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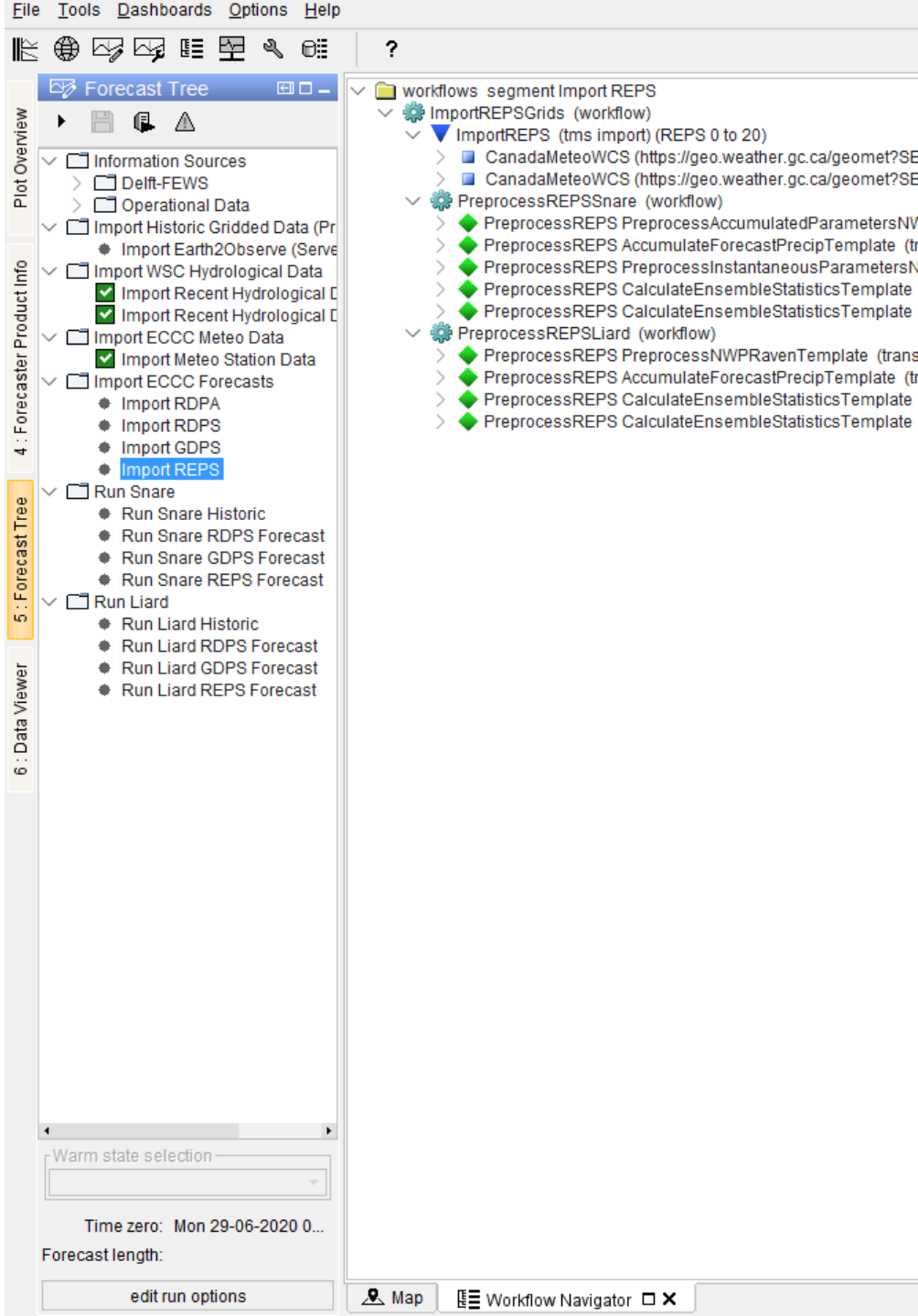
Delft-FEWS

Basic Configuration Course

Module: Running Workflows

Module Motivation

- Delft-FEWS is designed to run structured workflows
- Building your own workflows, allows you to harness the power of Delft-FEWS
- Running workflows is needed to test what you implement in Delft-FEWS
- Understanding how to analyze and de-bug your workflow runs is a key part of learning this system.



