

MIKE URBAN+

Guide to existing MIKE URBAN Users

Migration



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1 Introduction

MIKE URBAN+ is the new and future modelling platform for modelling all urban water systems. It is introduced as a full featured urban modelling package for modelling Water Distribution and Collection System. MIKE URBAN+ is the successor of the current MIKE URBAN.

The MIKE 2020 Release will include both MIKE URBAN+ and MIKE URBAN. MIKE URBAN 2020 will be the last release of MIKE URBAN.

The current document targets existing MIKE URBAN users with the aim of informing about the current contents and features of MIKE URBAN+ as well as outlining the main steps involved in migrating from MIKE URBAN to MIKE URBAN+.

2 Release and License Information

MIKE URBAN+ is our primary urban software product for sale with the MIKE URBAN+ Release 2019 and forward.

MIKE URBAN will be included with MIKE URBAN+ until the last release of MIKE URBAN 2020. New purchases of MIKE URBAN+ model licenses will include access to both MIKE URBAN+ and MIKE URBAN. The MIKE URBAN+ and MIKE URBAN can coexist on the PC and run simultaneously.

MIKE URBAN+ comes in two versions:

- [MIKE URBAN+](#)
- [MIKE URBAN+ ArcGIS](#)

The difference between the two version is that the MIKE URBAN+ ArcGIS includes license for ArcGIS Pro, ArcGIS and one seat for ArcGIS Online as well as installation files for ArcGIS Pro.

In both MIKE URBAN+ and MIKE URBAN+ ArcGIS, there is an ArcGIS integration option by which integration with ArcGIS Pro is possible. This integration requires a license for ArcGIS Pro.

Existing users of MIKE URBAN with a valid Service and Maintenance Agreement (SMA) will get access to MIKE URBAN+ ArcGIS version without additional fees.

2.1 Releases

MIKE URBAN+ will be released in two parts:

- the first release in May 2019, MIKE URBAN+ 2019 includes for water distribution and collection systems
- the second release in November 2019, MIKE URBAN+ 2020 includes:
 - 2D Overland flood modelling
 - Culvert Structures

- Sediment Transport
- Import of existing MIKE URBAN Scenarios
- Enhanced LTS functionality
- Improved result presentation workflow

3 Getting Started with MIKE URBAN+

This chapter provides a quick introduction to MIKE URBAN+. MIKE URBAN+ supports both Collection System and Water Distribution modelling.

Examples files for both Collection System and Water Distribution is provided with the installation in both SI and US units.

In the following illustration of a Collection System model, Sirius is used as an example.

3.1 Open MIKE URBAN+ model and explore MIKE URBAN+ GUI

1. Start MIKE URBAN+

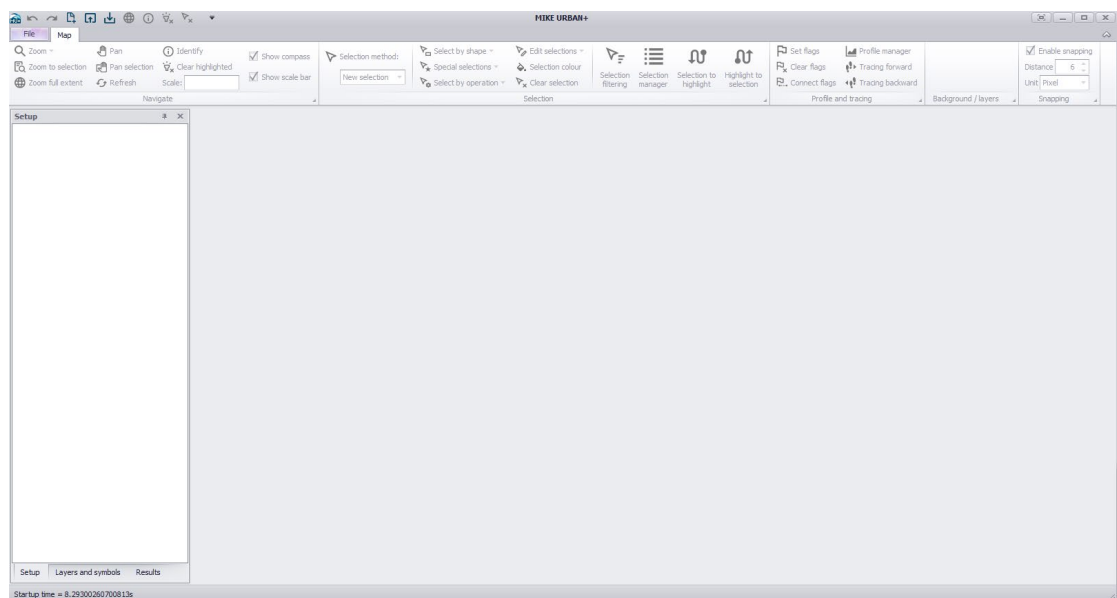


Figure 3.1 Start screen

2. Open the model Sirius.mupp

a. File/Open

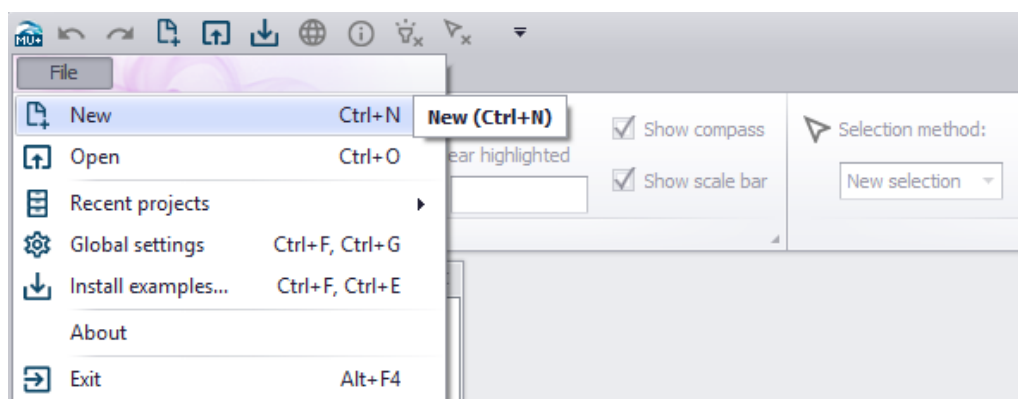


Figure 3.2 File | New

- b. Browse to the MIKE URBAN+ project file Sirius.mupp and click “Open”

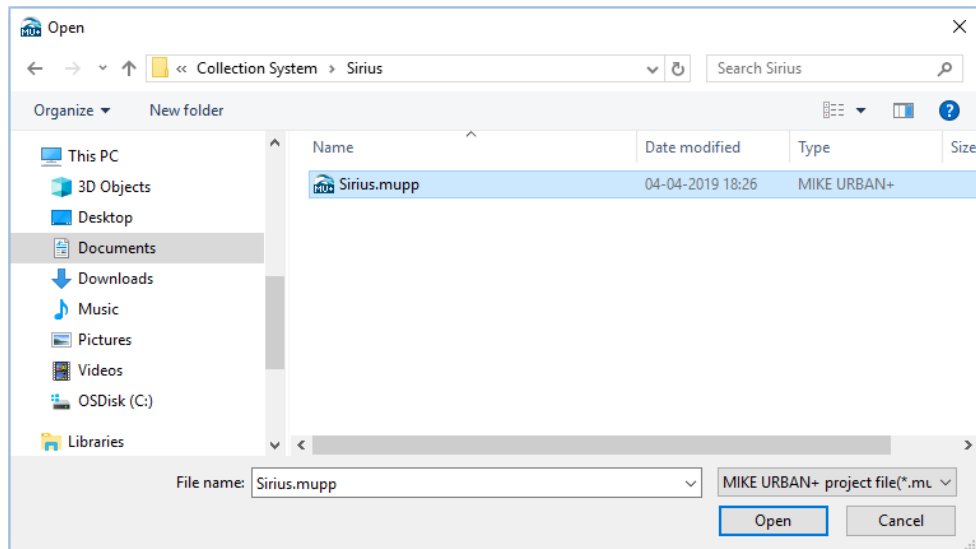


Figure 3.3 Browse for MIKE URBAN+ project file, *.mupp

- c. Review the application window

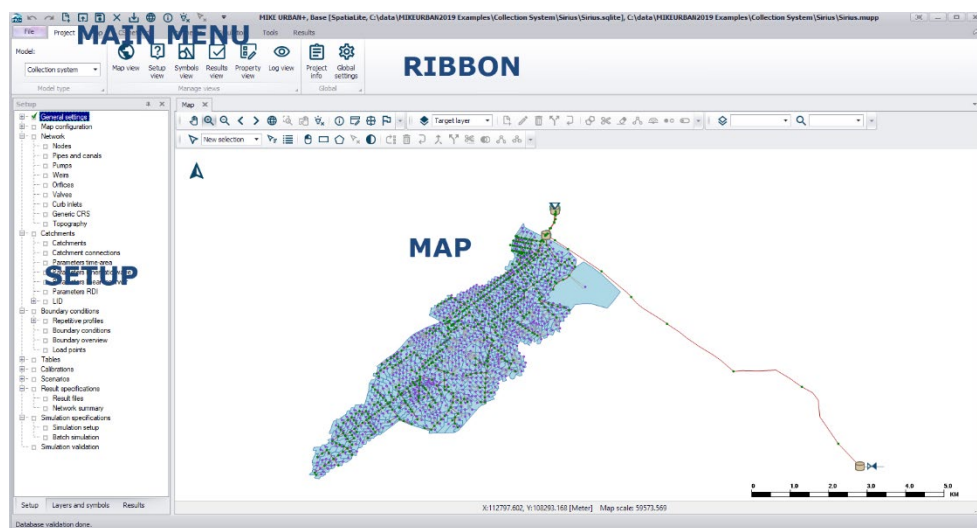


Figure 3.4 Overview application window

MAP: map view of the model with default symbology

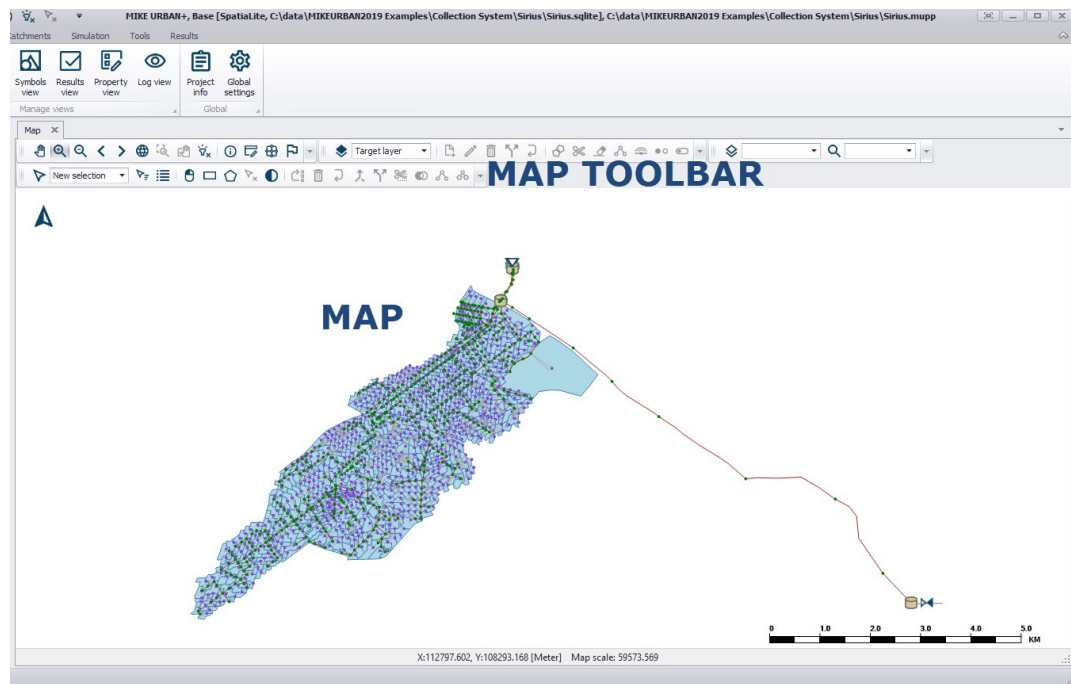


Figure 3.5 Map and toolbar window

The map is per default 'docked', but can be 'floated' (right 'click' + Float).

