# Delft-FEWS 2018.02 Stable Release

**Release Notes**

**Title**
Delft-FEWS 2018.02 Stable Release

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**Summary**
This document contains the release notes for the Delft-FEWS Stable Release 2018.02.

**References**
Place references here

| Version | Date | Author | Initials | Review | Initials | Approval | Initials |
|---|---|---|---|---|---|---|---|
| 0.1 | jan. 2019 | | | | | | |
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**Status**
final

# Contents

# 1 Introduction

This document contains the Release Notes of the Delft-FEWS version 2018.02.

This version contains – compared to Delft-FEWS 2017.02 (and the internal Delft-FEWS 2018.01) another set new features and concepts developed under the Delft-FEWS 2020 roadmaps project for the Delft-FEWS client-server system, the Delft-FEWS PI Webservice and the Deltares Open Archive.

These release notes have special attention for the upgrade steps related to these new functionalities and concepts available in 2018.02. In the sections following this Introduction, references are made to the online Delft-FEWS documentation WIKI. In a number of references, installations aspects are described. For this section on the Delft-FEWS documentation WIKI you need login credentials. If you require access to these pages, please contact Delft-FEWS Product Management at fews-pm@deltares.nl.

Besides the *Delft-FEWS 2020* features, several other functionalities have been added and bugs have been solved. The lists containing all new features and solved bugs can be found in the appendices.

# 2 Delft-FEWS 2018.02 Release

## 2.1 Delft-FEWS 2020 Roadmap aspects in this release

As mentioned, the Delft-FEWS 2018.02 release is the *third* release containing new features and concepts developed in the Delft-FEWS 2020 project. For completeness we provide an overview what was planned and realised in previous versions and what has been realised in this version.

### 2.1.1 Delft-FEWS Client-Server

The original planning of what features to develop for which version can be found in the image below. The green indicated features have been developed in earlier versions.

| 2017.02 | 2018.01 | 2018.02 |
|---|---|---|
| JMS removed | | |
| New MC | | Prepare integration MC/AI |
| New Database Schema | | |
| Current Admin Interface adjusted | | New Admin Interface |
| New (MC-MC) Synchronisation | | New Admin Interface webservice |
| New RollingBarrel | | |
| | Secure login/https | |
| | Basic Scalability | Improved scalability |
| | Cloud-preparation Azure | Cloud-ready Azure |
| | Improved security | |
| New install procedure | Improved install procedure | Simplified install procedure |
| New upgrade procedure | Improved upgrade procedure | Simplified upgrade procedure |
| New (WIKI) documentation | | |

The following aspects were planned in 2018.02.

- Use of Java 11 (OpenJDK)
- New MS SQL Server driver
- Administrator Interface, include REST web service
- HTTPS proxy
- Forecasting Shell Servers Registration (FSS Groups)
- Scalability of Forecasting Shell Servers
- Preparation of the integration of the MasterController and Admin Interface code base
- Enabling installation on the Azure cloud
- Simplified install/upgrade procedure
- New documentation

The details of the realised *Delft-FEWS Client-Server* features and concepts can be found in Chapter 3.

### 2.1.2 Delft-FEWS PI web service

The original planning of what features to develop for which version can be found in the image below. The green indicated features have been developed in earlier versions.

| 2017.02 | 2018.01 | 2018.02 |
|---------|---------|---------|
| Simplify installation and configuration | Option in installation procedure Delft-FEWS | Part of install procedure Delft-FEWS (optional) |
| Improved testability | Improved performance and stability | |
| PI-XML SOAP/REST alignment | | Data streaming/chunking/thinning |
| Improved security and authentication | | |
| JSON Support | | |
| | | Seamless integration of grid data |
| | | Web Mapping ~~Tile~~ Service (WMS-T) |
| Improved documentation | Improved documentation | Improved documentation |

The following aspects were planned in 2018.02.

- Use of Java / OpenJDK 11
- Simplified install/upgrade procedure
- Data streaming/chunking/thinning
- Seamless integration of grid data
- WMS in PI Webservice
- New documentation

The details of the realised *Delft-FEWS PI web service* features and concepts can be found in Chapter 4.

### 2.1.3 Deltares Open Archive

The original planning of what features to develop for which version can be found in the image below. The green indicated features have been developed in earlier versions.

| 2017.02 | 2018.01 | 2018.02 |
|---------|---------|---------|
| PI Webservice for Open Archive | | |
| Improved harvester | | |
| Improved Data management Tool | | |
| Health Checker | | |
| | | |
| Search & select forecasts/seamless integration | | |
| Improved documentation | Improved documentation | Improved documentation |
| Course materials | | New Elasticsearch version |
| | Restyled System Admin Page | |
| Improved installer | Option in installation procedure Delft-FEWS | Option in installation procedure Delft-FEWS |

The following aspects were planned in 2018.02.

