

07 Forecast Manager

- Forecast Manager
 - Sort options
 - Filter options
 - Forecast Overview tab
 - Adding workflows to forecast list box of FEWS Explorer
 - Rerun a forecast
 - Download a forecast from Central Database (only in OC)
 - Redownload a forecast from Central Database (only in OC)
 - Promote button
 - Current Forecast tab
 - Forecast Expiry Time tab
 - Deleting a forecast from the Central Database (only in OC)
 - Changing the expiry time of a forecast in the Central Database (only in OC)
 - Modifiers tab
 - Popup Menu
 - Display configuration








Forecast Manager

The Forecast Management display offers following functionality:





- management of forecasts
- setting current forecast
- change expiry time of forecasts
- Registration of workflows with modifiers

These four basic functions are available via individual tabs in the display.

The meaning of the icons in the table is as follows:




- a fully current forecast is marked with 
- a fully current local forecast is marked with 
- a partly current forecast is marked with  (since 2021.01)
- a partly current local forecast is marked with  (since 2021.01)
- an approved forecast is marked with 
- an approved local forecast is marked with 
- a partly failed forecast is marked with 

The coloured circle icons indicate which state the system has used for each run:

Option	Manual Forecast (Dialog)	Scheduled Forecast Task	Result	Icon	Remarks
1	User selects cold state	-	cold state used		as expected: cold state selected and cold state used
2	User selects warm state	-	cold state used		not as expected: warm state could not be found in selected search period
3	User selects warm state	-	warm state used		as expected: warm state selected and warm state used
4	User selects no specific start state	Forecast runs with configured cold state	cold state used	no icon	as expected: cold state configured and cold state used
5	User selects no specific start state	Forecast runs with configured properties: 1. use warm state 2. if not available use cold state	cold state used		not as expected: warm state configured and cold state used
6	User selects no specific start state	Forecast runs with configured properties: 1. use warm state 2. if not available use cold state	warm state used	no icon	as expected: warm state configured and warm state used

7	User selects no specific start state	Forecast runs with configured properties: <ol style="list-style-type: none"> 1. use warm state based on historical run 2. if not available use intermediate warm state from forecast run 3. if not available use cold state) For more information: backupWarmStateModuleInstanceId	warm state from forecast simulation was used	purple circle	used fall back option: warm historical state configured, but warm forecast state is used
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The icons with more details:

-  cold state start as selected by user. In this case the cold state id and state start time are shown in the tooltip.
-  warm state start as selected by user. In this case the state search period is shown in the tooltip.
-  cold state start as a warm state in the selected search period could not be found. In this case the module instance id and the state search period are shown in the tooltip.
- no state icon: default state start. No specific state start selected by user.

The tables in the display tabs can be sorted by clicking the headers of the columns.

Sort options

These options are available in all the tabs of the forecast management dialog.









By clicking any of the columns the list of workflows will be sorted either descending or ascending based on the values in that column. When you click again the order is reversed.

TIP: To easily filter on a specific forecast, you can sort on the approved column, which will put all the approved forecast on top, subsequently select the forecast you want, and "filter by selection".








Filter options

These options are available in all the tabs of the forecast management dialog.

For each table in the display tabs the list of visible forecasts can be filtered using the buttons next to the table. First select the text to use as a filter. Either click on a table cell to select all text in that cell. The selected cell will be recognizable since it has a thin blue frame :

