Drinking Water Directive reporting

A user guide for electronic reporting

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Glossary of Terms

Term	Meaning / Definition
CDR	Central Data Repository
DWD	Drinking Water Directive
MS	Member State
WISE	Water Information System for Europe
XML	Extensible Markup Language

1.   Introduction

The purpose of this guidance is to provide support to the workflow for the Drinking Water Directive reporting. In line with current requirements for reporting and information exchange and the requirements of Article 13 of Council Directive 98/83/EC on the quality of water intended for human consumption (the Drinking Water Directive).

The information should be uploaded in XML format in the Central Data Repository on Eionet:

<center>http://cdr.eionet.europa.eu/</center>

To facilitate the submission of information according to the schemas for both drinking water information and derogations the following tools have been developed:

- Four Excel spreadsheets. This complements the 4 schemas DWD, Derogation 1, Derogation 2 and Derogation 3 and organises the information by sheet. The spreadsheet allows for manual entry, but also bulk data import can be used, depending upon the skill and the needs of the user. Please notice that the spreadsheet supporting the drinking water information only can hold information for *one* year. When reporting every 3rd year this will mean that 3 spreadsheets should be created – one per year.

- XML Conversion tool which generates the schemas from the Excel spreadsheet.

- QA/QC rules help ensure the information is filled out correctly. The QA/QC is run from the following:

  - ReportNet
  - Desktop validation tool

1.1   Schemas

The reporting schemas are not dealt with in detail in this document. The schemas are available from this web page http://icm.eionet.europa.eu/schemas/dir199883ec/resources/ along with supporting documentation.

1.2   Related documents

This is 'Document 1' providing support for the workflow. There are two other documents which provide additional support to the reporting process:

- **Document 2: Guidance document on reporting under the Drinking Water Directive 98/83/EC**

- **Document 3: Information required by the European Commission under Article 9 (derogations)**

All documents can be found on this resource page:

<center>http://icm.eionet.europa.eu/schemas/dir199883ec/resources</center>

1.3   Getting help

All schemas, tools and supporting documents are also available from the above web page.

If you need assistance on issues not addressed in this User Guidance or the User manual please contact:

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1.4   Overview of reporting steps

The main reporting steps are shown in the diagram below. The approach taken, depending on the tools and databases already available within the MS, can take different forms. Some MS are able to generate the XML files directly from their own systems and would therefore only be interested in the validation and upload steps. The reporting steps shown here are for MS where no local tools exist to easily build the XML files required for upload onto CDR.

1. **Excel spreadsheet**: Structured according to the agreed reporting sheets (described in Document no2: Guidance document on reporting under the Drinking Water Directive 98/83/EC), the spreadsheet is used to import and structure MS data into the required format for the generation of the XML files.

2. **XML conversion tool**: This tool converts the data entered into the MS spreadsheet into the XML format required for reporting.

3. **Desktop validation tool:** This tool checks the quality of the data within the XML files generated. It uses the same rules as the validation tool within ReportNet[1], and will detect and report any errors in the XML files at an early stage (rather than waiting until you have generated and uploaded onto ReportNet, only to have to go back to the start to correct errors). This tool can therefore save you a lot of time. This tool could be the starting point for those MS generating the XML files directly from their systems.

4. **ReportNet upload**: Once the XML files have been generated, checked through the desktop validation tool, and no errors returned (or errors corrected), the files are ready to be uploaded onto ReportNet.

5. **ReportNet QA/QC:** Once the XML have been uploaded into ReportNet, it is recommended to also finally run the QA/QC facility on ReportNet to ensure that there are no errors remaining in the XML files. Once you are satisfied that no such errors occur, the files are ready to be released and a cover letter will be automatically generated verifying the date of the reporting along with a list of reported documents / files.

[1] Reportnet is Eionet's infrastructure for supporting and improving data and information flows. The Central Data Repository is part of the ReportNet architecture.
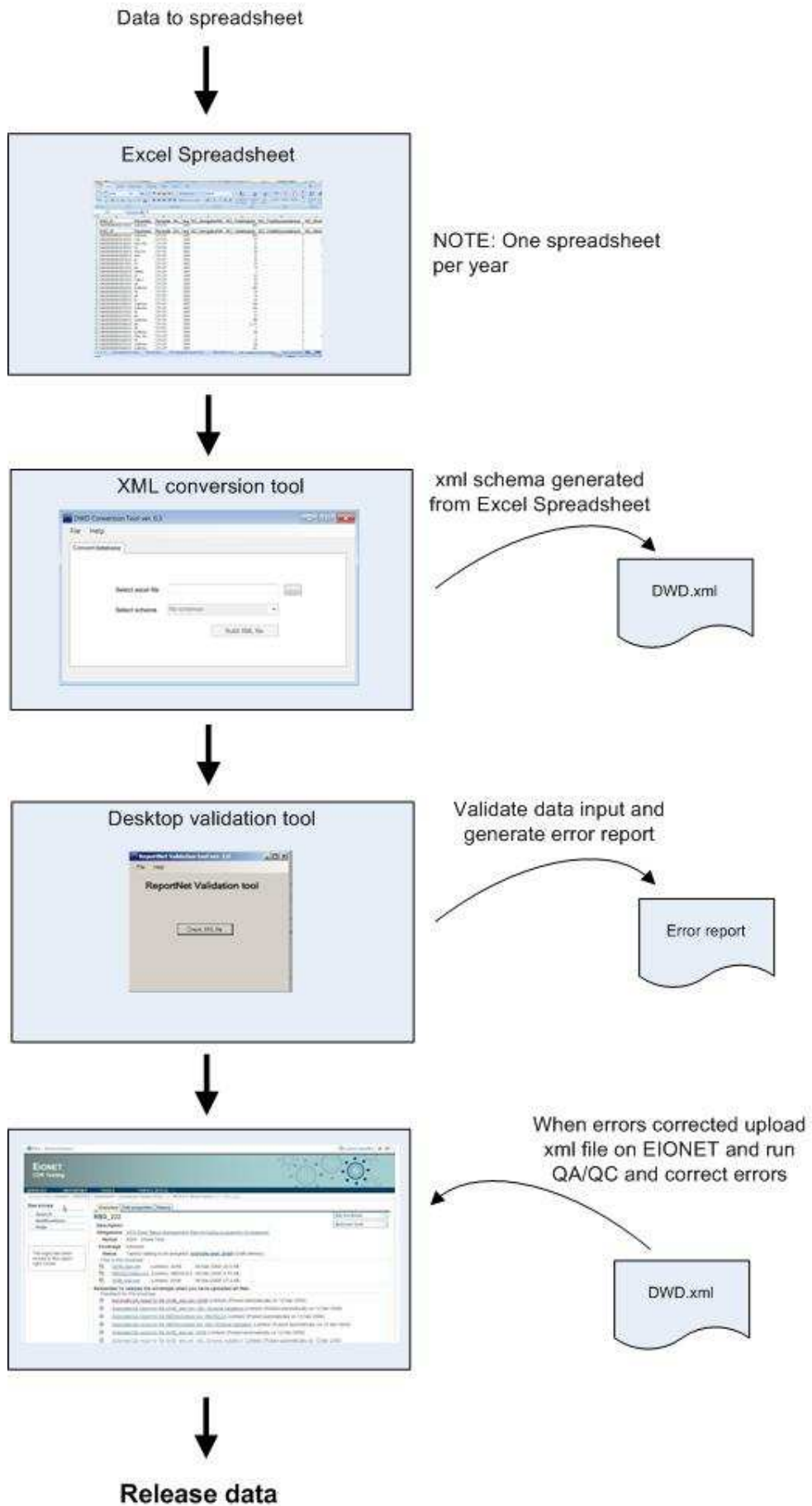
Figure 1.1. Reporting workflow of the DWD

2. Excel spreadsheet

2.1 Quick guide

A quick step by step guide for the advanced user who has experience in using previous similar reporting databases:

- Download the spreadsheet from

  http://icm.eionet.europa.eu/schemas/dir199883ec/resources

  Please notice that only one year should be reported in one spreadsheet

- Fill in the required information into the relevant tables (using the guidance provided in Document 2, Drinking Water Directive reporting: Guide document on reporting under the Drinking Water Directive 98/83/EC)

- When all the data has been entered into the spreadsheet use the XML conversion tool to generate the XML file

- The same procedure applies to reporting derogation information where 3 spreadsheets correspond to Derogation 1, 2 and 3.