- Use of Java / OpenJDK 11
- New Elasticsearch version (version 6.4.2)
- Simplified install/upgrade procedure
- New documentation

The details of the realised *Deltares Open Archive* features and concepts can be found in Chapter 5.

2.1.4 Outlook: Installation process after implementing 2018.02

Once this 2018.02 version is installed on your (virtual) servers, the majority of the Delft-FEWS 2020 planned features are available for you. An important goal of the Delft-FEWS 2020 project was to make the upgrade process simpler and less time consuming. Users will notify this when upgrading to 2019.01 in the (near) future.

**2.2 Remaining roadmap functionality: 2019.01 or later**

From the original planned features, a number have not been implemented yet, but are on our list for 2019.01 or later.

| Client-Server 2019.01 or later | PI webservice 2019.01 or later | Open Archive 2019.01 or later |
|--------------------------------|-------------------------------|-------------------------------|
| Full integration MC/AI | | Harvester for non-FEWS data |
| | | Example implementation Deltares Data Viewer |
| | Finalize security | |
| | Seamless integration of grid data | |
| | WMTS / improve WMS-T | Seamless Integration for grids |
| Cloud-ready Amazon | | |
| Finalise security | | |
| (almost) Automatic install procedure | | |
| (almost) Automatic upgrade procedure | | |
| Automatic system documentation | | |

More concrete we are aiming to implement these features within projects. The status is as follows:

Delft-FEWS Client-Server System

- Full integration of MC/AI code (planned for 2020.01)
- Cloud ready for Amazon (project in Q1/Q2 of 2019.01, expected to be in 2019.02)
- More security aspects (2019.01 and later)
- Simple deployment of client-server system (2019.02)

Delft-FEWS PI Webserver
- Seamless Integration of grid data (2019.02 and later)
- Improve WMS-T or implement WMTS (not planned yet)
- More security aspects (2019.01/2019.02)

Deltares Open Archive
- Harvester for non-FEWS data (in a project-proposal, expected: 2019.02 and later)
- Seamless Integration of grid data (2019.02 and later)
- Example implementation Delft-FEWS web viewer (in a project-proposal, expected: 2020.01 and later)

## 2.3  New Documentation WIKI features (Installation pages)

The Delft-FEWS Documentation WIKI for installing and upgrading Delft-FEWS has changed. Since the Delft-FEWS 2020 Roadmaps has resulted in other/less steps and sometimes in 'one-off' steps (mainly in the upgrade process) we have adjusted the structure of this part of the WIKI in the following way:

- *Installation* pages now contain specific version indicators
- *Upgrade* pages now contain 'upgrade paths' (2017.01 → 2017.02 etc) in which is referred to steps which are **Unchanged** or have **Changed** compared to the 'normal' upgrade procedure
- A clear indication whether it concerns Windows or LINUX have been added.

In general, the following WIKI annotations are visible throughout the installation and upgrade pages. A certain step can be opened in *another tab* (>>) or can be *expanded* (>) on the same page, see picture below.

| | |
|---|---|
| **Changed** | procedure differs greatly from earlier release version. |
| **Unchanged** | procedure is same as earlier release version |
| >> | Link that enables opening the information into a different browser tab. |
| > | Link that enables expanding the information underneath the indicated step |

## 2.4  Installation 2018.02: new installation from scratch

For system administrators. The installations instructions for about the component and installing from scratch can be found here:

- Delft-FEWS client-server system
- Delft-FEWS PI webservice
- Deltares Open Archive

## 2.5  Installation 2018.02: upgrade from a previous version

For system administrators. The installations instructions for upgrading from previous versions of Delft-FEWS components

- [Delft-FEWS client-server system – Migration paths overview](#)
- [Delft-FEWS PI webservice](#)
- [Deltares Open Archive](#)

# 3 Delft-FEWS Client-Server system

## 3.1 New concepts/components in 2018.02

### 3.1.1 Delft-FEWS Base build (binaries) stored in Central Database
The central database of Delft-FEWS now contains all libraries (jars/windows dll's/linux so) which are part of the Delft-FEWS FSS/OC package. For each library it is known in which version of Delft-FEWS it belongs. Many (existing, third party) libraries are not changing frequently so they can belong to more than one Delft-FEWS basebuild. In this way, optimal use of database storage is guaranteed because these libraries are only stored once.

