



Manual Avision 2.0

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1 Summary

1.1 What is Avision ?

Avision is Avic's asset management web application.

With Avision you can:

- monitor, control and maintain your assets
- develop reports and have them generated automatically for any period you want
- design Tasks and Workflows to optimize the processes that use your assets
- present Charts based on measurements from your assets combined with data from other sources
- automatically send alarms when critical values, set by you, are exceeded
- determine who inside your organization get an alarm message and in what form (text/SMS, e-mail, Twitter)

1.2 Design vs Live

Avision knows two environments: Design and Live. In Design you create the building bricks that you use in Live to create your Application.

This approach has following advantages:

- An Asset only needs to be designed once. This Design is then used by all Assets of that type in Live.
- Upgraded Assets and other functionality is checked and when found to be correct, implemented in Live with the click of a button

1.3 So, how do we start ?

The first chapters of this manual form a step-by-step tutorial learning you how to set up a working Application using the example of a sewage installation.

After the base of the Application has been made, the following chapters describe in detail all functionality that can be realized in Avision.

All examples have been made with a demonstration model of the Light Gate.

2 Starting an Application

2.1 Log in

As customer of AVIC, a user and a password have been created for you so you can work in your own environment. (You can create an environment for your customers too. This is explained in chapter x).

A log in screen is shown when you enter the URL, **start.avision.me**, in your browser. After successful login you will enter your application's environment.



2.2 Nodes in Design

The base of any Application consists of Nodes. These Nodes give structure, they are the rack on which to hang the other items. Together they form a tree. There are five node types : ApplicationNode, StructureNode, AssetNode, ObjectNode and HardwareNode.



nodes in Design mode

2.2.1 ApplicationNode

The Application node is the top node of your application. You can create multiple applications in your environment. All other node types are placed under an application (as a child, grandchild, grand-grandchild etc.).

2.2.2 StructureNode

This node type is used to structure your application. Examples: Country, Region, Customer.

A StructureNode can be added to either an ApplicationNode or another StructureNode. In Design you indicate which StructureNode types can be coupled to every StructureNode.

2.2.3 AssetNode

An AssetNode is used to couple hardware and sensors to. What exactly is to be coupled depends on your definition of an Asset.

Example: A hotel could have defined a room as the asset and hardware such as a refrigerator, an air conditioning or a smoke alarm unit coupled to the Asset. But the main office of the hotel chain could define every hotel as an Asset with for each hotel the fire reels coupled to the hotel asset because the maintenance is handled centrally by the main office.

An AssetNode is coupled to a StructureNode. To an AssetNode, ObjectNodes and HardwareNodes can be coupled.

2.2.4 ObjectNode

This node is to be used to subdivision the hardware coupled to an Asset. Example: When the Asset is a supermarket all units that are gates can be placed under an ObjectNode called 'Gates' and the pico wise units for temperature registration can be placed under an ObjectNode named 'Cooling Showcases'.

2.2.5 HardwareNode

The Hardware node is used to indicate what hardware is used. A HardwareNode in Design contains the types of hardware used. Using this node, hardware is coupled to the Asset.

Do-it-yourself block in which you will create nodes in Design.

- Login in to your application
- Go to the Design environment. To do this click the icon 🥙 on the top right. When this icon is

not shown, look for the icon with three dots and click this. Is the pallet icon still not shown then the user as which you logged in does not have design rights and you cannot continue this exercise.

• Click the menu button 'Structure nodes'; the grid with structure nodes present is shown.

		AVIC	
Q	OVERVIEW STRUCTURE NODES		
Root: Manual (5637) Application motios Sinchure nodes Coject nodes Coject nodes Handware nodes	Sanchov Active Inscrive Tranhim Intervent Kame I: Version I: State I. Last changed I: Actions Image: Image I: Date: Image I: I. Last changed I: Actions Image: Image I: Image I: Image I: Image I: Actions	■ Ø	

Grid with structure nodes

Adding structure nodes:

- Click the '+' sign to create a new StructureNode
- Enter 'Country' at the name field and click 'Add'
- Go back to the grid with the structure nodes and click again on the '+' sign
- Enter in the name field 'Client' and click on the button 'Add'
- Again, go back to the grid with the structure nodes and click on the '+' sign
- Now, enter in the name field 'Region' and click on the button 'Add'

Coupling structure nodes (indicate that a Region node is to be placed under a Client node and a Client node is to be placed under a Country node):

- In the grid with structure nodes, click on the pencil icon of node 'Client'
- Click on the tab 'Elements' and in the dropdown choose 'Structure nodes'

C		>> EDIT STRUCTURE	NODE TYPE:	CLIENT	
Root: Manual (56337)	General Categories Eleme	nts Menu buttons	History	Connections	Deployment
i Application nodes	Structure nodes	•	Edit		
🖌 📷 Structure nodes	Select element type		Versi	on : Actic	ns
Client (Sandbox) Country (Sandbox) Country (Sandbox) Region (Sandbox) Asset nodes Object nodes Hardware nodes	Penioaselectors Property definitions Recipes Reports ReportSearches Scenarios Schedulers Screens	∧	▼ Items pe	er page No itr	ems 🚺
	Sections Structure nodes Tables Tasks Usertypes	~			

- Click 'Edit', in the left column select 'Region', click on '>>' and then 'Save'
- Close the popup by clicking on the 'x' in the upper right corner
- In the grid with structure nodes, click on pencil icon of node 'Country'
- Click again on the tab 'Elements' and select 'Structure nodes' again in the dropdown
- Click 'Edit', select in the left column 'Client', click '>>' and 'Save'
- Close the popup by clicking on the 'x' in the upper right corner

Y Sar	Idbox	Activ	e Inactive	Trashbin	Inherit	ted	1
Name :	Versio	n :	State		÷	Last changed	Actions
Client	1		Sandbox			10/09/2019 07:28:31	
Country	1		Sandbox			09/09/2019 14:19:31	
Region	1		Sandbox			10/09/2019 07:28:48	

Structure nodes after coupling Region to Client and Client to Country. Client and Country no longer have the trashbin icon; because items have been coupled to them they can no longer be deleted.

- Create in the same way an Asset node with the name 'SewerWell' and a Hardware node with the name 'LightGate'. (Select the 'Folder' icon for both node types. In a later chapter we will show you how to change the icon of a node type).
- Edit the Asset node 'SewerWell', go to the tab 'Elements' and couple the Hardware node 'LightGate'.
- Edit the Structure node 'Region', go to tab 'Elements' and couple the Asset node 'SewerWell' to the structure node 'Region'.

In Design we have now created a structure for an application for your hardware.

To be able to roll out this design to the live environment we also need to create an Application Node. This will be the highest level of the application.

- Go to Application nodes and create an Application node with the name 'SewerApplication'
- At the tab 'General', at the field Image choose 'Ada_Home versie 1', click 'Save'
- At the tab 'Elements' couple the structure node 'Country'

We have now created following application:



2.3 Coupling a Device to a HardwareNode in Design

In the previous chapter we created an empty HardwareNode, called LightGate. In Design we now have to indicate what type(s) of devic(s) we can use on that node.

Do-it-yourself blok where you couple a Device (type) to a hardware node

- In Design, in the tree, click on the node LightGate
- Go to the menu, click on Hardware devices
- A 'left-right screen' is presented
- Select from the left column LG_1200.05, click '>>' and 'Save'

Induces Selected induces B6_0700.01 B6_0700.01 B6_0700.01 B00_0700.01 B00_0700.01 B00_0700.01 B6_0700.01 induces B6_0700.01 B00_0700.01 B00_0700.01 induces B6_0700.01 B00_0700.01 B00_0700.01 induces C6_1400.01 C6_01400.01 B00_0700.01 induces C6_01400.01 C6_01400.01 C6_01400.01 induces C6_01400.01 C6_01400.01 C6_01400.01 induces C1_278.485 LegioBox C2 RS232 Element LegioBox C2 RS485 LegioBox C2 RS485 LegioBox C2 RS485 Save LegioBox C2 RS485 LegioBox C2 RS485 Save Save Interplate Save Save Save Interplate Save Save Save	ardware node type				
ardware communication BG_0700.00 Bss BG_0700.01 Bsc_0700.02 BG_0700.01 BsC_0700.03 BG_0700.01 BG_0700.01 CG_1400.01 CG_1400.01 CG_1400.01 CG_1400.01 CG_1400.01 CG_1400.01 CG_1400.01 CG_1400.01 CG_1400.01 CG_1200.02 CR3485 LagioBox C1 RagioBox C3 LagioBox C2 RS2485 + Ethernet LagioBox C3 RG_1200.01 LG_1200.02 Save Save Save Save Save	ardware devices	Available		Selected	
Nrs BG_0700.02 BG_0700.03 BG_0700.03 BG_0700.07 CG_1400.00 CG_1400.00 CG_1500.00 CN2_0501.00 CN2_0501.00 LagioBox C2 R5323 Ethernet LagioBox C3 RFE Save LagioBox C3 RFE >> LagioBox C0mpact + Smart IO Save LG_1200.01 LG_1200.02 LG_1200.02 LG_1200.04 LG_1200.04 LG_1200.04 LG_1200.06 HG_1600.01 HG_1600.01 HG_1600.01 HG_1600.01 HG_1600.01 HG_1600.01 HG_1600.01 HG_1600.01 HG_1600.01	rdware communication	BG_0700.00 BG_0700.01	^	LG_1200.05	
Immules B6_0700.07 CG_1400.00 CG_1400.00 CG_1500.00 CG_1500.00 CN2_0501.00 CG_1500.00 CN2_R5485 CN2_R5485 CN2_R5485 CN2_R5485 LegioBox C1 R5232 ElegioBox C2 R5232 + Elhernet LegioBox C2 R5485 LegioBox C3 RF LegioBox C3 RF LegioBox C3 RF LegioBox C3 RF Save LegioBox C3 RF Save LegioBox C4 R5232 Save LG_1200.01 Save LG_1200.02 Save LG_1200.03 M6_1600.01 M6_1600.01 M6_1600.01 M6_1600.01 M6_1600.01 M6_1600.01 M6_1600.01 M6_1600.01 M6_1600.01 M6_1600.01 M6_1600.01		BG_0700.02 BG_0700.03			
rdware 10 CG 1400.01 rmules CG 1400.01 CQ 2001.00 CQ 2001.00 LegioBox C2 R5346 Ethernet LegioBox C3 FF CQ 200.11 LG 1200.01 CG 100.01 LG 1200.02 Save LG 1200.03 Save LG 1200.04 Save LG 1200.05 MG 1600.02 MG 1600.01 MG 1600.01 MG 1600.02 MG 1600.01 MG 1600.01 MG 1600.01 MG 1600.01 MG 1600.10		BG_0700.07 CG_1400.00			
mules CM2_R5486 CM2_R5485 CM2_R5485 LegioBox C2 R5232 + Ethemet LegioBox C2 R5485 + Ethemet LegioBox C3 R5485 + Ethemet LegioBox C3 R5485 + Ethemet LegioBox C3 R5485 + Ethemet LegioBox C3 R5485 + Ethemet LegioBox C3 R5485 + Ethemet >> Ling 120.01 Save	rdware IO	CG_1400.01			
CN2_R5485 CN2_R5485 LegioBax C1 LegioBax C2 R5232 + Ethemet LegioBax C2 R545 + Ethemet LegioBax C3 RF LegioBax C3 RF LegioBax C3 RF LegioBax Compact + Smart IO LG_1200.01 LG_1200.01 LG_1200.06 LG_1200.08 LG_1200.08 MG_1600.02 MG_1600.02 MG_1600.04 MG_1600.04 MG_1600.04 MG_1600.04 MG_1600.01 MG_16	rmules	CG_1500.00 CN2_0501.00			
LeginBax C1 LeginBax C2 R5222 + Elhernet LeginBax C2 R5285 + Elhernet LeginBax C3 R5465 + Elhernet LeginBax C3 RF LeginBax C3 RF LeginBax C3 RF LeginBax Compact LeginBax Compac		CN2_RS485 CN2_RS485			
LegieBox C2 PS222 + Ethernet LegieBox C2 PS232 + Ethernet LegieBox C2 PS485 + Ethernet LegieBox C3 RF LegieBox C3 RF LegieBox Compact + Smart IO LG 1200.01 LG 1200.02 LG 1200.02 LG 1200.09 LG 1200.09 LG 1200.09 LG 1200.09 LG 1200.00 LG 1200.00 LG 1200.00 LG 1200.00 LG 1200.00 LG 1200.00 LG 1200.00 LG 1200.00 LG 1200.02 LG 1200.02		LegioBox C1			
LegioBox C2 R5485 + Ethernet LegioBox C3 RF LegioBox C3 RF Save Save Save Save Save		LegioBox C2 RS232 LegioBox C2 RS232 + Ethernet			
LepioBax C2 P3465 + Ethemet LepioBax C3 FF LepioBax C3 FF LepioBax Compact LepioBax Compact LepioBax Compact + Smart IO LG_1200.01 LG_1200.03 LG_1200.03 LG_1200.04 LG_1200.06 LG_1200.06 LG_1200.08 MG_1600.02 MG_1600.02 MG_1600.04 MG_1600.04 MG_1600.06 MG_1600.06 MG_1600.06 MG_1600.08 MG_1600.08 MG_1600.09 MG_1600.00 MG_1600.00 MG_1600.00 MG_1600.00 MG_1600.00 MG_1600.00 MG_1600.00 MG_1600.01 MG_1600.01 MG_1600.01 MG_1600.01		LegioBox C2 RS485			
LiegipBax C3 RF LiegipBax Compact > LiegipBax Compact + Smart IO Save MG = 1600.01 MG = 1600.16 MG = 1600.17 MG = 1600.17		LegioBox C2 RS485 + Ethernet			
LegioBox Compact LegioBox Compact + Smart IO LG_1200.01 LG_1200.02 LG_1200.04 LG_1200.04 LG_1200.06 LG_1200.07 LG_1200.08 MG_1600.01 MG_1600.02 MG_1600.04 MG_1600.04 MG_1600.06 MG_1600.06 MG_1600.06 MG_1600.06 MG_1600.07 MG_1600.08		LegioBox C3 RF	**		
LG ² 1200 01 LG ² 1200 02 LG ² 1200 02 LG ² 1200 04 LG ² 1200 04 LG ² 1200 04 LG ² 1200 07 LG ² 1200 07 LG ² 1200 08 MG ² 1600.01 MG ² 1600.02 MG ² 1600.04 MG ² 1600.06 MG ² 1600.06 MG ² 1600.00 MG ² 1600.00 MG ² 1600.00 MG ² 1600.01 MG ² 1600.10 MG ² 1600.10		LegioBox Compact	>>		
LG_1200.02 LG_1200.03 LG_1200.04 LG_1200.06 LG_1200.07 LG_1200.08 MG_1600.02 MG_1600.04 MG_1600.04 MG_1600.06 MG_1600.06 MG_1600.06 MG_1600.06 MG_1600.06 MG_1600.08		LG_1200.01	Cours		
LG 1200.04 LG 1200.07 LG 1200.07 LG 1200.08 MG 1600.01 MG 1600.02 MG 1600.09 MG 1600.09 MG 1600.09 MG 1600.09 MG 1600.09 MG 1600.09 MG 1600.09 MG 1600.10		LG_1200.02 LG_1200.03	Save		
LG_1200.06 LG_1200.07 LG_1200.08 MG_1600.01 MG_1600.03 MG_1600.06 MG_1600.06 MG_1600.06 MG_1600.08 MG_1600.00 MG_1600.00 MG_1600.17		LG_1200.04			
LG-1200.06 MG-1600.02 MG_1600.02 MG_1600.03 MG_1600.04 MG_1600.06 MG_1600.06 MG_1600.08 MG_1600.08 MG_1600.10 MG_1600.10 MG_1600.10		LG_1200.06			
MG_1600.01 MG_1600.02 MG_1600.04 MG_1600.04 MG_1600.06 MG_1600.07 MG_1600.08 MG_1600.09 MG_1600.09 MG_1600.10 MG_1600.11 MG_1600.17		LG_1200.08			
MG_1000.03 MG_1000.04 MG_1000.05 MG_1000.09 MG_1000.09 MG_1000.00 MG_1000.00 MG_1000.10 MG_1000.11 MG_1000.11		MG_1600.01 MG_1800.02			
MG_1600.04 MG_1600.05 MG_1600.07 MG_1600.08 MG_1600.09 MG_1600.10 MG_1600.11 MG_1600.11		MG_1600.03			
MG_1600.06 MG_1600.07 MG_1600.08 MG_1600.08 MG_1600.10 MG_1600.11 MG_1600.17		MG_1600.04 MG_1800.05			
MG_1600.07 MG_1600.08 MG_1600.00 MG_1600.10 MG_1600.11 MG_1600.17		MG_1600.08			
MG_1600.09 MG_1600.10 MG_1600.11 MG_1600.17		MG_1600.07 MG_1800.08			
MG_1600.10 MG_1600.11 MG_1600.17		MG_1600.09			
MG_1000.17		MG_1600.10			
		MG 1600.17			

To recognize the LightGate node more easily, we now change its icon:

- In the menu choose 'Hardware node type'
- Change the icon to 'Device'
- Click 'Save'



In chapter x, Images, adding and using self-made icons is explained in order to provide each node type with an appropriate icon.

