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# Delft-FEWS

# Basic Configuration Course

## Module: Configuration Overview

# Module Motivation

- Configuring Delft-FEWS allows you to build and customize your system.
- Configuring is not computer programming, but rather fill xml templates.
- Learning the Basic Concepts in the first step, and it won’t be long until you can start to modify the system.

# Learning Objectives

By the end of this module, you will have met the following learning objectives:

1) Have familiarity of the basic structure of Delft-FEWS configuration

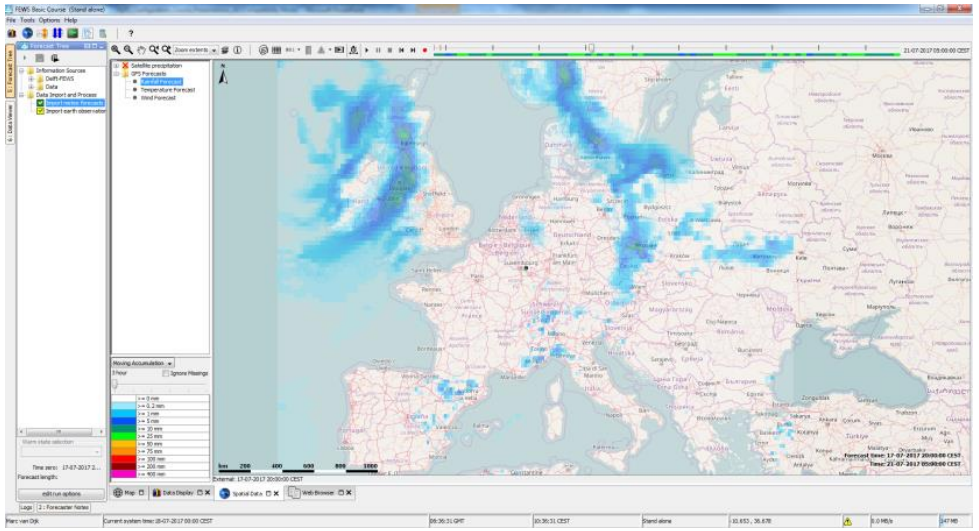
2) Understand the roles of configuration files compared to the Delft-FEWS binaries

3) Understand the use of xml files as building blocks of the system.

Software binaries
(Delft-FEWS)

Instructions
(xml/csv-configuration)