	T0	Dispatch time	Workflow	What-if sce...	Description	FDO	FSS ID	FSS Group ID	Runti...	Outpu...	
	Wed 08-04-2020 09:15...	Wed 08-04-2020 09:15...	Rate of Rise on Observed Levels		Rate of Rise Calculation		119	windows	10s	23h 15m	<div>Open</div> <div>Run</div> <div>Filter by Selection</div> <div>Filter by Branch</div> <div>Remove Filter</div>
	Wed 08-04-2020 09:00...	Wed 08-04-2020 09:15...	Fluvial Historical (Intermediate, Export State to HPC)		G2G State Generate and Export to ...		119	windows	2m 40s	9h	
	Wed 08-04-2020 09:00...	Wed 08-04-2020 09:00...	Rate of Rise on Observed Levels		Rate of Rise Calculation		52	windows	8s	23h 15m	
	Wed 08-04-2020 09:00...	Wed 08-04-2020 08:55...	Compute Multivariate Thresholds (CMRDET)		Coastal MVT Deterministic Forecast		119	windows	13s	11d 12h	
	Wed 08-04-2020 00:00...	Wed 08-04-2020 08:55...	Compute Multivariate Thresholds (CMRENS)		Coastal MVT Forecasts		118	windows	1m 19s	11d 12h	
	Wed 08-04-2020 08:45...	Wed 08-04-2020 08:45...	Rate of Rise on Observed Levels		Rate of Rise Calculation		118	windows	4s	23h 15m	
	Wed 08-04-2020 08:30...	Wed 08-04-2020 08:30...	Rate of Rise on Observed Levels		Rate of Rise Calculation		119	windows	4s	1d 5h	
	Wed 08-04-2020 08:15...	Wed 08-04-2020 08:15...	Rate of Rise on Observed Levels		Rate of Rise Calculation		119	windows	3s	1d 6h	

Or double click on a table cell and drag inside a cell to select part of the text in that cell. The selected text will be highlighted :

	T0	Dispatch time	Workflow	What-if sce...	Description	FDO	FSS ID	FSS Group ID	Runti...	Outpu...	
	Wed 08-04-2020 09:15...	Wed 08-04-2020 09:15...	Rate of Rise on Observed Levels		Rate of Rise Calculation		119	windows	10s	23h 15m	<div>Open</div> <div>Run</div> <div>Filter by Selection</div> <div>Filter by Branch</div> <div>Remove Filter</div>
	Wed 08-04-2020 09:00...	Wed 08-04-2020 09:15...	Fluvial Historical (Intermediate, Export State to HPC)		G2G State Generate and Export to ...		119	windows	2m 40s	9h	
	Wed 08-04-2020 09:00...	Wed 08-04-2020 09:00...	Rate of Rise on Observed Levels		Rate of Rise Calculation		52	windows	8s	23h 15m	
	Wed 08-04-2020 00:00...	Wed 08-04-2020 08:55...	Compute Multivariate Thresholds (CMRDET)		Coastal MVT Deterministic Forecast		119	windows	13s	11d 12h	
	Wed 08-04-2020 00:00...	Wed 08-04-2020 08:55...	Compute Multivariate Thresholds (CMRENS)		Coastal MVT Forecasts		118	windows	1m 19s	11d 12h	
	Wed 08-04-2020 08:45...	Wed 08-04-2020 08:45...	Rate of Rise on Observed Levels		Rate of Rise Calculation		118	windows	4s	23h 15m	
	Wed 08-04-2020 08:30...	Wed 08-04-2020 08:30...	Rate of Rise on Observed Levels		Rate of Rise Calculation		119	windows	4s	1d 5h	

Then click the 'Filter By Selection' button to filter the list of visible forecasts on the selected text. After filtering only forecasts that contain the filter text in the corresponding column will be visible. Repeat this process to use multiple filters.

For example, after filtering on the selected text 'CMRDET' in the 'Workflow' column, only forecasts that have a workflow name that contains 'CMRDET' will be visible.

It is also possible to use a displayed icon as a filter. First click on a table cell that contains an icon. Then click the 'Filter By Selection' button to filter the list of visible forecasts on the selected icon. After filtering only forecasts that have the same icon in the corresponding column will be visible. This can be used for instance to filter only approved forecasts.

Pressing the "filter by branch" button will shows a list of all module instances for the selected run. After selecting the module instance all task runs linked to the selected task run are displayed

To remove the filters, click the 'Remove Filter' button. All forecasts in the table will be visible again.

