Release Notes 2023   MIKE 3

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Introduction

Welcome to MIKE 3 2023

In this Release Note, you will find information about new features of MIKE 3, and what you need to know in order to install and get started with Release 2023.

MIKE 3 is a complete 3D modelling package for estuaries, coastal areas, and seas. It covers a wide range of hydrodynamic, environmental and sediment transport processes.

System requirements

Operating systems

Fully supported Windows operating systems *	Windows 11 Pro, version 22H2 (64 bit) Windows 10 Pro, version 22H2 (64 bit) Windows Server 2022, version 21H2 Windows Server 2019 Standard, version 1809
Non-supported but partially tested operating systems **	Windows Server 2016 Standard, version 1607

*   Fully supported operating systems are systems that have been tested in accordance with MIKE's Quality Assurance procedures and where warranty and software maintenance agreement conditions apply.

** Non-supported but partially tested operating systems are systems, which are not officially supported by the MIKE software products. These operating systems have only undergone very limited testing for the purpose of MIKE software, but the software and key features are likely to work. Installation of MIKE software on a non-supported operating system is done so at the user's own risk. The MIKE software warranty and software maintenance agreement conditions do not apply for unsupported operating systems and DHI is under no obligation to provide assistance or troubleshooting for cases where the software is being used on a non-supported operating system.

Please note when running a fully supported operating system as a 'guest operating system' on a virtualization platform, it is automatically downgraded to a non-supported operating system under the conditions provided above.

Minimum hardware/software requirements

Processor	compatible with x64 instruction set, 2.2 GHz or higher
Memory (RAM)	4 GB or higher *
Storage	64 GB or higher *
Display	resolution 1024 x 720 (High-Definition) or higher, 24-bit color (true color)
Graphics adapter	64 MB RAM (256 MB RAM or higher recommended), 32-bit true color **
Software requirements	Microsoft .NET Framework 4.7.2 or higher

* The actual required amount of memory and disk space depend on the usage (application, model setup, size of data files etc.)

* * MIKE 3 Flow Model FM utilizing GPU requires a Nvidia graphics card with compute capability 6.0 or higher. Please note that some of these graphics' cards have varying performance in single compared to double precision calculations. The GPU functionality is based on version 11.7.0 of the Nvidia® CUDA® Toolkit.

Installation

To install MIKE 3, please go to the MIKE Zero product folder and execute the setup.exe file either on the MIKE 2023 USB or from the downloaded, un-zipped installation files. Press the 'Install' button to begin installation.

The setup program will automatically install all necessary files and folders on your computer. Additionally, an entry is created in the Start Menu for MIKE Zero.

Important information: Please be aware that all MIKE software on the same computer must be installed with the same service pack. This is due to the dependencies between MIKE software products and the ability for the software to use the latest feature and systems updates.

License file and dongle

Please Note that when using the local or network license option, which require a license file and a dongle, then

- the DHI License Manager must installed separately.
- all licensed applications included in MIKE 2023 require a 2023 version of the DHI License Manager.
- a new license file format (file extension dhilic2) has been introduced with MIKE 2022 and these license files can only be used together with a DHI License Manager 2022 or newer.

To use MIKE software in licensed mode, please refer to the DHI License Manager Release Notes. (License Manager Release Notes)

Product invocation

Launch 'MIKE Zero' from the Windows Start menu. Then you can select MIKE 3 from within the MIKE Zero Shell.

Starting any MIKE Zero application without a DHI configured hardware key and valid license files will cause the program to run in demo mode. If this happens, a message box will inform you during program initialization. When running in demo mode, the MIKE Zero installation supplies full access to all editors, computational engines and editing facilities. However, restrictions apply to the setups that can be executed as a model simulation.

Support

For general support, please refer to our Customer Care Portal.

If you experience any difficulties, or if you have questions, please contact our Customer Care team at mike@dhigroup.com.

You can also contact your local Customer Care team for support in your local language. A list can be accessed from here.

