 'http://www.bom.gov.au/std/water/xml/wio0.2/property/...' not valid.

ERROR: In om:observedProperty@xlink:href [Location: wdtf:TimeSeriesObservation[@gml:id="LevelOfMTColeCreekatCrowlands"] - Parameter 'http://www.bom.gov.au/std/water/xml/wio0.2/property/...' not valid.

Figure 7 - WUI for validation report

WDTF Validation Service

Validation Service | About | Rules Coverage | References | Feedback | **Changes Note**

Changes since last release (rev 1.0)

Correction of artifact pages: [Parameters](#) and [Regulation Name](#)

- Unit from *lms* to *lmm2*
- Parameter from *VapourPressureDeficit_mh* to *VapourPressureDeficit_mbar*

Name change of organisation IDs: w00002, w00075, w00090 and w00197.

Removal of organisation IDs: w00025, w00175, w00266 and w00267.

Full release note (rev 1.0.1) 6

Figure 8 - WUI for full release note

Table 1 - WUI components and their usages

Name	Purpose	Usage or selection
1. <i>Tab</i>	To switch among a group of functions	<ul style="list-style-type: none"> • Validation Service • About • Rules Coverage • References • Feedback • Changes Note
2. <i>Selection box</i>	To select from options	<ul style="list-style-type: none"> • Validation type • Input method • WDTF version
3. <i>File browser</i>	To select file	WDTF file selection
4. <i>Button</i>	To execute	Validation process start
5. <i>Text box</i>	To input multi-line text	WDTF text input
6. <i>Expand/Collapse section</i>	To expand or collapse a section of information	<ul style="list-style-type: none"> • Content submitted • Validation report • Full release note (under Changes Note)

3.3 Operation flow

To perform a validation, a sequence of five selections is required as illustrated in Figure 9 below. All the functions are described in the following sections.

