FT NavVision®

Mimic Manual

Publication type: Mimic Manual
Publication number:
Title: FT NavVision® Mimic Manual
Subject:
Issue: 1.1
Publication date: May 23, 2013
Total number of pages: 58

Author: Vince Kerckhaert

Quality Control:

1. Table of contents

Page #

2. Figures

3. Tables

NOTICE

4. References

Not applicable.

5. Introduction

The Mimic is the layout where the whole system of FT NavVision® revolves around. Where we use to have static viewers that had a certain amount of gauges statically placed on one screen, now you are free to choose whatever layout in every format you like. You can see the mimic page as a page in a sketchbook. You can draw the layout that you like, alter the looks and colors and make it your own.

There are some restrictions that you need to take care of. Our design department has a long-time experience as well as the knowledge on what is the best way to set-up a good mimic. How do you keep it readable and what is the best way to align mimic pages. In this manual you will find the tools that will help you to make the best mimic pages.

6. Abbreviations list

AC	Alternating Current
AI	Analog IN
AO	Analog Out
COM	Communication
DI	Digital In
DO	Digital Out
FT	Free Technics
ID	Identification
I/O	Input/Output
LAN	Local Area Network

7. Safety instructions

:

This section provides only a summary of the most important safety requirements and notes, which will be mentioned in the individual sections. To protect your health and prevent damage to the devices, it is essential to read and carefully follow the safety instructions.

The indications NOTE, CAUTION and WARNING have the following significance:

NOTE:
An operating procedure, practice or condition etc., which it is essential to emphasize.

CAUTION

An operating procedure, practise or condition etc., which, if not strictly observed, may damage or destroy equipment.

WARNING

An operating procedure, practise or condition etc., which, if not carefully observed may result in personal injury or loss of life.

8. Revision history

Revisions issued since publication.

Issue	Date	Revision	Reason
1.0	January 04, 2013		initial release
1.1	May 23, 2013	Added multiselect and in/export	New features

9. The basics

9.1 Introduction

When you start up FT NavVision© you will find the mimics in the top icon bar under the icon of an empty map (see Figure 9-1). Opening this icon will reveal a few other maps with a wrench and a number. These icons represent the mimic pages. In the beginning they will probably all be empty so you can click on the first one to start working on the mimic. Don't worry about the sequence of the mimics, that can be changed at a later time.

Figure 9-1: Mimic icons

9.2 The mimic page

The mimic page itself will be an empty page. It is the starting point of the layout that you are going to make (see Figure 9-2). This page can be altered by right-clicking somewhere on the page and choose "Edit mode" (see Figure 9-3).

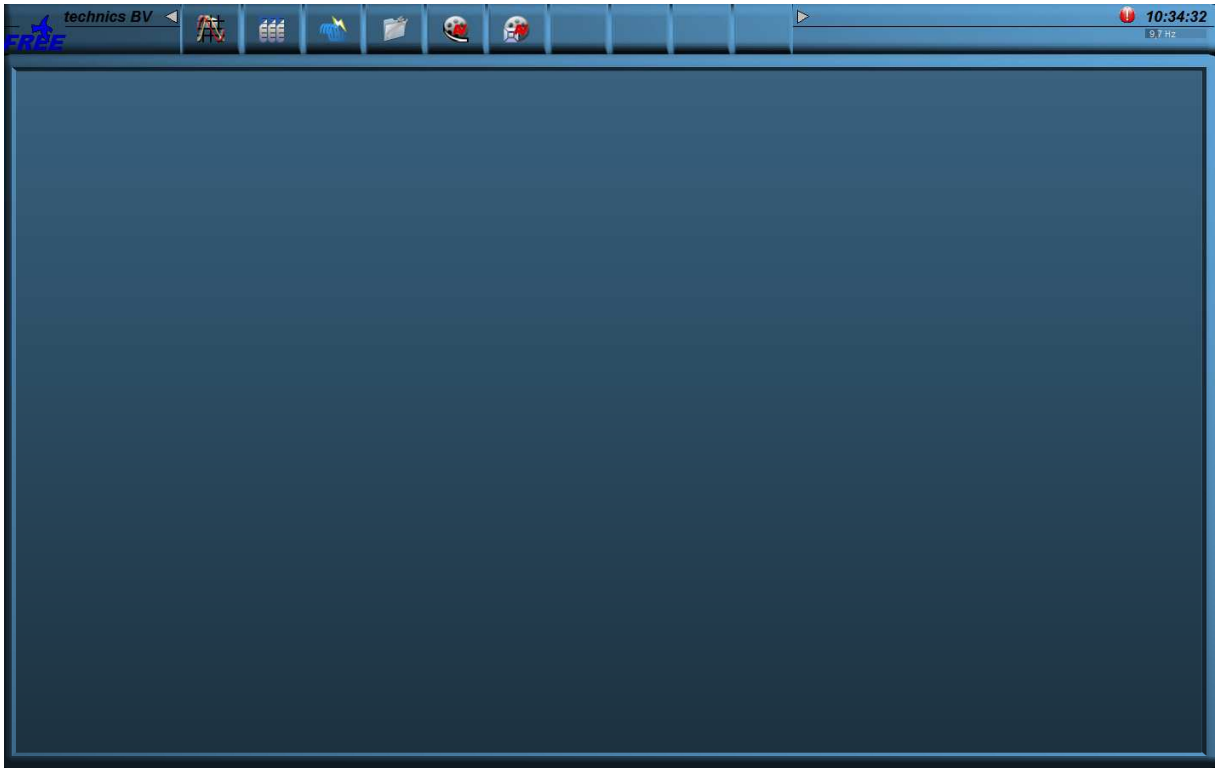

Figure 9-2: the mimic page

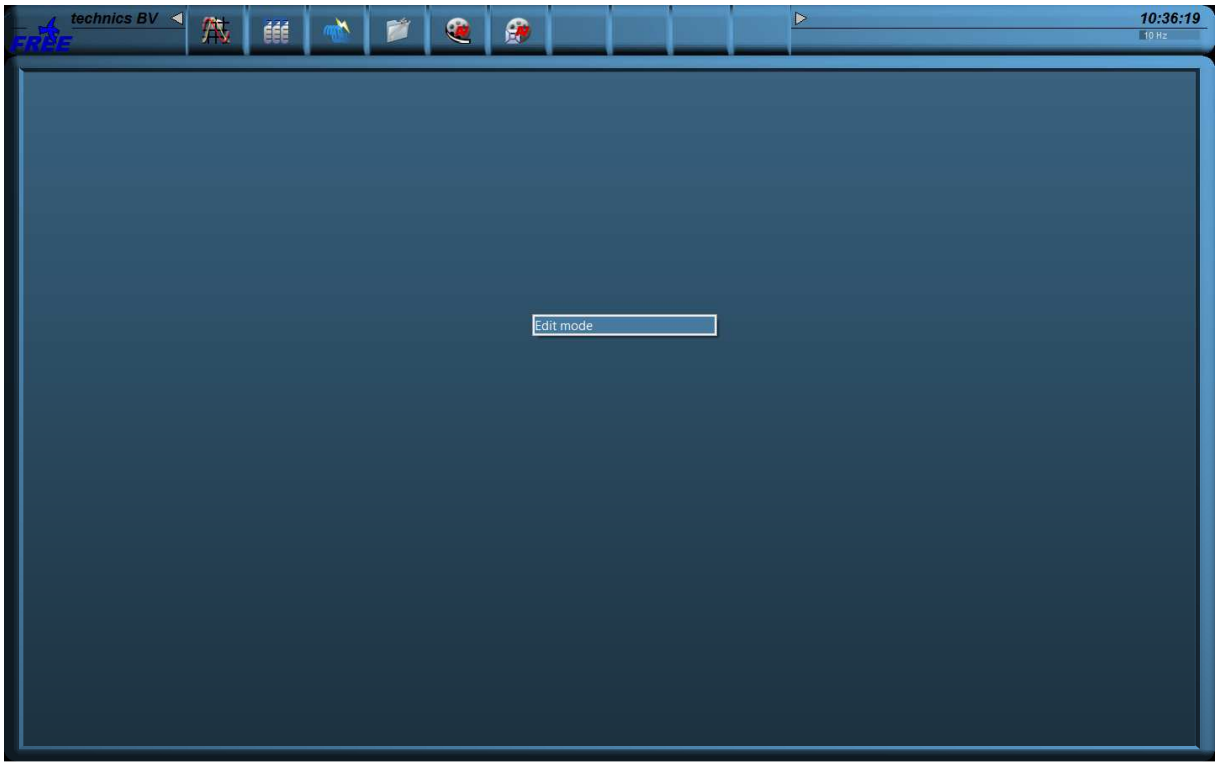

Figure 9-3: Edit mode

Now the mimic page is ready for changes. You don't see anything yet, but by right-clicking again, you will get a menu with choices of items that you can place in the mimic (see Figure 9-4 and Figure 9-5). Depending on the licenses that you purchased, you can get different options.

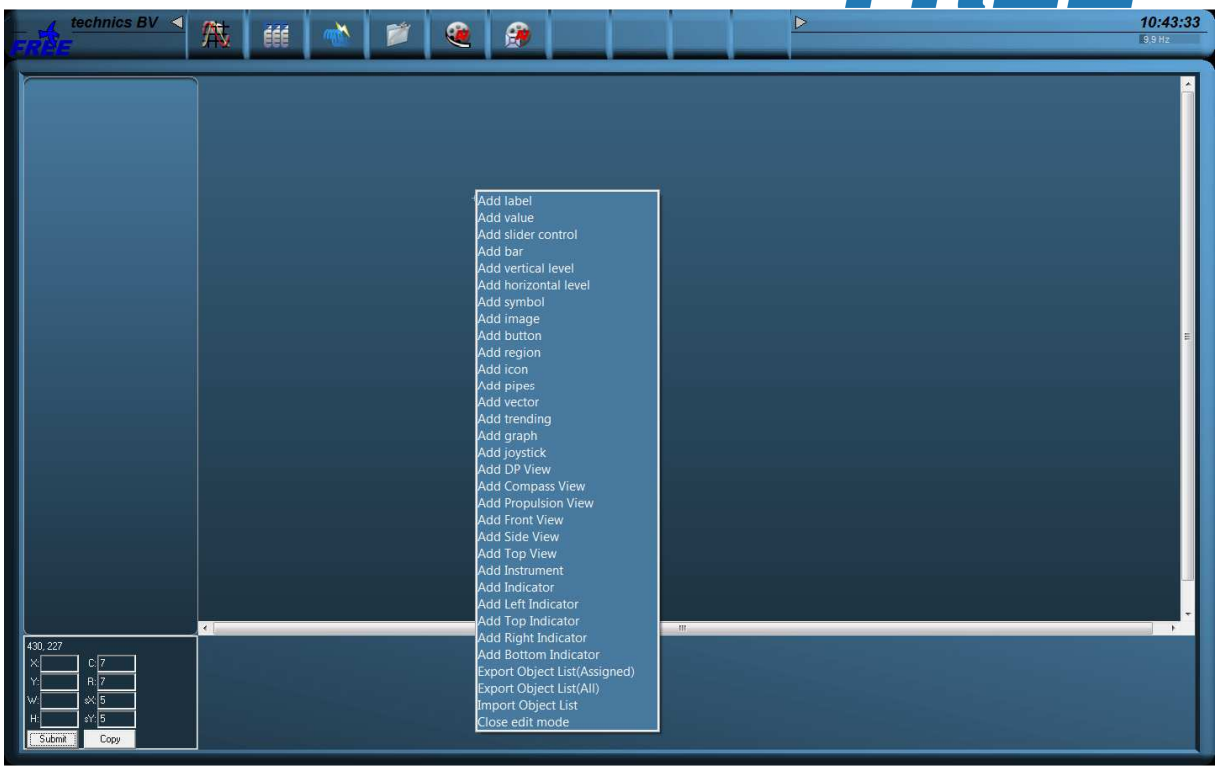

Figure 9-4: Mimic options

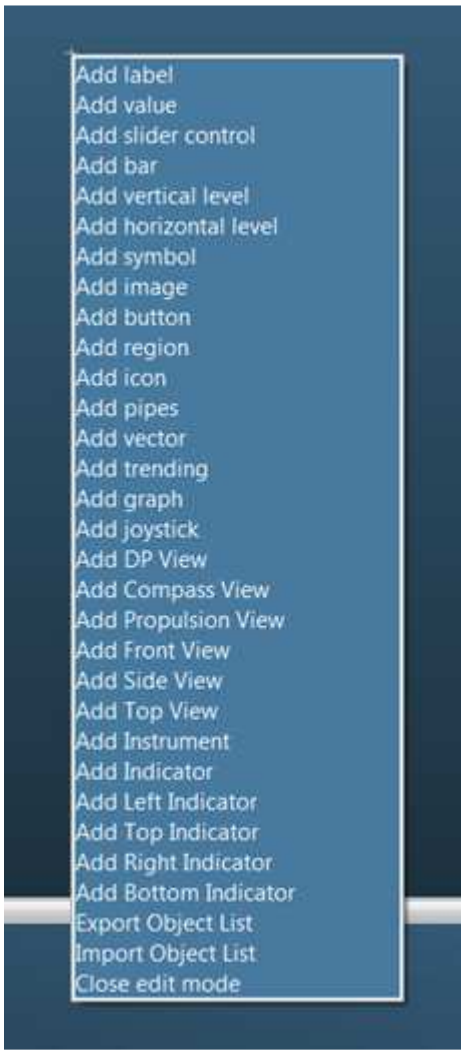

Figure 9-5: Mimic option window

Option	Explanation
Add Label	A Label is a text frame
Add Value	Any value that is given by a sensor
Add Slider Control	A slider to control settings to any output
Add Bar	A bar without index
Add Vertical Level	Vertical Level Bar
Add Horizontal Level	Horizontal Level Bar
Add Symbol	Choose a FT NavVision symbol
Add Image	Choose any image
Add Button	Button to trigger events
Add Region	Region to divide separate spaces
Add Icon	On/Off icon for indication
Add Pipes	Pipes to show ships piping system
Add Vector	Vector
Add Trending	Trending page (freely adjustable)
Add Graph	Graphic visualization of data
Add Joystick	Joystick for control

Add DP View	Dynamic view of ship for DP
Add Compass View	Show compass
Add Propulsion View	Propulsion
Add Front View	For DP
Add Side View	For DP
Add Top View	For DP
Add Instrument	Instrument for data sensors
Add Indicator	Small indicator mostly for engine data
Add Left Indicator	Variation on indicator
Add Top Indicator	Variation on indicator
Add Right Indicator	Variation on indicator
Add Bottom Indicator	Variation on indicator
Export Object List	Export tool for assigning mimic
Import Object List	Import tool for assigning mimic
Close Edit Mode	Close the editing mode

Table 9-1: Mimic options

Before getting into the designing part of the mimics, first lets address the different mimic options with an example.