# Delft-FEWS Application

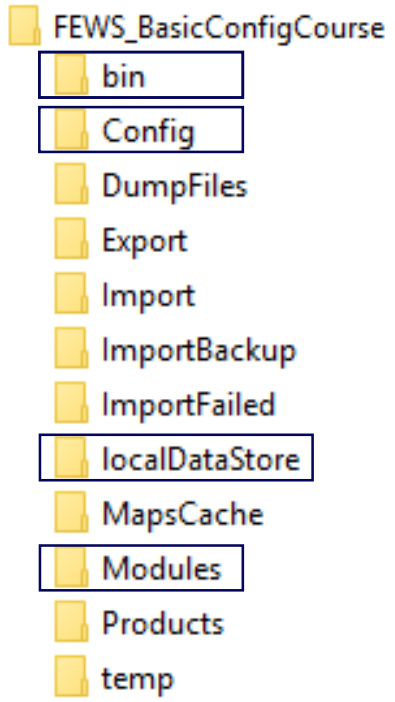


# Root Directory

- The Root Directory is reached when you open the FEWS_BasicConfigcourse folder

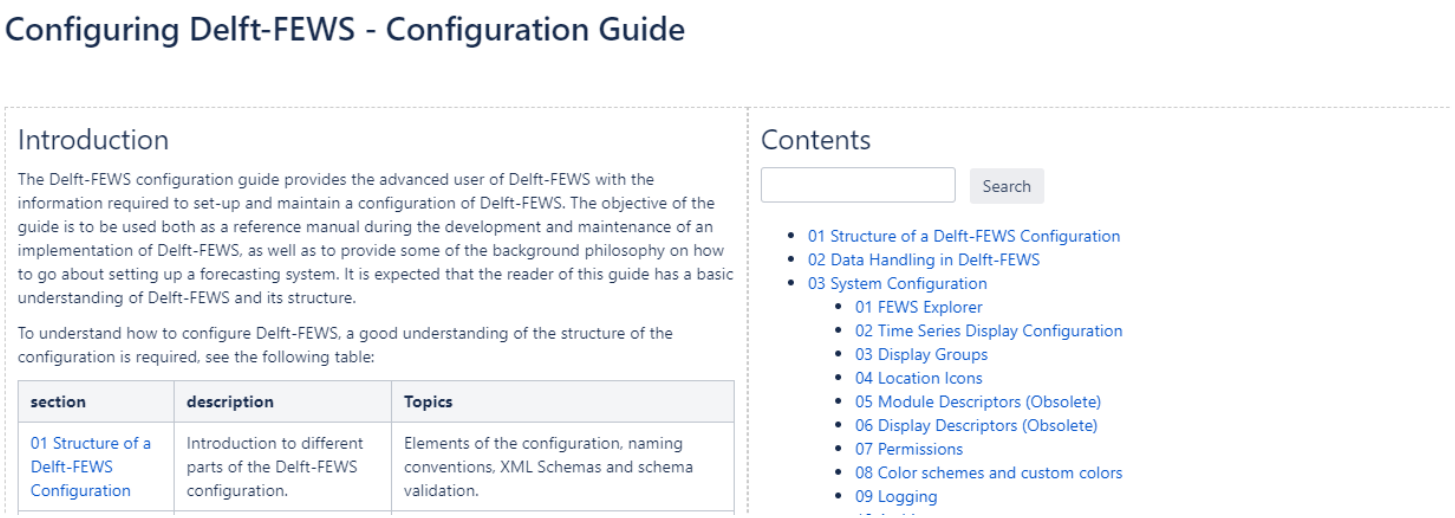
- Most important folders to begin with are:

1. bin – contains Delft-FEWS binaries
2. Config – folder where the configuration/instructions are held
3. localDataStore – local database
4. Modules – for model and external modules execution



# Config Folder

- Config Folder contains the instructions for Delft-FEWS
- Fixed Folder Structure
- Google “Delft FEWS Config” to reach Configuration Guide on WIKI



Configuring Delft-FEWS - Configuration Guide

Introduction

The Delft-FEWS configuration guide provides the advanced user of Delft-FEWS with the information required to set-up and maintain a configuration of Delft-FEWS. The objective of the guide is to be used both as a reference manual during the development and maintenance of an implementation of Delft-FEWS, as well as to provide some of the background philosophy on how to go about setting up a forecasting system. It is expected that the reader of this guide has a basic understanding of Delft-FEWS and its structure.

To understand how to configure Delft-FEWS, a good understanding of the structure of the configuration is required, see the following table:

| section | description | Topics |
|---|---|---|
| 01 Structure of a Delft-FEWS Configuration | Introduction to different parts of the Delft-FEWS configuration. | Elements of the configuration, naming conventions, XML Schemas and schema validation. |

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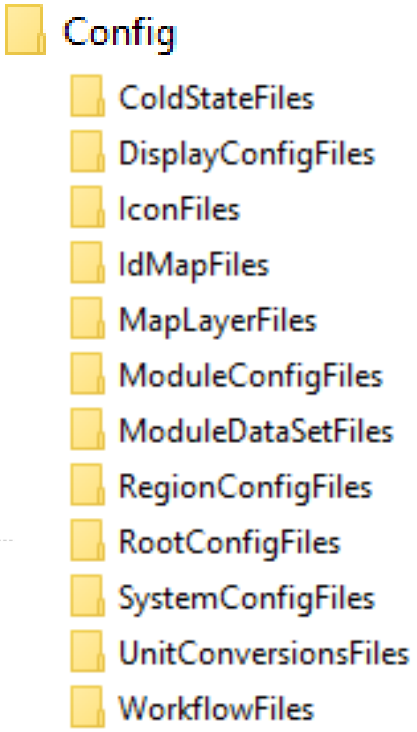
  - 05 Module Descriptors (Obsolete)
  - 06 Display Descriptors (Obsolete)
  - 07 Permissions
  - 08 Color schemes and custom colors
  - 09 Logging



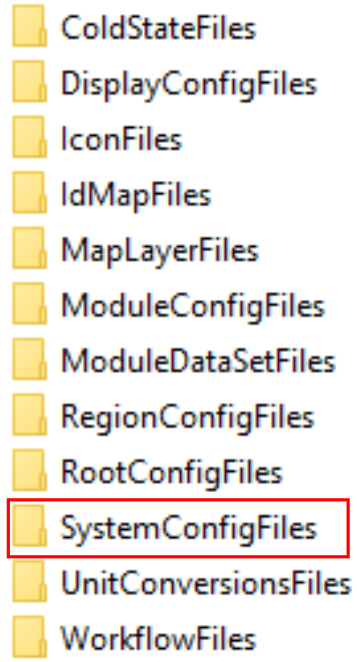
# SystemConfigFiles

SystemConfigFiles Folder

- *Explorer.xml* – User interface defaults
- *LocationIcons.xml* – Icons for different location sets
- *TimeSeriesDisplayConfig.xml* - Default line colours, styles, views