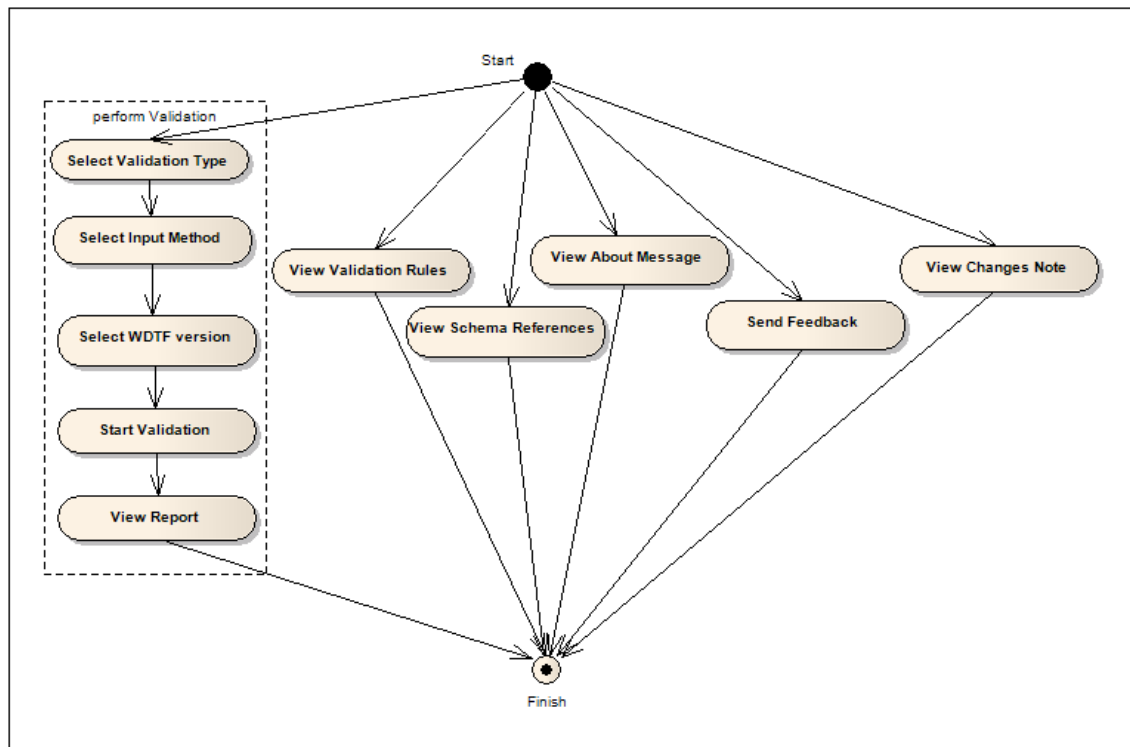


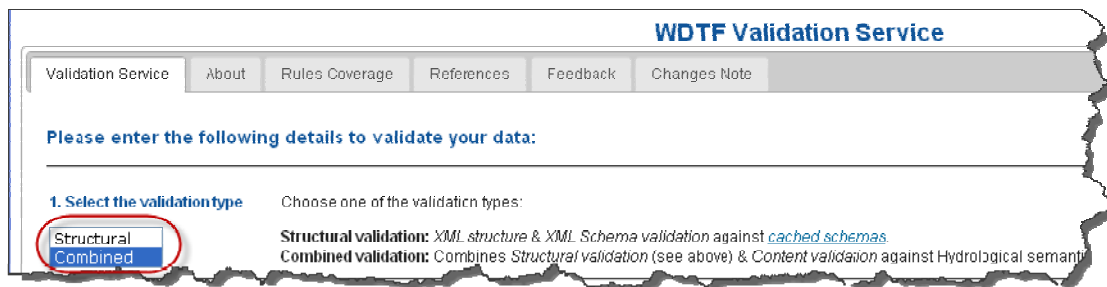
Figure 9 - Operation flow

3.4 Perform validation

The following sections outline the steps required to undertake the validation of a WDTF data file. The initial step is to insert the following URL into the address line of the web browser: <http://www.bom.gov.au/jsp/wdtf/wdtf-validation/>

3.4.1 Select validation type

From the user interface *Validation Services* tab, the user needs to specify which type of validation to perform. The choices are either purely structural or structure and semantics *combined*.



The screenshot shows the 'WDTF Validation Service' web application. At the top, there is a navigation bar with tabs for 'Validation Service', 'About', 'Rules Coverage', 'References', 'Feedback', and 'Changes Note'. Below the navigation bar, a heading reads 'Please enter the following details to validate your data:'. Underneath, there is a section titled '1. Select the validation type' with the instruction 'Choose one of the validation types:'. Two radio buttons are present: 'Structural' and 'Combined'. The 'Structural' radio button is selected and circled in red. To the right of the radio buttons, there are two lines of text: 'Structural validation: XML structure & XML Schema validation against [cached schemas](#).' and 'Combined validation: Combines Structural validation (see above) & Content validation against Hydrological semantic content.'

Figure 10 - Validation type selection

3.4.2 Select input method

Once the validation type is selected, the user specifies the content for validation. This is done by either uploading a file, or by using the text input option and a cut-and-paste procedure.



The screenshot shows the 'WDTF Validation Service' web application. At the top, there is a navigation bar with tabs for 'Validation Service', 'About', 'Rules Coverage', 'References', 'Feedback', and 'Changes Note'. Below the navigation bar, a heading reads 'Please enter the following details to validate your data:'. Underneath, there is a section titled '1. Select the validation type' with the instruction 'Choose one of the validation types:'. Two radio buttons are present: 'Structural' and 'Combined'. The 'Combined' radio button is selected. Below this section, there is a section titled '2. Select the input method' with the instruction 'Input your XML Data by selecting a file you want to validate:'. Two radio buttons are present: 'File' and 'Text input'. The 'File' radio button is selected and circled in red. To the right of the radio buttons, there is a text input field and a 'Browse...' button, both of which are also circled in red. Below the radio buttons, there is a note: 'Please note there is a 3-mega-byte limit on file size.'

Figure 11 - Input method selection

3.4.2.1 File input method

When using the file input method, user is presented with a file upload dialog box. This allows the user to navigate to and upload a file for validation – see Figure 12.

