

# FMvars – Handling variables

## Overview v2.1

Handling system- and user variables in FM.

### Contents

|   |    |
|---|----|
| Script installation .....                     | 2  |
| Avoid Windows Defender intervention .....     | 3  |
| Details of the D+DD script installation ..... | 3  |
| Script invocation .....                       | 4  |
| Menu entries .....                            | 4  |
| Handle variables .....                        | 5  |
| Handling selected variables .....             | 6  |
| Navigating in the document .....              | 7  |
| Import or export variables .....              | 9  |
| Import from .....                             | 9  |
| Export to .....                               | 9  |
| Use cases .....                               | 11 |
| Implementation details .....                  | 12 |
| Getting variables in sequence .....           | 12 |
| User's view of navigation .....               | 14 |
| Sort order for variable transfer .....        | 15 |
| Stress test .....                             | 16 |
| Background .....                              | 17 |

- Important
- Any operation performed by a script can not be undone<sup>3)</sup>! Best practice is to save the document before performing script actions on it.
  - In case of an error or change of Your mind you can simply Revert to Saved for the pertinent document.
  - Only scripts which do not modify document contents (e.g. creating a new document) are safe in this respect.

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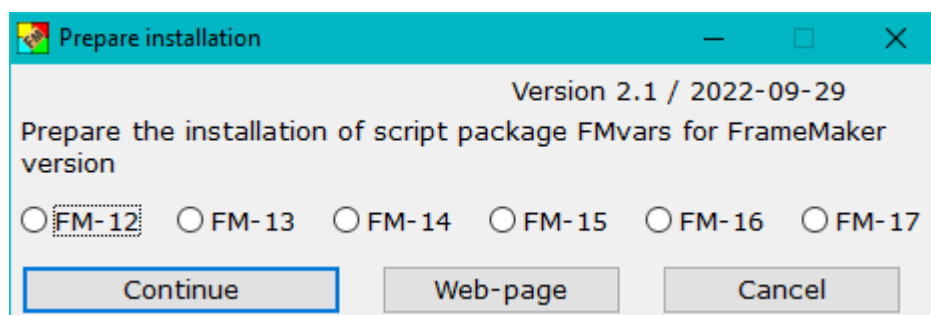
<sup>3</sup> This must not necessarily be the case for plug-ins represented as dll's.

## Script installation

- 1 Close FrameMaker if necessary.
- 2 Download the Inst-FMvars.zip from my [web-page](#)
- 3 UnZip the file to the desk top.
- 4 Execute the file PrepareInstallation.exe as Admin.

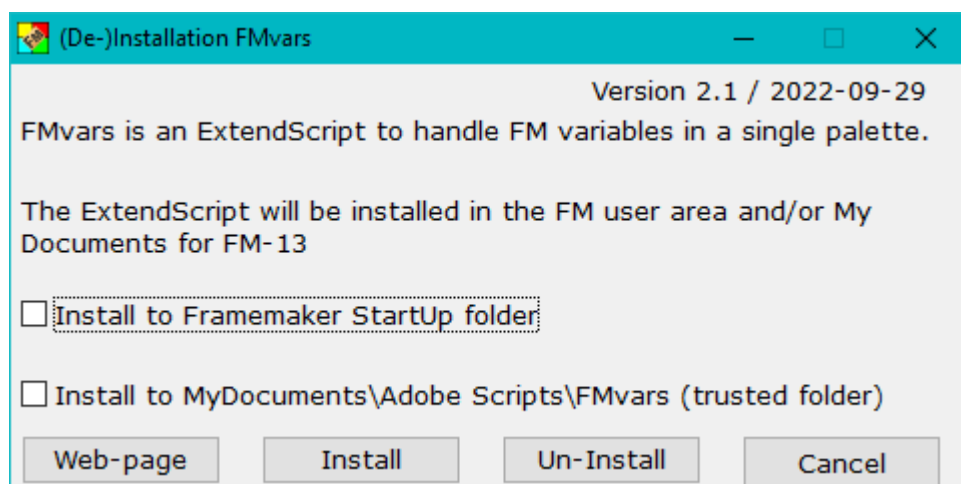
**Note:** *Windows Defender may react to this program with a virus warning. This is a false positive. You may check this with an [upload to Virustotal](#). See [Avoid Windows Defender intervention](#) on page 3.*

- 5 The last six FM-versions present in your %appdata%/Adobe/FrameMaker/ are listed in the dialogue (on your system there may be only one).



The language of the installation dialogues adapts to the UI language of your current FM installation (de, en, fr).

