



## Visual Model Editor Utility

The following sections describe the Visual Model Editor utility and how it can be used with Modeeasy+. This includes information about how to install and use the utility, how to edit an existing model and how to define a new model. The sections covered are:

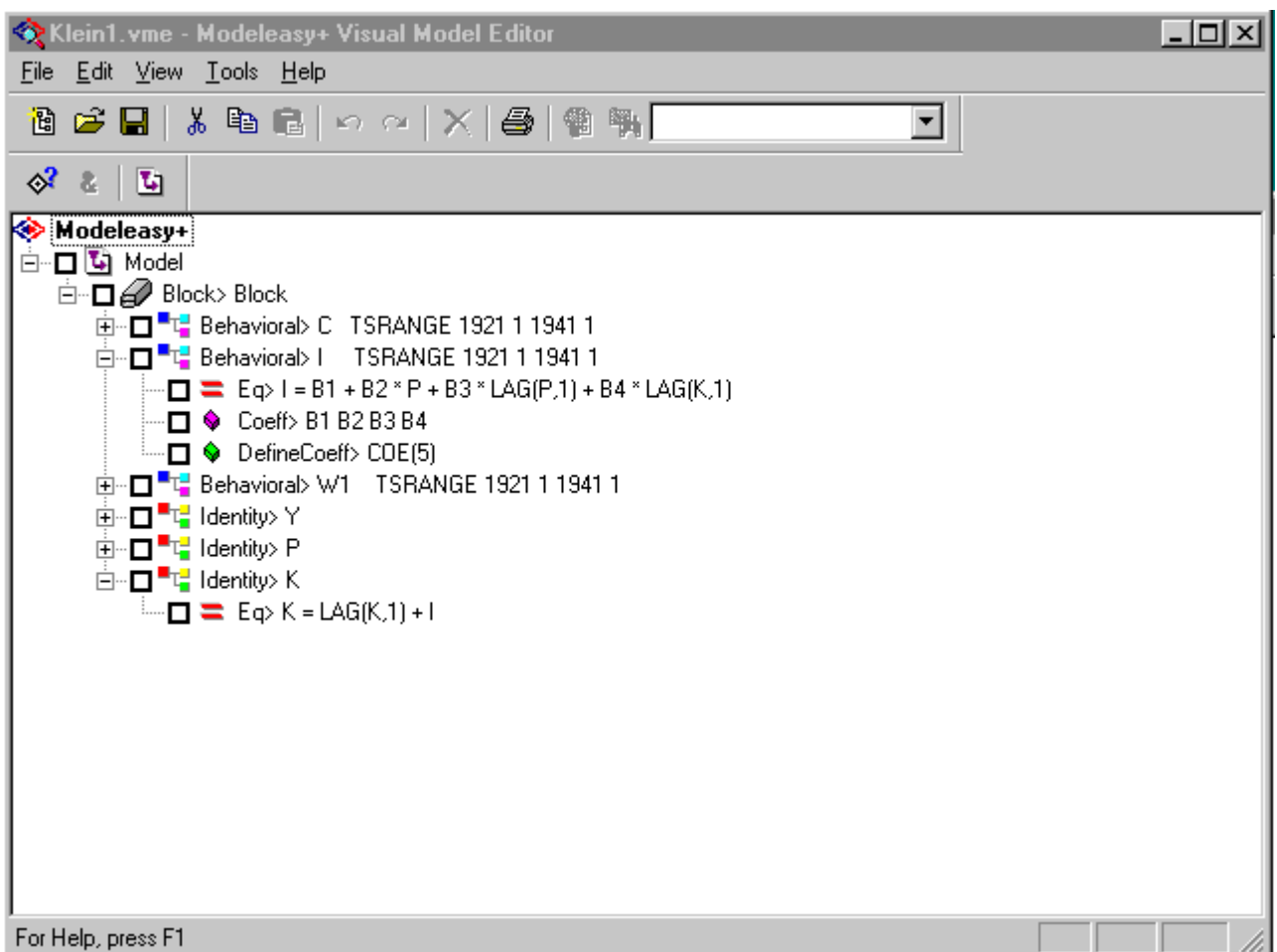
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## Program Description

The Visual Model Editor, supplied with the Windows versions of Modeeasy+ 5.x, allows the user to construct new models or edit existing models using visual tools. This utility can be used as a stand-alone program or can be used from within the Modeeasy+ environment. This editor can be used to write or rewrite equations using the standard editing or drag-and-drop techniques of other Windows editors.

