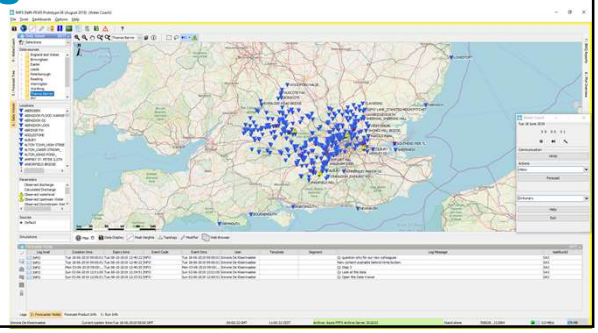
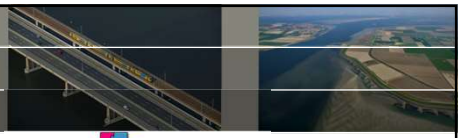
Deltares
Enabling Delta Life

WaterCoach training

Serious gaming environment for Delft-FEWS



Learning objectives



After this training, I understand

- The role of the WaterCoach in training
- The concept of Scenarios and scripts
- How to incorporate Learning objectives and competencies

After this training, I can

- Generate a scenario from the Open Archive
- Create a new WaterCoach script
- Set up a WaterCoach exercise

Deltares

Online references

https://publicwiki.deltares.nl/display/FEWSDOC/Water+Coach

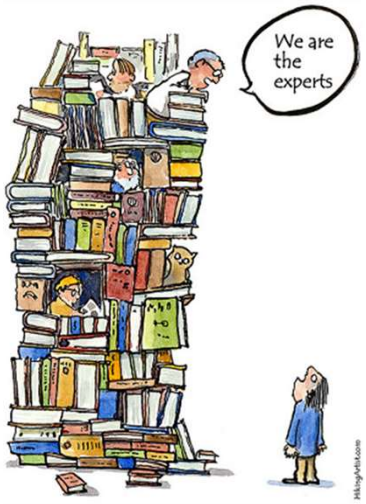
1. Full documentation of all WaterCoach features
2. Conference papers on the WaterCoach
3. Description of WaterCoach used in a Dutch national exercise
4. This presentation (to be updated after this training)
5. And more

https://publicwiki.deltares.nl/display/FEWSDOC/25.+Using+the+Deltares+Open+Archive

1. How to download data from the Open Archive

Deltares

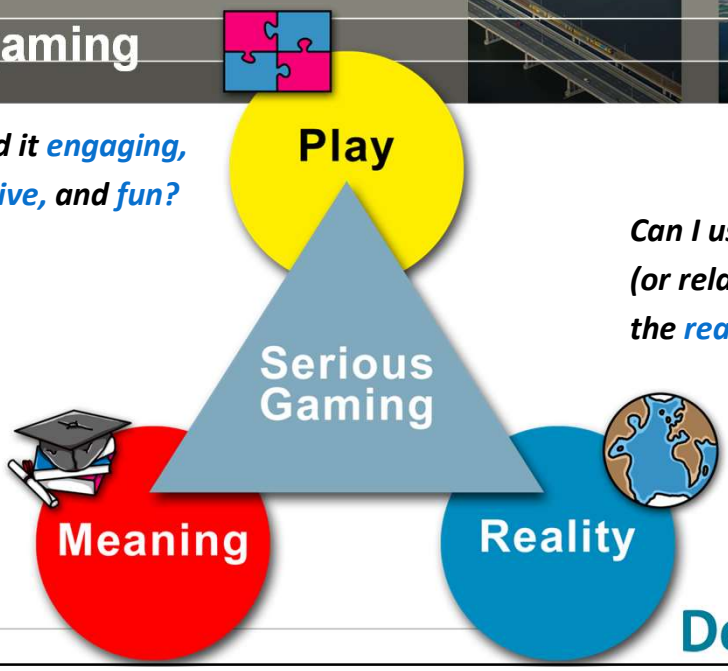
Learning and serious gaming



Deltares

Serious gaming

Do I find it engaging, immersive, and fun?



Can I use this in (or relate this to) the real world?

Do I retrieve any value from it?

Deltares

WaterCoach, or Delft-FEWS as Serious Game

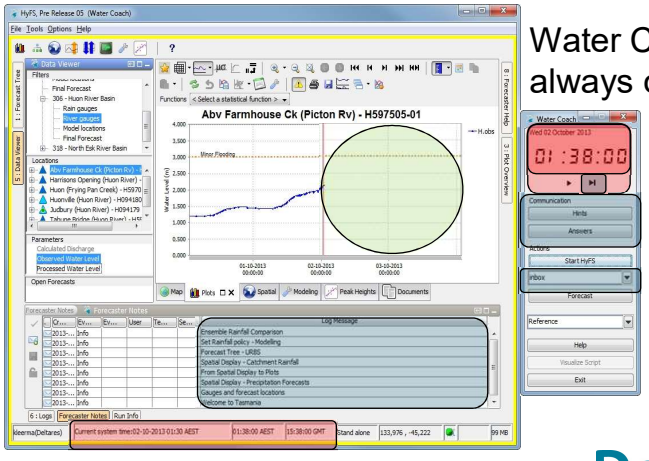
Delft-FEWS and WaterCoach arranged side by side

Yellow border = Training Mode

System Time in dictated by WaterCoach

Observations in "the future" are hidden

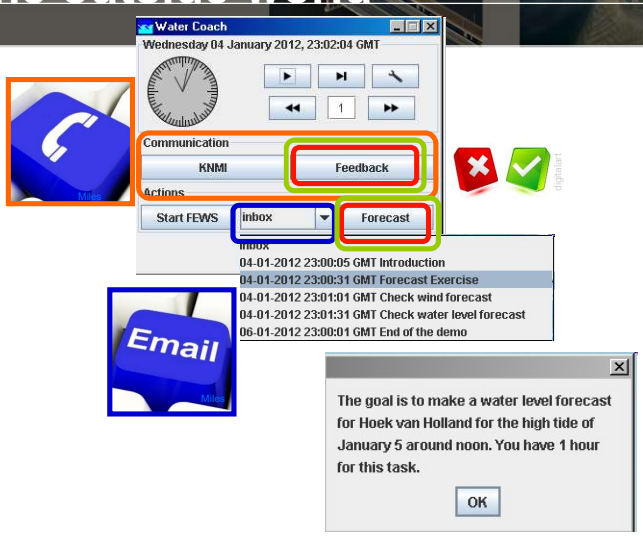
WaterCoach sends messages to Forecaster Notes



Water Coach always on top

Deltares

WaterCoach and the outside world



Deltares

WaterCoach – Scenario and Script

WaterCoach consists of

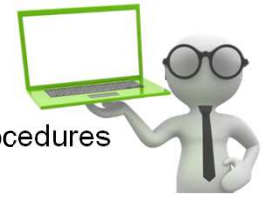
- Scenario - weather and water
  - > "Delft-FEWS localDataStore"
  - > Change the weather?
- Script - storyline that can be adjusted to aid the learning objective
  - > Communication log
  - > Published forecast
  - > Interactive script?

Deltares

WaterCoach – Exercise and Training

WaterCoach can be used in a

- Exercise (team)
  - > Script not required (or at least not the focus)
  - > Focus on team interaction, communication with externals
- Training (individual)
  - > Both scenario and script need to be developed
  - > Focus on training skills, content, procedures



Deltares

WaterCoach and learning objectives

Self study

How to….
- access information
- interpret information
- ask for information

Learning by doing

- teach each other
- experience other roles

Communication

- realistic
  - > format
  - > distractions
- conditional

Deltares

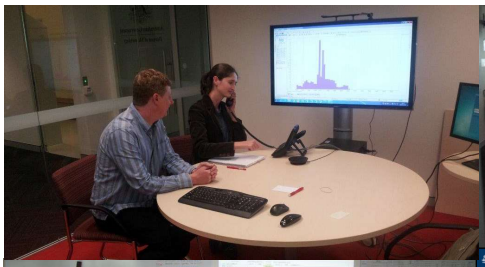
Deltares
Enabling Delta Life

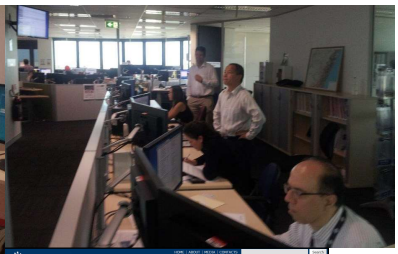
WaterCoach in action

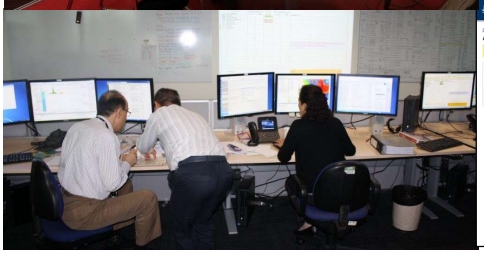
After this training, I understand

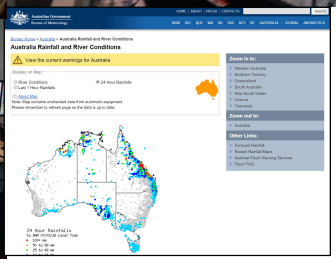
- The role of the WaterCoach in training
- The concept of Scenarios and scripts
- How to incorporate Learning objectives and competencies

WaterCoach at Bureau of Meteorology, Australia







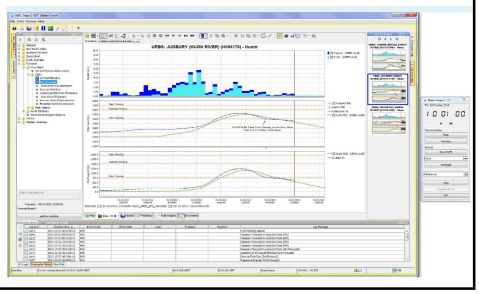


Deltares

Australian Government
Bureau of Meteorology

First use at Bureau

- Part of first end user training course
- Script based on a single 'minor' event in Tasmania
- Used for consolidation of learning/self-assessment
  - Navigating the HyFS System
  - Situational Awareness/Rainfall Grids
  - Forecasting with URBS



Australian Government
Bureau of Meteorology

Positive feedback received

What those who used Water Coach had to say…

- "very impressed"
- "lots of potential"

- Considered to be a useful tool in consolidating learning
- Requests for more scripts to be created and future potential was discussed
- All attendees now have access to Water Coach and the script on their desktops for further consolidation of learning

Australian Government
Bureau of Meteorology

Future Potential

Water Coach may be used for:

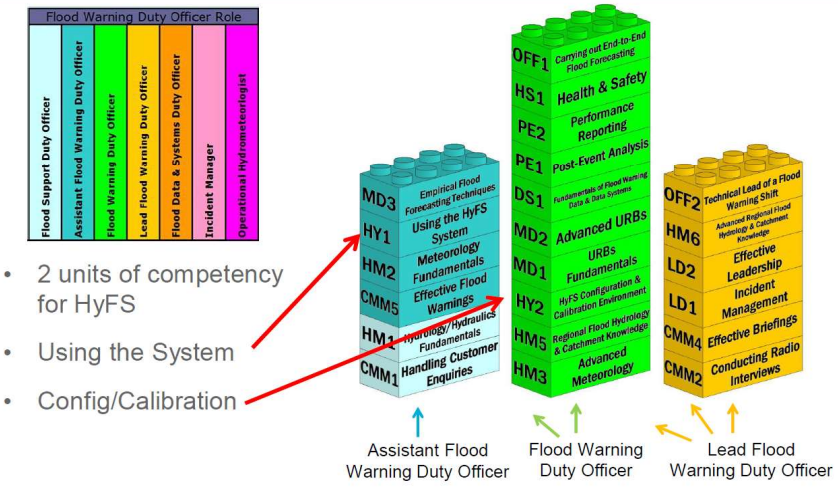
- **Training consolidation**
- **Competency Assessment**
- **Maintaining Skills**
- **Running Scenarios**

(multi regional and multi organisation)

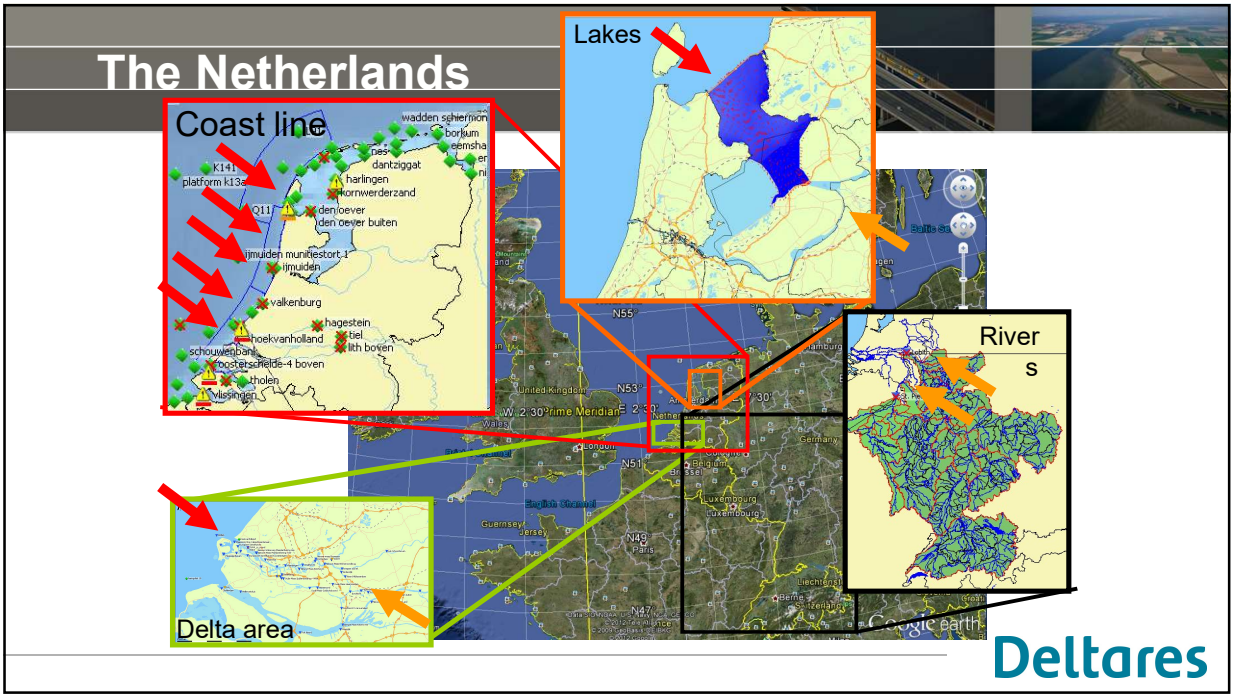
Limited only by imagination and available data
Data will be archived with events over time
Each script needs to have specific learning objectives
Multiple scripts can be created for the same data set

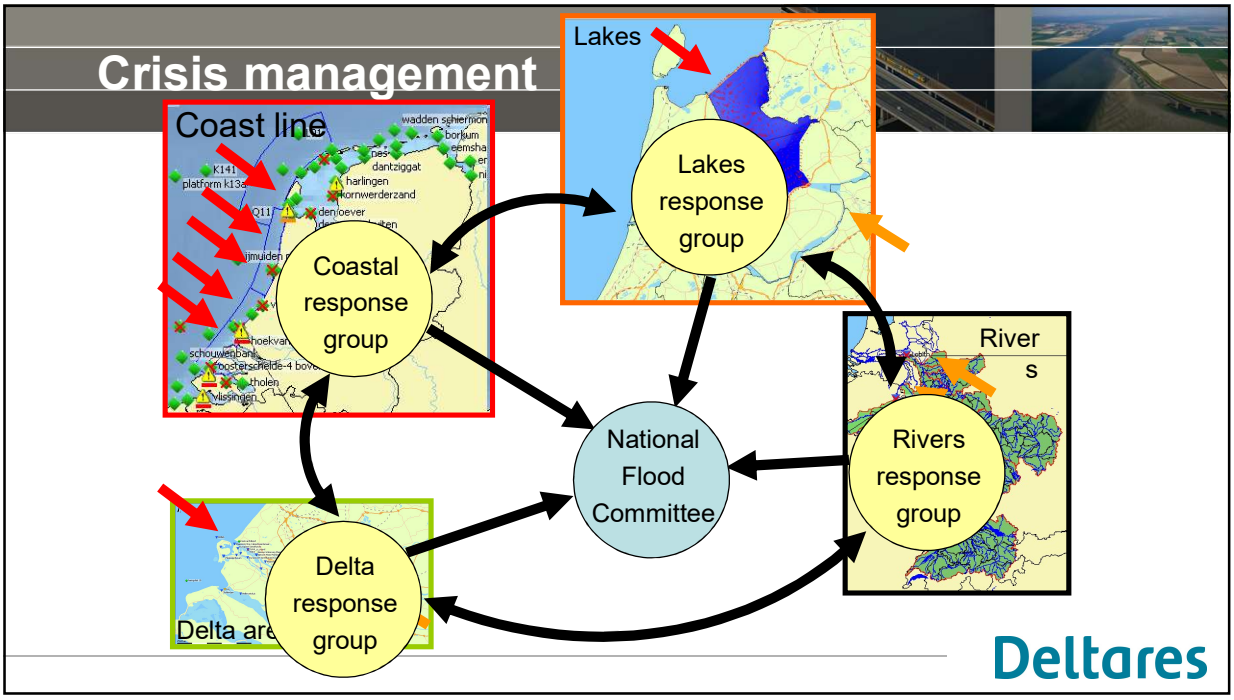
Australian Government
Bureau of Meteorology