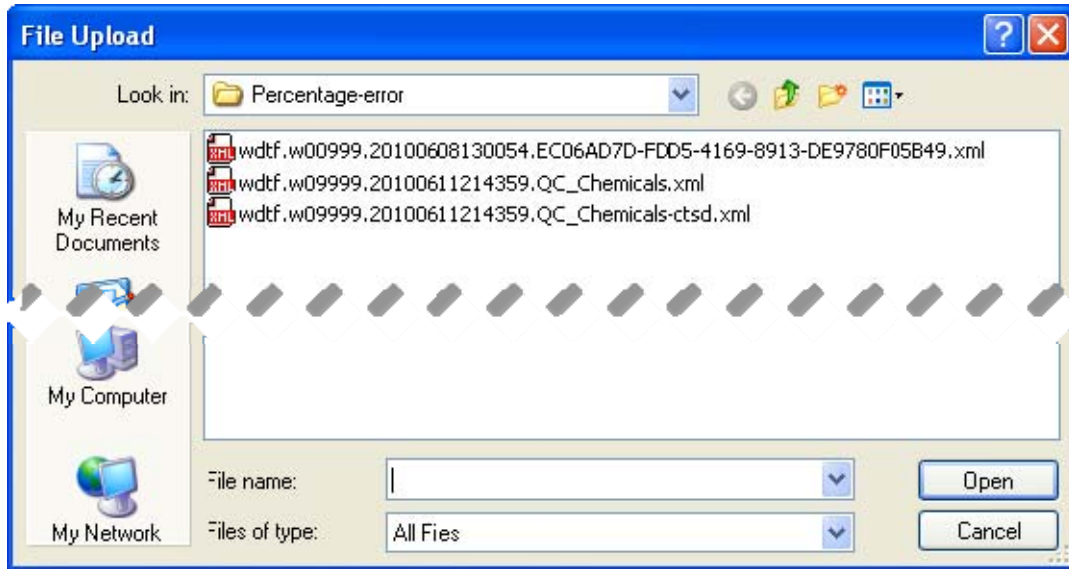


Figure 12 - Dialog box for uploading WDTF data file

Note: Due to resources constraints, there is a **three megabyte (3MB)** maximum cap in file size on each validation. This means the validation will not execute if the input file exceeds this limit.

3.4.2.2 Text input method

Using the text input validation method, as shown below, a user can enter multi-line WDTF data content. Due to the complexity of WDTF data content, authoring XML inside the text box should be executed with caution and checked for correctness.

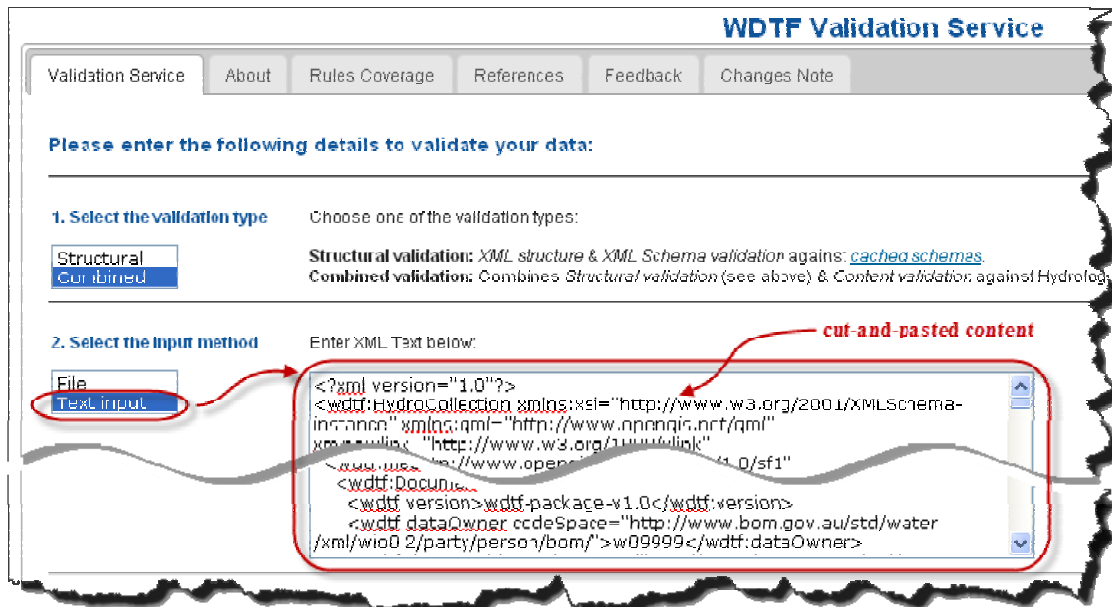


Figure 13 - Text box for accommodating WDTF data content

3.4.3 Select WDTF version

The interface allows for the selection of various WDTF versions. The tool's initial configuration can accommodate versions 0.3 to 1.0.1. Selecting the correct WDTF version will ensure that the appropriate structure/data types' constraints and semantics rules are applied during the validation.