9.2.1 Label

A label is a free to choose text frame. Right-click and choose “Add Label” and then draw a region with your mouse on the place where you want the label to be (see Figure 9-6). Don’t worry about the exact position or measurement, you can adjust that later. At the bottom of the mimic page you now find a window where you can change the settings for this label (see Figure 9-7). Here we put a free text in that will be represented in the label region on the mimic page.

Figure 9-6: Label region

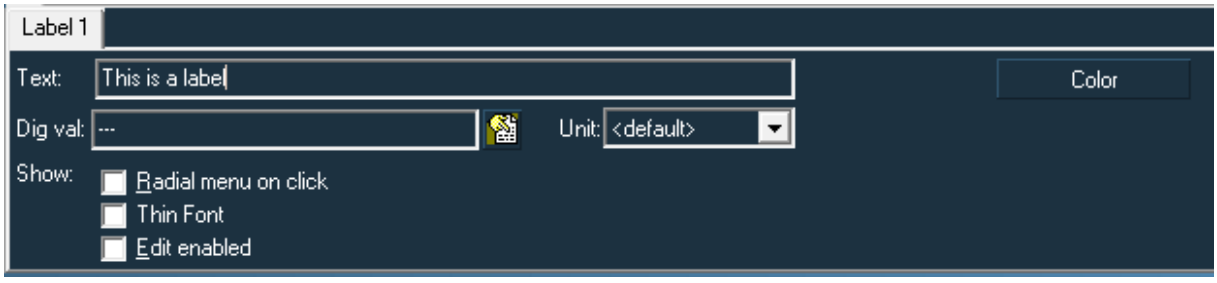

Figure 9-7: Label editing

Besides the color of the text, you can also choose for a thin font.

If you choose the digital value and leave the text box blank, the label will show the comment of the digital value in the label box on the mimic.

9.2.2 Value

A value field represents any given value that is coming in to the FT NavVision© system. Same as with the label, choose “Add Value” and draw a region where you want to have this value represented (see Figure 9-8). Now in the editing window you can choose the sensor of which you want the value to be shown (see Figure 9-9).

Figure 9-8: Value

Figure 9-9: Value editing

By clicking on the drop-down icon next to the field cell, you can choose the I/O you want to use for this value field (see Figure 9-10).

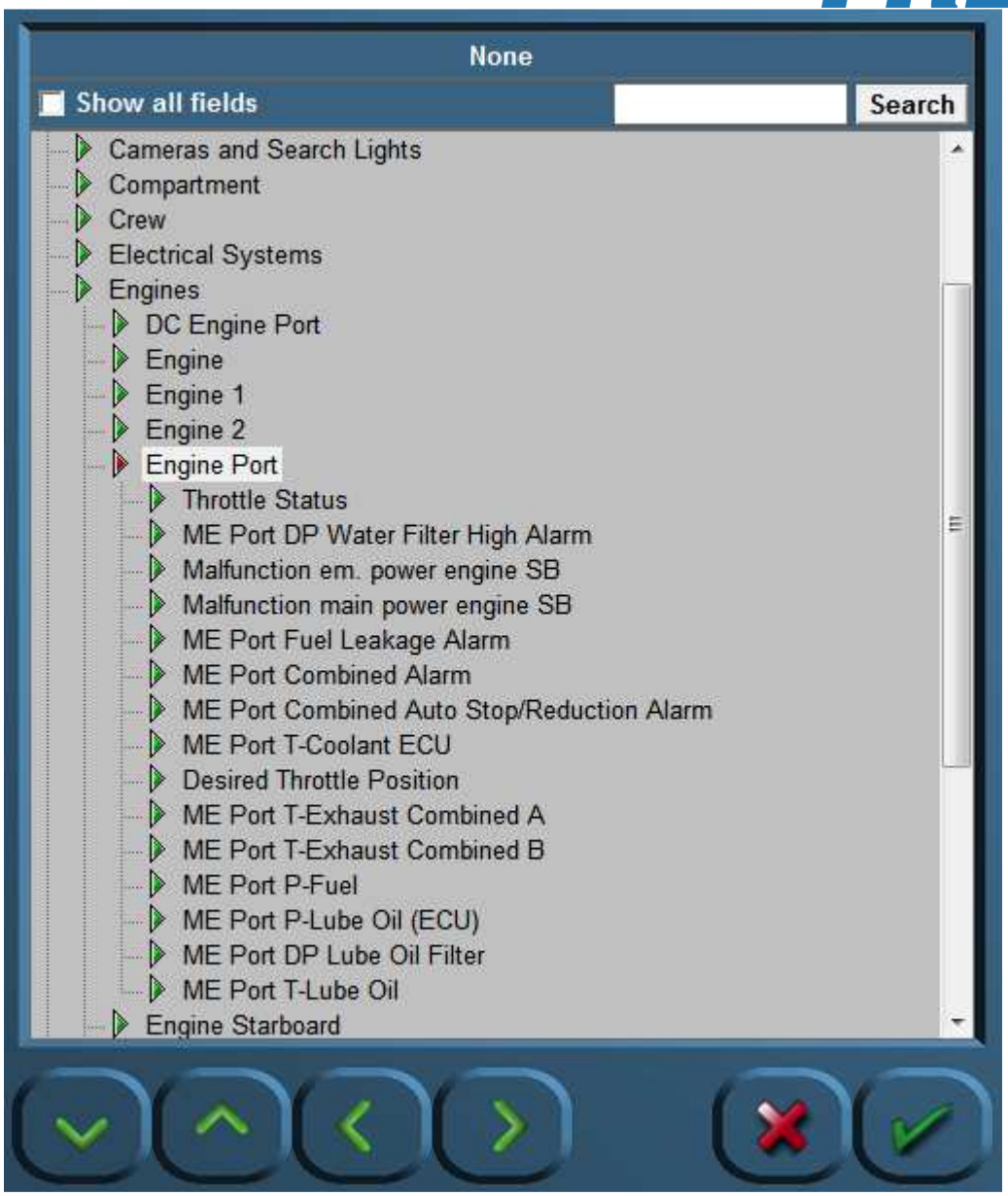

Figure 9-10: Fields window

Now let's say that we choose the ME Port T-Coolant ECU as an example. Click on that field and press the green checkmark. The value-field will look as follows:

Figure 9-11: Filled value

: The place where the value will show in the Value-field can be adjusted by holding the ALT-key and use the arrow-keys to place the value.

With color you can change the color of the text and wit fill you can change the fill of the value-field. See next example for what is possible:

Figure 9-12: Color and fill

With Value in the editing-window you can choose the representation of the field. Normally you will leave this at “Main Value” especially with an analogue value. But if you, for example want to show an alarm state there (digital value) you can put the value-box on alarm status. This way you get a text that says if the value is normal or in alarm (see Figure 9-13). For other options we refer to “Software installation and commissioning manual”.

Figure 9-13: Value editing

Finally you can choose whether to see the Unit of the value (in this case degrees Celsius) and if you want to show the label of the value.

: most of these options will work the same on the other mimic options. We won’t explain them all in the following chapters while it will suffice to read these earlier mentioned examples. Only the special items will be highlighted.

9.2.3 Symbol

A symbol is a patented image that belongs to the FT NavVision® system. These symbols are all made by hand for FT NavVision®. These symbols are used to make the visualization more easy to understand.

In the options menu choose “Add Symbol” and draw a region. You now will see an empty region. To fill it up you will have to look at the bottom of the screen to the Symbol editing section. See following:

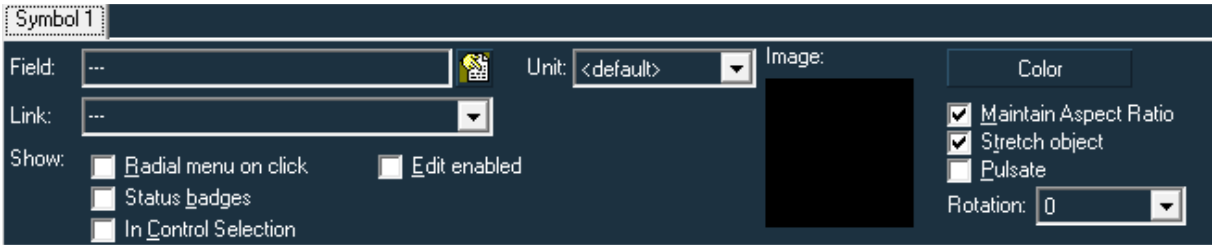

Figure 9-14: Symbol editing section

Under “Image” you see a black square. Click on it and you’ll get the following window:

Figure 9-15: Symbol select window

Here you can choose between the animated- and the static version. We will choose the static folder. In this folder you´ll find all different kinds of sub-categories:

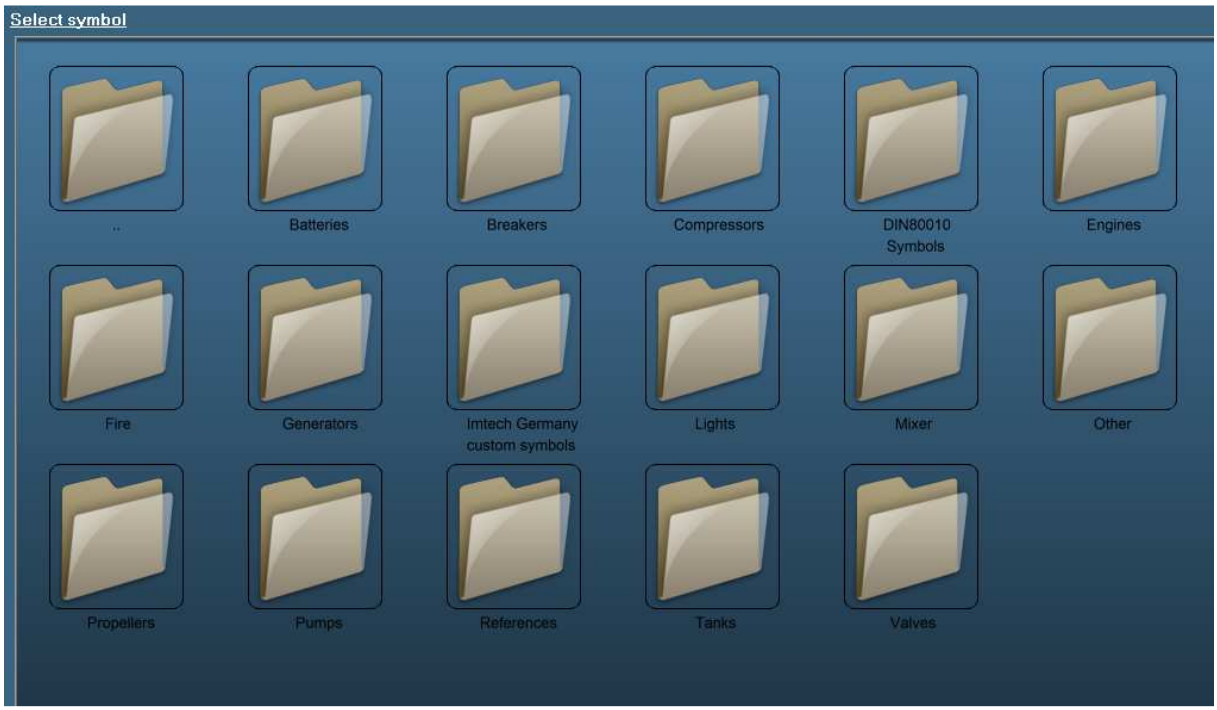

Figure 9-16: Symbol sub-categories

We choose “Valves” and choose the 3-way valve bottom no fill. So now the region in the mimic will have this valve as symbol:

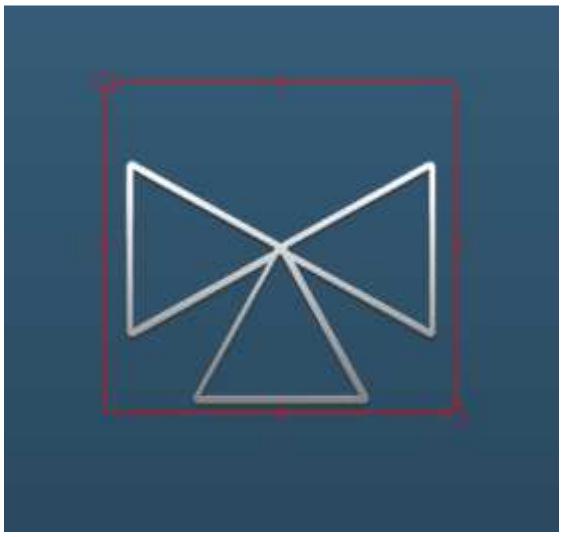

Figure 9-17: 3-way valve symbol

Now on the right in the editing section you can change some settings for the symbol (see Figure 9-14). You probably leave “Maintain aspect ratio” and “Stretch object” on. You also can check the “Pulsate” box to make it pulsate and you can change the color and rotation.

Under “field” you can attach a field to the symbol as explained earlier. New items under “Show” helps you to make the symbol more interactive.

Radial menu on click gives a menu where you can select settings for the symbol.
Status badges show information of the status of the symbol.
In control selection gives an extra option to control the symbol.

With these checked, a symbol will look as follows in a mimic:

Figure 9-18: Example symbol

When clicking on the symbol in the mimic a donut will appear with all the possibilities. In this example you can put it to hand or automatic, switch it on and you can see that it is at remote control (padlock is open). More on this will be explained in chapter 10.

9.2.4 Image

An image is somewhat similar to a symbol with as difference that it can be all kind of images (preferably .PNG). These are often used to place the GA of a ship below the I/O's etc. This way you will have a clear understanding on where on the ship you can find that specific I/O.

When you select an image it will also be copied to the folder "Layout" in FT NavVision®.