The map is brought to the front by clicking on the 'Map' tab)

Setup: One of three 'Table of contents':

- **Setup:** Access to model setup editors
- **Layers and Symbols:** Configuring map symbols
- **Results:** Result presentation

Context-sensitive contents – only editors associated with currently active modules are shown (controlled by 'Modules' editor)

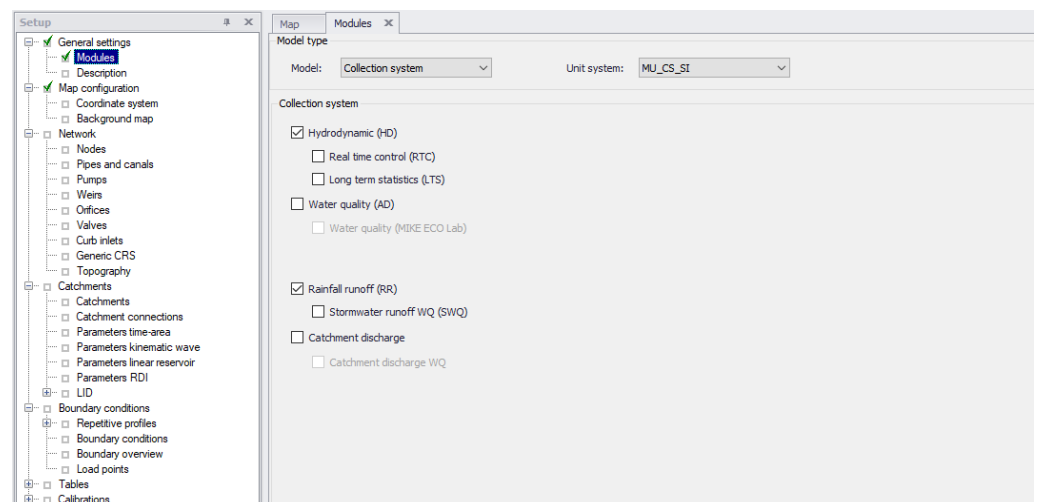


Figure 3.6 Modules selection

Logical workflow sequence, entries organised in modules and groups

Data validation:

Green: all OK

Red: Some data is incomplete or incorrect

3.2 Project Info: provides a general information on the project contents

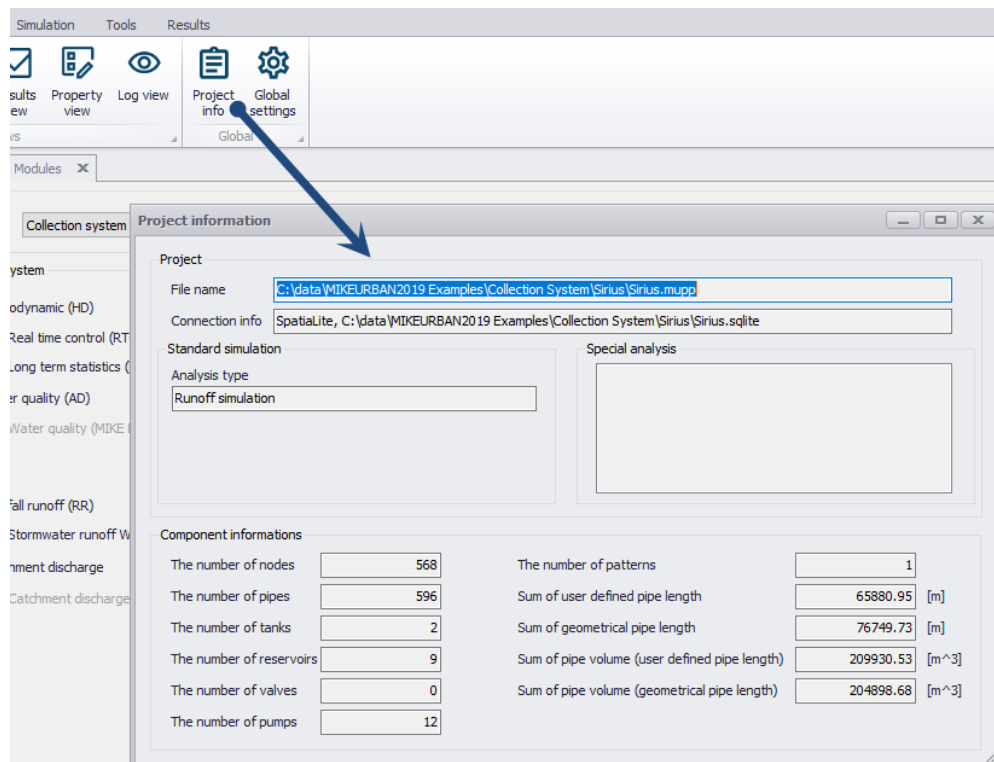


Figure 3.7 Project information

3.2.1 Find about editors functionality

General features

A click on any group entry folds/unfolds a group.

A click on any low-level entry opens an editor and per default docks it as a tabbed document.

'Docked' editors are displayed one at a time. Any editor can be brought to the front by clicking on its tab.

When 'Floated', editors are displayed in a stack, with the active editor on top.

MIKE URBAN+ GUI with 'floating' editors:

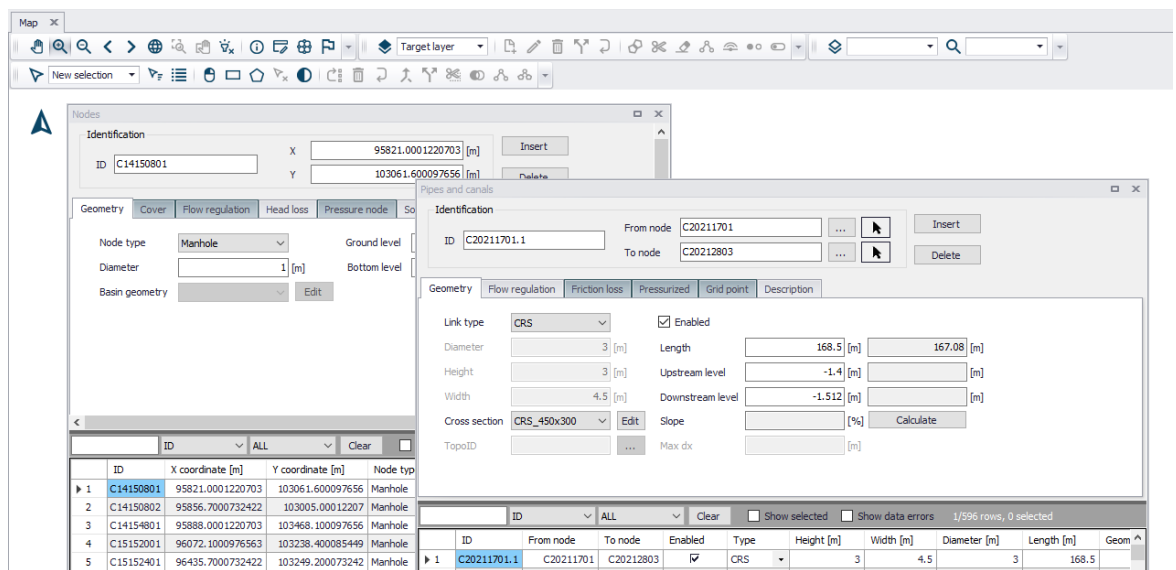


Figure 3.8 Dialogs floating

MIKE URBAN+ GUI with all editors 'docked'. Only the active 'Catchment Connections' editor is visible:

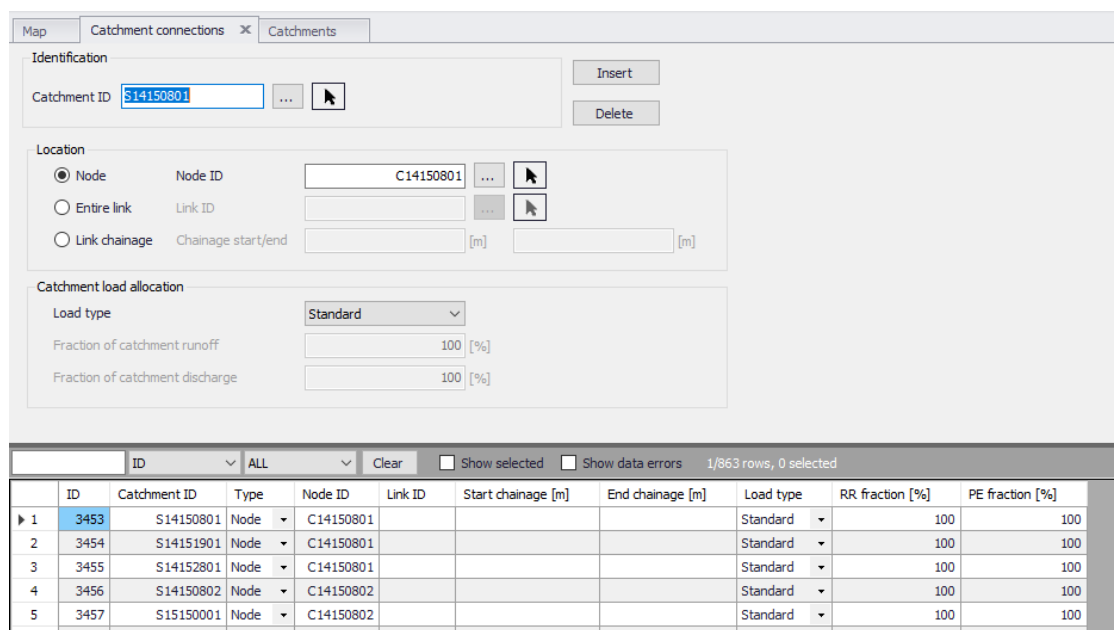


Figure 3.9 Dialogs docked

3.2.2 Editor Functionality

Error validation

Setup

- General settings
 - Modules
 - Description
 - Map configuration
 - Coordinate system
 - Background map
- Network
 - Nodes**
 - Pipes and canals
 - Pumps
 - Weirs
 - Orifices
 - Valves
 - Curb inlets
 - Generic CRS
 - Topography
- Catchments
 - Catchment connections
 - Parameters time-area
 - Parameters kinematic wave
 - Parameters linear reservoir
 - Parameters RDI
 - LID
- Boundary conditions
 - Repetitive profiles
 - Boundary conditions

Map Nodes

Identification

ID: C14150801

X: 95821.0001220703 [m]

Y: 103061.600097656 [m]

Geometry

Node type: Manhole

Diameter: 1 [m]

Ground level: 22.82 [m]

Bottom level: 22.82 [m]

Basin geometry: Edit

ID	X coordinate [m]	Y coordinate [m]	Node type	Diameter [m]	Ground level [m]	Bottom level [m]	Basin geometry
1	C14150801	95821.0001220703	103061.600097656	Manhole	1	22.82	
2	C14150802	95856.7000732422	103005.00012207	Manhole	1	23.35	

Figure 3.10 On-the-fly data validation

Filtering

Map Catchment connections

Identification

Catchment ID: S14150801

Location

Node ID: C14150801

Catchment load allocation

Load type: Standard

Fraction of catchment runoff: 100 [%]

Fraction of catchment discharge: 100 [%]

ID	Catchment ID	Type	Node ID	Link ID	Start chainage [m]	End chainage [m]	Load type	RR fraction [%]	PE fraction [%]
1	3453	S14150801	Node	C14150801			Standard	100	100
2	3454	S14151901	Node	C14150801			Standard	100	100
3	3455	S14152801	Node	C14150801			Standard	100	100
4	3456	S14150802	Node	C14150802			Standard	100	100
5	3457	S15150001	Node	C14150802			Standard	100	100
6	3458	S14154801	Node	C14154801			Standard	100	100
7	3459	S14152901	Node	C15152001			Standard	100	100

Figure 3.11 Catchment Connections

Other functions

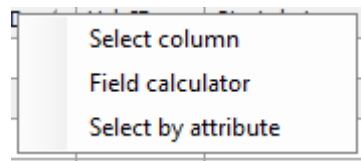


Figure 3.12 Grid functions (1)

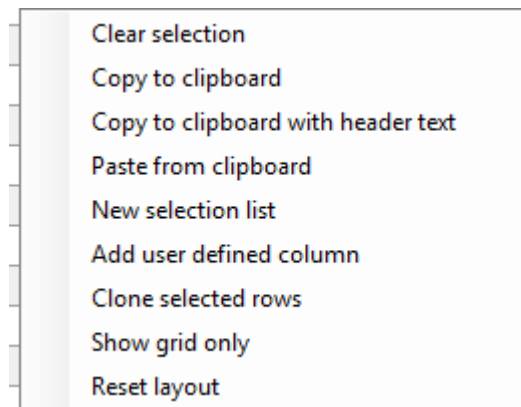


Figure 3.13 Grind functions (2)

3.3 Project info

Provides some basic information about project contents.