2.2 Spreadsheet design

The spreadsheet for reporting drinking water information contains 14 worksheets arranged in alphabetic order. It is very important that the structure of the spreadsheet is kept in order to run the conversion tool successfully. If tables and columns are deleted or moved the conversion tool will not be able run.

The 14 worksheets hold the information defined in the 8 tables from the Guide document on reporting under the Drinking Water Directive 98/83/EC. The number in the bracket indicates in which order the worksheets should be populated.

Table 2.1. Linkage between table names and worksheet names in the spreadsheet

Table no.	Table name	Worksheet name(s)
1	General information on Member States drinking water supply arrangements	MemberState (1) WaterSupplyZone (2)
2	Information on exemptions in accordance with Articles 3.2.a and 3.2.b of the DWD	ExemptionInformation Notes (2)
3A	Information on drinking water alternative analysis methods for microbiological parameters under Article 7.5.b DWD	MicrobiologicalAnalysismethod
3B	Sampling methods used for compliance sampling for microbiological parameters and for metals	MicrobiologicalParameters (1) Notes (2)
4	Annual monitoring in water supply zones that do not meet the minimum monitoring frequency in the DWD	AnnualMonitoring
5A	National summary information on drinking water quality in water supply zones exceeding 1000 m3 per day as an average or serving more than 5000 persons	NationalSummary
5B	Information given on product specified parameters Acrylamide, Epichlorohydrin and Vinylchloride	ProductSpecifiedParameters
5C	Further optional comments from the Member State relating to table 5A	Notes
6	Information on non-compliance of drinking water in water supply zones	NonComplianceInformation (1) NCI_Cause (2)

		NCI_Remedial (3)
7	Format of drinking water quality information available	QualityInformation
8	Type of Information available to the public	PublicInformation

2.2.1 Notes

In the spreadsheet there is a worksheet named "Notes". The worksheet holds all the note elements in the tables. And if this information is reported it should therefore be entered in this worksheet.
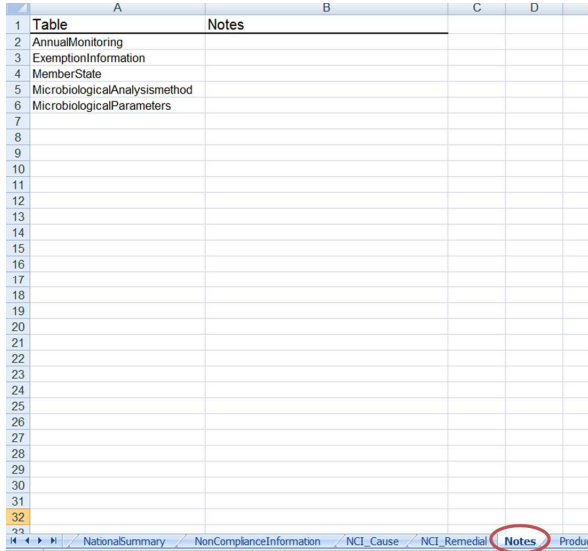

Figure 2.1 The worksheet "Notes" from the spreadsheet

Table 2.2. Linkage between the Notes worksheet and the tables in document 2

Table name in spreadsheet	Tabel number in document 2*
AnnualMonitoring	Tabel 4
ExemptionInformation	Tabel 2
MemberState	Tabel 5C
MicrobiologicalAnalysismethod	Tabel 3A
MicrobiologicalParameters	Tabel 3B

* Drinking Water Directive reporting: Guide document on reporting under

the Drinking Water Directive 98/83/EC)

2.2.2 Structure in spreadsheet template

The applied table structures in Document no. 2 have been translated into the spreadsheet template – however in some cases it has been necessary to set a different structure in the spreadsheet template in order to accommodate both one-to-many relations and to simplify the structure. A more detailed description of the specific cases where a different structure has been applied is given in section 2.2.5 and 2.2.6.

2.2.3 Enumeration / Drop-Down Lists

All code lists defined in Document 2 have already been incorporated into the spreadsheet, and are used to create drop-down lists where appropriate, e.g. country code list. This ensures that only valid codes are entered into the spreadsheet where these are defined. Code lists are additionally defined in the system schema DWCommon.

Figure 2.2. Illustration of an enumeration list

The enumeration lists will in most cases have an abbreviation of the value to choose from. A description of the enumeration list can be found in the worksheet "EnumerationList" as illustrated below.

Cause	Cause Description
C	Catchment
T	Treatment
P	PDN
D	DDS
O	Other
S	Combined
U	Unknown

Figure 2.3. Desciption of the enumeration value from the EbumerationList worksheet

2.2.4 Numeric fields

In the numeric fields it is possible to insert an exception. The three below exemptions can be chosen when a value is unknown, yet to be measured or not applicable.

-9999 = Unknown

-8888 = Yet to be measured

-7777 = Not Applicable

Please notice that numeric data with decimals should be reported using period (2.75) as the separator and comma for the thousand separator (1,234,000).

2.2.5 National Summary (table 5A)

Information required in Table 5A in the Guidance Document, Document no. 2 is covered in the spreadsheet template in the National Summary worksheet.

As regards the sampling location Document no. 2, provides under remark 2 the followings: "please use codes "W" for waterworks, "N" for network, "I" for legal point of delivery and "T" for tap in domestic installations. It is possible to enter more than one code if different sample locations are used. The sampling location may refer as well to Annex II, table B1, sub-header in the Drinking Water Directive.

In order to transpose this in the spreadsheet template, 4 columns have been created: NS_SampleLocation_Water (W), NS_SampleLocation_Network (N), NS_SampleLocation_Legal (L) and NS_SampleLocation_Tap (T) as illustrated in Figure 2.4.

NS_SampleLocation_Water	NS_SampleLocation_Network	NS_SampleLocation_Legal	NS_SampleLocation_Tap

Figure 2.4. Example of re-structuring an enumeration list from the Guidance Document (Document no. 2) to columns in the spreadsheet. It is only necessary to mark the used sampling methods with a "Y" provided from a drop-down menu.

2.2.6 Non compliance information (table6)

Table 6 in Document no. 2 are divided into 3 worksheets in the spreadsheet template as indicated in Table 2.1.