2.4 Promoting items from the Sandbox state to another state

Items created in Design get the status 'Sandbox'. In Live, only items with state 'Active' can be used. When we promote the item to the state 'Active', we indicate that this item is ready (checked !) to be used in the Live environment. Promoting the item is done in the 'Deployment' tab:

Do-it-yourself block in which nodes get the state 'Active'

• Click on the node 'SewerApplication' and next the tab Deployment



 We can see two green check marks but also a red cross, and at the control 'New activity state' we cannot select a new state because it is greyed out ! What is the problem ?
 EDIT APPLICATION NODE TYPE

General	Categories	Elements	Menu buttons	History	Connect	ions	Deployment
Revision	history						
Last change	ed		Version		Stat	e	
10/09/2019 1	2:53:03		1		Sand	dbox	
	Page 1	of 1 🕨	H 5	 Items per 	er page	1-1	of 1 Items
Check set	tings						
Version Connection Versions cl Categories Revision c	ns check heck s check Jescription	1 V V					
Revision de	scription						
State							
Current ac New activit	tivity state ly state	Sandbo	ect 🔻	>			
Cancel	Save						

• Clicking the red cross explains it all:

Check settings			
Version	1		
Connections check	×		
Reason			Actions
Error: Structure nodes Co	ountry, version 1, got statu	us Sandbox	*
R C 1 Page	1 of 1	5 V Items per page	1 - 1 of 1 Items 🔿
Versions check	v		
Categories check	v		

- When we want to deploy an item, Avision will perform some checks on it. The Country node still is in the Sandbox state and therefore we cannot deploy the node SewerApplication. The node Country has the same problem (the Client node is also still in Sandbox state). It's clear now: we need to work bottom up, starting with the hardware node, LightGate.
- Click on the node LightGate, next click on the tab Deployment. Three green check marks are shown. At 'New activity state', in the dropdown select 'Active', at the text field 'Log text' enter the text 'First version' and click the 'Save' button.
- Now, do the same for the Asset node SewerWell, the Structure nodes Region, Client and Country (in this order !) and lastly for the node SewerApplication.

When deploying a node, Avision checks and verifies this node (and all items coupled to it) to be fit for the Live environment. In chapter x this is described in detail. We can now continue to Live to set up the application.

AVIC .

2.5 Nodes in Live

After defining in Design the possible node types and their inter-dependencies and all items having the state 'Active', it is now possible to create the actual tree structure.

In the following example, we assume an organization that is active in the Netherlands and Belgium, with some municipalities as a customer for whom the sewer wells are monitored in different areas.

- Go to Live (by first clicking the triple-dot button top-right and then the computer icon)
- Make sure the top node is selected
- In the menu, go to Node Nodes, and click on the plus sign in the upper right corner of the grid with the nodes
- Give as name 'SewerManagement' and choose at Node type 'SewerApplication (version 1)' NODES >> NEW ITEM

(turne	SewerManagement					
Node type	SewerApplication (version 1)	*				

- Click Add
- In the node tree an application node named 'SewerManagement' has been created



- Select that node and click the Menu button, then choose menu option Nodes
- In the grid click on ' + ', specify as name 'Belgium' and for node type select 'Country (version 1)'. (This is the only node type you can choose here, because we have defined it that way in Design when creating the structure nodes).

NODES	>> NEW ITEM

Name	Belgium	
Node type	Country (version 1)	

- Click Add
- Create the country node 'Netherlands' in the same way
- Go back to the node tree, under sewer management there are now two nodes: Belgium and the Netherlands. Select the Netherlands, and in the menu, click Nodes
- Now create 2 nodes under the Netherlands: 'Gemeente Zaltbommel ' and 'Gemeente Maasdriel '. These are customers.
- The municipality of Zaltbommel consists of the city of Zaltbommel and twelve cores. Create a structure node of the type 'Region' for ' Zaltbommel (city) ' and the villages ' Bruchem ' and ' Gameren '.

- We have now arrived at the point of the Asset, the sewer well. We want to monitor a sewage pit located in downtown Zaltbommel. We Choose the node 'Zaltbommel (city)' and open the menu item Nodes again, click ' + ' on the top right of the grid.
- The menu shown here contains more items because we can now create a node with the
 physical hardware attached to the hardware node. The 'Stock nodes' dropdown shows the
 GUIDs of all hardware devices in the inventory, the _Stock node, that meet the chosen
 Hardware type. Choose a hardware device here. The screen should look similar to this:
 NODES >> NEW ITEM

Name	SW Markt	
Node type	SewerWell (version 1)	
Hardware		
Hardware type	LightGate (version 1)	

• Click 'Add'

When we look at the node tree we see that a hardware node has been added to the asset:



3 Property Definition

A property definition is an item that enables us to design forms, reports, charts, monitor screens (and much more) without a direct link to a data source in the real world. A property definition defines how we want to use the data from data points, how the data of a data point looks like, but also what criteria the data that a user enters (for example, in a form) must meet.

By using a property definition, we only need to design a chart once and we can use this chart for all assets of equal type (e.g. sewer wells).

A device can deliver multiple data points. We can design a single property definition that allows us to represent all data points. We can also choose to create one attribute definition with one descriptive presentation for each data point that a particular type of device is going to produce. Also a combination is possible, you can create whatever seems useful.

Do-it-yourself block in which you create a property definition to display the temperature of the LightGate in a monitor screen

3.1 Creating a Property Definition

Creating a property definition is like creating other items in Avision.

- In Design click on the menu item 'Basic elements'
- Then click 'Property definitions'
- Click '+' button, top right on the grid
- The attribute definition add-on screen is shown. At the label field, enter 'LightGate Temperature'. Select at Type 'Multiple' and click the 'Add' button.

OVERZICHT KENMERK DEFINITIES >> NEW PROPERTY DEFINITION

roperty label	LightGate Temperature	
уре	Multiple	•
anaged by parent application		

3.2 Change Property Definition

3.2.1 General tab

In the 'General' tab of the property definition only the name can be changed.

OVERZICHT KENMERK DEFINITIES >> WIJZIG KENMERK DEFINITIE: LIGHTGATE TEMPERATURE

General	nems	Categones	Roles	History	Connections	Deployment	
Property la	ibel	1	.ightGate T	emperature			
Design sta	te	Sa	ndbox				
Version							
Version		1					
Version LManaged	ByParentA	1 Application					

• Leave everything as is

3.2.2 Items tab

In the items tab you can add property items to the property. These will contain actual values when we use them in a Form, Report, etc. We can add many items or just one, whatever seems fit for our application. Every item is of a certain datatype: for text use 'String', for storing a measurement most commonly 'Float' is used, for the state of a switch use 'Boolean' etc. .

- Go to the items tab
- Click on the upper right '+' button on the grid
- At the label field enter 'Temperature', at the Type field select 'Float (Analog datapoint samples)' and click 'Save'

Property lab	el	Tempe	rature					
Туре		Float (A	analog datap	oint samples)	T			
Cancal	ava							
Lance J	ave							
			Massan	1.4.41		1		
General	Items	Categories	Roles	History	Connections	Depl	loyment	
General	Items	Categories	Roles	History	Connections	Depi	loyment	
General Name	Items	Categories	Roles	History Input type	Connections	Depl	loyment Actions	

A property definition can have multiple property definition items. A property definition item defines a single data point. Each item consists of 3 parts. Label, content, and unit. Label is used to show the name of the property definition (in forms, reports, etc.), the content to show the (measurement) value and unit to show the unit of the (measurement) value.

- At Label: Place the check mark at 'Enable label'. Also place a check mark at 'Use label property def'.
- At Content: Place a check mark at 'Enable input field'.
- Enter '1' at the Digits field to indicate that the value should show one digit after the decimal point. Leave other fields empty.
- At Unit: Place a check mark at 'Enable unit field'. Enter at the default value field "C'.

•	• • • 🕳	 	
A\			

Presentation	Notification	Limit colors	Source	Identifier	
Label					
Enable label		~			
Use label prope	rty def	~			
Name		Ter	nperature		
Translate					
Show help					
Label visibility		Btn	visibility		
Content		14			
Enable input fie	ld	~			
Required					
Content from lis	đ				
Content from pr	operty presentati	ion def			
Presentation ob	ject type	n	ot used		
Digits			ŧ		
Min max val			\$		*
Regular expres	sion	n	ot used		*
Default value					
Unit					
Enable unit field	1	~			
Unit from list					
Presentation ob	ject type	n	ot used		

• Leave other tabs unchanged and click the 'Save' button.

Other fields and tabs are described in chapter x.



4 Section

A section is a graphical building block used in monitor screens, forms and reports. A page in a report or form can consist of multiple sections.

Sections:

- normally make use of one or more property definitions (and its items)
- determine where and how a property definition item is presented (position, font, color, size, etc.)
- can have fixed texts, labels
- make you work more efficient: the same section can be used in multiple reports, forms, or screens, providing a consistent look throughout the program.

Do-it-yourself blok where you create a section to show the temperature of the LightGate in a monitor screen.

- In Design, go to menu item 'Visuele elements' and then 'Sections'
- Start creating a new Section by clicking the '+' button of the grid
- At the section name and title fields enter 'State', at Section type select 'Screen & Report'

Section	State		- 1
Title	State		
Section type	Screen & Report	×	•

• Click 'Add'

After adding, Avision goes to the edit screen of the section. By default, the digital Layout of a section has a size of 800x600 pixels, which is a large piece of the screen and fine for a single-section Monitor screen. The digital Layout is used in forms and Monitor screens, the Printlayout for reports. Keep ' Allow printing ' unchecked for now.

4.1 Adding a Property Definition to a Section

Before we can really start working on the formatting of the section, we need to disclose the property definitions that we want to use in the section. We do this at the ' Content Selection ' tab.

In the dropdown, select property definitions and click Edit. There will now be a popup with a leftright screen. In the left row, select the property definition we created in Chapter 3, 'LightGate Temperature ', press ' > ' and ' Save '.

General	Categories	Content selection	Dig	ital layout		History	Conr	ne	ctions	Deployment
Property de	finitions		•	Edit	I					
Туре	T	Name			:	Version	1	1	Actions	5
Property defi	nitions	LightGate Temperature				1			21	1
	Page 1	of 1 🕑 💌	250	v Item	s	per page	1 -	1	of 1 Iten	15 0

We have now added an definition to the section and can start using it.



4.2 Use a Property Definition in Section

Click the Digital Layout tab. A screen with a grid of 800 by 600 pixels appears.

Gene	ral	Categories	Content select	ction	Digital lay	out	History	Conne	ctions	Deploy	ment									
4 🚞	Drav	wing control			50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800
٢	L	abel		30	ulululululu	հերր	didididid	uuuuu	dididid	ddddd	hhhh	uuuuu	հերրութ	հերրո	hth	ddihlidi	ևևևևև	hhhh	ևեւելեր	dubdul
٢	D	ate time		- 3-																
٩	v	isual control nod	e																	
٩	D	rawing line		3																
* 🚘	Prop	perties		0																
4	Li	ghtGate Tempera	ature (Sandbox)	19																
- 4		Temperature		<u>_</u>																
		Property labe	L	150																
	C	Property value	•	3																
		Timestamp va	alue	1.1.																
	٩	Use value fro	m	1																
	Ľ	Property desir	ed value																	
	٩	High limit		112																
	٩	Pre-high limit		0																
	٩	Pre-low limit		11.30																
	٩	Low limit		1																
	k	Measure rang	e	350																
1	٩	Property unit		3																
- 🗋	Activ	vity		400																
٥	V	isual button cont	rol	1																
4	v	isual alarm icon	control																	
• 🗀	Loca	ation fields		4																
				0																
				20																
				-																
				220																
				3																
				600																

In the left column we find under features the property definition 'LightGate Temperature' created by us. Also fold the presentation 'Temperature ' completely open.

Now drag ' Property label ' from the presentation to the desired position on the grid.

The width of our label on the grid is 200 pixels. That is very wide. Click this item in the grid and on the right a column is shown where we can adjust the width to 100 pixels, then press ' Save '.

Now drag 'Property value' on the grid, next to the label. This field is also 200 pixels wide, change that to 50 and click ' Save '.

Drag ' Property unit ' on the grid, behind the value. Change the width of this field to 25 pixels and click ' Save '.

Temperature	°C
romportation	~

The grid should show something like this:

We have now created a section. It can be used in, for example, a Monitor screen.

5 Monitor Screen

Using the monitor screen it is possible to create a dashboard with measurement values, states and graphs of measured values. In the Live environment, the monitor screen refreshes itself after an adjustable period of time.

5.1 Creating the Monitor Screen

In Design, at the menu item 'Visual elements ' click on ' Monitor screens '. A grid is now shown on the screen with the monitor screens present. Press the ' + ' button on the top right of the grid. Enter at the Name field 'Sewer Well Monitor', Title 'Sewer Well'. Click ' Save '.

General	Categories	Sections	History	Connections	Deployment	
General						
abel		Sew	er Well Moni	tor		
Design sta	ite	Sandb	ox			
Version		1				
Title		Sew	er Well			
Refresh ra	ite	300	\$	Seconds		
Device tar	get	All			-	

5.2 Adding a Section to the Monitor Screen

Click the Sections tab. A left-right screen will be shown with the sections we can choose from in the left column. Drag the 'State' section to the right column.

General Categories Sections History Connection	ns Deployment			
Screen sections selection				
Available	Assigned		Preview monitorscreen	
Avision - Default hardware - Gate (version 1) Avision - Default hardware - Wee (version 1) Avision - Default hardware - Period selector (version 1)	È Sta	ite (Sandbox)		
Assigned section(s)				
✓ Save Save				
Name	Position	Actions		
State (Sandbox)	Below left	▲ ▼ ∅ 🎦		
B B Page 1 of 1 B B 250 V It	ems per page 1	1 - 1 of 1 Items 👩		

We kunnen nu op de Preview knop klikken om te kijken wat we hebben gemaakt.

5.3 Adding the Monitor Screen to an Asset

We want the Monitor screen to be shown in Live at the Asset 'SewerWell'. So, we need to link the monitor screen to this asset. We go into the Asset Nodes in Design and see that asset 'SewerWell', in the 'Actions ' column, does not show a pencil icon; we cannot modify the Asset! Why not?

The Asset node SewerWell has status ' Active '. This means that it is checked and can be used in Live. If we were to make adjustments, they would immediately be active in Live without the modifications being checked. That is a potentially dangerous situation ! Therefore, adjustments can only be made to objects that have the status ' Sandbox ' and therefore are not active in Live.

5.3.1 New Sandbox version of the Asset

A new icon is shown In the actions column of the Asset ' SewerWell '; the ' Create Sandbox version ' icon:

Y San	dbox Activ	e Inactive	Trashbin	Inherit	ed		+
Name :	Version :	State		:	Last changed	Actions	
SewerWell	1	Active			11/09/2019 13:06:37		
	1 Page	1 of 1 🕨	N 25	50 🔻	Items per page	1 - 1 of 1 Items	Ċ

After clicking this button, a copy of the highest active version will be made. This copy will get a version number 1 higher than the original, with the status sandbox and can be adjusted accordingly. The grid with Asset nodes now shows two SewerWell versions:

Name : V	ersion :	State	Last changed : Actions	
SewerWell 1		Active	11/09/2019 13:06:37 () 🖹 😭	
SewerWell 2		Sandbox	13/09/2019 08:17:17 () 🖹 🥢 🗈	

The Make sandbox version icon at version 1 is now gone; This icon is only shown at the highest active version if there is no sandbox version of this Asset.

5.3.2 Add the Monitor Screen to Asset SewerWell version 2

- Click the pencil icon of SewerWell version 2
- Go to the Elements tab
- Select in the dropdown the element type 'Screens' and click the 'Edit' button
- Select 'Sewer Well Monitor', klik '>>' and 'Save'
- A popup is shown asking whether child elements should be added too. Click 'Yes'.

Child elements are elements that are used by the element that we want to add to the asset. These elements must therefore also be added to the asset.

	ategones	Elements	Menu buttons	History	Connecti	ions	Deployment
Select element	type		•	Edit			
Туре	:	Name		:	Version	:	Actions
Hardware nodes		LightGate			1		20
Property definitio	ns	LightGate Tem	perature		1		20
Screens		Sewer Well Mo	nitor		1		*

In addition to 'Sewer Well Monitor', the property definition 'LightGate Temperature 'attribute has also been added to the Asset node 'SewerWell'.



5.4 Connecting Property Definition to Live Data

At the module Property Definition we created our own property definition 'LightGate Temperature'. This property definition is not yet connected to the data from the hardware. The connection can be made at the hardware node where the data arises. There we indicate that the data must be send to the property definition we created earlier.

5.4.1 New Version Hardware Node

Because we want to make changes to the hardware, we first need to create a new sandbox version of the hardware node 'LightGate'.

Using this new version we go into the menu to Hardware IO. And then to 'Internal sensors ' and ' Ambient temperature '. Click the '+' button to create the sensor in Avision.