The image below shows the Klein1 model in the Visual Model Editor. The view of the model is an “explorer” view common in many other Windows applications. In the view below, the **behavioral equation**, **I**, and the **technical identity**, **K**, are expanded to show their components in the Modeeasy+ Model Description Language.



A line in the model can be changed by using the standard editing technique of highlighting the line and then clicking once on it to open the line for editing. Equations or components may be moved or copied from one place to another within the model by using standard drag and drop techniques. The toolbar icons can be used to add new components to the model.

The rules of the Model Description Language are built into the Visual Model Editor. A component cannot be added at the wrong place in a model. For example, the editor will not allow a coefficient component to be added to an identity.



## Installation Note

The Visual Model Editor utility is distributed in the \Utilities\VMEdit subdirectory of the Modeleasy+ installation and is named **VMedit.exe**. In order to use this utility from a Modeleasy+ session with the **VMEDIT** command, this file must be moved to a directory in your path or this directory must be added to your path.

## Usage Note

To use the Visual Model Editor utility as a standalone program, simply double-click on the VMEdit.exe file or enter **VMEDIT** in an MS\_DOS Window and then follow the directions in the appropriate section below.

To use this utility on a model in the Modeleasy+ workspace, enter the command

```
:_vmedit model_name
```

and the model named "model\_name" will be written into the utility. After making any modifications according to the directions in the section below, the results may be saved by exiting the utility and returning to Modeleasy+.

## Editing an Existing Model

The following steps should be followed to edit an existing model using the Visual Model Editor as a standalone program or from within the Modeleasy+ environment.

### Using VMEdit as a Stand-alone Program

To edit a model using the utility as a standalone program, follow the steps below to create the model and then start the Visual Model Editor according to the instructions in the Usage Note.

In the Modeleasy+ environment, build and save a small model using the commands (lower case is user input, uppercase is Modeleasy+):

```
:_model test
EDIT INPUT MODE
1 MODEL
2 behavioral> one
3 eq> y = a + b*x
4 coeff> a b
5 definecoeff> result
6 <Enter key pressed>
EDIT COMMAND MODE
%end
MODEL TEST IS NOW DEFINED
MANUAL MODE
:_keepdeck test dir "your_directory"
```



Start the Visual Model Editor by either double clicking on its name in a file view or entering its name in a DOS Window.

Open the file `test.dec` (saved by the `keepdeck` command above) using either the File menu or the toolbar Open File icon.

## Using VMEdit as a Modeeasy+ Command

To edit a model using the utility from within a Modeeasy+ session, follow the steps below to create the model and then start the Visual Model Editor according to the instructions in the Usage Note.

In the Modeeasy+ environment, build a small model using the commands (lower case is user input, uppercase is Modeeasy+):

```
:_model test
EDIT INPUT MODE
1 MODEL
2 behavioral> one
3 eq> y = a + b*x
4 coeff> a b
5 definecoeff> result
6 <Enter key pressed>
EDIT COMMAND MODE
%end
MODEL TEST IS NOW DEFINED
MANUAL MODE
:_
```

To start the Visual Model Editor from within the Modeeasy+ environment, enter the command

```
:_vmedit test
```

## Steps Common to Both Methods

The following steps are the same for using the Visual Model Editor as either a stand-alone program or from within the Modeeasy+ environment.

You will get an informational message that a Block is being inserted. This is necessary to maintain the hierarchy of items in the model's Explorer view. A model can have many blocks or be a single block of its own.

At this point you will be in an Explorer view of the model you are using. You may open the model's components using standard Windows explorer techniques. For example, by clicking on the "+" in the Block line, you open up the equations in the model, by clicking on each equation's "+", you open up the components of the equation, etc.

A line in the model may be edited using the standard Windows technique of highlighting the line and then single clicking on the line to put you in edit mode.