1. NonComplianceInformation

2. NCI_Cause

3. NCI_Remedial

More than one cause can be reported for the non compliant parameter. For each cause more than one remedial action can be reported. In order to incorporate this structure into the spreadsheet 3 tables have been created.
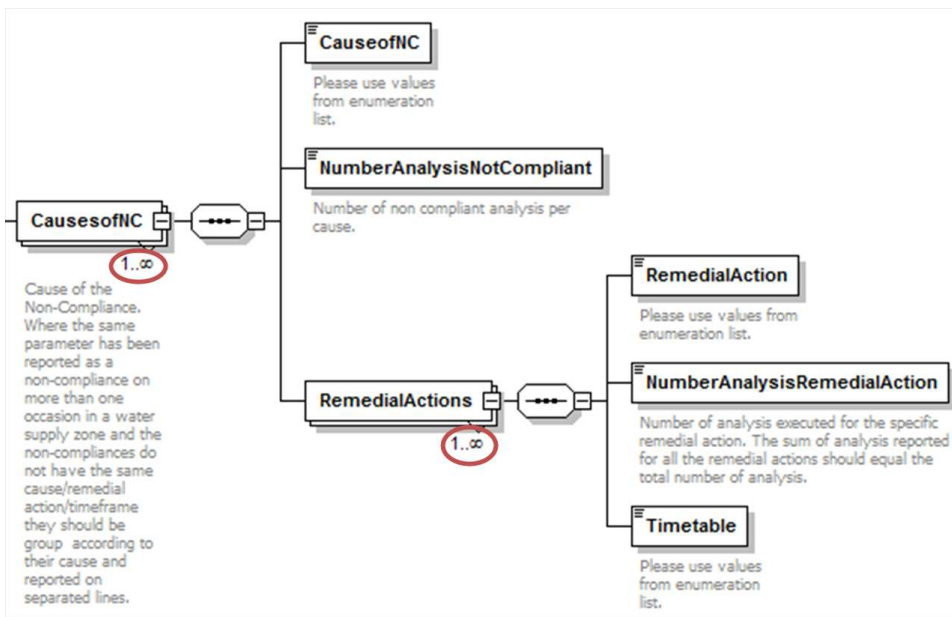
Figure 2.5. Schema design of how data for causes, remedial actions and related timetable should be reported for a non compliant parameter. Please notice that more than cause can be chosen – the same is the case for the remedial action.

The worksheet "NonComplianceInformation" has a column named "NCI_ROW_ID". A sequentially numbering shall be applied to this column to give every parameter a unique value. This unique value shall be used in the table NCI_Cause.

Figure 2.6. The NCI_ROW_ID in worksheet NonComplianceInformation which shall be given a unique number. The unique number shall be used to link a parameter to cause(s).

Information in NCI_ROW_ID is referred again in worksheet NCI_Cause in order to identity the causes of all situations of non-compliance. The unique code defined in NCI_ROW_ID from the worksheet NonComplianceInformation should therefore be selected from a drop-down list as illustrated in Figure 2.7 in order to link a specific parameter to causes.

Moreover, under the worksheet NCI_Causes a column called NumberAnalysisNotCompliant has been included so that the user can provide information as regards the number of cases of non-compliance per cause.

Figure 2.7. The NCI_Row_ID column in the NCI_Cause worksheet is used to link several causes to one parameter. The unique values defined in the NonComplianceInformation worksheet can be chosen from a drop-down list.

In the NCI_Cause worksheet the Remedial_ID column is also used to link two worksheets. The Remedial_ID shall be used to link to the worksheet NCI_Remedial. The unique value defined in the column Remedial_ID is used to link several remedial actions to one cause. In the NCI_Remedial worksheet the unique value defined in the NCI_Cause worksheet can be chosen from a drop-down list.

For all causes, in practice, the remedial actions can be various; therefore several rows can be inserted depending on the number of the remedial actions; moreover, a column including NumberAnalysisRemedialAction has been included in order to distribute the total number of analysis on the basis of the causes, remedial actions and the timeframes. The column NumberAnalysisRemedialAction represents the number of analysis executed for the specific remedial action. The sum of analysis reported for all the remedial actions should equal the total number of analysis reported.

NCI_Remedial_ID	Remedial	NumberAnalysisRemedialAction	Timetable
1	1	12	I
	2	2	S
	1	0	M
	2	8	L
	1	4	I
5	D2	4	S

Figure 2.8. The NCI_Remedial_ID column in the NCI_Remedial worksheet is used to link several remedial actions to one cause. The unique values defined in the NCI_Cause worksheet can be chosen from a drop-down list.

2.2.7 Date and URL

Date format must be in the format yyyy-mm-dd if nothing else is specified and links (URL) to relevant documentation (must be a valid URL format).

3. Creation of XML files – the conversion tool

3.1 Concept

The purpose of the Drinking Water Directive excel to XML conversion tool is to allow Member States to generate the required XML files from their own data without any prior knowledge of XML formats and standards.

The tool extracts the data from the tables in the Excel spreadsheet, described in Section 2 and generates the schema.

This tool does not carry out any validation of the data that is used to create the XML files, nor does it validate the XML file produced. Validation is performed with the desktop validation tool and / or in ReportNet (as described later in this document).

Please note that the XML conversion tool will only function with the excel spreadsheet structure which has been built specifically in the spreadsheet as supplied.

3.2 Computer Requirements

The Drinking Water Directive excel to XML conversion tool requires the following;

- Windows XP or newer, 30 MB of free hard disk space and an 800x600 monitor (minimum).
- Microsoft .NET Framework 3.5 SP1 or higher. If .NET 3.5 SP1 is not already present, it will automatically be installed during the installation process. However the installation program itself requires at least Microsoft .NET Framework 2.0, see section 4.3.

Important: Running the Database to XML conversion tool requires a connection to the internet.

3.3 Installation / un-installation

3.3.1 Installation

The Drinking Water Directive excel to XML conversion tool is installed through the internet from the URL below:

http://icm.eionet.europa.eu/schemas/dir199883ec/resources/conversiontool/

It should be noted that the installation will only run from Internet Explorer, not from other browsers (e.g. FireFox, googleCrome).

Please note that if a previous version of the conversion tool is installed on the PC this will have to be uninstalled as the URL has changed.

As described in section 4.2 the installation will automatically include the Microsoft .NET Framework 3.5 SP1, if this is not already present. However, it should also be noted that installation of .NET requires local administrator access.

In order to run the installation program itself, you must have Microsoft .NET Framework 2.0 (at least) already installed. To determine what versions of the Microsoft .NET Framework is installed have a look in the folder C:\Windows\Microsoft.NET\Framework. Versions of the .NET framework will be in numbered folders.

If you do not already have .NET 2.0 or higher, it is recommended that you install the latest version of .NET, which at the time of writing is 3.5 SP1. This is available from the URL below:

http://www.microsoft.com/downloads/details.aspx?familyid=ab99342f-5d1a-413d-8319-81da479ab0d7

Each time the conversion tool is started an automatic check for new versions will be performed. If an update is found, but installation is skipped, it can be installed manually later on.

Running the installation as well as the spreadsheet-to-XML conversion tool through a proxy server might cause problems. In this case your administrator must change the network configuration in order to remove the proxy for the following websites:

- http://icm.eionet.europa.eu/schemas/dir199883ec/resources/conversiontool

- http://eionet.europa.eu

3.3.2 Un-installation

The Drinking Water Directive excel to XML conversion tool has to be un-installed from the Control Panel.

3.4 Using the conversion tool

The conversion tool is started from the start menu (Programs→ The European Commission → Drinking Water Directive excel to XML conversion tool).

