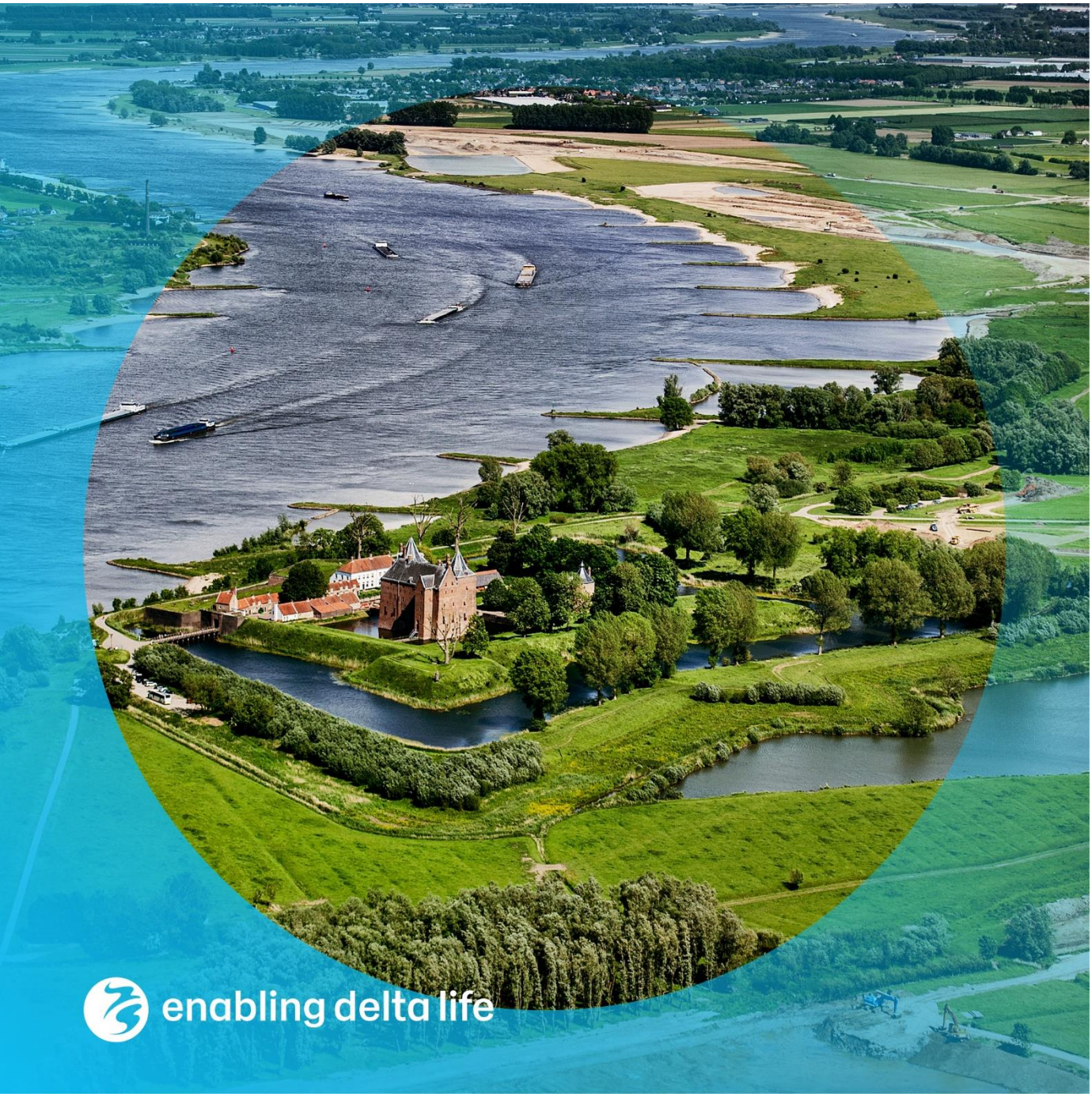
Deltares

Delft- FEWS 2020.01

Release Notes



Delft- FEWS 2020.01
Release Notes

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Summary

This document contains the release notes for the Delft-FEWS Stable Release 2020.01.

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1 Introduction

This document contains the Release Notes of the Delft-FEWS version 2020.01.

This Delft-FEWS version contains several features part of the Delft-FEWS Vision 2025. This new vision is working with ‘yearly roadmaps’ in which Delft-FEWS product management would like to include ‘general improvements’ to the software and to its software development process which are of benefit to all our users. More information on the Delft-FEWS Vision 2025 and the yearly roadmaps can be found on the Delft-FEWS Community Portal.

