

Running music from the Command Line

To use the command line version of music, the following syntax must be used at the command prompt:

```
"music executable" "music project file" "music configuration file" -light -silent
```

where:

- **music executable** is the full path to the music.exe. For example: "C:\Program Files (x86)\eWater\MUSIC 5 SL\MUSIC.exe"
- **music project file** is the full path of the SQZ or MSF/CSV file that you would like to run in music. For example: "C:\MUSIC_Temp\Test_Project.msf"
- **music configuration file** is the full path of the configuration file that is used to define what output will be extracted from music and where they outputs will be written to (further information on the configuration file is provided below). For example: "C:\MUSIC_Temp\ConfigFile.mcf"

Note that you must use the "-light" command parameter otherwise the GUI version of music will open.

The "-silent" command parameter is optional. If this parameter is not included, any errors that are encountered during model execution will be displayed via a message box (this will stop model execution). If the "-silent" parameter is included, the message boxes will be suppressed and any errors will be written to a log file and model execution will continue.

The command line version of music allows the following outputs to be extracted for any node and written to a text file:

- Time series (TS);
- Mean Annual Loads (MAL);
- Treatment Train Effectiveness (TTE);
- Node Water Balance (NWB);
- Statistics (Stats);
- Life Cycle Costs (LCC);

The outputs that are to be extracted and where the outputs will be written to are defined in a music configuration file (*.mcf). The following provides a sample MCF file including a summary of all available commands (this text can be copied and pasted to serve as a template for your own MCF file). This particular MCF file is setup to export treatment train effectiveness for a "Wetland" node, TN outflow concentration time series for a node called "Pond #1" and life cycle costs for a bioretention node.

```
=====
! Comments are prefixed by a "!" symbol
! Comments can be inserted anywhere throughout the file
! Blank lines can also be used throughout the file to improve readability
! =====
Version = 100
! =====
Delimiter = #44
! Any text character or ASCII code character can be used to define delimiter that is used in text output files.
! If no delimiter is specified, a comma will be used.
! Commonly used delimiters include (in ASCII code format) : Tab = #9, Space = #32, Comma = #44
! =====
! Command Summary
! -----
! Available Commands
! -----
! Time series output = Export_TS ( Node ID: integer or string , OutputType: string, Filename: string, Total: string, Timestep:
integer)
! {Node ID can be the node ID reported in MSF file or a unique node name.}
! {Refer to "Available Output Types" below for output type keywords.}
! {FileName can be absolute path or relative to the configuration file directory. Any non-defined directories will be created.}
! {The next two parameters are optional.}
! {Total refers to the total of each specified column. The units for this depend on the column that being totalled.}
! {Timestep represents the time-step in which to undertake the export.}
! {Refer to "Available Time-step options" below for the options available.}
! {Warning: Any existing files will be over-written.}
!
! Mean Annual Loads Output = Export_MAL ( Node ID : integer or string , Filename : string)
! Treatment Train Effectiveness Output = Export_TTE ( Node ID : integer or string , Filename : string)
```

! Node Water Balance Output = **Export_NWB** (Node ID : integer or string , Filename : string)
! Statistics Output = **Export_Stats** (Node ID : integer or string , Constituent: string , Filename : string)
! {Refer to "Available Constituents" below for constituent keywords}
! Life Cycle Cost Output = **Export_LCC** (Node ID : integer or string , " Cost Estimator : String ;
! Include Maintenance In Final Year : Boolean ; Include Establishment Cost : Boolean ;
! Establishment Cost Factor : Float ; Establishment Cost Start Year : Integer :
! Establishment Period : Integer ; Renewal Period : Integer " , Filename : string)
! {Refer to "Available Cost Estimators" below for cost estimator keywords}
! Flux file Output = **Export_FluxFile** (Node ID: integer or string, File path: string)
! {An output flux file can be specified for nodes only. The file can be saved in a .csv format (default) or as a .txt file. Note that
! the column headers of the output file vary with the type of node.}

! You can also create a climate template file from the command line. Refer to MSF File Specification.

! Available options for Time-step/Output/Constituent Types

! Available Output Types = Inflow; InflowTSSConc; InflowTPConc; InflowTNConc; InflowTSSLoad; InflowTPLoad;
! InflowTNLoad; InflowGPLoad; OutFlow; OutFlowTSSConc; OutFlowTPConc; OutFlowTNConc;
! OutFlowTSSLoad; OutFlowTPLoad; OutFlowTNLoad; OutFlowGPLoad

! Multiple Output Types can be used by separating with semi-colons. For example: "Inflow; Outflow; InflowTSSConc"

! Available Constituents = Flow; TSSConc; TSSlog; TPConc ; TPlog; TNConc; TNlog; TSSload; TPLoad; TNload; GP

! Multiple Constituents can be used by separating with semi-colons. For example: "Flow; TSSConc; GP"

! Available Cost Estimators = Expected, Lower, Upper

! Available Time-step options = The table below outlines what each time-step option represents.