To generate an XML file:

1. Select the relevant spreadsheet for which you want to generate the XML.

2. Choose the schema to be output (DWD, Derogation1, 2 or 3)

3. When the 'Build XML file' button is pressed - the application builds the file and then prompts the user to save the file.
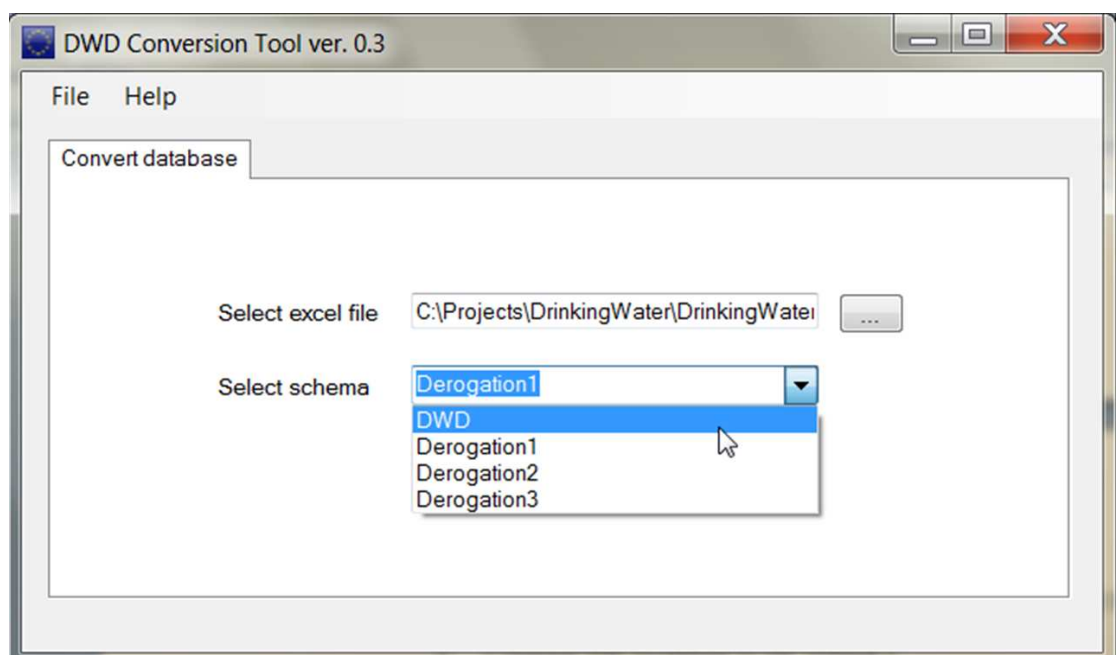
Note: The generation of XML files can take a long time if there is a lot of information to map between the database and the XML file.

As previously mentioned the conversion tool does not include any validation of the data. Therefore the generated XML file must be validated using the desktop validation tool (see section 4).

If the validation results in errors, it is important to verify whether the error exists in the spreadsheet or in the nationally reported data. It is very important that the corrections are made in the national dataset, not just in the conversion tool output.

4. Desktop validation tool

4.1 Concept

The purpose of the desktop validation tool is to allow the Member States to validate the data entered in the spreadsheet prior to upload to ReportNet CDR (where another similar level of validation is performed, based on the same rules). By undertaking this task prior to uploading your XML files onto ReportNet, you can correct any validation errors earlier on in the process and therefore repeating the task later on (it will save you time).

4.2 Computer Requirements

The desktop validation tool requires;

- Windows XP or newer

- 30 MB of free hard disk space

- an 800x600 monitor (minimum)

- Microsoft .NET Framework 3.5 SP1 or higher. If .NET 3.5 SP1 is not already present, it will automatically be installed during the installation process. However the installation program itself requires at least Microsoft .NET Framework 2.0, see section 4.3.

Important: Running the ReportNet desktop validation tool requires access to the internet.

4.3 Installation / uninstallation

4.3.1 Installation

The ReportNet desktop validation tool can be installed via the internet from the URL below:

http://icm.eionet.europa.eu/schemas/dir200060ec/resources/validationtool

Please note that the installation will only run from Internet Explorer, not from other browsers (e.g. FireFox, googleChrome).

As described in section 4.2 the installation will automatically include the Microsoft .NET Framework 3.5 SP1, if this is not already present. However, it should be noted that installation of .NET requires local administrator access and you may therefore need to contact your system administrator.

In order to run the installation program itself Microsoft .NET Framework 2.0 (or later) must be installed. To determine what versions of the Microsoft .NET Framework is installed have a look in the folder C:\Windows\Microsoft.NET\Framework, and if present, the versions of the .NET framework will be in numbered folders.

If you do not already have .NET 2.0 or higher, you are recommended to install the latest version of .NET, which at the time of writing is 3.5 SP1. This is available from the URL below:

http://www.microsoft.com/downloads/details.aspx?familyid=ab99342f-5d1a-413d-8319-81da479ab0d7

Each time the desktop validation tool is started an automatic check for new versions will be performed. If an update is found, but installation is skipped, it can be installed manually later on.

Running the installation of the desktop validation tool (as well as running the tool itself) through a proxy server might cause problems. In this case your administrator must change the network configuration in order to remove the proxy for the following websites:

- http://icm.eionet.europa.eu/schemas/dir199883ec/resources/validationtool

- http://eionet.europa.eu

4.3.2 Uninstallation

The ReportNet desktop validation tool has to be uninstalled from the Control Panel.

4.4 Principles of validation

The purpose of the validation of an XML file is to check that it is complying with required XML schema form. It checks that the XML is well formed and the technical validation is met.

The first validation carried out checks that the XML is well formed (and adheres to the common structure rules outlined in section 5.1.

The second validation carried out checks that XML adheres to the complex structure as outlined in section 6.2.

The desktop validation tool only works if you have a connection to the internet, because the tool pulls down the latest version of the relevant schema directly from ReportNet. This ensures that any validation is always consistent with the latest version of the schema.

4.4.1 Schema definition (schemaLocation)

The XML file should contain a reference to the schema definition file so that the validation can be undertaken. The reference is an attribute to the root element and consists of two parts – namespace and location

e.g. xsi:schemaLocation="http://icm.eionet.europa.eu/schemas/dir199883ec http://icm.eionet.europa.eu/schemas/dir199883ec/DrinkingWaterDirective.xsd"

For the validation tool to successfully retrieve the other validation rules from ReportNet then the schema definition needs to point at the schema held on ReportNet. The urls to the latest schema versions can be found at this location (Description= 'schema for drinking water directive reporting'):

http://converters.eionet.europa.eu/do/uplSchemas

4.5 Using the validation tool

The desktop validation tool can be accessed through the Start menu on your desktop, simply go to Start → Programs → The European Commission → ReportNet desktop validation tool