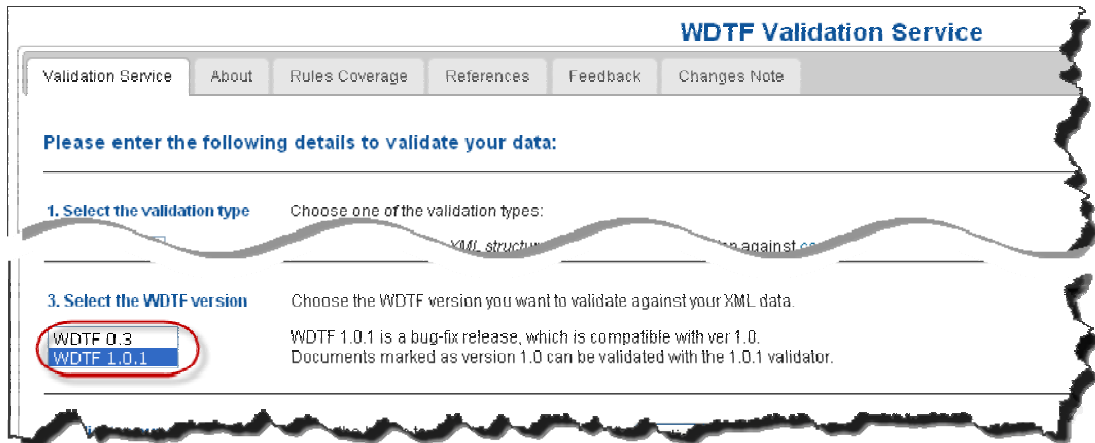


Figure 14 - Selection of WDTF version

3.4.4 Start validation

Once the user selects the validation type, input method and WDTF version, the user activates the process by pressing the *Validate* button, as in the Figure 15 below.

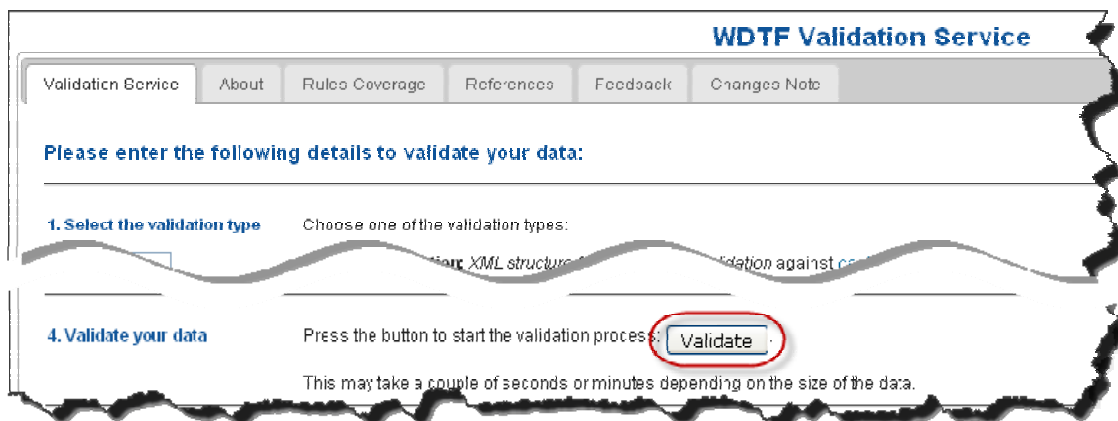


Figure 15 - Start of validation

3.4.5 View report

As per the activity diagram in section 2.2.1, the resulting validation report can produce six different error reporting scenarios:

WDTF Validation Service

- Incorrect WDTF Version
- Upload file size exceeds three megabyte limit
- Non-XML-well-formedness
- Structure Validation error
- Content (Semantics) Validation error
- Structural and Semantic validity problem.

3.4.5.1 Incorrect WDTF version

The correct version of WDTF must be selected, as described in section 3.4.3. Figure 16 provides an example of the WDTF Validation Service *Validation report* resulting from the incorrect selection of WDTF version.

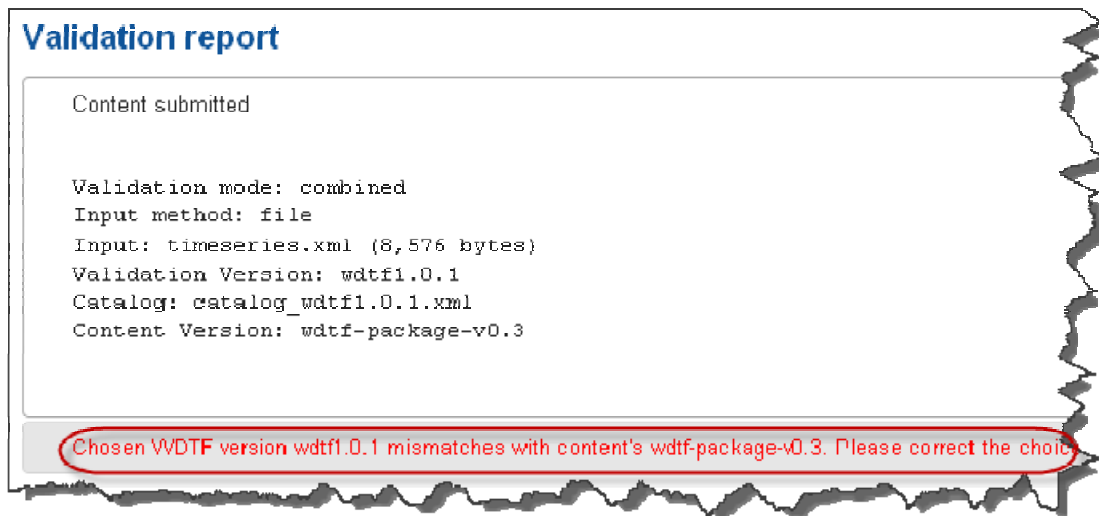


Figure 16 - Incorrect WDTF version report

3.4.5.2 Upload file size exceeds limit

The current file upload limit is set at three megabytes, see section 3.4.2.1. Figure 17 provides an example of the WDTF Validation Service *Validation report* resulting from an oversized WDTF file.

