

# Release Notes 2021



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## Introduction

Welcome to WEST 2021 Update 1

In this Release Note you will find information about new features of WEST, and what you need to know in order to install and get started with WEST 2021.

WEST 2021 is the 6th release of the re-designed and re-engineered version of WEST, the powerful and user-friendly tool for dynamic modelling and simulation of municipal Water Resource Recovery Facility (WRRF) and Integrated Urban Water System (IUWS). The extensive state-of-the-art model library of WEST enables one to model and evaluate almost any kind of modern WRRF and a variety of IUWS systems.

WEST 2021 comes in five different flavors:

- **WEST Basic:** Entry-level product: allows for the construction of a plant layout (limited in size) and for the execution simulations, using a reduced block library
- **WEST:** Construction of plant models using standard blocks, simulation, output visualization, and computation of user-specified objective functions, and execution of advanced experiments (formerly: WESTforDESIGN)
- **WEST +:** Construction of plant models using standard and custom blocks, simulation, output visualization, computation of user-specified objective functions, and execution of advanced experiments (formerly: WESTforOPTIMIZATION)
- **WEST Player:** Simulation, output visualization, and computation of user-specified objective functions on the basis of a fixed executable plant model, previously prepared by WEST or WEST + (formerly: WESTforOPERATORS)
- **WEST SDK:** Software Development Kit for the integration of the WEST engine (i.e. Tornado) in custom applications (formerly: WESTforAUTOMATION)

WEST 2021 comes with 2 separate model libraries: the conventional **MSL** library (that uses MSL as modelling language) and a new **Modelica** library (that uses Modelica as modelling language).

**Important:** issues that should surface in the MSL library will be solved, but the library will no longer be actively developed and will eventually be discontinued. As of Release 2020, all new (model) development is taking place in Modelica.

## System requirements

The recommended minimum system requirements are:

Fully supported Windows operating systems *	Windows 10 Pro, version 20H2/2009 (64 bit) Windows Server 2016 Standard (64 bit) Windows Server 2019 Standard (64 bit)
Processor	x64, 2.2 GHz (or higher)
Memory (RAM)	2 GB (or higher)
Hard disk	40 GB (or higher)
Monitor	SVGA, resolution 1024x768 in 16-bit color
Graphics adapter	64 MB RAM (256 MB RAM or higher recommended), 32-bit true color
File system	NTFS
Software requirements	Microsoft .NET Framework 4.7.2 or later

\* 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.

## Installation

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**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 WEST, please choose WEST in the 'Product Overview' dialogue box that appears when inserting the MIKE software 2021 USB and clicking the Setup.exe or executing the Setup.exe file from the downloaded 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 WEST.

## License file and dongle

To use WEST software in licensed mode, please refer to the DHI License Manager Release Notes. ([License Manager Release Notes](#))

## Product invocation

Launch WEST from the Windows Start menu.

## Support

For general support, please refer to our [FAQ](#).

If you experience any difficulties, or if you have questions, please contact our Customer Success team by e-mail or phone:

### Customer Success

DHI A/S  
Agern Allé 5  
DK-2970 Hørsholm  
Denmark

[mike@dhigroup.com](mailto:mike@dhigroup.com)  
Tel: +45 4516 9333

You can also contact your local Customer Success team for support in your local language. You can find the list [here](#).

## New features and fixed issues

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### Release 2021

Every new release of WEST consists of new modules, new features and/or corrections to problems or significant inconsistencies discovered in previous releases. Please find short descriptions of the most significant news in Release 2021 below.

#### New features

Module/type	New feature
WEST, WEST+	Modelica is selected by default upon creation of a new project
GUI	<ul style="list-style-type: none"><li>• Save As makes a copy of the entire content of the project folder, including e.g. subfolder used for data input/output</li><li>• Ability to reset initial values (of derived state variables) decoupled from resetting of parameters</li><li>• Improved visualisation of ClassName in Block Details</li><li>• Possible to select multiple files in Open File dialog</li><li>• Hidden quantities can be used in the scope of Calculator Variables</li></ul>
Modelica Library	Models Guide (work-in-progress: available for download)
Modelica Library	New models: <ul style="list-style-type: none"><li>• Category: PWM_SA<ul style="list-style-type: none"><li>○ Activated sludge tank</li><li>○ Anaerobic digester</li><li>○ Thickener</li><li>○ THP</li></ul></li><li>• Oxidation ditch with 6 sections</li><li>• Variants of heat exchanger (for sludge pre-heating), including heat balance</li></ul>

	<ul style="list-style-type: none"> <li>• Biogas holder, engine, boiler and flare</li> <li>• Sludge drying</li> <li>• Carbon footprint calculator</li> </ul>
Modelica Library	<p>Improvements:</p> <ul style="list-style-type: none"> <li>• More efficient implementation of layered settling models (e.g. Takacs) and layered biofilm models through the use of settings: NrLayersSettling, NrLayersBiofilm <ul style="list-style-type: none"> <li>◦ "Takacs10_SVI" renamed "Takacs_SVI"</li> </ul> </li> <li>• Merged Biofilm category (MBBR) into the new Tanks_Filters category (with Trickling Filter)</li> <li>• Calculation of Qair equivalent as a function of kLa, in activated sludge tanks</li> <li>• Calculation of alpha-F as a function of blower's age</li> <li>• Option to use multi-probe as a lifting station (through manipulated variable "IsPumped")</li> <li>• All kinetic parameters in multi-compartment activated sludge tanks have been raised to top-level parameters</li> <li>• Precipitation and ISS decay have been added to ASM2dISS category</li> <li>• More efficient use of buffer to compute moving average of SRT – should avoid extreme values</li> <li>• Processes in ASM2dISS have been renamed</li> <li>• Unnecessary dummy categories zModWWTP, zModSewer have been removed</li> </ul>
Modelica Library	<p>New samples:</p> <ul style="list-style-type: none"> <li>• kwaMashu (for PWM_SA)</li> <li>• mUCT_ASM2dISS (for ASM2dISS &amp; blower regulation)</li> </ul>
Modelica Library	<p>New influent generators:</p> <ul style="list-style-type: none"> <li>• mDWF2</li> </ul>

**Fixed issues/inconveniences**

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Module/type	Error/Inconvenience
GUI	Colour dialog causes WEST and tools to freeze
GUI	Impossible to input initial values in multi-selection mode
Modelica Library	Incorrect calculation of solids in ASM2dISS separation model
Modelica Library	Incorrect initialisation of M vector in ASM2dISS
Modelica Library	Incorrect terminals for gas flow in anaerobic digester
Modelica Library	Buffer tank model could not work in ASM2dISS
Modelica Library	Aerobic digester only available in ASM1
Modelica Library	Incorrect sign for X_Under in dewatering models
Modelica Library	Error in calculation of P_System and dp_line in blower models

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Modelica Library	Error in calculation of decay rate of Anammox bacteria
Modelica Library	Error in acetate dosing (S_ALK not found)
Modelica Library	Error in OUR calculation
Modelica Library	Incorrect attributes and missing assignment for EColi_Out in disinfection models

### Known defects and workarounds

Module/type	Error/Inconvenience	Work-around
WEST GUI	The definition of Calculator Variables involving vectors or matrices in Modelica results in an error	Manually edit the TornadoMain.xml in the WEST\2021\etc\ folder and set to <b>"false"</b> the <b>EnableMSLCalcVarCompatibility</b> property
WEST GUI	Unit conversion does not work in Influent Tool	Use standard (SI) units rather than US or Imperial
Samples	Python Extensions sample only works after executing steady-state and dynamic simulation	Follow instructions provided in the Notes to the sample