4.5.1 Validating an XML file

To validate an XML file, click the "Check XML file" button (see Figure 4.1), browse to the relevant XML file you wish to validate and the validation is run as soon as OK is clicked.
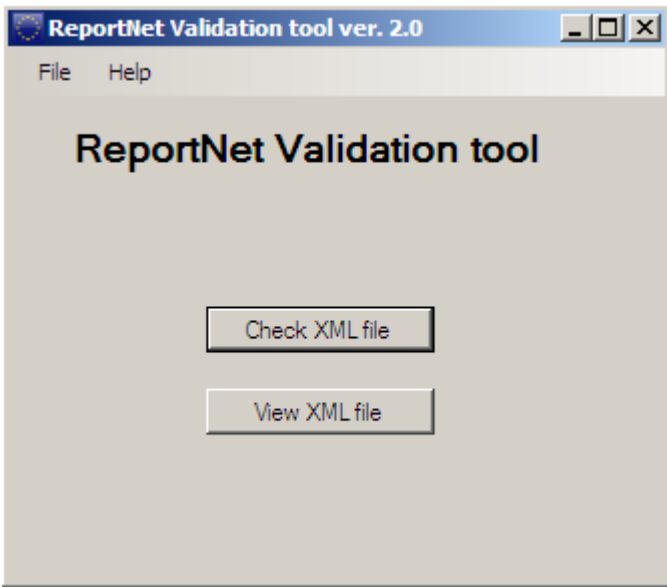
Figure 4.1. The desktop validation tool

The main output from the validation tool is presented as shown in Figure 4.3.
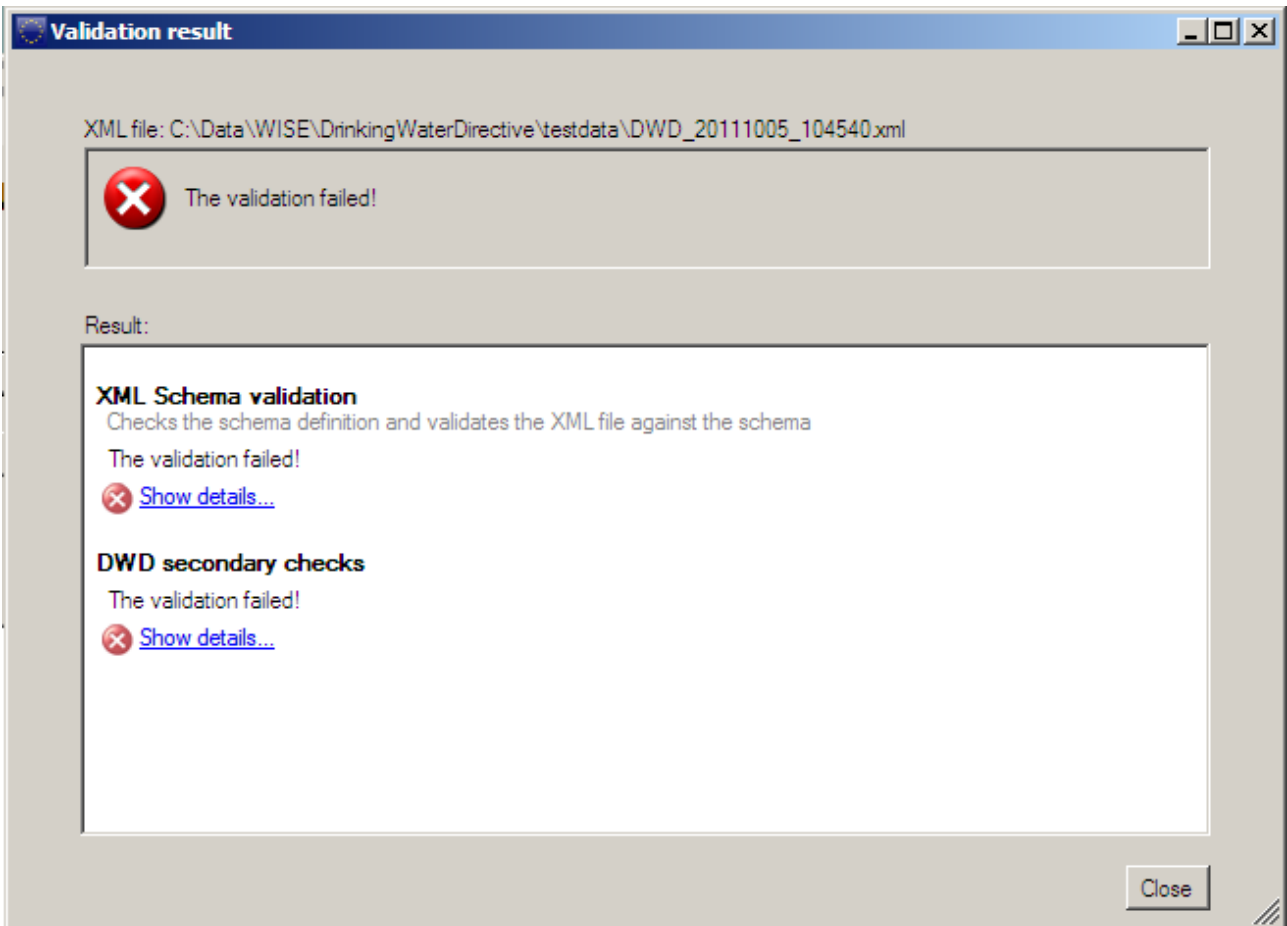

Figure 4.2. Result of validations

For each of the validations run the result is shown. The detailed reports are marked with the symbols below.

The validation was not passed. The detailed report contains information about the

validation including the errors found.

⚠️ The validation was passed with warnings. The detailed report contains information about the validation including the warnings (not shown).

ⓘ The validation was passed successfully. The detailed report contains additional information about the validation.

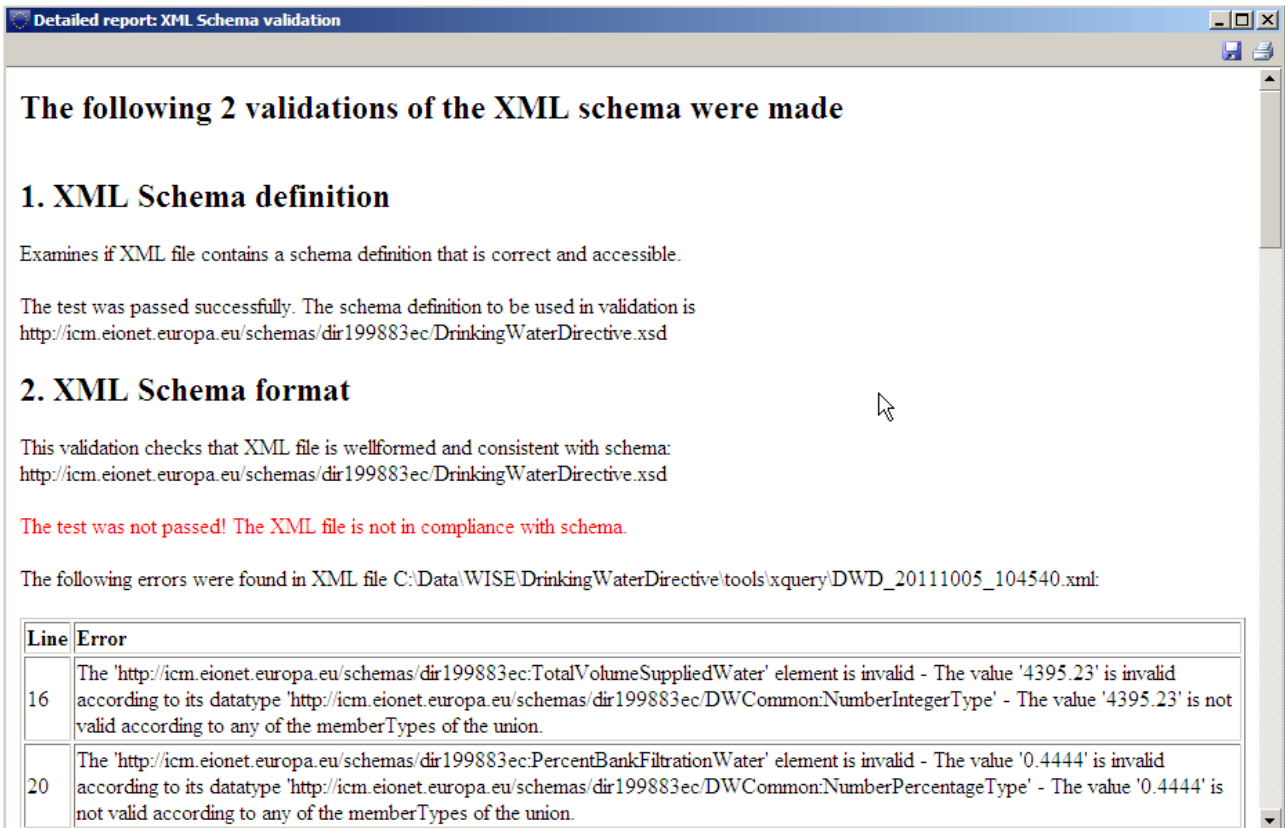The detailed reports can be seen by clicking the "Show details…" link. This will open the report as shown below.