A simple example of an image is the following:

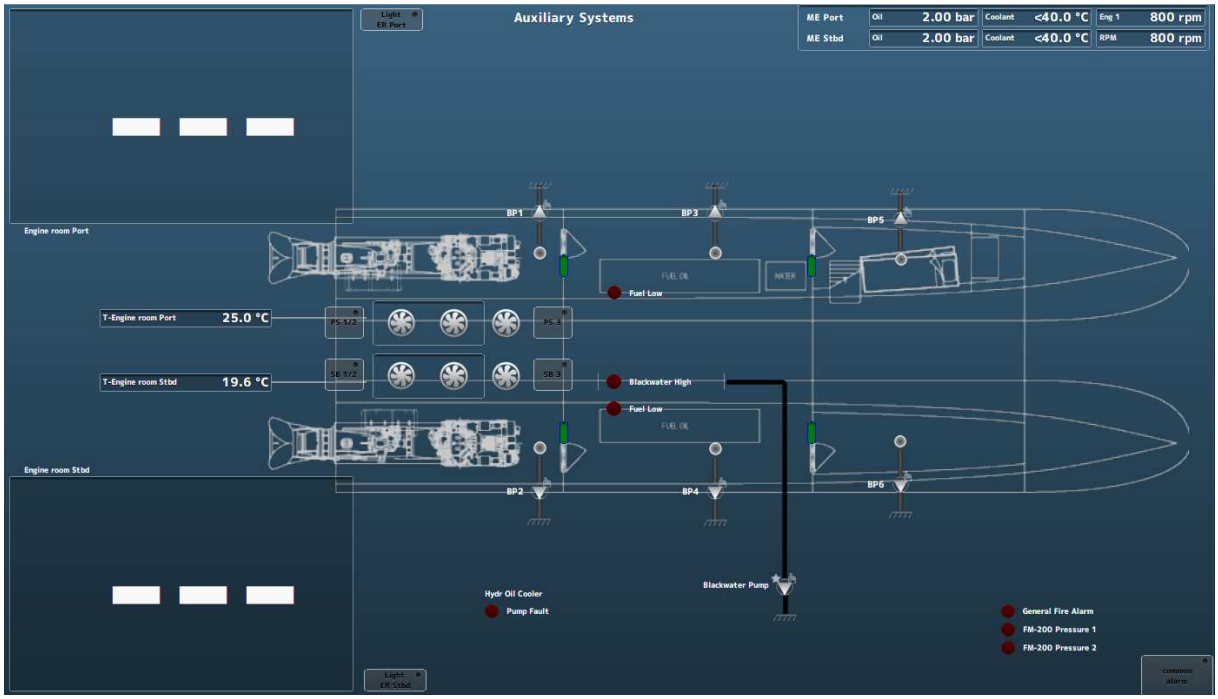

Figure 9-19: Image example

9.2.5 Icon

Icons are prepared on/off switches (LED) that you can use easily for alarm purposes or status purposes. When you put in an icon, you can give it a color (red =alarm, green is on/ok) and the icon will go on or off if the sensor is high or low. In Figure 9-19 you can see a few red icons. Once there is an alarm they will light up red and give you the visual aspect of that alarm on the mimic. Same goes off course for other colors.

9.2.6 Pipes

Pipes are used for showing the ships piping system. Also it can be used to show a part of the electrical system or even as a separation between items. Pipes can be drawn in all kind of shapes but only horizontal and vertical. As you start with a pipe choose "Add Pipes" in the options menu. Put your mouse on the spot where you want to start your pipe and click. Draw the mouse to the place where the pipe needs to run to and click again. Now you have a line in between these two points. You can do two things. Move your mouse again in another direction (a corner will be made) and click once again when you reach the next place on the mimic. Or, if the pipe is finished, right-click and the pipe will be finished. This way you can draw a line all directions in one piece. See the following:

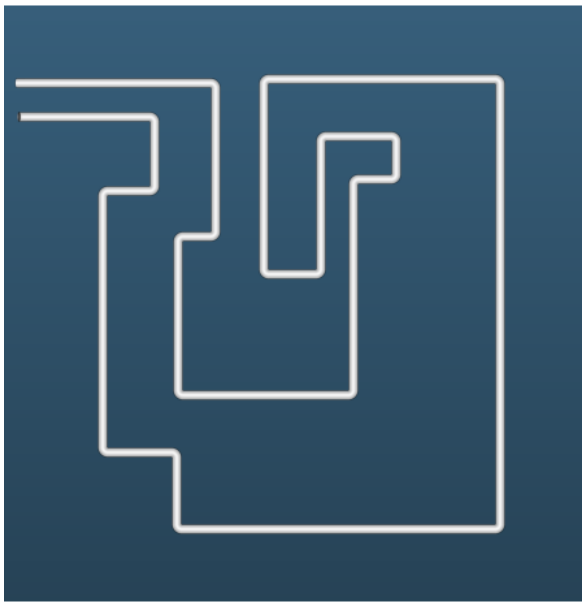

Figure 9-20: Pipe example 1

From there on you can start a new pipe or connect a pipe to the existing one. If you want to connect a pipe to an existing one you can start exactly on that pipe and go from there, or you can start somewhere else en end on the existing pipe. See the following:

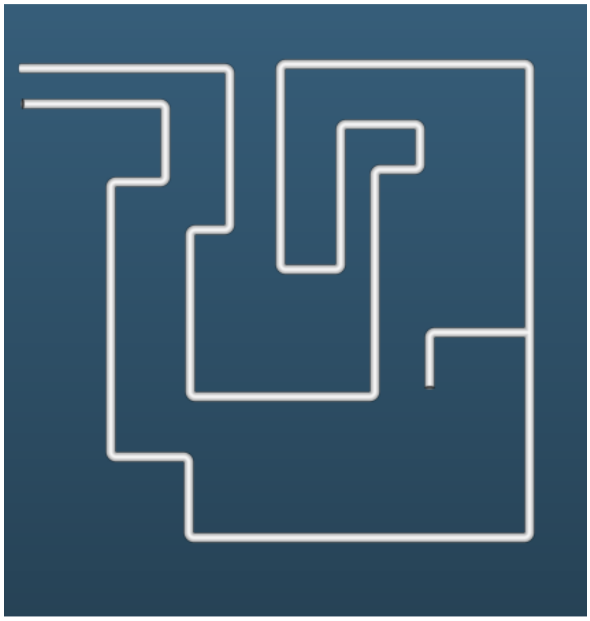

Figure 9-21: Pipe example 2

:the adjacent pipe will fit automatically to the existing one. Only when it has the same thickness and the same color. If you change one of these, the latter will lay above the existing pipe (see Figure 9-21*).*

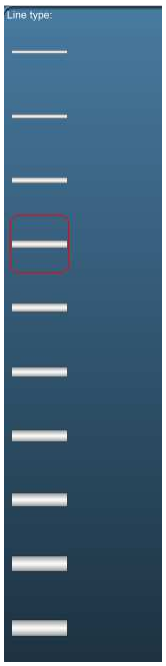

Figure 9-22: Pipe example 3

In the left side of the menu you can choose the thickness of the line by clicking on the appropriate example (see Figure 9-22). The color can be changed for the outer- as well as for the inner color so you can comply with regulations (see Figure 9-23).

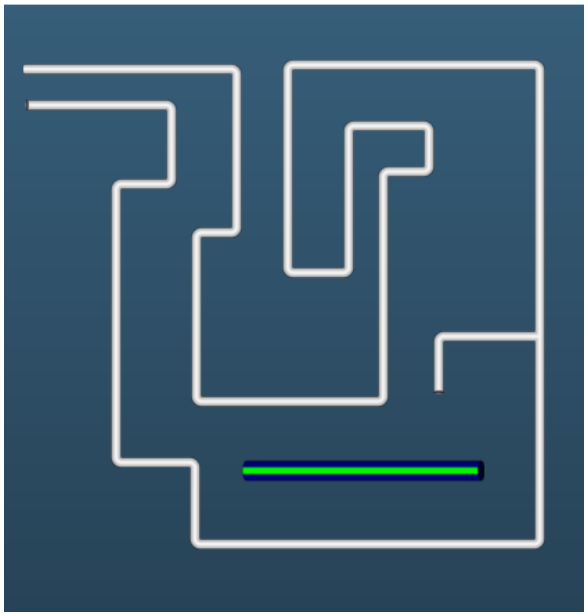

Figure 9-23: Pipe example 4

In the pipe edit section under “Field” you can attach a field to the pipe, so you can make it interactive again. More on this in Chapter 10.

: More on color coding, Badges, radial menu items etc. you can find in our manual “Installing and commissioning Manual”.

10. Special features

10.1 Introduction

To make a mimic more interactive there are a lot of features built in to make it even more easy to understand the mimic. There are sequences that you can attach to an object to change this object when several different events occur. There are symbols with animation to make it more readable. And you can make objects interactive with donut pop-ups to start and stop the object and several other things. Thus making it easy to the eye and very understandable.

10.2 Sequences

Sequences are a range of commands you can assign to an object. This makes it visible what that specific object is doing at that specific moment. We will take a valve as example, but it goes without saying that you can use it in various different formats.

Now let's say you have a fuel valve that you control locally and remote and which has an open- and a closed contact. Of course you would like to see if the valve is open or if it is closed. But you can do more. You can see the time that it is opening or closing in a different format and even have a fail mode to show that the valve is not available.

Let start with drawing a symbol of a valve You will get the following picture:

Figure 10-1: Valve open

Now we will assume for this example that vertical is open and horizontal is closed. First thing we like to do is change the position and the color of the valve symbol for either position. In the edit section you'll find only one tab in the beginning (see Figure 10-2). This means that this symbol is always showing. But now we are going to change the sequence.

The first tab is always the last tab the program is looking at. So with several tabs (i.e. 5) it will start to look at tab 4 to see if that is valid. If not it will go to tab 3 and so on. The exception is the highest tab which will only show when all the other tabs are not valid.

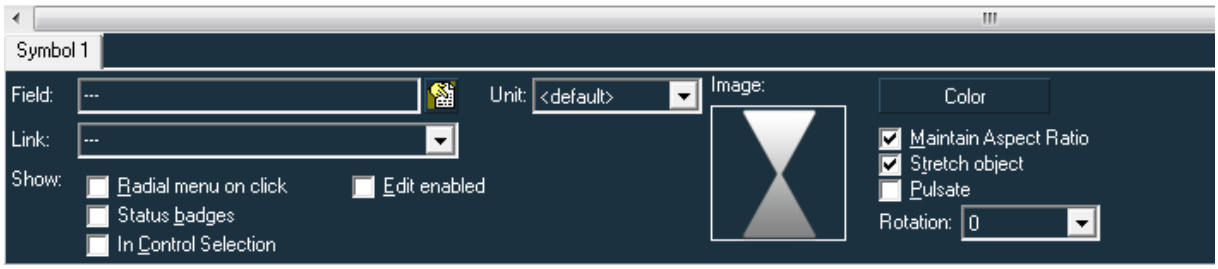

Figure 10-2: Edit section

We assumed that the vertical position is for open so we should first change the color to green (which is the standard for “open”). But while we also have a defective/not available status (which will be the first in line) we will make this color purple. This will get you the following view:

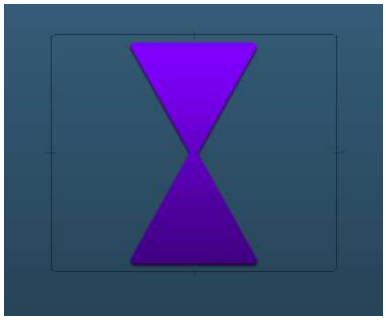

Figure 10-3: Valve defective/not available

This is not the only thing you need to do. You also will have to alter the conditions of the tab to make it understand when it has to be visible and when not. In the right-botoom corner of the edit section you will find a button “Conditions”. Click it to open a new window that looks like the next picture:

Figure 10-4: Conditions window

You will see 3 options.

Option	Explanation
Always show object	This object will always be visible, except for when another tab is valid
Never show object	Object is never visible
Show object when	Shows object when certain thresholds are met

Table 10-1: Conditions

The last one is the most used. When you click “Show object when” a few new objects will appear.

Option	Explanation
Logic	Add logic to the equation. (And, Or, And not, Or not)
Field	Choose the field as described earlier
Condition	Choose the condition the object needs to comply with
Optional value	Extra possibilities for some conditions

Table 10-2: Conditions 2

So back to our example. We need to add a condition for the first tab. We made the object purple (defective/not available) so we need to add a condition to make this object only available when the valve is defective/not available.

At first we click on the “Show object when” radio-button. Under field we choose the appropriate field (in this case valve 1) and then under “Condition” we choose “defective”. So now we know that this object in this specific configuration will only appear when the conditions are met (see Figure 10-5).

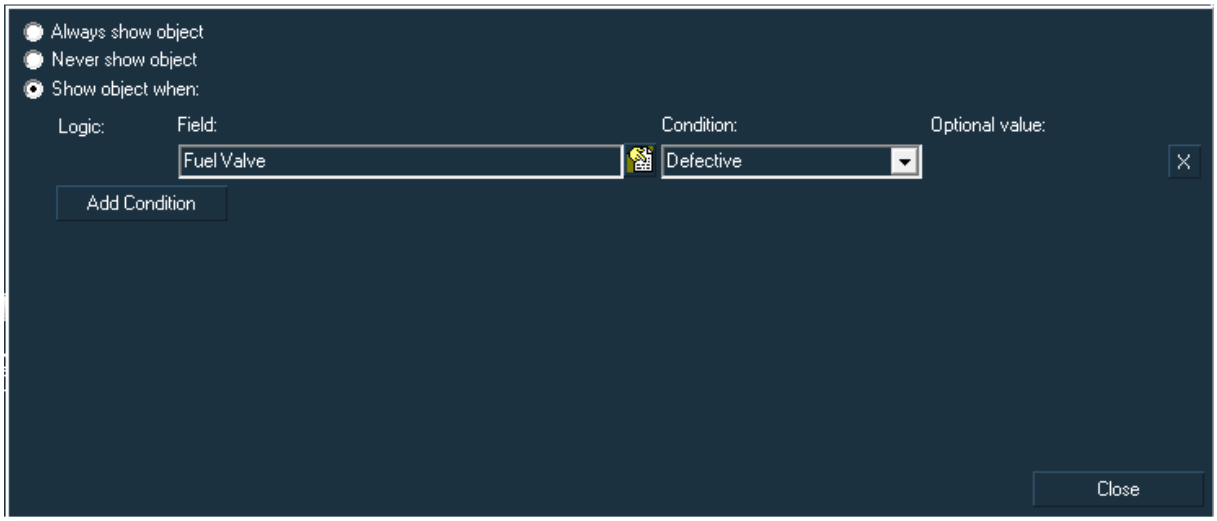

Figure 10-5: conditions tab 1

As you see there is no logic field nor an optional value field. These only become available when you go a step further. Just for explanation sake let’s assume that you don’t want to show the defective status when the fuel pump is running at low speed. Just click add condition, choose the fuel pump as field and for condition choose “Lower than”. Now you can choose a range at optional value

While the example concerns a Switch-field (which can only be 0 or 1) it will suffice to put 0.5 in the additional field. If it was an analogue field like a RPM or likewise, you can choose the appropriate value.