Q	- Hardware node types	HARDWARE IO SELECT
 Root: Manual (56337) Application nodes Structure nodes Asset nodes Object nodes Hardware nodes Hardware nodes LightGate (version 1) LightGate (Sandbox) 	Hardware node type Hardware devices Hardware communication XBus Hardware IO Formules	Select hardware Hardware LG_1200.03 Hardware iosmart io Configurable in Design Measure interval 300 \$ Seconds In low power mode otherwise every second Settling time 100 \$ Milliseconds
		V_mid V_ups Processor temperature Modem fieldstrength Air pressure Relative humidity Ambient temperature Enable Number Label : Actions 108 Ambient temperature • • e<

In that menu we indicate that we want to transfer the data of the Ambient Temperature to the property definition ' LightGate Temperature '. Set the Sample destination field to "Transferred" and choose the property definition and property presentation item fields of our self-made 'LightGate Temperature'. In the field Label also fill in ' Ambient temperature ' and click ' Save '.

Internal sensors	External io	Virtual datap	oints					
V_mid V_ups	Processor	temperature	Modem fieldstrength	Air pressure	Relative humidity	Ambient temperature		
General								
Configurable in		Design		•				
Sample destination		Transfer	ed					
Transfered range		Asset						
Property definitio	n	LightGat	e Temperature (Sandbo	DX)			•	
Property definition	n item	Tempera	Temperature					
Label		Ambient	temperature					
Enable		~						
History		~						
Sample								
Configurable in		Desian		•				

5.5 Deploying And Coupling Nodes

5.5.1 Deploying and Coupling a Hardware node

The new hardware node must be released and linked to the new Asset node (instead of hardware node version 1).

5.5.2 Deploying an Asset node

To be able to use the new version of the asset 'SewerWell' in Live, we also need to release it (change status from ' sandbox ' to ' active '). After clicking on the tab Deployment of the asset node we see a red cross again. This because property definition 'LightGate Temperature' and monitor screen 'Sewer Well Monitor' still have status sandbox. We need to start releasing again at the bottom of the chain: first the property definition we created, then the section, then the monitor screen and then we can release the asset node. At the LogText field enter this: "second version because of new monitor screen."

5.5.3 Coupling a New Asset to Structure Node 'Region'

In the next step we link the new asset node to the structure node ' Region '. However, because ' Region ' status is ' Active ', we cannot link the new asset to it. That's why we first make a new version of ' Region ' through a copy to the sandbox. Then we can link the new asset to it.

In this way we need to update all the nodes up to the Application Node and set the state to 'Active'.

5.6 Live

In Design, everything is now ready for the new Monitor screen, but in Live we need to upgrade the nodes to the new version.

- In Live, click on the Application node 'SewerManagement', then select in the Menu 'Application' and 'Revision Management'.
- Make sure all nodes are set to 'Upgrade' and 'Upgrade to version' is set to 2 on each node.

× a ★	+ Notification	EVISION MANAGEMENT							
Manual	+ Node + User - Application	State title	6	0 40 00 47					
Stock	Impersonation Revision management	Configuration	mesn 13/09/201	9 12:20:45					
	RF network	Collapse all Expand all							
	provide a second s	Flagged for upgrade	Parent name	Upgrade to version	Version	Total nodes	Total automatically	Nodes on manual	
		Application nodes Application SewerApplication	n						
		Upgrade	SewerApplication	2	1	1	1	0	Manage
		 Structure nodes Country 							
		Upgrade	SewerApplication	2	1	2	2	0	Manage
		Upgrade	Country	2	1	2	2	0	Manage
		Vpgrade	Client	2	1	3	3	0	Manage
		∡ Assets							
		🔺 🛄 SewerWell							-
		Upgrade	Region	2	1	1	1	0	Manage
		 Hardware nodes LightGate 							
		🛃 Upgrade	SewerWell	2	1	1	1	0	Manage

- Click the button 'Schedule' (below the grid).
- In the following menu enter date and time when the synchronization should occur. By default the current date and time are already filled in.

019 12:28
20

- Click the 'Save' button and go back to Revision Management. A progress bar is now shown.
 Upgrade in progress Last refresh 13/09/2019 12:31:51 Schedulers updating
 13%
- When synchronization is finished, all nodes are of version 2.

If we now go to the Asset, the Monitor Screen is automatically started:

* 4 *	+ Analyse	OVERZICHT MONITOR SCHERMEN	>> ITEM: SEWER WELL MONITOR
	+ Notification		
A Manual	+ Node		
Maintenance	+ User	Temperature 28.77	°C
Stock	+ Hardware		
🧃 🏦 SewerManagement	+ Application		
🦆 Belgium			
🔽 📜 Netherlands			
🧊 Gemeente Maasdriel			
🤘 🎽 Gemeente Zaltbommei			
📴 Bruchem			
🍹 Gameren			
Zaltbommel (city)			
📴 SW Markt			
SW Markt			

If the current temperature is not shown the first time you look at this monitor screen, then wait a little. To get a reading first the new setup must be send to the LightGate. In the following communication session(s) the results are send back to Avision. About two to three communication sessions might be needed. Based on your communication settings it can take some time before you see this result.

6 Base Elements

Chapters 1 through 5 build a basic application in which you can get a feeling how Avision works. The following chapters will be more detailed.

6.1 Categories

Categories are a means to have certain functionality or items used only by certain users, in addition to or in conjunction with user types and roles.

Roles give rights to modules while categories give access to certain objects or prevent access to certain objects on modules that a user is allowed to work based on the roles he or she has.

6.1.1 Creating a Category

A category is really nothing but a label and is therefore very quickly created; only a name is required.

- In Design, on the root node, go in the menu to 'Base elements', click 'Categories'.
- In the grid, top right, click on the '+'-button.
 OVERVIEW CATEGORIES >> NEW CATEGORY

General	
Category name	
The second s	

• Enter the category name and click 'Add'.

6.1.2 Using a Category

To access an object, object and user must have at least one category in common. Or: either the user or the object (or both) have no category i.e. ' all categories '.

6.1.2.1 Assign a Category to an Object

All objects that a category can be linked to have in Design a 'Categories' tab including a left-right screen that shows the available categories and the selected categories.

EDIT ASSET NODE TYPE

General	Categories	Elements	Menu buttons	History	Connections	Deployment
Available						Selected
Employee Lighting						Sewer
					~< >>	
					Save	

Fig. 6.1.2.1.1: Category Sewer assigned to Asset Sewer Well



6.1.2.2 Assign Category to a User

Assigning a category to a user is done using the user's role and user type. In Design, in the Root of the application, in the menu, go to 'user elements' and 'user types'. Choose a user type here. On the Roles tab, in the appropriate role, click the relevant Categories button. Now the same left-right screen is shown as in the previous chapter with the objects.

story Connections				
Add				
Categories	Design/Live	Action		
Applicable categories	Design mode 🔻	×		
Applicable categories	Design mode 🔫	×		
Applicable categories	Design mode 👻	×		
		Selected		
		June		
	Add Categories Applicable categories Applicable categories Applicable categories	Add Categories Design/Live Applicable categories Design mode Applicable categories Design mode WellMonitor, User type: Observer	Add Categories Design/Live Action Applicable categories Design mode Applicable categories Design mode WellMonitor, User type: Observer Selected Sever	Add Categories Design/Live Action Applicable categories Design mode Mapplicable categories Design mode MellMonitor, User type: Observer Selected Sever

Fig. 6.1.2.2.1: Category assigned to user type-role.

Attention ! When evaluating whether a user is allowed to access a particular object, the categories of all user types-roles that a user has, are used. This means that if one of them does not have a category filled in, the user effectively has all categories for all user types-roles.

Therefore, if you decide to use categories in your application, all user types must be properly populated with categories.

Do-it-yourself block where an application starts using categories.

6.1.3 Example

In the example application used in this manual, one type of asset has been used so far: the sewage pit. But suppose the municipality of Zaltbommel decides to also manage the street lighting, lampposts, via Avision. Let's say the municipality has technicians who can only work on lampposts and not on the sewer wells. Conversely, the sewer well engineers are not allowed to work on lampposts. Other employees of the municipality are not allowed to work on the lampposts nor the sewer wells, also for these employees the categories must be set.

6.1.3.1 Creating Categories

- In Design, in the menu, go to 'Basic elements', 'Categories'.
- Now create three categories: Sewer, Lighting, Employee.



OVERVIEW CATEGORIES

Name :	Inher	Changed :	Actions
Employee	No	13/09/2019 13:53:20	ê / ×
Lighting	No	13/09/2019 13:53:07	ÊX
Sewer	No	13/09/2019 13:52:53	A X

6.1.3.2 Lighting Engineer

- In Design, menu User elements, Roles, create a role 'Lighting Engineer'. Apply rights for Alarm screens (show, accept, ready), Screens (show, edit), Tasks, Workflows.
- In Design, menu User elements, User types, create a user type 'Engineer Lighting ZB'. With two roles: Employee Municipality Zaltbommel and Lighting Engineer.
- In Live, at the level of the client 'Gemeente Zaltbommel', create a user named Sophie Schaap, and assign to her the user type 'Engineer Lighting ZB'.

6.1.3.3 Assign Categories to UserTypes

Go to the UserType 'Engineer Sewer ZB', at the tab 'Roles'.
 OVERVIEW USERTYPES >> EDIT USERTYPE: ENGINEER SEWAGE ZB

General	Roles	History	Connections
Select role	es		
Select item	s to add		
Roles		Cate	gories
Employee Zalthomm	Municipalit	Apr	olicable categori
Sewage E	ngineer	Арр	olicable categorie

- Click behind 'Employee Municipality Zaltbommel' on the button 'Applicable categories' and make sure only the category 'Employee' is in the right hand column.
- Click behind 'Sewage Engineer' on the button 'Applicable categories' and make sure only the category 'Sewer' is in the right hand column.
- Go to user type 'Engineer Lighting ZB', tab Roles.
- Click behind 'Employee Municipality Zaltbommel' on the button 'Applicable categories' and make sure only the category 'Employee' is in the right hand column.
- Click behind 'Lighting Engineer' on the button 'Applicable categories' and make sure only the category 'Lighting' is in the right hand column.
- For user type Observer add 'Sewer' at 'Applicable categories' button behind SewerWellMonitor and SewerWellReporter and at 'Employee Municipality Zaltbommel' the category 'Employee'.

6.1.3.4 Add Categories to Assets

• In Design we assign the category 'Sewer' to the asset 'SewerWell' and to StreetLight the category 'Lighting'.



6.1.3.5 In Live

When we now log in as Henk De Boer, sewerwell engineer, we'll see the monitor screen when clicking on the asset SW Markt. The streetlight asset is not shown.

The opposite is true when we log in as Sophie Schaap, the lighting mechanic. She will see the streetlight asset but not the sewerwell.



6.2 Regular Expressions

From Wikipedia : "A regular expression, regex or regexp (sometimes called a rational expression) is a sequence of characters that define a search pattern. Usually such patterns are used by string searching algorithms for "find" or "find and replace" operations on strings, or for input validation."

Regular expressions can be used in Avision to validate input by users in forms. For example, if we want to check that the user has entered a valid Dutch postal code, this can be done by following regular expression:

^[1-9][0-9]{3} ?[A-Z]{2}\$

For an email address, the following regular expression could be used:

^[_A-Za-z0-9-+]+(.[_A-Za-z0-9-]+)*@[A-Za-z0-9-]+(.[A-Za-z0-9]+)*(.[A-Za-z]{2,})\$

Regular expressions are very powerful but difficult to read. Many good test programs can be found on the internet though. Example: <u>https://regexr.com/</u>

6.2.1 Creation

- In Design, in the menu, click 'Basic elements', choose 'Regular expressions'. A grid with the existing regular expressions is shown.
- Click the '+'-button, top right of the grid.
- Enter name, the expression, the type (usually String) and a message to be shown when the input does not comply
- Click 'Save'

6.2.2 Use Regular Expression in a Property Definition

When a regular expression has been created, we can select it at the items tab of the property definition, at the field 'Regular expression', then click 'Save'.

Presentation	Source	Identifier				
Label						
Enable label			~			
Use label prope	rty def					
Name			Postalc	ode		
Translate						
Show help						
Label visibility			Btn visi	bility		
Content						
Enable input fie	ld		~			
Required			~			
Content from lis	ŧ					
Content from pr	operty prese	entation def				
Presentation ob	ject type		not us	sed —		
Min max length			0	÷	50	\$
Regular expres	sion		Dutch Pe	ostalcode		
Default value			1000AA	. — —		
Unit						
Enable unit field	i					

If the property definition is used in a form and the user fills in an incorrect text, the error message as entered in the regular expression will be displayed.

6.3 Lists

Lists are select lists that allow the entry of a field in e.g. a form, limiting the allowed entry to the items of the list. For the user who needs to fill out the form, this has the advantage that completing the former is simpler (incorrect values are not possible).

<u>Chapter X</u> creates a list to use in a form. This chapter describes lists in detail.

6.3.1 Creating a List

Creating a list starts with clicking on ' + ' button above the grid with the lists. There will be a screen with input fields.

Label: The name of the list.

Type: Choose a Type here. The types have been created by AVIC. If the list is used in an attribute definition, the type must match the type for the attribute definition. The following types are defined:

Туре	Omschrijving
Fixed readonly, Countries	This allows a sub-list to be created from a list of all countries
	in the world.
Fixed readonly, Languages	To make a sub-list of all the languages of the world.
Fixed readonly, Users	For a sublist of users from the list of users in your own
	application.

Multiple (ID, Text, Picture)	For a list that presents pictures. Is used to create status
	indicators.
Multiple: 1 of all types	Each list item can have one item of each value type (Boolean,
	Integer, Float, String, Datetime, Binary)
Multiple: 16 of all types	Each list item can have 16 items of each value type.
Multiple: 2 of all types	Each list item can have 2 items of each value type.
Multiple: 32 of all types	Each list item can have 32 items of each list type.
Multiple: 4 of all types	Each list item can have 4 items of each list type.
Multiple: 64 of all types	Each list item can have 64 items of each list type.
Multiple: 8 of all types	Each list item can have 8 items of each list type.
Multiple: NAW	For Name-Address-Home town type information.
Singular: Datetime (Picker)	For a datetime.
Singular: Integer (Textbox)	For an integer.
Singular: Number (Textbox)	For a floating point number.
Singular: Text (TextBox)	For a text.
Singular: True/False (Checkbox)	For a boolean value (check mark/switch)

Design/Live : To indicate whether the list can be changed in Design or in Live.

Method of storing:

By value	By value: The value (identifier) of the choice from the list is stored in the database. This can be e.g. a number (such as identification number or item number). Customizing a description of this item does not change the value, and everything keeps referencing the right item. If the item description is taken as an identifier, the text is literally referenced. For an adjustment, or for multiple languages, the correct item must be chosen again.
By reference	The unique Avision ID of the item is stored in the database. Customizing or translating a list item description is always possible. The reference to this item continues to work.
Multiselect	This is for special lists Avic_CheckBoxList, Avic_RadioButtonList and Avic_SwitchBoxList. Stores an integer that represents the chosen value according to a bit pattern.
Boolean checkbox list	For special list Avic_BooleanCheckBoxList. Stores a Boolean value (True or false).

List identification: Indicate the ID field of the selection items in the list. (This field is not shown with a "by reference" list because Avision will internally provide an ID for it).

List Show Text: Indicate the field that contains the text to be presented with each selectable item of the list.


OVERVIEW LISTS >> NEW LIST

List label	SpeedOfAnimals	
Туре	Multiple: 1 of all types	
Design/Live	Design	
ist store type	By reference	
List show text	Text field 1 (Textbox)	•

6.3.2 General tab

OVERVIEW LISTS >> EDIT LIST: SPEEDOFANIMALS

General	Items	Categories	Content	History	Connections	Deployment
List defau	It setting	8				
List label		s	peedOfAnim	als		1
List type		M	ultiple: 1 of a	li types		
List settir	ngs info					
Design sta	ite	Sa	ndbox			
Version		1				
Content vi	alue by	De	sign			
List store t	type	Ву	Reference			
Show text		Te	d field 1 (Tex	tbox)		

6.3.3 Items tab

Defines the fields of one list item. When the list created two list items are made by default: the id and the text field. In case of a By reference list, only the Text field is shown (the id field is hidden). In the Items tab more fields can be added, if needed.

The text field cannot be deleted.

General Iter	ns Categories	Content	History	Connections	Deployment	
ects						
ibels	Label/v	alue	F	Required? Item	configuration	
ext field 1 (Text	box) Anima	đ	16	True A	dvanced	

Settings for list items:

Column	Explanation
Labels	Enter the name of the field as it will be used at the Content tab.
Required	Indicate here whether the field is a required field

6.3.3.1 Adding a list item

By default, two list items are created when the list is created, for the id and a text for the selection dropdown. More fields can be created by clicking the '+'-button on the top right.



OVERVIEW LISTS >> EDIT LIST: SPEEDOFANIMALS >> LISTS ADD ITEM LIST

em label	Speed		
vpe	Float field 1 (Numeric textbox)	×	*

OVERVIEW LISTS >> EDIT LIST: SPEEDOFANIMALS

General Items	Categories	Content	History	Connecti	ons Deployment		
Aspects							
Labels	Label/valu	Je	F	equired?	Item configuration	A	ctions
Text field 1 (Textbox)	Animal			True	Advanced	•	
Float field 1 (Numeric fextbox)	Speed			True	Advanced	•	Delete

6.3.3.2 Advanced settings

Advanced item configuration for a field of type text:

Min length	0	\$	
Max length	50	\$	
Value	select		-
Translatable?		False	
Unique value		False	

Specifies the minimum and maximum length of the text to enter for a list item, the regular expression used to validate item values, whether the translate button is available, whether the value must be unique within the list and whether content comes from another list. All these settings are used in the Content tab where list items can be added to the list.