Detailed report: XML Schema validation

The following 2 validations of the XML schema were made

1. XML Schema definition

Examines if XML file contains a schema definition that is correct and accessible.

The test was passed successfully. The schema definition to be used in validation is http://icm.eionet.europa.eu/schemas/dir199883ec/DrinkingWaterDirective.xsd

2. XML Schema format

This validation checks that XML file is wellformed and consistent with schema: http://icm.eionet.europa.eu/schemas/dir199883ec/DrinkingWaterDirective.xsd

The test was not passed! The XML file is not in compliance with schema.

The following errors were found in XML file C:\Data\WISE\DrinkingWaterDirective\tools\xquery\DWD_20111005_104540.xml:

Line	Error
16	The 'http://icm.eionet.europa.eu/schemas/dir199883ec:TotalVolumeSuppliedWater' element is invalid - The value '4395.23' is invalid according to its datatype 'http://icm.eionet.europa.eu/schemas/dir199883ec/DWCommon:NumberIntegerType' - The value '4395.23' is not valid according to any of the memberTypes of the union.
20	The 'http://icm.eionet.europa.eu/schemas/dir199883ec:PercentBankFiltrationWater' element is invalid - The value '0.4444' is invalid according to its datatype 'http://icm.eionet.europa.eu/schemas/dir199883ec/DWCommon:NumberPercentageType' - The value '0.4444' is not valid according to any of the memberTypes of the union.

Figure 4.3. Example of desktop validation output (high level)

Figure 4.4. Example of desktop validation output (detailed)

The results of the validation can be saved and printed from the tool bar in the upper right corner.

4.5.2 Viewing an XML file

To view an XML file, click the "View XML file" button (see Figure 4.5) and browse to the relevant XML file you wish to view. When OK is clicked the tool will use the valid schema definition to retrieve the possible conversions which have been set up for this schema in ReportNet.

The conversions listed (see Figure 4.5) with hyperlinks to View the files (if the size of the XML is less then 250kb) or to Save the files, from where they can be opened using the appropriate application by the user.
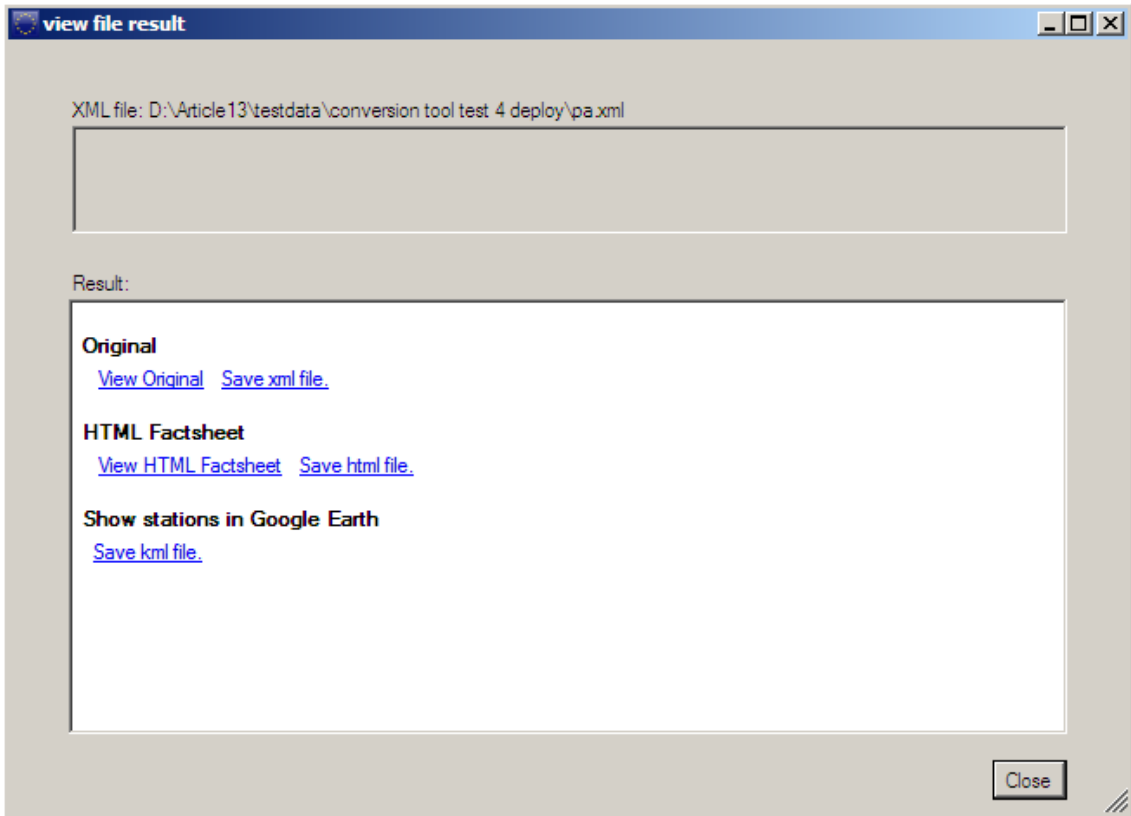
Figure 4.5 Example of desktop translation output

4.6 Understanding desktop validation output

If errors are reported under the first schema check – XML schema validation – the line number in the schema where the error was found and a description of the error itself are provided. The checks are typically those described in section 6. You should use a text editor (or similar viewer which gives line numbers - e.g. Notepad++) to display the XML schema and systematically work through the error list correcting as you go. Some examples of errors are:

Line	Error
13	The 'http://water.eionet.europa.eu/schemas/dir200060ec:LAT' element is invalid - The value '15N' is invalid according to its datatype 'http://water.eionet.europa.eu/schemas/dir200060ec/wfdcommon:CoordinateType' - The Pattern constraint failed.
14	The 'http://water.eionet.europa.eu/schemas/dir200060ec:LON' element is invalid - The value '43562656' is invalid according to its datatype 'http://water.eionet.europa.eu/schemas/dir200060ec/wfdcommon:CoordinateType' - The Pattern constraint failed.
16	The 'http://water.eionet.europa.eu/schemas/dir200060ec:Natural' element is invalid - The value 'ArtificialArtificialArtificialArtificialA' is invalid according to its datatype 'String' - The Enumeration constraint failed.
27	The 'http://water.eionet.europa.eu/schemas/dir200060ec:YesNo' element is invalid - The value 'B' is invalid according to its datatype 'http://water.eionet.europa.eu/schemas/dir200060ec/wfdcommon:YesNoCode' - The Enumeration constraint failed.