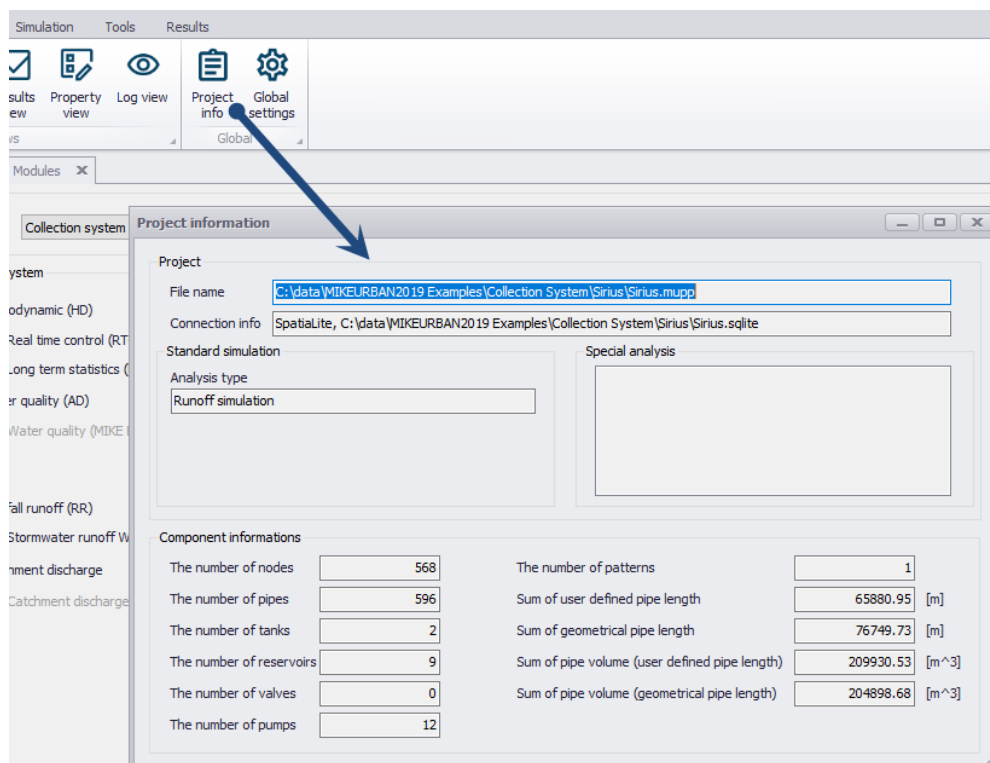


Figure 3.14 Project Info

3.4 Boundary conditions

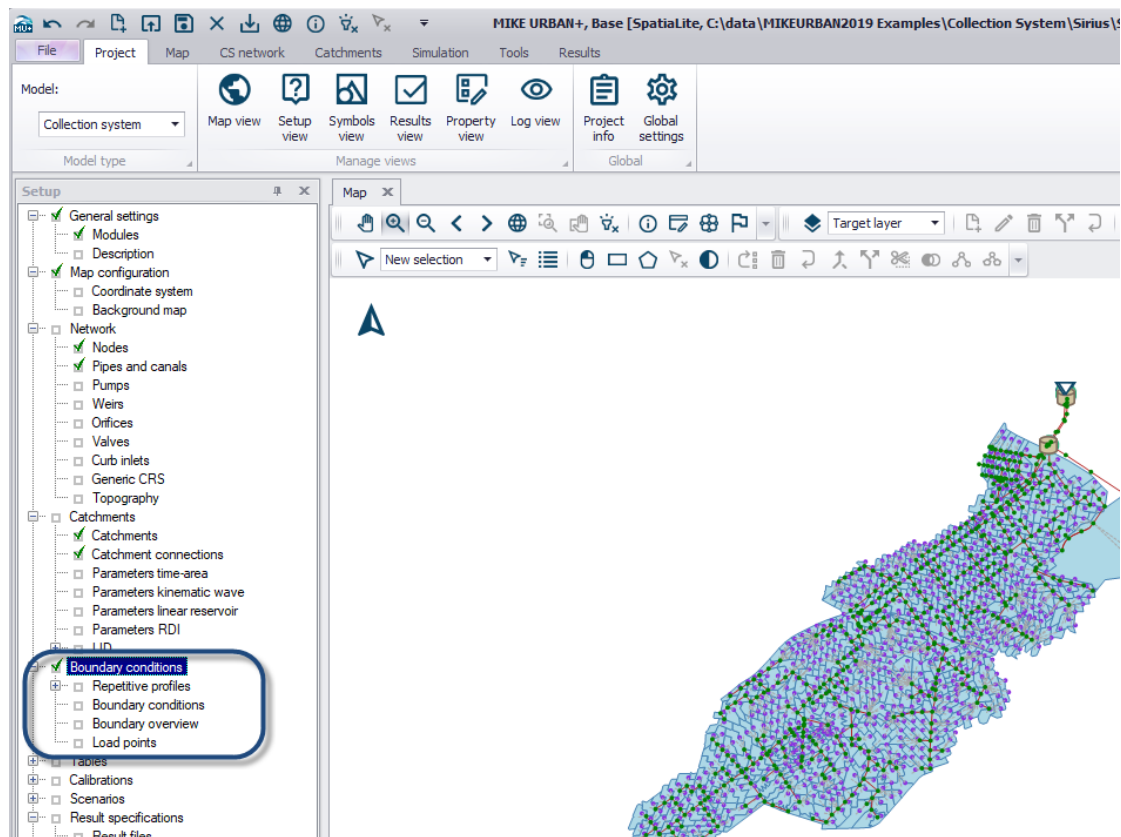


Figure 3.15 Boundary Conditions

3.4.1 Boundary Conditions Editor

'Identification' box

BC 'passport': Identifier (name), Type, Activity

Serves all types of BC.

Map

Boundary conditions

Identification

ID

Rainfall_1_year

Type

Rainfall

Rainfall
Air temperature
Evapo-transpiration
Catchment discharge
Catchment discharge per area
Catchment discharge per PE
Load point discharge
Load point discharge per unit
Inflow to node
Inflow to link
Inflow from result file
Outlet water level
Exfiltration from node
Exfiltration from link
Stormwater loads(surface)
Stormwater loads(RDII)

☒ Apply
 Catchment Loads

Insert

Delete

Spatial extent

Temporal Variation

Limited interval

☒ All
 ☐ List
 ☐ Individual
 ☐ Geo-coded
 ☐ Data source location
 ☐ Grid distributed weights

Description

1: Domestic WW

X

[m]

Y

[m]

ID

ALL

Clear

☐ Show selected

☐ Show data errors

6/7 rows, 0 selected

	ID	Boundary type	Group No	Apply Boundary	Load type	Connection type	List Name
1	SiriusRiver_Node_13	Outlet water level	Outlet Levels	<input checked="" type="checkbox"/>		Individual	
2	SiriusRiver_Node_14	Outlet water level	Outlet Levels	<input checked="" type="checkbox"/>		Individual	
3	SiriusRiver_Node_15	Outlet water level	Outlet Levels	<input checked="" type="checkbox"/>		Individual	
4	SiriusRiver_Node_16	Outlet water level	Outlet Levels	<input checked="" type="checkbox"/>		Individual	
5	Wastewater	Load point discharge	Network Loads	<input checked="" type="checkbox"/>	DWF	Geo-coded	
▶ 6	Rainfall_1_year	Rainfall	Catchment Loads	<input checked="" type="checkbox"/>		All	
7	Runoff_input	Inflow from result file	Network Loads	<input type="checkbox"/>		All	

‘Spatial extent’ TAB

Linking of the actual BC with the model

- All – entire model
- List (selection): reference to a sub-set of model elements, defined in a ‘selection manager’ (in MU Classic: ‘*.mus’ file)
- Individual: reference to individual model element
- Geo-coded: applies for load points associated with individual model elements
- Data source location: applies for meteorological stations (e.g. rain gauges)
- Grid-distributed weights: applies for rainfall supplied as RADAR grid data

‘Temporal variation’ TAB

ID	Boundary type	Group No	Apply Boundary	Load type	Connection type	List Name	Load category	X coordinate [m]	Y coordinate [m]	Catchment ID	Node ID	Link ID
1	SinusRiver_Node_13	Outlet water level	Outlet Levels	<input checked="" type="checkbox"/>	Individual		1: Domestic WW				Node_13	
2	SinusRiver_Node_14	Outlet water level	Outlet Levels	<input checked="" type="checkbox"/>	Individual		1: Domestic WW				Node_14	
3	SinusRiver_Node_15	Outlet water level	Outlet Levels	<input checked="" type="checkbox"/>	Individual		1: Domestic WW				Node_15	
4	SinusRiver_Node_16	Outlet water level	Outlet Levels	<input checked="" type="checkbox"/>	Individual		1: Domestic WW				Node_16	
5	Wastewater	Load point discharge	Network Loads	<input checked="" type="checkbox"/>	DWF		1: Domestic WW					
6	Rainfall_1_year	Rainfall	Catchment Loads	<input checked="" type="checkbox"/>	All		1: Domestic WW					
7	Runoff_input	Inflow from result file	Network Loads	<input type="checkbox"/>	All							