Advanced item configuration for a field of type float:

Advanced		^
Min val	÷	
Max val	\$	
Digits	\$	
Value	select	•
Translatable?	False	
Use other list for content	False	

Here the minimum value and the maximum value can be entered and because it is a floating point number, also the number of digits after the comma. Also a regular expression can be selected to validate the input or the input can come from another list.

6.3.4 Content tab

Using the '+' button new items can be added to the list.



OVERVIEW LISTS >> EDIT LIST: SPEEDOFANIMALS >> EDIT LIST: CHEETAH

General	Connections		
Animal		Cheetah	
Speed		98.0	\$

6.3.5 Special lists

6.3.5.1 Avic BooleanCheckBoxList

Control with two items where one has a value of true and the other is false. One item can be checked and determines the value of the control.

6.3.5.2 Avic_CheckBoxList

The control consists of a list of up to 31 items that can be individually checked or unchecked. Each check mark is a bit value. The checkmarks together make the value of the control.

6.3.5.3 Avic_RadioButtonList

A set of radio buttons allows one item to be selected from the items in this list. The control will then get the value of the selected item.

6.3.5.4 Avic_SwitchBoxList

Each item of this type of list can be switched on or off. Looks a lot like the Avic_CheckBoxList but works with on-off sliders instead of checkmarks.

6.3.6 Lijsten in Live

The lists can also be viewed in Live if the lists module has been added to a node. If a list in Design is created with ' value via Live ' then it can be adjusted in Live.

6.4 Property Definitions

See <u>chapter 3</u>.

6.5 List Dependencies

Forms and monitor screens often contain input fields that must be filled out by the user. Lists are very useful because they limit the input to a known set of possibilities and thus make incorrect input impossible.

The list dependencies module allows the contents of a displayed list (the "slave") to change depending on the chosen value in another list (the "master"). Also, an property definition can be displayed or hidden depending on a chosen value from a list.

There are three types of list dependency: List dependency, item dependency, and visibility.



6.5.1 Create Dependency

END	ENCY
1	ENU

Add new dependency	mauix	
Name		
Master and slave selectio	n	
	select	-
Dependency method		

Name : Name of the dependency.

Dependency method : Three options: List dependency, item dependency, and visibility. **Master :** The list that affects the contents of the other list.

If the "Item dependency" method is selected, another line is displayed in the screen: **Slave:** The list whose content is determined by the master.

The following chapters explain the different forms of list dependency by means of examples. Some lists are created as well as property definitions that use these lists in a form.

6.5.2 List Dependency

In this form, the "Slave" list contains the contents of a list or other list depending on the value you choose in the master list.

Do-it-yourself block

- In Design, in the menu, go to 'Basic elements', click List dependencies.
- In the grid, click the '+'-button to create a new dependency.
- Enter 'Basic pumps' at the name field, select as method 'List', select as master 'Basic pumps', click 'Save'.

A new section is now displayed on the screen. Choose 'Water pumps ' and ' Air pumps ' and click ' Add '. Two lines are now created with radio buttons behind them. The selected radio buttons indicate which choice of the master the list will be used as the content of the slave.

• Select 'water' at the 'Water pumps' and 'Air' at the list 'Air pumps'.

----. . AVIC

The dependency should look like this:

Add new dependency	matrix				
Dependency name	Ва	sic pumps			
Master and slave selectio	n				
Dependency method	List			-	
Master	Basi	cPumps (Sandl	oox)		•
Cancel Save					
Cancel Save Matrix properties					
Cancel Save Matrix properties			Add	l	
Cancel Save Matrix properties	air	water	Add		
Cancel Save Matrix properties Select items to add Lists Air pumps (Sandbox)	air	water	Add Options	[

In Live, in a form:

FORMS DATA >> ITEM: LIST DEPENCY DEMO		
Master		
select	-	
Slave		
select	-	

When, at the Master, we select 'air' then the slave contains:

FORMS DATA	>> ITEM: LIS	T DEPENCY DEMO
Master		
air		-
Slave		
- selec	:t	-
pond po bicycle vacuun	umps pumps n pump	

However, when we select 'water' then the slave contains:

FORMS DA	TA	<u>>> IT</u>	EM: LI	ST DE	PEN	CY DEMO
Mas	ter					
wa	er					•
Slav	/e					
	sele	ct				•
sui	bme ntrifu	rsible p ugal pu	oump mp			
we	ll pu	Imp				
pe	riphe	eral pur	mp			

6.5.3 Item Dependency

In this dependency, the master determines which subset of items from the slave list are shown.

There is a list of "Language Families" with two items; 'Germanic languages ' and ' Romance languages ', which is used by the ' language family ' attribute definition. Also there is a list ' languages ' created with items Dutch, German, French, Spanish, English, Polish, Russian.

Property definition 'Language family' uses the 'Language Families ' list. For list dependencies, "Language Family Dep" is created with the following settings:

Add new dependency	maurix	
Dependency name	Language Family Dep	
Master and slave selection	1	
Dependency method	Item 💌	
Master	Language Families (Sandbox)	
Slave	Languages (Sandbox)	
Matrix properties		
Matrix properties	Germanic Romance	
Matrix properties anguages (Sandbox) lutch	Germanic Romance	
Matrix properties anguages (Sandbox) utch ierman	Germanic Romance	
Matrix properties anguages (Sandbox) lutch serman rench	Germanic Romance	
Matrix properties anguages (Sandbox) utch erman rench panish	Germanic Romance	
Matrix properties anguages (Sandbox) Jutch Jerman irench ipanish inglish	Germanic Romance	
Matrix properties anguages (Sandbox) Dutch German French Spanish English Polish	Germanic Romance	

De property definition Language uses the list 'Languages':



Content		
Enable input field	~	
Required		
Content from list	~	
Presentation object type	Kendo_ComboBox	
List definition id	Languages (Sandbox)]
Default selected item	Dependency	Btn dependency

Click the dependency button and set following menu like this:

Dependency item: Languageld	
Language Family (Sandbox)LanguageFamilyId Content	-
Language Family Dep	•
	guageId Language Family (Sandbox)LanguageFamilyId Content Language Family Dep

In Live, in the form, the dropdown 'Language' will present a list with items 'Dutch', 'German' and 'English' when the selected 'Language family' is set to 'Germanic'.

FORMS DATA >> ITEM: ITI	EM DEPENDENCY DEMO
Language family	
Germanic	
Language	
select	
Dutch	
German	
English	

When 'Romance' is selected it will present the Romance languages of our list.

FORMS DATA >> ITEM: ITE	EM DEPENDENCY DEMO
Language family	
Romance	*
Language	
select	*
French	
Spanish	



6.5.4 Visibility Dependency

In the third form of dependency, a property definition can be displayed or hidden depending on the choice made in a list.

For example, it is possible to show the text 'OFFER!!! ' if the language family 'Germanic ' is chosen.

First, the dependency is created:

OVERVIEW DEPENDENCIES	S >> NEW DEPENDENCY >> EDIT DEPENDENCY	
Add new dependency	matrix	
Dependency name	OfferVisibility	
Master and slave selection	n)	
Dependency method	Visible	
Master	Language Families (Sandbox)	
Cancel Save		
Matrix properties		
List names	Visible	
Germanic	Tru	
Romance		

Next, at the property definition item you want to hide or show depending on the setting of the language family, click the "Visibility" button in the Label part:

Presentation Source Ide	ntifier
Label	
Enable label Use label property def Name Translate Show help Label visibility Content	CfferSign Btn visibility
Enable input field Unit	
Enable unit field	
Translations Cancel Save	

Dependency visible: OfferSign		×
Select configured matrix		
Depends on	Language Family (Sandbox)LanguageFamilyId Content	-
Configured matrix dependency	OfferVisibility	
Cancel Save Remove		

In Design in the form:

Manual Avision 2.0



OVERZICHT SECTIES >> WIJZIG SECTIE: TAALKEUZE

Algemeen Categoriën	Inhoud selectie Digitale layout Geschiede	enis Verbindingen Vrijgeven		
 Teken element Label 	50 100 150 200	250 300 350 400 450 500	[Kenmerk label] Reclame1 (1) - AANBIEDING !!!	
 Datum tijd Visueel control node 	Taalfamilie	AANBIEDING !!!	Tekst AANBIEDING !!! Geselecteerde veld type in Reclame1 - AANBIEDING !!!	-
 Lijn 	Taal	· · · · · · · · · · · · · · · · · · ·	sectie	<u> </u>
Kenmerken Reclame1 (versie 1) ANBIEDING !!! I abel	120		Geselecteerde type Label Formaat Positie op layout	•
Taal (versie 1) TaalFamilie (versie 1) TaalFamilie (versie 1) Locatie velden Taak			X positie 360 💠 Y positie 20 💠 Z positie 1 🜩 Grootte	
			Breedte 100 💠 Hoogte 20 💠 Stijl	
			Gebruik stijl van sectie	
			Verwijder Annuleer Opslaan	

In Live:

FORMS DATA	>> ITEM: ITEM DEPENDENCY DEMO	
82		

Language family	
select	•
Language	
select	

Adjustment of language family to ' Germanic languages ' shows the text:

FORMS DATA >> ITEM: I	TEM DEPENDENCY DEMO	
Language family		
Germanic	X V OFFER !!!	
Language		
select	•	

This is also an example of a master with two slaves.

6.6 Sensors

With this menu item, the range of a sensor can be adjusted or even converted to a completely different measurement unit.

As an example, a PT1000 is given below. The given PT1000 has a temperature dependent resistance with an approximately linear character between -200 and 100 Celsius (outside the graph it is more

curved). By specifying a series of checkpoints in the linear range, Avision can make the translation from Ohm to centigrade, °C.



Figure 6-2 : Sensor chart of a PT1000 with a working area between -200 and 100 degrees centigrade.

6.6.1 Adding a Sensor Type

- In Design, in the menu, go to 'Basic elements', click 'Sensors'.
- In the grid with sensor types, click the '+'-button.
- Enter a name and click 'Add'.

6.6.2 Changing a Sensor Type

Select in the grid the sensor you want to change, then click the pencil icon.



Figure 6-3: Changing sensor graph

The following fields can be customized:

Name: Name of the sensor graph.

Units: Enter the unit (optional).

Digits: This is the number of digits that the box will count on internally. The measured values sent to Avision will have this specified number of digits.

Measuring circuit type: Specify the type of measurement. Choose from:

- 1. Percentage of full ADC range (Compact only)
- 2. Flow
- 3. Voltage
- 4. Value
- 5. Resistance

Range and Value fields: These fields can be used to adjust the course of the chart. The first and last field must be filled in, other fields are optional.

eneral	History	Connections Deployment	
lame		TestSensor	
esign sta	ite	Sandbox	
ersion		1	
nits			
igits		2	10
leasure o	ircuit type	Resistance	•
ange		Value	8
.00	Ω ≑	0.00	
	Ω ≑	·	
	Ω 🗧	÷.	6
00	Ω 🛊	4.00	000
00	Ω 🗧	5.00 🜩	
00	Ω	5.30	4 0
00		6.00	
	Ω		2
0.00		T	
0.00	ŢΩ	10.00	

Figure 6-4: Adjusted measuring range for a theoretical sensor with a curved graph



6.7 Names

The Names module can be used to make custom dynamic names for nodes. It is for example possible to show the value of a datapoint as a part of the node name. This option is available for all node types.

At this moment, name modules can only be used for naming nodes, but in future more options will become available.

6.7.1 Creating

- In Design, in the menu, go to 'Basic elements' and then 'Names'
- Click on the '+'-button, top right of the grid. An Add menu is shown.

- Basic elements	NAMES OVERVIEW >> NAMES ADD
Categories	
Regular expressions	Add name
Lists	Name base def name
Property definitions	
List dependencies	Cancel Add
Sensors	
Avision Calculations	1
ContractPriceAgreements	
Names	

Enter a name for your Name module and click 'Add'; the name module is created.
 <u>NAMES OVERVIEW</u> >> NAMES ADD >> NAMES EDIT

Soundia	Items	History	Connections	Deployment
Name def s	sub title			
Name label			LampName	
Design stat	e		Sandbox	
Version			1	
Name type			Node name	

The name can consist of multiple items. These are created at the 'Items' tab. Here we can also indicate what delimiter should be used to separate the items in de node name part. The delimiter can be one to three characters long. For convenience, an example of how the name will look like is also presented together with the estimated length.

General	Items	History	Connections	Deployment			
Name							
Example					(0)		
Delimiter			-				
ancel	Save						
equence	: Name	e item type	: Property nam	e Property item nar	ne 🚦 Free text	t Actions	

Since a node name can not be longer than 50 characters, a warning will be shown when the length of the node name exceeds this. In Live, the name will be truncated if it exceeds 50 characters.

- Enter the minus sign '-' as the delimiter and click 'Save'
- Click on the '+' button top right on the grid; the screen for adding a name item is shown



The screen for adding a name item has two entry fields:

Name Item Type : Select what needs to be shown in the name. Options are:

- Legiobox Label: The text entered at the Legiobox is used.
- Property Presentation Item: Select this when the value of a datapoint is to be part of the node name. Two dropdowns are presented to select the property definition item.
 NAMES OVERVIEW >> NAMES EDIT: LAMPNAME

Name item type	Property presentation item × v	
Max length	Legiobox label	
Property def	Property presentation item	
Property presentation def	Free text	
	Guid	
Cancel Save	Device id	

• Free text: Here you enter a text. The maximum length field can not be changed, the length is calculated when the Save button is clicked.

Name item type	Free text	 ×	
Max length	0	\$	
Free text			

- Guid: The GUID of the hardware is used.
- Device Id: Device id is shown in the name. (i.e. '120005' for a light gate).

Maximum length : Enter the maximum size of the item. This is used in calculating the expected length of the name.

Do it yourself block where a name is created containing a free text, the value of a datapoint and a GUID, separated by a minus sign.

- Click the '+' button on the top right of the grid in the 'Items' tab.
- Select 'Free text' at the name item type and enter 'LG' at the 'Free text' field. (The Maximum length field can not be edited, it will contain the length of the typed text after clicking the save button.)

Name item type	Free text		•
Max length	2	÷	
Free text	LG		

- Click 'Save'
- Click the '+' button on the top right of the grid in the 'Items' tab.
- Select 'Property presentation item' at 'Name item type'
- Enter 8 at Maximum length
- Select 'Master data pump' at the Property definition field
- Select 'Brand' at the Property presentation item field

Name item type	Property presentation item		-	
Max length	8	•		
Property def	Master data pump (version 1))		
Property presentation def	Brand			-

- Click Save
- Click the '+' button on the top right of the grid in the 'Items' tab.
- At 'Name item type' select 'GUID'
- Enter 36 at the Maximum length field

- are		
36	\$	
	36	36 🜲



• Click 'Save'

The items tab should now look like this:

Name													
Example		IGI	21.(21			(40)							
LAmple		10-1	2]-[3]	1		(40)							
Delimiter		3											
Cancel Sa	ave												
Cancel S	ave												
Cancel Sa Sequence :	ave Name item type	:	Property na	ame :	Property item n	ame :	Free text	: Ac	tions				
Cancel Si Sequence :	Name item type Free text	:	Property n	ame 🚦	Property item n	ame :	Free text	: Ac	tions	×		•	
Cancel Si Sequence	Name item type Free text Property presentation	: on item	Property na Master data	ame :	Property item n Brand	ame :	Free text LG	: Ac	tions	××	•	*	

In the Actions column we change the order of the items in the name, but for this example the order is correct, so we'll leave it this way.

6.7.2 Applying the Name module to a Node

To use this name module to set a node name we have to indicate at the node that we want to use this module.

In Design, at the General Tab of the node (in this example the hardware node 'LightGate') tick the 'Use name module' checkmark. A dropdown is now shown were the name module can be selected for the node.

EDIT HARDWARE NODE TYPE

General	Categories	Elements	Menu buttons	History	Connections	Deployment	Advanced action
Node type		Light	Gate				
Use name	module	~					
Name def	id	Lampi	Name (Sandbox)]
Design sta	ite	Active					
Version		3					
Image noo	le	Avisio	n - LightGate (versi	on 1)]
Translatio	ns Create ne	w sandbox v	ersion Cancel	Save			

6.7.3 In Live

In live, depending on the property definition being new or not we may need to synchronize. Then the node name must be updated. This will happen when a node is moved or when the property definition item used gets a new value from a screen or a form and the left tree is updated.

In our example the result looks like this:



The brand of the pump is now shown in the hardware-node of the lamp.

AVIC .

7 Filter elements

This chapter describes items that can be used to limit the domain of the data. This limit can be based on time (with the period selector) or by filtering the number of nodes where the data can come from (using Filter, Node selector) or by selecting data content (search criteria).