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Learning Objectives

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

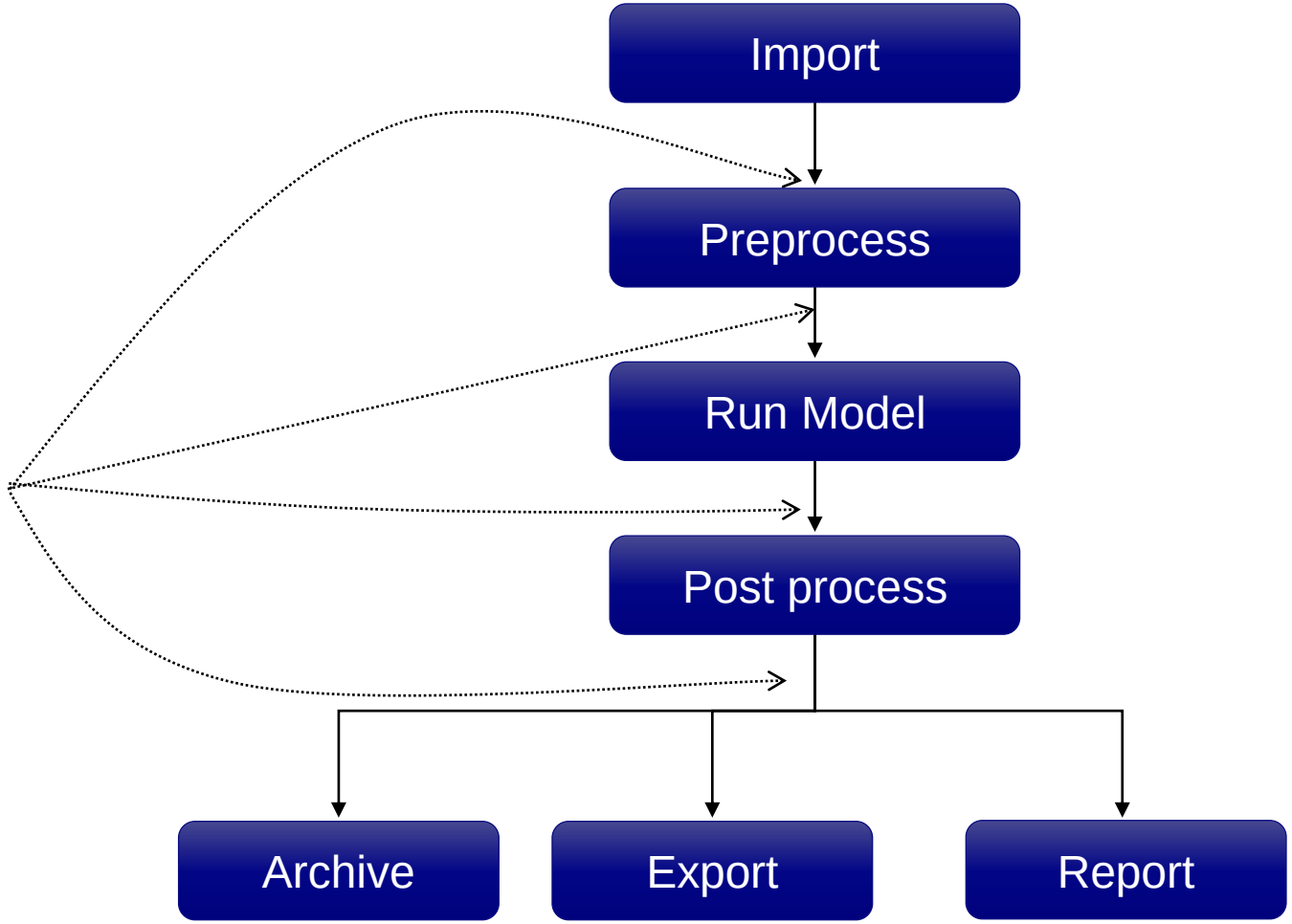
1) Understand how workflows are shown to the user in the Delft-FEWS interface.