Forecast Overview tab

The Forecast Overview tab allows for:

- Downloading individual forecasts from the Central Database
- Redownloading individual forecasts from the Central Database under another synchronisation profile
- Selecting a forecast and adding it to the forecast filter in FEWS Explorer
- Rerunning a forecast

Forecast Management

Forecast Overview | **Current Forecasts**

Forecasts in Central Database

T0	Dispatch time	Workflow	What-if scenario	Descripti...	FDO
28-04-2008 02:00:00	28-04-2008 02:30:00	Fluvial_Forecast		Fluvial Forec...	
28-04-2008 00:00:00	28-04-2008 00:30:02	Fluvial_Forecast		Fluvial Forec...	
27-04-2008 22:00:00	27-04-2008 22:30:00	Fluvial_Forecast		Fluvial Forec...	
27-04-2008 20:00:00	27-04-2008 20:30:01	Fluvial_Forecast		Fluvial Forec...	
27-04-2008 18:00:00	27-04-2008 19:00:04	Coastal_Forecast		Coastal fore...	
27-04-2008 18:00:00	27-04-2008 18:30:04	Fluvial_Forecast		Fluvial Forec...	

Buttons: Download, Filter By Selection, Remove Filter

Forecasts in Local Datastore

T0	Dispatch time	Workflow	What-if scenario	Description	FDO
28-04-2008 06:00:00	28-04-2008 06:30:05	Fluvial_Forecast		Fluvial Forecast	
28-04-2008 06:00:00	28-04-2008 06:03:08	Fluvial_Forecast		test_GB_prea... Gerben Boot	
28-04-2008 04:00:00	28-04-2008 04:30:04	Fluvial_Forecast		Fluvial Forecast	
27-04-2008 16:00:00	28-04-2008 02:00:02	Fluvial_Historical		Fluvial Historical	
28-04-2008 00:00:00	28-04-2008 01:00:01	Coastal_Forecast		Coastal forec...	
25-04-2008 14:00:00				current fully succesfull Fluvial Historical,	
25-04-2008 14:00:00				Cold state start as a warm state in the default search period could not be found for GA_ISIS_tsev_StateRun (and 1 more)	
25-04-2008 12:00:00	25-04-2008 13:00:04	Coastal_Forecast		Coastal forec...	
25-04-2008 12:00:00	25-04-2008 12:30:03	Fluvial_Forecast		Fluvial Forecast	
24-04-2008 16:00:00	25-04-2008 02:00:01	Fluvial_Historical		Fluvial Historical	
22-04-2008 10:00:00	22-04-2008 10:30:00	Fluvial_Forecast		Fluvial Forecast	
22-04-2008 08:00:00	22-04-2008 08:38:06	Fluvial_Forecast		Fluvial Forecast	
22-04-2008 06:00:00	22-04-2008 07:00:02	Coastal_Forecast		Coastal forec...	
21-04-2008 16:00:00	22-04-2008 02:00:01	Fluvial_Historical		Fluvial Historical	