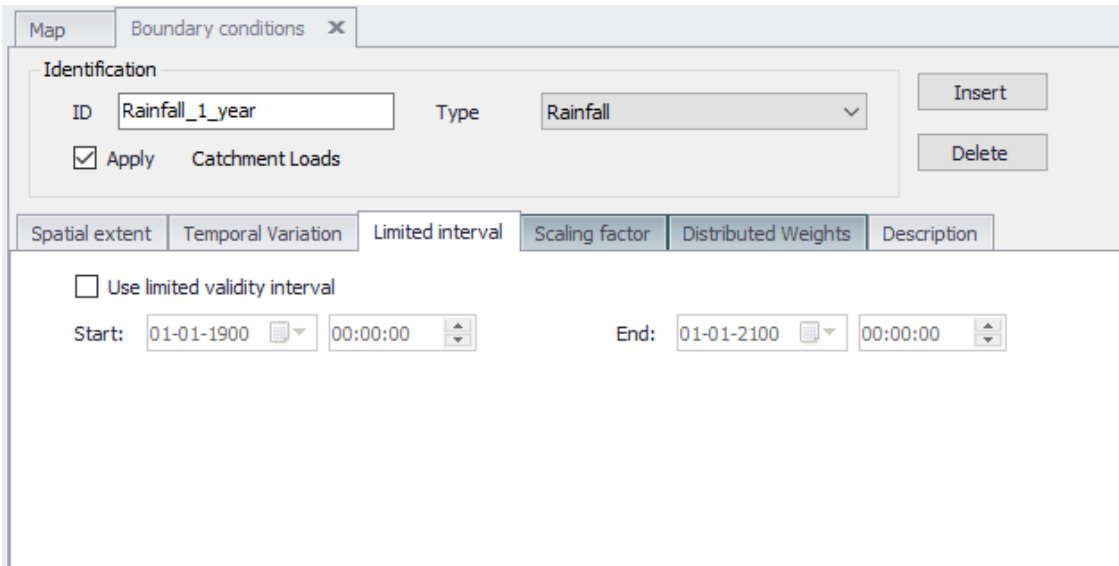
Figure 3.17 Temporal Variations

Provides information about quantities and temporal variation

- Constant
- Cyclic
- Time series

‘Limited interval’ TAB

Per default, a BC applies during entire simulation period. Activating ‘Limited interval’ restricts the BCs activity for the specified time interval only



Map Boundary conditions X

Identification

ID: Rainfall_1_year Type: Rainfall

☒ Apply Catchment Loads

Insert Delete

Spatial extent Temporal Variation Limited interval Scaling factor Distributed Weights Description

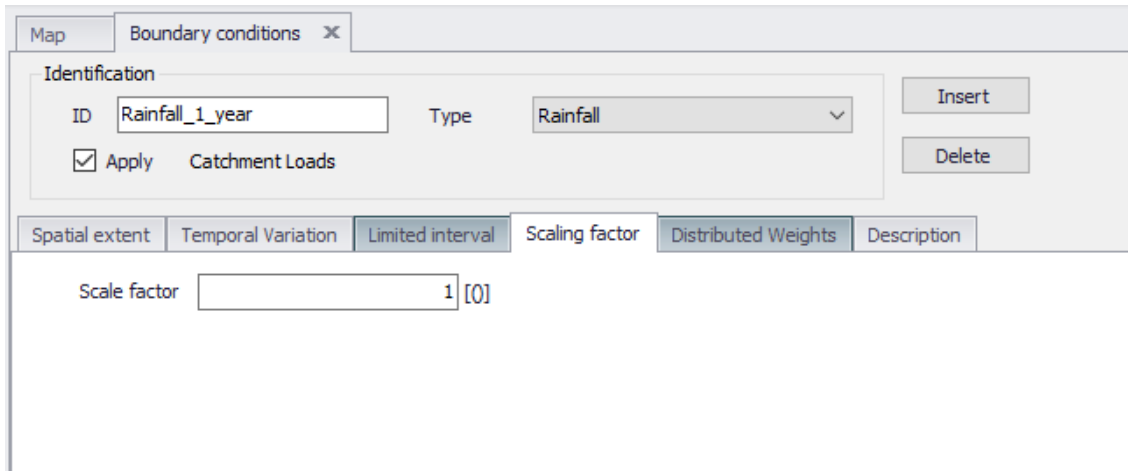
☐ Use limited validity interval

Start: 01-01-1900 00:00:00 End: 01-01-2100 00:00:00

Figure 3.18 Limited interval

Scaling factor 'TAB'

'Scaling factor' other than '1' scales the specified BC quantity up or down.



Map Boundary conditions X

Identification

ID: Rainfall_1_year Type: Rainfall

☒ Apply Catchment Loads

Insert Delete

Spatial extent Temporal Variation Limited interval Scaling factor Distributed Weights Description

Scale factor: 1 [0]

Figure 3.19 Scaling factor

'Distribute weights' TAB

Contains user-specified or automatically computed 'weighting factors', i.e. contributions of RADAR grid cells to each catchment in the model. Note that the sum of weights for each catchment must be one. Data validation automatically controls that the data are correct.

Map Boundary conditions X

Identification

ID: Rainfall_1_year Type: Rainfall

☒ Apply Catchment Loads

Insert Delete

Spatial extent Temporal Variation Limited interval Scaling factor Distributed Weights Description

Sirius_IDF_rainfall.dfs0 F=1

Catchment ID	I	J	Weight
*			

... All Compute

Figure 3.20 Distributed Weights

'Description' TAB

Contains user-specified description of the actual BC. Good as a reminder!

Map Boundary conditions X

Identification

ID: Rainfall_1_year Type: Rainfall

☒ Apply Catchment Loads

Insert Delete

Spatial extent Temporal Variation Limited interval Scaling factor Distributed Weights Description

Description

Figure 3.21 Boundary Conditions - Description

3.5 Result specification

3.5.1 Result Files

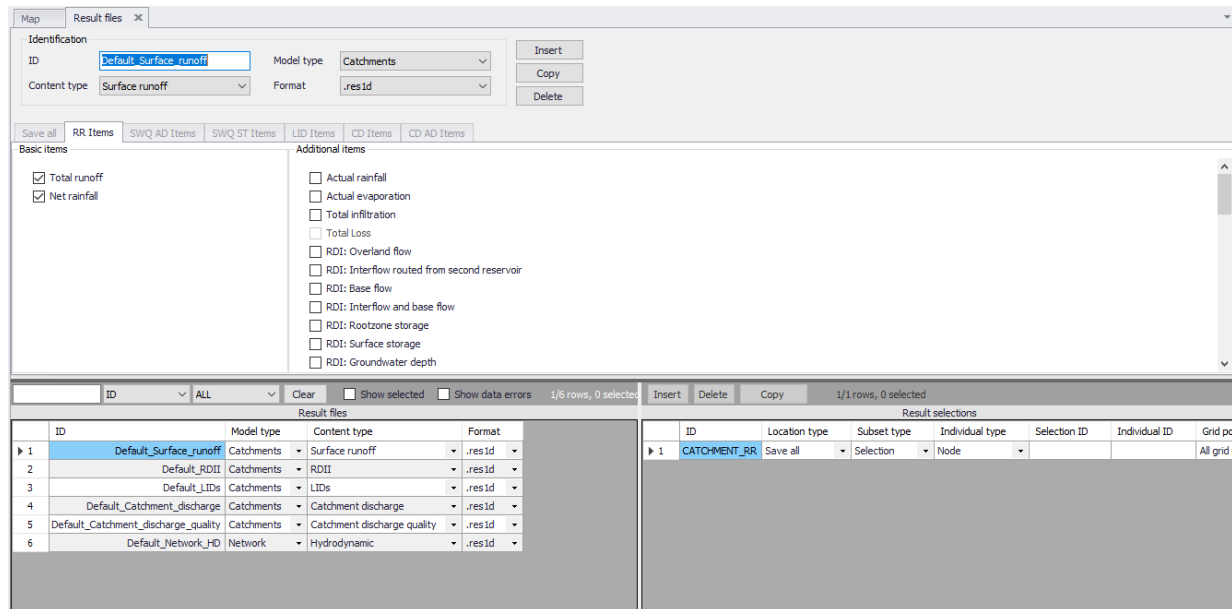


Figure 3.22 Result files

'Identification' box

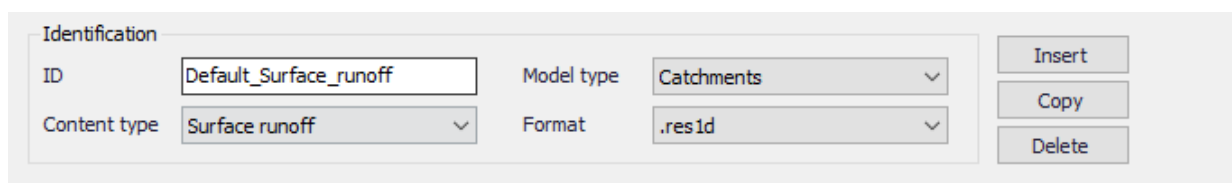


Figure 3.23 Identification box

Contains basic information about the result file:

- ID: ResultFileID is a part of the unique result file name, which is created as: SimulationID+ScenarioID+ResultFileID+format extension
- Model Type: Makes a distinction between 'Catchments' model and 'Network' model. This distinction controls possible contents types and formats.
- Content type: Each of the above model types can generate various contents. Result file may contain just one type of contents (keeps various types of results in separate files), or the contents may be mixed (puts various types or results in one result files)
- Format: various types or results may be saved in various formats: res1d and dfs0

Default result files

For each model type, MIKE URBAN+ database contains several definitions for default result file contents for each type of simulation.

Simulation results are distinguished as 'basic items' and 'additional items'

Default content may be user-modified to include or exclude specific result items.

Default result files contain results for the entire model.

List of accessible default result file definitions adjusts dynamically, depending on the activate modules.

Basic Items

Additional Items

ID	Model type	Content type	Format
1	Default_Surface_runoff	Surface runoff	.res1d
2	Default_RDII	Catchments	.res1d
3	Default_LIDs	Catchments	.res1d
4	Default_Catchment_discharge	Catchments	.res1d
5	Default_Catchment_discharge_quality	Catchments	.res1d
6	Default_Network_HD	Network	.res1d

List of default results files

ID	Location type	Subset type	Individual type	Selection ID	Individual ID	Grid pos
1	CATCHMENT_RR	Save all	Selection	Node		All grid p

Spatial extent for saving results

Figure 3.24 Result files

User-specified result files: Contents type

The default list of result files can be extended to include any number of result file definitions, distinguished by the format, contents type and geographical extensions.

User-specified result files may include mixed-contents from the same model type. E.g., a mixed-content result file may include both runoff and surface pollutant results in one file. Of course, user-specified result file may be limited to include only one type of content.

Map
Result files
X

Identification

ID
Default_Surface_runoff
Model type
Catchments
Content type
Surface runoff
Format
.res1d

Insert
Copy
Delete

Save all
RR Items
SWQ AD Items
SWQ ST Items
LID Items
CD Items
CD AD Items

Basic items

Additional items

☒ Total runoff
☒ Net rainfall

☐ Actual rainfall
☐ Actual evaporation
☐ Total infiltration
☐ Total Loss
☐ RDI: Overland flow
☐ RDI: Interflow routed from second reservoir
☐ RDI: Base flow
☐ RDI: Interflow and base flow
☐ RDI: Rootzone storage
☐ RDI: Surface storage
☐ RDI: Groundwater depth
☐ RDI: Infiltration to groundwater
☐ RDI: Overland first reservoir flow from first to second reservoir
☐ RDI: Interflow first reservoir flow from first to second reservoir
☐ RDI: Capillary flux
☐ RDI: Overland first reservoir storage
☐ RDI: Overland second reservoir storage
☐ RDI: Lower base flow
☐ SnowStorage
☐ RDI: Snow ZoneTemperature
☐ RDI: Snow ZoneRainfall
☐ RDI: Snow ZoneWaterRetention
☐ RDI: Snow ZoneMeltingCoefficient
☐ RDI: Snow ZoneAreaCoverage
☐ RDI: Snow ZoneMeltingWater
☐ TimeArea: InitialLossStorage
☐ UHM: Excess Rainfall
☐ KW Runoff [ImperviousSteep]
☐ KW Runoff [ImperviousFlat]
☐ KW Runoff [PerviousSmall]
☐ KW Runoff [PerviousMedium]
☐ KW Runoff [PerviousLarge]

Figure 3.25 Additional Results

Various result items are accessible through currently active TABS. The TABs activity depends on the selected model type, contents type and active modules.

