

The FMV application is used to create and visualise FRAM models and stores all of the data in a text file with a '.xmv' file extension, using a standard XML format.

The data files can be viewed using a text editor or imported by any program that reads XML data.

The XML structure has four hierarchical levels:

1. The 'root' level sits within an <FM> tag.
2. The second level contains the following seven sections:
 - <Functions>
 - <Controls>
 - <Inputs>
 - <Outputs>
 - <Preconditions>
 - <Resources>
 - <Times>An <Aspects> section may be present but is not used by FMV, it was created by the earlier FMB application.
3. Each of the seven sections above can contain any number of tags that represent the elements of that section. For example, Functions in the FMV model are nested within the <Functions> tags, each having its own <Function> tag at the third level. The remaining six sections are for the FMV model's Aspects. Each <Input> tag is nested within the <Inputs> tag, and so on.
4. The fourth level contains data specific to the elements within each section.

(In the example below there are two Functions shown within the <Functions> tag and two Inputs shown within the <Inputs> tag. Each of the other sections only has one element.)

For each Function there are four data fields:

<IDNr>	An index number for the Function. Sequential, beginning with zero.
<FunctionType>	The type of Function as determined by the application. Valid values are: <ul style="list-style-type: none">0 (Foreground)1 (Foreground Variable)2 (Background)

<IDName>	The name of the Function as entered
<Description>	The description of the Function as entered

The <Function> tag also has 8 attributes used to store data specific to the visualisation of the FRAM model:

fnStyle	Indicates the model rendering style: 0 (Traditional) 1 (Modern)
style	The selected pre-set colour of the Function: white, blue, green, grey, red, yellow, purple, custom
color	If the style is 'custom' then this is used to store the custom colour value.
fnType	The variability type. Valid values are: 0 (undefined) 1 (Technological) 2 (Human) 3 (Organisational)
x, y	These are the x,y coordinates for positioning the Function within the model space
Tp	The potential output variability with respect to time: 0 (Too early) 1 (On time) 2 (Too late) 3 (Not at all)
Pp	The potential output variability with respect to precision: 0 (Precise) 1 (Acceptable) 2 (Imprecise)

For each of the other sections that contain Aspect information there are three data fields:

<IDNr>	An index number. Sequential within each section starting at 1.
<IDName>	The name as entered
<FunctionIDNr>	The index number (IDNr) of the Function that this Aspect is a child of. For example, an Output with <FunctionIDNr> =

0 will be an output of the Function that has <IDNr> = 0. If another Function has a different Aspect with the same <IDName>, then the two will be shown linked in the FMV.

Example file:

```
<?xml version="1.0" standalone="yes"?>
<FM Version="0,0,2,0">
  <Functions>
    <Function fnStyle="0" Tp="1" Pp="0" x="50" y="200" style="white"
color="16777215" fnType="2">
      <IDNr>0</IDNr>
      <FunctionType>0</FunctionType>
      <IDName>Function Name</IDName>
      <Description>Description</Description>
    </Function>
    <Function fnStyle="0" Tp="-1" Pp="-1" fnType="2" x="200" y="200">
      <IDNr>1</IDNr>
      <FunctionType>2</FunctionType>
    </Function>
  </Functions>
</Aspects/>
<Controls>
  <Control>
    <IDNr>1</IDNr>
    <IDName>Control</IDName>
    <FunctionIDNr>0</FunctionIDNr>
  </Control>
</Controls>
<Inputs>
  <Input>
    <IDNr>1</IDNr>
    <IDName>Input</IDName>
    <FunctionIDNr>0</FunctionIDNr>
  </Input>
  <Input>
    <IDNr>2</IDNr>
    <IDName>Output</IDName>
    <FunctionIDNr>1</FunctionIDNr>
  </Input>
</Inputs>
<Outputs>
  <Output>
    <IDNr>1</IDNr>
    <IDName>Output</IDName>
    <FunctionIDNr>0</FunctionIDNr>
  </Output>
</Outputs>
<Preconditions>
  <Precondition>
    <IDNr>1</IDNr>
    <IDName>Precondition</IDName>
    <FunctionIDNr>0</FunctionIDNr>
  </Precondition>
</Preconditions>
</FM>
```

```
    </Precondition>
  </Preconditions>
  <Resources>
    <Resource>
      <IDNr>1</IDNr>
      <IDName>Resource</IDName>
      <FunctionIDNr>0</FunctionIDNr>
    </Resource>
  </Resources>
  <Times>
    <Time>
      <IDNr>1</IDNr>
      <IDName>Time</IDName>
      <FunctionIDNr>0</FunctionIDNr>
    </Time>
  </Times>
</FM>
```