Buttons: Open, Run, Redownload, Filter By Selection, Remove Filter

Close Help

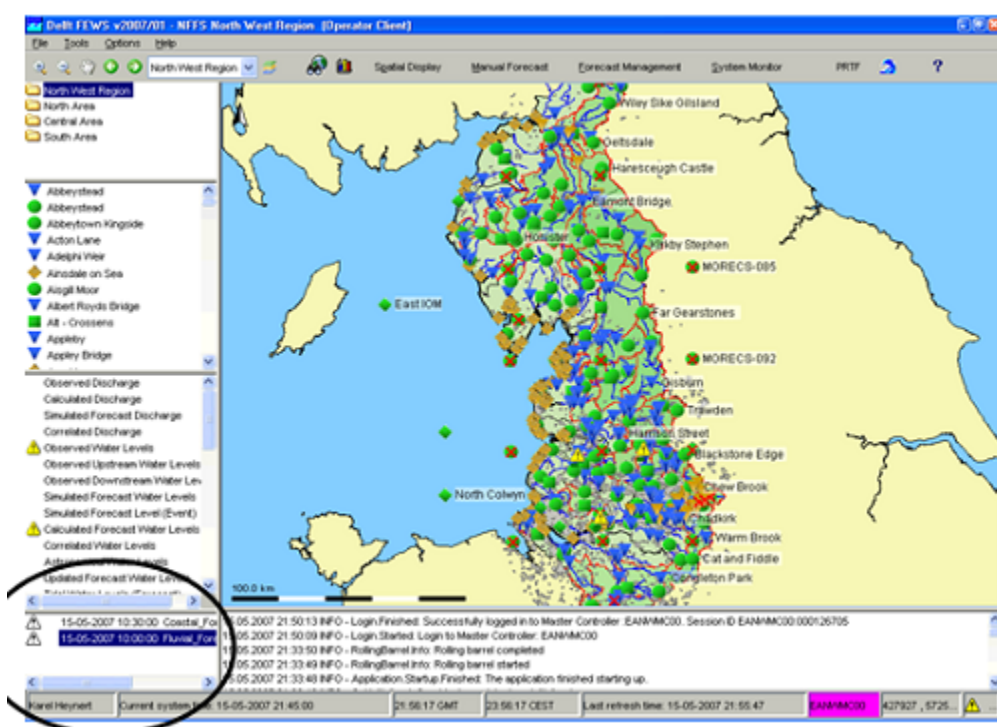
When moving the mouse over the forecast list a tool tip indicates whether the forecast has been fully successful or not.

Adding workflows to forecast list box of FEWS Explorer

When the tab is opened, the forecasts that are available in the Local Data store are displayed in the lower listing. Forecasts can be selected with the mouse and made available in the *Forecast List Box* of FEWS Explorer for review and analysis by pressing **[Open]**.

Please note that only forecasts that are visible in the forecast filter box of the FEWS Explorer can be viewed and edited with the Data Display and Editor. The current forecast is an exception, because it's always shown in the Data Display and -Editor, but not displayed in the forecast filter box.

All forecasts listed in the forecast filter box can be removed from the display (not from the local data store) by clicking the right mouse button with the cursor placed in the list box. A button appears with 'Remove all'. Pressing this button will remove the list of forecasts from the filter box.



Rerun a forecast

A forecast can be rerun by pressing the **[Run]** button after selecting the forecast from the forecast list. The selected forecast will be completely rerun and saved as a new forecast in the data base. This option can be useful when rerunning an Archived Forecast.

Download a forecast from Central Database (only in OC)

Forecasts that are available in the Central Database, but not in the Local Data store are listed in the *top* panel. Forecasts can be selected with the mouse and downloaded to an OC by pressing **[Download]**.

Please note that the download may require some time. When downloaded the forecast will be visible in the lower listing.

Redownload a forecast from Central Database (only in OC)

When logged in, the Operator Client (OC) allows for different synchronisation profiles to be used. If an individual forecast has been downloaded in the past under a minimal synchronisation profile, then only part of the data may have been downloaded. To download all data for such a forecast, log in under a full synchronisation profile, select the forecast in the lower listing with the mouse and redownload all data for the forecast to the OC by pressing **[Redownload]**.

Please note that redownloading may require some time. After redownloading the forecast will still be visible in the lower listing.

Promote button

Since version 2021.02 a promote button is added, this can be used to promote a local run to an approved server run. It will show a popup in which a description can be added which will be stored with the run.

The button has been added for auto calibration which normally will just be local runs, when a user has found interesting results but might want to continue calibrating, this way the run is saved.