- 6 Use **Continue Installation**. This opens the installation program:



- 7 Select the appropriate options:
  - Use the first option to start the script automatically at FM-start.
  - Use the second option if you wish to start the script on demand from a trusted source. You can define the script in **File > Scripts ... > Cataloge** (Script Library) as Favourite: use the Add button and navigate to My Documents \Adobe Scripts\FMvars\FMvars.jsxbin.
- 8 With **Install** the script and associated files will be transferred into the relevant locations.
- 9 A message indicates the end of the installation. The desktop icons will be removed.

## De-install the script

To de-install the script, start the installation program from the short cut in the **Start-menu > D+DD**. Then use the **Un-Install** button.

This removes the script only from the locations defined in the options. You can later use the installation program again.

To get completely rid of the script you need to remove the following in addition to the de-installation:

- The short cut in the start menu
- Directory %appdata%\D+DD\FMvars

## Avoid Windows Defender intervention

- 1 In Windows settings navigate to **Windows Security > Virus & Threat protection settings > Manage Settings**
- 2 Enter **Exclusions**
- 3 Add the folder you need to exclude:  
C:\Users\username\AppData\Roaming\D+DD

## Details of the D+DD script installation

- Unpacking creates a program (Prepinstallation.exe) and a directory (InstallThis).
- Prepinstallation.exe should be executed with admin rights (right-click and select), otherwise a message will appear indicating this.
- Prepinstallation adds the information about the current directory (e.g. C:\Users\Klaus\Desktop\InstallThis) and the installation directory of the selected FM version to the InstallThis\config.ini file.
- Then InstallThis\Inst-FMvars.exe is executed, which creates a directory D+DD\FMvars in the Windows Start directory and copies everything from InstallThis there. In addition, a short cut is created to this directory.
- This directory contains Inst-FMvars.exe, which is now executed and the unpacked files that are no longer used (e.g. on the desktop) are deleted.
- Inst-FMvars.exe asks where the script should be copied to (Startup folder or MyDocuments\Adobe Scripts\FMvars). The selected option must also be selected during a de-installation in order to de-install at the correct location.
- The script consists of the main module FMmarkers.jsx and the modules in the FMvars directory.
- Various scripts (e.g. the installation of the tool bars) also write something in the maker.ini in the user area in the section [D+DD].

# Script invocation

## Menu entries

The menu is inserted at these locations:

FM ≤ 13 at the bottom of the **Special** menu.

FM 13...15 at the bottom of the **Insert** menu.

FM ≥ 16 in the **Insert** menu, after the **Variable** entry.

Document menu

| Special   Insert       |                         | Shortcut  | See                    |
|------------------------|-------------------------|-----------|------------------------|
| Handle variables [DDD] | Documentation           | ESC q v d |                        |
|                        | Handle variables        | ESC q v v | <a href="#">page 5</a> |
|                        | Import/Export variables | ESC q v x | <a href="#">page 9</a> |

## Documentation

This pdf is displayed with your PDF viewer.

## Handle variables

A single palette eases a number of tasks concerning variables, such as:

- Create a new user variable using building blocks.
- Change the name of a user variable.
- Change contents of a user or a system variable.
- Insert a variable at the current cursor location.
- Walk through the document and display any variable.
- Walk through the document and display the variable with the name selected in the list. So you can verify correct use of the variable (in its textual environment).
- Remove an improperly placed variable and insert another.

**Note:** *Since this is a palette it stays open until you close it explicitly.*

## Import/Export variables

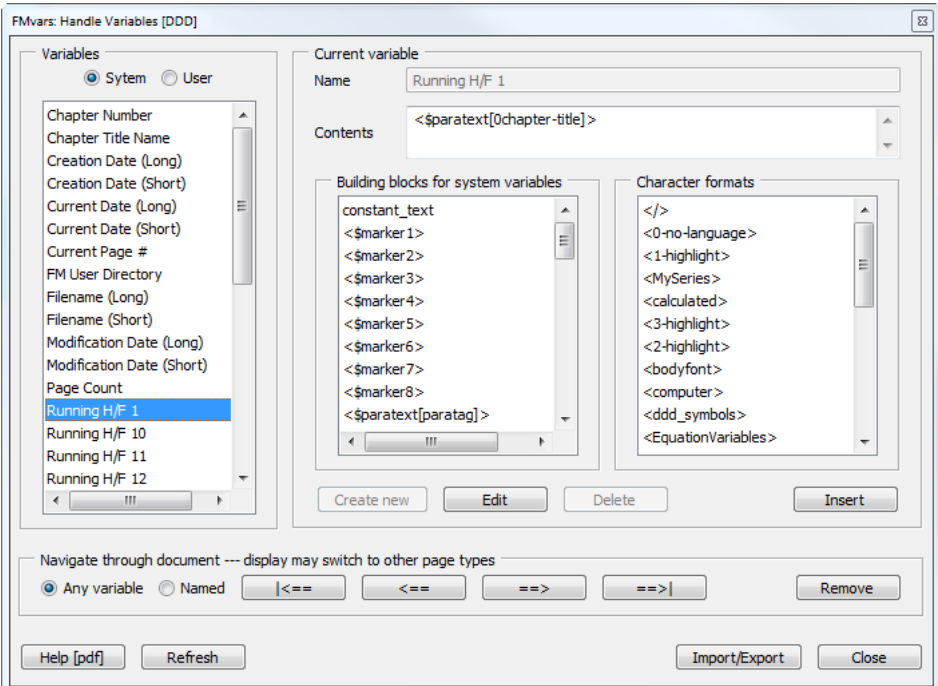
This dialogue allows two functions:

- Import variables into the current document from another document.
- Export variables from the current document into another document.

**Note:** *Since this is a dialogue (not a palette) you must close it before you can act on your current document.*

# Handle variables

Palette **FMvars** stays open even if you activate the document or change the document (e.g. click into it to define an insertion point).



**Message area** At the bottom between the buttons is a normally empty area. This can display a message, for example, if navigation came to a halt. Various actions clear the message. You can get rid of it by switching between **Any variable** and **Named** even if you do not use a navigation button.

**List of variables** The list of variables depends on

- Whether **User** or **System** variables are displayed.
- Whether a master page is active for system variables.

**List of building blocks** Building blocks for system variables depend on the name of the variable. For example, Current Date (Short) may only get building blocks of category time (<\$second> ... <\$imperialyearspecialkanjinnumeric>). Hence this list changes depending on the selected system variable.

## Why does the display flicker?

During the collection of the variables present in the document all page types (body, master, reference) are examined. The active document can change while the palette is open. Hence collecting the variables is invoked automatically when this is recognised. Automatic recognition of document change violates the possibility to switch display off and on during the script run.<sup>4)</sup>

## Action buttons

**Help [pdf]** Display the pdf of this document at the appropriate page.

4 Hence suppressing the flicker can not be done for the switch between documents or opening a new document while the palette is active. For other cases of the variable collection the flicker can be suppressed.

|               |  |
|---------------|--|
| Refresh       | <p>A change of the active document is recognised and the variable lists are recreated. However you need to use this button in the following cases:</p> <ul style="list-style-type: none"> <li>• Manipulating variables in the text outside of the palette (insert, delete, move, change name or content).</li> <li>• Manual switching between page types (body, master, reference).</li> </ul> |
| <b>Note:</b>  | <i>In rare cases the variable list is not updated automatically. Use the Refresh button if you are suspicious!</i>   |
| Import/export | This button opens a secondary dialogue. See <a href="#">Import or export variables</a> on page 9.  |
| Close         | Close the palette.   |

## Switch between user and system variables

In the leftmost pane select the appropriate radio button **System** or **User**. The list will be updated immediately.

System variables have certain restrictions:

- Variables named Running H/F *n* and Current Page are only available on master pages.
- System variables can not be renamed or deleted.
- Contents of system variables can be changed.
- Certain building blocks (e.g. date particles) can only be used in certain system variables (named for example Modification Date).

## Building blocks

- For User Variables only character formats can be used as building blocks.
- For certain system variables only certain building blocks can be used. For example date particles are only valid for system variables named *Abc Date* (e.g. Modification Date).

## Naming rules for user variables

The name of a user variable may contain blanks, but not be completely blank. The name may also contain special symbols, such as [ or }. Be aware that these may conflict with special use in plug-ins. You can not have a user variable with the same name as a system variable.

# Handling selected variables

## Select variable for insertion or modification

To select a variable, click its name in the list. This transfers name and contents to the editing fields **Name** and **Contents**.

You can use any of the active buttons to act on these variables. Most actions are only valid for User Variables.

## Action buttons

|            |   |
|------------|---|
| Create new | <p>Create a new user variable:</p> <ul style="list-style-type: none"> <li>• Type a name into the <b>Name</b> field observing the rules (see <a href="#">Naming rules for user variables</a> on page 6).</li> <li>• Fill the <b>Contents</b> field with any text and items from the building blocks (character formats). <code>&lt;/&gt;</code> is the short version of Default ¶ Format.</li> <li>• Use button <b>Create new</b> to create the new variable.</li> </ul> |
|------------|---|

2022-09-29

E:\\_DDDprojects\FM-Vars\Docu\FMvars.fm

D+D D

- Rename

Rename the selected variable observing the rules (see [Naming rules for user variables](#) on page 6).
  - Change the contents of the Name field.
  - User button **Rename** to change the name.
- Update

Update the selected variable. For a system variable you may only change the contents.
  - Edit the name of the variable observing the rules (see [Naming rules for user variables](#) on page 6).
  - Define the contents of the variable using constant text and the building blocks. In the list of character formats </> is the short version of <Default ¶ Font>.
  - Use button **Update** to modify the variable.
- Delete