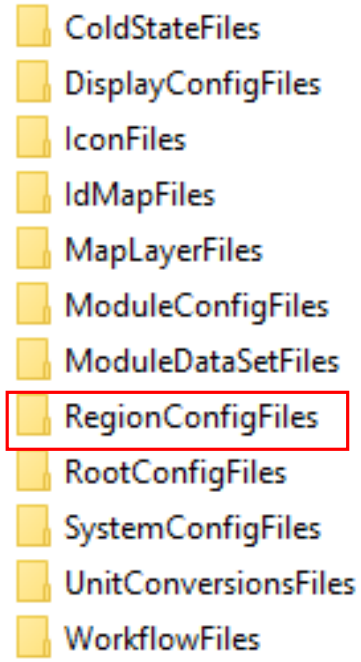
Also, but not included in basic course

- *DisplayGroups.xml* – predefined plots
- *UserGroups.xml* – known users
- *Permissions.xml* – permissions allocated to user groups
- *DisplayDescriptors.xml* – available displays components
- …



# RegionConfigFiles

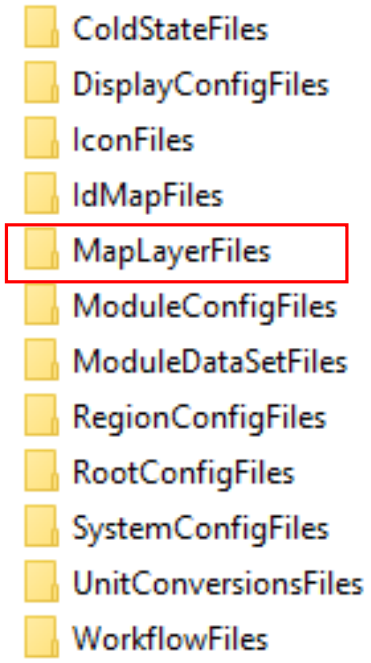
- *Locations.xml* – Point locations
- *LocationSets.xml* – Groups of locations
- *Grids.xml* – Grid geometries
- *Filters.xml* – Pre-defined filters in the user interface
- *Parameters.xml* – Available parameters e.g. P.obs
- *Qualifiers.xml* – Extra tags for time series identification
- *ModuleInstanceDescriptors.xml* - Registration file for Modules
- *WorkflowDescriptors.xml* - Registration file Workflows
- *ValidationRulesSets.xml* – Validation rules for scalar time series
- *Thresholds.xml* – Thresholds definition
- *ThresholdWarningLevels.xml* – Layout for threshold crossings
- *ThresholdValuesSets.xml* – Assigns time series to thresholds
- *Topology.xml* – Layout of forecast tree



# Main Delft-FEWS configuration – “MapLayerFiles”

MapLayerFiles Folder

- Additional map layers (e.g. shapefiles)
- Metadata for
  - Stations
  - Sensors
  - Catchments
  - Parameters
- Only folder that does not contain XML instruction files