Figure 4.6 - example of validation error message

The format of the complex validation checks output is provided in section 6.2.

4.6.1 Correction of validation errors

If the validation results in errors, these must be corrected before uploading the XML file to Reportnet. **It is very important that the data are corrected in the source data, not just in the XML file**. See section 5.7 for an explanation on interpreting the error reports.

5. Uploading XML files onto ReportNet

5.1 A Quick guide

This quick guide outlines the Central Data Repository (CDR) delivery procedure in quick steps for the experienced ReportNet User:

1. Download the XML schemas and use your chosen method of generating the information to report against them (i.e. the spreadsheet, or another).

2. Use the desktop validation tool to check your data and correct any errors found.

3. Enter the Central Data Repository (CDR) by going to http://cdr.eionet.europa.eu

4. Click on the country for which you want to make the delivery

5. Go to: data collection→ European Union (EU) → obligations

6. Click on the relevant subcollection → e.g. Drinking Water Directive Report

7. Add a new envelope called the to days date – e.g. December 31 2011

8. Activate the task (upper right corner)

9. Upload XML file into the envelope and name it [CountryCode]_DWD[YYYY]_[YYYYMMDD]

10. Check that everything is correct and meets your national quality requirements

11. Release envelope and QA and cover letter will automatically be generated.

5.2 Overview

To participate in the upload process, you need to first log in with your Eionet username and password by going to http://cdrtest.eionet.europa.eu/ and clicking on the top-right Login button.

If you do not have an Eionet username and password then please contact helpdesk@eionet.europa.eu

If you already started this work and you want to be reminded of the URL of the envelope you are working on, or if you want to see what you can do next, consult the Global Worklist linked from the left-side grey button available from every page.

Whether your job implies drafting the delivery, inspecting the result or finalising the work, the way to start it, and also inform other users that you are executing that action, is to activate a task (e.g. Draft for creating/updating the delivery).

Activation reserves the envelope for you and prevents your colleagues from inadvertently corrupting the data. If you want to transfer the task to someone else, you can deactivate the envelope.

5.3 Creating the envelope

First you should login.

There is grey button on the right side of the page saying "New envelope". Click on it to create a delivery envelope. Most of the necessary metadata is already filled out. You need to enter a title for the envelope (E.g name: December 31 2011) and the date, which is the reference date of the data you are reporting.

Then click on "Add". You now have an envelope that you must activate by pressing the 'Activate task' button and uploading files.

5.4   Managing the envelope

After activation, you have reserved the envelope for yourself to work on. Other users will not be able to intervene until you:

- complete the task - in which case the system will move forward to the next step in the reporting process; or

- deactivate the task - from the corresponding right-side blue button which keeps the work already done and makes it possible for someone else to take over the task

It is possible to see if anyone else is working on a particular task by consulting the *Status* of the envelope:

Status   Task(s) in progress: **Draft** (user: bulanmir)

To track progress of the upload task, take a look at the History tab of that envelope.

When you have activated a task, you will notice a new tab in the envelope. The system will automatically place you there. This is the activity tab. It contains the information and guidance necessary for you to carry out your task.

5.5   Uploading data onto ReportNet

To fulfil the reporting obligations you are required to upload the XML file (DWD)

The upload facility enables you to upload the XML file, and also add the required shapefiles (or where necessary a .zip file containing the shapefiles)

5.5.1   Naming convention for the XML to be uploaded

The files should be named according to the following format:

> **[CountryCode]_[Schema name and year]_[dateYYYYMMDD].XML**
>
> e.g. UK_DWD2009_20111222

5.5.2   Use of EU Languages

You may use any of the official EU languages to report in the free text fields. You are, however, requested to use only one language for the information within any single schema. It is not necessary to use the same language for all the schemas.

5.6   Checking data quality

Once you have uploaded your XML file, you need to check the quality of your data within Reportnet / EIONET.

The quality assessment (QA) consists of a set of rules checked against each individual report. It happens in two ways:

- During the drafting of the report into the envelope, QA is manually triggered by the user in order to fix possible errors at that stage; it is done by clicking the corresponding "QA" button next to each factsheet. During drafting, the QA result is not stored in the envelope, but is just displayed to the user on a web page. You can save it on your own PC if you wish for your records.

- After the data reporter completes the envelope, QA is automatically triggered by the system on all reports; in this case, the result is stored in the envelope as "Feedback" object; the rules checked are the same as in the case of manual QA.

Hint: the QA rules are available at http://converters.eionet.europa.eu/queriesindex.jsp

To start the QA, click on the 'Run QA' links next to your uploaded files. This will run a collection of quality assessment scripts and produce a report describing the specific tests carried out and the results. It can typically detect syntax issues, but won't know if your information makes sense in terms of the other schemas uploaded or not.

More detail on the specific QA functions is provided in chapter 6 of this document.

5.7   Understanding validation output in ReportNet

Validation in ReportNet can be run at two points. Manually after an XML file has been uploaded. (Buttons will appear next to the filename in the envelope "QA1" and "QA2"). Output from a manual validation is not saved anywhere, just displayed on-screen. Secondly when an envelope is released all the validations are run on the sub-missed XML file in that envelope and the output is saved.

XML Schema validation checks "QA1"

The first schema check (QA1) is the XML schema validation which carries out checks that the XML file is well formed and simple validation checks as described in section 6.1.

Errors detected in this validation will be returned as a table within a texteditor file. The errors within the table will be labelled with the corresponding line and column numbers from the schema so you can easily find and correct the error within your schemas (example below).

Type	Position	Error message
ERROR	Line: 7, Col: 30	cvc-datatype-valid.1.2.1: 'this is not a url' is not a valid value for 'anyURI'.
ERROR	Line: 7, Col: 30	cvc-type.3.1.3: The value 'this is not a url' of element 'URL' is not valid.
ERROR	Line: 13, Col: 17	cvc-pattern-valid: Value '15N' is not facet-valid with respect to pattern '\-{0,1}[0-9]{1,2}\.[0-9]{1,5}' for type 'CoordinateType'.
ERROR	Line: 13, Col: 17	cvc-type.3.1.3: The value '15N' of element 'LAT' is not valid.
ERROR	Line: 14, Col: 22	cvc-pattern-valid: Value '43562656' is not facet-valid with respect to pattern '\-{0,1}[0-9]{1,2}\.[0-9]{1,5}' for type 'CoordinateType'.
ERROR	Line: 14, Col: 22	cvc-type.3.1.3: The value '43562656' of element 'LON' is not valid.
ERROR	Line: 27, Col: 21	cvc-enumeration-valid: Value 'B' is not facet-valid with respect to enumeration '[Y, N,]'. It must be a value from the enumeration.
ERROR	Line: 27, Col: 21	cvc-type.3.1.3: The value 'B' of element 'YesNo' is not valid.

Although QA1 performs the same checks as the desktop validation tool the error messages generated in Reportnet validation are not written the same as those in the desktop validation tool.

(This is because they use a different engine. Schema validation follows the W3C XML specification http://www.w3.org/TR/XMLschema-1/#concepts-schemaConstraints.)