7.1 Period selectors

OVERVIEW PERIOD SELECTORS

7.1.1 Design

In design, the period selector module, like many other modules, has a summary page with all the created and inherited period selectors. Inherited period selectors are not to be changed or deleted by a user (because they are obtained from a higher application or from AVIC). However, a copy can be made from an inherited period selector. At that point, you have a new period selector that is the same as the original but with the big difference that it can be changed to your demands.

Name :	State :	Last changed	Actions
Default period selector	Active	09/09/2010 12:54:44	
Avision - Counters - Period selecto	r Inherited	04/07/2019 06:45:49	
Avision - Default period selector	Inherited	02/07/2019 13:05:26	ÊB

Each line has a number of icons in the Action column. These icons have the following functionality:

- 1. Elisplay the period selector settings (cannot be changed)
- 2. *P*: Changing the period selector
- 3. Make a copy of that period selector
- 4. X: Delete the period selector

At the top right of the grid you can find the '+'-button to create a new period selector.

7.1.1.1 Creating a New Period Selector

Toevoegen periodekiezer	
Naam	
Annuleer Toevoegen	

The user types a name for the new period selector. By clicking the ' + ' button, the user can now create a new period selector and after that the change period selector screen is presented.



7.1.1.2 Presenting Period Selector Settings

	Delat	It period selector			
Туре	Prese	t periods	*		
Show basic options					
Date selection from - to		~			
Adhoc period live		~			
Show period mover		~			
Maximum new periods allow	ed	5 🔷			
Live preset button					
Show Last hour	~	Show This hour		Show Previous hour	
Show Last 24 hour	~	Show This day		Show Previous day	
Show Last 7 days	~	Show This week		Show Previous week	
Show Last 4 weeks	~	Show This month		Show Previous month	
Show Last 3 months		Show This quarter		Show Previous quarter	
Show Last 6 months		Show This half year		Show Previous half year	
Show Last 12 months		Show This year		Show Previous year	
	Last 2	4 hour	•		
Default period preset	-				

OVERVIEW PERIOD SELECTORS >> SHOW PERIOD SELECTOR: DEFAULT PERIOD SELECTOR

In view mode the settings cannot be changed. Hence, only a close button can be found on the bottom of the screen.



7.1.1.3 Changing Periode Selector Settings

Name	Defau	It period selector	
Туре	Prese	t periods	* .
Show basic options			
Date selection from - to		~	
Adhoc period live		~	
Show period mover		~	
Maximum new periods allow	ved	5 🜲	
Live preset button			
Show Last hour	~	Show This hour	Show Previous hour
Show Last 24 hour	~	Show This day	Show Previous day
Show Last 7 days	~	Show This week	Show Previous week
Show Last 4 weeks	~	Show This month	Show Previous month
Show Last 3 months		Show This quarter	Show Previous quarter
Show Last 6 months		Show This half year	Show Previous half year
Show Last 12 months		Show This year	Show Previous year
Default period preset	Last 2	4 hour	•
Chaused antiana			

OVERVIEW PERIOD SELECTORS >> EDIT PERIOD SELECTOR: DEFAULT PERIOD SELECTOR

General tab

The first item that can be changed in this tab is the name that is displayed in the overview screen, among others. Name is a required field.

- **Type:** Type of the period selector. At this point 'Preset periods' is the only option.
- Date selection from-to: Whether a datetime box is shown.
- Ad-hoc period live: Allow creation of custom periods.
- Show period mover: Two arrow buttons are shown that can be used to step a period forward or backward.
- Maximum new periods allowed: The maximum number of custom preset periods a user can create. (Ad-hoc period live must have been set).
- Live preset buttons: User can indicate which preset buttons are available.
- Default period preset: The default period the period selector uses.



• Use advanced options: When checked following options are shown:

Show advanced options		
Use advanced options	~	
Compare previous period option		Compare custom period option
Exclude hours of day		
Exclude days of week		

• These options have not been implemented in live, yet!





- 1. Preset buttons
- 2. Date selection from-to. When three dots are shown this period can be clicked and a datetime selector will pop-up. This option is activated when 'Ad-hoc period live' is checked in Design. Also, in this popup, a custom preset button can be made.

T	11-02-	2019	10:00	- 12-	02-20	19 10	:00															
	Perio	de st	art:	11-0	2-20	19 00	:00		Tot e	n mei	t: 1	2-02-	2019	00:00	Ē							
	<		dece	mber	2018	3				jan	uari 2	019					febr	uari 2	019		>	
	zo	ma	di	wo	do	٧r	za	zo	ma	di	wo	do	vr	za	zo	ma	di	wo	do	vr	za	
							1			1	2	3	4	5						1	2	
	2	3	4	5	6	7	8	6	7	8	9	10	11	12	3	4	5	6	7	8	9	
	9	10	11	12	13	14	15	13	14	15	16	17	18	19	10	11	12	13	14	15	16	
	16	17	18	19	20	21	22	20	21	22	23	24	25	26	17	18	19	20	21	22	23	
	23	24	25	26	27	28	29	27	28	29	30	31			24	25	26	27	28			
	30	31																				
	Aanta	al:		Minu	ut	Uur	Dag	Maa	nd K	warta	al P	reset	text8	Jaar	Vrij	e per	iode					
	Naam						Maak	nieu	we vo	oorke	eur					Ann	ulere	en W	is To	oepa	ssen	

3. The back or forward period buttons

7.1.2.1 Ad-hoc Period Selector Popup

The Ad-hoc Period Selector Popup is split in four parts. 1 to 4 is the first part and used to select the period manually.



The second part, with numbers 5 and 6, where the user puts the start date on the first click in the calendar on a day and puts the end date at second click. Start time is always 0:00 and end time is the chosen date 24:00 hours. So, if you click on January 1 for the end time, the time will be 1 January 24:00 hours or January 2, 0:00. Now, if you click for a third time, you start from the beginning and decide the start date.

Numbers 7 and 9 form the third part. This is used to determine the start and end dates. Example: When entering the number '10' at the textbox at arrow 7 and then click on 'Day' the following happens: The start time is then rounded up to 24 hours and then 10 days back. End time is today 24 hours (which is the same as tomorrow 0:00).

The fourth part is for making a new preset (next to existing presets). To make a new preset enter the name of the new preset at the textbox indicated by the number 8, click one of the buttons of the third part and then click on the button 'Make new preset'. When the button 'Free period' was not set but one of the other buttons then textbox indicated by number 7 must not be empty.



1. Start period, datum and time range

2. Popup start period

Perio	d sta	rt:	17-09	-2019	9 00:0	00	🗒 Ur	o to:	18-0	9-2019	00:0	0	Ë							
<		J	uly 20	19			<	Se	ptem	ber 20	19	>	x		\$	Septe	ember	2019		
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	ın	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6	25	26	27	28	29	30	34		2	3	4	5	6	7
7	8	9	10	11	12	13	4	20	2	20	5	6	7		9	10	11	12	13	14
14	15	16	17	18	19	20	1	2	3	•	3	40	1	5	16	17	18	19	20	21
21	22	23	24	25	26	27	0	9	10	11	12	13	14	2	23	24	25	26	27	28
28	29	30	31				15	16	17	18	19	20	21	a	30					
N							22	23	24	25	26	27	28							
Num	ber		Min	ute	Hour	Day	29	30	1	2	3	4	5		rear	Free	e perio	bd		
Name					N	lake i										С	ance	I Cle	ar A	pply
							00	:	00	ĺ.										
									-											

- 3. End period date and time range
- 4. Popup end period

Р	erio	d star	t:	17-09	-2019	00:0	0	1 🛗 U	p to:	18-	09-20	019 0	0:00		Ë.						
Ŀ			Ju	ily 20	19					Aug	just 2	019			<	Se	ptem	ber 20	19	>	x
	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sa	Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5	6					1	2	3	25	26	27	28	29	30	31
	7	8	9	10	11	12	13	4	5	6	7	8	9	10	4	2	2	4	5	6	7
	14	15	16	17	18	19	20	11	12	13	14	15	16	17	1	2	3	*	0	0	1
	21	22	23	24	25	26	27	18	19	20	21	22	23	24	8	9	10	11	12	13	14
ł	20	20	20	24				25	20	27	20	20	20	24	15	16	17	18	19	20	21
	20	29	30	31				25	26	21	20	29	30	31	22	23	24	25	26	27	28
N	lumt	рег		Mine	ute	Hour	Day	Mor	nth (Quart	er of a	ı year	Pr	eset	29	30	1	2	3	4	5
N	ame					Ν	lake	new p	orese	t											
															00		00				
																	-				

Click on the month in the popup to get a special month selector:

	2019		X
Jan	Feb	Mar	Apr
May	Jun	Jul	Aug
Sep	Oct	Nov	Dec
▲ 00 : ▼	▲ 00 ▼		



Click in this special month selector popup on the year and a special year selector will popup:



- 5. Month scroll button
- 6. Calendar range picker
- 7. Number of time intervals
- 8. Name new preset period selector button. In Design a value for the maximum number of presets is set. (Default 5).
- 9. Time interval from end time, today 24:00 hours, or tomorrow 0:00, going back the selected time interval.
- 10. When the chosen preset period was manually added then an extra button with the option to delete this preset will be available when this preset is selected, See 10:



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7.2 Search Criteria

Search criteria can be used to create search screens. These are used by the modules Filter, Node search, Report search, and the Node selector.

A search screen always consists of two sections. The first part searches based on the last known value. The second part searches with a certain from/to period in the past/history.

The final result is always a list of nodes (for continued use).

7.2.1 Create Search screen

Click the '+' button above the grid. When creating, two fields are requested:

VERVIEW SEARCHES	>> NEW SEARCH FILTER	
Add search		
Name		
Nume		

Name : Enter the name of the search screen.

Search usage : Select Filter or Node counter.

OVERVIEW SEARCHES >> NEW SEARCH FILTER >> EDIT SEARCH FILTER

Search type: This field is only available when at Search usage 'Filter' was selected.

Three choices:

- Last value
- Historical
- Last value historical

7.2.2 General tab

After a search screen has been created it can be edited by clicking in the grid, on the pencil icon

General	Node search lines	Historical search lines	Categories	History	Connections	Deploymen
Name		Last value & historical				
Design sta	ite	Sandbox				
Version		1				
Search us	age	Filter				
Search typ	e	Last value historical				
Allow addi	ng search lines in live					
mode						
Periodsele	ector	Default period selector			× 🔻	

In this screen, the name can be changed, but not the search type.

Allow adding search lines in live: If checked, the search can be further specified in live.

Period Selector: Choose a period selector here.



7.2.3 Node search lines Tab

With searchlines the resulting nodes are filtered. The filtering can be done with multiple searchlines and conditions.

General	Node search lines	Sort order	Categories	History	C	onne	tion	is Deplo	ymer	it /	Advanced actions
Y Activ	e										
And or	Description	:	Search type		:	Fi	:	Operator	:	Defa	ult value
	Page 0 of 0		250 🔻 Item	is per page							

Click the '+' button above the grid. Select the search on type.

The edit screen for the choosen type is shown.

Node search object type		
Description		
Operator Node type	Client (version 4)	•
Translations Cancel Sa	ive	

It is possible to filter on the following items.

Property presentation def: Filter nodes on the value of a datapoint.

Node type: Fliter nodes on the designed node types.

Object type type: Filter nodes on the techincal node types (application, structure, asset, object, hardware node)

Alarm on node: Filter the nodes with an open alarm at the node.

Contract product: Filter nodes on a contract poduct coupled in live.

Alarm open: Filter on specific alarm.

Property presentation def limit: Filter on datapoint in zones.

Node id: Filter on node id

Node identifier: Filter on the identifier column

Node name : Filter on node name

Guid: Filter on GUID

Datapoint enable: Filter on nodes with datapoint enabled/disabled.

Datapoint identifier: Filter on the identifier column in datapoints.



7.2.4 Sort Order Tab

With the sort order tab the order of the search result can be defined.

Basic elements	OVERVIEW	SEARCHES >> EDIT	SEARCH	FILTER: SO	RTED (SA	NDBOX)			
- Filter elements				_					
Period selectors	General	Node search lines	Sort or	der Cate	gories	History	Connections	Deployment	Advanced actions
Search criteria	Active	2							+
Filters	Sort on		:	Desc	Order		Actions		
Node pickers	Node name			false			Ø X		
Node search screens	H	1 Page 1	of 1 🕨	▶ 250	🔻 Ite	ms per pag	je		0
Report search screens									
/isual elements									
Activity elements									
User elements									
Application Management									

It is possible to sort on 4 levels and sort ascending or descending.

The sort order can be made on:

Node name : The node name form current node

Node name object type up: Sort on the node name from current node or its parents of the specified object type.

Property presentation def: Sort on a property presentation def.

7.3 Filters

7.4 Node Pickers

Node pickers can be used to select nodes. The selected nodes can be input for a filter.

7.4.1 Add Node Picker

In Design, in the menu item 'Filter elements', click on 'Node pickers'. The grid shows the node pickers present. Click the '+'-button top right on the grid. An add screen is presented:

OVERVIEW NODEPICKERS >> NEW NODE PICKER

lame		
nput source	Current node down	•

Fig. 7.4.1.1: Add screen node picker

Name : Enter the name of the node picker.

Input source : Select the input source, the nodes from which the node picker can make a selection. Options are: 'Current node down' and 'Filter'. After a node picker has been created the input source can not be changed.

Click 'Add' to create the node picker.

7.4.2 Edit Node Picker

In the grid click on the pencil icon behind the node picker that needs to be edited. The edit screen is displayed:

OVERVIEW NODEPICKERS >> NEW NODE PICKER >> EDIT NODEPICKER

LNodePickerName	Node Picker	
LInputSource	Current node down	
LFaceType	Preset periods	•
LMaxNodes	7 🜲	
Search def id	- select	-



Name : Name of the node picker.

Face Type : Only one type can be chosen at the moment. This may be extended in future.

Max. number of nodes : The maximum number of nodes that can be the result of the node picker. By default this is 7.

Search def ID : Select the search screen (option, not mandatory).

7.5 Node Search Screens



7.6 Report Search Screens



8 Visual Elements

This chapter describes the visual elements in Avision 2.0.

8.1 Images

The Images modules is a library of images. The images in that library can be used by other modules in Avision, both in Design as in Live. Examples are the background of a section or a list of images.

8.1.1 Design

If you have not created any images in Avision yourself, you will only have the images you have received from AVIC. To be able to see them, you must indicate above the grid that you want to see the inherited items by clicking the 'Inherited' button.

OVERVIEW IMAGES

age	Name	Version :	State	1	Last changed	Actions
血	Ada_Home	1	Inherited		15/03/2018 08:01:31	ÊB
	BasicGate	1	Inherited		16/01/2019 13:11:33	ÊR
۲	Book	1	Inherited		15/03/2018 08:01:31	Êœ
(Ar	Device	1	Inherited		15/03/2018 08:01:31	ÊR
۲	Doc	1	Inherited		15/03/2018 08:01:31	Ê
	Folder	1	Inherited		15/03/2018 08:01:31	ÊR
al	Grafiek	1	Inherited		15/03/2018 08:01:31	ÊR
<u>11</u>	10	1	Inherited		15/03/2018 08:01:31	ÊD
-	LightGate	1	Inherited		16/01/2019 13:11:52	ÊD
	Location	1	Inherited		15/03/2018 08:01:31	ÊR
	MiniGate	1	Inherited		16/01/2019 13:12:15	ÊR
	NanoGate	1	Inherited		16/01/2019 13:12:29	ÊR
20	Network	1	Inherited		15/03/2018 08:01:31	ÊB
	PicoWise	1	Inherited		16/01/2019 13:12:51	ÊR
	SolarGate	1	Inherited		16/01/2019 13:13:08	ÊB
(10	Wireless	1	Inherited		15/03/2018 08:01:31	ÊD

8.1.2 Adding an Image

An image from the Images module can be used as an icon of a Node.

Do-it-yourself block in which you will add an image to your own library and apply as an icon of the Asset node

- Click on the '+'-button in the header of the Images grid
- In the add screen, in the name field enter 'Sewage pit'
- Click 'Add'

A record is now created in the database and the General tab is opened so that the image can be added.

• Click the button 'Select new image file' and browse for the image that you want to use (preferably 20 by 20 pixels)



OVERVIEW IMAGES >> NEW IMAGE >> EDIT IMAGE

General	History	Connections	Deployment
Name		Sewa	age pit
Design sta	ate	Sandb	DX
Version		1	
Default in	nage		
Dimensions	50²	-	
	20v20.ppg		
P 0.6	0 KB		
	Cle	ar	

• Choose at Dimensions 50x50, then click 'Upload file'

The dimensions button restricts the size in bytes of the image in the database. Avision reduces the image so that all sides of the image fall within the specified dimensions (while maintaining the ratio between length and width). The largest allowable size is 1024x768 pixels. This will prevent the connection from getting slow or that the database will attempt to save an infinitely large file.

When we go back to the grid we see that the new image is available:

Y Sar	db	ox Active	e Inactive	Trashbin Inherited			E
Image	÷	Name :	Version :	State :	Last changed	Actions	
⊕		Sewage pit	1	Sandbox	18/09/2019 13:43:16	Ê / B 🗇	

Now we can link this image to our 'SewerWell' asset. For that we go (still in Design) to the Asset nodes. We make a copy of the highest version SewerWell and in the General tab, at the field 'Image node ', choose our just created 'Sewage pit' image. After ' save ' we see the new icon at our new sewer well.