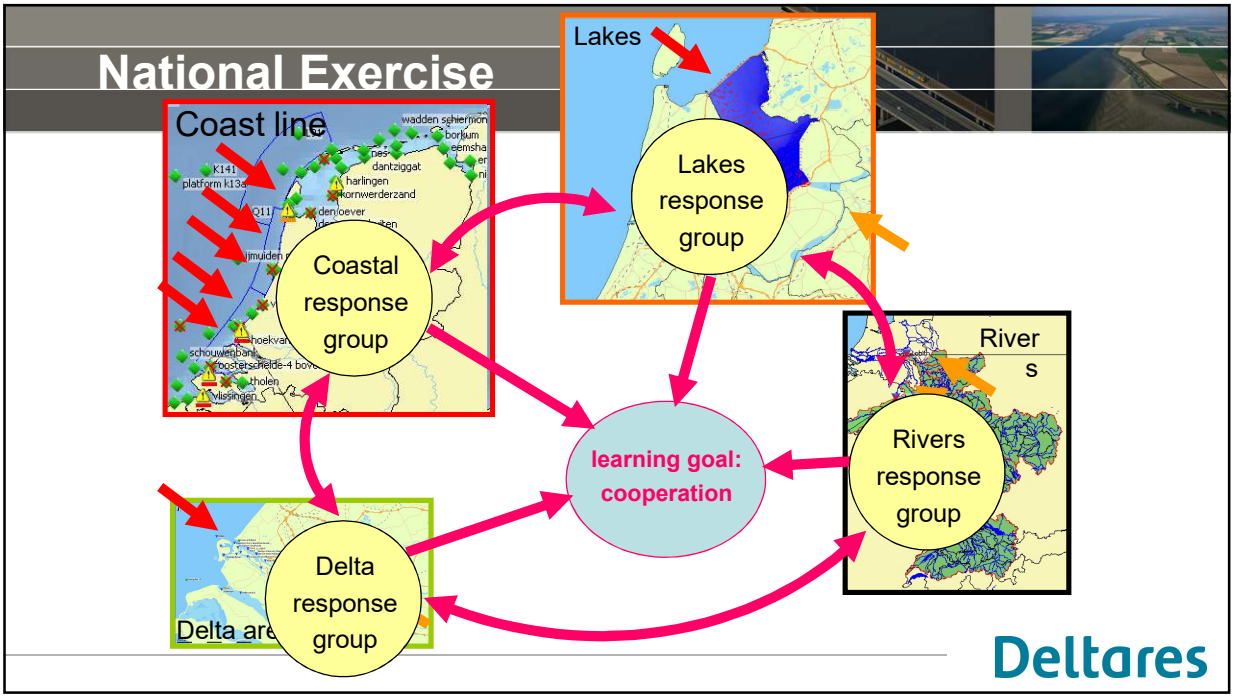
Flood Warning Competency Framework



- 2 units of competency for HyFS
- Using the System
- Config/Calibration


The Netherlands
Lakes
Coast line
River
s
Delta area
Deltares


Crisis management
Lakes
Lakes response group
Coast line
Coastal response group
River
s
National Flood Committee
Rivers response group
Delta response group
Delta are
Deltares


National Exercise
Lakes
Lakes response group
Coast line
Coastal response group
River s
Rivers response group
learning goal: cooperation
Delta response group
Delta area
Deltares


National Exercise
Coastal response group
Weather forecast
Delta area
National Flood Committee
Deltares

Evaluation

Observants

Questionaire

Group discussion

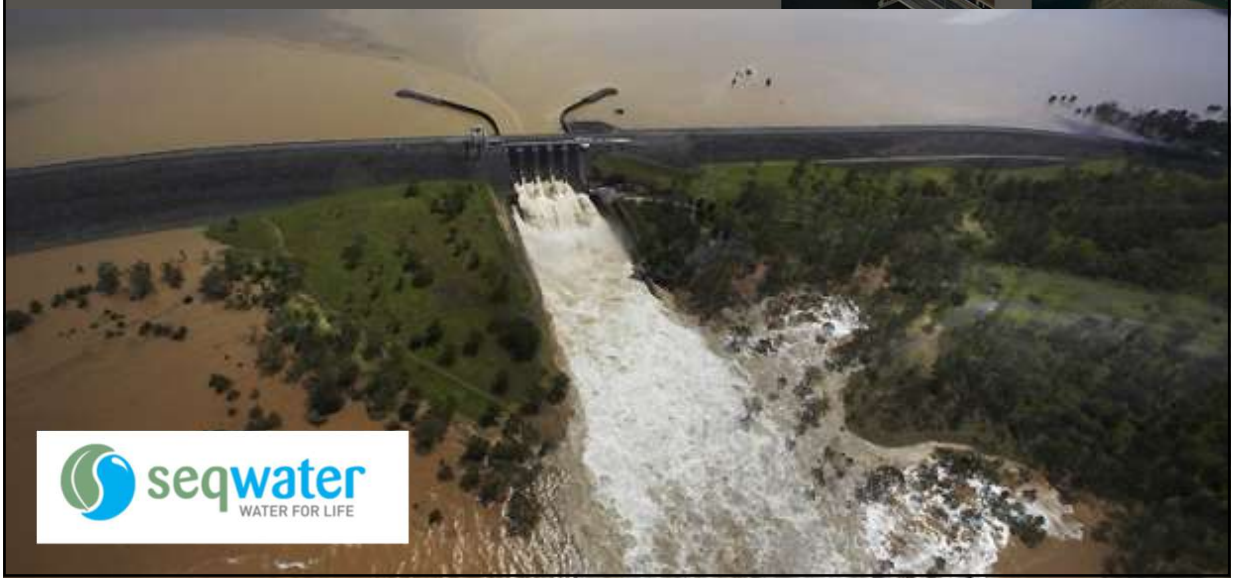
Conclusion:

- Very realistic
- Effortless
- Complete, consistent
- Common goal

Communication could be focus

Deltares

WaterCoach at Seqwater, Australia



Project Water Coach

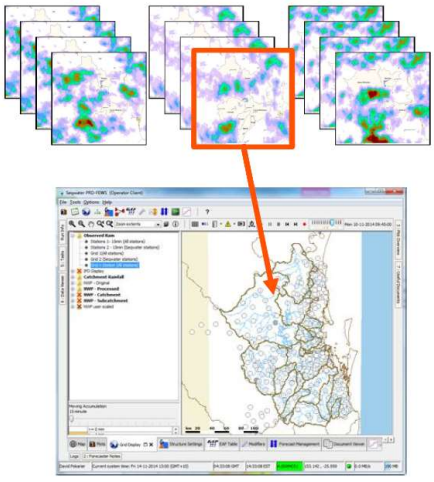
Training Using Synthetic Events

SOURCE STORE SUPPLY

seqwater
WATER FOR LIFE

User's Perspective: Step 1

User is assigned one synthetic rainfall event



1.1 When user opens Water Coach, one synthetic rainfall event is prepared for import

Configuration required

1.2 synthetic rainfall events were:

- Re-formatted and imported into FEWS
- Exported in NetCDF-Grid format

Deltares
Enabling Delta Life

Set-up WaterCoach environment

After this training, I can

- Set up a WaterCoach environment
- Generate a scenario from Open Archive
- Create a new WaterCoach script
- Set up a WaterCoach exercise

How to set up a WaterCoach environment

https://publicwiki.deltares.nl/display/FEWSDOC/How+to+set+up+a+training

To set-up a WaterCoach environment for your Delft-FEWS application take the following steps:

- Add a stand alone copy of the operational Delft-FEWS system (a few changes are necessary)
- Create the folder for the ScenarioScriptDatabase

Deltares

Changes to SA config

https://publicwiki.deltares.nl/display/FEWSDOC /Application+configuration

- create <My_WaterCoachDisplay>.xml
  - place in %REGION_HOME%\Config\DisplayConfigFiles\
- global.properties
  - add key WATERCOACH_SCENARIO_DATABASE_PATH
- Explorer.xml - add explorerTask for WaterCoach plugin

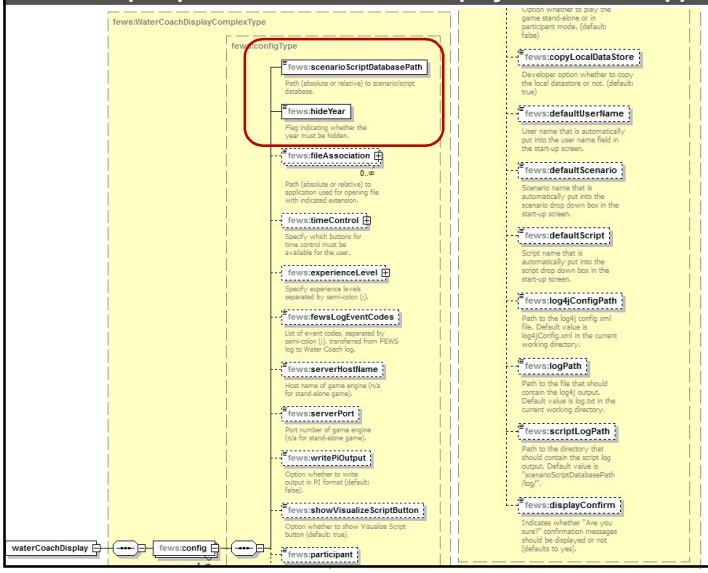
Optional

- Delay visibility of forecasts with <waterCoachDelay> in WorkflowDescriptors.xml
- Delay external forecasts with <waterCoachExternalForecastDelay> in ModuleInstanceDescriptors.xml
- Show specific external historical timeseries in the future (e.g. astronomical tide forecast or climatological data) with synchLevel=4
- Participant mode

Deltares

WaterCoachDisplay.xml

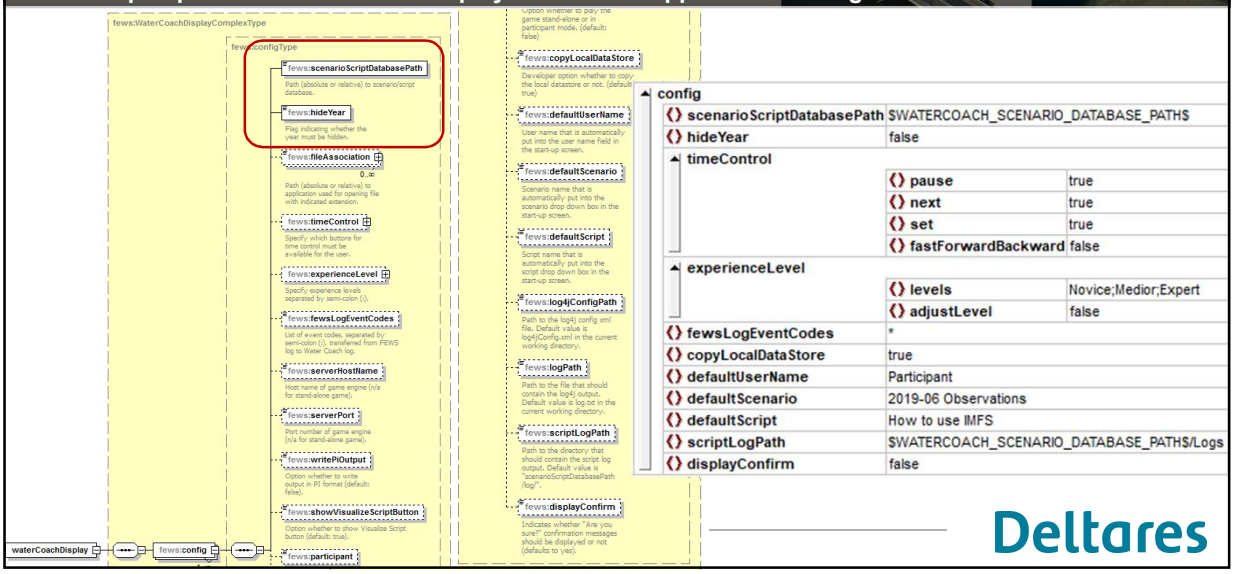
https://publicwiki.deltares.nl/display/FEWSDOC /Application+configuration



Deltares

WaterCoachDisplay.xml in IMFS_SA

https://publicwiki.deltares.nl/display/FEWSDOC /Application+configuration



Deltares

ScenarioScriptDatabase

https://<..>/FEWSDOC/Scenario+and+Script+database

A scenario directory must contain

- <u>one</u> localDataStore directory, which holds the pre-loaded Delft-FEWS database.
  When a WaterCoach scenario is started, this is copied to the Delft-FEWS region directory
- <u>one or more</u> script directories, each
  - <u>must</u> contain a <u>script configuration</u> file script_config.xml
  - <u>may</u> contain an arbitrary number of files that are associated with events specified in the <u>script configuration</u>

```
ScenarioScriptDatabase
|-- storm surge March 10-13
|   |-- localDataStore
|   |   `-- local.fdb
|   |-- novice
|   |   |-- script_config.xml
|   |   |-- exercise1_EN.txt
|   |   |-- exercise1_NL.txt
|   |   |-- start_session_EN.txt
|   |   |-- start_session_NL.txt
|   |   |-- telephone_call_EN.txt
|   |   |-- telephone_call_NL.txt
|   |   |-- weather_map_March12_00hr.pdf
|   |   |-- weather_map_March12_12hr.pdf
|   |   `-- weather_map_March13_00hr.pdf
|   |-- advanced
```

Exercise – Set-up Environment

https://publicwiki.deltares.nl/display/FEWSDOC/How+to+set+up+a+training

- Modify the stand alone version of your Delft-FEWS system

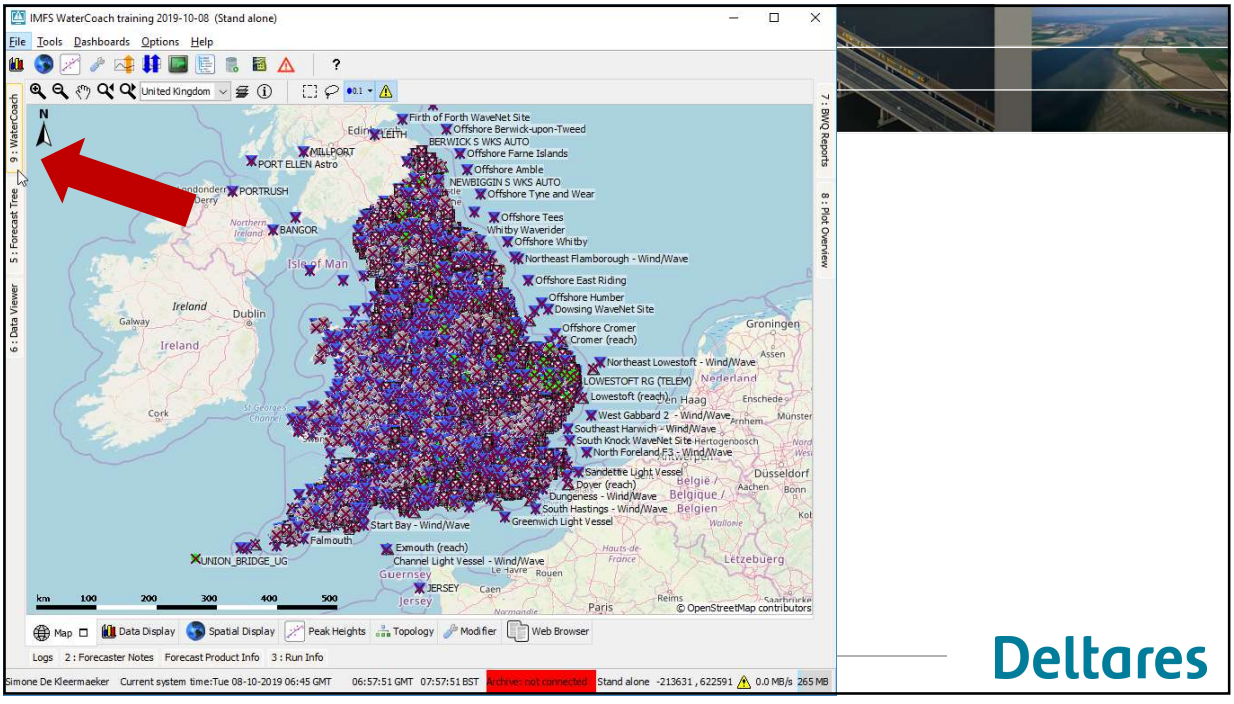
https://publicwiki.deltares.nl/display/FEWSDOC/Application+configuration