You get the following:

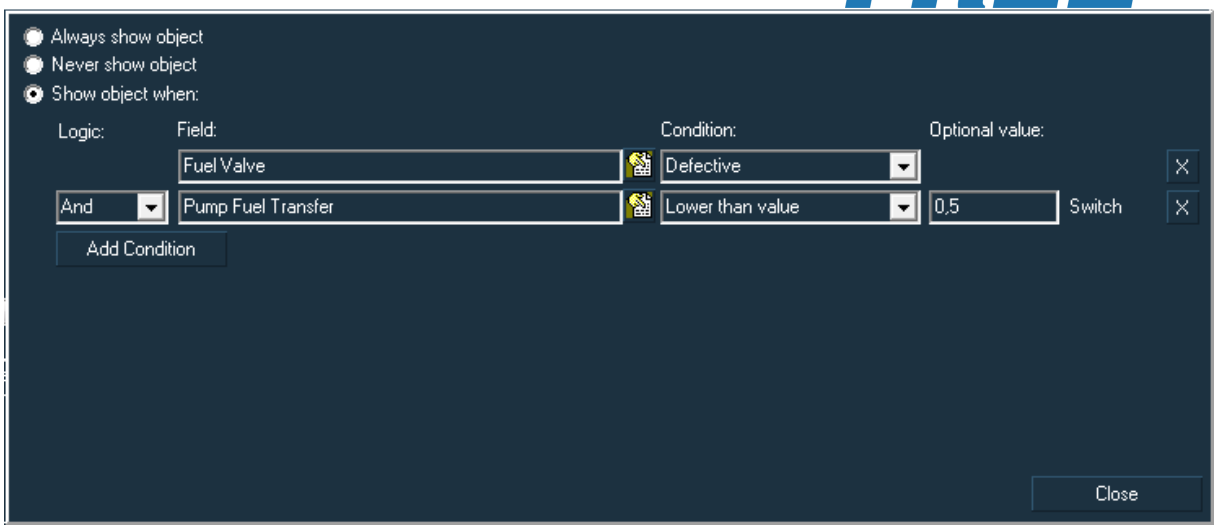

Figure 10-6: Extra conditions example

Without the extra example, the first tab is finished now. So you can click “Close”. You will see that an extra tab has appeared.

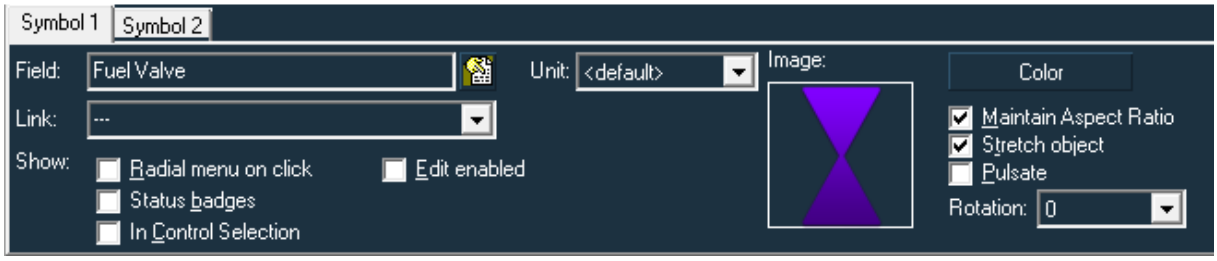

Figure 10-7: Tab 2

This second tab we will use to show the object has had a request to close. Closed was horizontal and red, so we first need to change that till we get is as in the next example:

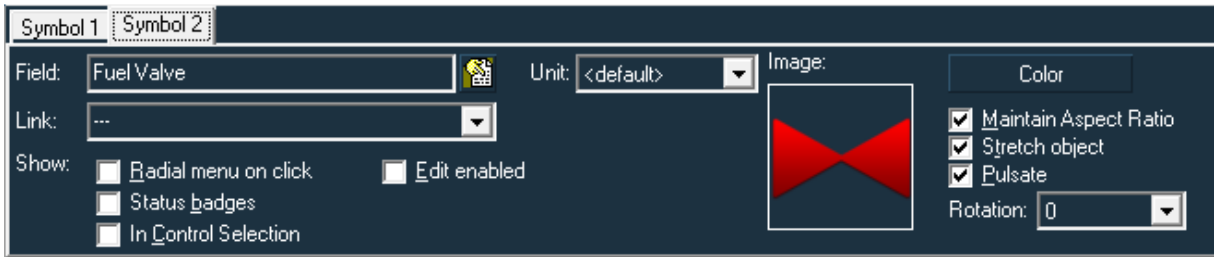

Figure 10-8: Tab 2 changed

The extra function we added here is “Pulsate”. It has had a request to close, it is not open anymore nor is it closed yet. In this time between two states the object will pulsate to show that it is on its way to close.

We also need the conditions to be changed. This time as condition we will choose show object when Field “Fuel valve” is Condition “Request pending”.

It will look like the following:

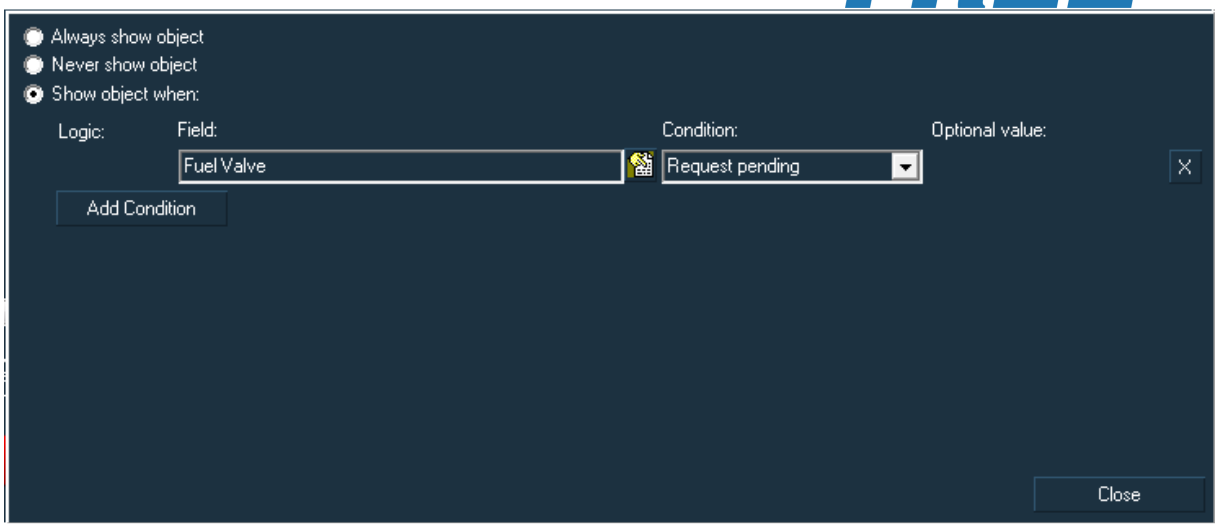

Figure 10-9: Tab 2 conditions

Now after you click “Close” you will find the third tab.

The third tab will be vertical and green and the condition will also be “Request pending”. Only this time you will choose the vertical, green symbol with pulsate, to show it is on its way to open. It will look like the following:

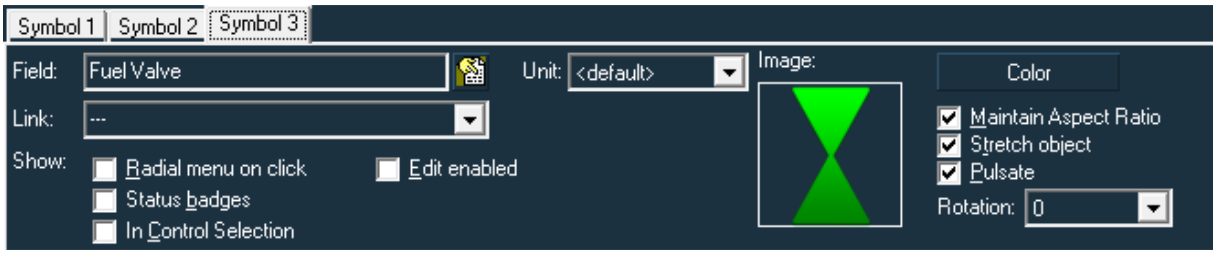

Figure 10-10: Tab 3 settings

Tab 4 will be horizontal and red without the pulsating. It will show the object when it is closed (See Figure 10-11).

Under conditions you choose “Off” which is the same as closed (see Figure 10-12).

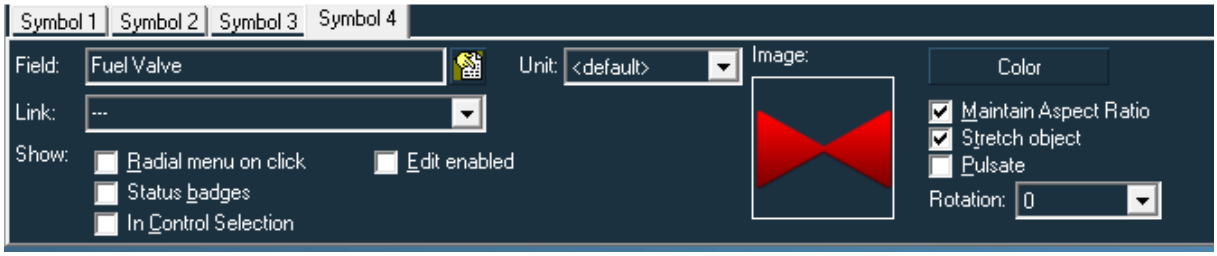

Figure 10-11: Tab 4 settings

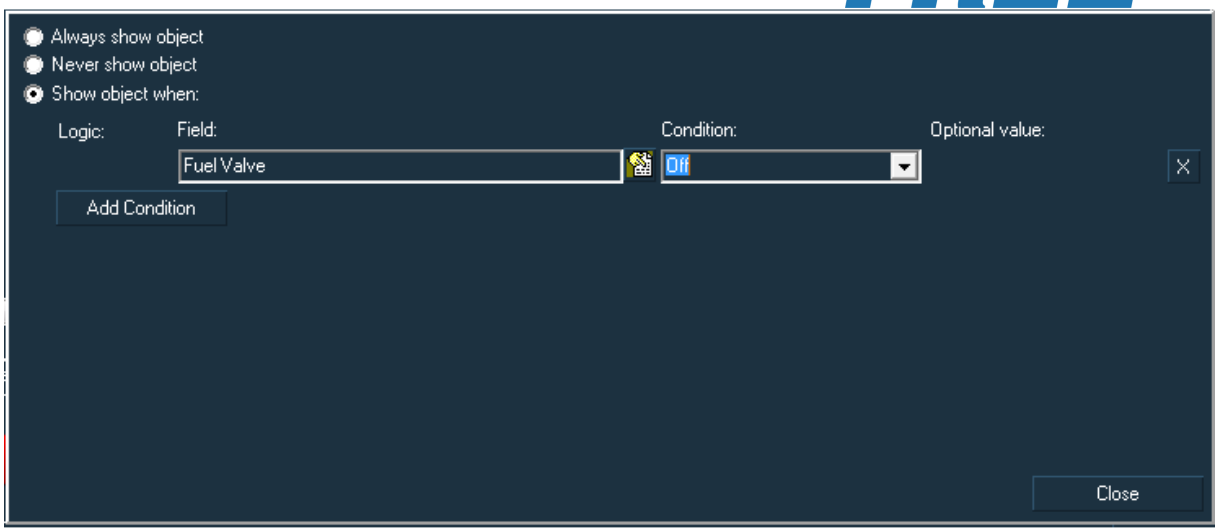

Figure 10-12: Tab 4 condition

Tab 5 will be Vertical and green without the pulsating (see Figure 10-13). And the condition will show “On” which is the same as open (see Figure 10-14).

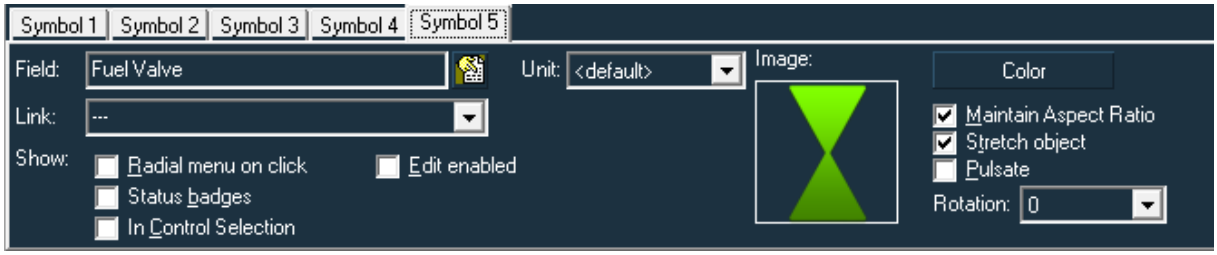

Figure 10-13: Tab 5 settings

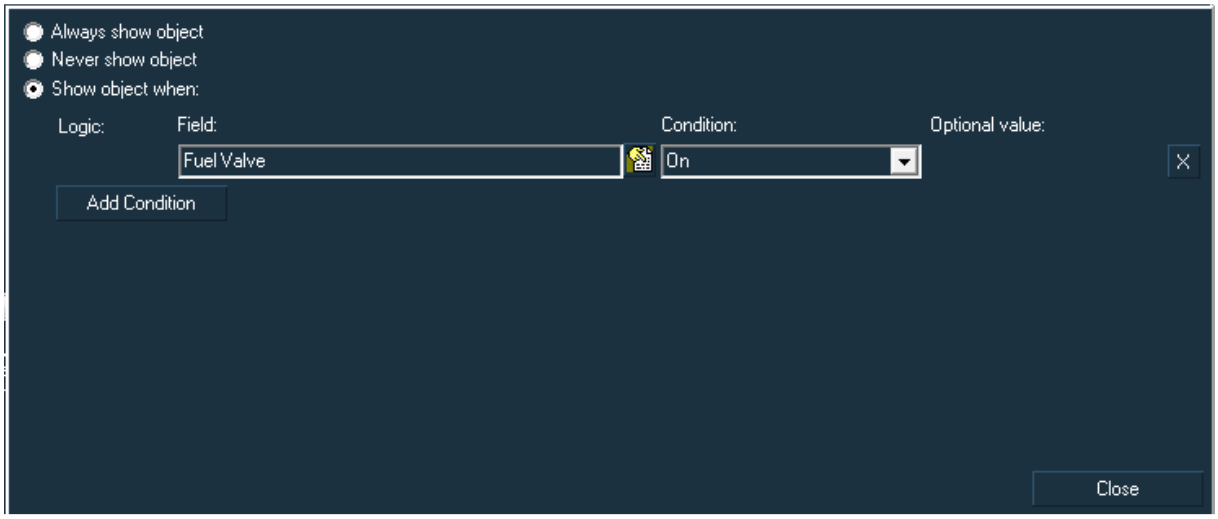

Figure 10-14: Tab 5 condition

At last after closing this one, you will have the 6th tab. The tab that will allways be visible when none of the other show. We gonna make this white in the open position (see Figure 10-15). The condition will be “Always show object” (see Figure 10-16).