٩	Asset node types	OVERVIEW	ASSETS >> C	OPY ASSET N		IJZIG HARI	WARE NODE TY	PE
🔺 🎽 Root: Manual (56337)		General	Categories	Elements	Menu buttons	History	Connections	Deployment
Application nodes		Node type		Sewe	rWell			
🕨 📜 Structure nodes		Design sta	te	Sandbo	x			
🤞 📜 Asset nodes		Version		3				
🧯 SewerWell (version 1)		Image nod	le	Sewa	ge pit (Sandbox)			
SewerWell (version 2)			1					
SewerWell (Sandbox)		Translation	ns Cancel	Save				
Diject noues								
🐌 📁 Hardware nodes								

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8.2 Charts

Graphs can be created for standalone use or as part of a monitor screen or a report.

8.2.1 Creating Charts in Design

In Design, we first make the chart. In the menu, at ' Visual elements ', click on 'Charts' to go to the charts module. Click the ' + ' button at the top right of the grid. Enter the name of the chart to create (e.g., ' Measurement data ') and click ' Save '.

8.2.2 General tab

In the General tab, the following fields can be adjusted:

General

- Width: Width of the chart in pixels. Default is 800 pixels.
- Height: Height of the chart in pixels. Default is 400 pixels.
- Period selector: A chart always has a period selector. Default is an inherited one from Avic, but there's also one created at creation of the application. Select this one.
- Input source: Indicates which nodes the data comes from. Options are: Current node, Current node down, Filter and Node picker.
- Is multi line:
- Compare:

Title part

- Style: Here you select a style for the title. (See chapter x, Style)
- Title equals name: The title of the Chart equals by default the name of the chart. When this is not the case then uncheck this option. An extra field 'Title' appears in which the correct title can be entered.

Highlighting

This section allows you to create shaded columns in the chart to emphasize certain days or times in the chart. Every day of the week can be shown shaded and/or a period of each day (start and end time) can be indicated.

• Chart grid: To show grid lines in the chart.

Legend

- Legend docking: The position of the legend relative to the chart. Options are Bottom, Left, Right and Top. Default setting is Bottom.
- Lines toggleable on/off: With this option set to on, in Live lines in the chart can be made hidden simply by clicking on it in the legend. This is a handy tool when a chart becomes complicated.
- Legend style: Style of the legend. Default is an inherited Avic style.



8.2.3 Axes tab

OVERVIEW CHARTS >> EDIT CHART: MEASUREMENT DATA

Genera	Axis	Lines	Categorie	s History	Connecti	ons Dep	loyment	
label A	xis type	Scale		Is auto range	Axis from	Axis to	Style def	Actions
(-axis X-	-axis	Norma	al	~			Default style (version 1)	Ê /
-axis Le	eft.	Norma	al	~			Default style (version 1)	Ê / >

When creating the chart, the default X-axis and Y-axis are created.

OVERVIEW CHARTS >> EDIT CHART: MEASUREMENT DATA >> EDIT CHART AXIS

Label	Y-axis		
Enable axis label			
Axis left right	Left	T	
Scale	Normal	•	
Narrow range			
Auto range	✓		
Style def	Default style (version 1)		

Axis Options

- Label: Name of the axis
- Enable axis label: When checked a textbox will appear to enter a text that will be shown next to the axis other than the axis name.
- Axis left right: Position and type of the axis. Options are: Left, Right or X-Axis to indicate this is an X-axis. Only one X-axis is allowed in the chart.
- Scale:

- When X-axis Normal or Relative. With Normal, left Y-as goes through the zero point of the X-axis. When Relative is selected a start and end value can be given for the X-Axis. The left Y-Axis will go through this value, a right Y-axis will go through the end value.

- When Y-axis options are Normal (default), e, log2 and log10. Also the field 'auto range' can be checked or when unchecked, a from and to value can be given or can be taken from the measure range.

- Narrow range: If set to true the Chart will narrow the value axis range in order to display data points in better detail. Setting it to false will force the automatic axis range to start from 0 or the explicitly specified 'Axis from' value.
- Style: A different style can be selected for the axis label.

8.2.4 Lines tab

After clicking the '+' button a line can be created.



OVERVIEW CHARTS >> EDIT CHART: MEASUREMENT DATA >> CHARTS PARTIAL LINES CREATE

Label			
ls used	~		
Use property definition name			
Property definition	Language (Sandbox)		
Property definition item	Languageld		
Time interval	None		
Adjustment	None	*	
ine type	Line	*	
ine style	Normal		
line color	-		
Axis	Y-axis		
Jse markers			
Jse tooltip	~		
Chart clustered			
Show high limit	Do not show		
Show pre-high limit	Do not show		
Show pre-ow limit	Do not show	•	
Show low limit	Do not show	-	

Options for a Line

- Label: Name of the line
- Is used: When the line must be shown in the chart make sure this field is checked ! (Uncheck it if you do not want to show the line in the chart but want to keep the settings for later).
- Use property definition name: When checked the name of the property definition will be used as a label in the legend, if unchecked the label of the line will be used.
- Property definition and Property definition item: Every line is based on the values of a property definition item. These fields are used to select the property definition item to be used for the line.
- Time interval: Option run from a quarter hour to a year or None.
- Adjustment: Options are : Average, Count, Maximum, Minimum, Sum or None.
- Line type:
 - Area
 - Bar
 - Column
 - Line
 - Point
 - Default is Line.
- Line style:
 - Normal : straight line from value to value.
 - Stacked: value of a line is added to the value of a lower line.
 - Stacked 100 : the sum of all lines stays 100%.
 - Stepline : square wave
 - Smooth : not a straight line from point-to-point but a sinus wave like line connecting all points.

Default is Normal.

• Line color: Every (new) line has a default (new) color on creation. The color can be altered here.

- Axis : Select the Y-axis here.
- Use markers:
- Use tooltip: If checked will show values of a point on the line as a tooltip on hovering over the line with the cursor.
- Chart clustered:
- Show high limit: Options are Line, Band or Do not show (default).
- Show pre high limit: Options are Line, Band or Do not show (default).
- Show pre low limit: Options are Line, Band or Do not show (default).
- Show low limit: Options are Line, Band or Do not show (default).

8.2.5 Creating a Chart by yourself

Do-it-yourself block in which a chart with two lines is created in Design.

In chapter <u>Creating Charts in Design</u> a chart was made. The General tab is already finished, only the axes and lines need some work.

Air pressure

To get an interesting chart with multiple lines we create another property definition ' air pressure ', with property definition item ' air pressure item ' (type: float, Enable Label, Enable input field, Digits = 0, Enable unit field, Unit = ' mBar ').

On the hardware, in the LightGate, in the menu item HardwareIO, at Internal Sensors ' Air pressure ' press the ' + ' button to create the item. Then choose ' Transferred ' from Sample destination, and select ' air pressure ' at the property presentation definition, 'air pressure value' at property definition item. Change Label in ' air pressure ', in 'Sensor type' field, choose ' Barometer ', for PGA select ' Value '.

Water level in the pit

Create another property definition 'Water level' (type: float, Enable label, Enable input field, Digits=2, Enable unit field, Unit = 'm').

On the hardware, at the LightGate, in the menu HardwarelO, at External IO, Analog in, press the ' + ' button on the grid line labeled Analog 2 to create this point. Set Sample destination to ' Transferred ' and select ' water level ' at property definition field, and 'water level' at property definition item. At Label field, enter 'Water Level'. At 'Sensor type', choose Current 4.. 20mA: 0-20mA (Next only) ', at PGA ' Current 0-20 mA '.

Now we continue with the chart:

Axes

- At the Axes tab, in the grid, edit the X-Axis.
- Check 'Enable axis label'
- Enter 'Time' in the label field, click 'Save'.
- At the Axes tab, in the grid, edit the Y-axis.
- Check 'Enable axis label'
- Enter "C' in the label field, click 'Save'.
- At the Axes tab, add an axis toe (using the '+'-knop top right of the grid).
- Label 'mBar', select 'Right' at 'Axis left right', click 'Save'.
- At the Axes tab, add another axis.



• Label 'm', 'Axis left right' select 'left', click 'Save'.

OVERVIEW CHARTS >> EDIT CHART: MEASUREMENT DATA

	loyment	ons Dep	Connecti	s History	Categorie	Lines	Axis	Gene
Actions	Style def	Axis to	Axis from	ls auto range	e	Scale	Axis type	Label
Ê /	Default style (version 1)			~	ial	Norma	X-axis	X-axis
ÊØX	Default style (version 1)			~	al	Norma	Left	Y-axis
Ê / >	Default style (version 1)			~	al	Norms	Right	mBar
ÊØX	Default style (version 1)			~	al	Norms	Left	m



Lines

• At the Lines tab, click the '+'-button top right on the grid. Enter name 'Ambient temperature', select at property definition 'LightGate temperature', at property definition item 'Temperature', Axis Y-axis. Make sure that 'Is used' and 'Use tooltip' are checked. Click 'Save'.

Label	Ambient temperature		
Is used	~		
Use property definition name			
Property definition	LightGate Temperature (vers	ion 1)	
Property definition item	Temperature		
Time interval	None		
Adjustment	None		
Line type	Line	-	
Line style	Normal	•	
Line color	•		
Axis	Y-axis	*	
Use markers			
Use tooltip	~		
Chart clustered			
Show high limit	Do not show	•	
Show pre-high limit	Do not show	-	
Show pre-ow limit	Do not show		
Show low limit	Do not show		

OVERVIEW CHARTS >> EDIT CHART: MEASUREMENT DATA >> CHARTS PARTIAL LINES CREATE

Create another line. Label it 'air pressure', property definition 'air pressure', property definition item 'air pressure value'. Select at Axis 'mBar'. Click 'Save'.
 OVERVIEW CHARTS >> EDIT CHART: MEASUREMENT DATA >> CHARTS PARTIAL LINES CREATE >>

Label	Air pressure		
Is used	~		
Use property definition name			
Property definition	air pressure (Sandbox)		
Property definition item	air pressure value		
Time interval	None	-	
Adjustment	None		
Line type	Line	· · · · · · · · · · · · · · · · · · ·	
Line style	Normal		
Line color	T		
Axis	mBar	-	
Use markers			
Use tooltip	~		
Chart clustered			
Show high limit	Do not show	•	
Show pre-high limit	Do not show	*	
Show pre-ow limit	Do not show	•	
Show low limit	Do not show	*	



• Also, create a line for the water level:

OVERVIEW CHARTS >> EDIT CHART: MEASUREMENT DATA >> CHARTS PARTIAL LINES CREATE

Label	Water level		
ls used	~		
Use property definition name			
Property definition	water level (Sandbox)		*
Property definition item	water level		•
Time interval	None	+	
Adjustment	None		
Line type	Area	-	
Line style	Smooth	•	
Line color	•	1	
Axis	m	*	
Use markers			
Use tooltip	~		
Chart clustered			
Show high limit	Do not show	•	
Show pre-high limit	Do not show	*	
Show pre-ow limit	Do not show	•	
Show low limit	Do not show	•	

Het grid met lijnen ziet er nu zo uit:

OVERVIEW CHARTS >> EDIT CHART: MEASUREMENT DATA

General Axis	Lir	nes Ga	ategories	History	Connecti	ions	Deployment				_
											+
Label	Axis	is used	Use pdna	me Pr	operty	Pr	operty item	Acti	ons		
Ambient temperature	Y-axis	~		Lig Ter (ve	htGate nperature rsion 1)	Ter	nperature	Ê	Ø	×	v
Air pressure	mBar	~		air (Sa	pressure ndbox)	air	pressure value	Ē	Ø	×	V
Water level	m	~		wa (Sa	ter level ndbox)	ws	ter level	Ê	Ø	×	V

8.2.6 Chart in Live

To be able to use this chart we have to perform following steps:

• Add the chart to the asset node 'Sewer Well', at the 'Elements' tab. (If no sandbox version of this asset is available make a new sandbox version using the 'create sandbox' button of the highest active version of this asset).


EDIT ASSET NODE TYPE

General	Categories	Elements	Elements Menu		i buttons Histo		Connections	Deployment
Select elem	ient type			-	Edit			
Туре	1	Name	÷	Version	:	Acti	ons	
Charts		Measurement date	a	1		*	1	
Hardware no	des	LightGate		2		*		
Periodselect	ors	Default period sele	ector			*]	
Property defi	nitions	air pressure		1		*	0	
Property defi	nitions	LightGate Temper	ature	1		4		
Property defi	nitions	water level		1		7		
Screens		Sewer Well Monito	or	1		7	1	
RA	1 Page	1 of 1	6				C	

When adding the chart 'Measurement data' to the asset, a question will appear whether child-elements should also be copied. Select 'Yes'. Then the items that are used by the chart will also be copied to the asset. These items like the period selector or property definitions have to be present at the asset node or else the chart will not work.

- Promote the chart at the Deployment tab to state Active.
- Add chart to the asset 'Sewer Well'.
- Promote the asset node at the Deployment tab to state Active.
- Promote the hardware node at the Deployment tab to state Active.
- In Live, execute a synchronization of the asset and hardware nodes (at the menu item Revision management).

The water level is now adjustable using the upper knob of the test set up.



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In Live we can see following chart:





8.3 Tables

Tables, like graphs, are used to display data.

In Avision, tables are set horizontally and vertically, based on:

- Nodes
- Property Definitions in combination with Adjustment
- Adjustment (none, average, number, maximum, minimum, sum, last measured value)
- TimeInterval (none, quarter hour, hour, day, week, month, quarter year, half year, year)

In Avision seven types of tables are available:

- 1. Node Overview
- 2. Data Export
- 3. Property Definitions overview
- 4. Periode Operation overview
- 5. Matrix
- 6. Node Period Overview
- 7. Node Operation Overview

The following table is useful in determining the type of table to use:

Data output based on :: horizontal(columns) / vertical(rows)

				Time	
Data basis	Nodes	Property	Adjustment	Interval	
					Nodes / Property definition in combination
1: PARENT	1	1	0	0	with Adjustment
2: 1 Node(set)	0	1	0	1	Property definition / Time interval
3: 1 Node(set)	0	1	1	0	Property definition / Adjustment
4: 1 Node(set)+1 Property					
definition	0	0	1	1	Adjustment / Time interval
5: 1 Node(set)+1 Property					
definition	0	0	0	1	Time interval / Time interval
6: 1 Property definition	1	0	0	1	Nodes / Time interval
7: 1 Property definition	1	0	1	0	Nodes / Adjustment



8.3.1 Creating a Table Definition

A new table can be created from the Tables Overview screen (if you have the right rights). The '+' button at the top right of the grid starts the tables append screen:

Y Sandbox Active Inac	tive Trashbin Inher	rited			+
Name :	Table type	Version :	State	Last changed	Actions
Default 1. Node overview, last values	Node overview	1	Inherited	09/11/2018 16:04:56	Ê®
Default 2. Data export	Data export	1	Inherited	09/11/2018 16:04:39	ÊR
Default 3. Property overview	Property overview	1	Inherited	09/11/2018 18:37:39	Ê®
Default 4. Period calculation overview	Period calculation overview	1	Inherited	09/11/2018 18:49:03	ÊR
Default 5. Matrix	Matrix	1	Inherited	09/11/2018 20:05:29	Ê®
Default 6. Node period overview	Node period overview	1	Inherited	09/11/2018 20:10:11	Ê®
Default 7. Node calculation overview	Node calculation overview	1	Inherited	09/11/2018 20:12:41	ÊQ
Page 1	of 1 🕨 🕨 250	🔹 Items per	page		1 - 7 of 7 Items 🔘
Add table					
Name					
Table type	select		•		
Cancel Add					

Enter the name here, choose the table type and click on 'Add '. **Please Note:** Table type cannot be changed after the table has been created.



8.3.2 Table Type 1: Node Overview

The node summary table provides an overview of node (s) with number of set attributes. The data in the cells has been retrieved through operation on the data.

Laatste uur H	uidige dag Laatste 7 dagen I	Laatste 4 weken Huid	ig kwartaal Vorig kwai	taal Laatste 6 maande	en				
Node : idheader	Node name header :	Decimaal 1	Decimaal 2	Decimaal 3	Decimaal 4	Column_G	Column_A	Column_M	Column_M
name		1							
10	Asset a	5	4,98	7,05	5,55	5,65	4	7,05	4,98
Row_Gemid		5	4,98	7,05	5,55	5,65	4	7,05	4,98
Row_Aantal		1	1	1	1	1	1	1	1
Row_Maxim		5	4,98	7,05	5,55	5,65	4	7,05	4,98
Row_Minimum		5	4,98	7,05	5,55	5,65	4	7,05	4,98
	Pagina 1 van 1	250 🔻	Rijen per pagina						

8.3.2.1 Tab Algemeen

General	Tab columns	Tab rows	Tab extra calculations fields	Categories	History	Connections	Deploym
General s	ettings						
Table labe	4	Node	Overview				
Design sta	ate	Sandbox					
Version		1					
Table type		Node ove	erview				
Periode/s	ource settings						
Data from	last value						
Period sel	ector	Avision	- Default period selector			*	
Input sour	се	Current	node	•			
Column/r	ow settings						
Column da	ata	Nodes					
Row data		Propert	у				
		Switch o	lata type column with row				
Date time	on 2 lines						
Realign da	ate time fields						
Table title	settings						
Title style		Avision	- Default style (10px) (version 1)			•	
Show row	above header						
Show tabl	e pager row						
Color set	tings						
First cell	color		Header row color				
		•	•				
First colu	umn color	E	Even row even colomn color	Even row of	dd colomn c	plor	
		-	•			-	
		C	Odd row even colomn color	Odd row od	id colomn co	lor	
				10			

Data from last value: Check this box to indicate that the data is from the last value table or leave it unchecked when the data is to be retrieved by the chosen period selector.