Forecast Overview Current Forecasts Forecast Expiry Time Modifiers

Forecasts in Central Database

TO	Dispatch time	Workflow	What-if s...	Description	FDO	FS...	FSS Group ID	Runti...	Output Ti...
10-01-2013 00:00	10-04-2021 08:58	KLCA2_Stats_Calibration						42 s	109 y 310 d
10-01-2013 00:00	09-30-2021 08:55	KLCA2_Stats_Calibration						10 s	109 y 310 d
10-01-2013 00:00	09-07-2021 19:20	KLCA2_Stats_Calibration						6 s	109 y 310 d
10-01-2013 00:00	09-07-2021 18:39	KLCA2_Stats_Calibration						7 s	109 y 310 d
10-01-2013 00:00	08-30-2021 18:36	KLCA2_Stats_Calibration						6 s	109 y 310 d
10-01-2013 00:00	08-30-2021 18:14	KLCA2_Stats_Calibration						5 s	109 y 310 d
10-01-2013 00:00	08-30-2021 18:06	KLCA2_Stats_Calibration						5 s	109 y 310 d
10-01-2013 00:00	08-30-2021 17:58	KLCA2_Stats_Calibration						6 s	109 y 310 d
10-01-2013 00:00	08-09-2021 12:26	CJXA2_Stats_Calibration						6 s	109 y 310 d
10-01-2013 00:00	08-09-2021 12:26	KLCA2_Stats_Calibration						6 s	109 y 310 d
10-01-2013 00:00	08-09-2021 12:15	KLCA2_Stats_Calibration						6 s	109 y 310 d

Forecasts in Local Datastore

Map Plots Topology Modifiers Forecast Management

Input

Description

Interesting results

OK Cancel

Download

Filter by Selection

Filter by Branch

Remove Filter

Open

Run

Promote

Filter by Selection


Filter by Branch

Remove Filter

Current Forecast tab

A few definitions are required at the start of this section:

- Current Forecast**
 The Current Forecast is a combination of forecasts made for the whole region, which together form the current forecast. The current forecast is automatically downloaded to OCs. Location related icons are refreshed on the basis on the current forecast. The current forecast is always displayed in the Data Editor and -Display. A forecast can be partly current when not all module instance ids are written in the forecast that replaces the old forecast. This can happen when a sub workflow is made current or it can be a config error when module instance ids for simulated data are reused between workflows unintentionally. In the current forecast tab only the latest approved forecast per workflow is listed.
- Approved Forecast**
 Approved Forecasts have been approved by the system or manually by an FDO to become the Current Forecast. The latest Approved Forecast is the Current Forecast.
- Other Forecasts**
 Besides Approved Forecasts, the system may be populated with other forecasts that are the result of manual or scheduled forecasts with or without application of what-if scenarios.

Under normal conditions the Current Forecasts will be updated automatically by the system on the basis of the results of a successfully completed scheduled forecasting run. These forecast are marked with the icon .

A forecaster can amend the Current Forecast by replacing it partly or fully with the results individual forecast runs. These 'other' forecasts can for example be the result of running what-if scenarios. The Current Forecast tab allows for selection of individual forecasts that should become part of the Current Forecast.

To change the Current Forecast, select a forecast run that should become part of the Current Forecast in the *lower* column of the tab. Upon pressing [Approve] the selected forecast will become part of the Current Forecast.

Forecast Management

Forecast Overview | **Current Forecasts**

Current Forecasts

	T0	Dispatch time	Workflow	What-if scenario	Description	FDO
	28-04-2008 06:00:00	28-04-2008 06:30:05	Fluvial_Forecast		Fluvial Forec...	
		27-04-2008 16:00:00	28-04-2008 02:00:02	Fluvial_Historical	Fluvial Histori...	
		28-04-2008 00:00:00	28-04-2008 01:00:01	Coastal_Forecast	Coastal forec...	