New features and fixed issues

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New features

Module/type	New feature
MIKE Zero & MIKE Cloud	The functionality and stability of Engine Execution in the Cloud have been improved (with, for example, new tab-based setting for the MIKE Cloud Simulation Launcher, the addition of progress bars, improved file management and configurable MPI parallelisation options).
MIKE Zero	Using Data Manager, it is now possible to create DFSU time series files with more than one time step.
MIKE Zero	The MIKE Zero Graphical Overview has been extended to collect additional model components (including boundary conditions and point and line structures from MIKE 21 Spectral Waves FM).
MIKE Zero	All User Guides are now available via right-click functionality on the MIKE Zero Start Page. User Guides and Scientific Documentation can now be accessed from the MIKE Zero Help menu.
MIKE Zero	Tabbing, tear off and cascade functionality has been improved (particularly when working with large DFSU time series files).
MIKE Zero	New keyboard shortcuts and themes for the MIKE Zero shell.

MIKE Zero	The MIKE Zero Climate Change Editor has been removed from the MIKE Zero framework with Release 2023.
MIKE 3 Flow Model FM	Improvements to the numerical scheme for hydrodynamic calculations using higher-order scheme. Specifically, improvements to the well-balanced scheme (including velocity-based reconstruction of face values and a new noise filter).
MIKE 3 Flow Model FM	Performance improvement of MIKE 3 Flow Model FM using GPU acceleration.
MIKE 3 Flow Model FM	Performance improvements using infrastructure with shape files (improved performance during initialisation phase for shapefiles that include many thousands of polygons).
MIKE 3 Wave Model FM	Performance improvement of MIKE 3 Wave Model FM (up to 20% increase in performance using MPI parallelisation).
MIKE 3 Flow Model FM	Improvement of free outflow condition in the hydrodynamic module (improved stability).
MIKE 3 Flow Model FM	Improved handling of spherical coordinates in the FM modelling system (removal of LONG/LAT dependency in the FM engine for degrees-based map projections).
MIKE 3 Flow Model FM	Modification of depth correction functionality (input file only requires overlap with the simulation period) to support output from the Earthquake Bathymetry Adjustment tool.
MIKE 3 Flow Model FM	Specification of the source in the Temperature and Salinity modules as product of excess temperature/salinity.
MIKE 3 Flow Model FM	Soft start of the speedup factor in the Mud Transport and Sand Transport modules.
MIKE 3 Flow Model FM	Improved log files to make it easier for users to track down errors in lateral, standard and point linkages using MIKE+.
MIKE 3 Flow Model FM & MIKE 3 Wave Model FM	Calculation of sand transport using a 3D flow field in MIKE 3 Flow Model FM and, for the first time, MIKE 3 Wave Model FM (via a new module). This new approach uses a 3D transport equation for the suspended sediment concentration. Further enhancements to sand transport calculations include a new bed load model after Kovacs and Parker.
MIKE ECO Lab	New option to perform agent-based modelling (MIKE ABM Lab) calculations on dry elements.
MIKE ECO Lab	Enhanced performance of distance to shore and direction to shore calculation with MPI parallelisation.
MIKE ECO Lab	2-way MIKE ECO Lab coupling with hydrodynamics and mud transport to model complex feedback loops.

Fixed issues

Module/type	Error/Inconvenience
MIKE 3 Flow Model FM	An error has been corrected in the GPU version when using varying depth corrections.
MIKE 3 Flow Model FM	Boundary conditions for K-Omega have been corrected.
MIKE ECO Lab	Stability of Oil Spill calculations has been improved.
MIKE Zero	Stability and consistency of the UI has been improved.

MIKE Powered by DHI

MIKE Zero	Coordinate handling in the various MIKE FM Editors has been significantly improved.
MIKE Zero	Support for 4K monitors has been extended.
MIKE Zero	Re-centre functionality in the various Geographical View components has been corrected.
MIKE Zero	Handling of dfsu boundaries in the MIKE 3 Flow Model FM Editor has been improved.