User- specified result file: Location

All specified results will be saved only as the specified locations

ID	Model type	Content type	Format
1	Catchments	Mixed catchment contents	.res1d
2	Catchments	Surface runoff	.res1d
3	Catchments	RDI	.res1d
4	Catchments	LIDs	.res1d
5	Catchments	Catchment discharge	.res1d
6	Catchments	Catchment discharge quality	.res1d
7	Network	Hydrodynamic	.res1d

Figure 3.26 Result files location

Saving result may be specified at:

- Save All: saves the wanted results at all model elements
- Save subset: saves the wanted results for model elements included in the chosen selection
- Save individual: saves the wanted results for the specified individual model element
- Save within polygon: saves the wanted results for the model elements located within a polygon drawn on the map

'Location' for one result file may be defined by any number of location definitions. Overlapping location definitions are ignored (the results are saved only once).

3.5.2 Network summary

Any number of summary contents can be specified and associated with network model simulations

Map
Network summary

Identification

ID
Summ_1

Insert
Delete

Tables with min, max and accumulated values for

☒ Nodes
☒ Grid points, water levels
☒ Weirs and orifices
☒ Grid points, discharge
☒ Pumps
☒ Links, velocity
☒ Links and structures

Summary of input data

☐ Links and structures

Use selection to reduce summary tables

☐ Node selection

☐ Link selection

ID

ALL

Clear

☐ Show selected
☐ Show data errors
1/1 rows, 0 selected

	ID	Nodes	Weirs & orifices	Pumps	Links	Grid points, water levels	Grid points, discharges	Links, velocity	Link
▶ 1	Summ_1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Figure 3.27 Network summary

3.6 Simulation setup

3.6.1 'Identification' box and function buttons

Simulation setup

Identification

ID: ☒ Active project

Scenario:

General | Catchments | HD | Results

Simulation Type

☒ Catchments

☒ Rainfall-Runoff (RR)

☐ Storm Water Quality (SWQ)

☐ Catchment Discharge (CD)

☐ CD Water Quality

☒ Network (HD)

☐ Long-Term Simulation (LTS)

☐ Pollution Transport (AD)

☐ MIKE ECO Lab (WQ)

Simulation Period

Start:

Duration: [dddd][hh][mm][ss]

End:

Description

ID	Scenario	Active Project	Catchments	Runoff(RR)	Stormwater runoff WQ (SWQ)	Catchment Discharge
1	Sirius_RR_and_HD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Sirius_CDS_1_yearHD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Sirius_CDS_1_yearRR	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	DWF_network	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 3.28 Simulation setup

- ID: Unique simulation ID, used in the result file name
- Scenario: Scenario to be used for the current simulation. In some cases, model setup based on selections (e.g. requested result outputs, boundary conditions, etc.) may conflict with the contents of the selected scenario
- Active project: Automatically set to the last simulation setup executed.
- Insert button: Inserts a new simulation setup
- Copy button: copies a specified simulation setup (increased productivity)
- Delete button: deletes actual simulation setup record
- RUN button: Executes the actual simulation setup record

Access to various functionalities related to executing simulations, under 'Simulations'

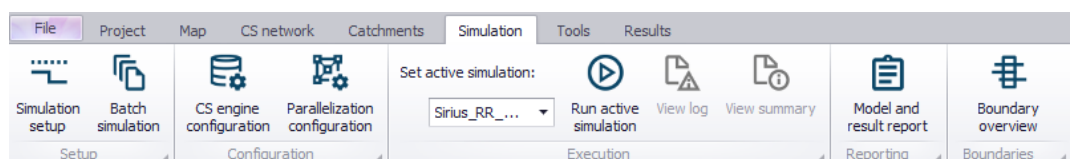
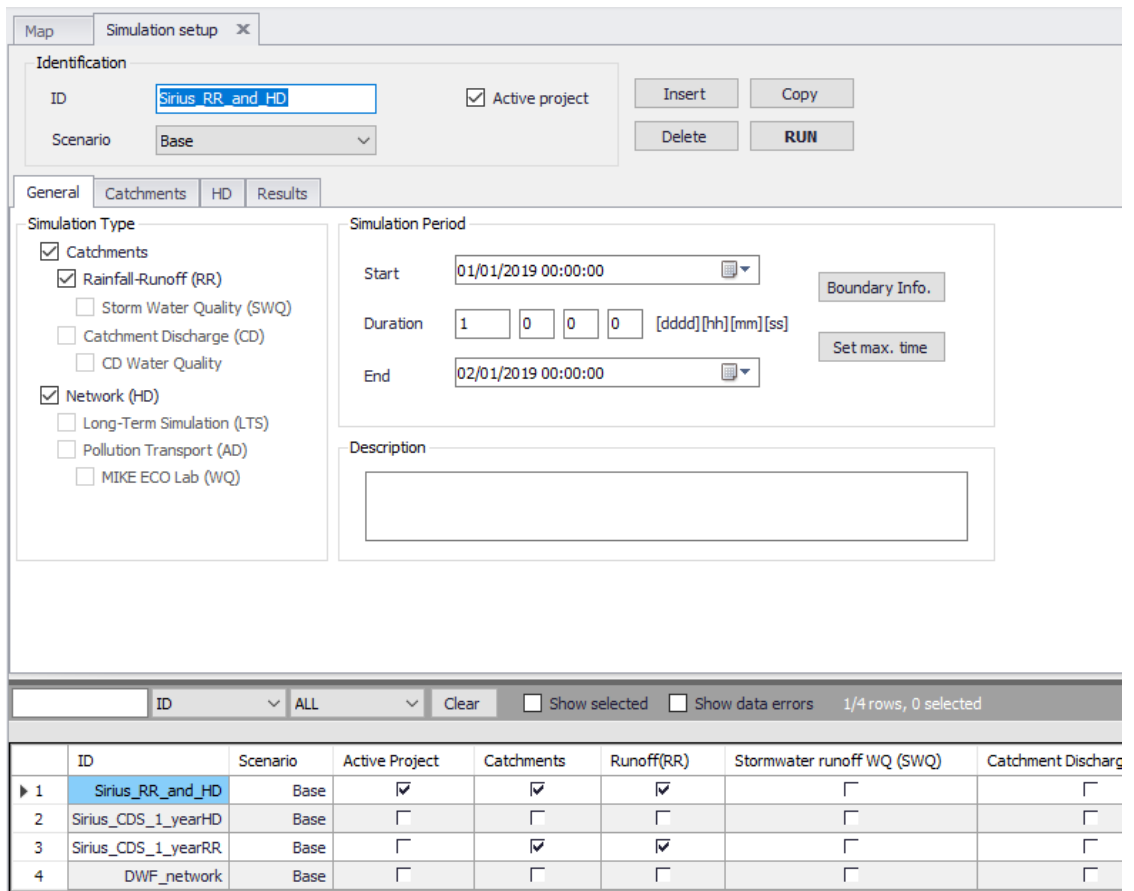


Figure 3.29 Simulation ribbon tools

3.6.2 'General' TAB



	ID	Scenario	Active Project	Catchments	Runoff(RR)	Stormwater runoff WQ (SWQ)	Catchment Discharge
1	Sirius_RR_and_HD	Base	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Sirius_CDS_1_yearHD	Base	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Sirius_CDS_1_yearRR	Base	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	DWF_network	Base	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 3.30 Simulation setup

- Simulation Type: Choice of modules to be included in the simulation. Accessible modules depend on module activation, model setup data and module dependency
- Simulation Period: start and end time for the simulation, limited by the active boundary conditions (note some exceptions!)
- Description: user-specified reminder information about the actual simulation
- Boundary Info: provides overview of the extent of the active boundary conditions
- Set max. time: sets the maximum extent of the simulation (the earliest possible start time and the latest possible end time), based on active boundary conditions

3.6.3 Module TABS

- Catchments TAB: Contains data for any catchment simulation (runoff, SQW, catchment discharge)
- HD TAB: Contains data for network hydraulics simulation setup
- AD and WQ: Contains pollution transport and WQ – specific data for network simulation setup
- LTS: Contains LTS-specific simulation setup data

Simulation setup x

Identification

ID: ☒ Active project

Scenario:

General | **Catchments** | **HD** | **Results**

Time Step

Surface runoff models

Time-Area: [sec] Linear reservoir: Wet weather: [sec] RDII: [h]

Kin. wave: [sec] Dry weather: [sec] Catchment discharge: [sec]

UHM: [sec]

RDII hot start

☐ Apply

Additional Parameters

☐ Apply

Figure 3.31 Simulation setup

3.6.4 'Results' TAB

Simulation setup x

Identification

ID: ☒ Active project

Scenario:

General | **Catchments** | **HD** | **Results**

Output folder

☒ Save results in default folder

☐ Save results in this folder

Collection System Summary

Project outputs

ID	Type	Format	Save every	Default save period	Start saving	End saving
1	Default_Surface_runoff	Surface runoff	.res1d	60 seconds	<input checked="" type="checkbox"/>	01-01-2019 00:00:00 02-01-2019 12:00:00
2	Default_Network_HD	Hydrodynamic	.res1d	60 seconds	<input checked="" type="checkbox"/>	01-01-2019 00:00:00 02-01-2019 12:00:00

Result files

Simulation setup

ID	Scenario	Active Project	Catchments	Runoff(RR)	Stormwater runoff WQ (SWQ)	Catchment Discharge (CD)	CD Water quality	Network(HD)
1	Sirius_RR_and_HD	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2	Sirius_CDS_1_yearHD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Figure 3.32 Results specifications

- Output folder: Default (= Project folder) or user-specified location
- Summary: reference to a network summary definition
- Result files: List of selected result files. Initially, the output list include default result files for all modules included in the simulation. This list can be modified by deleting the unwanted result files and including user-specified result files.

3.7 Results

Result presentation supports 'ordinary' time series result presentation, as well as LTS statistics.

3.7.1 Loading result files

Per default, results from current simulations are automatically loaded for the presentation. This feature can be toggled ON/OFF in 'General Settings':