Roughly around **120 new features** (paid by implementation projects, existing clients etc.) have been implemented.

Besides the Delft-FEWS Client-Server system, this document will also highlight the new features in the Delft-FEWS web services and the (Deltares) Open Archive.

Like in previous documents describing a new Delft-FEWS version, references to (new) WIKI pages can be found in here, like the installation and upgrade page (from 2019.02) for this version.

The complete overview of new, implemented features and fixed bugs can be found in the appendices and on the release notes page on the Delft-FEWS WIKI.

2 Delft-FEWS client-server system

2.1 Server side

An installation of or an upgrade to 2020.01 follows – in general - the new and simplified installation and upgrade steps described on the Delft-FEWS WIKI. Both procedures have a large overlap in terms of number/types of steps. We strongly recommend following the special upgrade path pages (from a certain version to the next version). An overview can be found here: Upgrade paths – overview.

On request Linux RPMs or MS Windows MSIs can be provided. Some instructions may be required (by our ICT colleagues). The following components are deployable via an RPM or MSI.

RPM and MSIs for:
- Delft-FEWS Master Controller
- FSS Launcher

RPMs only for:
- Tomcat9
- Delft-FEWS HTTPS Proxy
- Delft-FEWS Web services
- Delft-FEWS Open Archive

If you are interested in using RPMs (or MSIs), please contact fews.support@deltares.nl or fews-pm@deltares.nl

Important aspects with respect to the backend of the client-servers system are:

Master Controller
No special remarks for installing this component

Admin Interface and Admin Interface API
The admin interface (AI) and its API has been extended. Installation is 'as normal'
How to use the AI API is well explained on the WIKI pages which you can find in the link but are also accessible from the AI itself (from the *Documentation* menu).

Unmapped workflows are now easily recognizable by a red background. When an FSS group header is green, all workflows are allowed to run in that FSS group. Download and upload of multiple event action configuration have been simplified/enabled.

FSS (launcher)
The FSS launcher is now resilient against system (wall) clock time jumps and drifts. The 2018.02 or 2019.02 launcher can still be used for the 2020.01 but without this enhancement.

Database
Although the concrete feature was already implemented in 2019.02 it is good to make a remark about the grid data optimization also in this version of the release notes. Some clients may skip 2019.02.

With respect to storage of gridded data in the datastore (and central database) the data will be split from the meta data. This means that before 2019.02 the gridded data was (like the scalar data) stored in one blob together with the min/max, quality labels etc. Now (from 2019.02 onwards) this metadata is in its own blob and there are 26 additional columns available in 1 record to store the actual data (columns are named [a-z]). This means less records and a higher performance. E.g. the spatial display showing the slider with min/max values is loaded 'immediately' since this only comes from this meta data column and does not have to be 'calculated' anymore.

There's a temporary hybrid situation and no data conversion has to take place for this. Existing gridded data (IN the database at time of upgrading to this version) will be untouched. Only newly imported grid data will be stored in this new format. Once the 'old' stored gridded data expires you will experience the improved way of storing gridded data to the fullest.

Due to this change in the database structure in the 2019.02 it is not possible to use roll back scripts to a version from before the 2019.02. So, if you upgrade to the 2020.01 from a version before the 2019.02 then you cannot use apply roll back scripts to the Delft-FEWS central database.

Recommended EXTRA CHECK table space (data)
Since gridded data is stored differently, this might influence the (default) settings of your tablespaces. Please verify this link in case you have Oracle or Microsoft SQL Server

Java version (embedded)
The Java Runtime Edition included in this version of Delft-FEWS (OC/FSS) is 'Amazon Coretto' (11.0.7) distribution of OpenJDK.

2.2 Client side

From the Delft-FEWS Operator Client side a number of striking new elements are available in 2020.01. Below just a few highlights.

Extended support for selecting and visualizing ensembles
In the Manual Forecast Display, you can now select the ensemble-member indices you want to run in the next workflow. In the Timeseries Display selection of a certain member is visible in all plots. From the grid display you can also easily get all ensemble members (instead of only the 'main') visible without additional configuration.

Schematic Status Displays (click actions)
The Schematic Status Display (plots/panels) could already be shared via a (WMS) webservice (2019.02 feature) but that has been extended it with "click actions" (like available in the OC) also in that same service. By applying these, users can navigate to other SSD plots by clicking on them and open the timeseries of a location in a graph.