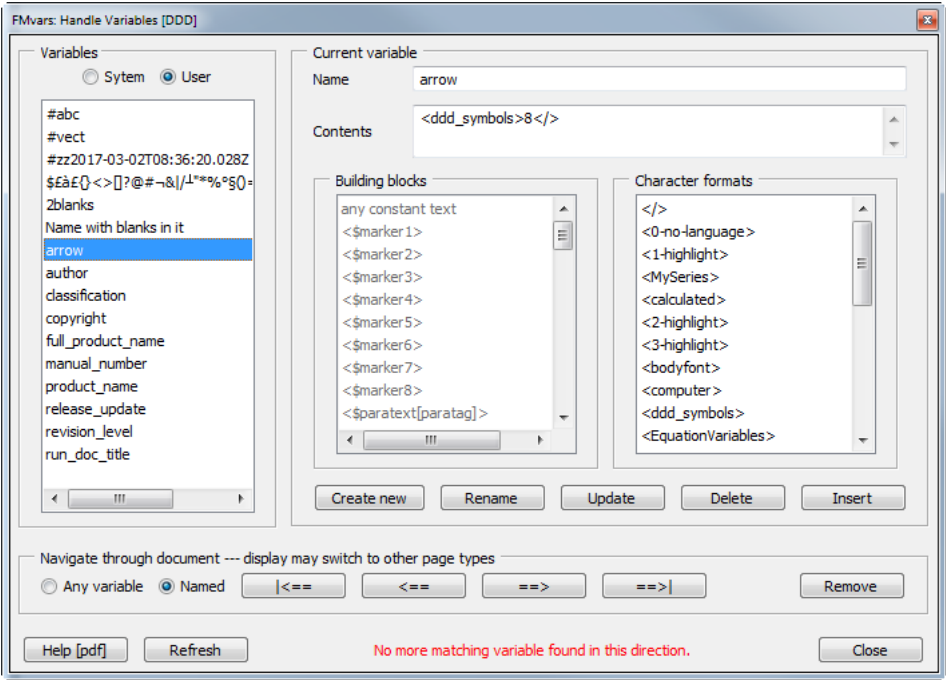
Delete the selected user variable.
  - If the variable is used (inserted) in the document, you are requested to confirm this action. The inserted variable will be converted to text.
  - If the variable is not used in the document, it is just removed from the catalogue.
- Insert

Insert the selected variable at the current location in the document. A current selection is replaced. Following blanks are observed.
- Note:

*To avoid duplicate insertions the edit fields are cleared after the insert. To insert the same variable somewhere else, select another variable in the list and then the desired one again.*

## Navigating in the document

This area in the dialogue allows to walk through any variable and check its proper use (environment of the variable). You may, however, restrict the halting points to variables of the name selected in the list.



|                            |  |
|----------------------------|--|
| Message area               | At the bottom between the buttons is a normally empty area. This can display a message, for example, if navigation came to a halt.   |
| Any versus Named variables | <p>Per default all variables are involved in the walk-through. To walk only through variables of a particular name, switch from <b>Any variable</b> to <b>Named</b>.</p> <ol style="list-style-type: none"><li>1 Select the type of halting points: <b>Any variable</b> or <b>Named</b>.</li><li>2 If you selected <b>Named</b>, select the appropriate variable name in the list.</li><li>3 Use the navigation buttons. In the document you see the current variable selected. Since variables may be on a different type of page where you started from, the display of the document may change.</li><li>4 At the halting point you may want to remove the variable from the text (if it was used wrongly) and you may insert another one.</li></ol> |