2) Have exposure to the Topology, and how is it configured and when the user would use it.

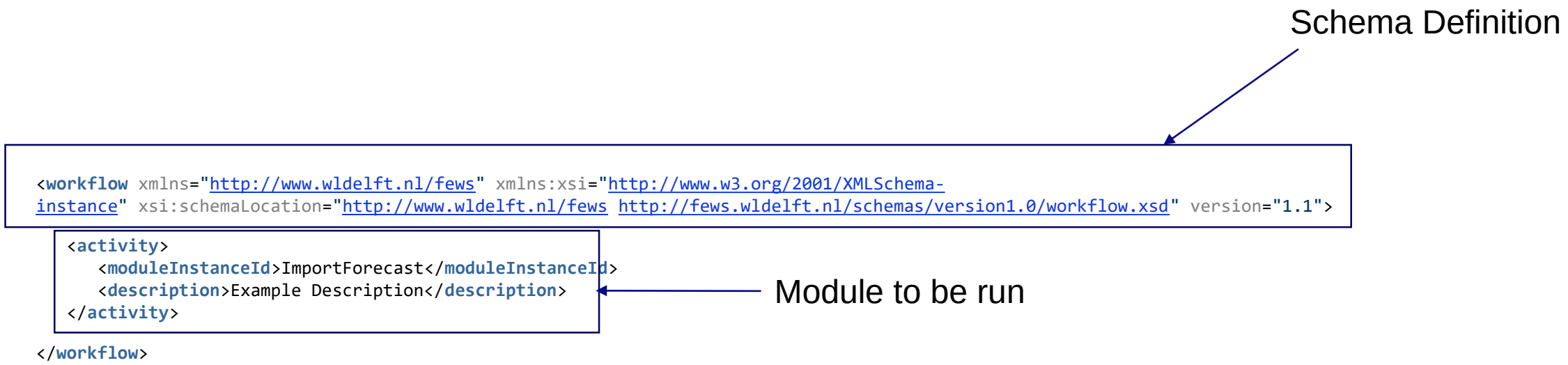
3) Have experience with the Manual forecast display, how is is configured and when the user would use it.

Workflows and Modules - Review

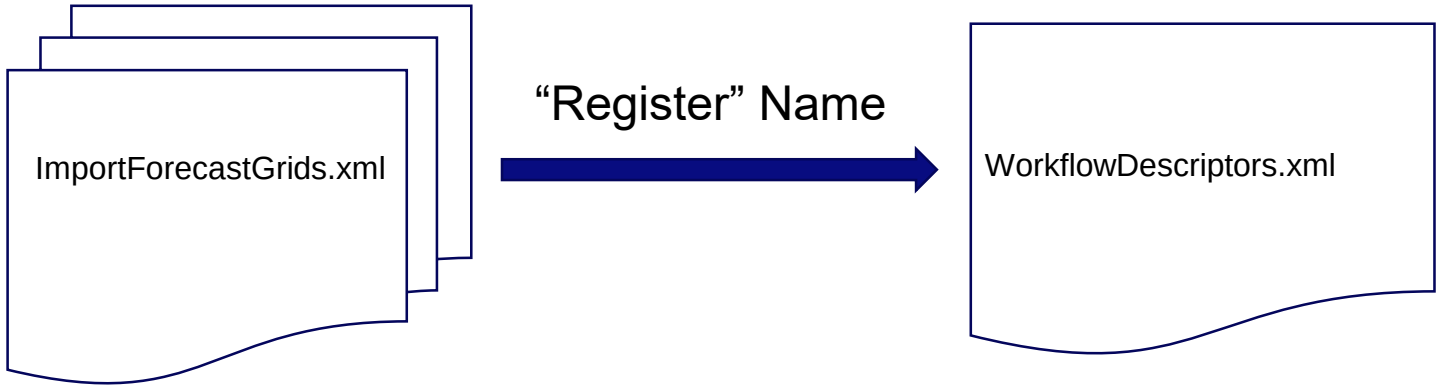
- Workflow – A sequence of modules
- Module instance – Configured module
- Task run – Actual execution of a workflow
- Time series connect the dataflow between the module instances