Filter By Selection
Remove Filter

Forecasts in Local Datastore

	T0	Dispatch time	Workflow	What-if scenario	Description	FDO
	28-04-2008 06:00:00	28-04-2008 06:30:05	Fluvial_Forecast		Fluvial Forec...	
	28-04-2008 06:00:00	28-04-2008 06:03:08	Fluvial_Forecast		test_GB_pre...	Gerben Boot
	28-04-2008 04:00:00	28-04-2008 04:30:04	Fluvial_Forecast		Fluvial Forec...	
		27-04-2008	approved fully succesfull test_GB_preapprove_true,		Fluvial Histori...	
		28-04-2008	Default state start (No specific state start selected by user)		Coastal forec...	
	25-04-2008 14:00:00	25-04-2008 14:55:13	Fluvial_Forecast		test gb no pr...	Gerben Boot
	25-04-2008 14:00:00	25-04-2008 14:34:58	Fluvial_Forecast		fluvial_test_gb	Gerben Boot
		25-04-2008 12:00:00	25-04-2008 13:00:04	Coastal_Forecast	Coastal forec...	
	25-04-2008 12:00:00	25-04-2008 12:30:03	Fluvial_Forecast		Fluvial Forec...	
		24-04-2008 16:00:00	25-04-2008 02:00:01	Fluvial_Historical	Fluvial Histori...	
	22-04-2008 10:00:00	22-04-2008 10:30:00	Fluvial_Forecast		Fluvial Forec...	
	22-04-2008 08:00:00	22-04-2008 08:38:06	Fluvial_Forecast		Fluvial Forec...	
		22-04-2008 06:00:00	22-04-2008 07:00:02	Coastal_Forecast	Coastal forec...	
		21-04-2008 16:00:00	22-04-2008 02:00:01	Fluvial_Historical	Fluvial Histori...	

Approve
Filter By Selection
Remove Filter

Close Help

In the list of forecasts that together form the Current Forecast, 'overlapping' forecasts may be displayed. A forecaster may for example run a what-if scenario for *part* of a catchment for which already an automatic forecast has been made that is part of the Current Forecast. When the forecast with the what-if scenario should now become part of the Current Forecast it can be selected in the *lower* table of the Current Forecast tab and with [Approve] moved to the *upper* table. The *upper* table now displays both forecast runs: the original forecast whole catchment and the forecast with the what-if scenario for part of the catchment. The system will override the data of the original workflow for the part of the catchment that has been rerun when presenting the Current Forecast.

Forecast Expiry Time tab

The Forecast Expiry Time tab allows for:

- Deleting individual forecasts from the Central Database
- Changing the expiry time of individual forecasts in the Central Database

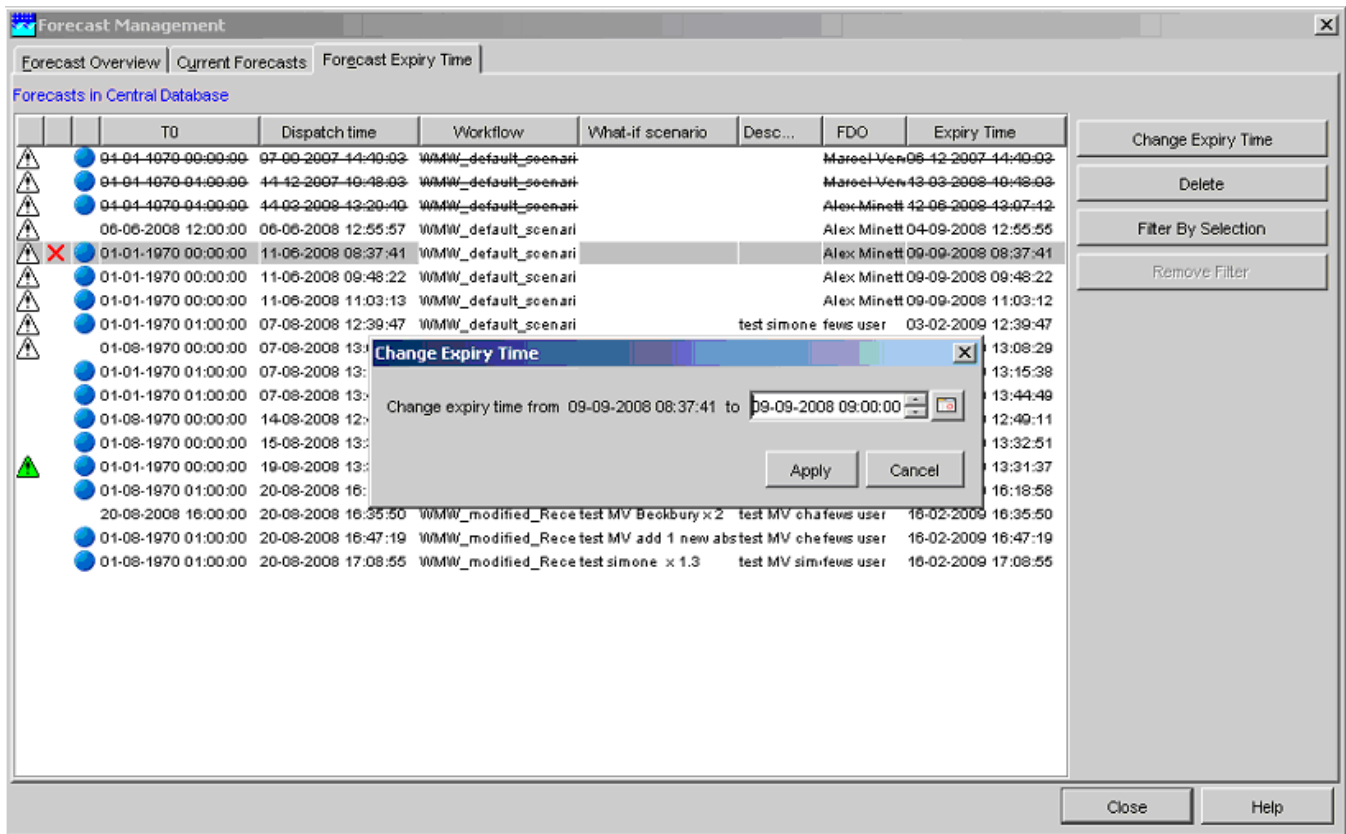
Deleting a forecast from the Central Database (only in OC)