  - > section: Delft-Fews Configuration
  - > also take a look at the example WaterCoachDisplay.xml

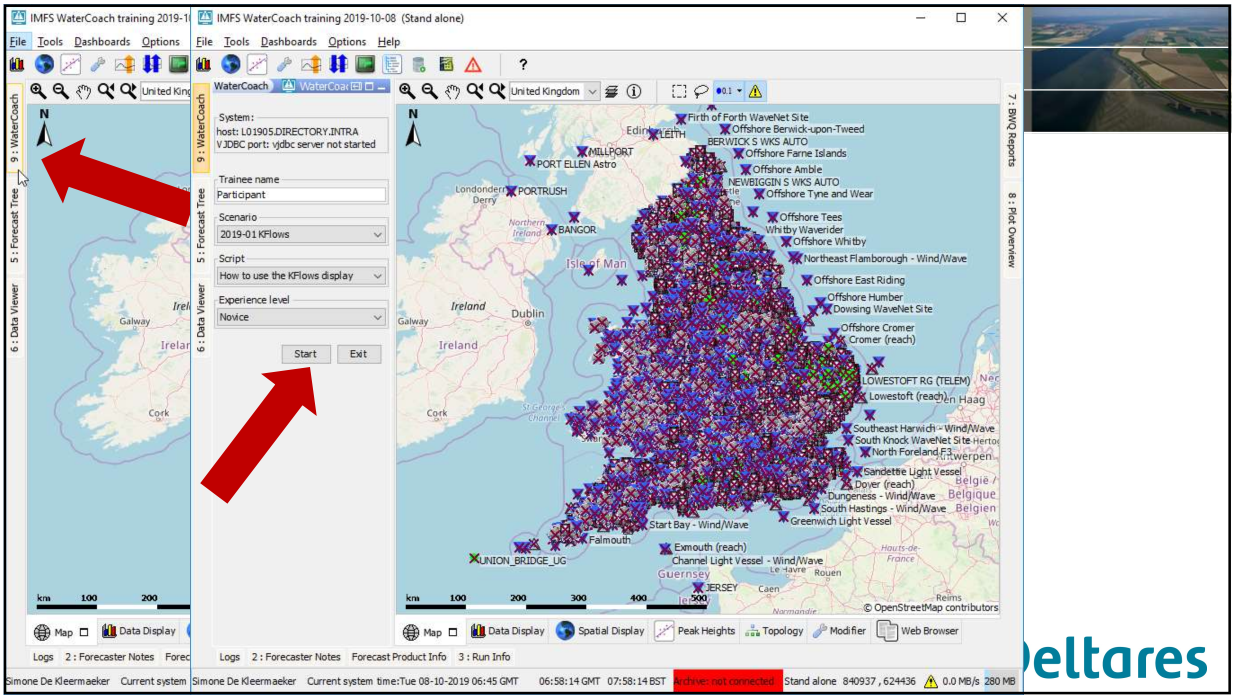
- Create the ScenarioScriptDatabase folder structure

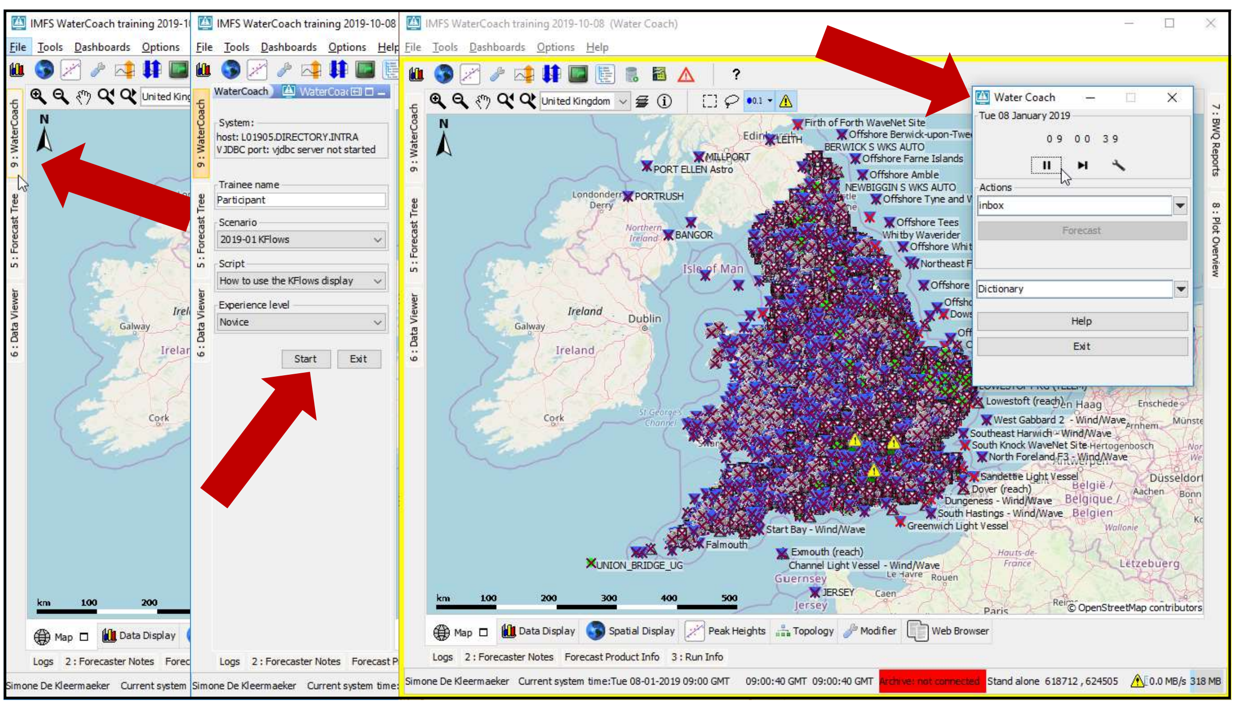
https://publicwiki.deltares.nl/display/FEWSDOC/Scenario+and+Script+database

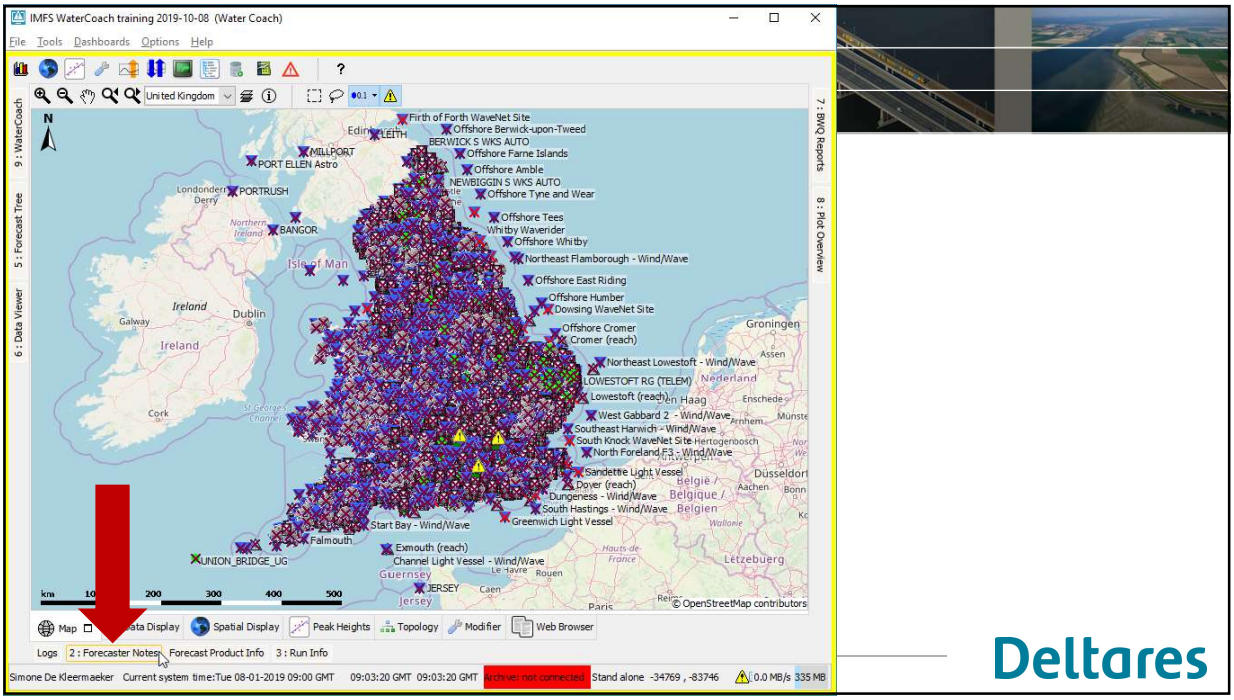
Deltares

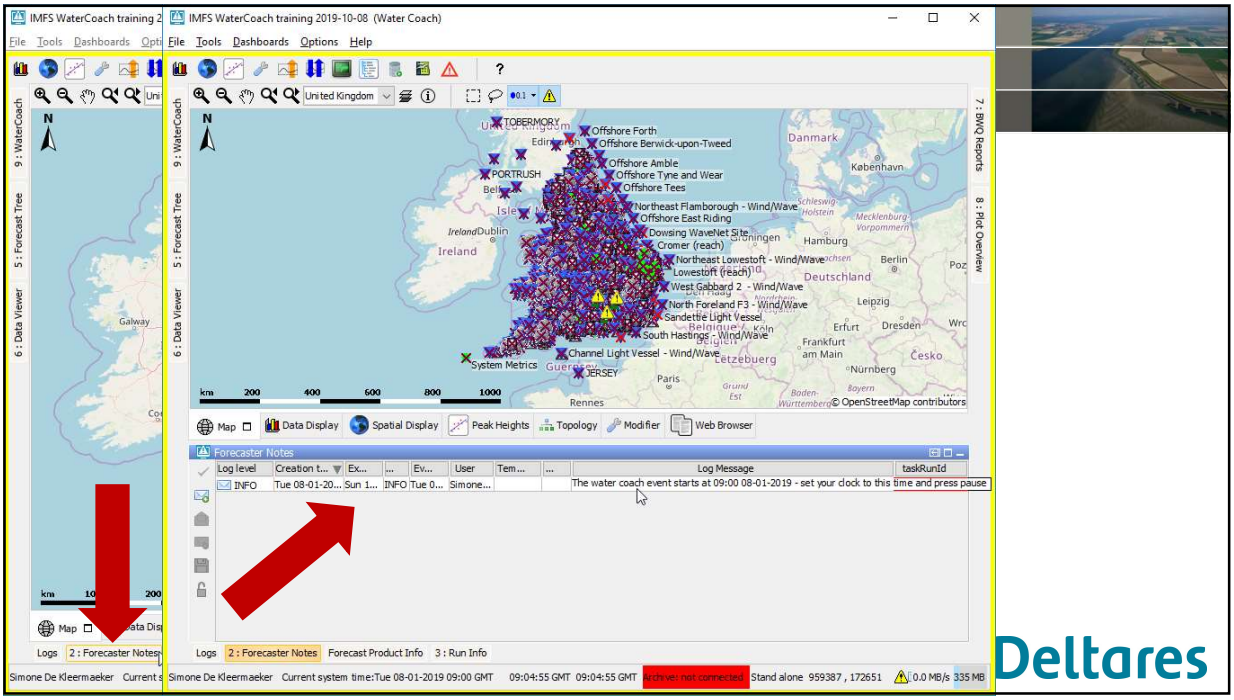


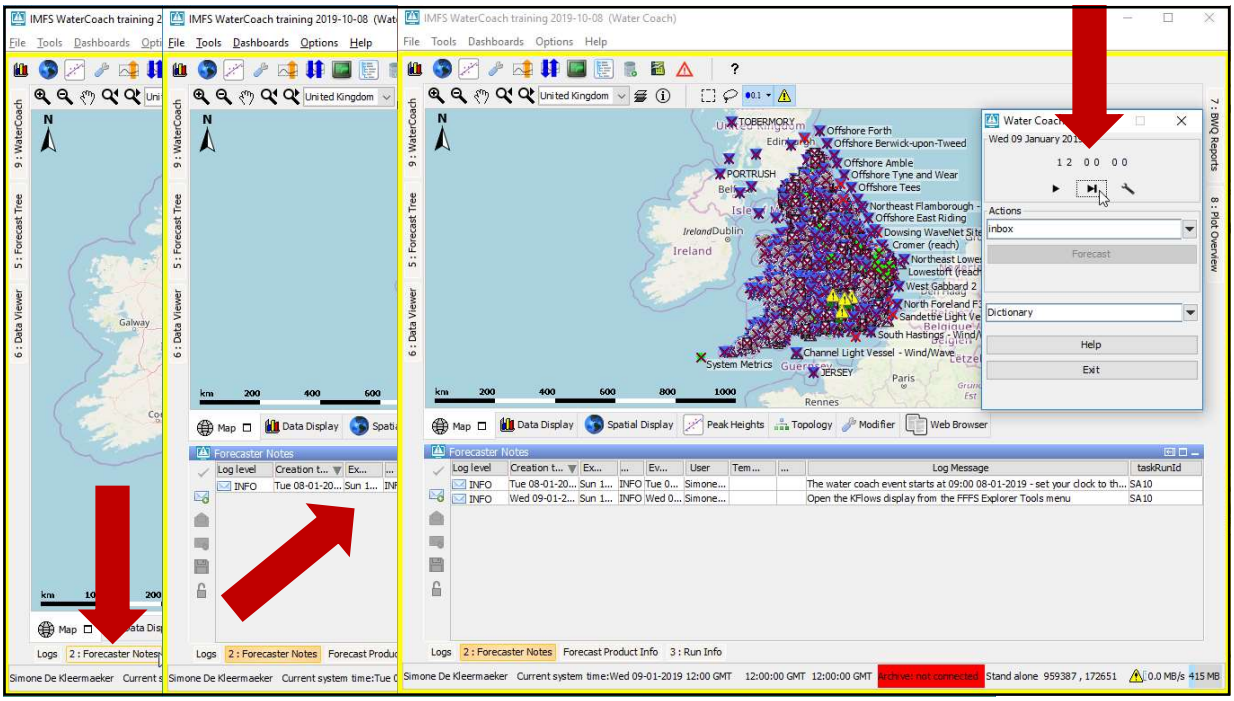
Deltares

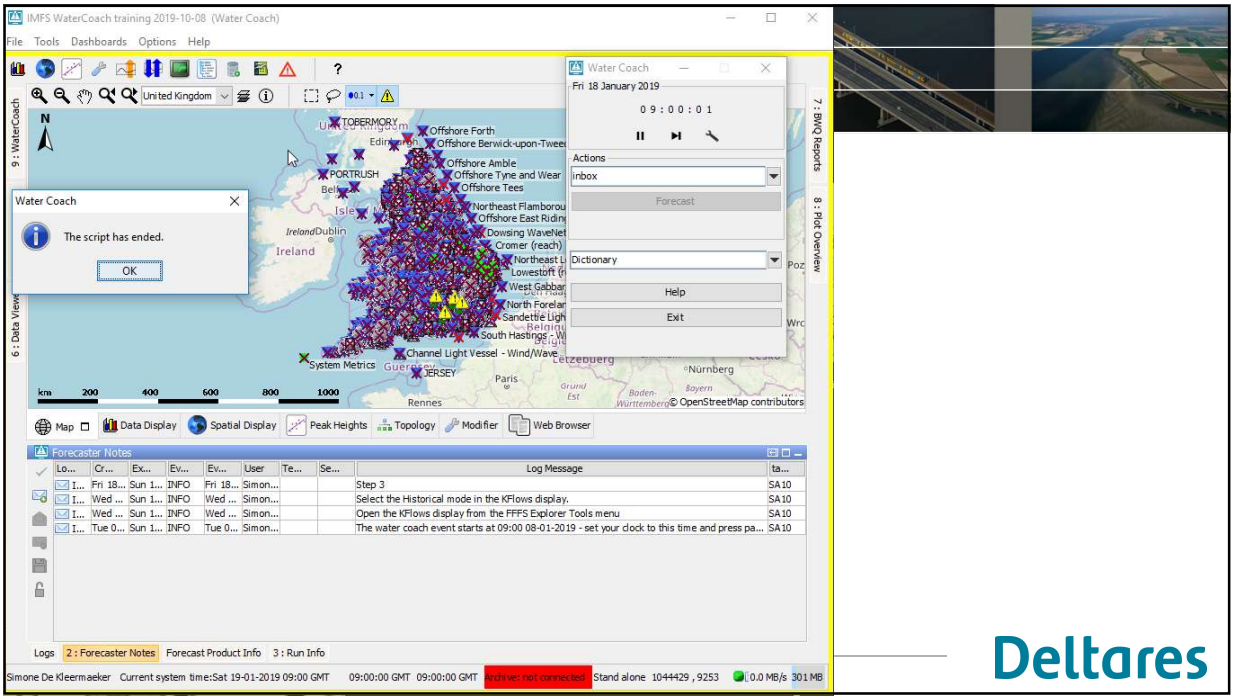

IMFS WaterCoach training 2019-10-08 (Stand alone)
File Tools Dashboards Options Help
System:
host: L01905.DIRECTORY.INTRA
VJDBC port: vjdbc server not started
Trainee name
Participant
Scenario
2019-01 KFlows
Script
How to use the KFlows display
Experience level
Novice
Start
Exit
United Kingdom
Map
Data Display
Spatial Display
Peak Heights
Topology
Modifier
Web Browser
Logs
2 : Forecaster Notes
Forecast Product Info
3 : Run Info
Simone De Kleermaeker
Current system time:Tue 08-10-2019 06:45 GMT
06:58:14 GMT 07:58:14 BST
Archive: not connected
Stand alone
© OpenStreetMap contributors
eltares

