MIKE+ for Linux

Installation Guide

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Contents:

Introduction

Welcome to **MIKE+ for Linux 2026**.

MIKE+ for Linux provides Linux versions of the following engines including all sub-modules: MIKE 1D, Couplings and DHI EPANet 2.2. For models including 2D overland and couplings, also MIKE Zero for Linux must be installed.

The MIKE+ for Linux installation package does not include many pre- and post-processing tools to incorporate into Linux-based workflows.

In this Installation Guide, you will find information about how to install and get started with MIKE+ for Linux.

System Requirements

Linux distributions

Officially supported Linux distributions*	Red Hat Enterprise Linux (RHEL) 8 and 9 (all 64-bit) Ubuntu 22.04 and 20.04 (all 64-bit)
Non-supported but partially tested Linux distributions**	Ubuntu Kylin, Galaxy Kylin (V10), AlmaLinux, Debian (all 64-bit)

*   Officially supported Linux distributions are distributions that have been tested in accordance with the MIKE Powered by DHI Quality Assurance procedures and where warranty and software maintenance agreement conditions apply.

**   Non-supported but partially tested Linux distributions are distributions that have only undergone limited testing and so are not officially supported for running MIKE+ for Linux. Users may need to manually install missing dependencies (libraries) to ensure proper functionality of the engines. The MIKE software warranty and software maintenance agreement conditions do not apply for non-supported Linux distributions. DHI is under no obligation to provide assistance or troubleshooting for cases where the software is being used on a non-supported distribution.

Minimum hardware/software requirements

- Intel® 64 architecture processor (x86-64) or compatible non-Intel processor. Please note that other processor architectures such as Power PC, Itanium, SPARC, or ARM are not supported.
- For the best experience, a multi-core or multi-processor system is recommended.
- When utilising MPI-based parallelisation in a HPC cluster, high-performance interconnection such as InfiniBand™ is recommended.
- .NET 6.0 runtime must be installed.

Content

MIKE+ for Linux consists of the packages listed below, comprising MIKE Common, MIKE+, MIKE Zero, MIKE Zero Prerequisites. Packages marked with * are part of the MIKE Zero for Linux and are required for 2D overland and couplings.

Component	Content
MIKE_Common_2025	common components (including License System)
MIKE+_2025	core components
MIKE_Zero_2025*	core components
MIKE_Zero_2025_Prerequisites*	prerequisites (Intel MPI library)

Table 1 - Installation packages for MIKE+ for Linux

MIKE+ for Linux includes the calculation kernels listed below, which are all included in the core component package, MIKE+_2025:

Product name	Application name
MIKE 1D	DHI.Mike1D.Application.dll
EPANet	DHI.MuEpanet2.Application.dll
Couplings*	DHI.Couplings.Runner.dll

Table 2 - Engines included in MIKE+ for Linux

For 2D overland and couplings support, do also install the MIKE_Zero_2025 package. Please consult the MIKE Zero for Linux Installation Guide for information on how to install MIKE Zero for Linux, including requirements for supporting GPU and MPI.

Installation

The default installation location of MIKE+ for Linux is /opt/MIKE/2025, when installing as root, and $HOME/MIKE/2025 when installing as a normal user.

To perform an installation of MIKE+ for Linux follow the steps below, running the *./install.sh* command for each package:

1. Install .NET 6.0 Runtime for your Linux distribution. Check your distribution for details.
   Ubuntu 22.04: *apt-get install -y dotnet-runtime-6.0*
   Red Hat 9: *dnf install dotnet-runtime-6.0*
2. Unpack the MIKE+ for Linux installation packages listed in **Table 1**
3. Install the MIKE_Common_2025 package
4. Setup licensing following the instructions in **License**
5. Install the MIKE+_2025 package, containing the 1D engines in **Table 2**
6. Optionally: Install the MIKE_Zero_2025 package and the prerequisites (Intel MPI library) located in the MIKE_Zero_2025_Prerequisites package, following the MIKE Zero for Linux Installation Guide

Please note, that on a cluster with multiple compute nodes, MIKE and Intel MPI Library must be available on all compute nodes. The standard approach is to install MIKE and Intel MPI Library in a location shared across all compute nodes. Intel MPI is installed via the command:

sh l_mpi_oneapi_p_2021.12.1.8_offline.sh

License

Running 2D overland and coupled models on Linux requires an additional license module, compared to running on Windows. Please verify that you have this license available before running 2D overland or coupled models.

MIKE+ for Linux supports both network licenses and internet licenses. Dongle based local licenses are currently not supported. Network license requires a DHI License Manager installation, which is currently only available for Windows. MIKE+ for Linux is as default configured to use network license and license server name can be specified in the installation process.

The license configuration tool named *licconfig*, which is included in MIKE+ for Linux, can be used to set up MIKE+ for Linux to use internet license and to change the default license configuration.

Configuration of internet license is done with one of the following commands:

- Authentication using username and password:

  licconfig set --type=internet --sso=0 --iuser=user@my-company.com --ipassword=my-password

- Authentication using a MIKE Cloud account:

  licconfig set --type=internet --sso=1

The latter is more secure. Additionally, it requires the .NET 6 runtime to be installed on the system.

Use of Internet license requires applications to communicate with an internet license service at https://dk.license.mikebydhi.com/svc and https://license2.mikebydhi.com/svc via HTTPS (HTTP over TLS/SSL) on port 443, which must be open for outbound traffic.

Applications also start a relay service when internet license is used. This service uses custom protocol similar to network license on TCP ports 61768 – 61798. The relay service uses the first port in this range that is open for inbound traffic. This inbound traffic is only used by the relay service on the local host to communicate with applications. The use of the relay service can be bypassed by using the license type *internet_direct* instead of *internet*.

Configuration of network license is done via the command:

  licconfig set --type=network --server=myserver.domain

Use of network license requires applications to communicate with a network license service via custom protocol using RPC (remote procedure call) on port 1799, which must be open for inbound traffic.

More information about licconfig can be found via the command:

  licconfig --help

Execution

Before executing simulations, you need to set up the runtime environment for MIKE for Linux. This is done via the below command:

  source <install path>/MIKE/2025/mikevars.sh

For 2D overland or coupling model runs, then also the runtime environment of the Intel MPI Library must be set up:

  source <install path>/intel/oneapi/mpi/2021.12/env/vars.sh

The MIKE 1D, EPANet and the coupling engines are .NET applications, and are started using the dotnet command, typically:

  /usr/bin/dotnet <install path>/MIKE/2025/bin/DHI.Mike1D.Application.dll setup.m1dx

  /usr/bin/dotnet <install path>/MIKE/bin/DHI.MuEpanet2.Application.dll setup.inp

  /usr/bin/dotnet <install path>/MIKE/2025/bin/DHI.Couplings.Runner.dll setup.couple

When running couplings as shown above, the computational engines will utilise OpenMP parallelisation only. However, it is recommended to use MPI parallelization for 2D overland, which is more efficient even for a small number of cores and scalable for large number of cores. To execute the simulations using MPI parallelisation you need to use mpirun. To execute the example with 8 cores you need to use the following commands:

  mpirun –n 8 /usr/bin/dotnet <install path>/MIKE/2025/bin/DHI.Couplings.Runner.dll setup.couple

If the number of available cores on the compute node is larger than the number of cores specified in the mpirun command, additional cores will be used for OpenMP parallelisation if enough cores are available. OpenMP parallelisation can be disabled (limited to only one thread) via the command:

export OMP_NUM_THREADS=1