When logged in, forecasts that are available in the Central Database are listed in the table. Please note that only forecasts for which the user has delete permission are visible in the table. Forecasts can be selected with the mouse and marked for deletion by pressing [Delete]. Forecasts marked for deletion will be deleted in the next rolling barrel run. Only forecasts for which the user has delete permission can be deleted.

Changing the expiry time of a forecast in the Central Database (only in OC)

When logged in, forecasts that are available in the Central Database are listed in the table. Please note that only forecasts for which the user has delete permission are visible in the table. The expiry time of each forecast is visible in the Expiry Time column. When the expiry time of a forecast has passed, the forecast will be deleted from the Central Database. Forecasts that will expire within 10 days are displayed in strikethrough text in the table.

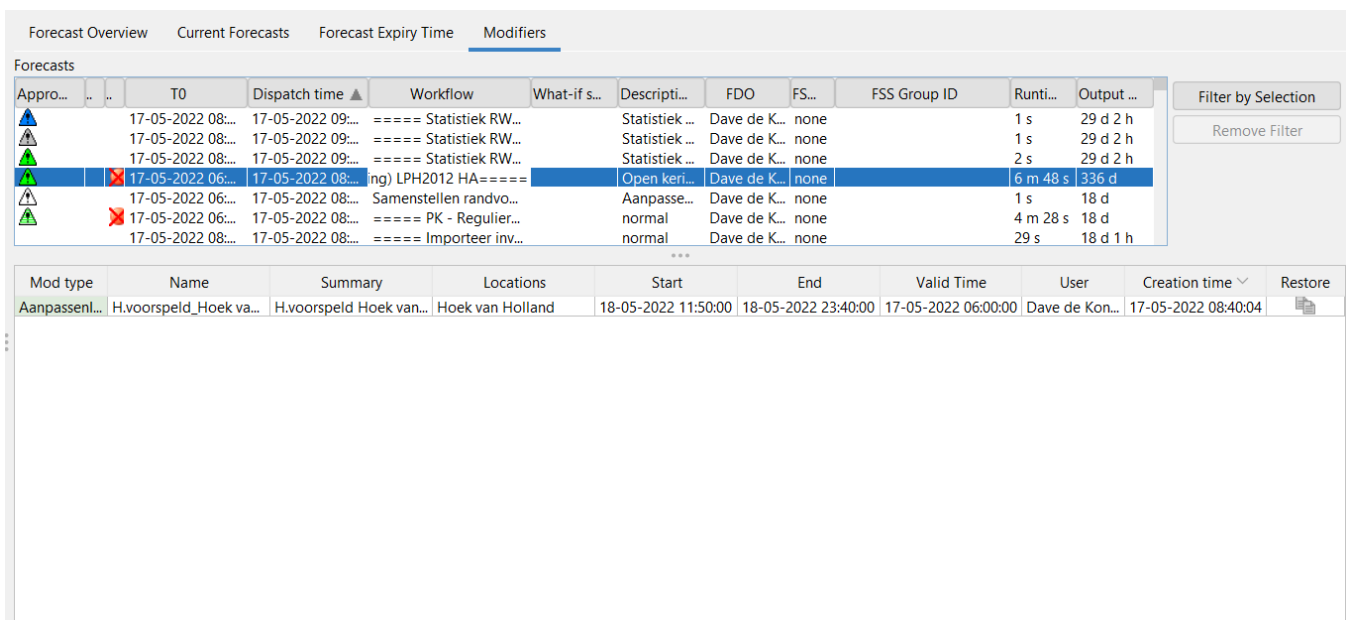
To change the expiry time of individual forecasts, select the forecasts in the table with the mouse and press [Change Expiry Time]. In the dialog that appears, select a new expiry time and press [Apply] to change the expiry time of the selected forecasts. The expiry time can only be changed for forecasts for which the user has delete permission.