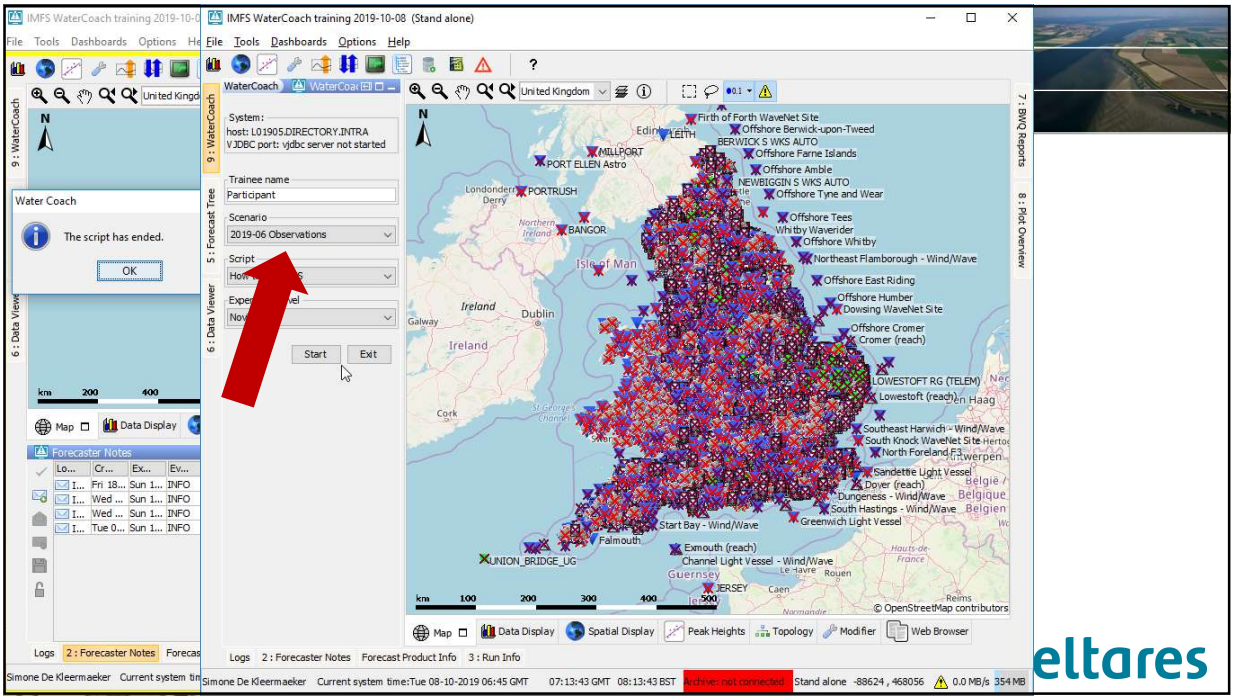

IMFS WaterCoach training 2019-10-08 (Water Coach)
File Tools Dashboards Options Help
System:
host: L01905.DIRECTORY.INTRA
VJDBC port: vjdbc server not started
Trainee name
Participant
Scenario
2019-01 KFlows
Script
How to use the KFlows display
Experience level
Novice
Start
Exit
Water Coach
Tue 08 January 2019
09 00 39
Actions
inbox
Forecast
Dictionary
Help
Exit
Map
Data Display
Spatial Display
Peak Heights
Topology
Modifier
Web Browser
Logs
2 : Forecaster Notes
Forecast Product Info
3 : Run Info
Simone De Kleermaeker
Current system time:Tue 08-01-2019 09:00 GMT
09:00:40 GMT 09:00:40 GMT
Archive: not connected
Stand alone
© OpenStreetMap contributors

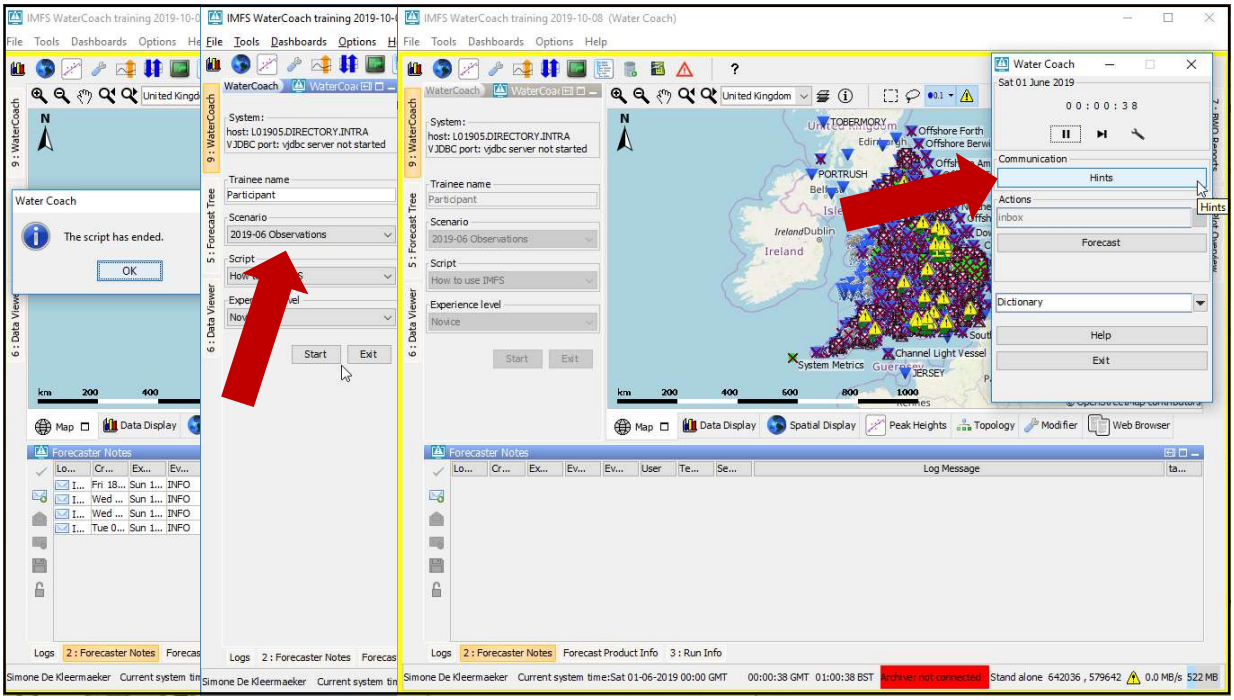

IMFS WaterCoach training 2019-10-08 (Water Coach)
File Tools Dashboards Options Help
United Kingdom
Firth of Forth WaveNet Site
Offshore Berwick-upon-Tweed
Offshore Farne Islands
Offshore Amble
Offshore Tyne and Wear
Offshore Tees
Whitby Waverider
Offshore Whitby
Northeast Flamborough - Wind/Wave
Offshore East Riding
Offshore Humber
Dowsing WaveNet Site
Offshore Cromer
Cromer (reach)
Northeast Lowestoft - Wind/Wave
Lowestoft (reach)
West Gabbard 2 - Wind/Wave
Southeast Harwich - Wind/Wave
South Knock WaveNet Site
North Foreland F3 - Wind/Wave
Sandettie Light Vessel
Dover (reach)
Dungeness - Wind/Wave
South Hastings - Wind/Wave
Greenwich Light Vessel
Start Bay - Wind/Wave
Falmouth
Exmouth (reach)
Channel Light Vessel - Wind/Wave
JERSEY
© OpenStreetMap contributors
Map
Data Display
Spatial Display
Peak Heights
Topology
Modifier
Web Browser
Logs
2 : Forecaster Notes
Forecast Product Info
3 : Run Info
Simone De Kleermaeker
Current system time:Tue 08-01-2019 09:00 GMT
09:03:20 GMT 09:03:20 GMT
Archive: not connected
Stand alone -34769 , -83746
0.0 MB/s 335 MB
9 : WaterCoach
5 : Forecast Tree
6 : Data Viewer
7 : BWQ Reports
8 : Plot Overview

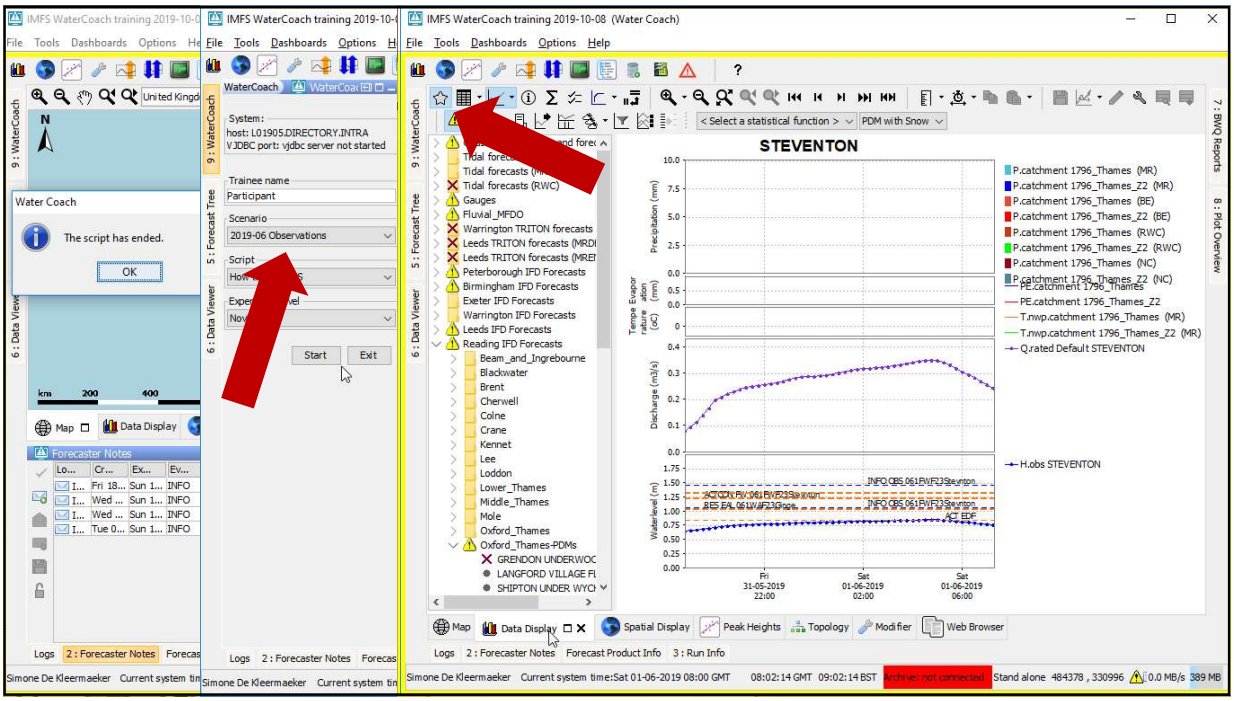

IMFS WaterCoach training 2019-10-08 (Water Coach)
File Tools Dashboards Options Help
United Kingdom
TOBERMORY
Offshore Forth
Offshore Berwick-upon-Tweed
Offshore Amble
Offshore Tyne and Wear
Offshore Tees
Northeast Flamborough - Wind/Wave
Offshore East Riding
Dowsing WaveNet Site
Cromer (reach)
Northeast Lowestoft - Wind/Wave
Lowestoft (reach)
West Gabbard 2 - Wind/Wave
North Foreland F3 - Wind/Wave
Sandettie Light Vessel
South Hastings - Wind/Wave
Channel Light Vessel - Wind/Wave
System Metrics
JERSEY
© OpenStreetMap contributors
Map
Data Display
Spatial Display
Peak Heights
Topology
Modifier
Web Browser
Forecaster Notes
Log level
Creation t...
Log Message
taskRunId
INFO
The water coach event starts at 09:00 08-01-2019 - set your clock to this time and press pause
Logs
2 : Forecaster Notes
Forecast Product Info
3 : Run Info
Simone De Kleermaeker
Current system time:Tue 08-01-2019 09:00 GMT
09:04:55 GMT 09:04:55 GMT
Archive: not connected
Stand alone 959387 , 172651
0.0 MB/s 335 MB
9 : WaterCoach
5 : Forecast Tree
6 : Data Viewer
7 : BWQ Reports
8 : Plot Overview

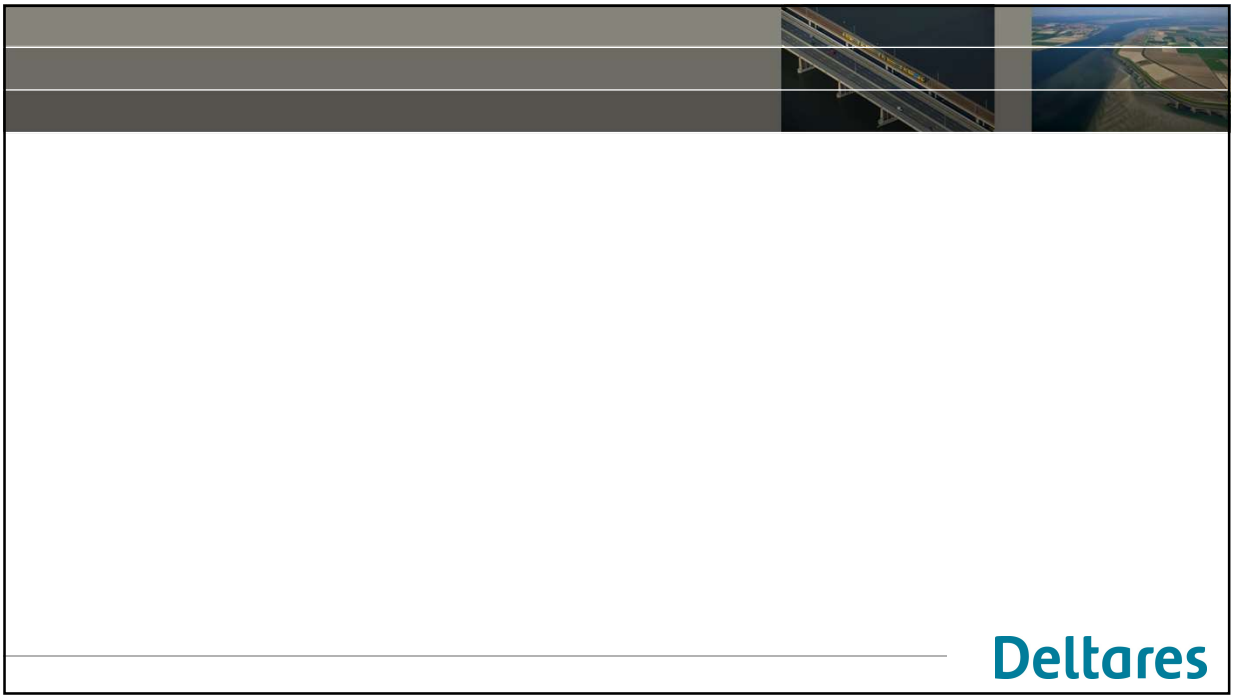

IMFS WaterCoach training 2019-10-08 (Water Coach)
File Tools Dashboards Options Help
Water Coach
Wed 09 January 2019
Actions
Inbox
Forecast
Dictionary
Help
Exit
Forecaster Notes
Log Message
Map
Data Display
Spatial Display
Peak Heights
Topology
Modifier
Web Browser
2 : Forecaster Notes
Forecast Product Info
3 : Run Info


IMFS WaterCoach training 2019-10-08 (Water Coach)
Water Coach
Fri 18 January 2019
Actions
inbox
Forecast
Dictionary
Help
Exit
Water Coach
The script has ended.
OK
Forecaster Notes
Log Message
Map
Data Display
Spatial Display
Peak Heights
Topology
Modifier
Web Browser
2 : Forecaster Notes
Forecast Product Info
3 : Run Info
© OpenStreetMap contributors
Deltares


IMFS WaterCoach training 2019-10-08 (Stand alone)
File Tools Dashboards Options Help
Water Coach
The script has ended.
OK
System:
host: L01905.DIRECTORY.INTRA
VJDBC port: vjdbc server not started
Trainee name
Participant
Scenario
2019-06 Observations
Script
Start
Exit
Map
Data Display
Spatial Display
Peak Heights
Topology
Modifier
Web Browser
Forecaster Notes
Logs
2 : Forecaster Notes
Forecast Product Info
3 : Run Info
Simone De Kleermaeker
Current system time:Tue 08-10-2019 06:45 GMT
07:13:43 GMT 08:13:43 BST
Archive: not connected
Stand alone -88624 , 468056
0.0 MB/s 354 MB
eltares


IMFS WaterCoach training 2019-10-08 (Water Coach)
Water Coach
Sat 01 June 2019
0 0 : 0 0 : 3 8
Communication
Hints
Actions
Inbox
Forecast
Dictionary
Help
Exit
Water Coach
The script has ended.
OK
Trainee name
Participant
Scenario
2019-06 Observations
Script
How to use IMFS
Experience level
Novice
Start
Exit
Forecaster Notes
Log Message
Logs
2 : Forecaster Notes
Forecast Product Info
3 : Run Info
Archive: not connected
Stand alone 642036 , 579642
0.0 MB/s 522 MB


IMFS WaterCoach training 2019-10-08 (Water Coach)
File Tools Dashboards Options Help
Water Coach
The script has ended.
OK
Trainee name
Participant
Scenario
2019-06 Observations
Start
Exit
STEVENTON
Map
Data Display
Spatial Display
Peak Heights
Topology
Modifier
Web Browser
Logs
2 : Forecaster Notes
Forecast Product Info
3 : Run Info


Deltares

Deltares
Enabling Delta Life

Create scenario from the Open Archive

After this training, I can

- Set up a WaterCoach environment
- Generate a scenario from the Open Archive
- Create a new WaterCoach script
- Set up a WaterCoach exercise

Open Archive

The Open Archive is an optional component to the Delft-FEWS software. It allows for long term storage of; observations, forecasts, external forecasts, rating curves, products, forecaster notes and configuration.