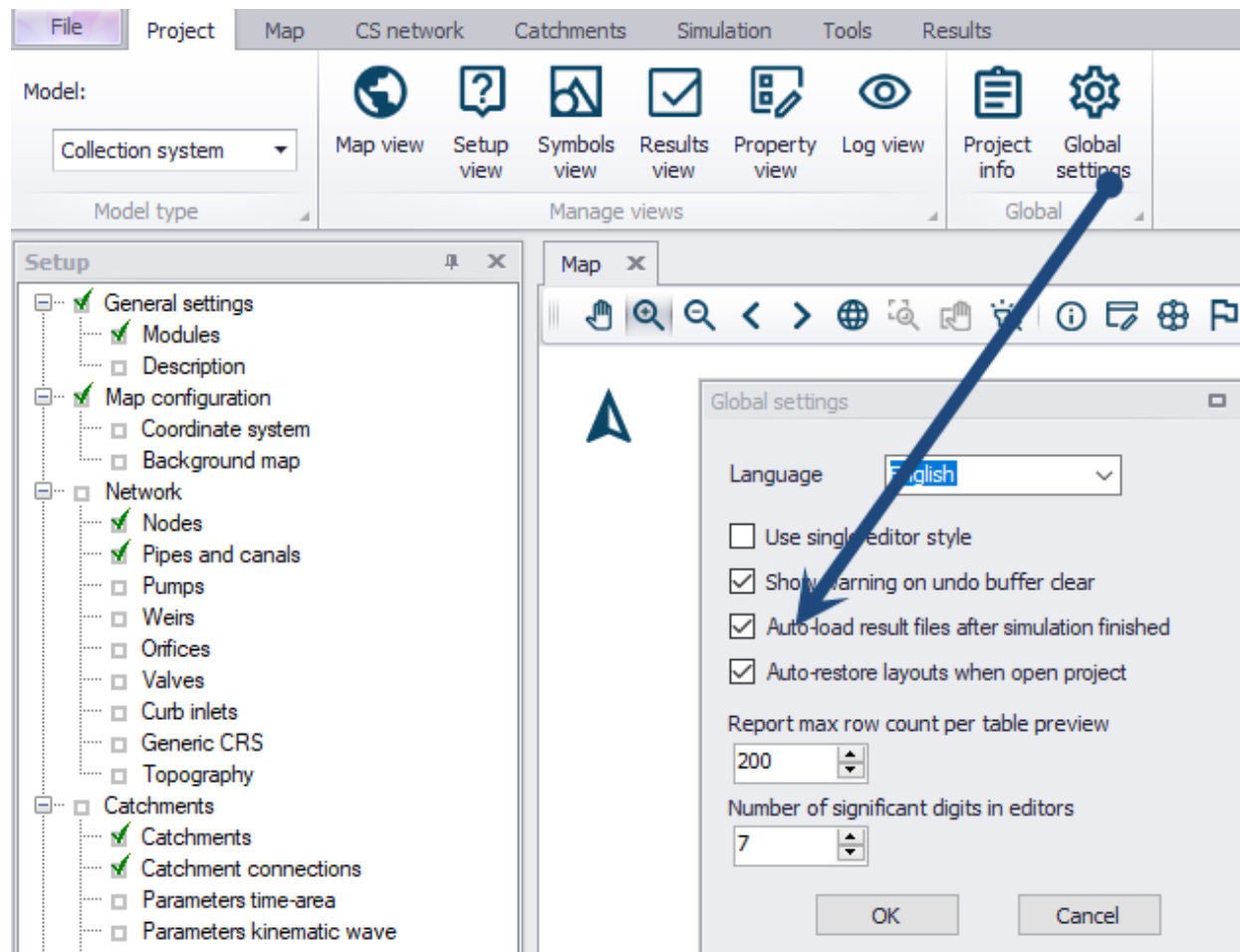


Figure 3.33 Global settings

Results are accessible through 'Result View'.

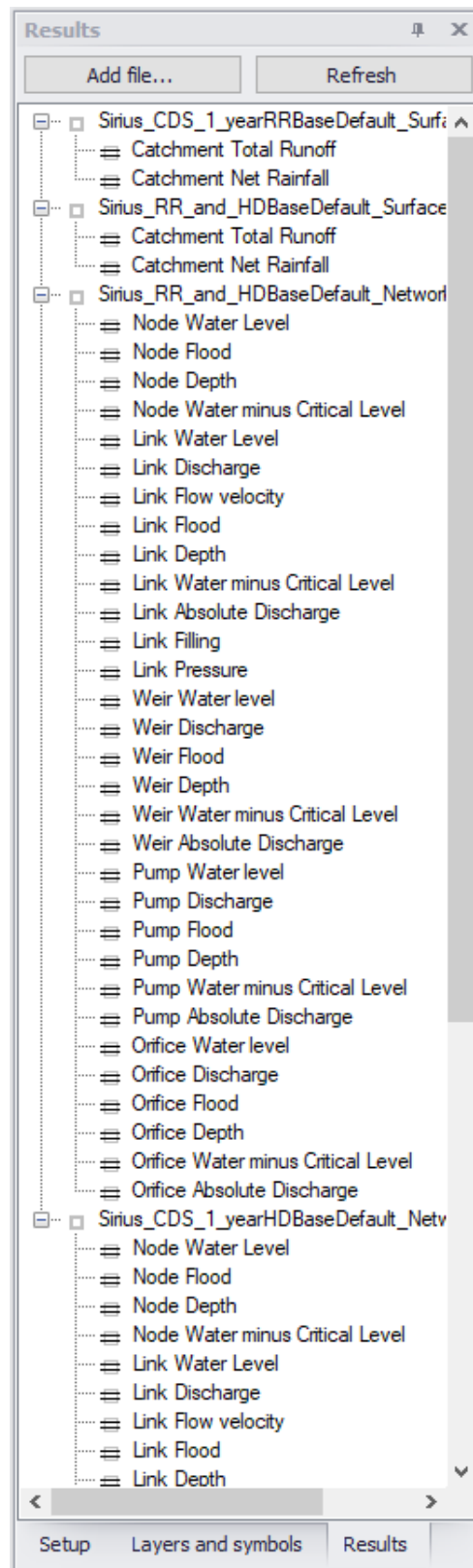


Figure 3.34 Results selection

3.7.2 Results in the map

- Animation
- Minimum
- Maximum
- Average
- Single time step
- LTS results

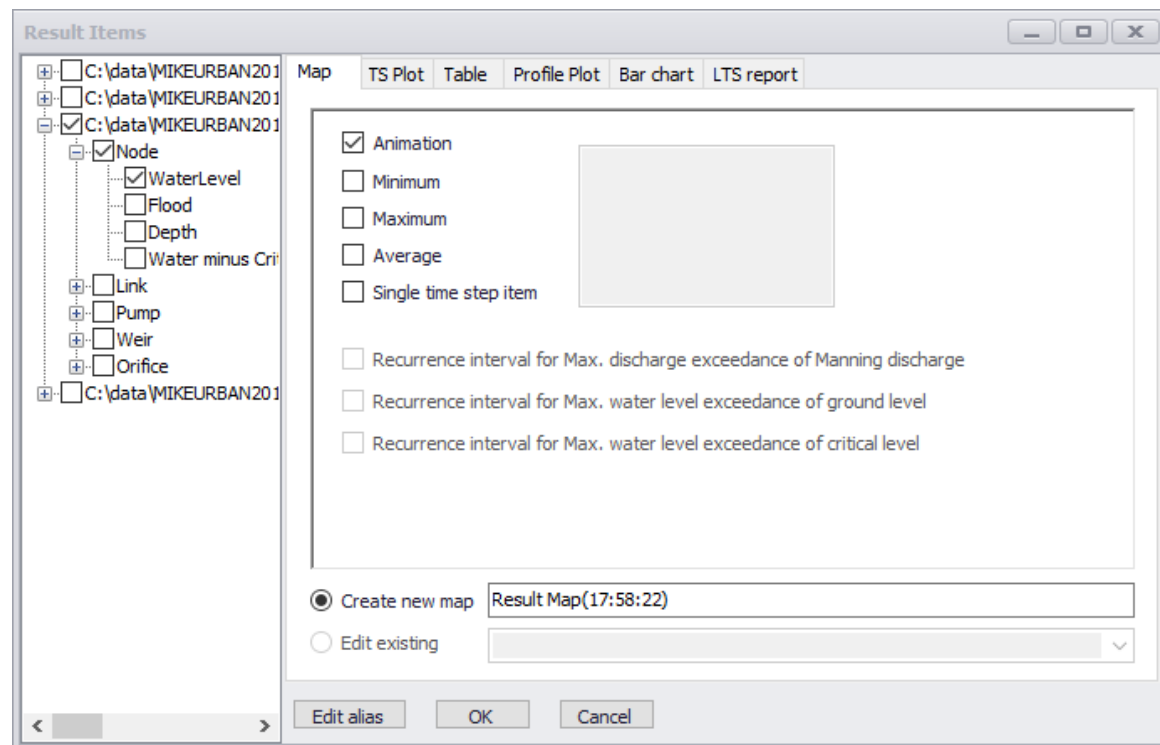


Figure 3.35 Results presentation

3.7.3 Results TS Plot & table

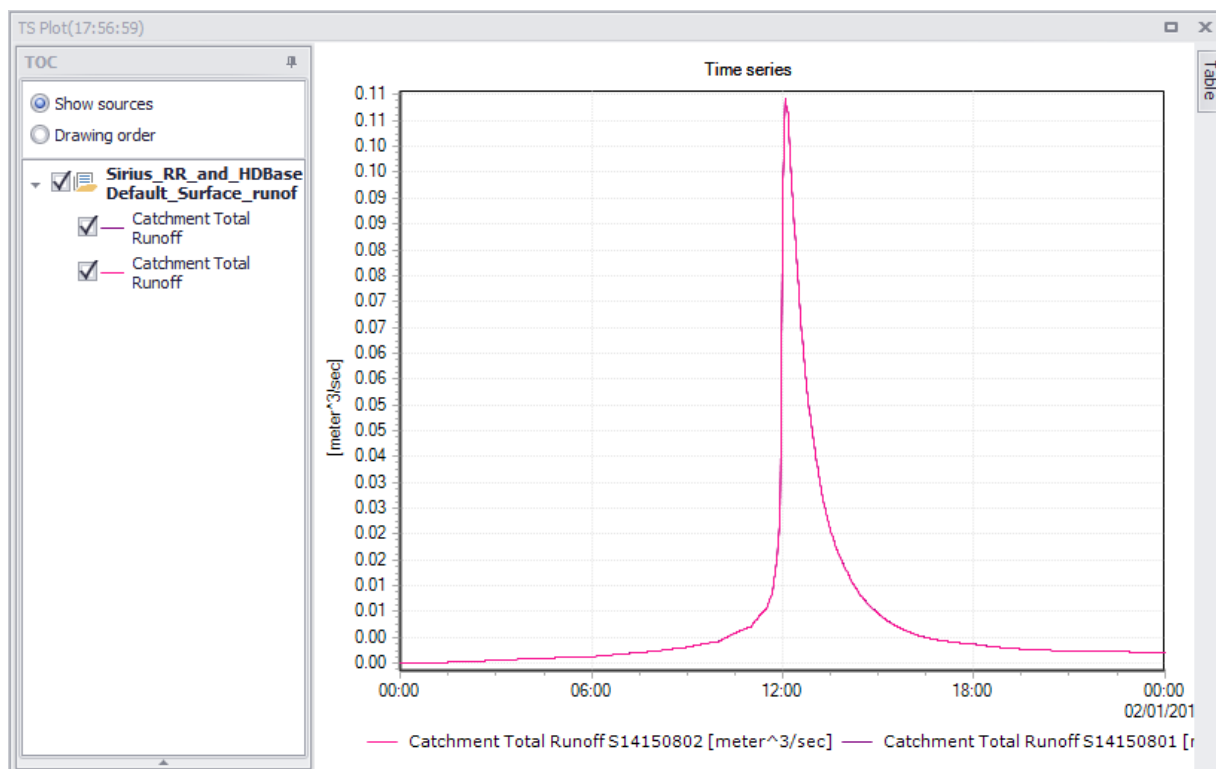


Figure 3.36 Time series plot

Map

Table(17:58:22)

ID

All

Search

Clear

Transfer to map

ID	Type	Node Wate...
▶ C14150801	Node	22.851572...
C14150802	Node	23.368041...
C14154801	Node	23.510080...
C15152001	Node	21.724218...
C15152401	Node	22.389865...
C15153101	Node	20.846149...
C15154301	Node	19.902170...
C15155001	Node	22.885961...
C15155101	Node	22.595947...
C15155401	Node	19.366319...
C15155701	Node	22.697895...
C15156101	Node	22.628671...
C15156501	Node	18.845485...
C15156602	Node	18.378391...
C15156701	Node	21.057430...
C15157401	Node	22.801229...
C15157501	Node	22.405593...
C15157701	Node	18.092987...
C15158201	Node	22.991365...
C15158301	Node	23.080783...
C15158703	Node	17.960773...

☒

568 of 568 records Sirius_RR_and_HDBaseDefault_Network_HD.res1d

Statistics	Node Wate...
▶ Min	-3.4858014...
Max	23.510080...
Avg	8.6629198...
Sum	4920.5384...

Overall sta...	Node Wate...
▶ Min	-4.1088314...
ID	PS_To_WWTP
Time	01-01-2019...
Max	28.381422...
ID	C14150802
Time	01-01-2019...