Example of a simple workflow - Review



Registering workflow in WorkflowDescriptors.xml



- Located in WorkflowFiles Folder
- Multiple Files
- Flexible Naming Structure

- Located in RegionConfig Files Folder
- Single file
- Always named WorkflowDescriptors

- If you forget to register a workflow, or misspell it in configuration, you’ll get a message that it is not recognized

Manual Forecast Display

- The Manual Forecast Display is built directly from the WorkflowDescriptors.xml
- Containing the following elements:

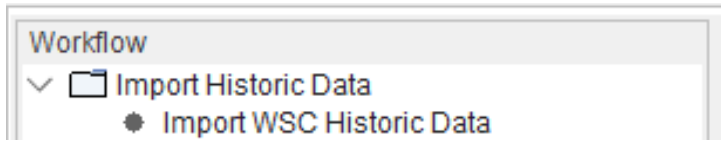
```
<workflowDescriptor id="ImportHydroHistoric" name="Import Hydro Historic Data" visible="true" forecast="false" autoApprove="false" allowApprove="false"/>
```

- Id for referencing throughout FEWS configuration
- Name for Display
- Set Visibility
- Is it a forecast? Needed if you want to write simulated timeseries
- Set approval defaults (advanced)

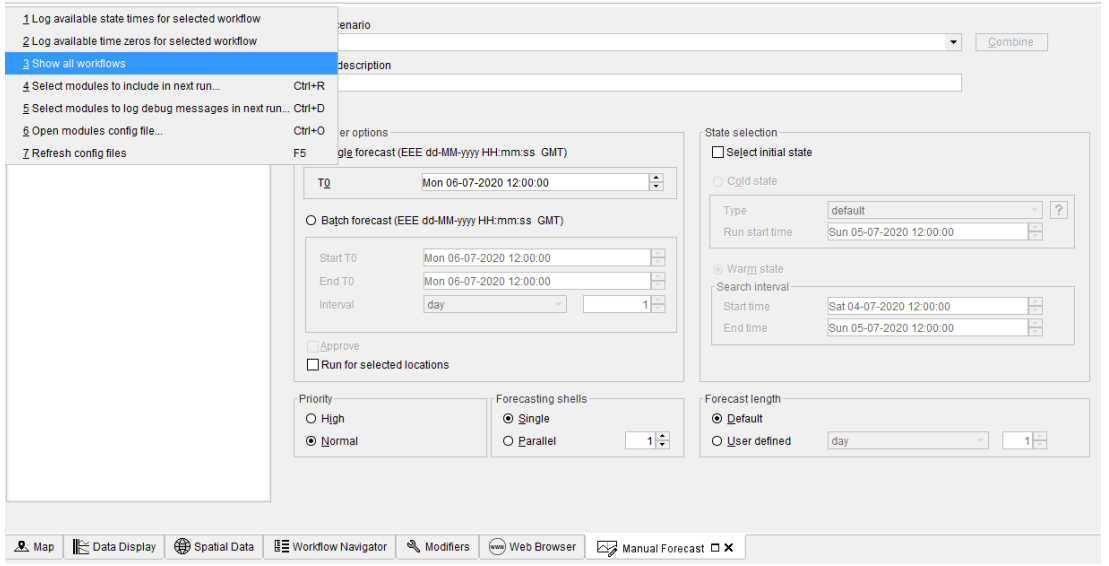
Manual Forecast Display

- Since 2019.02, workflows can be assigned to Nodes in the Manual Forecast Display