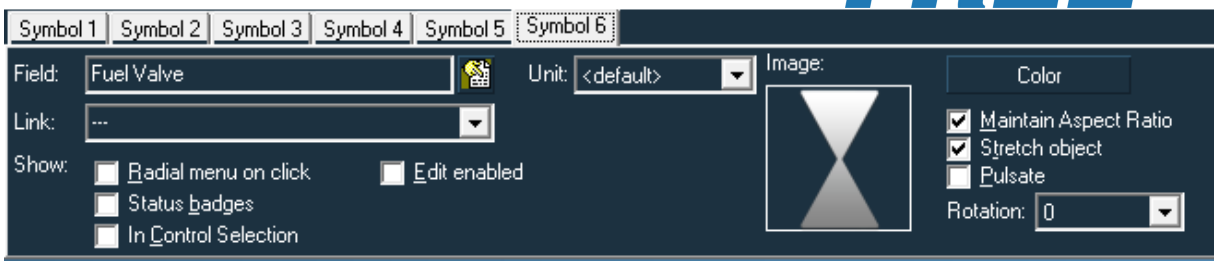

Figure 10-15: Tab 6 settings

Figure 10-16: Tab 6 condition

Now you have a full working sequence for the valve. It goes without saying that when you have a lot of valves with the same sequence, first make the sequence, copy/paste the object as many times as you need them and just change the fieldname for each object.

: This same sequence can be used for images, pipes, etc. Also the order of the sequence can be different.

10.3 Animation

In FT NavVision© it is also possible to make objects animated. This goes in first instance for the symbols.

As explained earlier you can add a symbol to the mimic. When you choose the symbol you go to the folder “Animated” instead of “Static” (see Figure 9-15). In this folder you will find a couple of folders with the most common symbols. These Symbols will move, rotate or have another animation’

These animated symbols will come in handy when, for example, you simulate the circuit breaker on a busbar. Together with the conditions you can make this circuit breaker moving and changing color. This will make it yet clearer to comprehend.

So the circuit breaker will go from this:

Figure 10-17: Animated open

Fluently to this:

Figure 10-18: Animated closed

10.4 Tools

10.4.1 Introduction

In the mimic editor there are a view tools to make tasks easier. These tools are meant to make it easier to position an object or copy/position objects. You can also change height and/or width for multiple objects at once.

10.4.2 Width/height

In the bottom left corner of the mimic (when you're in edit-mode), there is a square window with a couple of values in it (see Figure 10-19). These two rows are meant to help you with changing large amounts of objects at once. Let's take a look at the left column.

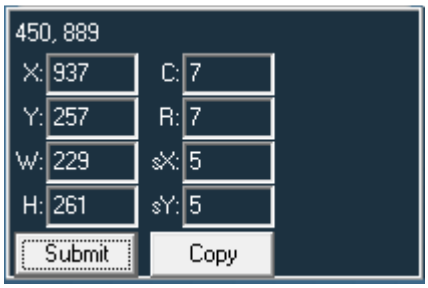

Figure 10-19: Tools

You will see that the left column has 4 values. X, Y, W and H. These abbreviations stands for

- X-position X-axis
- Y-Position Y-axis
- W-Width
- H-Height

So if you click an object, you can find the position and width and height of that object here. As you can see it has a “Submit” button. You can also change all of these values here. Let say you have placed an icon in the mimic and you want it to be square. Placing it with your mouse makes the change that it is perfectly square very low (see Figure 10-20). So you click on the icon (the surrounding square gets red) and go to the tools window. Although it looked quite good, you see at the width and height that it is not perfect (see Figure 10-21). So change these values to the appropriate size and click submit (see Figure 10-22). You now have it perfectly balanced.

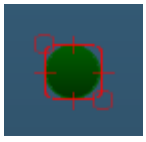

Figure 10-20: Icon

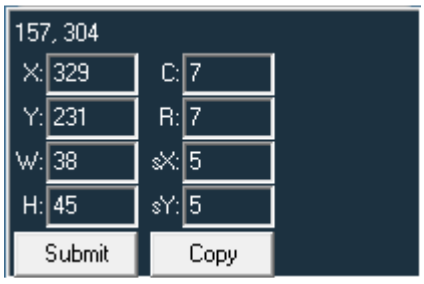

Figure 10-21: Tools unchanged

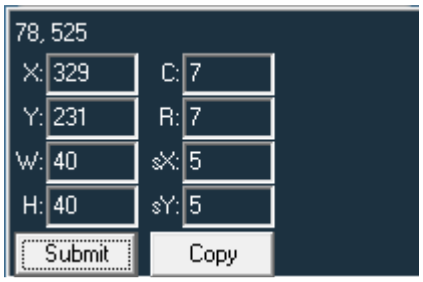

Figure 10-22: Tools changed

Now let's say that you have made a bunch of icons that all are different. You want them to be the same. At first it will look like the following:

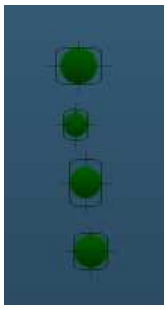

Figure 10-23: Icons multiple sizes

Just draw your mouse around all the icons to select them all (see Figure 10-24). And then go to the tools window (see Figure 10-25). Change the width and height again but now watch out that you clear the X and Y-axis. Otherwise all the icons will be in the same position. Click submit and the result will be that all the icons have the same size (see Figure 10-26).

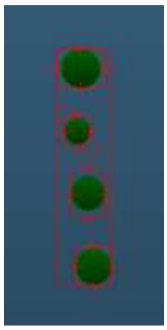

Figure 10-24:Icons Selected

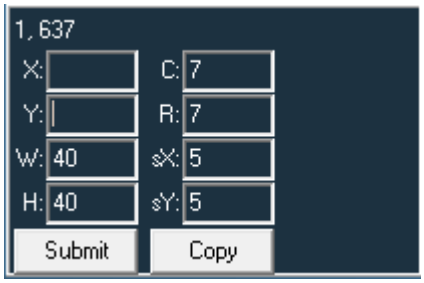

Figure 10-25: set multiple size

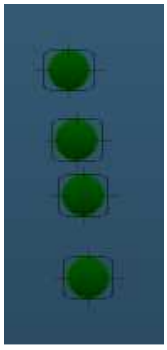

Figure 10-26: Icons same size

10.4.3 Aligning

Now in the previous example the icons are not well aligned. FT NavVision® also has a tool for that. First select the icons again as in Figure 10-24 and then press ALT-Left arrow. The icons will all be aligned with the left side as base, see next figure:

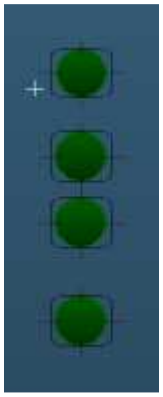

Figure 10-27: Icons aligned

The vertical alignment in this example has to be done by hand or in the tools window by position. Because these are the first objects in the mimic, you won't have a reference.

As you go on from here, you can align in all directions. Let's put a label behind each icon. Right-click and choose "Add label". Place the label somewhere and change the name in the edit section to "Icon1". Do the same for the other 3 icons. You will get a picture as in the following figure:

Figure 10-28: Labels

First make all the labels the same size. It works best if you make the height of the labels the same as the icons because it will fit the best then. See following figure:

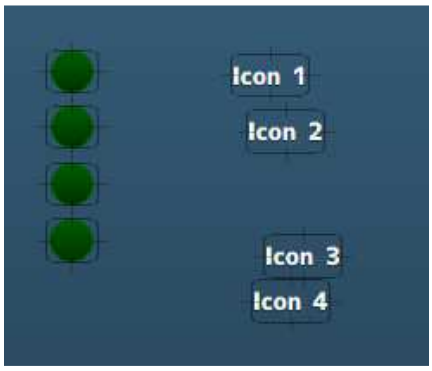

Figure 10-29: Labels adjusted

Now select the upper icon and the upper label (draw your mouse around them or click on the icon and CTRL-click on the label) and press the CTRL-key together with the up-arrow. Do the same for the other icons and labels. Finally select all labels and press CTRL Left-arrow to align the labels. You now will have all the icons and labels aligned. See following:

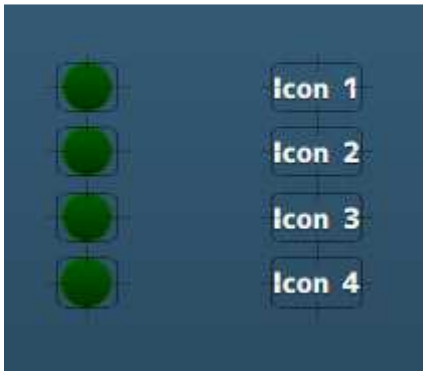

Figure 10-30: Labels aligned

You can always move a selected object by using the arrow-keys. So if you want to bring the labels closer to the icons, just select the labels and use the left-arrow key to bring them together.

10.4.4 Copy/paste

If you need multiple editions of an object you can use copy/paste. From the last example with the icons we assume that we need another set like this. Select the icons and labels by dragging your mouse around it (see Figure 10-31). Now press CTRL-C and after that CTRL-V to copy and paste the selection. The copied part will appear just on top of the original (see Figure 10-32). Drag this with your mouse to a new position (see Figure 10-33).

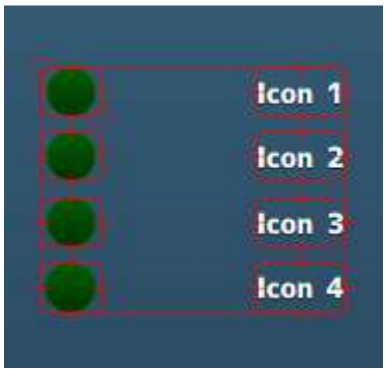

Figure 10-31:Icons and labels selected

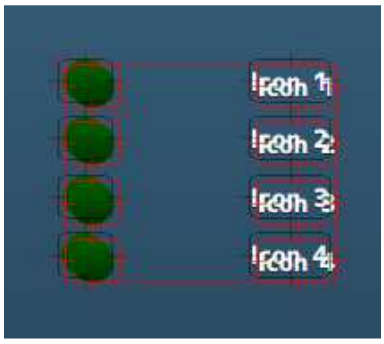

Figure 10-32: Icons and labels copied

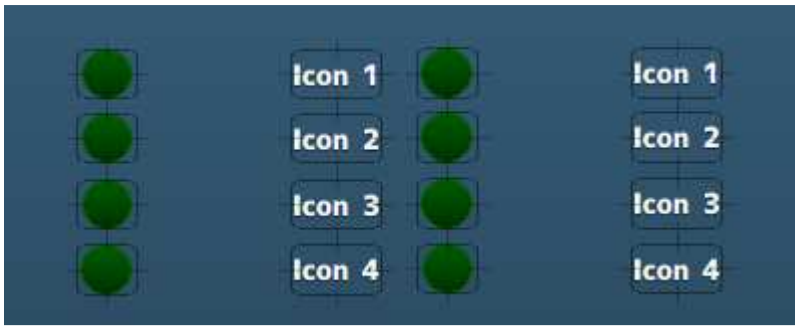

Figure 10-33: Icons and labels placed

If you need a lot of copies you can use the tools window. The right column is for copying single or multiple objects.

- C-Columns
- R-Rows
- sX-pixels X-axis shift
- sY-Pixels Y-axis shift

So if you want to copy the icons and columns and you need 4 columns and 3 rows With a shift of 10 pixels. You select the icons and labels and change the values like shown in the next figure:

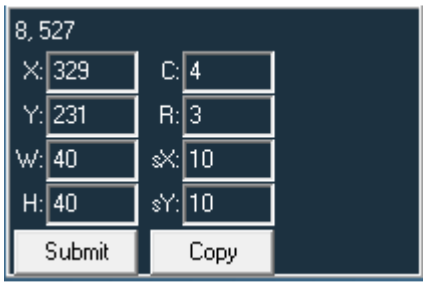

Figure 10-34: Tools window Copy

Press “Copy” and you get the copied icons and labels as in the following figure:

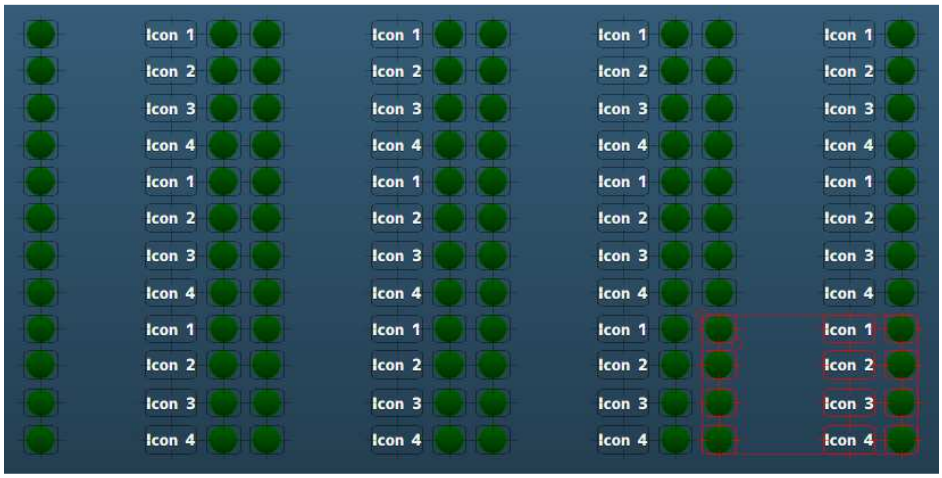

Figure 10-35: Copied via tools window

: This applies to all objects. Take notice that after copying the labels and fieldnames of the icons has to be changed by hand.

10.5 Multi-select

If you need to add or subtract some features to multiple items in a mimic, you can do this by multi-select. There are two ways that you can select more than one item:

- Click the right mouse button and hold it down while you drag over the items that you want to select.

