

# Result Summary Exporter

## User Guide

# 1 Introduction

Both SWMM and MIKE1D generate result summaries in a text file. These summaries provide high-level insights to system based on simulation time step. All summaries are saved as a table in the summary file and each table has multiple columns. The Result Summary Exporter tool extracts the data table based on user selection and save it to shapefile. The geometry is read from SWMM input file and MIKE1D RES1D result file.

# 2 Installation

The tool is provided as a zip file. To use the tool, unzip the zip file and double-click DHI.ResultSummaryExporter.exe.

# 3 Usage

As shown in Figure 3-1, the tool requires three inputs. Once the inputs are setup, click the **Export** button to complete the export. The successful message box (Figure 3-2) pops-up when the shapefile is generated successfully.

1. **Result Summary File** - The file path of the result summary type
2. **Result Summary Type** - The summary type
3. **Shapefile** - The file path of the shapefile

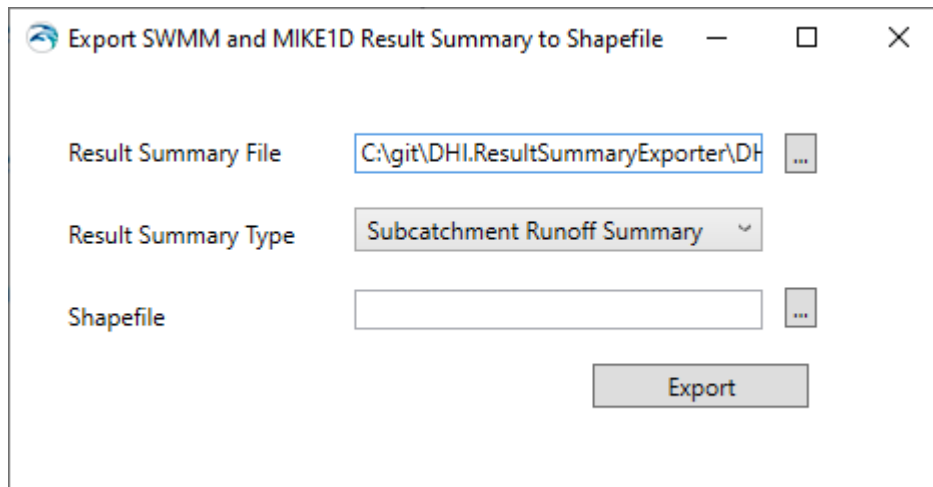


Figure 3-1 Result Summary Exporter Interface

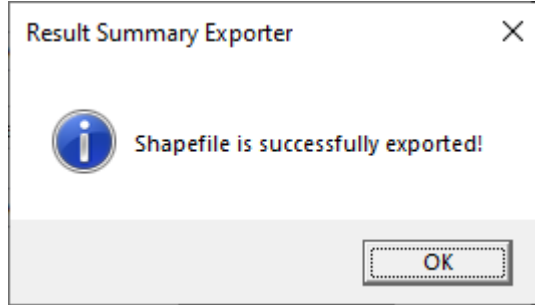


Figure 3-2 Export Successful Message

### 3.1 Result Summary File

The tool supports both SWMM and MIKE1D result summary file. As shown in Figure 3-3, the file type could be selected in the Open file dialog.

- **SWMM** - The support file extension for SWMM result summary file is sum. It assumes that the SWMM model input file (\*.INP) resides in the same folder with same name.
- **MIKE1D** - The support file extension for SWMM result summary file is html. It assumes that the MIKE1D RES1D files generated from the same simulation are in the same folder.

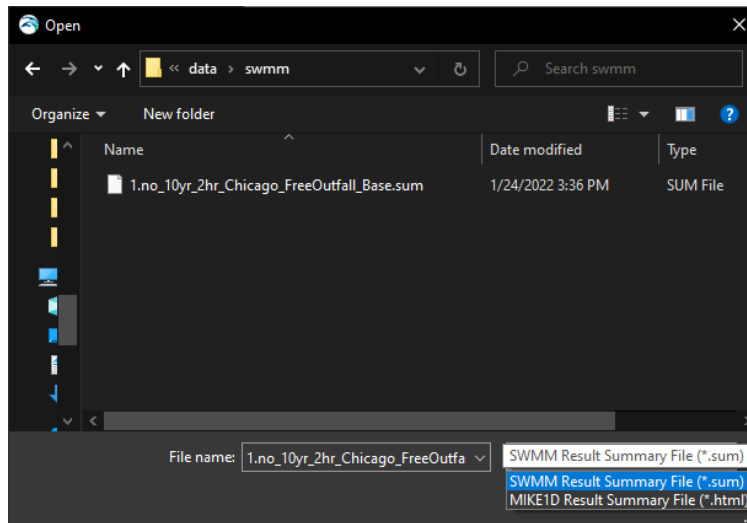


Figure 3-3 Open Result Summary File

### 3.2 Result Summary Type

The result summary type box lists all available result summaries. It is updated based on the model type. The data columns of each summary table is given in Chapter 4.