More Info: [Delft-FEWS Central Database](#)

### 3.1.2 Use of Java / OpenJDK 11
Since the license and support policies of OracleSun java changed, Deltares decided to move to OpenJDK 11 to be included in Delft-FEWS 2018.02. The use of this java version has triggered the following new functionalities and installation aspects

- The Java version on backend servers need to be upgraded, see: [Delft-FEWS Installation – Install Java (step 1 of standard procedure)](#)
- Within the Delft-FEWS Forecasting Shell Server/Operator Client package Java is now included and does not have to be installed separately anymore. A more detailed description on what the Delft-FEWS 2018.02 FSS/OC packages contains can be found here: [Installing Java (2018.02 and later)](#)
- The LogCollectorService has been integrated into the various components of the Delft-FEWS software. There is no installation of a LogCollector in 201802, as there has been in 201702. Existing LogCollectorServices can be removed in 2018.02. This step is described in [Step 17 of the migration path 2017.02 → 2018.02](#)

### 3.1.3 Cloud: Microsoft Azure support
Installing Delft-FEWS on the Azure cloud is now possible. Also the use of Docker images managed by Kubernetes has been enabled.
The documentation [section](#) about this topic is work-in-progress.

### 3.1.4 User Management
User Management has become more strict (e.g. which user or user group is allowed to start the [Admin Interface](#) and/or the Configuration Manager). On the other side, we strongly encourage the integration with existing user management (authentication and authorization) systems like Windows AD (Active Directory).

### 3.1.5 Tomcat version upgrade and security aspects
With this version of Delft-FEWS Tomcat 9 is required. Details how to install and configure, please read and follow the instructions in the section: [Delft-FEWS Installation – Install Apache Tomcat](#)

### 3.1.6  Administrator Interface

The Administrator Interface (in short: Admin Interface or abbreviated: AI) has been completely renewed. A whole new look and feel and the possibility of accessing it via a REST webservice.

All usage details can be found in this section: Delft-FEWS Admin Interface 2018.02 and later

The highlights of the new functionality are:
*   roles/permissions: there is an 'admin' role and a 'viewer' role, so users can either have full access or just viewing permissions. What these roles can or cannot do is hard-coded.
*   the AI will be used for (future) uploads of the 'Delft-FEWS base-build'
*   the AI will be used for (future) uploads of the 'Delft-FEWS patch'
*   for scalability, the role and importance of "FSS Groups" has changed
*   workflow FSS mappings is now much easier to configure and change
*   the AI has a REST web service for accessing (querying, setting) system admin information

Installation aspects of the AI can be found in the Delft-FEWS Installation – Deploy Admin Interfaces section.

### 3.1.7  HTTPS Proxy

For accessing a Delft-FEWS server environment from outside a firewall a proxy needs to be installed. This needs to be installed with a new feature in this version. Installation details can be found in this section: Delft-FEWS Installation – HTTPS via a proxy – 2018.02 and later.

### 3.1.8  Operator Client package

The Operator Client (and FSS) package has changed. The zipped file in which this package is distributed now contains the following structure.

*   \bin→ all Delft-FEWS *.jar files
*   \bin\sources→ all enhanced/extended open source third party libraries
*   \bin\windows→ all required Windows DLL files / Delft-FEWS launching executables/services
*   \bin\windows\jre→ OpenJDK (Windows version)
*   \bin\linux→all required LINUX SO files / Delft-FEWS launching executables/services
*   \bin\linux\jre → OpenJDK (LINUX version)

To save hard disk space (especially in SA) users can remove either the complete windows folder (when you are running on LINUX) or the linux folder (when you are running on Windows).

A complete description of the new package can be found here: Delft-FEWS Installation – Operator Client – 2018.02 and later

### 3.1.9  Distributing the Delft-FEWS Package (FSS/OC)

The installation of the FSS/OC package has not changed. It is still an unzip activity. How to extract this in a logical and distributable place, please read the sections about the Operator Client and the Forecasting Shell Servers
*   How to (logically) install and distribute the OC
*   How to (logically) install a Forecasting Shell Server

### 3.1.10 Launching Delft-FEWS – Client applications

To launch Delft-FEWS 2018.02 Client applications: Stand Alone (SA), Operator Client (OC) or Configuration Manager (CM) a dedicated application – called **Delft-FEWS Shortcuts** - has been developed to create links to your SA, OC or CM in your Windows start menu or desktop.