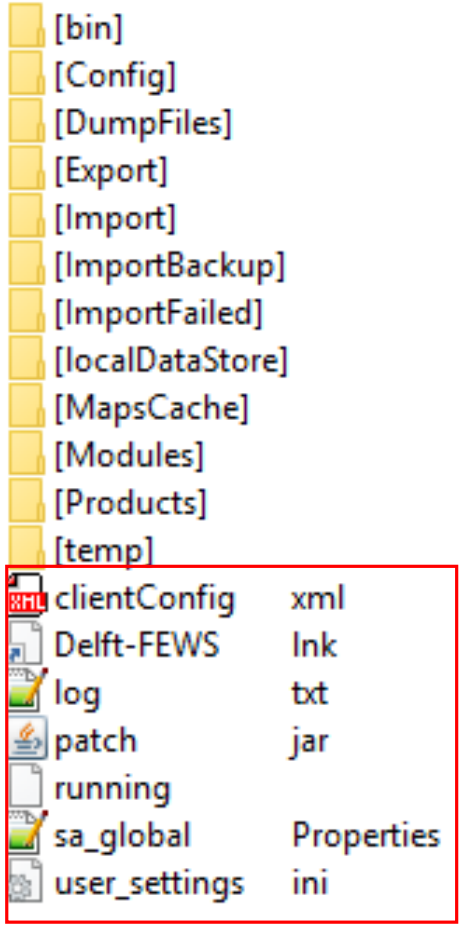


# Root Files

Every Delft-FEWS application has a Root or Region folder

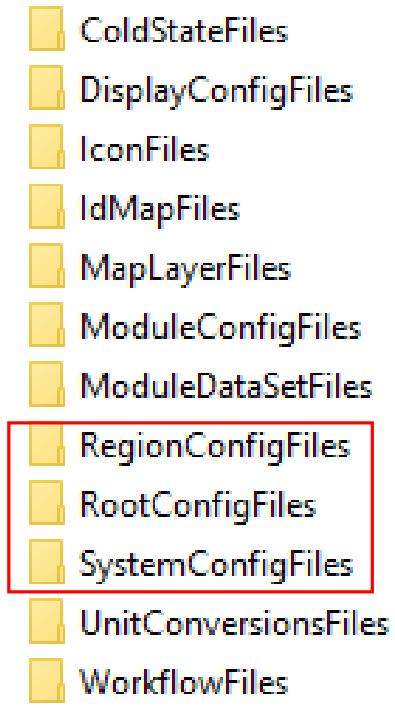
Delft-FEWS application root files:

- *clientConfig.xml* – Type of FEWS client (Stand Alone or OC)
- *sa_global.properties* – additional properties of FEWS Application
- *log.txt* – log file of Application
- *patch.jar* – Java code with solved Delft-FEWS issues.
- *running* – File only present when FEWS Application is running
- *user_settings.ini* – Local settings of FEWS Application



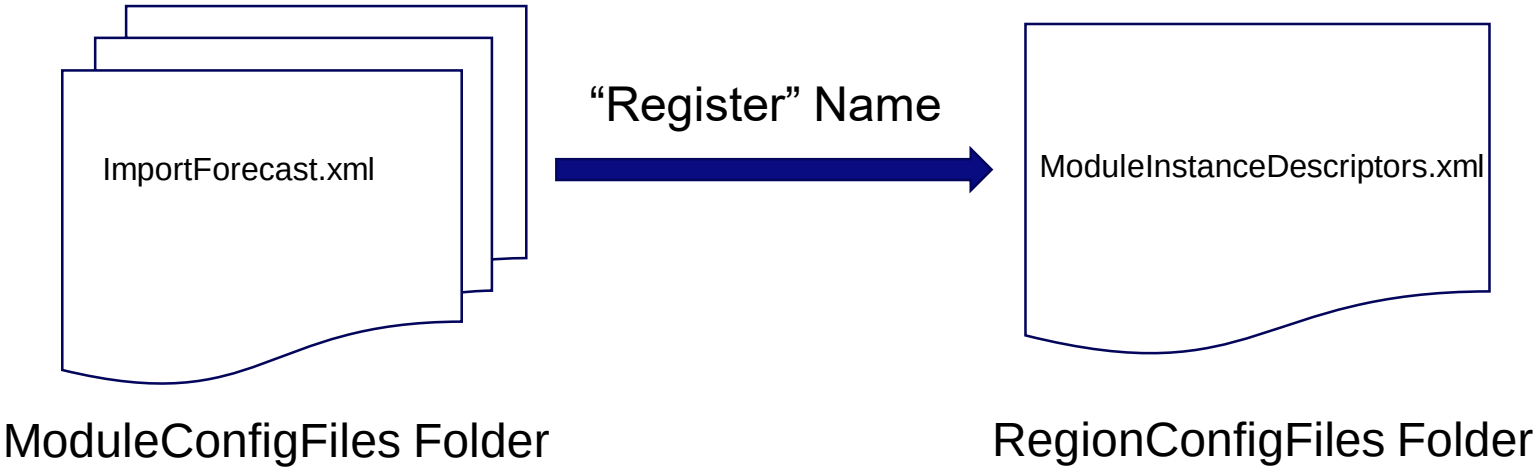
# Flexible File Naming Conventions

- Free to choose your own file (readable) name
- Identifies what your XML configuration does
- Examples:
  - *ImportGrid.xml*
  - *PreprocessPrecipitation.xml*
- Applies to all folders except:
  - RegionConfigFiles
  - SystemConfigFiles
  - RootConfigFiles



# Registering Workflows and Modules Instances

- Workflows, module instances and display instances need to be ‘registered’ in a descriptor file
  - Identifies what configuration it is
  - Give “readable” name (consistent naming conventions are handy)