Command syntax	Time-step
1d	Daily
12h	12-hourly
6h	6-hourly
3h	3-hourly
1h	1-hourly
30m	30 minutes
12m	12 minutes
6m	6 minutes

! Commands

Export_TTE(Wetland,"Wetland_TTE.txt")
Export_TS (Pond #1 , OutFlowTNConc, "C:\MUSIC\Wetland_TTE.txt", Total, 1h)
Export_LCC(Bioretenction,"Expected;True;True;0.5;1;2;10","TempOutput\Bioretenction.LCC")

! **NOTE: any error during execution will be written to *.log file.**

! Please refer to this to ensure successful application of the music command line.

As indicated above, comments can be inserted in the MCF file by prefixing it with a "!" symbol. Blank lines can also be inserted in the MCF file to improve readability.

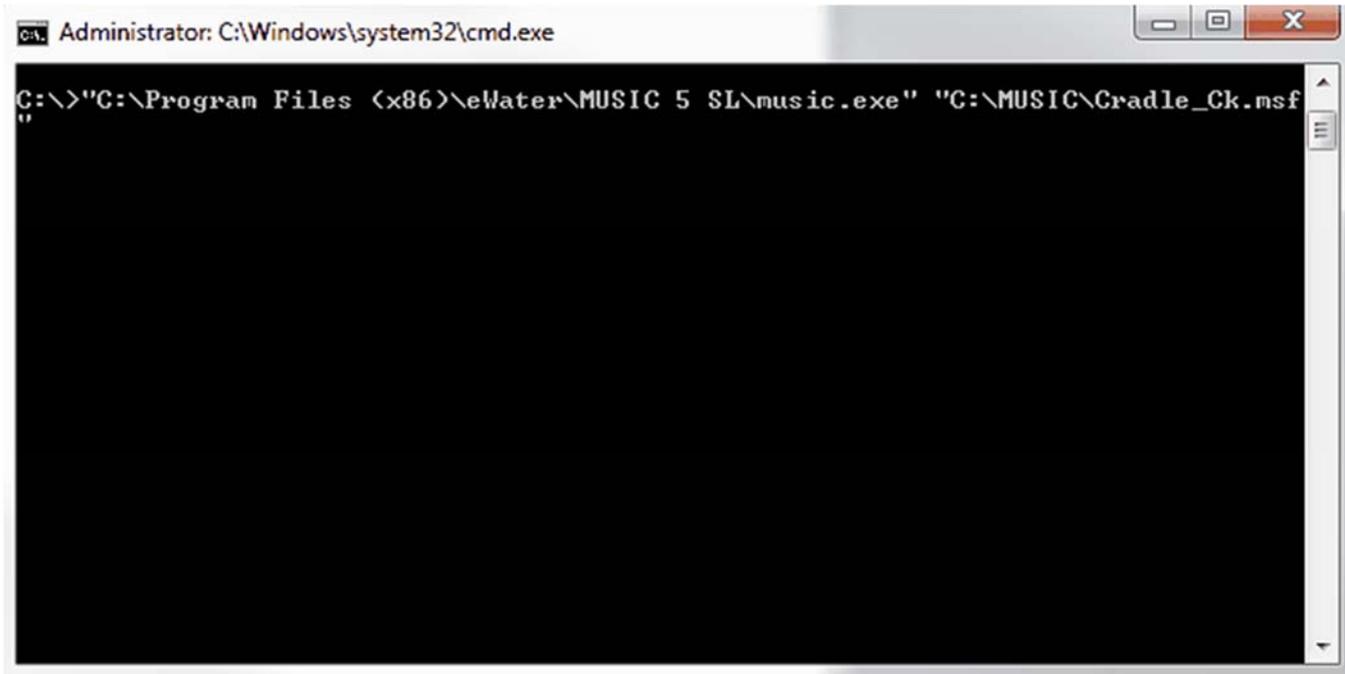
In the event of an unsuccessful command line simulation, an error dialog will appear, and a *.log file will be created. The former will provide a brief description of the error. In the latter case, the log file contains a brief description of the cause for the simulation failure.

Also note that if music split flows are activated in a music model, some outputs may not be available for all nodes.

Running a MSF file from the command line

In music, MSF files are automatically associated with the music executable and can be opened by double clicking on the MSF file from Windows Explorer.

Alternatively, the MSF file can be passed to music as a command line parameter. This allows music to be opened and a music project opened through an external, third party application. To open an MSF file from the command line, include the full path of the music executable followed by a space followed by the full path of the MSF file, as shown below:



```
Administrator: C:\Windows\system32\cmd.exe
C:\>"C:\Program Files (x86)\eWater\MUSIC 5 SL\music.exe" "C:\MUSIC\Cradle_Ck.msf"
```