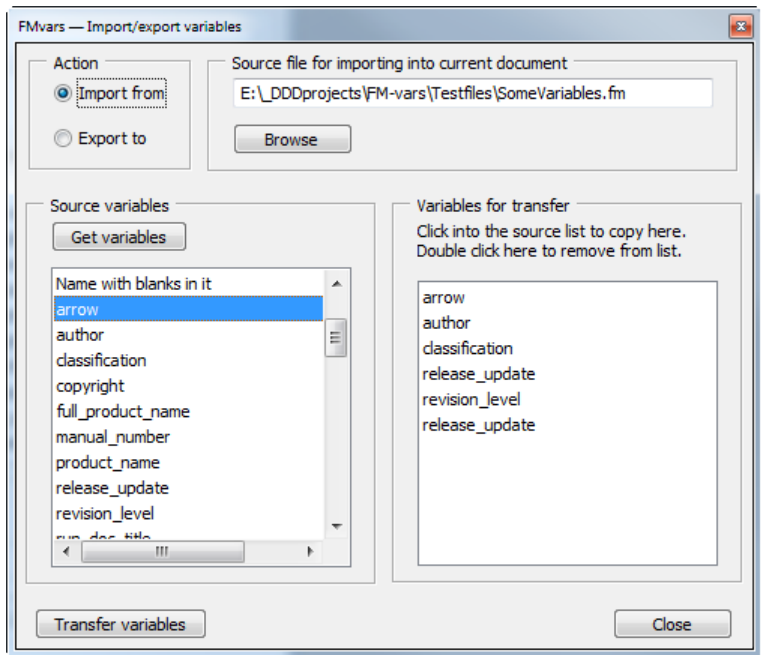
## Action buttons

|              |   |
|--------------|---|
| <b>Note:</b> | <i>The list of variables contains the names from the variable catalogue. Not all of these may be used in the document. Hence you may get a message that the selected variable does not appear in the document text.</i> |
| ◀            | Go to the <i>first</i> variable of the requested type/name.   |
| ◀            | Go to the previous variable of the requested type/name. If we are already at the first variable, a message is issued.   |
| ▶            | Go to the <i>next</i> variable of the requested type/name. If we are already at the last variable, a message is issued.   |
| ▶            | Go to the <i>last</i> variable of the requested type/name.  |
| Remove       | Remove the variable from the text.  |



# Import or export variables

Both the **Format > Handle Variables > Import/export variables** and button **Import/Export** in the main palette opens the following dialogue:



**Note:** The heading of the file-name field with button *Browse* depends on the selected action to the left.

## Import from

To import from another FrameMaker file into the current document select this radio button and execute the following steps:

- Define source file
- Get the list of variables
- Define variables to be transferred
- Importing

- Either enter a file path directly into the edit field, or
  - Use the **Browse** button to find the desired file.
- With button **Get variables** the list is filled.
- Clicking into the left list copies the entry into the right list.
  - To remove an item from the right list, double click the item.
  - To import the variables defined in the right list, use button **Transfer variables**.
  - After transfer a message indicates success.
  - The source file (as indicated in the edit field at top) will be closed now.
  - Close the dialogue.

## Export to

To export variables from the current document into another FrameMaker file select this radio button.

- Define target file
- Get the list of variables

- Either enter a file path directly into the edit field, or
  - Use the **Browse** button to find the desired file.
- With button **Get variables** the list is filled.

Define variables to be transferred

- Clicking into the left list copies the entry into the right list.
- To remove an item from the right list, double click the item.

Exporting

- To export the variables defined in the right list, use button **Transfer variables**.
- After transfer a message indicates success.
- The target file (as indicated in the edit field at top) will be closed now.
- Close the dialogue.

# Use cases

## Set all variables in a new document

In the template user variables such as `product name` contain a generic value. Also some system variables may not contain the desired values.

With one invocation of the palette you can change all user and system variables for the particular document.

## Delete unused variables

- You can only delete user variables.
- Select **Named** in the navigation area.
- Select the variable name in the list.
- Use navigation button **◀** to find the first occurrence of the variable.
- If the variable is not used in the document you get a message stating this.
- Delete the variable with the **Delete** Button.

## Check correct use of variables

- You can do so for user and system variables.
- You may want to find only variables with the name indicated in the list: select **Named** in the navigation area.
- Select the variable name in the list.
- Find the first (**◀**) occurrence of the variable and check whether its environment in the document is as intended.
- Continue for the other occurrences with the Next button (**▶**).

## Accumulate variables from different sources

When creating a new template it may be useful to collect the desired variables from some sources.

- Make the template the current document.
- Select Import and define the source file A.
- Get the variables and define which to transfer.
- Use Button **Transfer variables**.
- Define the source file B.
- Get the variables and define which to transfer.
- Use Button **Transfer variables**.

## Distribute variables to different targets

While the dialogue for import/export is open, the transfer function may be used several times:

- Define export with the radio button.
- Get the list of variables from the current document.
- Define the list of variables for the transfer.
- Define target-A either with the Browse button or directly.
- Use button **Transfer variables**.
- Define target-B either with the Browse button or directly.
- Use button **Transfer variables**.

# Implementation details

## Getting variables in sequence

### Standard method

The standard method to collect objects uses this scheme:

```
object = doc.FirstObjectInDoc;
while (object.ObjectValid ()) {
    ...
    object = object.NextobjectInDoc;
}
...
```

This method collects the objects in order they were created. Navigating through variables in this order jumps around in the document. In contrast to this the Find dialogue for Any variable walks through the variables in the order they appear to the user in the document.

Hence navigation based on the standard method confuses the user - at least on body pages.

