Release Notes 2023

MIKE 21

Contents:

Introduction

Welcome to MIKE 21 2023

In this Release Note you will find information about new features of MIKE 21, and what you need to know in order to install and get started with Release 2023.

MIKE 21 is the world's leading modelling package for 2D free surface flow, waves, sediment transport and environmental processes. It is the true work horse of estuarine and coastal modelling with a wider range of facilities and modules than any similar package

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 that 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 21 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

DHI License Management - If you are installing on a computer or server where you will also install the license file, please also install the DHI License Manager. It must be downloaded separately.

To install MIKE 21, 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 21 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

Every new release of MIKE 21 consists of new modules, new features and/or corrections to problems or significant inconsistencies discovered in previous releases. Please find below short descriptions of the most significant news.

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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 21 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 21 Flow Model FM	Performance improvement of MIKE 21 Flow Model FM using GPU acceleration.
MIKE 21 Flow Model FM	Performance improvements using infrastructure with shape files (improved performance during initialisation phase for shapefiles that include many thousands of polygons).
MIKE 21 Flow Model FM	Improvement of free outflow condition in the hydrodynamic module (improved stability).
MIKE 21 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 21 Flow Model FM	Inundation line output.
MIKE 21 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 21 Flow Model FM	Specification of the source in the Temperature and Salinity modules as product of excess temperature/salinity.
MIKE 21 Flow Model FM	Soft start of the speedup factor in the Mud Transport and Sand Transport modules.
MIKE 21 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 21 Spectral Waves FM	Wave energy dissipation by fluid mud can be taken into account in the MIKE 21 Spectral Waves FM model by the introduction of an additional source term.
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.
MIKE 21 Classic	The Standard and Nested Grid based MIKE 21 Flow Model (usually referred to as MIKE 21 Classic) has been removed from the MIKE Zero framework with Release 2023. This means that the last MIKE installation to include MIKE 21 Classic was Release 2022 Update 1 (this previous version can today be installed alongside newer MIKE releases to run old Classic models as needed, but long-term compatibility with modern operating systems cannot be guaranteed). Technical support for MIKE 21 Classic will continue for 12-months from the release data of MIKE 2023 (this release), stopping in November 2023.

Fixed issues

Module/type	Error/Inconvenience
MIKE 21 Mooring Analysis	Improved reporting in the log files.
MIKE 21 Mooring Analysis	Improved handling of very small timesteps in passing vessel calculations.

MIKE 21 Mooring Analysis	Consistent display of mooring infrastructure (lines, fairleads, winches and chains) in all editor pages.
MIKE 21 Flow Model FM	An error has been corrected in the GPU version when using varying depth corrections.
MIKE 21 Flow Model FM	An error has been corrected in the Shoreline Morphology model when hydrodynamic and/or wave feedback is excluded.
MIKE ECO Lab	Stability of Oil Spill calculations has been improved.
MIKE Zero	Stability and consistency of the UI has been improved.
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.