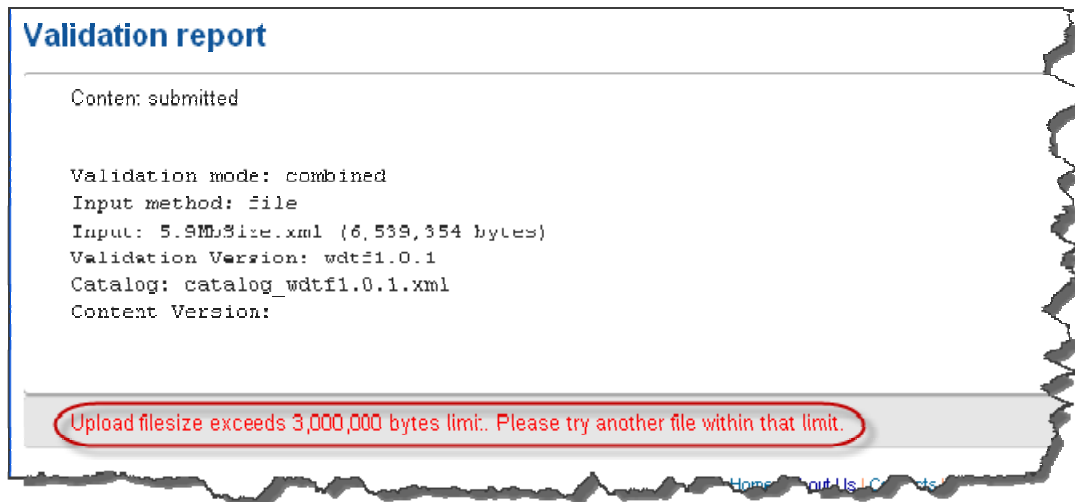


Figure 17 - Report on oversized file upload

3.4.5.3 Non-XML-well-formedness

Figure 18 provides an example of the WDTF Validation Service *Validation report* resulting from a non-well-formed WDTF file. As mentioned in section 2.2.1, once the non-well-formedness error is encountered, no further validation processing is conducted.

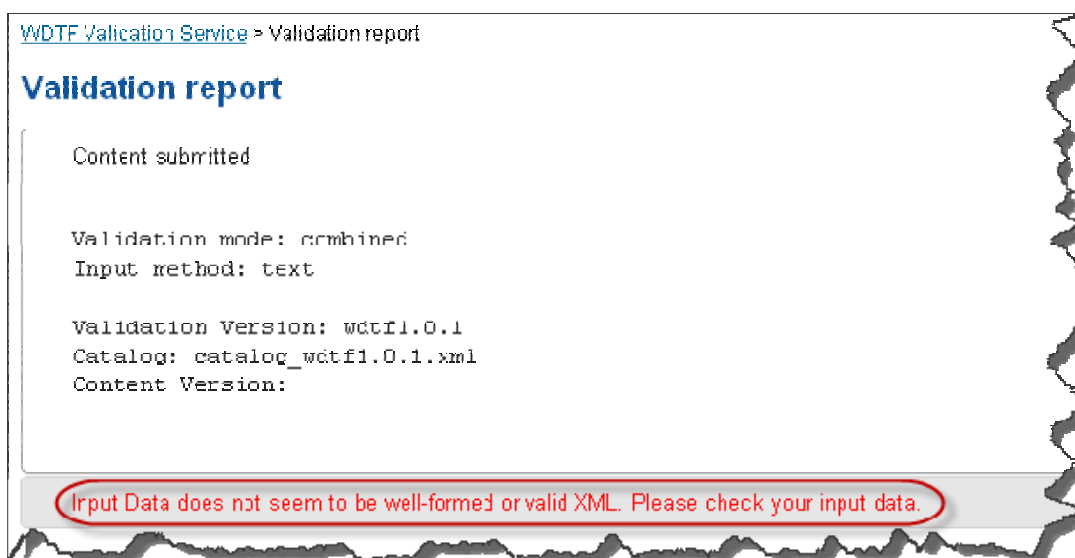


Figure 18 – Non-well-formedness report

3.4.5.4 Structure validation error

When there is a structure validation error, no content (semantics) validation will proceed. Figure 19 provides an example of the WDTF Validation Service *Validation report* resulting from a WDTF data structure error.