The archive can be accessed from the Delft-FEWS client by the so-called "archive display". From this display the archive can be queried and data can be downloaded to the local file system and imported in a Delft-FEWS local data store.

The Delft-FEWS archive can be coupled to the Delft-FEWS central database. When historical data is not found in the central database, the Delft-FEWS data store will be searched and used from the archive. This feature, the seamless integration, is available in the time series display for external historical scalar data and in the pi-web service also for simulated forecast scalar data.

Deltares

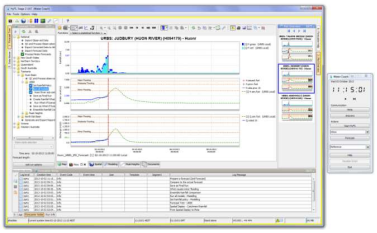
Water Coach & Open Archive Integration

Water Coach can use data from the Open Archive

Data can be queried and imported in with the Archive Catalogue display

Step-by-step procedure to create WaterCoach scenario from Open Archive



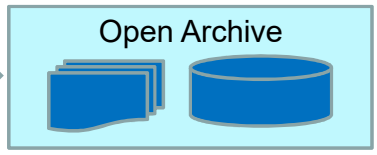


Deltares

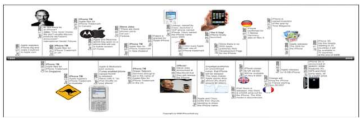
Water Coach & Open Archive Integration

How to create a WaterCoach Scenario and Script

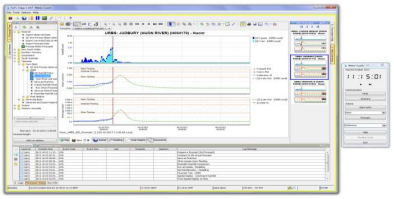
Live system to import and process data. All relevant data is stored in Open Archive



A period can be 'tagged' in the Archive as a WaterCoach event. The data can easily be downloaded and used in a WaterCoach Scenario



Trainer to make a script with learning objectives in mind, and to add additional information



Scenario database together with the Script will form a WaterCoach Training

Deltares

What can be stored in the Open Archive?

- Delft-FEWS can archive the following Types of data
  - exportConfig: Current FEWS configuration files
  - exportProducts: Created end products (reports, pdf, export files)
  - exportSnapShot: Creates a dump of the database as local.ldb
  - exportExternalForecast: External Forecast time series (scalars and grids)
  - exportMessages: Bulletin board log messages (forecaster notes)
  - exportSimulated: Simulates time series (scalars and grids) with modifiers, model states, reports (run information)
  - exportObserved External historical (observed) time series (scalars and grids)
  - exportRatingCurves Rating Curve time series

- All archived data is stored in NetCDF files with an additional metadata file
- Metadata.xml file is used by the catalogue (is harvested)

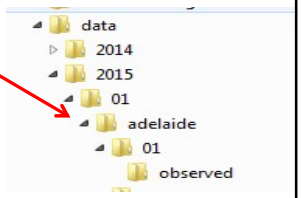
Deltares

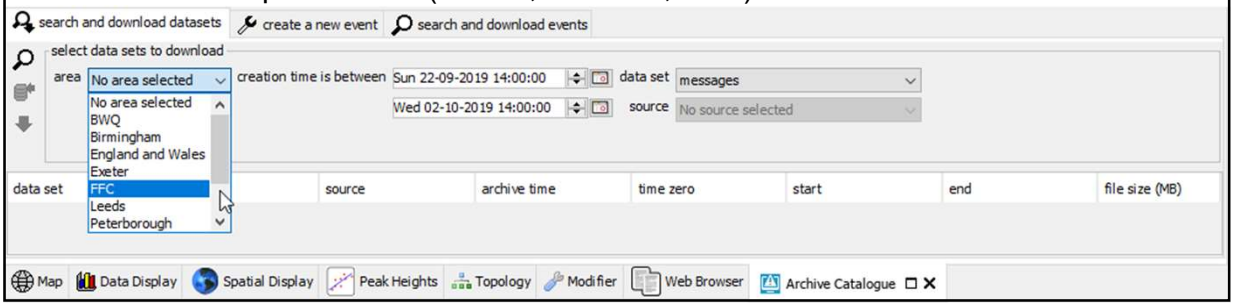
Archive Display – Area, Period, Dataset, Source

https://publicwiki.deltares.nl/display/FEWSDOC/25.+Using+the+Deltares+Open+Archive

Areas and Sources are used to be able to organize and filter the archived data

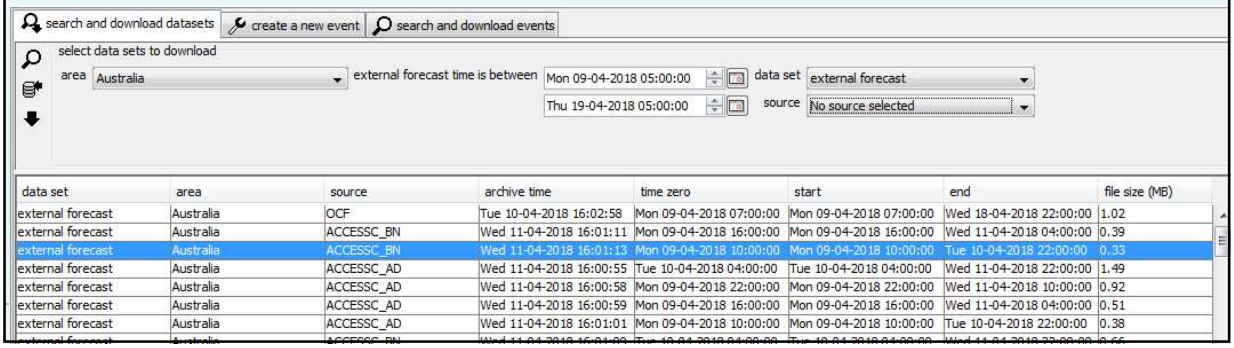
- Areas are used in the folder name of the Archive folders
- Sources can be used to subdivide archived series
  - NWP forecasts (external forecasts) are best split up in multiple sources (UKMO, ECMWF, GFS)





Archive: prepare the Stand Alone

1. Stop the Delft-FEWS Stand Alone and delete (or rename) your localdataStore folder
2. Start the Delft-FEWS Stand Alone with an empty database

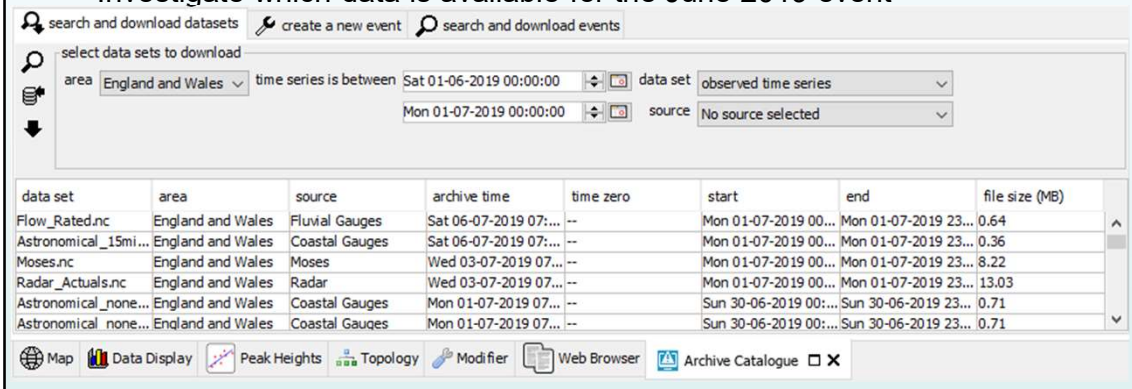


data set	area	source	archive time	time zero	start	end	file size (MB)
external forecast	Australia	OCF	Tue 10-04-2018 16:02:58	Mon 09-04-2018 07:00:00	Mon 09-04-2018 07:00:00	Wed 18-04-2018 22:00:00	1.02
external forecast	Australia	ACCESSC_BN	Wed 11-04-2018 16:01:11	Mon 09-04-2018 16:00:00	Mon 09-04-2018 16:00:00	Wed 11-04-2018 04:00:00	0.39
external forecast	Australia	ACCESSC_BN	Wed 11-04-2018 16:01:13	Mon 09-04-2018 10:00:00	Mon 09-04-2018 10:00:00	Tue 10-04-2018 22:00:00	0.33
external forecast	Australia	ACCESSC_AD	Wed 11-04-2018 16:00:55	Tue 10-04-2018 04:00:00	Tue 10-04-2018 04:00:00	Wed 11-04-2018 22:00:00	1.49
external forecast	Australia	ACCESSC_AD	Wed 11-04-2018 16:00:58	Mon 09-04-2018 22:00:00	Mon 09-04-2018 22:00:00	Wed 11-04-2018 10:00:00	0.92
external forecast	Australia	ACCESSC_AD	Wed 11-04-2018 16:00:59	Mon 09-04-2018 16:00:00	Mon 09-04-2018 16:00:00	Wed 11-04-2018 04:00:00	0.51
external forecast	Australia	ACCESSC_AD	Wed 11-04-2018 16:01:01	Mon 09-04-2018 10:00:00	Mon 09-04-2018 10:00:00	Tue 10-04-2018 22:00:00	0.38

Archive: search & download datasets – search

https://publicwiki.deltares.nl/display/FEWSDOC/25.+Using+the+Deltares+Open+Archive

Investigate which data is available for the June 2019 event



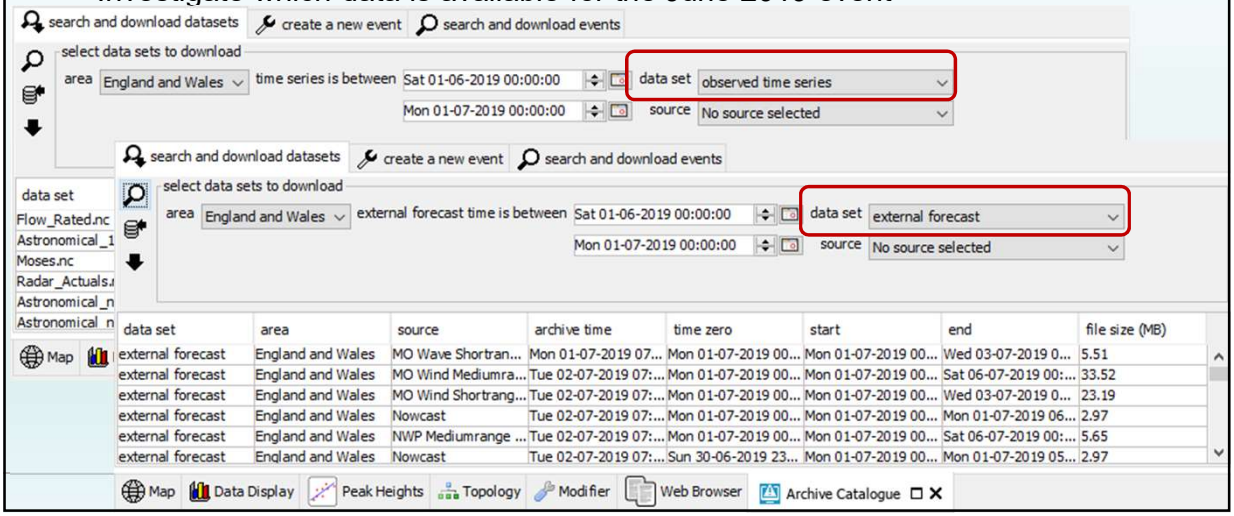
data set	area	source	archive time	time zero	start	end	file size (MB)
Flow_Rated.nc	England and Wales	Fluvial Gauges	Sat 06-07-2019 07:...	--	Mon 01-07-2019 00...	Mon 01-07-2019 23...	0.64
Astronomical_15mi...	England and Wales	Coastal Gauges	Sat 06-07-2019 07:...	--	Mon 01-07-2019 00...	Mon 01-07-2019 23...	0.36
Moses.nc	England and Wales	Moses	Wed 03-07-2019 07...	--	Mon 01-07-2019 00...	Mon 01-07-2019 23...	8.22
Radar_Actuals.nc	England and Wales	Radar	Wed 03-07-2019 07...	--	Mon 01-07-2019 00...	Mon 01-07-2019 23...	13.03
Astronomical_none...	England and Wales	Coastal Gauges	Mon 01-07-2019 07...	--	Sun 30-06-2019 00:...	Sun 30-06-2019 23...	0.71
Astronomical_none...	England and Wales	Coastal Gauges	Mon 01-07-2019 07...	--	Sun 30-06-2019 00:...	Sun 30-06-2019 23...	0.71

Deltares

Archive: search & download datasets – search

https://publicwiki.deltares.nl/display/FEWSDOC/25.+Using+the+Deltares+Open+Archive

Investigate which data is available for the June 2019 event



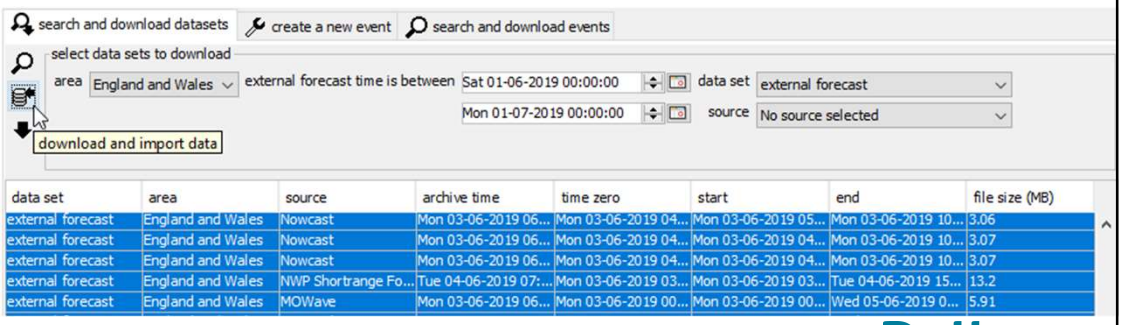
Archive: search & download datasets – import

https://publicwiki.deltares.nl/display/FEWSDOC/25.+Using+the+Deltares+Open+Archive

Select the relevant data sets

Download from the archive and import into the LDS

(or copy these files from the hard drive and import by hand)