### Find method

This method mimics the behaviour of the Find dialogue:

```
oPara = oDoc.FirstBodyPageInDoc.PageFrame.
        FirstGraphicInFrame.FirstPgfi;
//      oDoc.FirstMasterPageInDoc
//      oDoc.FirstRefPageInDoc
...
findParams = GetFindParameters ();
oTR = oDoc.Find(oTR.beg, findParams);
while (FA_errno == Constants.FE_Success) {
    oDoc.TextSelection = oTR;
    aVarsRange = oDoc.GetTextForRange (oTR,
        Constants.FTI_VarBegin);
    iVrLen = aVarsRange.length;
    if (iVrLen == 0) {return null;}
    oTextItem = aVarsRange[0];
    oVar = oTextItem.obj;
    ...
    aDocVars.push (oVar);
    oTR = oDoc.Find(oTR.beg, findParams);
}
...
```

The find parameters are set up in a function:

```
function GetFindParameters () {
    var findParams = new PropVals();
    propVal = new PropVal();
    propVal.propIdent.num = Constants.FS_FindWrap;
    propVal.propVal.valType = Constants.FT_Integer;
    propVal.propVal.ival = 0; // do not wrap
    findParams.push(propVal);
    propVal = new PropVal() ;
    propVal.propIdent.num = Constants.FS_FindObject;
    propVal.propVal.valType = Constants.FT_Integer;
    propVal.propVal.ival = Constants.FV_FindAnyVariable;
    findParams.push(propVal);
    return findParams;
}
```

## Implemented method

- Implementation is based on the find method.
- The function uses a loop to collect in all three types of pages.
- Valid FM documents may have strange properties:
  - There may be no body pages at all.
  - Reference pages may contain no paragraphs (only text lines in graphic frames).
  - Reference pages may be absent totally.

## Found on SomeVariables.fm

For the standard method the column Unique would display more or less monotonically increasing numbers. For body pages column Page displays an index (PageNum), not the string displayed in the document. For master pages and reference pages this column displays the page name.

| Index | Unique  | IsSystem | Page    | Variable name                               |
|-------|---------|----------|---------|---|
| 0     | 1233496 | true     | 0       | Filename (Long)                             |
| 1     | 1226635 | false    | 1       | arrow                                       |
| 2     | 1232770 | false    | 1       | 2blanks                                     |
| 3     | 1226350 | false    | 1       | arrow                                       |
| 4     | 1226506 | false    | 1       | arrow                                       |
| 5     | 1228602 | false    | 1       | \$£à£{<>[]?@#~& /-'*%°\$()=!'''^~!,,,:_-- — |
| 6     | 1232673 | true     | 1       | Modification Date (Short)                   |
| 7     | 1234798 | false    | 2       | arrow                                       |
| 8     | 1234781 | false    | 2       | arrow                                       |
| 9     | 1234784 | false    | 2       | arrow                                       |
| 10    | 1234914 | false    | 2       | arrow                                       |
| 11    | 1232161 | false    | 2       | arrow                                       |
| 12    | 1231754 | false    | 2       | arrow                                       |
| 13    | 1225699 | false    | 2       | arrow                                       |
| 14    | 1225543 | false    | 3       | arrow                                       |
| 15    | 1121819 | true     | Left    | Running H/F 1                               |
| 16    | 1121823 | true     | Left    | Chapter Number                              |
| 17    | 1121826 | true     | Left    | Current Page #                              |
| 18    | 1121845 | true     | Right   | Chapter Number                              |
| 19    | 1121848 | true     | Right   | Current Page #                              |
| 20    | 1121853 | true     | Right   | Running H/F 2                               |
| 21    | 1121857 | true     | Right   | Filename (Long)                             |
| 22    | 1121860 | true     | Right   | Modification Date (Short)                   |
| 23    | 1121913 | true     | R-index | Running H/F 3                               |
| 24    | 1121917 | true     | R-index | Chapter Number                              |
| 25    | 1121920 | true     | R-index | Current Page #                              |
| 26    | 1121938 | true     | L-index | Running H/F 3                               |
| 27    | 1121942 | true     | L-index | Chapter Number                              |
| 28    | 1121945 | true     | L-index | Current Page #                              |
| 29    | 1121962 | true     | R-toc   | Running H/F 3                               |
| 30    | 1121966 | true     | R-toc   | Chapter Number                              |
| 31    | 1121969 | true     | R-toc   | Current Page #                              |
| 32    | 1121986 | true     | L-toc   | Running H/F 3                               |

| Index | Unique  | IsSystem | Page      | Variable name             |
|-------|---------|----------|-----------|---------------------------|
| 33    | 1121990 | true     | L-toc     | Chapter Number            |
| 34    | 1121993 | true     | L-toc     | Current Page #            |
| 35    | 1229823 | true     | R-rotated | Chapter Number            |
| 36    | 1229826 | true     | R-rotated | Current Page #            |
| 37    | 1122019 | true     | R-rotated | Running H/F 2             |
| 38    | 1122023 | true     | R-rotated | Filename (Long)           |
| 39    | 1122026 | true     | R-rotated | Modification Date (Short) |
| 40    | 1122043 | true     | L-rotated | Running H/F 1             |
| 41    | 1122047 | true     | L-rotated | Chapter Number            |
| 42    | 1122050 | true     | L-rotated | Current Page #            |
| 43    | 1234385 | true     | IX        | Filename (Long)           |
| 44    | 1234269 | false    | DocToc    | arrow                     |
| 45    | 1234191 | true     | DocToc    | FM User Directory         |

