

## Compact model identification scheme

### 1. Implementation number

The implementation number is used to identify different implementations of the same set of model equations. Examples of such different implementations are:

- Numerical measures to increase convergence;
- Restructuring of source code to increase maintainability;
- Small changes in the model, like changing constants used in smoothing functions and clipping values of parameters; and
- Bug fixes, which do not change the model formulation itself.

The implementation number is increased whenever such changes occur. The implementation number is reset when the version number is changed.

### 2. Version

The version is used to identify different model formulations, which can all make use of the same parameter set, i.e. are backwards compatible. Sometimes a higher version may have additional parameters, but the default values of these parameters are then chosen in such a way, that they yield the previous version. This implies that a parameter set for a certain version can be used with any later (higher) versions and gives simulation results that are identical to those obtained with the original version.

This is the preferred method to implement model improvements.

The version is increased whenever changes mentioned above occur.

The version is reset when the level is changed.

### 3. Level

The level used to identify different model formulations, which cannot use the same parameter set, i.e. are not backwards compatible. This implies that a parameter set for a certain level can not be used with any later (higher) level or gives simulation results that are not identical to those obtained with the original level.

The level is increased whenever such a new model formulation has been implemented.

In the following table is indicated where this identification is used:

	<b>Level</b>	<b>Version</b>	<b>Implementation Number</b>
Parameter set / Libraries	yes	no	no
Model name	yes	yes	no
Source code	yes	yes	yes

## Model name

The model name is level.version, e.g. for MOS Model 11: 1100.3, 1101.4 or 1102.0.

## Source code

In the source code a code revision number is given, which is uniquely linked to the Level.Version.ImplementationNumber, e.g. for MOS Model 11: 1.83 for 1100.3.2, 1.115 for 1101.4.3 and 1.71 for 1102.0.2.

For **Mextram** and **PSP**, which are CMC standard models, the Verilog-A code, as distributed by TU Delft (for MXT) and Arizona State University (for PSP) is leading. Therefore the Level.Version.ImplementationNumber for Mextram and PSP is uniquely linked to this Verilog-A code. Consequently, there may be multiple implementations of these models in the C-code of the SiMKit, which originate from the same Verilog-A release of the model (or Level.Version.ImplementationNumber). In such a case the C-code can be uniquely identified by the SiMKit version number and the code revision number.