These error messages are XML specified validation rules or constraints. Constraints have unique names and numbered parts. At the following link http://www.w3.org/TR/XMLschema-1/#concepts-schemaConstraints there is a reference in which any error messages can be looked up. As all errors relate to one of the following general rules https://svn.eionet.europa.eu/projects/Reportnet/wiki/SchemaValTec, it is easier to examine the element and if it is throwing an error, go through each criteria to see if that would throw a specific error. Reference to the original schema can also help pinpoint where the error is coming from.

Complex validation checks "QA2"

The second validation that is carried is the business rules as described in section 6.2

5.8   Completing the envelope

When you click on   Release envelope   you submit your report to EEA.

You will not be able to modify any files in the envelope after you click this button.

The full automated QA process will run on your delivery and a feedback report will be posted to the envelope. EEA and the team responsible for the expert manual review will receive an automatic email that you have completed the envelope. The completion process also automatically generates a cover letter acknowledging receipt of the data uploaded to CDR, including a list of all files uploaded and their precise location within the CDR.

5.8.1   Restricted or confidential data

The ReportNet approach means that submitted data is made available for the public to see. However you can specifically restrict individual files from public view if this is your national policy.

To restrict viewing of a file, click on the filename in the envelope. This will lead you to a page showing you the metadata of the file. There you will see a check box which allows you to restrict public access to the file after the envelope has been completed. EEA and the team responsible for the expert manual review can still access all files.

5.9   Resubmissions

If you wish to make an amendment to any data already submitted (i.e. envelope released), you must resubmit the whole schema again. This means that if a MS corrects information for e.g. some Unit of Management, the MS has to re-submit the full DWD file again, including all the information in the schema, not just those corrected. This file will replace the previous version. Within the envelope create a new envelope for the re-submission.

6.   QA/QC

6.1   Common validation checks

The following checks are carried out for all elements within the schema.

6.1.1   Element types and maximum and minimum limits

Submitted data needs to conform to the data types that have been used for each element in the schema. The data types are as follows:

- String: all characters allowed. The maximum and minimum settings define the maximum number and minimum number of characters that are allowed.

- Integer: only integers are allowed. The maximum and minimum values define the maximum and minimum values that are allowed.

- Decimal: any number is allowed. The maximum and minimum values define the maximum and minimum values that are allowed.

- URL: must be a valid URL format.

6.1.2   Required / Optional elements

The data within the schemas may be Required or Optional for the purposes of automatic validation.

The logic for determining whether an element is considered to be Required or Optional is based on the minimum number of occurrences defined for that element.

The logic used is as follows:

- Required: minimum occurrence is set to > 0.

- Optional: minimum occurrence is set to 0

Required information can in the schema design be identified as full lines around the defined elements where optional information will be identified with a dashed line.

Figure 6.1. Both the element Telephone and Fax is optional information to report – this indicated with a dashed line around the defined element.

6.1.3   Yes / No elements

There are elements that require a Yes / No answer. These must be checked to ensure that the correct codes have been used.

The DWCommon schema stores codelists that may be referred to by more than one element within the schema. There are two Yes / No types that have been defined in the DWCommon schema:

- YesCode: Y.

- YesNoCode: Y, N.

Where Y= Yes, N=No

6.1.4   Code check

The Code check is the most common validation check and is required to ensure that, where relevant, valid codes are selected from the attached codelist defined in the DWCommon schema, and that, in almost all cases, only one occurrence of the selected code exists in the data submission, avoiding the creation of duplicates. For example, element C_CD must be populated with a valid country code defined in the codelist 'CountryCodeType' within the DWCommon schema.

6.2   Complex validation checks by element

The table in Appendix A contains full details of the complex checks that are carried out on elements within the schemas in addition to the common validation checks described in the previous section. The overview of the complex checks identified has been described in the previous section.

The complex checks in Appendix A are categorized according by the following:

1 = Sense check.

2 = Cross check.

6.3   Validation check output

The example below shows the validation error output and the information that is given to help determine where the error is:

Element name	Element root	Element value	Error Description	RecordID
Percent values	DWD/Table1_GeneralInformation	8.2969	The sum of the percentages of the water sources does not equal 100	-Not reported-
WSZ_ID	DWD/Table1_GeneralInformation/WaterSupplyZones/WaterSupplyZone	GBZ005000263214SCO	The WSZ_ID is not unique	-Not reported-
WSZ_ID	DWD/Table1_GeneralInformation/WaterSupplyZones/WaterSupplyZone	GBZ005000263214SCO	The WSZ_ID is not unique	-Not reported-
WSZ_ID	DWD/Table4_AnnualMonitoring/AnnualMonitoring	1	The WSZ_ID reported is no tlisted in Water Supply Zones reported under Table 1	-Not reported-
WSZ_ID	DWD/Table4_AnnualMonitoring/AnnualMonitoring	2	The WSZ_ID reported is no tlisted in Water Supply Zones reported under Table 1	-Not reported-

- Element name: The name of the element (tag) within the schema which has caused the error

- Element root: Where this element is found within the schema

- Element value: The value which has caused the error (if there is one)

- Error description: Why the error occurred

- RecordID: An ID of the record within which the error was thrown – for the DWD reporting the column can be ignored as data is reported on country level.

To find the error requires some detective work because this type of validation does not provide line numbers. If the element value is provided then searching for that value in the XML would be the quickest approach.

6.4   Correction of validation errors

If the validation results in errors, these must be corrected.

It is very important that the data are corrected in the source data, not just in the XML file.

7. Documents and links

Drinking Water Directive: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31998L0083:EN:NOT

http://icm.eionet.europa.eu/schemas/dir199883ec/resources

Document No.1: Drinking Water Directive reporting: User manual v1.0

Document No.2: Drinking Water Directive reporting: Guide document on reporting under the Drinking Water Directive 98/83/EC

Document No.3: Information required by the European Commission under Article 9(derogations)

Appendix A

A.1   Complex validation checks

Key to Type of Check:

1 = Sense check

2 = Cross check

Element name	Element root	Type of Check	Description/Error message
Schema: DrinkingWaterDirective			
TotalPopulation	DWD/ Table1_GeneralInformation	1	Must not be greater than 100 as value in millions to three decimal places
TotalVolumeSuppliedWater	DWD/ Table1_GeneralInformation	1	Must not be less than 10
WSZ_ID	DWD/ Table1_GeneralInformation	2	WSZ_ID must be unique within the MS.
PercentGroundwater PercentSurfaceWater PercentInlandWater PercentCoastalTransitionalWater PercentBankFiltrationWaterPercent ArtificialGroundWaterRecharge PercentRainWater PercentOtherSources	DWD/ Table1_GeneralInformation	1	Vales must add up to 100%
WSZ_ID	DWD/Table4_AnnualMonitoring	2	Must use a WSZ_ID defined in Table 1
WSZ_Monitored	DWD/Table5A_NationalSummary/Parameters	2	Must not be greater than value given in Table 1 DWD/Table1_GeneralInformation/NoWaterSupplyZones
WSZ_ID	DWD/Table6_NonComplianceInformation	2	Must use a WSZ_ID defined in Table 1
LocationInformation	DWD/ Table7_QualityInformation/row/*	1	The LocationInformation must be reported when yes (Y) has been answered to the existence of this information
LocationInformation	DWD/Table8_PublicInformation/row/*	1	The LocationInformation must be reported when yes (Y) has been answered to the existence of this information
Schema: DWD_Derogation			
No complex validation checks			