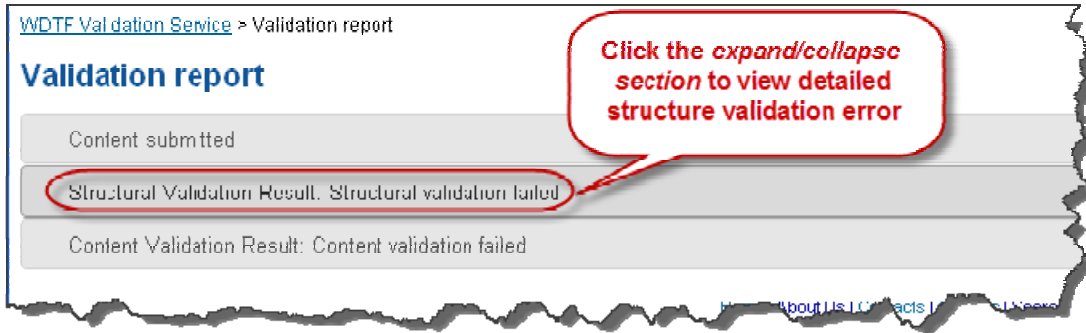


Figure 19 - Structure validation report

The user of the service should be aware of this dependence when clicking on the expand/collapse section titled *Content Validation Result: Content validation failed* as shown below.

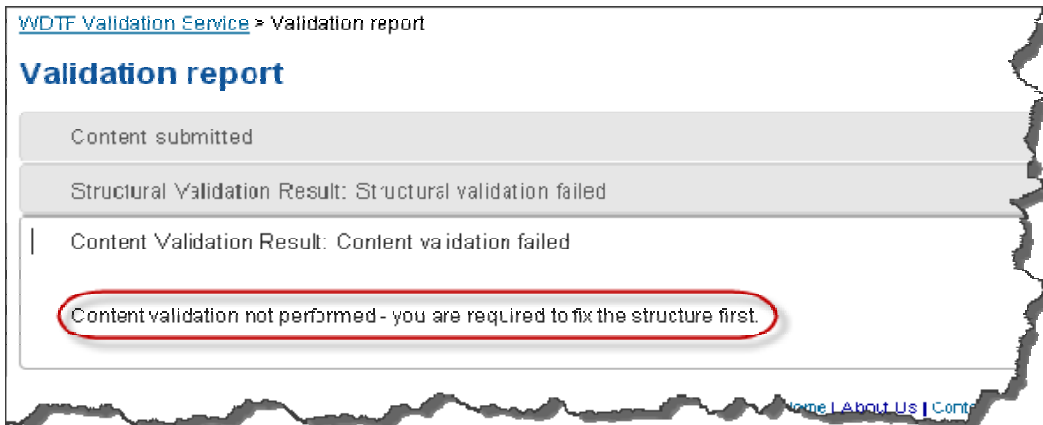


Figure 20 - Content validation report

In order to proceed, the structural validation error must be resolved first. The detailed structure validation error can be viewed by clicking on the *expand/collapse section* titled *Structural Validation Result: Structural validation failed* – see Figure 21.

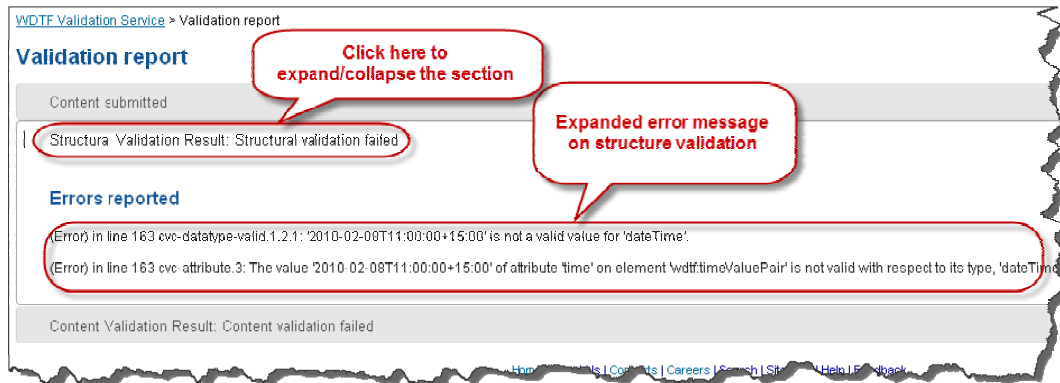


Figure 21 - Detailed structural validation error

The detailed error message resides inside an expandable/collapsible section. Clicking on the title of the section will expand/collapse the section.