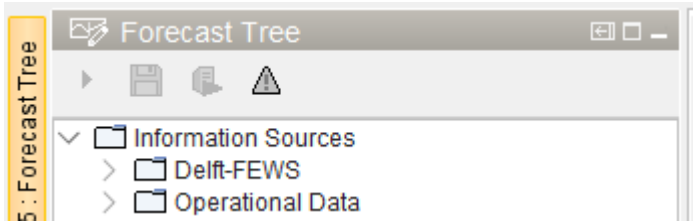
```
<node name="Import Historic Data">
        <workflowId>ImportWSCHistoric</workflowId>
</node>
```



- None visible Workflows can be viewed by pressing the F12 Button, with these nodes selected



Topology – Building the Forecast Tree

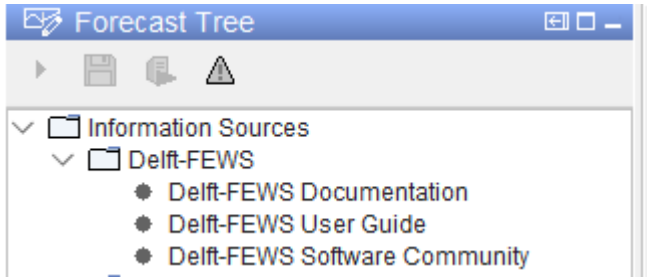


- The Topology.xml file, located in the RegionConfigFiles folder, contains the instructions to build the forecast tree.

- This provides the main dashboard for running workflows. It can also link to external data, such as websites.

-

```
<nodes id="Information_Sources" name="Information Sources">
    <nodes id="Delft-FEWS">
        <node id="Delft-FEWS_Wiki" name="Delft-FEWS Documentation">
            <url>https://publicwiki.deltares.nl/display/FEWSDOC/Home</url>
        </node>
        <node id="Delft-FEWS_UserGuide" name="Delft-FEWS User Guide">
            <url>https://publicwiki.deltares.nl/display/FEWSDOC/Using+Delft-FEWS+-+User+Guide</url>
        </node>
        <node id="Delft_FEWS" name="Delft-FEWS Software Community">
            <url>http://oss.deltares.nl/web/delft-fews/</url>
        </node>
</nodes>
```