A new entry may be added to the model by highlighting the level in the model hierarchy at which the new entry is to be added and then choosing an item from the toolbar. The toolbar changes as different lines in the model are highlighted. This ensures that the items entered are consistent with the hierarchy of the **MDL**. For example, to add a **PDL** to equation one of the model, highlight the line

```
Behavioral> ONE
```

then move down the toolbar to the **PDL** symbol (a magenta X) and click on it. You will see the line

```
PDL>
```

appear in edit mode and you may then add the statement

```
PDL> b 2 5
```

to the equation.

As another example, if you wanted to add another equation to the model, highlight the line

```
Block> Block
```

line, then move along the toolbar to the equation symbol for the type of equation that you want to add (Behavioral is the third icon from the left) and click on it. You are then able to enter the equation name and are left with the line highlighted making it easy to select the items you want to place in the equation, e.g., the **EQ>** line is "=", etc.

Other editing functions follow the usual Windows conventions. Model items may be deleted by simply highlighting the line and pressing the **Delete key**. Model items may be moved/copied from one part of the model to another by drag and drop techniques.

The final model may be saved either by using the File menu item or the Save icon on the toolbar.

After saving the modified model using the utility as a standalone program, the result may be brought back into Modeeasy+ and checked for consistency by the commands below.

```
:_getdeck test dir "your_directory"  
:_checkmodel test
```

After saving the modified model using the utility from with a Modeeasy+ session, the user will be brought back into the session and the **:\_** prompt will appear.

## Defining a New Model

At the present time, the only way to define a new model with the Visual Model Editor is to use it as a stand-alone program. This restriction will be removed in a future release of the utility. To define a new model, follow the steps below.



Start the Visual Model Editor by either double clicking on its name in a file view or entering its name in an MS\_DOS Window.

At this point, there are no entries in the model and only the Modeeasy+ logo is shown. Each model must start with the word Model, so click on that icon in the toolbar (the third icon from the left on the second toolbar). A Model line will appear in edit mode and you may enter a model name as shown below.

```
Model test
```

Each model must have a block of equations (which may be the entire model), so a block must start the model. To enter a Block line, click on its icon (the third from the left) and enter a block name as shown below.

```
Block> one
```

You will note that as you move down the model hierarchy, the toolbar changes. This is to ensure that an item is only entered at a point that is consistent with the hierarchy of the Model Description Language. For example, blocks may only be entered under models, equations may only be entered under blocks, etc.

An equation may be entered under a Block by highlight the Block which is to include the equation (done automatically above) and then clicking on the icon for the type of equation desired. For example, the Behavioral equation icon is the third from the left on the toolbar and the line below may be entered.

```
Behavioral> one
```

The minimal information for a behavioral equation is the equation specification, identification of coefficients, and where the values of the coefficients are to be located. These correspond to the **EQ>**, **COEFF>**, and **DEFINECOEFF>** keywords in the Modeeasy+ Model Description Language. Icons for these keywords appear when the behavioral equation line is highlighted and can be used to build the equation definition as described in the following sequence:

- a) highlight the behavioral line and click on the **EQ>** icon in the toolbar (the = icon);
- b) enter the specification of the equation as  

```
EQ> y = a + b*x
```
- c) highlight the behavioral line and click on the **COEFF>** icon in the toolbar (the magenta diamond, third from left); enter the names of the coefficients as **COEFF>** a b
- d) highlight the behavioral line and click on the **DEFINECOEFF>** icon in the toolbar (the green diamond, the fifth from left); enter the name of the coefficient location as **DEFINECOEFF>** result
- e) other equation items such as error terms, distributed lags, etc., may be added to the equation by repeating the above for each item.

Other blocks of equations may be added to the model by highlighting the Model line and then using the icons on the toolbar to add them. Other equations may be added to a specific block in the model by highlighting the Block line and then using the toolbar to add them.

After the model has been defined using the Visual Model Editor, then it should be saved with a suffix of **.DEC** in order to make it easier to bring the model into Modeeasy+ using the **GETDECK** command. If a different suffix is chosen, then the SUFFIX keyword of the **GETDECK** command must be used to specify it. For example, if the model is saved as **TEST.DEC** in the directory **C:\TEMP**, then the Modeeasy+ command to retrieve it would be



```
:_getdeck test dir "c:\temp"
```

The model may be checked for consistency with the Model Description Language by the command

```
:_checkmodel test
```

and examining any errors that appear.