3.4.5.5 Content (semantics) validation error

If the Validation Service returns an error message, *Content validation failed*, as shown in Figure 22, clicking on the *expand/collapse section* will show an expanded view of the error message, as shown in Figure 23.



Figure 22 - Content (semantics) validation report

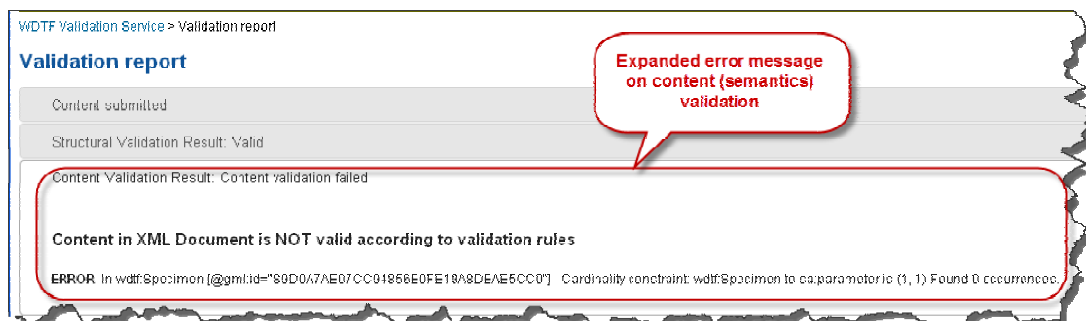


Figure 23 - Expanded error message on content (semantics) validation

3.4.5.6 Structural and semantic (content) validity

Figure 24 is an example of the WDTF Validation Service *Validation report* for *Structure* and *Content*, see section 2.2.1, when there is no problem or anomaly found on XML well-formedness, structure/data types or content (semantics). The file input will be reported as both structurally and semantically valid as per Figure 24.



Figure 24 - Result of structural and semantic validity

3.4.6 View submission information

Whenever required, the background information of WDTF data's submission can be retrieved and viewed by clicking on the *expand/collapse section* entitled *Content submitted* as in the screenshot shown in Figure 25.



Figure 25 - Viewing submission information

3.5 View validation rules

Those rules covered in the semantics validation addressed in section 2.2.1.3 can be browsed online by going to tab *Rules Coverage*, as in Figure 26.

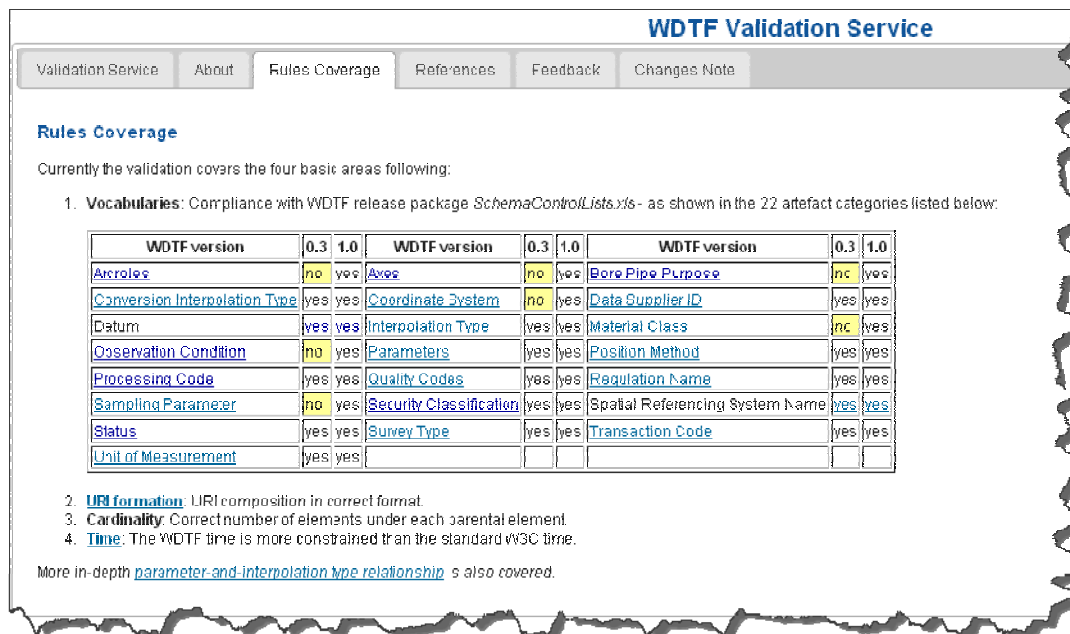


Figure 26 - Validation rules browsing

3.6 View schema reference

The WDTF schema, *water.xsd*, inherited structure or vocabularies from a number of industry standard schemas, such as

- *ahgf*¹⁷ (Australian Hydrological Geospatial Fabric) from the Bureau of Meteorology, Australia;
- *o&m*¹⁸ (Observations and Measurements);
- *gml*¹⁹ (Geography Markup Language); and
- *gmlsf*²⁰ (GML Simple Features) from the Open Geospatial Consortium (OGC).