Figure 10-36: multi-select drag

- Click on the first item that you want to select. Then hold down CTRL and click on the other items that you want to select.

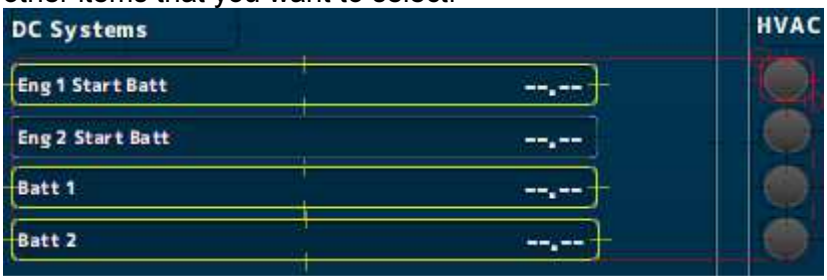

Figure 10-37: Multi-select click

Once you have selected all the items that you need, you can apply all kind of actions on multiple items at once. For example, you can make them all pulsate, give them all the same Field tag, change color and all the other things you find in the setup section at the bottom of the mimic screen.

Let's say that we want to change a couple of tanks at the same time. In this case we drag and select all the tanks. See following picture:

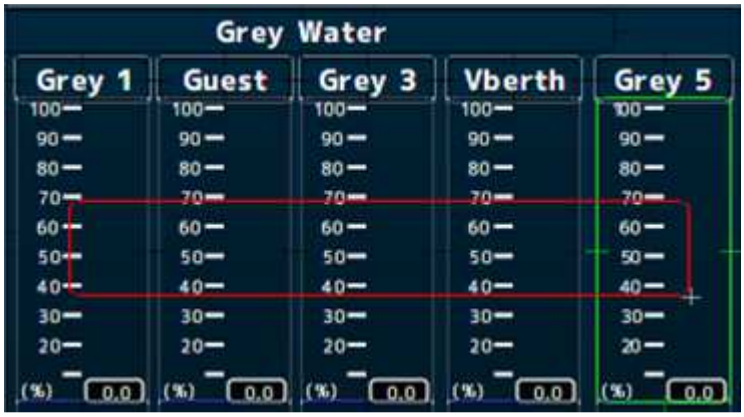

Figure 10-38: select multiple tanks

Once all selected, we can change color, add label, etc. In this case we see they are all grey water. The color should be grey then. With all these tanks selected we go to color and choose grey. Now we have changed the color for all tanks into grey.

This goes for all the changes you can make. Another small example: in Figure 10-38 you can see that the tanks show their value in %. If you want to change that to Litre, you just change the unit with all tanks selected and it will change for all tanks as you can see in the following picture:

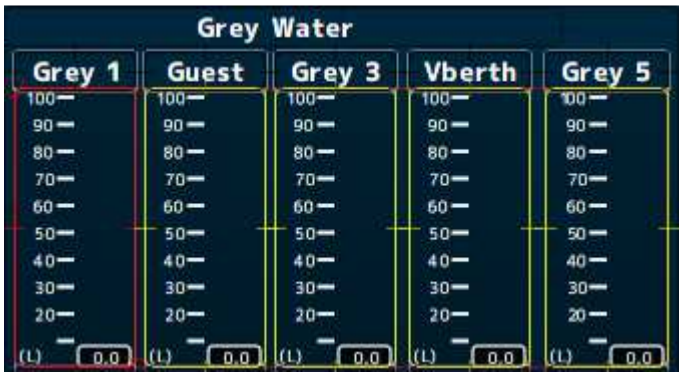

Figure 10-39: changing multiple items

: Also conditions can be set for multiple items. Just select multiple items as described and follow the steps in this chapter.

10.6 Shortcuts

There are a few shortcuts in the mimic layout that are very usable. We discussed already a few, but we will sum them up here for your convenience.

Shortcut	Explanation
CTRL-Numpad + (i)	Zoom in
CTRL-Numpad - (o)	Zoom out
CTRL-Arrow keys	Align a group of objects in the arrow-key direction
CTRL-Shift-Arrow keys	Align object left-center-right or top-middle-bottom
Arrow-keys	Move object in arrow-key direction
CTRL-X	Copy selected
CTRL-V	Paste Selected
CTRL-Z	Go step back
CTRL-Y	Go step forward
Shift-Arrow keys	Align pipes and other objects to fit
Alt-Arrow keys	Align text and values in labels and value regions
CTRL-G	Show grid

Table 10-3: Shortcuts

11. Assign automation of fields in mimics

11.1 Introduction

If a mimic is finished you have the design ready. The next step is that you assign FT NavVision® fields to the objects in the mimic to make it work. You can do that piece by piece as described in earlier chapters. However, when the mimics get more complicated, this means a lot of work. For that purpose we have tried to automate a lot of that work.

11.2 Export and import object list

When you go into edit mode and right-click to see the options menu, at the bottom you will find 3 lines that pertain the import and export options for the objects.

- Export Object List (Assigned)
- Export Object List (All)
- Import Object List

If you click “Export Object List (Assigned)” it will export a list (*.txt) for all the objects that are currently assigned.

If you click “Export Object List (All)” it will export a list (*.txt) for all the objects.

If you click “Import Object List” it will import a list (*.txt) into the FT NavVision® mimic that you are working in and overwrite all the settings you have changed.

11.2.1 Export

When clicking Export, whether it is assigned or all, it will make a *.txt file in the root of the FT NavVision® directory. Depending on which mimic you are in, the file will get a name like mimic1.txt, mimic2.txt, etc.

This file in the FT NavVision® root directory you can open with excel. As example we take a random mimic and exported all the objects. In our case it was mimic 3 so we are looking for mimic3.txt.

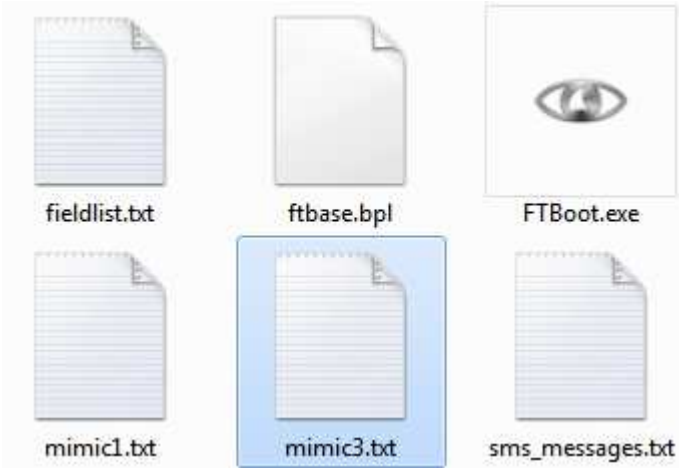

Figure 11-1: mimic3.txt file in root folder

By right-clicking on the file and choose for “open with…” and then Microsoft Excel, the file will be opened in Excel. It will look like the following figure:

Object	Type	FieldFrom	FieldTo	Comment
0	Field1	EngineRpm	EngineRpm	Engine RPM
1	Field1	EngineRpm	EngineRpm	Engine RPM
2	Field1	GeneratorReadyPro1	GeneratorReadyPro1	Generator 1 Ready
3	Field1	GeneratorOilPressure1	GeneratorOilPressure1	Generator Port Oil Pressure
4	Label5			Seawater: Flow
4	Field1	EngineRpm	EngineRpm	Engine RPM
5	Field1	GeneratorACAuxAlarm2Pro1	GeneratorACAuxAlarm2Pro1	Generator 1 AC Auxiliar 2 Alarm
6	Label7			
6	Field1	EngineRpm	EngineRpm	Engine RPM
6	Field2	GeneratorOilPressure1	GeneratorOilPressure1	Generator Port Oil Pressure
7	Field1	GeneratorACAuxAlarm3Pro1	GeneratorACAuxAlarm3Pro1	Generator 1 AC Auxiliar 3 Alarm
8	Label9			Water Temperature: High
8	Field1	EngineRpm	EngineRpm	Engine RPM
9	Field1	AlarmOilFilterClogged1	AlarmOilFilterClogged1	Engine Port Oil Filter Clogged Alarm
10	Label11			Racor Filter: Clogged
10	Field1	EngineRpm	EngineRpm	Engine RPM
11	Field1	EngineRpm	EngineRpm	Engine RPM
12	Field1	EngineRpm	EngineRpm	Engine RPM
13	Field1	GeneratorReadyPro2	GeneratorReadyPro2	Generator 2 Ready
14	Label15			Port Genset
14	Field1	EngineRpm	EngineRpm	Engine RPM
15	Label16			Stbd Genset

Figure 11-2: object export list

field	Explanation
Object	Number of the object on the mimic
Type	Kind of object (Field, Label, Condition etc.)
FieldFrom	The current attached field tag
FieldTo	Here you can change the field of the object
Comment	The comment of the field in FT NavVision©

Table 11-1: Object export list

11.2.2 Understand the object numbering

To understand which object has which number, you need to do an extra thing. You need to print the mimic. When you are on the mimic page (not in edit mode) hold CTRL-Shift and press “P” This will print the object-layout of the mimic. You can print it on paper, but also to a PDF-file, whatever you find easier.

The object layout will look like the following figure:

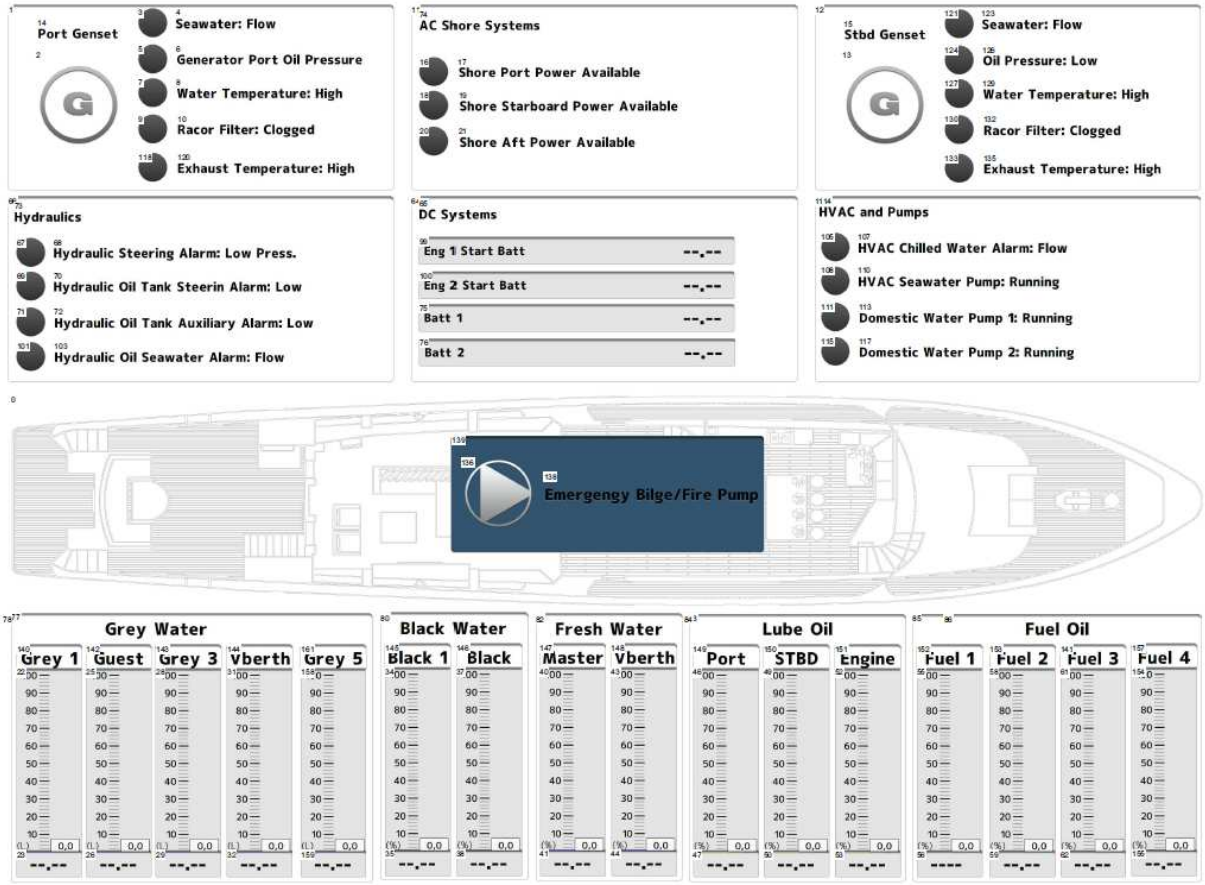

Figure 11-3: Object-layout

You can see that every object has its own number now in correspondence to the object export list. If we zoom in you can see that in correspondence to Figure 11-2 object “0” is the image of the ship (see Figure 11-4) and object “7” is the icon for “Water Temperature: High” (see Figure 11-5).

Figure 11-4: Object 0

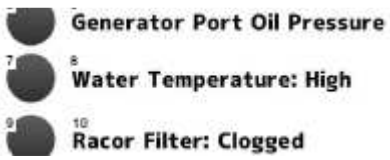

Figure 11-5: Object 7

So by checking the object numbers, we can change the field id in the column “FieldTo” in the “Object export list”.

So for object “0” we know that it is an image and it does not need a field id from FT NavVision® . the fieldto-cell can be empty, see following:

Object	Type	FieldFrom	FieldTo	Comment
0	Field1	EngineRpm		Engine RPM
1	Field1	EngineRpm	EngineRpm	Engine RPM

Figure 11-6: Changing “FieldTo”

 *: leave the “FieldFrom” as it is cause FT NavVision® needs to know what it was before to change it.*

Obect “7” now has a generator auxiliary alarm field as field id (see Figure 11-7). This can be good if we have chosen that before. In the comment-column you see the comment as it is set in fieldsettings in FT NavVision®. If you want to change this you need to change that in the sensorlist or in FT NavVision® fieldsettings.

6	Field2	GeneratorOilPressure1	GeneratorOilPressure1	Generator Port Oil Pressure
7	Field1	GeneratorACAuxAlarm3Pro1	GeneratorACAuxAlarm3Pro1	Generator 1 AC Auxiliar 3 Alarm
8	Label9			Water Temperature: High

Figure 11-7: Object “7”

This way you can change everything in the list until you are satisfied and after you have imported the list again, you now that everything will be assigned accordingly.