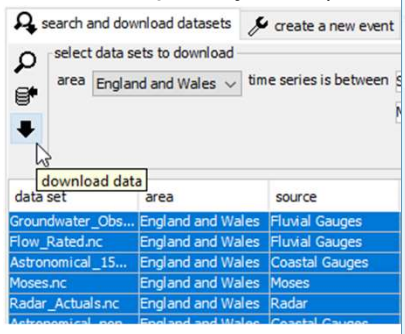


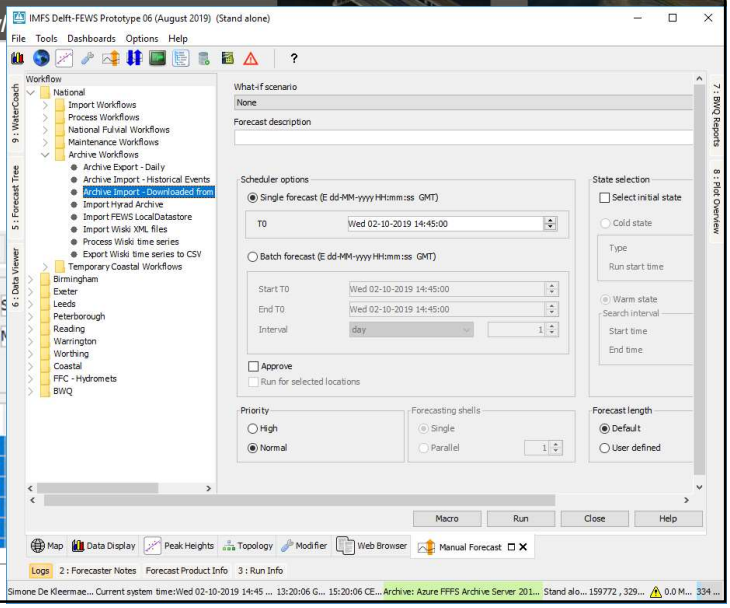
Deltares

Archive: search & download datasets – download

https://publicwiki.deltares.nl/display/

(or copy these files from hard drive and import by hand)





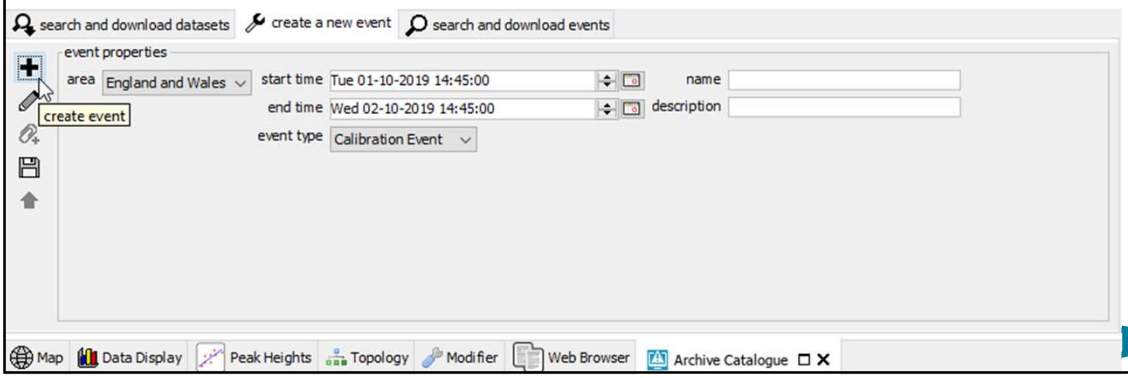
Archive: create a new event

https://publicwiki.deltares.nl/display/FEWSDOC/25.+Using+the+Deltares+Open+Archive

Archive Event Types are used to facilitate tagging and download of data. Make sure:

a) You use the same description for all areas of the same event.
   To test this: When you search for this event, filter on the description.

b) Astro timeseries run far enough into the future to cover the event

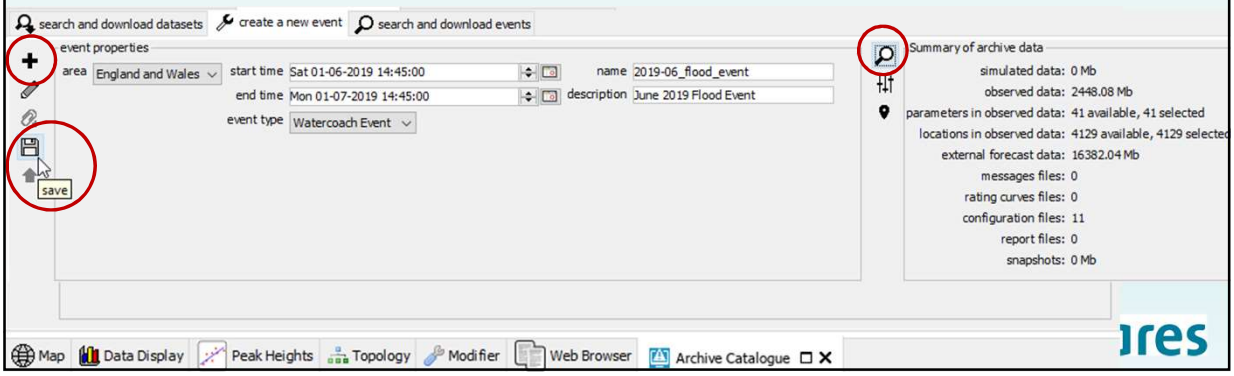


Archive: create a new event – create

https://publicwiki.deltares.nl/display/FEWSDOC/25.+Using+the+Deltares+Open+Archive

Create an event, by tagging the data you've found for the June 2019 event

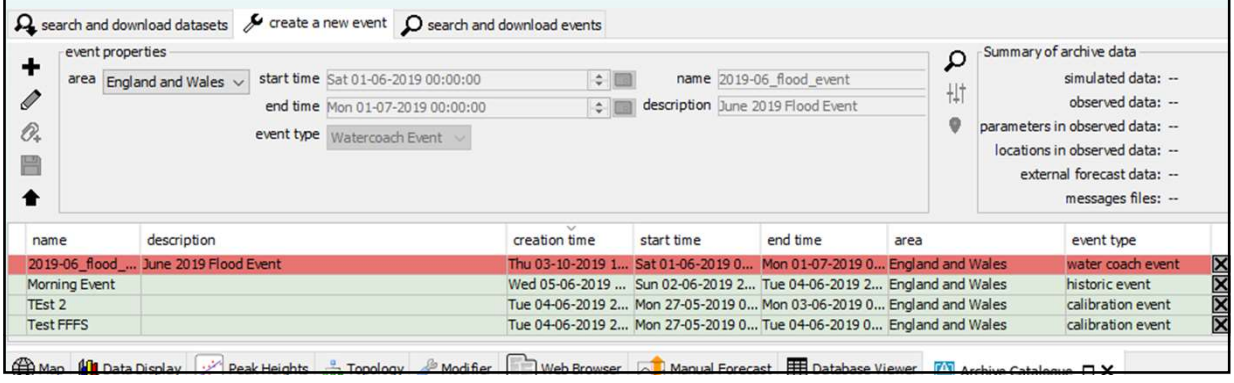
- Don't all make the same event
- Tag Watercoach Event



Archive: create a new event – save locally

https://publicwiki.deltares.nl/display/FEWSDOC/25.+Using+the+Deltares+Open+Archive

Save the event locally

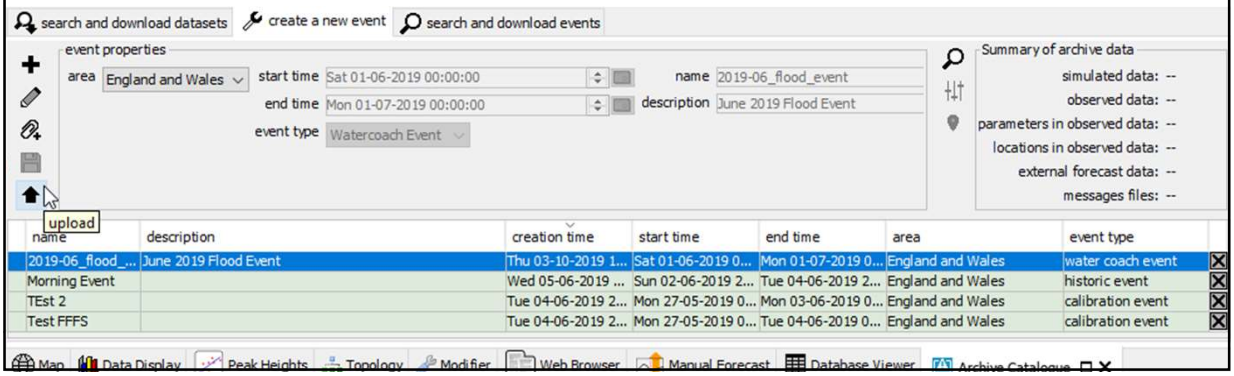


Archive: create a new event – upload

https://publicwiki.deltares.nl/display/FEWSDOC/25.+Using+the+Deltares+Open+Archive

You can upload events you've created to the archive with the upload button

Once they are uploaded, others can see your event

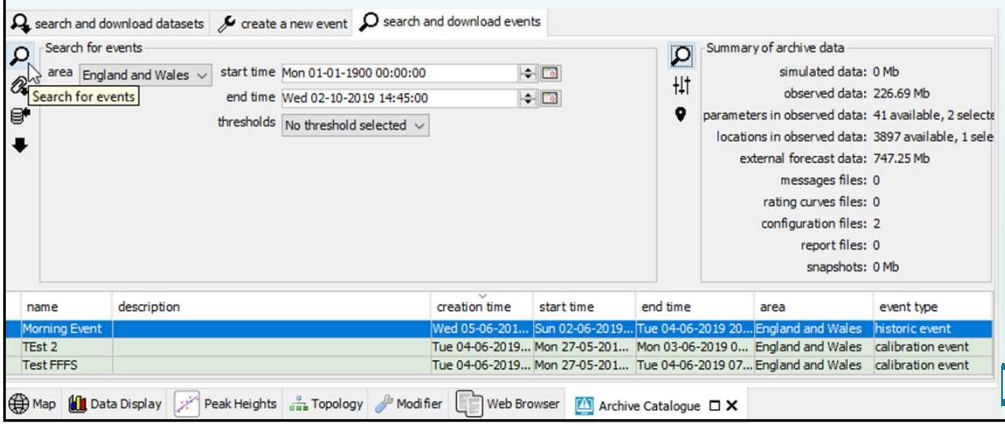


Archive: search & download events – search

https://publicwiki.deltares.nl/display/FEWSDOC/25.+Using+the+Deltares+Open+Archive

In the Archive Catalogue display go to the tab "search and download events"

- Select an Area, Select (wide) time period, Press Search
- Filter for watercoach event

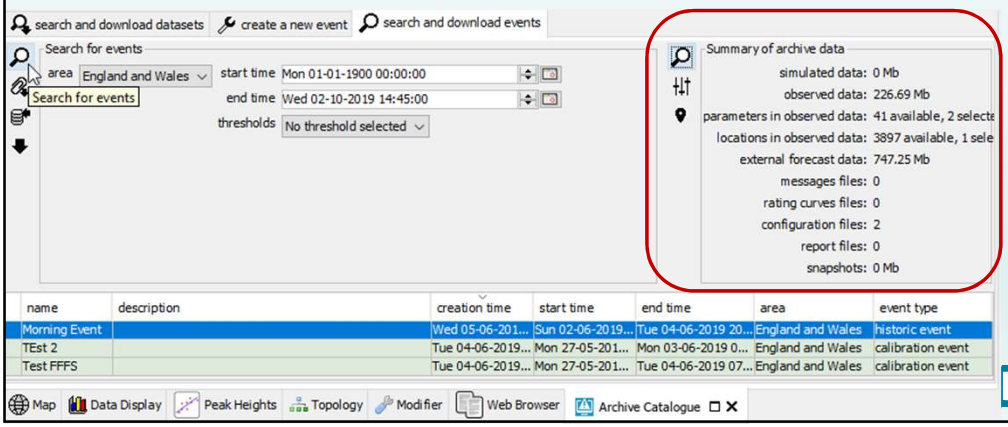


Archive: search & download events – interrogate

https://publicwiki.deltares.nl/display/FEWSDOC/25.+Using+the+Deltares+Open+Archive

You can check the contents of an event data set(s)

Summary, Parameters, Locations



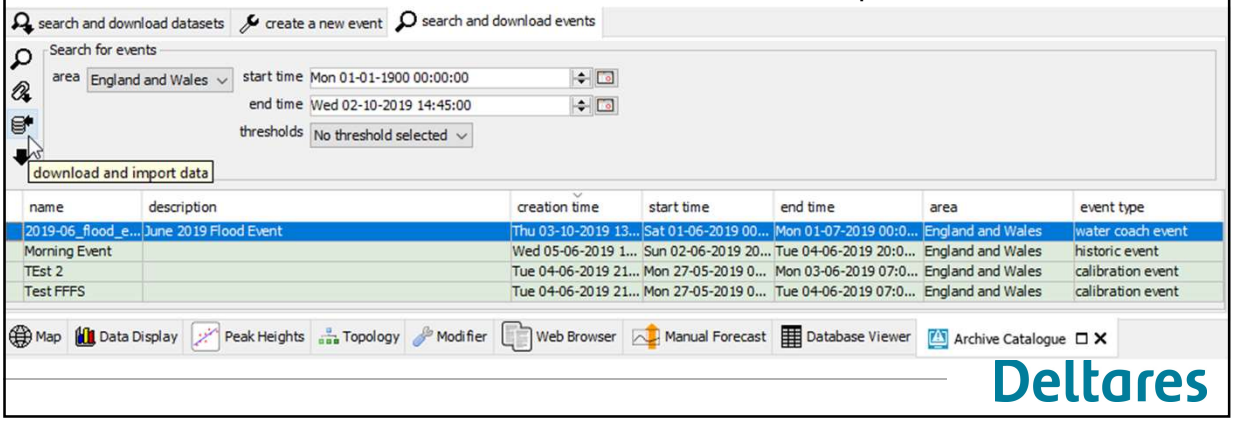
Deltares

Archive: search & download events – download

https://publicwiki.deltares.nl/display/FEWSDOC/25.+Using+the+Deltares+Open+Archive

If all data in this dataset is relevant:

1. Select an event and download the data set with the download and import button
2. From the Data Viewer, check if the data has been imported



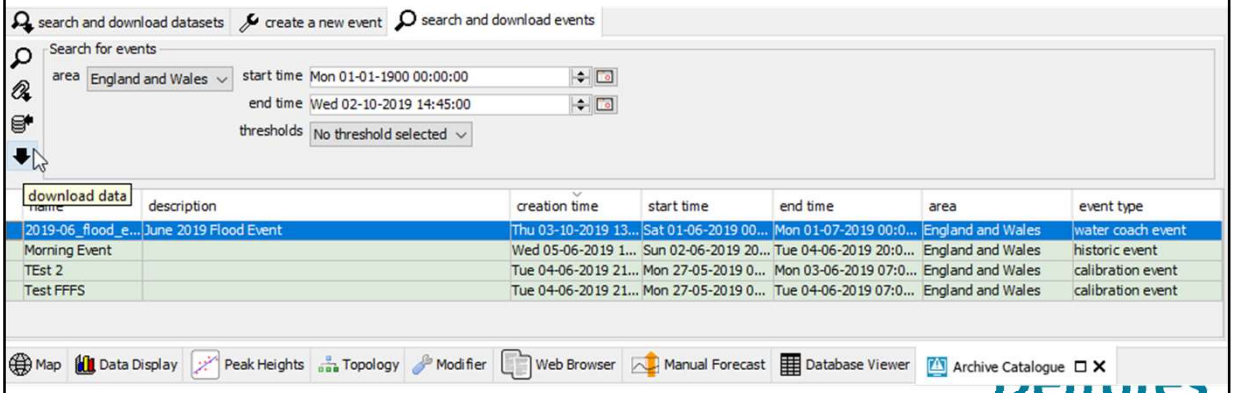
Deltares

Archive: search & download events – download

https://publicwiki.deltares.nl/display/FEWSDOC/25.+Using+the+Deltares+Open+Archive

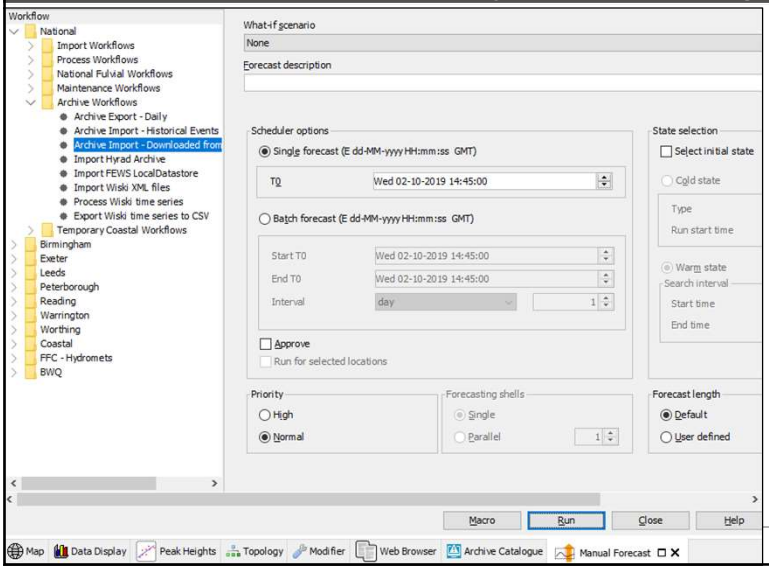
If the dataset contains more information than you need:

1. Select an event and download the data set with the download button
2. …



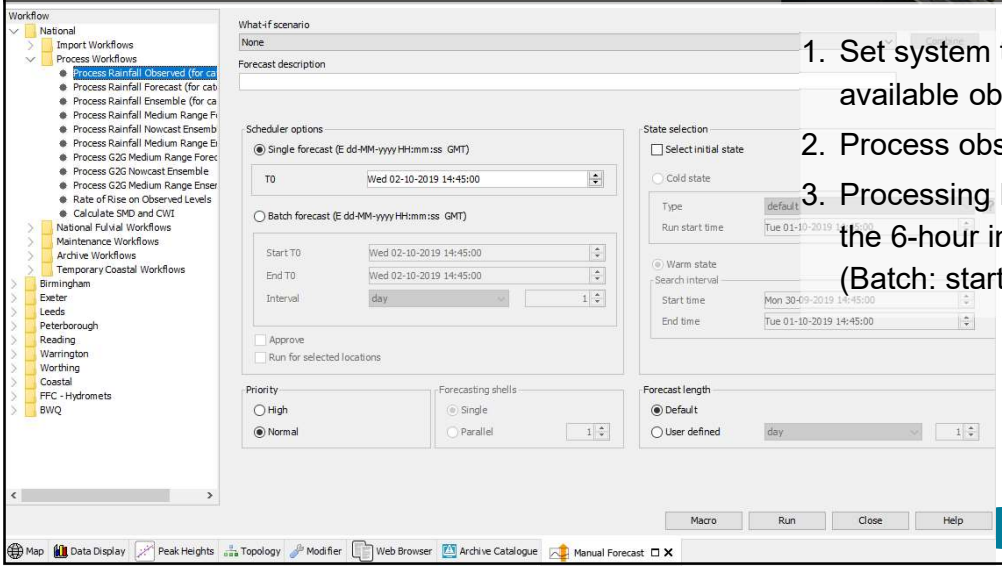
Archive: search & download events – import

https://publicwiki.deltares.nl/display/FEWSDOC/25.+Using+the+Deltares+Open+Archive



2. Remove data from download folder you don't want to import (e.g. NWP grids)
3. Import all downloaded data with the Archive Import workflow

localDataStore – process data



1. Set system time to last available observation
2. Process observed data
3. Processing NWP data in the 6-hour interval (Batch: start and end time)

Deltares

localDataStore – check data and save it

- Spend time checking your local data store in Spatial display. Spot check every x hours (change current system time) if data is complete.
- Make a backup of your local data store and all the data for the water coach event

ScenarioScriptDatabase

- Create a folder for the event in the SSD and copy your LDS there
- Create a folder for the script and copy a script_config.xml in there

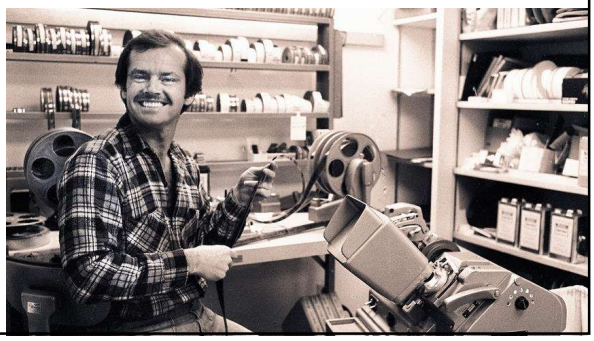
Deltares

Deltares
Enabling Delta Life

Create script

After this training, I can

- Set up a WaterCoach environment
- Generate a scenario from Open Archive
- Create a new WaterCoach script
- Set up a WaterCoach exercise



WaterCoach – Learning Objectives and Script

- Communication
  - content and procedures
  - ask the right questions (gather information)
  - supply clear information (e.g. questions from the mayor)
  - deal with interruptions (press, etc)
- Deal with events (less relevant)
  - failing of measurements, tools, phone lines, etc
  - events that influence procedures like a sinking ship, etc

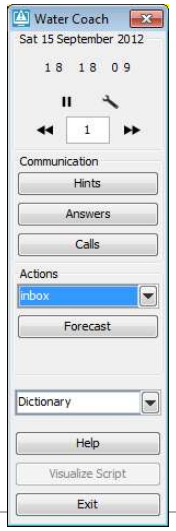
How can we reach these learning objectives?

- Select (and edit) interesting scenario
- Adapt the script to the needs of the player

Deltares

Script options

https://publicwiki.deltares.nl/display/FEWSDOC/Script+configuration



script_config.xml (fixed name)

- Timeline
- Stories
  - Frames

  Inbox which delivers information to the student
  Assignments, specific tasks
  "Phone-lines" to be approached pro-actively
- Forecast table
  - Conditions
- Dictionary files — Test / train knowledge of terminology or theory

Note: clock buttons are configured in DisplayConfigFiles/WaterCoachDisplay.xml

Deltares

69

Let's get to work - script_config.xml

https://publicwiki.deltares.nl/display/FEWSDOC/Script+configuration

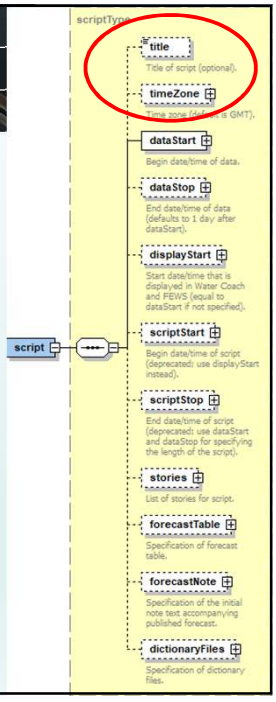
The exercises will walk through different options of a script.
Get creative!

Note: the script file should be named *script_config.xml*

Look at the provided example, or check out the wiki
For starters:

Change the title
(has no effect in displays, will help you as a script developer)

Change the timeZone
(limited list available, timeZone should also be lisin Explorer.xml, WaterCoach clock doesn't show the time zone used)

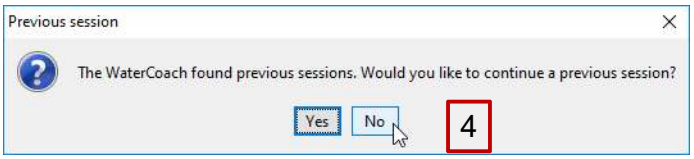


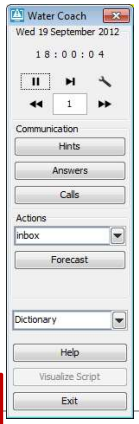
Watercoach development – work in progress

Changes to WaterCoachDisplay.xml can be effectuated by reloading FEWS (F5)
Changes to the script_config.xml can be effectuated by restarting WaterCoach

1. Save file
2. Press exit in floating WaterCoach display
3. Start a new session in the WaterCoach tab
4. Choose whether to continue previous session

Note: no F5 and no need to exit Delft-FEWS



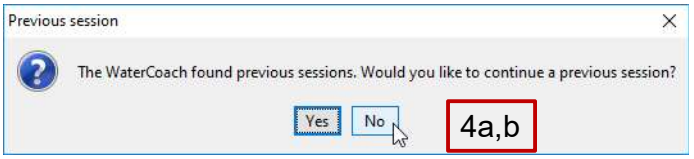


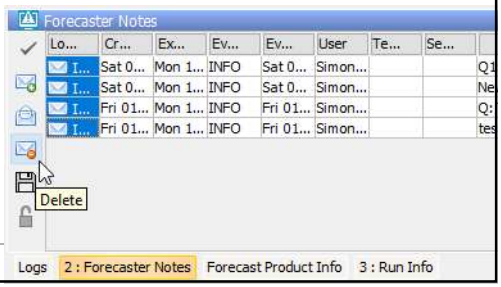
Deltares

Watercoach development – work in progress

Changes to WaterCoachDisplay.xml can be effectuated by reloading FEWS (F5)
Changes to the script_config.xml can be effectuated by restarting WaterCoach

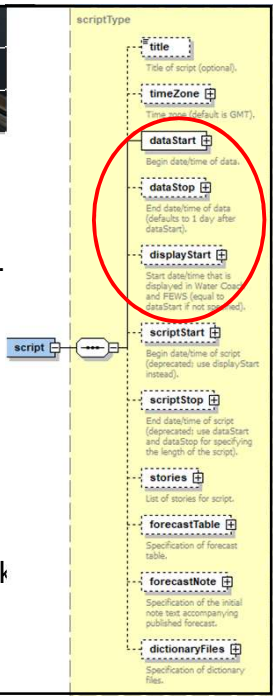
4a. Choose No to start from scratch and get a fresh copy of the LDS
4b. Choose Yes to restart at the WC time you've left of, with the same LDS and WC messages already there. Remove selected WC messages with the Delete button in Forecaster Notes display





script_config.xml – time management

- <dataStart> Begin of data = actual date of the actual data imported from archive.
  Spend some time to find the right block of data for a training.
  All date/time stamps in script will be in line with dataStart.
- <dataStop> End of data (defaults to 1 day after dataStart)
- <displayStart> Don't use when you're developing the script. (defaults to dataStart).
  When the script is finished, use this to shift the data to a specified date/time. If you use the date and start time of the training, the watercoach time will be in line with the wall clock time.



script_config - Example

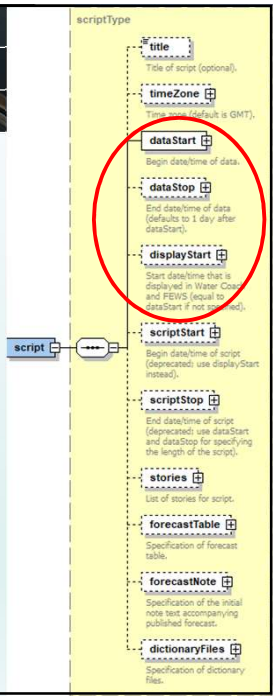
Start the Water Coach demo, follow the on-screen instructions.

What is the difference between <dataStart> en <displayStart>? How can you use this?

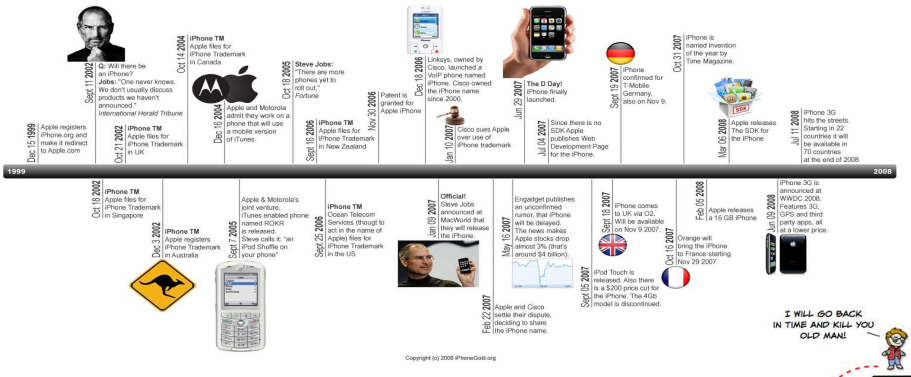
For how long does the example script run?

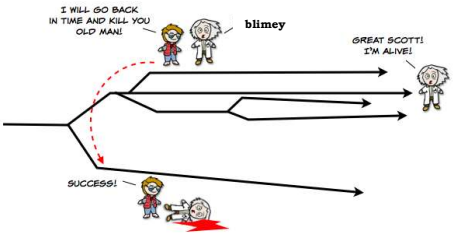
Change the length of the script by changing the value of the <DataStop> keyword (in the file "script_config.xml" in the appropriate directory of the scenario database).

Test it!



Making a script interactive

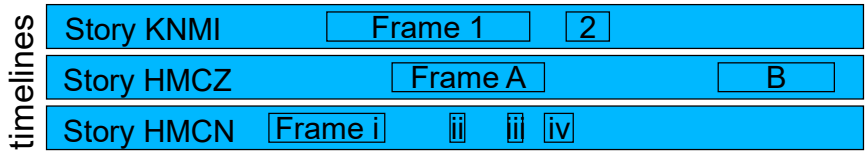




Stories – adds choices for player

Present player with a choice. This is geared towards the task of gathering data.

If the player calls the right person during the proper timeslot, the player gets additional information.

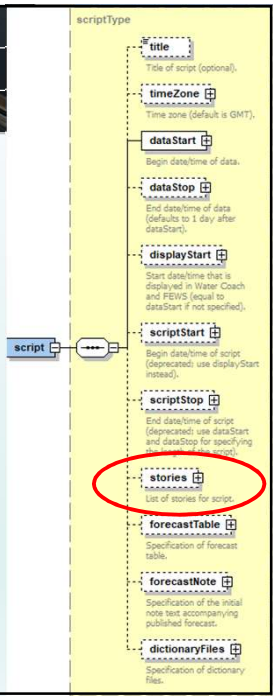


Deltares

Stories – Inbox and other stories

So-called stories can be used to add dynamical content to the script.

Press the “Story” button in the Water Coach to see an example in the example script.

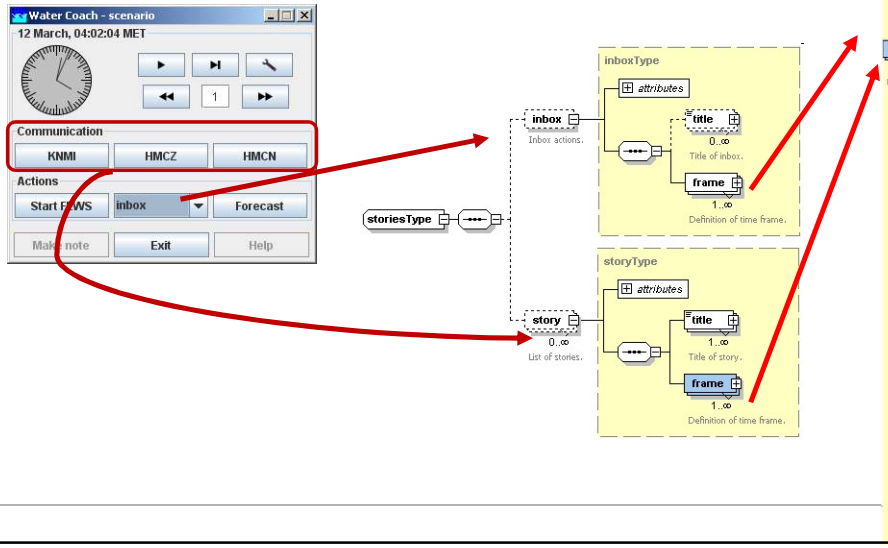


Stories – Inbox and other stories

- <inbox>: messages that will be delivered automatically to the Forecaster Notes Display on the specified start date/time. These messages can for example contain tips or questions for the user.
- <story>: additional information that will become available in the WaterCoach Display at the specified start date/time. Each frame in the stories refers to a <file> stored in the SSD. E.g.
  - give the user access to background information like a procedures
  - give up-to-date information like Radar images and Current Warnings

Deltares

Stories – frames



Frame - Start, stop, pop-up

Start and stop keys determine window in time in which the frame is active (format: *YYYY-MM-DD hh:mm:ss,* optional, default to script start and end)

- Other stories: when time windows overlap, all messages will be pushed to Forecaster Notes when communication button is used (see also: once).

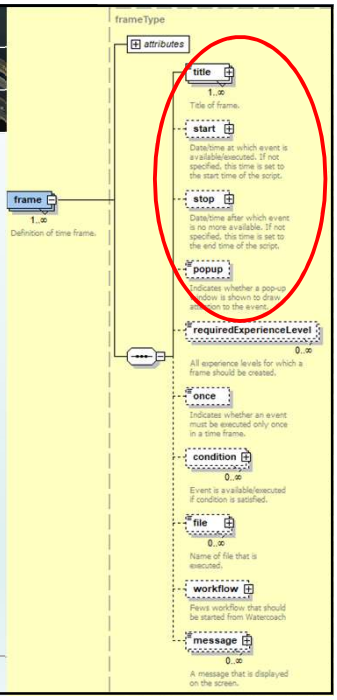
Popup key indicates whether or not to push a message to the Forecaster Notes display at the start of the frame.

- Inbox: popup will push message to Forecaster Notes
- Other stories: push of notification of message availability

---

Experiment with these keywords

Add a 2nd story that contains at least 3 frames.
The 1st frame active for the first 30 seconds,
the 2nd frame active for the next 30 seconds, and so on.



Frame - Experience level

The requiredExperienceLevel key specifies that an event is only executed for the indicated level.

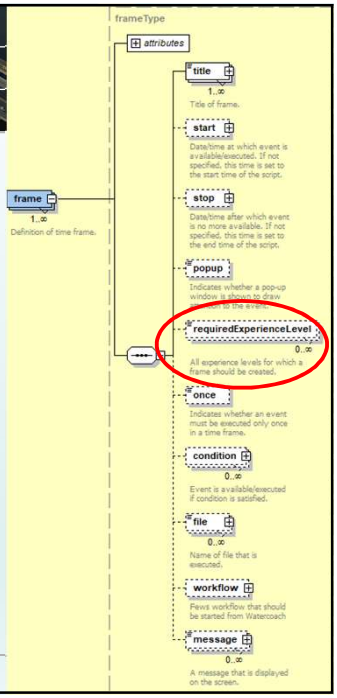
Experience levels are defined in the application configuration as a list
e.g. "Beginner; Intermediate; Expert".