To navigate through the schemas, click on the *References* tab, then the *Browse schemas* link as shown in Figure 27.

¹⁷ *Geofabric* <http://www.bom.gov.au/water/geofabric/>

¹⁸ *Observations and Measurements* <http://www.opengeospatial.org/standards/om>

¹⁹ *Geography Markup Language* <http://www.opengeospatial.org/standards/gml>

²⁰ *GML Simple Features Profile* <http://www.ogcnetwork.net/gml-sf>



Figure 27 - Schema references browsing

During the navigation, **do not** use the *Back* button of the web browser to go back to the parent directory, instead use the `..` link, as shown in Figure 28.



Figure 28 - Go back to parental directory

3.7 View *About* message

Selecting the *About* tab will present information about Validation Service version, the software building serial number and a general introduction as shown in Figure 29.

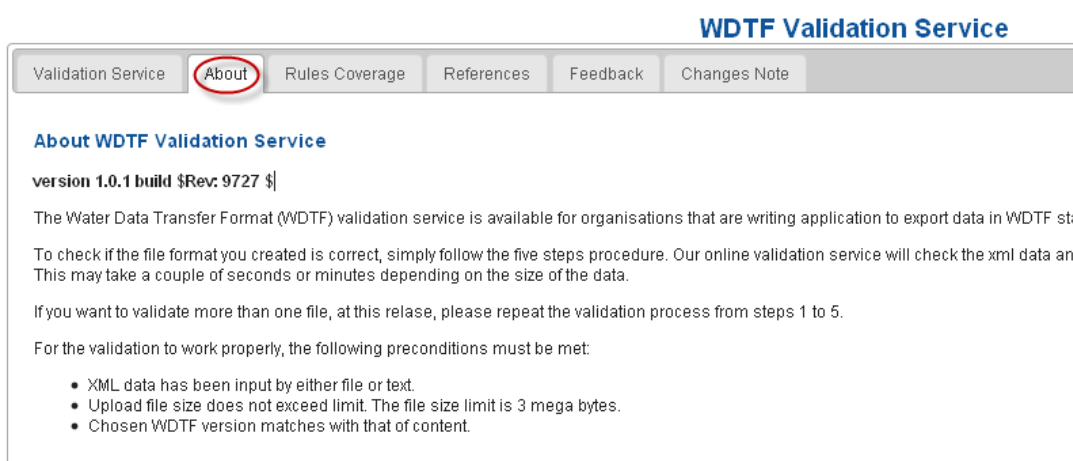


Figure 29 - Message about WDTF Validation Service

3.8 Send feedback

Users' feedback is a key part of the Validation Service quality improvement strategy. The feedback can be sent via an email client invoked by clicking on the link shown in Figure 30.

The invoked email client is embedded with a subject in the following format to help the Bureau's customer agent dispatch the feedback systematically upon its reception:
WDTF Validation Service ver <version info> build <software building serial number>

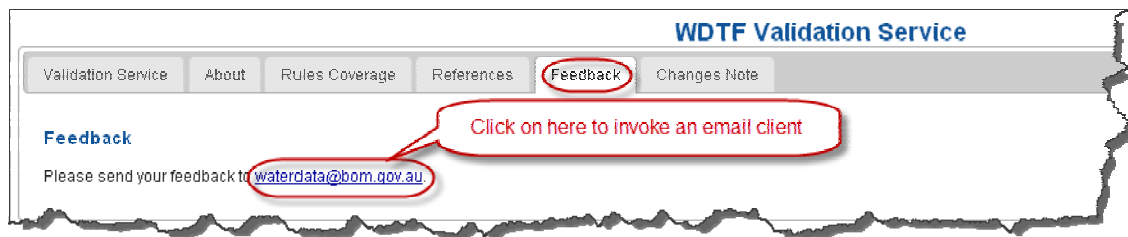


Figure 30 - Sending feedback

3.9 View Changes Note

Under the *Changes Note* tab there is important information regarding changes to the Validation Service since last the release. Clicking on the *expand/collapse section* titled *Full release note* will show the note as in Figure 31.



Figure 31 - View Changes Note

Through the *Water Act 2007*, the Australian Government has given the Bureau of Meteorology responsibility for compiling and delivering comprehensive water information across Australia.

For more information

Visit our website at www.bom.gov.au/water
Send an email request to waterinfo@bom.gov.au

www.bom.gov.au/water