How to use this application and how to distribute these links amongst your users, please follow the link: Launching Delft-FEWS
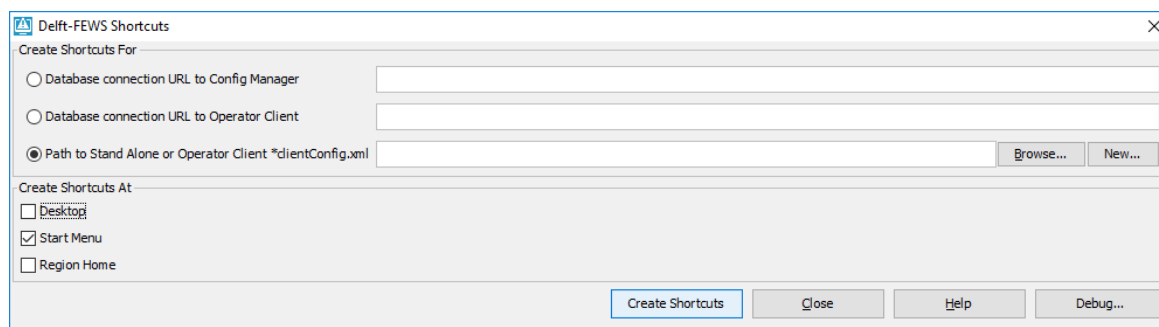


### 3.1.11 Launching Delft-FEWS - Forecasting Shell Servers

To launch the Forecasting Shell Servers a (mc)proxy is no longer needed from this version onwards. This feature has been replaced by a FSS Launcher application which will not be depending on the Delft-FEWS and java version. This application (or service) has been kept very simple will be installed once (in this upgrade) and will be 're-used' in the future. It is expected that this FSS launcher application will last a number of future Delft-FEWS versions.

The configuration of this FSS launcher application is determining what 'environment variables' will be set, how many FSS instances are allowed on the (virtual) machine. Servers can be shared amongst different MCs. This new approach is very flexible and supports 'scalability of FSSs'.

More information: Delft-FEWS Installation – Install Forecasting Shell Server – 2018.02 and later

### 3.1.12 Root Configuration

The root configuration required to start an OC, FSS, CM or SA has become more important in this version. The crucial file to 'manage' this is the **\*_clientConfig.xml**. This file and its content now determines what the 'start-up behaviour' is and which files should be downloaded from the database.

As an example: if an OC needs to start-up, in fact only the oc_clientConfig.xml and the Delft-FEWS binaries are required be present on the file system. The location of this oc_clientConfig.xml has also been used to create the shortcuts (links). References and settings IN the clientConfig.xml will all be read before starting Delft-FEWS.

A complete explanation of the (importance of the) different variants of the clientConfig.xml (for OCs, SAs, CMs and FSSs can be found here: Root Configuration for Operator Client and Forecasting Shell Servers.

### 3.1.13 User settings in central database

One of the root configuration files which will not be necessary anymore is the user_settings.ini. The content of this file is now stored in the central database for each user. What can be stored

in this file (like your windows layout, which buttons are visible etc.) has not changed. When an OC starts up and find a file in its root, it will read it (once) and stores it in the database. From that moment onwards the settings from the database will be used. F12 + U menu items are available to export these settings, reset to default settings again or import other ones.

3.1.14   Other points of attention upgrading to 2018.02
Although the migration path has been described in very much detail this section highlights some points of attention in the upgrade process to 2018.02
- Changed concept of Workflow Mappings

### 3.2   New functionality in 2018.02

3.2.1   Configuration Manager (CM) permission aware
The CM is now 'permission' aware depending on the user-id. Depending on the user group the user-id is in (Configuration Manager Administrator or Configuration Manager Viewer) which must be set by the Admin Interface, the user is allowed 'full' or 'read-only' access to the CM. This means that a 'read-only' access can only look at configuration files and revisions, inspect the content of a configuration file and export the configuration partly or completely. Besides that a 'read-only' access can open the System Monitor for inspecting the CM log messages. All other functionality is limited for 'full access' users (importing new files, restoring revisions and uploading configuration files). More information about the Config Manager can be found here: 20.2 Configuration Manager from  2017.02

3.2.2   Delft-FEWS Explorer look and feel
The Delft-FEWS Explorer has a fresh & modern (Windows 10) look and feel in which borders between panels and around windows have been removed or minimized.

3.2.3   Workflow dependencies in Workflow Navigator and Forecast Manager
The Workflow Navigator (from the Explorer - <F12> + K) and the Forecast Manager are now capable of showing the underlying dependencies (structure) of workflows even better. Configuration is required to enable this. More information here: FEWS Explorer – Workflow Navigator

3.2.4   Web Browser Display using a new package
In Delft-FEWS 2018.02, a new package (Java Chromium Embedded Framework  - JCEF) is taking care of launching this display. By default, this package is NOT installed and available through the Delft-FEWS libraries and need to be installed separately. Also some configuration adjustments are required to get this running if you were already using it in previous versions. All relevant information can be found here:  24 - Web Browser Display.