Efficient storage of NetCDF reference (grid data)
What's new in 2020.01 with respect to storage of 'remotely available' NetCDF files (mostly grids) is that only the *references* to the files are stored. The data itself is left on the file-server (in the original NetCDF files). Only when a user *requests* the data to be viewed or processed, the data will be 'downloaded' and directly sent to the Grid Display or Transformation module. This saves a substantial amount of data in the database and is an example of 'leave large data at the source' approach (and do not store it multiple times)!

True color imagery (3 bands)

True color imagery, like Sentinel-1 and Sentinel-2 data can now be (efficiently) imported as a (spatial) timeseries (3 time series representing the red, green and blue colors from the original satellite image) and visualized. Data from e.g. https://scihub.copernicus.eu/ can be accessed and imported.

Spatial Display: support for seamless integration (external historical grids)

Like in the Timeseries Display, the Spatial display now also supports seamless integration for external historical data (grids). Per plot, users can look for the 'missing' (expired) data by actively querying the catalogue for the relative view period of that plot. If the response is positive, data is available in the archive (or in another source, like the external NetCDF storage). With one click on the button, the user can visualize this data in the Spatial Display. Once closed the 'downloaded' data has been gone, so these queries will not fill up your local datastore or central database.

Timeseries Display and Explorer

New in the Timeseries Display is that users can dynamically build the filters based on location, parameter or qualifier attributes using the 'groupBy' option. In the graphs you can directly jump to the first or last timestep of that timeseries. In the Explorer, locations NOT visible on your map can be removed from the list with a new toggle option in the context menu and you will be notified with a new icon in the status bar if a 'scheduling of task' is about to expire. This is particularly handy when a task has been manually scheduled for a specific period and another forecaster takes over the duty, so they are warned that an action is needed soon when the manually scheduled task is about to end.

Memory Indicator Status Bar

The memory indicator now shows all used memory including the non java memory. The memory reported is now around 500MB higher compared to the 2019.02. The actual memory usage is lower due string compression and deduplicating of information in the display groups. Details of the used memory is logged by using F12, database, log database info,

3 Delft-FEWS 2020.01: Web services

The Delft-FEWS web services is the complete collection of web services offered by Delft-FEWS.

The following aspects are worth mentioning for the 2020.01 version:

WMS: search for forecasts (seamless integration)
A lot of new functionality is available in the combination of FEWS webservices and the Deltares Open Archive. Via WMS new functions (end points) are available for searching and downloading forecasts and visualizing this in a 'web viewer'. All of these functionalities are also included on the 'test pages' which are available once the FEWS webservices have been installed. It's a handy feature to test the queries and inspect the responses before embedding this in a web framework (e.g. html5) to build a web viewer or web site querying Delft-FEWS via one of its webservices.

SSD webservice extended
Click actions – available in the OC – are supported. A location can be clicked in order to view the corresponding graph. The webservice supports retrieving the data via the REST webservice to be plotted in a web viewer / web site.

4 Delft-FEWS 2020.01: Open Archive

For the Open Archive, the following aspects are relevant for this version.

External NetCDF Storage
Externally stored NetCDF files which are not exported from Delft-FEWS can now be 'harvested' by the Open Archive catalogue. In this way, the collection of sources (where to find the data users are looking for) has been extended. A good example of this is the vast amount of MATROOS data of Rijkswaterstaat (NL). This collection of scalar (1D), 2D and 3D data will be made available through their version of the archive. Adding externally stored NetCDF files might be useful for many clients, especially if it will be extended to OpenDAP supported formats like GRIB and BUFR (planned for 2020.02!)

Seamless integration
Seamless integration is the concept that data can be found and retrieved whether it is available in the operational database, the Open Archive or in another coupled source like the external NetCDF storage (see above). The seamless integration is used to query and visualize data from different 'angles' like: Delft-FEWS Displays (Timeseries Display, Spatial Display, Archive Display), Delft-FEWS Transformation Module and the WMS (web) service. This seamless integration also distinguishes the different timeseries types (external or simulated and historical or forecast).

New in 2020.01 are:
- External historical 2D gridded datasets via Explorer (Spatial Display) and WMS
- External forecast 2D gridded datasets via WMS and REST webservice
- External historical and external forecast 1D data via PI REST and Operator Client

A New features/fixed bugs

All new features and fixed bugs in 2020.01 can be found on the release notes page of the WIKI.

- List of new features of 2020.01
- List of fixed bugs in 2020.01

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