Period selector: Select a period selector from the dropdown.

Input source: Select the nodes supplying the data. Options are: Current node, Current node down, Node picker and Filter.

Swap data type column with row: This button swaps columns and lines. **Caution:** The settings for columns and lines will be swapped as well.

Date time on 2 lines: When checked will place dat and time on two separate lines.

Realign date time fields: If this option is checked, the data is aligned to date and time. This means that data with the same date and time will be on one line. There is only one column of date and time in the table, whereas if the option is unchecked, a separate date and time column is used for each data point.

Color settings: Here the user can choose colors for the table.

8.3.2.2 Columns Tab



In This tab, columns can be added. If the column data is of type node, nothing can be set here. Which node(s) is(are) used depends on the setting of the field 'source' at the general Tab.

8.3.2.3 Rows Tab

Property definition overview Label : Property definition item : Adjustment : Actions	General Tab co	olumns Tab rows	Tab extra calculations fields	Categories	History	Connections	Deployment
Label : Property definition item : Adjustment : Actions	Property definit	tion overview					
Label : Property definition item : Adjustment : Actions							
	Label		Property definition item	: Adju	stment		Actions

General	Tab columns	Tab rows	Tab extra calculations fields	Catego	ries	Histor	y	Connections	Deployment
Property	definition ove	rview							
								+	
Label		:	Property definition item	:	Actio	ns			
Processor te	emperature		Processor temperature		Ê	X	V		
Ambient tem	perature		Ambient temperature		Ê	X		•	
Modem field	strength		Modem fieldstrength		Ê	X		•	
Air pressure			Air pressure		Ê	X		W	
Relative hun	nidity		Relative humidity		Ê	X		•	
Signal to No	ise Ratio		Signal to Noise Ratio		Ê	Ø X			
	1 Page 1	of 1	250 👻 Items per pa	ge		1 - 6	of 6	Items 🕜	

Lines of type Property Definition can be added using the '+' button, top right on the grid.

Above an overview of the already added property definitions. The settings can be viewed per line, edited, deleted and also the order can be changed using the arrows in the grid.

AVIC ----

General settings		
Table label Use property definition name Property definition general se	Property1	
Property definition	Avision - LegioBox internal sensor Ambient temperature (version 1)	
Property definition item	Ambient temperature	•
Adjustment	None	
Cancel Add		

Adding a Property Definition to the table is possible using the screen above.

8.3.2.4 Extra Calculation Fields Tab

In this tab, users can add additional rows and/or columns in which, for example, Max, Min, Sum, or other calculations can be done on the preceding rows, or columns.

General	Tab columns	Tab rows	Tab extra calculations fie	elds	Categories	History	Connections	Deployment
Title ove	erview extra cal	c fields						
Title edit	column extra calc	fields						
Header la	bel	н	eader adjustment					
Column_A	verage	A	verage	0	×			
+								
Title edit	row extra calc fiel	ds						
Header la	bel	н	eader adjustment					
Row_Aver	age	A	verage	0	×			
Adjuctor		cottings tit	10					
Aujusun	ent calculation	settings in	10					
Data adjus	stment label	Column	_Average					
Adjustmer	ıt	Average	-		•			
Translatio	ns Close S	ave						

Use the '+' buttons to add columns or rows.

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8.3.3 Table Type 2: Data Export

The Data export table is a table that shows multiple property values with time interval, of certain node(s).

.aatste uur Huidige dag	Laatste 7 dage	en Laatste 4 weken Huidig I	kwartaal V	orig kwartaal Laatste 6 ma	anden							
Decimal	: :	Decimal Property 1	:	Decimal Property 2	: :	Decimal Property 3	:	Column_G	Column_A	Column_M	Column_M	
1-2-2019 00:00:00	1,12	1-2-2019 00:00:00	8,54	1-2-2019 00:00:00	10,54	1-2-2019 00:00:00	5,55	6,44	7	10,54	1,12	
1-2-2019 00:15:00	6,43	1-2-2019 00:15:00	9,57	1-2-2019 00:15:00	18,16	1-2-2019 00:15:00	5,34	9,88	7	18,16	5,34	
1-2-2019 00:30:00	3,43	1-2-2019 00:30:00	9,54	1-2-2019 00:30:00	21,56	1-2-2019 00:30:00	3,09	9,41	7	21,56	3,09	
1-2-2019 00:45:00	3,02	1-2-2019 00:45:00	9,65	1-2-2019 00:45:00	23,73	1-2-2019 00:45:00	1,03	9,36	7	23,73	1,03	
1-2-2019 01:00:00	2,44	1-2-2019 01:00:00	8,23	1-2-2019 01:00:00	11,01	1-2-2019 01:00:00	0,95	5,66	7	11,01	0,95	
1-2-2019 01:15:00	8,81	1-2-2019 01:15:00	7,40	1-2-2019 01:15:00	5,94	1-2-2019 01:15:00	3,61	6,44	7	8,81	3,61	
1-2-2019 01:30:00	6,48	1-2-2019 01:30:00	8,57	1-2-2019 01:30:00	14,83	1-2-2019 01:30:00	0,47	7,59	7	14,83	0,47	
1-2-2019 01:45:00	2,18	1-2-2019 01:45:00	6,39	1-2-2019 01:45:00	9,87	1-2-2019 01:45:00	9,03	6,87	7	9,87	2,18	
1-2-2019 02:00:00	4,05	1-2-2019 02:00:00	2,59	1-2-2019 02:00:00	15,40	1-2-2019 02:00:00	1,14	5,8	7	15,4	1,14	
1-2-2019 02:15:00	4,63	1-2-2019 02:15:00	8,95	1-2-2019 02:15:00	14,97	1-2-2019 02:15:00	9,04	9,4	7	14,97	4,63	
1-2-2019 02:30:00	3,35	1-2-2019 02:30:00	6,37	1-2-2019 02:30:00	7,90	1-2-2019 02:30:00	2,97	5,15	7	7,9	2,97	
1-2-2019 02:45:00	4,79	1-2-2019 02:45:00	8,69	1-2-2019 02:45:00	12,11	1-2-2019 02:45:00	1,87	6.87	7	12.11	1.87	

8.3.3.1 General Tab

General	Tab columns	Tab rows	Tab extra calculations fields	Categories	History	Connections	Deplo
General s	settings						
Table labe	el	Defaul	It 2 Data export				
Design st	ate	Sandbox	6				
Version		1					
Table type	e <mark>-</mark>	Data exp	oort				
Periode/s	source settings						
Period sel	lector	Avision	- Default period selector			•	
Input sour	rce	Current	node	Y			
Adjustme	nt	None		•			
Column/r	row settings						
Column d	ata	Propert	ty				
Row data		Time in	terval				
		Switch o	data type column with row				
Date time	on 2 lines						
Realign d	ate time fields	~					
Table title	e settings						
Title style		Avision	- Default style (10px) (version 1)			•	
Show row	above header						
Show tabl	le pager row						
Color set	tings						
First cel	l color		Header row color				
	Misserdar.	•	•				
First col	umn color	E	Even row even colomn color	Even row o	dd colomn c	olor	
						-	
		(Odd row even colomn color	Odd row od	ld colomn co	lor	
			•			-	

Same as with x but now column/row set ups are between property definition and time interval. To change time interval settings go to the Rows Tab.

AVIC

General	Tab columns	Tab rows	Tab extra calculations fields	Categories	History	Connections	Deployment
Row time	interval						
Auto range Max count	•	✓ 3	•				
Cancel	Save						

Auto range: When checked **auto range** is set for the time interval. When unchecked the time interval can be selected from a drop down list.

General	Tab columns	Tab rows	Tab extra calculations fields	Categories	History	Connections	Deployment
Row time	interval						
Auto range	9						
Time interv	val	None	×	.			
Max count	i.	None		^			
		Quarter	of hour				
Cancel	Save	Hour					
		Day					
		Week					
		Month					
		Quarter	of year				
		Half yea	ar				
		Year		~			

Max Count: Sets the maximum number of lines or rows in Live.



8.3.4 Table Type 3: Property Definitions Overview

This is a table in which an operation in a column or line is performed on the data of one or more nodes, per property definition item.

Laatste uur Huidige dag	Laatste	7 dagen	Laatste 4 we	ken	Huidig kwartaal	Vorig kwartaal	Laat	tste 6 maanden
Property presentation header name	:	Som	:	First	t value	Deviation min average	:	
Decimal		10075,41		0,79				~
Decimal Property 1		10035,01		3,19				
Decimaal 3		10204,59		5,55				
Rij_Gemiddeld		10105		3,18				
Rij_Aantal		3		3				
Rij_Maximum		10204,59		5,55				
Rij_Minimum		10035,01		0,79				×
Pagina	1	van 1	Þ H	250	Rijen per	pagina		1 - 7 van 7 Items 💍



8.3.4.1 General Tab

	Tab columns	Tab rows	Tab extra calculations fields	Categories	History	Connections	Deployment
General s	settings						
Table labe	el.	Defaul	t 3 Property Overview				
Design sta	ate	Sandbox					
Version		1					
Table type	3	Property	overview				
Periode/s	source settings						
Period sel	lector	Avision	- Default period selector			- 1	
Input sour	rce	Current	node	*			
Adjustmer	nt	- selec	t	•			
Column/r	row settings						
Column d	ata	Adjustn	nent				
Row data		Propert	y				
		Switch o	lata type column with row				
Date time	on 2 lines						
Realign da	ate time fields						
Table title	e settings						
Table title Title style	e settings	Avision	- Default style (10px) (version 1)			•	
Table title Title style Show row	e settings rabove header	Avision	- Default style (10px) (version 1)			•	
Table title Title style Show row Show tabl	e settings above header le pager row	Avision	- Default style (10px) (version 1)			•	
Table title Title style Show row Show tabl	e settings r above header le pager row tings	Avision	- Default style (10px) (version 1)			•	
Table title Title style Show row Show tabl Color set	e settings r above header le pager row tings I color	Avision	- Default style (10px) (version 1)			•]	
Table title Title style Show row Show tabl Color set First cell	e settings r above header le pager row tings I color	Avision	- Default style (10px) (version 1) Header row color			•	
Table title Title style Show row Show tabl Color set First cell	e settings r above header le pager row tings I color umn color	Avision	- Default style (10px) (version 1) Header row color	Even row o	dd colomn ca	Dolor	
Table title Title style Show row Show tabl Color set First cell	e settings above header le pager row tings I color umn color	Avision	- Default style (10px) (version 1) Header row color	Even row or	dd colomn ce	▼ olor	
Table title Title style Show row Show tabl Color set First cell	e settings r above header le pager row tings I color umn color	Avision	- Default style (10px) (version 1) Header row color Even row even colomn color Color Color	Even row or Odd row od	dd colomn ca		
Table title Title style Show row Show tabl Color set First cell	e settings r above header le pager row tings I color umn color	Avision	- Default style (10px) (version 1) Header row color	Even row or Odd row od	dd colomn ca id colomn co	▼]	

Same as with x but now column/row set ups are between operation and property definition. To change operation settings go to the Rows tab.



8.3.4.2 Columns Tab

Algemeen	Tab kolommen	Tab regels	Tab extra ber	eken velden	Categorië	n Geschiedenis	Verbindingen	Vrijgeven
Kolom bev	verkings velden	wijzig						
Titel wijzig k	oewerking							
Label			Aanpassing					
Row_Gemide	deld		Gemiddeld	<i>i</i> ×	▼			
Column_Aan	tal		Aantal	<i>i</i> × .				
Column_Max	kimum		Maximum	Ø 🗙 .				
Column_Min	imum		Minimum	Ø 🗙 .				
Column_Son	n		Som	Ø 🗙 .				
+								

Using the '+'-knop new adjustments can be added.

When adding a new adjustment, the next operation is automatically selected.

General	Tab columns	Tab rows	Tab extra calculati	ons fields	Categories	History	Connections	Deployment
Title colu	umn adjustmen	ts fields ea	lit					
Title edit a	adjustments							
Header lat	bel		Header adju	stment				
Column_A	verage		Average	<i>i</i> ×				
Column_C	ount		Count	<i>i</i> ×				
Column_M	laximum		Maximum	<i>i</i> ×				
Column_M	linimum		Minimum	<i>i</i> ×				
Column_S	um		Sum	<i>i</i> ×				
+								
Adjustm	ent settings titl	le						
Data adjus	tment label	Colum	n_Minimum					
Adjustmen	t	Minimu	m	×	•			
		Averag	е					
Translation	ns Close Sa	ave Count						
		Sum						
		Maximu	ım		_			
		Minimu	ım					
		First va	lue					
		Last va	lue					
		Deviatio	on min average					
		Deviatio	on max average					

8.3.5 Table Type 4: Periodical Adjustment Overview

Of a single property definition, data (and adjustments of that data) over a certain time interval is displayed.

Laatste uur Huidige dag	Laatste 7 dagen Laat	tste 4 weken Huidig kv	vartaal Vorig kwartaal	Laatste 6 maanden		
Time interval header :	Gemiddeld	Aantal	Maximum	Minimum :	Som :	First value
Vrijdag	5,13	276,00	9,91	0,05	1415,70	4,82
Zaterdag	4,91	288,00	9,95	0,03	1414,79	9,26
Zondag	5,05	288,00	9,98	0,00	1453,48	7,86
Maandag	4,91	288,00	9,92	0,01	1414,74	0,71
Dinsdag	4,73	288,00	9,95	0,01	1363,47	7,01
	<					>
Pagina	1 van 1 🕨	🖻 250 🔻 Ri	jen per pagina		1 - 5	van 5 Items 💍



8.3.5.1 General Tab

General	Tab columns	Tab rows	Tab extra calculations fields	Categories	History	Connections	Deployment
General s	ettings						
Table labe	1	Defaul	t 4 Period Calculation Overview	_			
Design sta	ite	Sandbox					
Version		1					
Table type		Period ca	lculation overview				
Periode/s	ource settings						
Period sel	ector	Avision	- Default period selector			-	
Input sour	ce	Current	node	•	13.5		
Property d	efinition	Avision	- LegioBox internal sensor Process	or temperature	(version 1)		-
Property d	efinition item	Process	or temperature				•
Adjustmen	t	Average		•			
Column/re	ow settings						
Column da	ata	Adjustr	ient				
Row data		Time in	terval				
		Switch d	lata type column with row				
Date time	on 2 lines						
Realign da	ite time fields						
Table title	settings						
Title style		Avision	- Default style (10px) (version 1)			•	
Show row	above header						
Show table	e pager row						
Color sett	ings						
First call	color	Π.	leader row color				
T inst cell	CONDI						
			<u> </u>				
First colu	imn color	E	ven row even colomn color	Even row of	dd colomn co	olor	
			•			•	
		C	dd row even colomn color	Odd row od	d colomn col	or	
Translation	ns Cancel	Save					

Property definition: Select the Property definition.

Property definition item: Select the property definition item.

Adjustment: The adjustment that is performed on the data of the given property definition.

8.3.6 Table Type 5: Matrix

This is a table where, using one design, one property definition can be chosen on which the adjustment is done, with a small time interval and a big time interval.

Laatste uur	Huidig	ge dag	Laatste 7	dagen	Laatste 4	weken	Huidig kv	vartaa	I Vorig kwarta	al Laatste 6 maanden
Time interva	al : ne	00:00	- 00:15	00:1	5 - 00:30	: 00:3	80 - 00:45	: 0	0:45 - 01:00	
1-2-2019 00: 01:00	:00 -	1,12		6,43		3,43	;	3	,02	
1-2-2019 01: 02:00	:00 -	2,44		8,81		6,48		2	,18	
1-2-2019 02: 03:00	:00 -	4,05		4,63		3,35		4	,79	
1-2-2019 03: 04:00	:00 -	4,90		4,95		5,09)	4	,81	
1-2-2019 04 05:00	:00 -	7,56		7,15		6,64		5	,13	
1-2-2019 05:	- 00	3,54		6,15		5,77		2	,99	



8.3.6.1 General Tab

General Tab columns	Tab rows	Tab extra calculations fields	Categories	History	Connections	Deployment
General settings						
Table label	Defaul	t 5 Matrix				
Design state	Sandbox	1				
Version	1					
Table type	Matrix					
Periode/source settings						
Period selector	Avision	- Default period selector			•	
Input source	Current	node	*			
Property definition	Avision	- LegioBox internal sensor Process	or temperature	(version 1)		-
Property definition item	Process	or temperature				•
Adjustment	Sum		•			15 - 16
Column/row settings						
Column data	Time in	terval				
Row data	Time in	terval				
Date time on 2 lines						
Realign date time fields						
Table title settings						
Title style	Avision	- Default style (10px) (version 1)			-	
Show row above header				1.		
Show table pager row						
Color settings						
First cell color	ŀ	leader row color				
\mathbf{N}	-	•				
First column color	E	ven row even colomn color	Even row of	dd colomn co	olor	
X		•			-	
	c	Odd row even colomn color	Odd row od	d colomn co	lor	
					-	
Translations Cancel	Save					

Property definition: Select property definition.