# What is XML anyway?

- Most Delft-FEWS configuration files are written in XML format
- XML stands for EXtensible Markup Language – written in simple plain text
- Delft-FEWS interprets and validates the XML files using an XSD

Example:

```
<location id="Amsterdam" name=" RainStationAmsterdam">
        <x>4.35</x>
        <y>52.011</y>
</location>
```

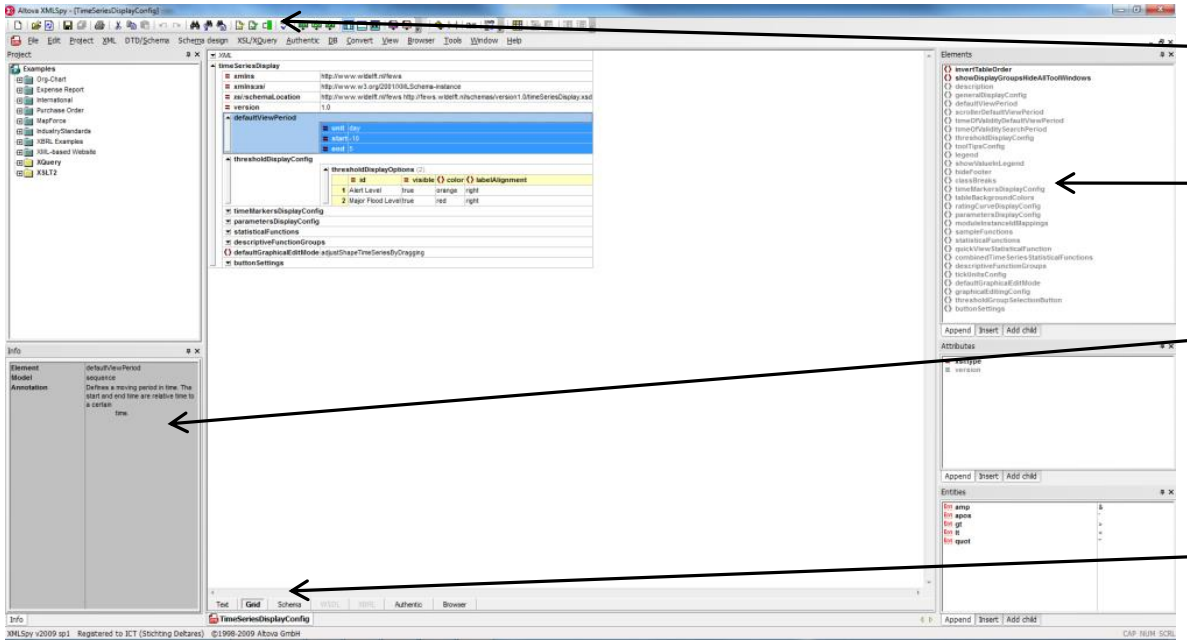
# What is an XSD?

- XSD = XML Schema Definition
- Defines the building blocks of an XML document
- Defines the order in which these elements can be included
- XML is valid when organized according to the (open) schema XSD.
  Every time you start a Delft-FEWS application it checks if all configuration files are valid
- XSD files are available
  - on the internet (www.wldelft.nl/schemas/version1.0/)
  - in a zipped file in the 'bin' folder (Delft_FEWS_schemas.jar)

# XML Editors

An XML editor is required to edit and validate XML files

- XML-Spy is a nice editor, however it is not free: https://www.altova.com/xmlspy-xml-editor
  - A free trial can be downloaded from website
- XMLPad is free http://www.wmhelp.com/



Validate XML file

Available XSD Elements

Info from XSD files

Grid view

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# Module Summary

- Delft-FEWS configuration is largely made of xml configuration files.
- This is the instructions for the java code.
- Files and folders sometimes have fixed and sometimes flexible naming structure. When flexible, they often have to be registered in a separate file.
- The Config folder is located in the Region Home folder, as are most key files.
- Working with xml files with an xml editor allows them to be validated. This is very useful!

# Next Steps

- Delft-FEWS runs structured workflows to accomplish user defined tasks.
- These workflows contain modules, which are discrete units of work (import, preprocess, etc..)
- All workflows and modules are registered to keep track of them.
- Learning how to use workflows and modules will allow you to build your own processes!

# Additional Resources

- Google “Delft-FEWS WIKI”
- Google “Delft-FEWS Configuration Guide”
- Google “Delft-FEWS Forum”
- Email fews-pm@Deltares.nl