3.2.5   Miscellaneous other improvements and new features
Furthermore there are multiple new features to the TimeSeries Display (TSD), Spatial Display (SD), Schematic Status Display (SSD), new Transformations, Imports, Exports and model adapters have been added. Also the report module has been extended.

All new features and solved bugs can be found in the appendices.
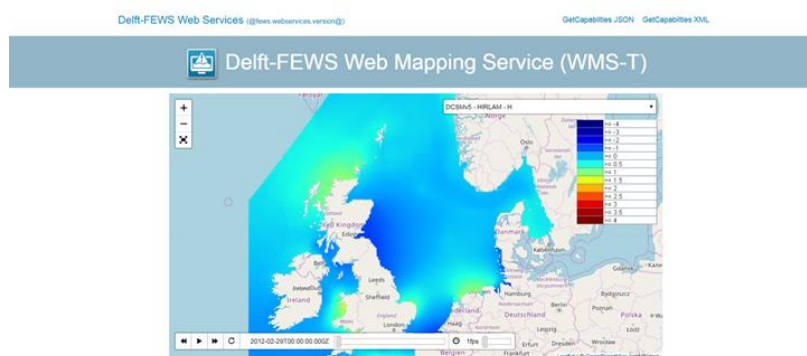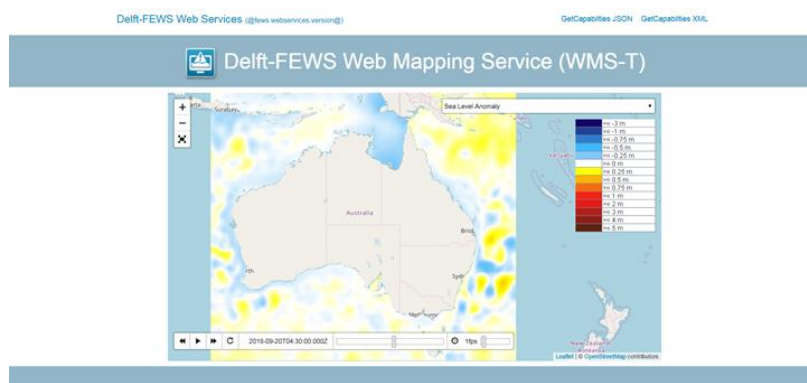
# 4  Delft-FEWS PI web service

## 4.1  New functionality in 2018.02

As mentioned in earlier sections, several new features have been added to the Delft-FEWS PI web service: retrieving simulated historical data, support for PI-JSON format and the (improved) implementation of Web Mapping Service with a Time component (see image below).

The Delft-FEWS Web Services are now configured to be in a read-only mode by default. To expose functionality like running workflows or writing time series to the PI Service, read-only mode has to be disabled explicitly.

General information about the Delft-FEWS Web Services can be found at: https://publicwiki.deltares.nl/display/FEWSDOC/FEWS+Web+Services

More information on the Delft-FEWS PI REST web service can be found here: FEWS PI REST Web Service





All new features and solved bugs can be found in the appendices.

## 4.2  Installation aspects of 2018.02

To install the Delft-FEWS PI Webservice 2018.02 or upgrade to this version please use the links below. Please be aware that version of the Delft-FEWS PI web service should match the Delft-FEWS client-server version.

- Delft-FEWS PI web service: Installing 2018.02 from scratch
- Delft-FEWS PI web service: Upgrading to 2018.02

# 5 Deltares Open Archive

## 5.1 New functionality in 2018.02

In the 2018.02 version of the Deltares Open Archive, new versions for the Elasticsearch (version 6.4.2) catalogue and Java (OpenJDK 11). Besides that, improved ways for data management within the archive is enabled. Now also incremental harvesting (only indexing the most recently added datasets) can be run. This means that the harvesting task should run more frequently but task runs shorter and the catalogue is up-to-date more often and earlier.
New installation documentation is also available

All new features and solved bugs can be found in the appendices.

## 5.2 Installation aspects of 2018.02

To install the Deltares Open Archive 2018.02 or upgrade to this version please use the links below. Please be aware that version of the Deltares Open Archive should match the Delft-FEWS client-server version.
•      Deltares Open Archive: Installing 2018.02 from scratch
•      Deltares Open Archive: Upgrading to 2018.02