11.2.3 Changing possibilities in the object-list

In the type-column you can see and change the kind of object you want to change. Every object (except labels) have a field1. This is the main field where you can assign the FT NavVision® field id that you want to be represented there. There are a few exceptions that we will discuss next.

11.2.3.1 Label

Labels are a kind of name tag for an object like an icon, or just a text to clarify things. It is not yet possible to change these using the export list. However, if you don’t use the text but instead take the digital value for that label, the object will show the comment from that field id. And we can change that to whatever text in FT NavVision® or through the sensorlist. The pro with that is, if you change the field in the sensorlist, the text in the label will change automatically with it. For a label it will look like the following:

8	Label9			
8	Field1	EngineRpm	EngineRpm	Engine RPM

Figure 11-8: Label definition

You’ll notice that we don’t use the text value but instead just use Field1 for object8 here. This results that in the label the comment of Field1 will appear (in this case “ Engine RPM”).

11.2.3.2 Conditions

In the export list all conditions of an object will appear as well (see Figure 11-9). The first condition will only show if the field id is different than the field id of the object. Of course now you can change the conditions the same way as described before. Also if you didn't put in conditions before, you can add them by adding some empty rows and add the conditions by hand.

99	Field1	EngineVoltagePro1	EngineVoltagePro1	Engine 1 Starter Battery Voltage
99	Condition1	EnginePushStartPro1	EnginePushStartPro1	Engine 1 Start
99	Condition2	EngineRpmPro1	EngineRpmPro1	Engine 1 RPM

Figure 11-9: Conditions

11.2.3.3 Extra fields

Sometimes a mimic is so crowded that you can't show all the fields you like. Sometimes you just do not want all the information directly on your mimic. For that purpose FT NavVision® developed a balloon-like pop-up (see Figure 11-10). This can be added by defining more fields for the same object and fill them with the field id that you want to see there (see Figure 11-11).

Figure 11-10: Balloon pop-up

99	Field1	EngineVoltagePro1	EngineVoltagePro1	Engine 1 Starter Battery Voltage
99	Field2		EngineBatteryDischarge1	
99	Field3		EngineCurrent1	

Figure 11-11: Extra fields for an object

: To see those extra fields, double-click on the object in the mimic and the balloon will appear.

11.2.4 Import

Once you have adjusted everything you will have to save the *.txt file. Just close excel and it will ask you if you want to save the changes. Click “yes”. You will be asked if you want to override the existing file, again click “yes”. All other pop-ups you get you can answer with “yes” or “OK”.

Once the file is saved, go back to your mimic. Go to edit mode and right-click to get all the options. Choose “Import Object List” and answer “yes” to the pop-up. Now your adjusted object list will be implemented in the mimic. Check if everything is working as planned.

 *:If you are going to make changes again, don’t forget to make an export again first or you will still have the old *.txt file.*

12. Designing Mimics

12.1 Mimics

There are a few things you need to know about designing a mimic. We don't want you to become a designer, nor do we want to discourage you to experiment. We do however now by experience what the do's and don'ts are in designing. We like to give you our guidelines for a good mimic.

You need to remember the following rules:

- All about data visualization.
- Data visualization == translating data to graphics.
- A page layout tool, *not* a development tool.
- Paper page layout or screen layout: same rules.
- More akin webpages than technical drawings.

12.2 Grids

Aligning objects to imaginary columns & rows is the best way to make a mimic calm and composed. Let's take the website of FT NavVision© as an example. You can see that all the text and images are aligned in imaginary columns and rows (see Figure 12-1, Figure 12-2 and Figure 12-3).

Take that to the mimic page (see Figure 12-4). If you first divide it in imaginary rows and columns and you make the objects align with these rows and columns, you will have a good basis for the mimic (see Figure 12-5, Figure 12-6 and Figure 12-7).

Figure 12-1: Website columns

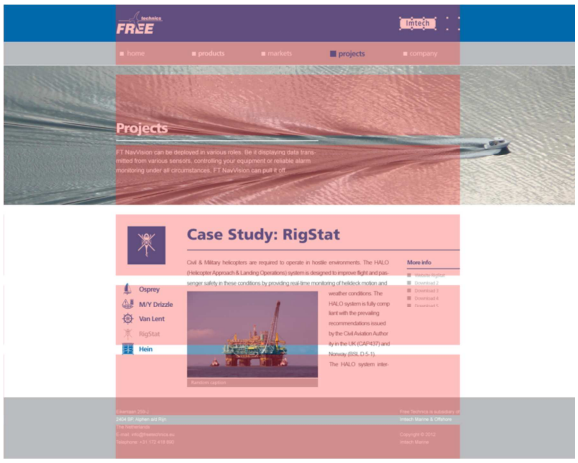

Figure 12-2: Website rows

Figure 12-3: Website rows and columns

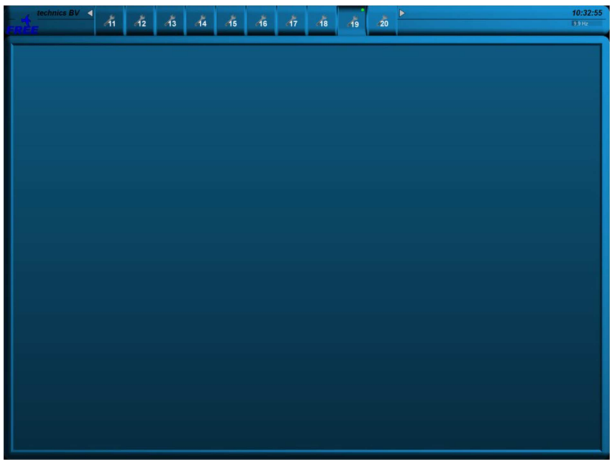

Figure 12-4: Mimic page

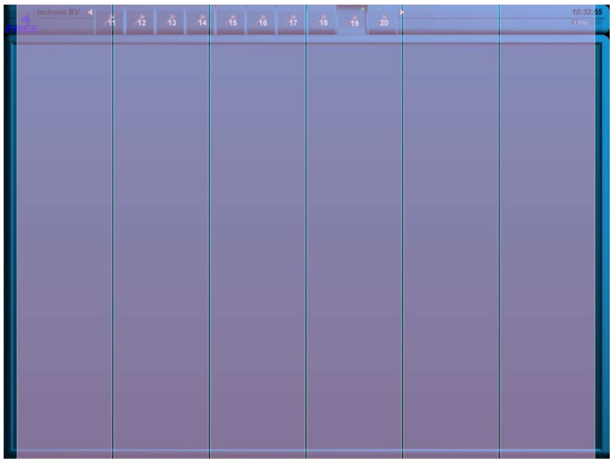

Figure 12-5: Mimic page columns

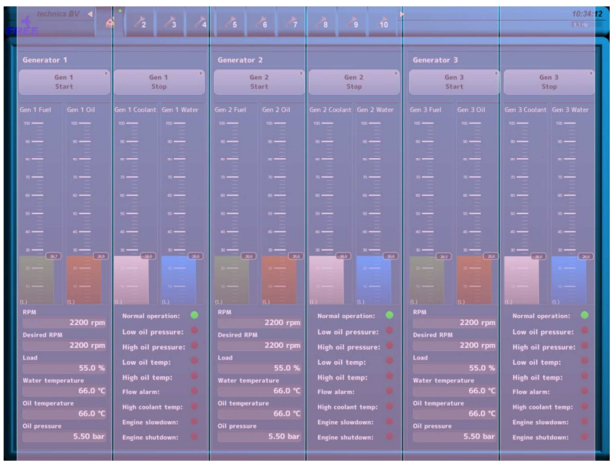

Figure 12-6: Mimic page columns with objects

Figure 12-7: Mimic page Rows with objects

12.3 Visual hierarchy

Imply importance & emphasize through position & size. People have a similar way in how they look at things. Even when window-shopping or watching television, most of the people have the same sequence in watching. As you can see in Figure 12-8 The upper left corner is the first place where people often look. So this must be the place where you put the highest valued data. In the rest of the figure it shows the lesser important spaces. Note that if you put something on top, it automatically gets more important.

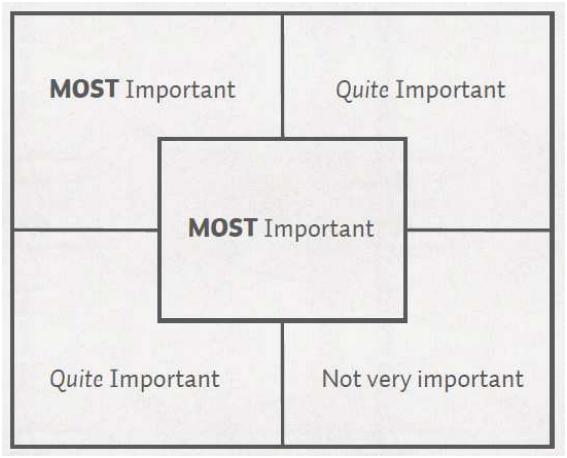

Figure 12-8: Important 1

Same goes for the size of an object. The standard rule is: how bigger the object the more important it is (see Figure 12-9).

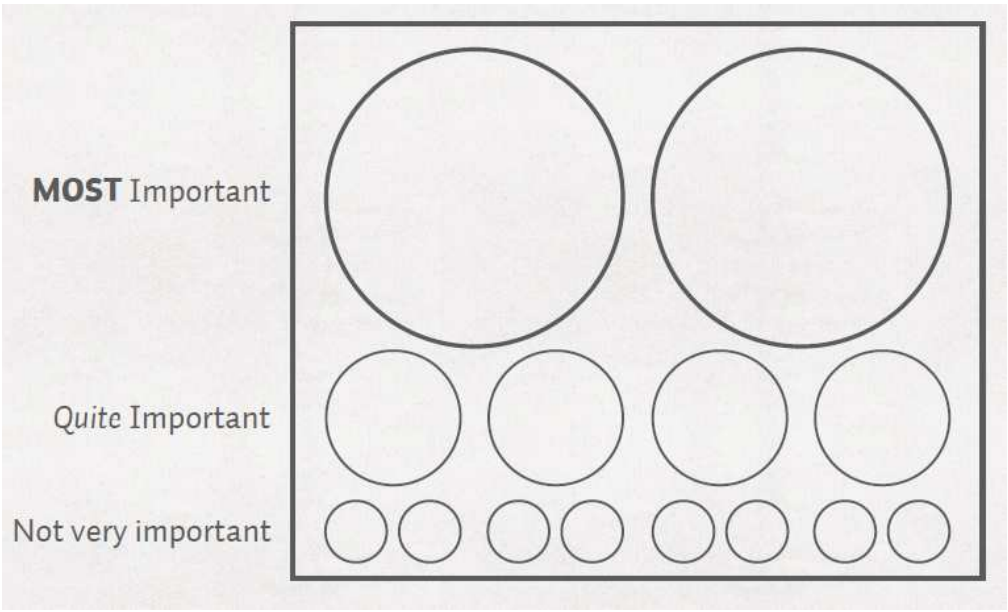

Figure 12-9: Important 2

12.4 White space

The space between elements in a composition is very important for the readability of the mimic. In the examples (see Figure 12-10 and Figure 12-11) you see a busy, cluttered mimic on the left and a calm, open mimic to the right. Do not crowd the layout just because you want to show too much. Respect the “white space”. In the end it will give you more.

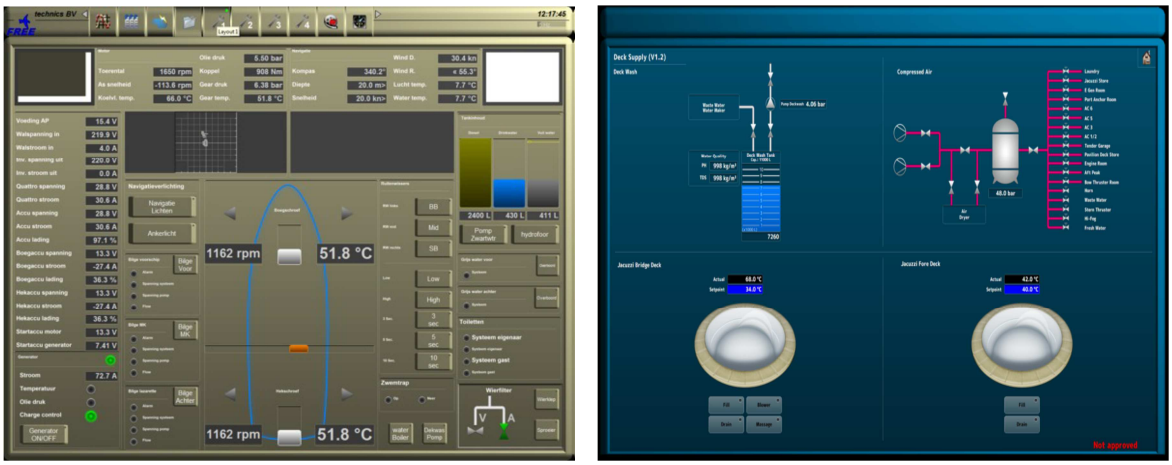

Figure 12-10: Busy versus calm 1

Figure 12-11: Busy versus calm 2

12.5 Grouping

There has been lots of studies on grouping. For sake of websites, books and even shopping malls people have researched all kind of possibilities.