Figure 3.37 Tabular results

3.7.4 Results in Long profile

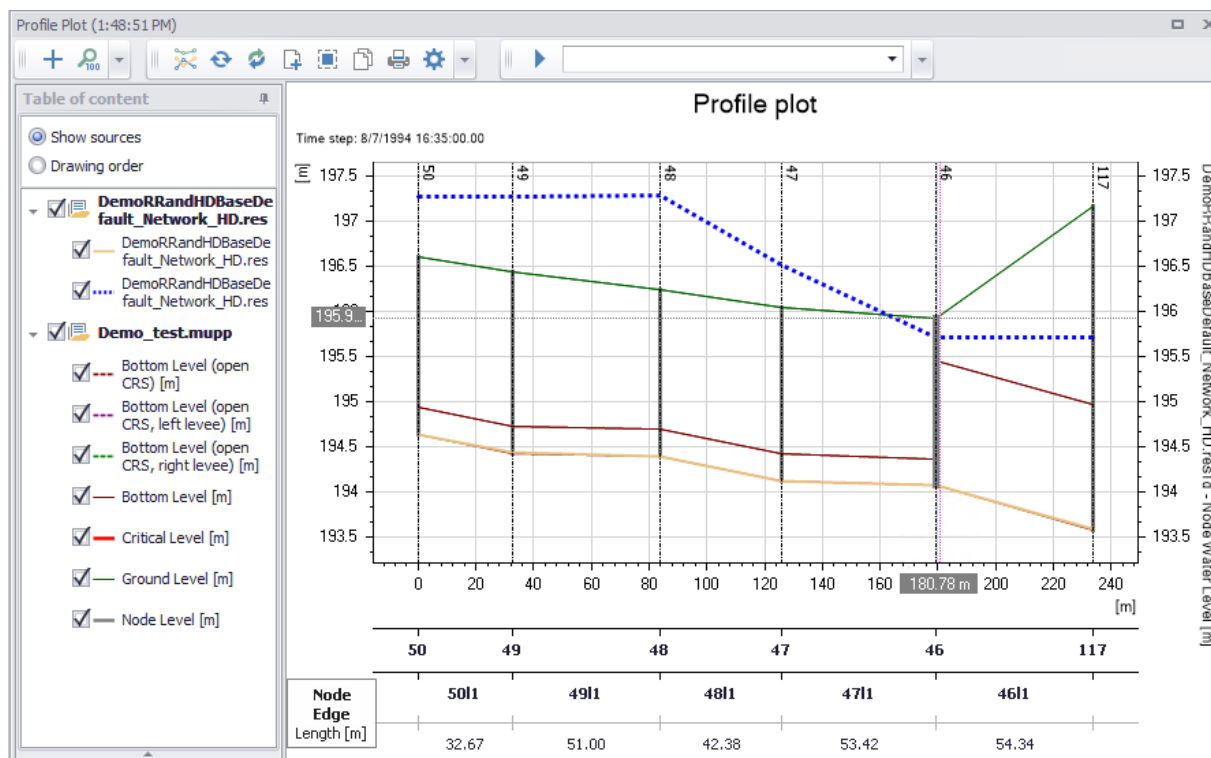


Figure 3.38 Longitudinal profile and results

3.7.5 Results in Bar-chart

Used for LTS chronological results (annual and monthly statistics)

3.7.6 Results: LTS reports

Used for reporting LTS statistics results in tabular form.

4 Import MIKE URBAN model to MIKE URBAN+

A step-by-step description is provided on how to import existing models into MIKE URBAN+.

The first step is to open MIKE URBAN+ and then follow the steps described in the following.

4.1 Modules Overview

A modules overview of MIKE URBAN+ is provided in the figure below

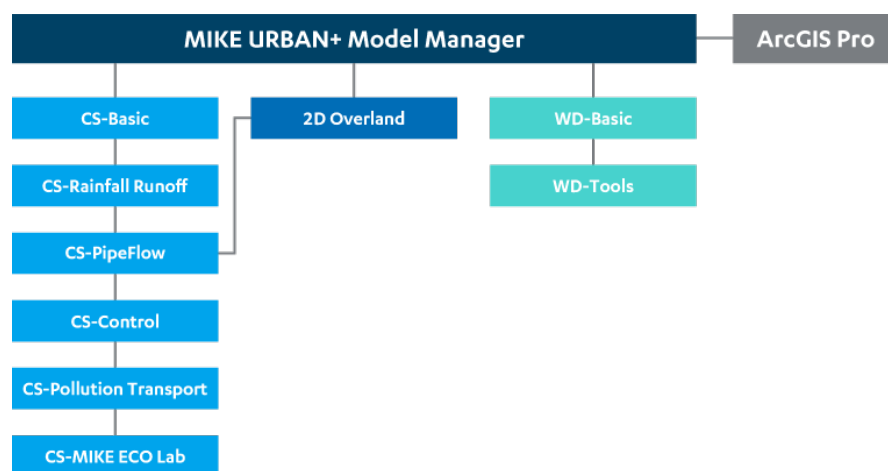


Figure 4.1 MIKE URBAN+ module overview

The MIKE URBAN+ supports in its first version the MIKE 1D and DHI EPANET hydraulic engines. The 2D Overland module is included in the MIKE URBAN+ 2020 release and the SWMM5 is planned to be added to the CS-Basic module in a later release.

4.2 Prerequisites

As the first step, before importing existing MIKE URBAN models to MIKE URBAN+, the MIKE URBAN model needs to be updated to MIKE URBAN 2020 version. This is the case for both MIKE URBAN Water Distribution, MIKE URBAN Collection System and Urban flood models.

4.3 File | New

Under File you have various options available:

- New (project)
- Open (an existing project)
- Recent projects,
- Global Settings (i.e. chose language)
- Install Examples

- About
- Exit (application)

Chose File | New to create a new project.

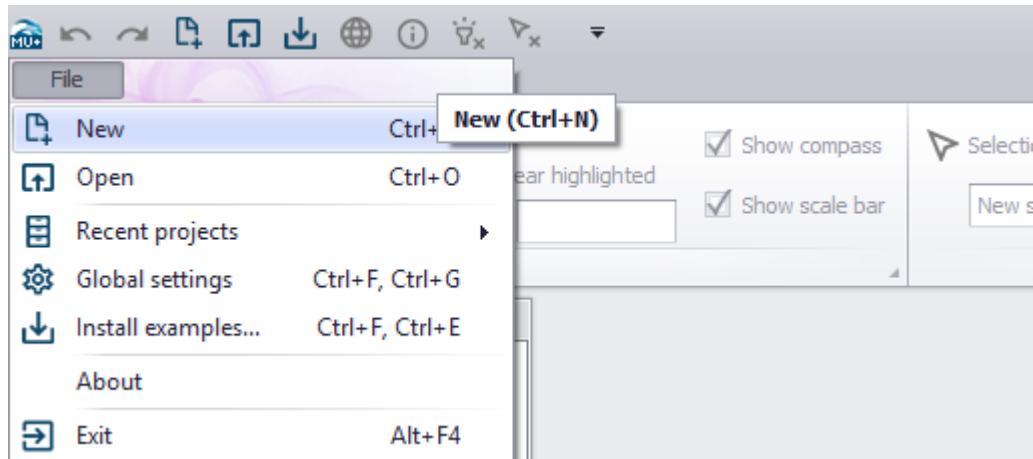
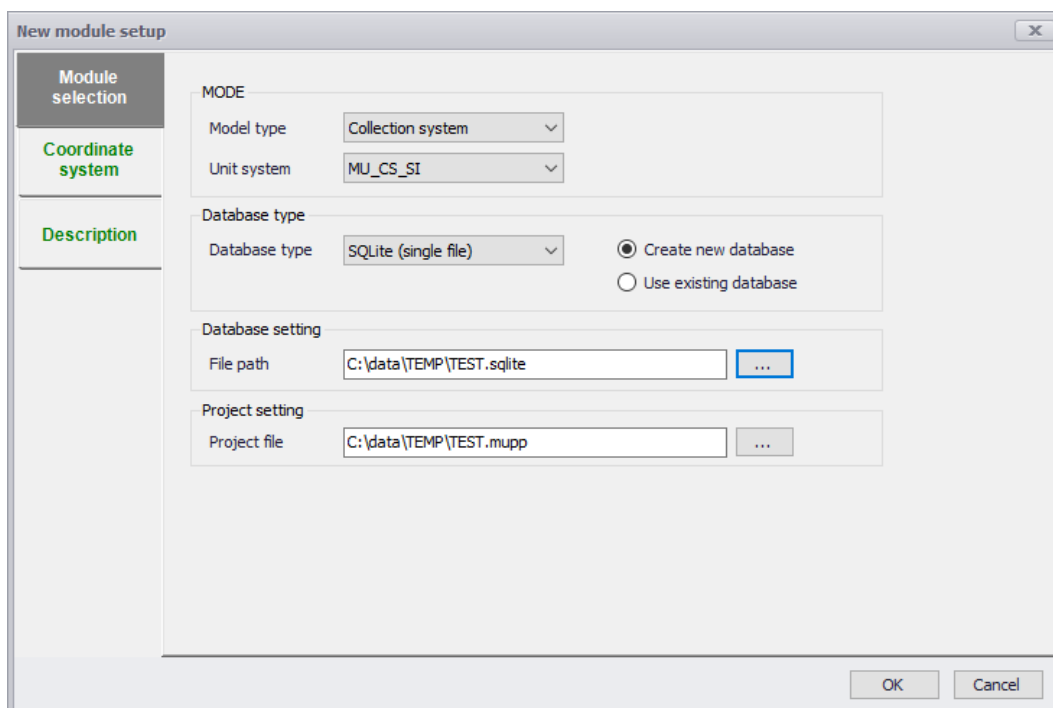


Figure 4.2 File | New

4.3.1 Module Selection

In the Module Selection tab, you have the following options:

- Model type: Water Distribution or Collection System
- Unit system:
 - Selection of unit system for the model, SI or US.
- Database type: Two options available
 - SQLite (installed with MIKE URBAN+)
 - PostGIS (installed separately – please follow the installation guide)
- Database setting: File path for model database
- Project setting: Project file (*.mupp)

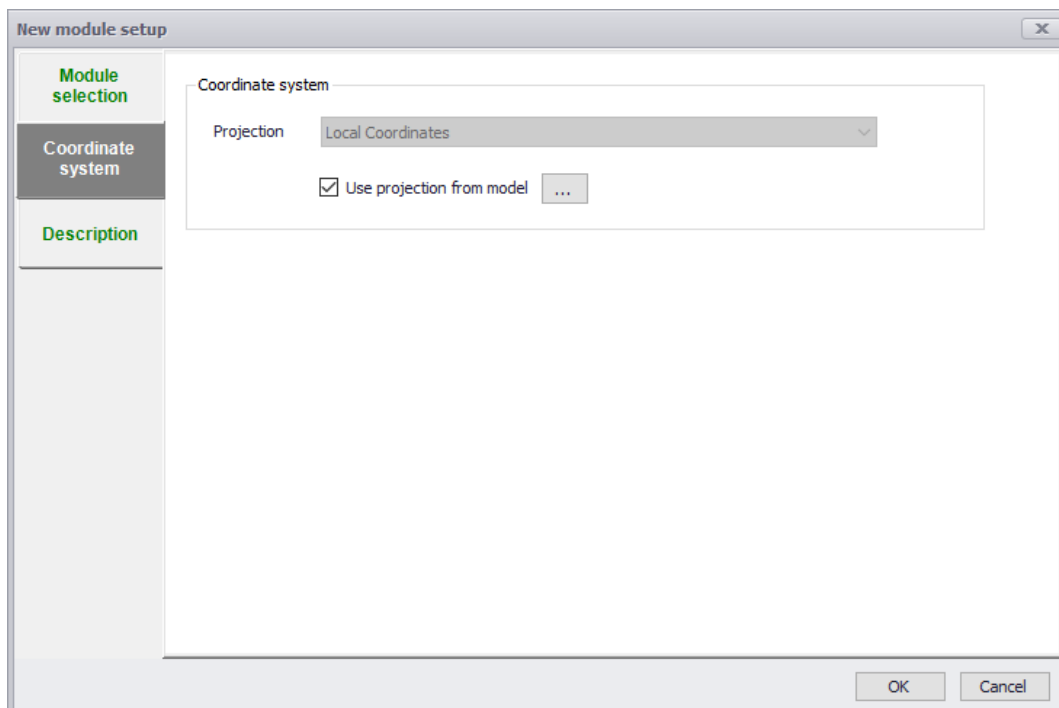


The 'New module setup' dialog box is shown with the 'Module selection' tab active. The 'MODE' section contains 'Model type' set to 'Collection system' and 'Unit system' set to 'MU_CS_SI'. The 'Database type' section shows 'Database type' as 'SQLite (single file)' with radio buttons for 'Create new database' (selected) and 'Use existing database'. The 'Database setting' section has 'File path' set to 'C:\data\TEMP\TEST.sqlite'. The 'Project setting' section has 'Project file' set to 'C:\data\TEMP\TEST.mupp'. The left sidebar has 'Module selection' selected, with 'Coordinate system' and 'Description' as options. 'OK' and 'Cancel' buttons are at the bottom right.