Topology - Building the Forecast Tree

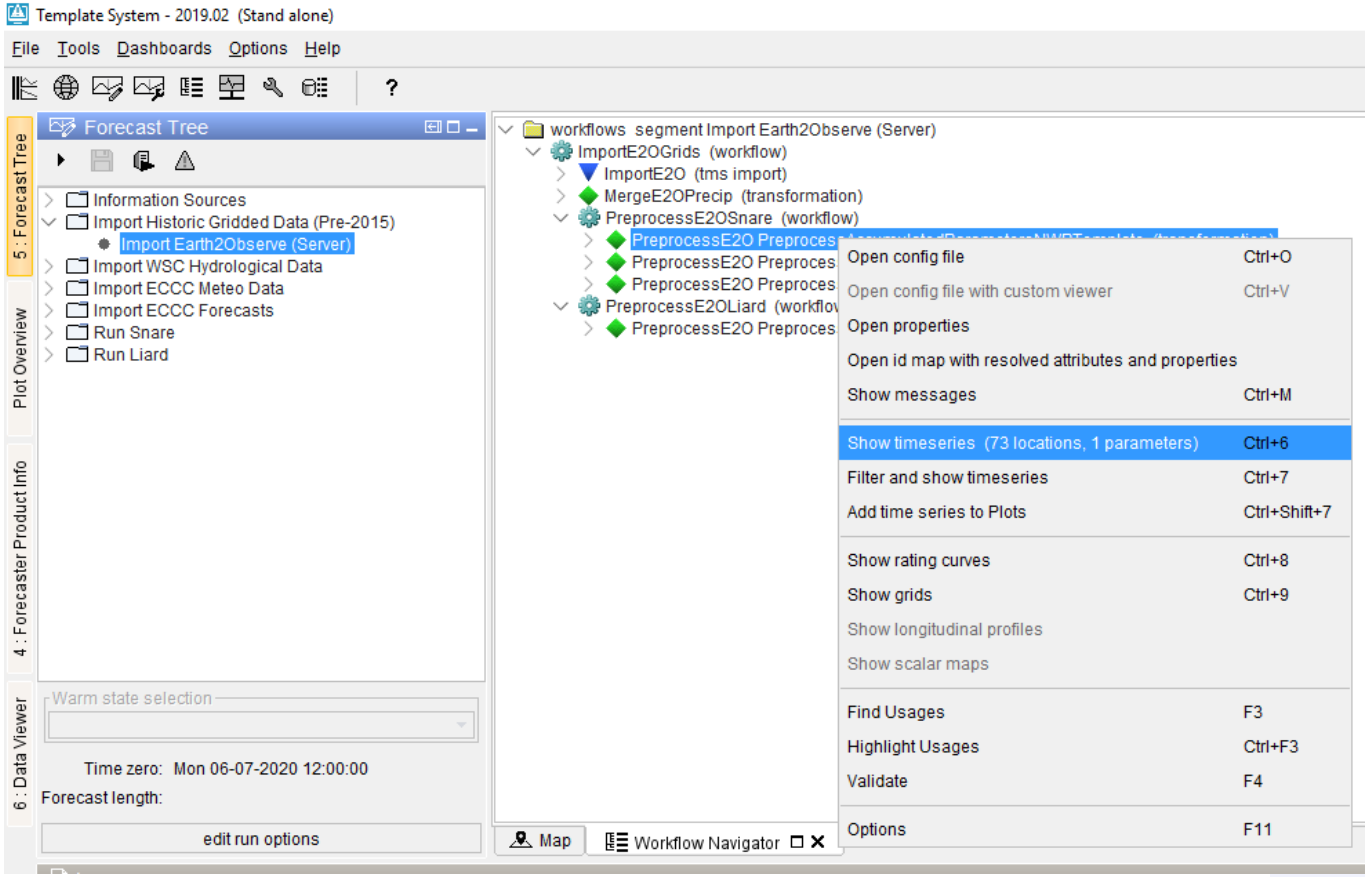
- The Topology should structure the forecasting process in a logical way. For example
  - Reference Information
  - Import Workflows
  - Processing Workflows
  - Model Run Workflows
  - Export Workflows

- There are additional options that control the icons, such as the grace time for which a workflow run is up to date.

- Many more options are available, Google “Delft-FEWS” Topology for more!

Workflow Navigator

- The Workflow Navigator gives the most detailed view of each workflow in the Topology.
- You can access each configuration file and check what data is available.
- Likely the best way to dive into each workflow!
- Right click each component for more options.