- **SWMM** - The result summary types are given below. It assumes that all summary types are available in SWMM result summary files.
  - Subcatchment Runoff Summary
  - Node Depth Summary

- Node Inflow Summary
- Node Surcharge Summary
- Node Flooding Summary
- Outfall Loading Summary
- Link Flow Summary
- Flow Classification Summary
- Conduit Surcharge Summary
- **MIKE1D** - As the result summary is customizable, the selected result summary file is loaded, and the available summary type is populated dynamically. You may experience some delay when the result summary file is large. The supported summary types are given below.
  - Nodes - Water Level
  - Pumps - Discharge
  - Reaches - Result summary
  - Catchments - rainfall runoff per catchment
  - Discharge per catchment

### 3.3 Shapefile

As shown in Figure 3-4, the tool creates a default name for the shapefile based on the result summary file and selected summary type. Users may make further changes.

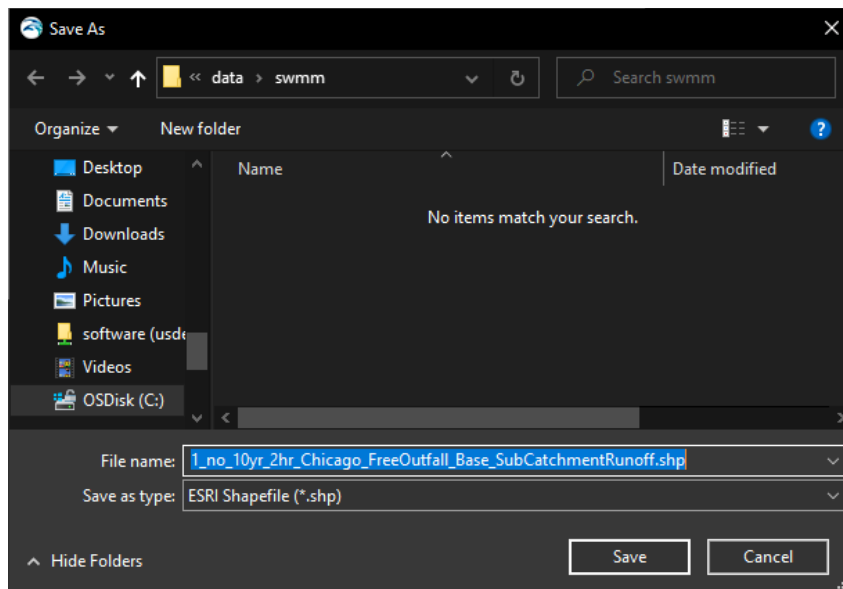


Figure 3-4 Default Shapefile Name

### 3.4 Export

The export process is completed with the Export button. The tool reads necessary geometry data based on the result summary type.

As SWMM model file (\*.INP) does not include the projection information, the coordination system of the shapefile is set to unknown. Users are encouraged to assign the coordination system afterwards.

As datetime type is not supported in shapefile, the time stamp is saved as text.

The attribute table of each summary table is given in Chapter 4.

## 4 Result Summary Tables

### 4.1 SWMM

Table 4-1 Subcatchment Runoff Summary

Name	Type	Description
id	Text	Component ID
precip	Double	Total precipitation
runon	Double	Total runon
evap	Double	Total evaporation
infil	Double	Total infiltration
runoff_imp	Double	Runoff from impervious area
runoff_per	Double	Runoff from pervious area
runoff_tot	Double	Total runoff depth
runoff_vol	Double	Total runoff volume
runoff_peak	Double	Peak runoff flow
runoff_cof	Double	Runoff coefficient

Table 4-2 Node Depth Summary

Name	Type	Description
id	Text	Component ID
Type	Text	Node type
dep_avg	Double	Average depth
dep_max	Double	Maximum depth
hgl_max	Double	Maximum HGL
max_dur	Int	Time of max occurrence in minutes
dep_max_r	Double	Reported maximum depth