In a frame one refers to these levels by a number (e.g. starting with 0 for Beginner), element can be included multiple times to include several levels.

If this key is not specified, then the event will be executed for all experience levels.

Experiment with experience levels.

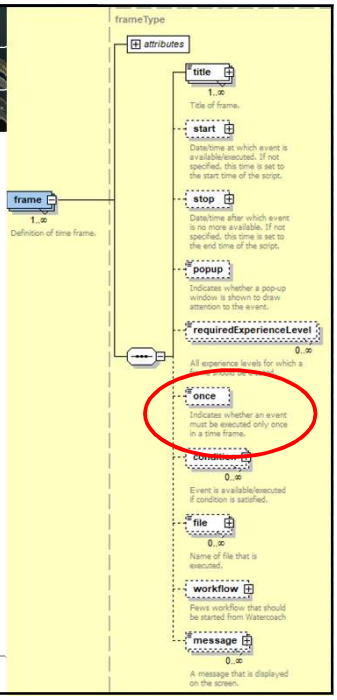
Do you want to make changes to your script_config.xml?



Frame - Once (phone calls)

The once key is a flag indicating that an event must be executed only once during a time frame.

This means that if the story button is actived a 2nd time, the message will not been shown again.
This behaviour is similar to a phone call in real live, opposed to an email which you can always return to.



Frame - Files

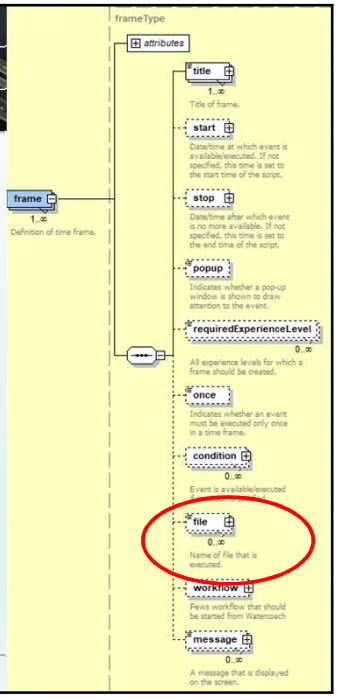
You can refer to files in the scenarioScriptDatabase.

Download an image (e.g. in jpg format) from the internet that you want to show at the beginning of the script (sort of a splash screen).

Add the image to the scenario database directory and add a frame to the inbox that displays this image at the start of the script.

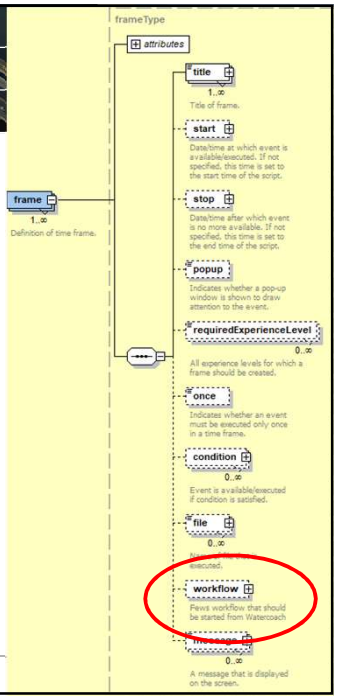
Create a file (e.g. pdf or txt) with a meteo forecast and also add it to a story.

Test it!



Frame – Workflow

- <workflow>: Instead of a <message> or a <file>, you can also run a <workflow> from within a story. The workflow is run for the date/time specified. You can use this for example to import NWP data.



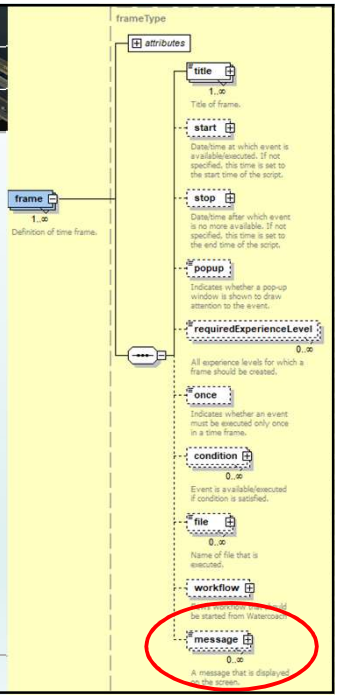
Frame – Message

You can also create (short) message directly in the script using the message format.

You don't refer to a file, but enter the message text directly into the script_config.xml

Add a <Message> event for one time frame.

Test it!

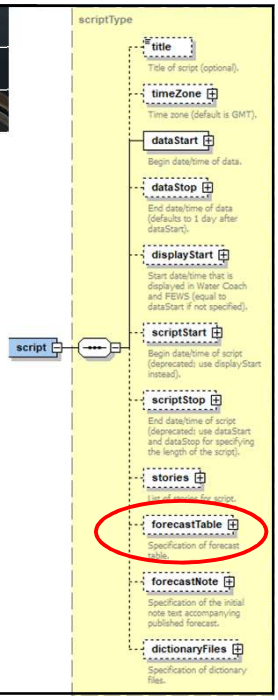


script_config – Forecast table

The goal of the script is to make a forecast.

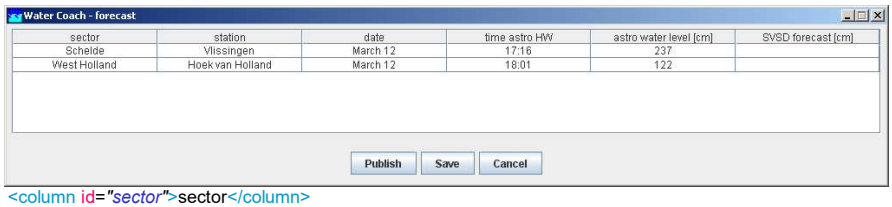
Press the "Forecast" button to bring up the forecast table.

The content of the forecast table is also configured in the file "script_config.xml".



Forecast table

Fully configurable: number of columns and rows, headers, cells editable columns, units, language.




```
<forecastTable>
    <header>
        <column id="sector">sector</column>
        […]
        <column id="astro_level" unit="cm">astro water level</column>
        <column id="svsd_forecast" unit="cm" isEditable="true">SVSD forecast</column>
    </header>
    <row id="Vlissingen">
        <cell columnId="sector">Schelde</cell>
        […]
        <cell columnId="astro_level">237</cell>
    </row>
</forecastTable>
```

Deltares

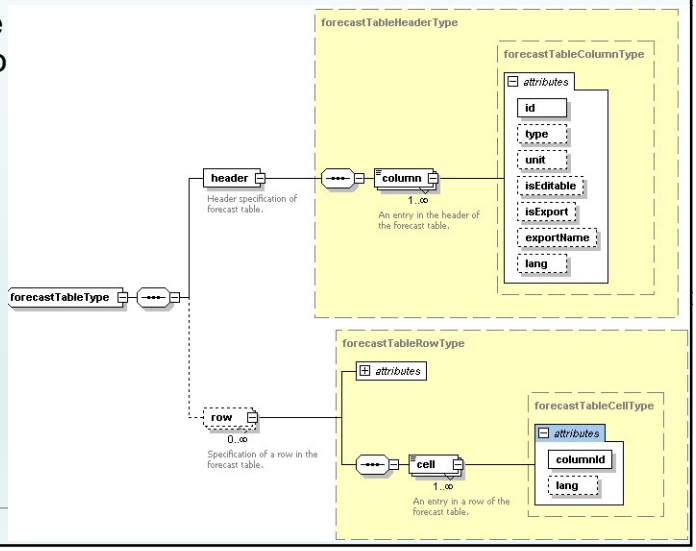
script_config - Forecast table

Add at least one non-editable and one editable column to the forecast table.

Add at least one row to the table.

Use your creativity for suitable content.
Feel free to change the existing content of the forecast table.

Test it!



Conditions (pre-defined in script)

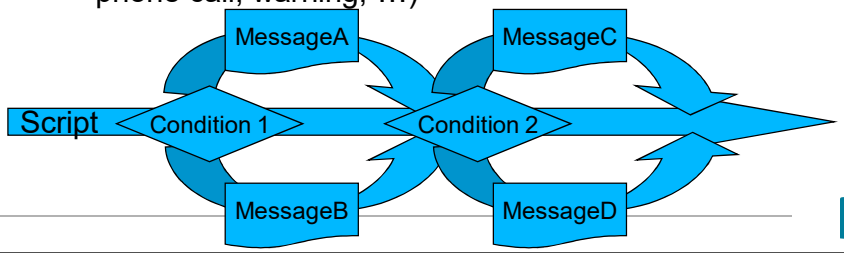
If <event> occurs then <message>

An <event> can be

- prediction above or below a certain value

Such an event can cause

- pop-up of a <message>
  - > Simple version of branching is pop-up of a single message (i.e. phone call, warning, …)

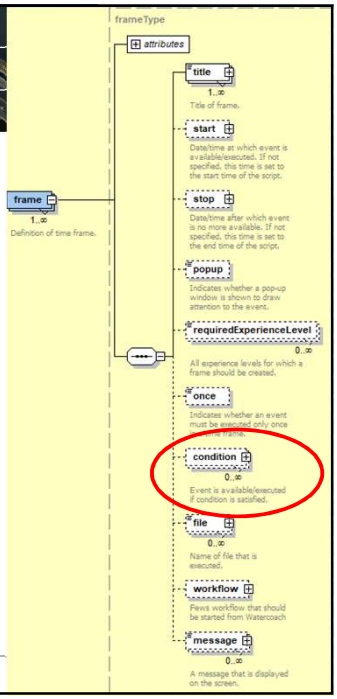


Deltares

Frame – Conditions

For each frame (either in the inbox or in a story), a condition can be specified based on the forecast table.

Examples can be found at:
https://<...>/FEWSDOC/Script+configuration

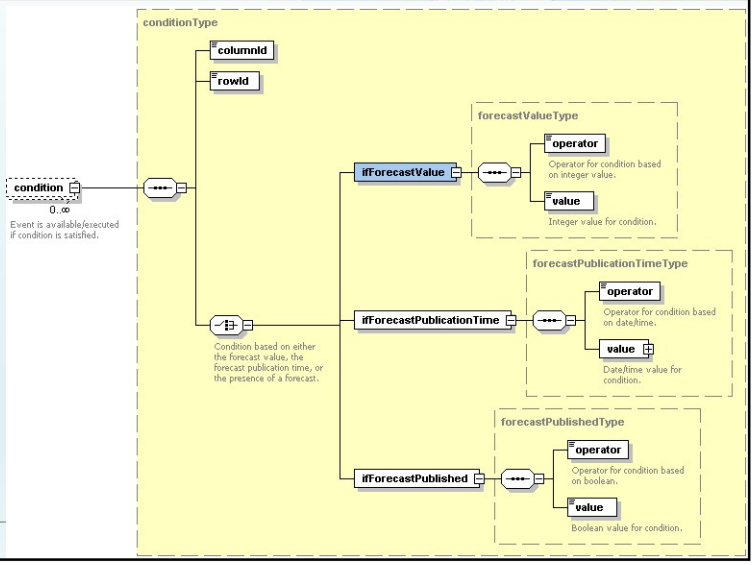


Frame – Conditions

Add a condition to a frame

You can also duplicate the frame and use disjunct conditions for the two frames.

Test it!

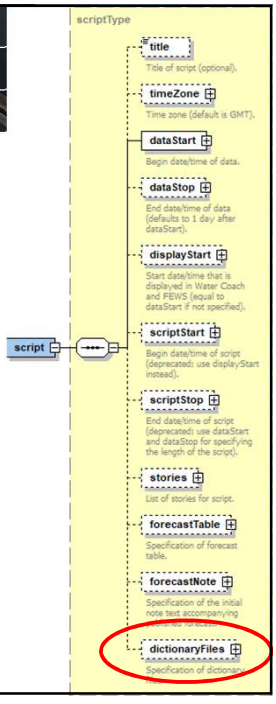


script_config – DictionaryFiles

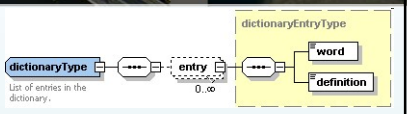
Reference to dictionary file(s)

A dictionary file can be specified for an arbitrary number of languages, but only one dictionary file per language is supported

The actual dictionary file, i.e. a separate xml file



Dictionary.xml



Add your own words and definitions to the dictionary.

This mechanism of a reference guide can also be used as a list of hints for the not so experienced player (experience level 0).

Every time a player looks up a word, this is logged. Therefore, this can be part of the after action evaluation and feedback.

Test it!

Deltares

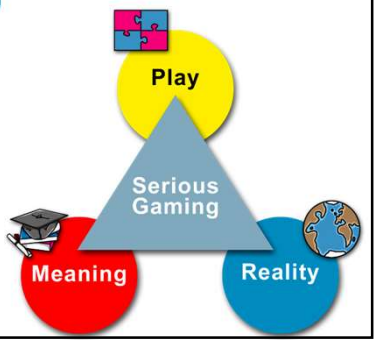
Deltares

Deltares
Enabling Delta Life

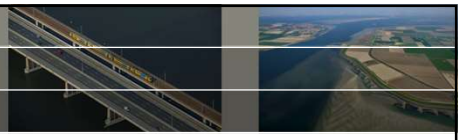
Create a WaterCoach training

After this training, I can

- Set up a WaterCoach environment
- Generate a scenario from Open Archive
- Create a new WaterCoach script
- Set up a WaterCoach exercise



Design Scenario and Script



What do you need to edit a scenario to reach the learning objectives?

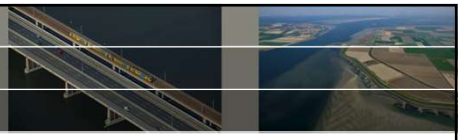
- Fill Delft-FEWS localDataStore
  - From archive
  - Use saved LDS
  - Run imports, etc…

What do you need to create a script to reach the learning objectives?

- Interactive script
  - Choices (made by player)
  - Conditions (pre-defined in script)
- Format forecast table
- Dictionary
- Feedback

Deltares

Feedback



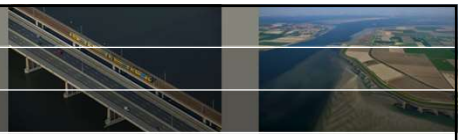
Learning is based on feedback, not on a scoring system

Base feedback on

- comparison of player's forecast to
  - > actual forecast
  - > forecasts from previously or simultaneously played games
- choices made and conditions that were triggered
  - > all actions of the player within Water Coach are logged
  - > use of reference material (dictionary.xml)

Deltares

Watercoach log example



File name:

log-<username>-<datetime start session YYYYMMDDHHMMSS wall clock GMT>

e.g. log-Simone-20191003120610

Stored in %REGION_HOME%/Watercoach/ log/

Datetime computer time	Datetime in game	Log message
2019-10-03 12:06:10 GMT	2019-10-03 12:06:09 GMT	Scenario started.
2019-10-03 12:06:14 GMT	2019-06-01 00:00:04 GMT	Forecast frame activated.
2019-10-03 12:06:20 GMT	2019-06-01 00:00:10 GMT	Forecast column 'Answer' for row 'Q1' published: This is my answer to Q1.
2019-10-03 12:06:20 GMT	2019-06-01 00:00:10 GMT	Forecast note: 'No notes for Q1'.
2019-10-03 12:06:21 GMT	2019-06-01 00:00:11 GMT	Forecast frame activated.
2019-10-03 12:06:23 GMT	2019-06-01 00:00:13 GMT	Forecast column 'Answer' for row 'Q1' published: This is my answer to Q1.
2019-10-03 12:06:23 GMT	2019-06-01 00:00:13 GMT	Forecast column 'Answer' for row 'Q2' published: This is my answer to Q2.
2019-10-03 12:06:23 GMT	2019-06-01 00:00:13 GMT	Forecast note: 'No notes for Q1'.
2019-10-03 12:12:03 GMT	2019-06-01 00:05:53 GMT	Dictionary button activated.
2019-10-03 12:12:03 GMT	2019-06-01 00:05:53 GMT	The following word selected: 'GFS'.

Deltares

Connecting the dots - Hints and feedback

So far, alterations to the script have been made without referring to the scenario, i.e. the contents of the Delft-FEWS local data store.

Start Delft-FEWS and inspect the data that is available.

Construct a simple script with events for a trainee in which they have to inspect the data in Delft-FEWS to publish a forecast for a location and parameter of your choice.

Prepare feedback at the end of the script based on the published forecast.

Deltares

WaterCoach training completed

I now understand

- The role of the WaterCoach in training
- The concept of Scenarios and scripts
- How to incorporate Learning objectives and competencies

I now can

- Generate a scenario from the Open Archive
- Create a new WaterCoach script
- Set up a WaterCoach exercise

Deltares