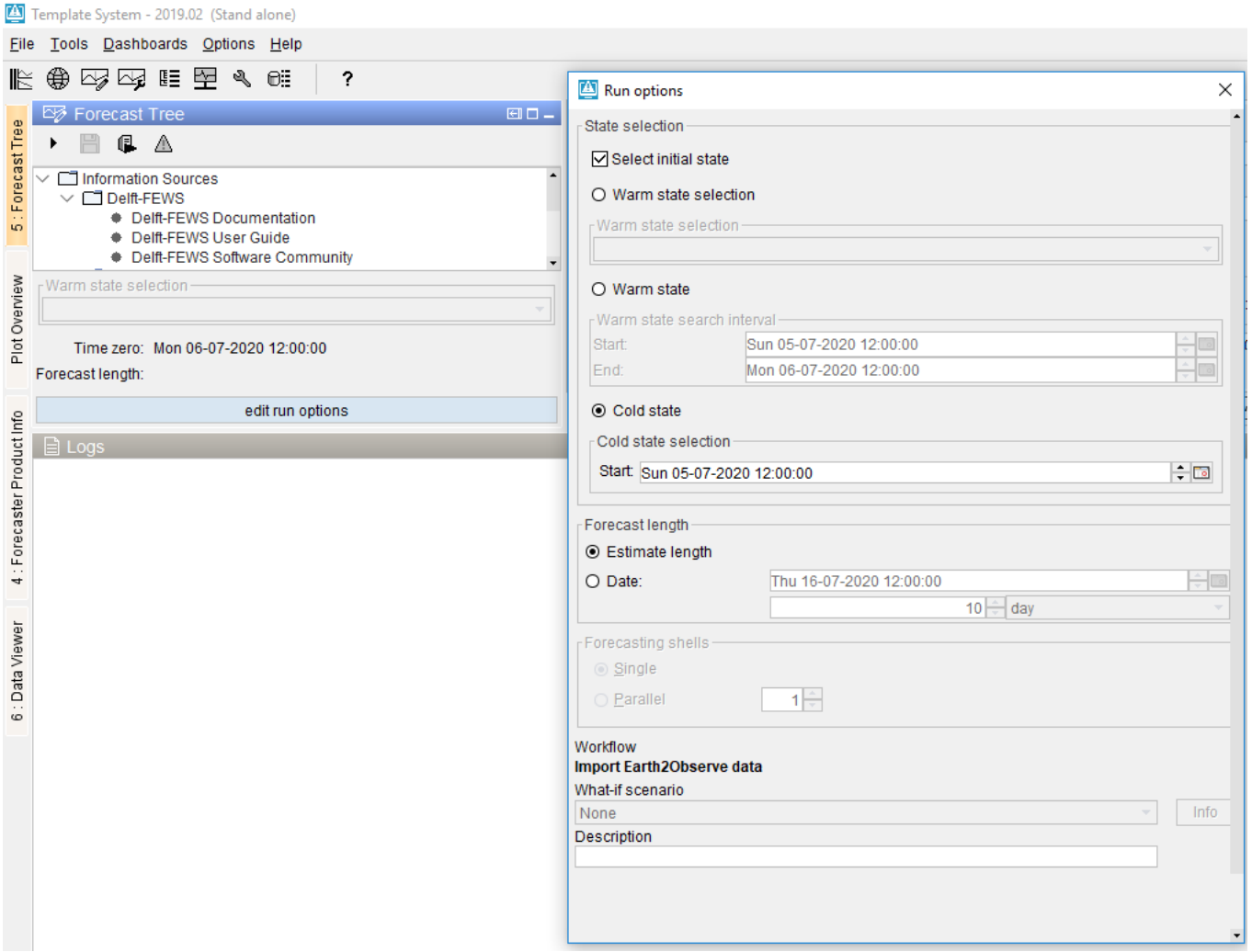


Run Time Options → Cold and Warm State

- State handling is a key concept in forecasting and in Delft-FEWS
- Workflows, such as imports or model runs, may have default run periods, however this can be overwritten with the selection of a state.
- Many workflows, or model runs, will start when a state is available.
- For example, setting the cold state from the Manual Forecast or Topology can set the run time.

Editing Run Options in the Topology

- Selecting a workflow with a variable run time will enable the edit run options
- From there you can select the initial state, or even set the estimated forecast length.
- This is most useful in more detailed model runs.



