Open Software Statement Delft-FEWS

Official Deltares Policy: Open Software
Deltares is an independent research institute and a non-profit organisation which makes its expertise available to stakeholders. Software and models are important means for the transfer of knowledge in a tangible form to our clients and the communities we collaborate with.

To enhance cooperation Deltares is developing software with an open architecture, applying widely used open standards and opening up software libraries, mostly available for free. This approach is described in the Deltares Open Software strategy [1].

Where possible and useful, Deltares is developing software in collaboration with (private) parties from outside the organisation, for example in user communities. The underlying principle here is, and will remain, that the software will be free and ultimately also open-source [2].

Deltares adopts the open source approach as a way to implement the Open Software strategy for range of software products like a number of Delft3D modules (FLOW, WAVE, WAQ) [1] [2].

For Delft-FEWS, the following implementation path is chosen.

Software strategy for Delft-FEWS
Delft-FEWS is a data management framework and modelling engine that binds data feeds and models in an operational context. The potential software customizations and adjustments to an operational (forecasting) system are plug-ins to the system. These extensions are e.g. simulation models, data imports and data transformations. Therefore, the software strategy for Delft-FEWS is centred on an open architecture, the application of widely used open (data) standards and Delft-FEWS being freely available.

Providing stable and robust software is important for Delft-FEWS since water managers and (flood) forecasters are using it in a 24/7 environment. This crucial aspect together with source-code management determines that forking of code is not desired. Centrally managed stable branches including delivery of version specific patches fits into this approach. Therefore, the core of Delft-FEWS is not distributed (closed source). The source code for certain extensions and the functionality combined in utility classes are available for inspection and in escrow if continuity of governmental tasks requires such.

The open architecture of Delft-FEWS enables other developers or external parties to 'develop around' and/or 'connect to' Delft-FEWS by means of (java) software classes or model-adaptors. Deltares encourages and supports external parties by defining and sharing open interfaces (APIs) and open standards. Besides that, Delft-FEWS has its own web service implemented for exchanging data with other applications.

The chosen implementation path of Deltares' Open Software strategy allows for developing a specific data import routine, coupling a dedicated model or creating a data-transformation by others and including this into your Delft-FEWS application.

Besides the technical considerations, our experience is that researchers and (PhD) students prefer simple availability of Delft-FEWS and little need for the source code. Moreover, the Delft-FEWS user community represented by the Delft-FEWS International Community Strategy Board (CSB) [3] has

indicated in its first meeting on the 28th of October 2015 that the current implementation of software *openness* meets the expectations and a step to a complete open-source strategy is not considered as an added value.

Conclusions

- Deltares has adopted an Open Software strategy since 2011;
- This strategy consist of: open architecture, open standards and open libraries (source);
- Depending on the Deltares software product an implementation path of this strategy is selected;
- For Delft-FEWS the focus is on open architecture and open standards;
- Providing stable and robust software is important for Delft-FEWS since water managers and (flood) forecasters are using it in a 24/7 environment.
- The potential customizations are on the periphery of Delft-FEWS: this is open. The core is closed-source;
- The world-wide user community (represented by the CSB) does not consider complete open-source as an added value.

References

[1] - Deltares Open Software: a strategic choice (2011)
[2] - Deltares Strategic Plan 2015 – 2018
[3] – Delft-FEWS International Community Strategy Board (CSB) consists of a representation of Delft-FEWS users worldwide which meet on a regular basis to discuss strategic topics. Board members are: Bureau of Meteorology (Australia), FOEN (Switzerland), National Weather Service (USA), Scottish Environmental Protection Agency (Scotland), Rijkswaterstaat (NL) and a representative of the Dutch Waterboards and Deltares

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