## User's view of navigation

### Navigation for Any variable

A and B are variables, | is the position of the cursor in the → document before using a navigation button. | is the 'transition to the master pages. The found variable is highlighted in red.

|                |   |
|----------------|---|
| Go to first    | ... <b>A</b> ...B...C...A...C...   ..A...C...B...A...A...C...B... .A...C.     |
| Go to next     | ...A... <b>B</b> ...C...A...C...   ..A...C...B...A...A...C...B... .A...C.     |
| Go to last     | ...A...B...C...A...C...   ..A...C...B...A...A...C...B... .A... <b>C</b> .     |
| Go to previous | ...A...B...C...A...C...   ..A...C...B...A...A...C...B... .A... <b>A</b> ...C. |

### Navigation for variable A

|                |   |
|----------------|---|
| Go to first    | ... <b>A</b> ...B...C...A...C...   ..A...C...B...A...A...C...B... .A...C.     |
| Go to next     | ...A...B...C... <b>A</b> ...C...   ..A...C...B...A...A...C...B... .A...C.     |
| Go to last     | ...A...B...C...A...C...   ..A...C...B...A...A...C...B... .A... <b>A</b> ...C. |
| Go to previous | ...A...B...C...A...C...   ..A...C...B...A... <b>A</b> ...C...B... .A...C.     |

### Navigation from cursor location (Any variable)

|            |   |
|------------|---|
| Go to next | ...A...B...C...A...C...   .. <b>A</b> ...C...B...A...A...C...B... .A...C. |
|------------|---|

### Navigation from cursor location (variable A)

|                |   |
|----------------|---|
| Go to previous | ...A...B...C... <b>A</b> ...C...   ..A...C...B...A...A...C...B... .A...C. |
|----------------|---|

## Sort order for variable transfer

**Note:** *I do not like the mixed up order in the Variable pod.*

The source list in the ancillary dialogue contains at the beginning the user variables (sorted alphabetically) and then the system variables (sorted alphabetically).

2022-09-29

E:\\_DDDprojects\FM-Vars\Docu\FMvars.fm



## Stress test

### 1001Vars.fm

I have set up (by means of a script) a document with 288 pages consisting of 100 paragraphs, each of which contains the same text and inserted variables at 10 locations in that paragraph. The variables are 2020 characters long and are named V0001 ... V1000 and their content is 404 times the string “xxxx “ with xxxx being the number of the variable.

### Observations

- Opening FMvars on this document takes 10 seconds<sup>5)</sup> until the dialogue is shown. During this of course all pages are flipped around.
- Navigating to the last variable in the document takes 8 seconds. The last variable is displayed immediately, but to indicate the selected variable in the variable list takes this much time. You see the list flickering for this time.
- The automatic update of the variable list (when switching documents) is not guaranteed with such ‘voluminous’ documents. You may need to use the **Refresh** button ...

### Memory usage

Indication in Task Manager fluctuates  $\pm 0.3$  MB while nothing is done in FM (wait after any action). The following numbers are in MB:

148.5 FM-14 started with scripts

165.5 1001Vars.fm opened

178.7 FMvars dialogue opened

180.6 FMvars navigated to last variable

181.4 FMvars navigated to first variable

182.3 FMvars navigated to last, then first variable

182.3 FMvars closed

183.6 document closed, welcome screen

### FM behaviour

Opening documents and then closing them does not reduce the memory usage. Hence after working on numerous documents the memory usage may be significantly increased.

So after a while of working the above list can be amended:

204.0 1001Vars.fm Opened and closed (without save) 3 times.