Modifiers tab

The modifiers tab of the forecast management display allows for the following functions:

- Listing modifiers that were used in the selected workflow
- Restoring modifiers that were used (and now inactive) for the selected workflow



In the top panel the user can select the forecast workflow. Once selected the bottom panel will list all the modifiers that have been used. When the modifier is still active the first cell of the row is green, when it is inactive this cell is grey and the entire row is striked through.

Mod type	Name	Summary	Locations	Start	End	Valid Time	User	Creation time	Restore
Aanpassent...	H.voorspeld_Hoek va...	H.voorspeld Hoek van...	Hoek van Holland	18-05-2022 11:50:00	18-05-2022 23:40:00	17-05-2022 06:00:00	Dave de Kon...	17-05-2022 08:40:04	

By clicking the restore icon in the last column, the modifier will be restored (made active again). With this action a new modifier is created, which is a copy of the original modifier.

Popup Menu

Popup menu can be opened from any Forecast Management tab by selecting a forecast and using right mouse button.

The screenshot shows the 'Forecast Management' window with the 'Current Forecasts' tab selected. A right-click context menu is open over a forecast row. The menu options are:

- Show in Log Browser Ctrl+L
- Workflow Schema Ctrl+S
- Workflow Navigator Ctrl+N

The background table lists forecasts with columns: Approved, Success, Used, T0, Dispatch time, Workflow, What..., Description, FDO, FSS ID, FSS Group, Runtime, and Output. The selected forecast is 'Coastal_Forecast' with T0 '27-08-2019 11:13:00' and Dispatch time '27-08-2019 11:13:01'.

Menu "Show in Log Browser Ctrl+L" opens System Monitor with Log Browser tab selected. In the Log Browser all messages associated with the selected forecast are listed.

Menu 'Workflow Schema Ctrl+S' opens a new tab Workflow schema. Workflow Schema will show the workflows that have been involved to create the selected forecast and all input workflows that have generated input for that forecast (note that the workflow dependencies must be configured in WorkflowDescriptors.xml with elements 'inputWorkflowId'.

Menu "Workflow Navigator Ctrl+N" opens Workflow Navigator. Workflow Navigator will show the workflows and modules that have been involved to create the selected forecast. Use the Workflow Navigator popup menu to display the timeseries that are associated with the forecast that has been selected in the Forecast Management display.

Menu's "Show in Log Browser Ctrl+L" and "Workflow Navigator Ctrl+N" appear only if explorerTask for System Monitor and for Workflow Navigator are configured in Explorer.xml

Display configuration

It is possible to add display configuration for forecast management, for example adding colors based on age of the forecast. for more information [click here](#).