For our mimics we use the following principles:

- Gestalt psychology: visual recognition of objects & groups
- Principles of *"Prägnanz"*:

These contain the following conclusions:

- Proximity
- Similarity
- Closure
- Enclosure
- Continuity
- Connection

12.5.1 Principle of Proximity

Objects close to each other belong to the same group

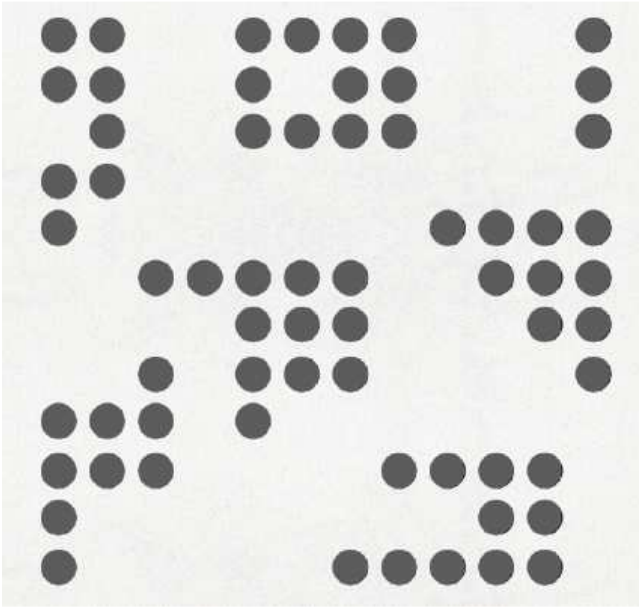

Figure 12-12: Proximity

12.5.2 Principle of Similarity

Objects that resemble each other belong to the same group

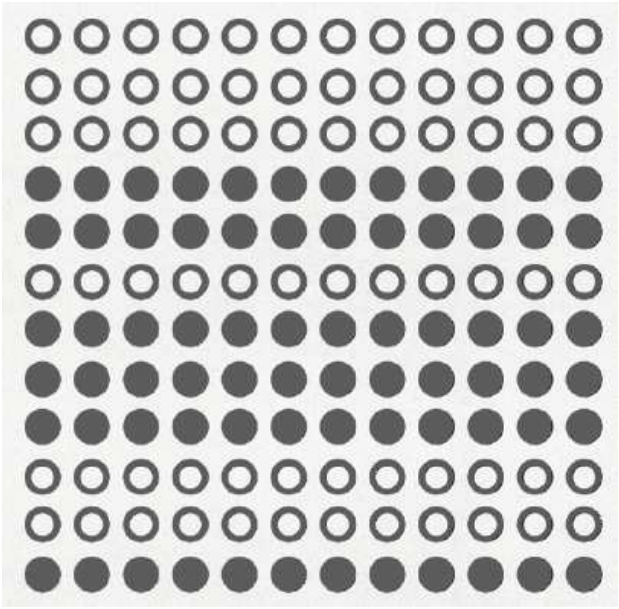

Figure 12-13: Similarity

12.5.3 Principle of Enclosure

Objects moving in the same direction at the same rate are grouped

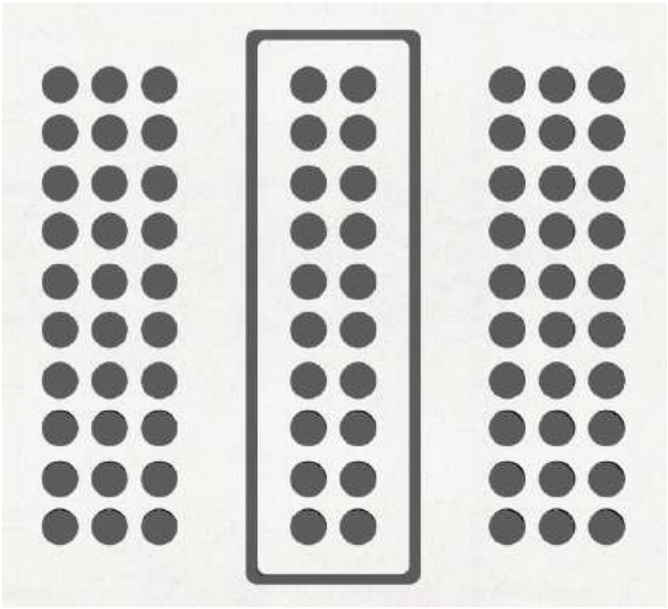

Figure 12-14: Enclosure

12.5.4 Principle of Closure

Objects are completed by the brain even if drawn incomplete

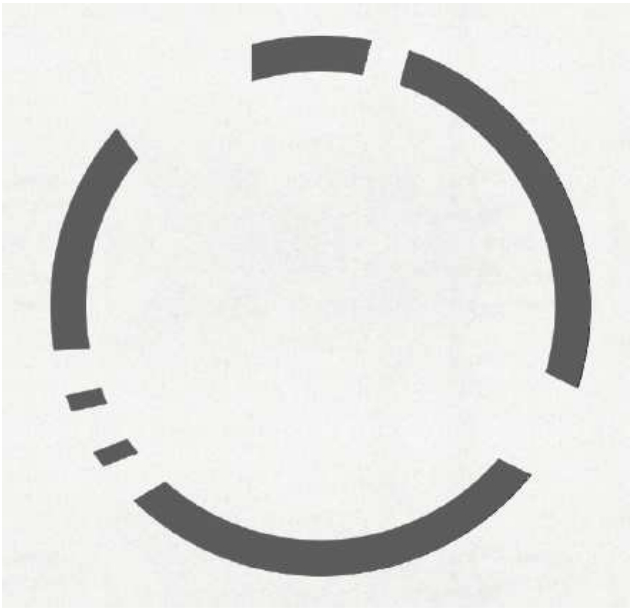

Figure 12-15: Closure

12.5.5 Principle of Continuity

Intersecting objects are still perceived as separate objects

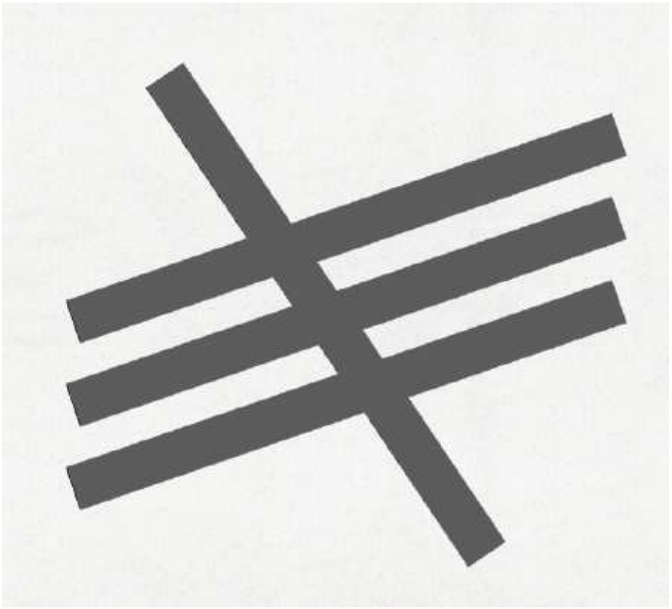

Figure 12-16: Continuity

12.5.6 Principle of Connection

Objects with some form of link are part of the same group

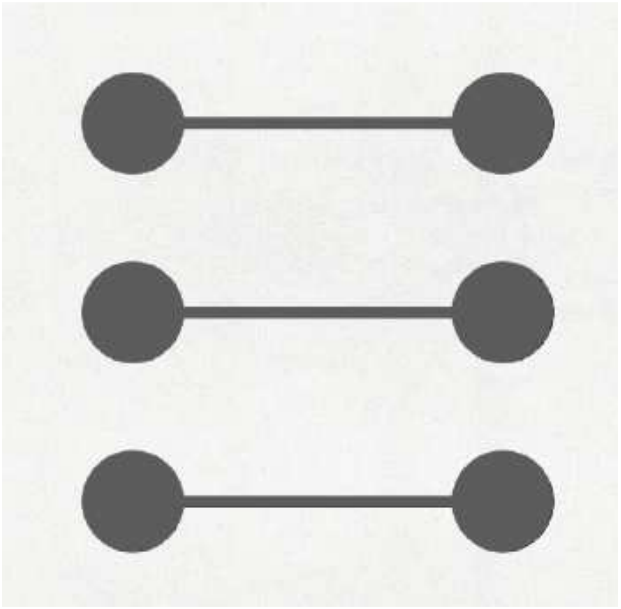

Figure 12-17: Connection

12.6 Typography

The art or procedure of arranging type is another tool that helps you to make good and clean mimics. There are a dozen of studies on that too. Here an excerpt from do's and don'ts.

- ALL-CAPS -> ONLY FOR ACRONYMS

1. Implies shouting;
2. Hard and tiresome to read in longer texts

- Title or Camel Case -> Used For Titles Of Elements

1. Implies a title for a paragraph or a group of related items.
2. Best used on single lines

- Sentence-case -> For everything else, e.g. descriptions.

1. Only the first word and proper names are capitalized
2. Best readable

See the next text examples for readability"

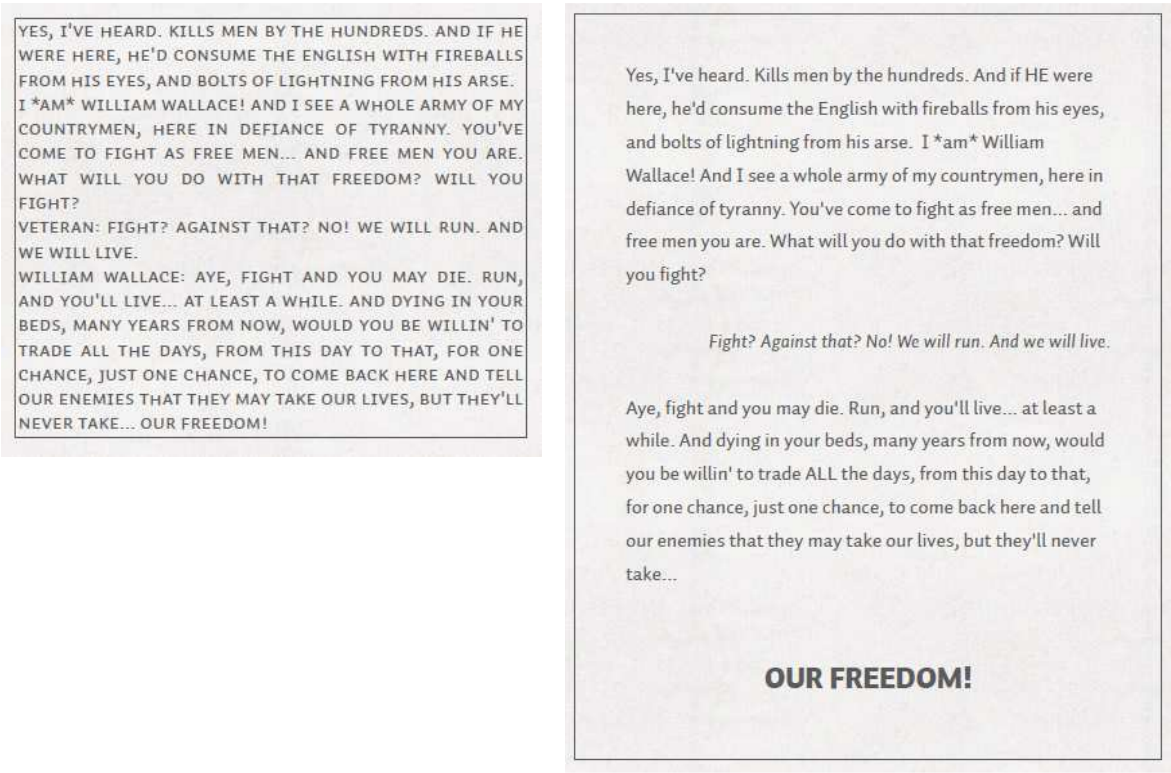

Figure 12-18: Text examples

And some other common sense examples”

- Microcopy

1. Short sentences, a few words or a single word: labels
2. Contextual by nature: Meaning depends on context

- Button labels: 2 options

1. Describe what the button controls.
2. Describe what happens when the button is pressed.

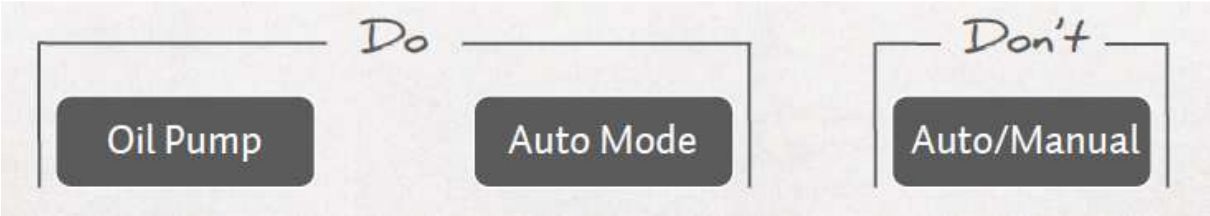

Figure 12-19: do/don’t

12.7 Element types & their uses

- Label -> Pure text.Use for titling, descriptions or variable text.
- Value -> When actual value is all-important.
- Dial -> If position in a range is more important then the actual value.
- Levels -> Like dials, but with absolute maximum & minimum
- Slider control -> Same as levels, but with setting ability.
- Symbol & image -> Represent hardware components and their status
- Icon -> Boolean values (on/off, alarm/no alarm)
- Pipes -> Connect elements (visually)
- Button -> Control a field
- Region -> Group elements and/or separate groups

12.8 Pointers

- Give each object the size it deserves, but no more.
- 2 well-designed mimics with split data > 1 cramped mimic with all data
- White space is valuable: don’t waste it.
- What fits on sketch doesn’t always fit on screen.
- Use the right object for each value.
- Be consistent in color usage, especially with text.
- Color has meaning: use white as default.
- *“Data-to-ink”*-ratio: If it doesn’t have meaning, don’t show it.
- 8% of all males is colorblind: don’t rely on color for status indication.

12.9 Color blindness

How is that relevant?

- Most common form: dichromacy
- Deuteranopia & Protanopia: 2 forms of red/green blindness
- Difference between red/green is unreliable.

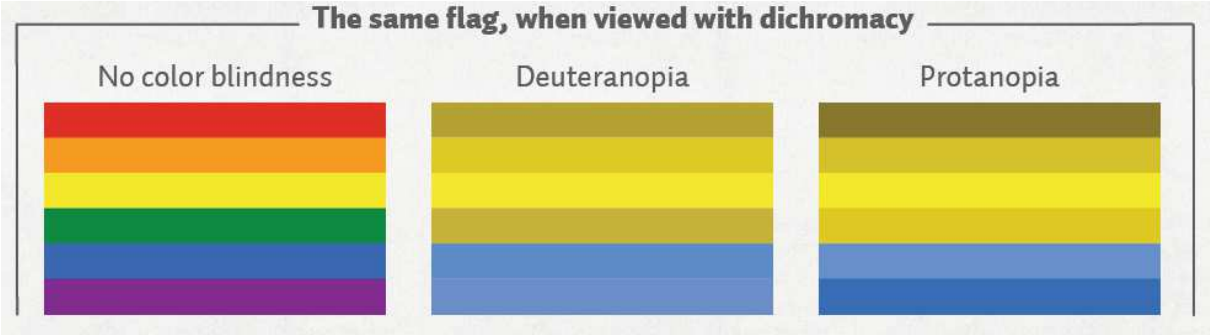

Figure 12-20: Color blindness

12.10 Finally

Keep this always in mind:

- Your client is not your user.
- So don't design for the client.

Free Technics

Technical & customer support
The Netherlands

Free Technics B.V.
Eikenlaan 259J
2404 BP, Alphen aan den Rijn
The Netherlands

Telephone: +31 172418 890
Fax: +31 172418 899
www.freetechnics.eu