205.0 Developer-log.fm closed, only this file open.

205.0 Also this file closed, welcome screen.

---

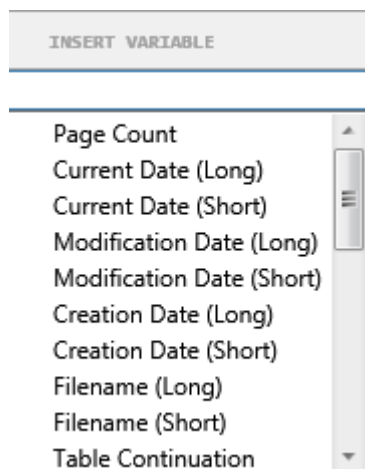
5 FM-14.0.4.512; W7 x64 with 2.5GHz, 8GB memory



# Background

The standard dialogues for handling variables are a mixed blessing - at least in FM-14 (aka 2017):

## CTRL+O (Insert variable)

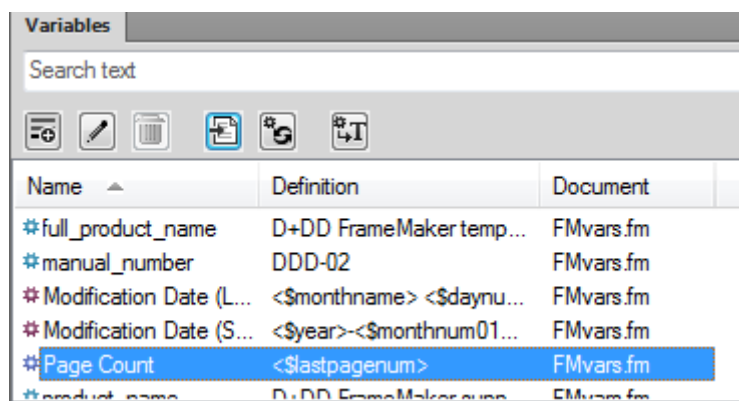


User and system variables are mixed, the list is not alphabetic at all.

## Double click on variable

This opens the bottom pod similar to **Insert > Variable**.

## Insert > Variable



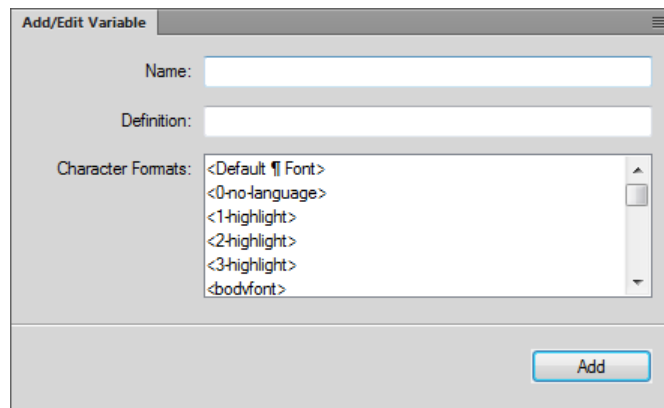
User and system variables are mixed, the list is not alphabetic at all.

The icons provide (left to right) these tool tips:

- Create New user Variable
- Edit
- Delete user variable
- Insert
- Update System Variables
- Convert to Text

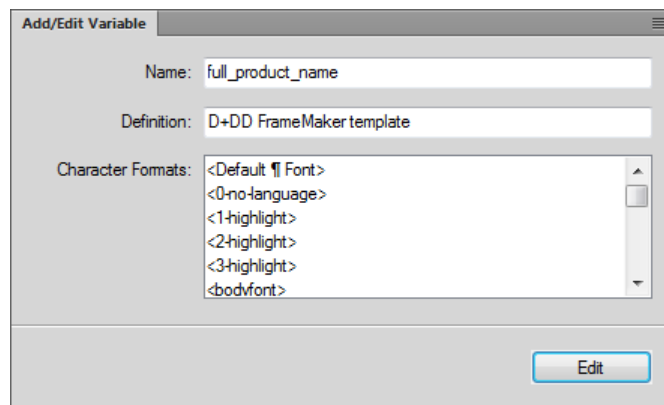
Watch the inconsistent spelling.

## Create New user Variable



This is definitely only to create a variable. The panel/tab title is misleading.

## Edit



This is definitely only to edit a variable. The panel/tab title is misleading.

## Delete user Variable

Used: Prompt to allow “convert to text” for all occurrences.

Not used: No prompt, no undo.

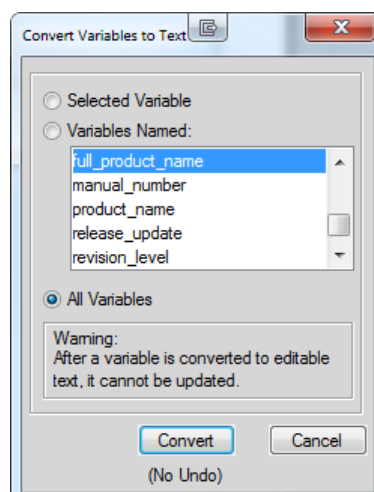
## Insert

The selected variable is inserted. Undo possible.

## Update System Variables

Prompted.

## Convert to Text



It is not possible to just convert the current selection to text (IMHO this was possible in older FMs).