Figure 4.3 Selection of module, unit and database

4.3.2 Coordinate System

At the Coordinate System tab, the local coordinate projection can be set or it is possible to choose to use the projection set to the projection for the MIKE URBAN being imported or another MIKE URBAN.



The 'New module setup' dialog box is shown with the 'Coordinate system' tab active. The 'Coordinate system' section has 'Projection' set to 'Local Coordinates'. A checkbox 'Use projection from model' is checked, with a button next to it. The left sidebar has 'Coordinate system' selected, with 'Module selection' and 'Description' as options. 'OK' and 'Cancel' buttons are at the bottom right.

Figure 4.4 Selection of projection or use from existing model (to be imported or another model)

4.3.3 General settings | Modules

In the General settings, Modules, the different modules available for Collection System or Water Distribution can be activated for the model to get the complete overview of the data groups available.

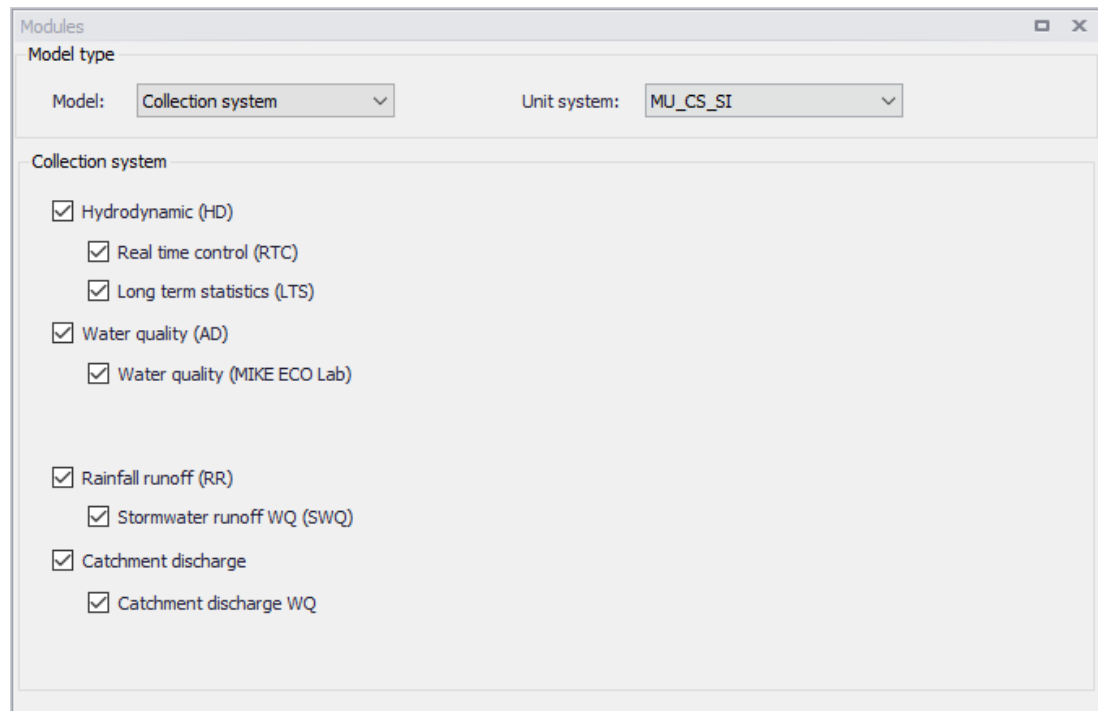


Figure 4.5 Modules selection for the project. Can be toggled on/off any time

4.4 File | Import

The File | Import provides a quick access to import existing models:

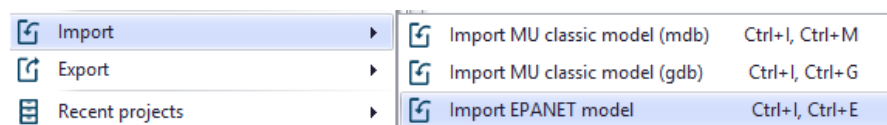


Figure 4.6 Fast import options of existing models

- Import MU Classic model (mdb) requires that MIKE URBAN is installed.
- Import MU Classic model (gdb) does not require that MIKE URBAN is installed.
- Import EPANET model just import

These imports have been developed to make it is easy for users to import existing MIKE URBAN models. If customised imports are required, then the general Import and export found under Tools tab can be used.

When clicking on i.e. 'Import MU Classic model (mdb)', the dialog below appears for selecting the MIKE URBAN.

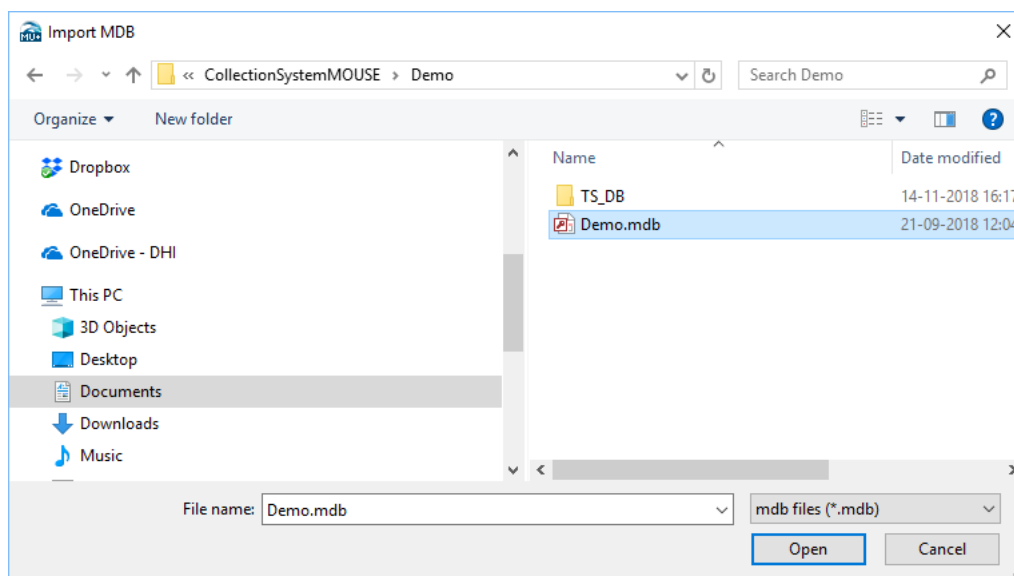


Figure 4.7 Browser for selecting MIKE URBAN+ model

The import process starts after clicking Open.

After import of the MIKE URBAN model, then it could look like this.

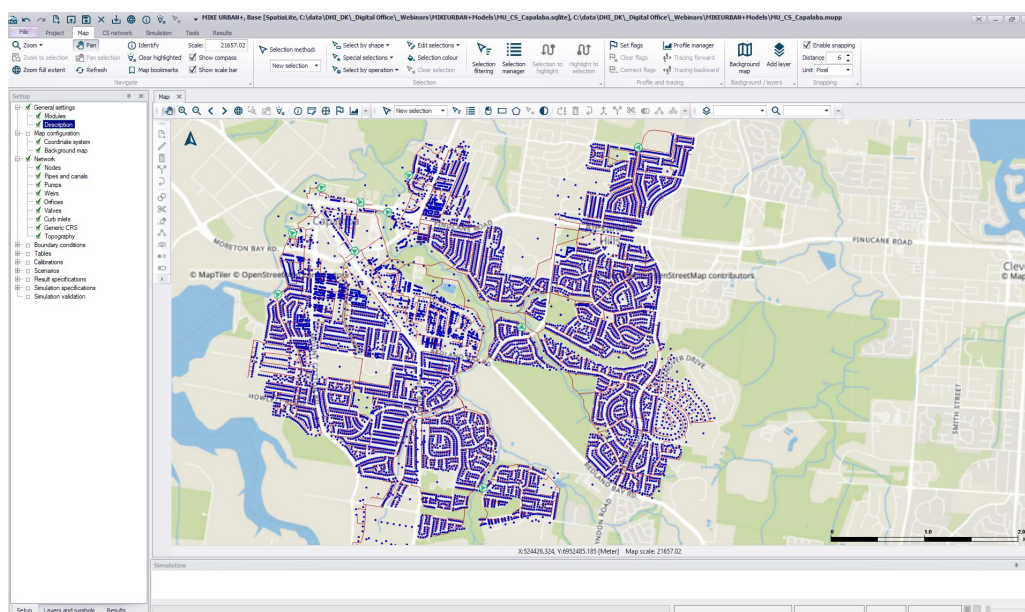


Figure 4.8 Imported MIKE URBAN model to MIKE URBAN+

At the right side in the setup tree, data has been grouped and instant data validation is performed. If there are any errors in the data, a red cross will appear. If there are no errors in the data, a green check mark or no marker will be displayed.

4.5 Status after import

All features in Water Distribution except from Water Hammer is supported in MIKE URBAN+, so all models that run in MIKE URBAN 2019 or EPANET 2.0 should be imported into MIKE URBAN+ without data errors and ready to run.

For Collection System and 2D Urban Flood models, it is expected that most running MIKE URBAN 2019 models based on either MOUSE or MIKE 1D will be running in MIKE URBAN+ MIKE 1D with the exception of models including features listed in 4.6.

Collection System models based on MIKE URBAN SWMM5 cannot be imported in MIKE URBAN+ yet.

4.6 MIKE URBAN+ unsupported features in first release

In Table 4.1, the features which are not supported in MIKE URBAN+ are listed.

Table 4.1 Overview of features have limited support in MIKE URBAN+

Feature	Status
SWMM5	Not supported - Expected in later release.
Water Hammer	Not supported in MIKE URBAN+.
MOUSE UWC (User Written Control)	If MOUSE UWC has been applied, this cannot be transferred to MIKE 1D. Those UWC controls needs to be recoded into MIKE SDK. The MIKE 1D is in general much more open for user control than MOUSE.
MOUSE Storage Nodes	Not supported in MIKE URBAN+.
Special feature: MOUSE PCS	Not supported in MIKE 1D. Expected to be developed later.
Special feature: Pump Emergency Storage (.adp file)	Not supported in MIKE 1D. Expected to be developed later.
MIKE 1D – RTC	Imports existing models using RTC. However, if some Actions have been reused, then they have to be added manually as individual Actions. This is an improvement of how Actions are handled in the model with unique ids, but it is impossible to update the model automatically.
MIKE 1D - SWQ	SWQ is brand new with a new concept for flexible definitions of different land uses etc. Models having used the previous concepts in SRQ and SWQ needs to be converted manually. The data amount that needs to be converted is limited.