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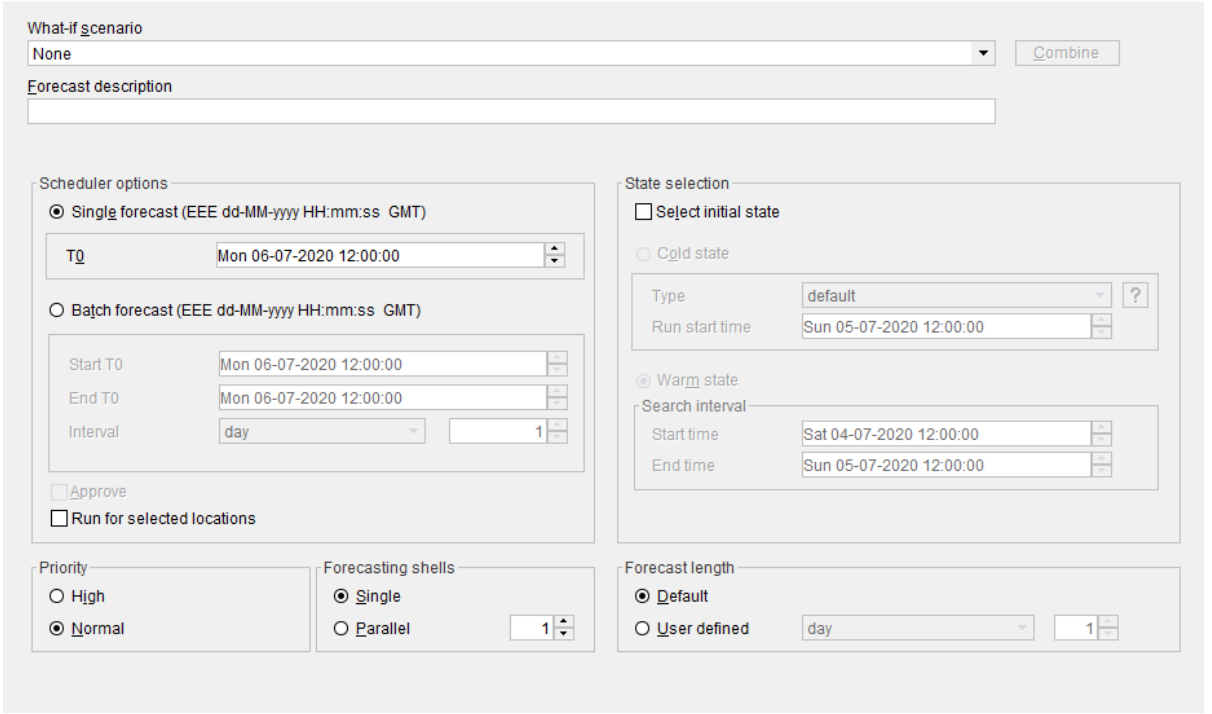
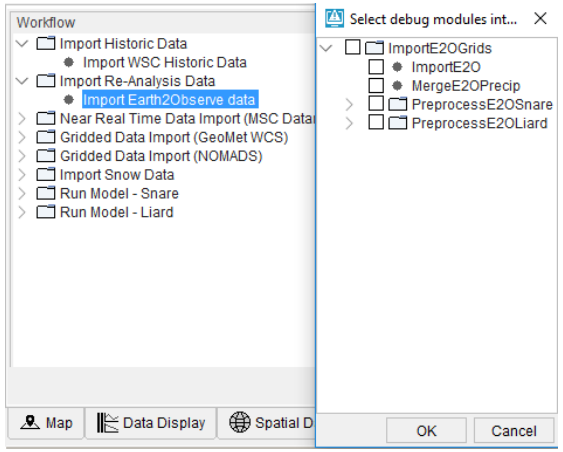
Edit Run Options in Manual Forecast Display

- The Manual Forecast Display contains additional options, including to control the TO
- Perhaps the most useful, is highlighting a workflow, then pressing “ctrl+r” or “ctrl+d”
- This provides module by module control on running and debugging respectively!!





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Module Summary

- The workflows are typically viewed in the Forecast Tree (Topology.xml) or the Manual Forecast Display (Workflowdescriptors.xml)
- Using the workflow navigator, in combination with the the Forecast Tree, allows a great view of information!
- There are additional run options for both the Forecast Tree and Manual Forecast Tree.
- Selecting the correct time (TO) or cold state time, can often be essential.
- Use crtl+r or ctrl+d in the manual forecast display to get module-by-module running and debugging options.

Additional Resources

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