Table 4-3 Node Inflow Summary

Name	Type	Description
id	Text	Component ID
Type	Text	Node type
max_lat	Double	Maximum Lateral Inflow
max_tot	Double	Maximum Total Inflow
max_dur	Int	Time of max occurrence in minutes
vol_lat	Double	Lateral inflow volume
vol_tot	Double	Total inflow volume
error	Double	Flow balance error percent

Table 4-4 Node Surcharge Summary

Name	Type	Description
id	Text	Component ID
Type	Text	Node type
hours	Double	Hours surcharged
max_height	Double	Maximum height above crown
min_depth	Double	Minimum depth below rim

Table 4-5 Node Flooding Summary

Name	Type	Description
id	Text	Component ID
hours	Double	Hours flooded
max_rate	Double	Maximum rate
max_dur	Int	Time of max occurrence in minutes
vol_tot	Double	Total flood volume
max_depth	Double	Maximum ponded depth

Table 4-6 Outfall Loading Summary

Name	Type	Description
id	Text	Component ID
flow_freq	Double	Flow freq pcnt
avg_flow	Double	Average flow
max_flow	Double	Maximum flow
vol_tot	Double	Total volume

Table 4-7 Link Flow Summary

Name	Type	Description
id	Text	Component ID
Type	Text	Link type
max_flow	Double	Maximum flow
max_dur	int	Time of max occurrence in minutes
max_vlo	Double	Maximum velocity
max_full_f	Double	Maximum flow and full flow ratio
max_full_d	Double	Maximum depth to full depth ratio

Table 4-8 Flow Classification Summary

Name	Type	Description
id	Text	Component ID
len_ratio	Double	Adjusted and actual length ratio
dry	Double	fraction of time - dry on both ends
up_dry	Double	fraction of time - dry on the upstream end
down_dry	Double	fraction of time - dry on the downstream end
sub_crit	Double	fraction of time - subcritical flow
sup_crit	Double	fraction of time - supercritical flow
up_crit	Double	fraction of time - critical flow at the upstream end
dow_crit	Double	fraction of time - critical flow at the downstream end
norm_ltd	Double	fraction of time - all time steps flow is limited to normal flow
inlet_ctrl	Double	fraction of time - all time steps flow is inlet controlled (for culverts only)



Table 4-9 Conduit Surcharge Summary

Name	Type	Description
id	Text	Component ID
both_ends	Double	Hours that conduit is full at both ends
up_stream	Double	Hours that conduit is full at upstream end
dw_stream	Double	Hours that conduit is full at downstream end
hrs_full	Double	Hours that conduit flows above full normal flow
hrs_cap	Double	Hours that conduit is capacity limited

## 4.2 MIKE1D

Table 4-10 Nodes - Water Level

Name	Type	Description
id	Text	Component ID
min	Double	minimum water depth
max	Double	maximum water depth
grd	Double	ground level
grd_max	Double	ground level - maximum water level
time_min	Text	Time of minimum
time_max	Text	Time of maximum
note	Text	Note

Table 4-11 Pumps - Discharge

Name	Type	Description
id	Text	Component ID
from_node	Text	From node
to_node	Text	To node
min_dis	Double	Minimum flow
max_dis	Double	Maximum flow
vol	Double	Total discharge
time_min	Text	Time of minimum
time_max	Text	Time of maximum
pump_start	Int	Pump starts count
speed	Text	speed
active_time	Text	Active time

Table 4-12 Reaches - Result summary

Name	Type	Description
id	Text	Component ID
from_node	Text	From node
to_node	Text	To node
qfull	Double	Full flow
max_level	Double	Maximum water level
max_dis	Double	Maximum discharge
max_d_dia	Double	Max depth to diameter ratio
max_dis_qf	Double	Max discharge to full flow ratio
vol	Double	Total discharge
time_maxl	Text	Time of max water level
time_maxd	Text	Time of max discharge

Table 4-13 Catchments - rainfall runoff per catchment

Name	Type	Description
id	Text	Component ID
boundary	Text	Rain boundary ID
min	Double	Minimum runoff
max	Double	Maximum runoff
time_min	Text	Time of minimum
time_max	Text	Time of maximum
vol	Double	Accumulated flow

Table 4-14 Discharge per catchment

Name	Type	Description
id	Double	Component ID
min	Double	Minimum discharge
max	Double	Maximum discharge
time_min	Text	Time of minimum
vol	Double	Accumulated flow