Property definition item: Select property definition item.

Adjustment: The adjustment that is performed on the data of the given property definition.



8.3.7 Table Type 6: Node Period Overview

Table with one property definition on which the adjustment is done, per node and time interval.

Laatste uur Huidige dag Laatste	e 7 dagen Laatste 4 weken H	luidig kwartaal Vorig kwartaal	Laatste 6 maanden
Node name and idheader :	1-2-2019 00:00:43	1-2-2019 00:05:43	1-2-2019 00:10:43
Asset a (10)	0,79	2,34	0,23
Pagina 1	van 1 🕨 🕨 250	Rijen per pagina	1 - 1 van 1 Items 🍎

8.3.7.1 Tab Algemeen

General	Tab columns	Tab rows	Tab extra calculations fields	Categories	History	Connections	Deployment
General s	ettings						
Table labe	I	Defaul	t 6 Node Period Overview				
Design sta	ate	Sandbox	2				
Version		1					
Table type	•	Node pe	riod overview				
Periode/s	ource settings						
Period sel	ector	Avision	- Default period selector			•	
Input sour	ce	Current	node down	•			
Property of	lefinition	Avision	- LegioBox internal sensor Process	sor temperature	(version 1)		•
Property of	lefinition item	Process	or temperature				•
Adjustmer	nt	Sum		•			
Column/r	ow settings						
Column d	ata	Time in	terval				
Row data		Nodes					
		Switch o	lata type column with row				
Date time	on 2 lines						
Realign da	ate time fields						
Table title	settings						
Title style		Avision	- Default style (10px) (version 1)			•	
Show row	above header						
Show tabl	e pager row						
Color set	tings						
First cell	color	1	Header row color				
		-					
Contract				-		-	
First col	umn color		even row even colomn color	Even row o	dd colomn c	DIOF	
			× •				
		(Odd row even colomn color	Odd row od	d colomn co	lor	
			•			•	
Translatio	ns Cancel	Save					

Property definition: Select property definition.

Property definition item: Select property definition item.

Adjustment: The adjustment that is performed on the data of the given property definition.

8.3.8 Table Type 7: Node Calculation Overview

Table where one property definition is selected on which an adjustment is performed, per node over a period selected in the period selector.

Laatste uur Huidige dag I	Laatste	7 dagen Laatste 4	we	ken Huidig kwartaal	Vorig kwartaal	Laats	te 6 maanden		
Node name and idheader name	:	Gemiddeld	:	Aantal	Maximum	:	Minimum	Som :	First valu
Asset a (10)		4,98		2016	9,99		0,01	10035,01	3,19 🗘
Pagina -	1	van 1 🕨 🕨		250 🔻 Rijen per	pagina			1 - 1 van 1 It	ems 💍



8.3.8.1 General Tab

General	Tab columns	Tab rows	Tab extra calculations fields	Categories	History	Connections	Deployment
General set	tings						
Table label		Defaul	t 7 Node Calculation Overview				
Design state		Sandbox	ž.				
Version		1					
Table type		Node cal	culation overview				
Periode/sou	irce settings						
Period selec	tor	Avision	- Default period selector			•	
Input source		Current	node	*			
Property def	inition	Avision	- LegioBox internal sensor Process	or temperature	(version 1)		•
Property def	inition item	Process	or temperature				
Column/rov	v settings						
Column data		Adjustn	nent				
Row data		Nodes					
		Switch d	lata type column with row				
Date time or	1 2 lines						
Realign date	time fields						
Table title s	ettings						
Title style		Avision	- Default style (10px) (version 1)			•	
Show row at	oove header						
Show table p	bager row						
Color settin	gs						
First cell co	olor	ŀ	leader row color				
		•	•				
First colum	in color	E	ven row even colomn color	Even row or	dd colomn co	blor	
			•			× 1	
		c	Odd row even colomn color	Odd row od	d colomn col	or	
						-	
Translations	Cancel	Save					

Property definition: Select property definition.

Property definition item: Select property definition item.

8.4 Gauges

Gauges can be created as part of a Monitor screen or a report. Gauges come in two shapes, round (like the speedometer in a car) or linear.

8.4.1 Creating Gauges in Design

In Design we first create the gauge. In the menu, at 'Visual elements', click on Gauges to go to the Gauges module. Click on the '+'-button, top right on the grid. Enter the name for the gauge and click the 'Save' button.

8.4.2 General Tab

Following fields are shown at the General Tab:

General

- Gauge label: Name of the gauge.
- Design state
- Version
- Gauge type: Radial (round gauge) or Linear.
- Period selector: Select a period selector
- Adjustment: Select the adjustment to determine the value to show. This field is only shown when the period selector is used.

Highlighting

- Show title: Check this if the gauge should have a title.
- Title style: Select a style for the title.
- Title equals name: The title of the gauge equals the label/name of the gauge by default. If the title should be something else then uncheck this field. A field named 'Gauge title' will appear where an alternative text can be entered.
- Start angle: Angle where the gauge starts (only for radial gauges).
- End angle: Angle where the gauge stops (only for radial gauges).
- Auto range: The range of the gauge is determined by the ranges set at the property definition item.
- From/To: The ranges of the gauge. Is only shown when the auto range field is unchecked.

Labels

- Show labels: indicate whether labels should be shown at the gauge's scale.
- Label style: Select the style to be used for the labels at the scale.
- Label position: Two options, inside or outside the scale.

Ticks

- Show major ticks: Check this when the major ticks should be shown on the scale.
- Major ticks: Interval of the major ticks on the scale. The number entered indicates the step size/distance between the markings.
- Major ticks width: The width of a major tick in pixels.
- Major ticks height: Length of the major ticks in pixels.
- Show minor ticks: Check this if the minor ticks should be shown on the scale.
- Minor ticks: Interval of the minor ticks on the scale. The number entered indicates the step size/distance between the markings.
- Minor ticks width: The width of a minor tick in pixels.
- Minor ticks height: Length of the minor ticks in pixels.



Colors

- Color high limit: Color of the zone above high.
- Color pre high limit: Color of the zone between pre high and high.
- Normal color: Color of the zone between pre low and pre high.
- Color pre low limit: Color of the zone between low and pre low.
- Color low limit: Color of the zone below low.

Legend

- Use factor: Check this to use a factor to decrease the numbers.
- Factor: The factor used. Only shown when 'Use factor' is checked.
- Show legend: Show a legend for the gauge.
- Legend up: Pixels from the top.
- Legend left: Pixels from the left.
- Legend style: Style used for text in the legend.
- Icon: Icon at the gauge.
- Legend text: Text to be shown at the legend.

8.4.3 Creating a Pointer

To create a pointer on a gauge, we first select the gauge under the gauge module. After that, we select the Pointers tab and click on the ' + ' button in the top right corner of the grid. Enter the name of the pointer to create and click ' Save '.

8.4.4 Pointer

In the pointer layer following fields can be edited:

General

- Label: Name of the pointer.
- Is used: Check this when the pointer is in use, uncheck to disable it.
- Is primary: Check to indicate this is the primary pointer from which the range will be determined.
- Use property definition name: uncheck this to use the label name.
- Property definition and Property definition item: Select the datapoint to be used for the pointer.
- Color: The color of the pointer.

8.4.5 Gauge on a Screen

Do-it-yourself block where you create a gauge on a screen of the asset 'Sewer Well'.

• Create a new Gauge by clicking the '+'-button top right on the grid

General tab

• Set gauge label to 'Water Level', type 'Radial'

Gauge label	Water Level		
Design state	Sandbox		
Version	1		
Gauge type	Radial	•	
Period selector	not used		-



• At Highlighting, uncheck Autorange, set range from 4.0 to 20.0

Highlighting

Start angle	-30	
End angle	210	\$
Source min max	Manual	•
From	4.00	\$
То	20.00	\$

• Set Label position to 'Outside'

Labels		
Show labels	✓	
Label style	Default style (version 1)	-
Label position	Outside 🗸	

• Interval scale 1, small scaling 0,5

Tieles sense	Magual	
ncks range	Manuai	
Show major ticks	~	
Major ticks	1.00 🝦	
Major ticks width	1.00 🝦	
Major ticks height	15.00 🝦	
Show minor ticks	~	
Minor ticks	0.50 🝦	
Minor ticks width	1.00 🝦	
Minor ticks height	10.00	

• Select colors. (For the values where the zones begin the limits of the property definitions are used).

Colors	
Color high limit	~
High	•
Color pre-high limit	~
Pre-high	*
Normal color	~
Normal	
Color pre-low limit	~
Pre-low	-
Color low limit	~
Low	-

• Click 'Save'

Pointers tab

• Create a pointer by clicking the '+'-button



• Select property definition, color of the pointer

Label	pointer	
Is used	✓	
Is primary	\checkmark	
Use property definition name		
Property definition	water level (version 1)	•
Property definition item	water level	
Color	▼	

Property Definition waterlevel

• Add limits at the notification tab

Presentation	Notification	Limit colors	Source	Identifier
Configurable in	Design			*
Hysterese	1.00	÷		
Limit	Limit value	Limit delay		Limit trigger
Lliab	19.00	4	Seconds	From lower value
nigii	18.00	;	Seconds	From higher value
Dro bigh	15.00		Seconds	From lower value
Fre-nign	15.00	4	Seconds	From higher value
Pro low	0.00		Seconds	From lower value
rie-low	3.00		Seconds	From higher value
Low	6.00		Seconds	From lower value
LOW	0.00	•	Seconds	From higher value

Section Status

- Add gauge at 'Content selection'.
- At 'Digital Layout' tab drag and drop the gauge on the canvas.



- Update the Screen, Asset node etc.
- Synchronizing in Live

This will give show following monitor screen in Live:

OVERZICHT MONITORSCHERMEN >> ITEM: SEWER WELL MONITOR





8.5 Alarm Screens

An alarm screen shows which alarms have occurred in your application. The Alarm screen can be used to take action if a parameter gets a value outside a margin of set values. An Alarm can be accepted by an operator indicating that the problem is being addressed and when the problem has been solved, the alarm can be reported as 'ready'.

Hint: In chapter x an alarm is created that is raised when on the test unit when switch D1 is set.

By default there should be an inherited alarm screen available.

Sandbox	Active I	na	ctive Trashbin Inherited					+
Name :	Version	:	State		Last changed	:	Actions	
Default alarm screen	1		Inherited		30/09/2019 06:45:00		Ê®	
H - 1	Page 1		of 1 🕨 🕨 250 👻 Item	IS	per page		1 - 1 of 1 Items	C

8.5.1 Creating an Alarm Screen

In Design, select the root node and then open the Menu. At 'Visual elements', click on 'Alarm screens', the grid showing existing Alarm Screens is presented.

We can create a new alarm screen in two ways: by clicking the '+' button on the top right of the grid or by making a copy of the inherited alarm screen. We choose a completely new alarm screen. We fill in the name in 'Alarm Summary' and click on 'Add'.



8.5.2 General tab

General Ala	rms Ca	tegories	History	Connections	Deployment	
Naam		Ala	rm Summary	/		
Design state		Sand	lbox			
Version		1				
Input source		Cur	rent node do	wn	-	
Period selector		Avis	sion - Default	period selector		•
Alarm state						
Alarm state		Nev	v		-	
Changeable in li	ve					
Filter alarms or	triggers					
Filter alarms or t	riggers	Alar	ms		•	
Changeable in li	ve					
Show columns						
Tijdstempel						
Message text						
Alarm state						
Name						
Location						
Note						
Datapoint label						
Value						
Accept						
Accept user						
Ready moment						
Ready user						
Reset						
Button alarm acc	cept					
Button alarm rea	dy					
Jump to node						
Translations	Cancel	Save				

Input source

In this dropdown the node(s) from which data is used is(are) selected. There are four options:

- Current node: Only alarms on the current node are shown.
- Current node down: Alarms from the current node and lower nodes are shown.
- Nodepicker : Alarms are shown from those nodes that are selected using a node picker. (A dropdown will be shown to select a node picker).
- Filter : All alarms are shown of those nodes that remain after a filter action (A dropdown will be shown in which the filter can be selected).

Period selector

A period selector must be chosen here. With the period selector, in Live, only those alarms that occurred within the specified time period will be shown.

Filter state

Alarms can be filtered by state. In a drop down 'All alarms' or one of the four possible statuses that an alarm can have can be selected: new, accepted, ready or reset.

Attention: This is a level filter, meaning that when the filter is set to 'Accepted' all alarms equal to or below this level will be shown, so also the New alarms.

Configurable in Live mode (state)

If checked, a user can choose a different state to filter in live. Otherwise, only alarms that have the status as defined in Design are shown.

Configurable in Live mode (Alarms/events) If checked, the user can choose live between alarms or events.

Show Columns

Here you can indicate which columns and buttons should be available in Live. Two columns are about buttons; the alarm accept and the alarm ready button. There is also the possible to have a button that allows to jump to the node where the alarm occurred.

8.5.3 Alarms tab

Left-right screen that allows you to set which alarms to display. If the right column is empty, all alarms will be displayed.

8.5.4 Categories tab

Left-right screen to indicate which categories this alarm screen can be used for. If there is no category in the right column, this alarm screen applies to all categories.



8.6 Maps

Cards can be made for standalone use or as part of a Monitor screen or a report.

8.6.1 Creating a Map in Design

In Design we first create a map: In the menu at 'Visual elements' click on 'Maps' to go to the map module. Click the ' + ' button at the top right of the grid. Enter the name of the map (e.g. 'Locations') and click 'Add'.

8.6.2 Algemeen tab

Algemeen	Lagen	Categoriën	Geschiedenis	Verbindingen	Vrijgeven
Kaart label		Loca	ties]	
Ontwikkelsta	tus	Zandi	oak	4	
Versie		1			
Kaart breedt	9	800		\$	
Kaart hoogte		600		\$	
Kaart instell	ingen				
Kaart view		Weg	enkaart		-
Kaart midde	lpunt				
Zoomlevel		3		\$	
Kaart middel	punt	Gebr	uik eerst gevonden	locatie 🔻	
Breedtegraa	ł	51.8	12901		
Lentegraad		5.24	4209		
Kaart	Sate	lliet	Zwede	n Finland	
lijke iche		Veren Ieriand Fr Spanje Portugal Marokko	ige enemarken Duitsland Pol Oosterrijk Italië Gu Tunesië	wit-Rusland Oekraine Roemenië iekenland Turk	je Syrie —
Google		к	aartgegevens ©2019 G	oogle, INEGI Gebruil	ksvoorwaarden
illei					
Titel gelijk aa	n naam	~			
Legenda					
Toon legend	a				
Vertalingen	Annule	er Opslaan			

In the General tab following settings can be edited:

General

- Map label: Name of the map.
- Map width: Width of the map in pixels. Default is 800 pixels.
- Map height: Height of the map in pixels. Default is 600 pixels.

Title

• Title equals name: By default, the title of the map equals the name of the map. To change this uncheck this field and an extra entry field 'Map title' will appear.

Map settings

• Map view: Select the map view type, options are Roadmap, Satellite, Hybrid and Terrain.

Map center

Sets the center and zoom level of the initially loaded map.

- Fit: Check this to zoom to the level where all markers are visible in the map.
- Zoom level: Select the zoom level. (1: World, 5: Continent, 10: Town, 15: Street, 20: Buildings)
- Map center:
 - 1. Use the first found location. The coordinates of the first found location are used as the center of the map.
 - 2. Manual. The coordinates of the center of the map are entered manually. Either by clicking on the map or entering the latitude and longitude fields.
 - 3. Current node. The coordinates (location) of the selected node in the tree are used as center of the map.
- Latitude: Manually entered latitude of the center of the map.
- Longitude: Manually entered longitude of the center of the map.

8.6.3 Layers

To present information on a map layers are used. Using a layer, datapoints or pictures like building diagrams can be added to a map. Multiple layers can be made for a map.

Three layer types are available: node layer, image layer and line layer. After a layer is created, changing the layer type is not possible.

8.6.4 Creating a Node Layer

A node layer is used to present information coming from a node.

To create a node layer on a map, we first select the map under the maps module. After that, we select the Layers tab and click on the ' + ' button in the top right corner of the grid. Enter the name of the layer to create (e.g., ' Locations ') and choose Layer type for Node low and click ' Save '.

8.6.5 Node Layer

In the node layer following settings can be edited:

General

- Layer label: Name of the layer.
- Layer enabled: Will the layer be used in the map or not.
- Input source: Indicates which nodes are supplying the data. Options are: Current node, Current node down, Filter and Node picker.

Source coordinates

- Source coordinates: From node (The location information stored on the node are used)
- Use position from parent node: If checked, will look on a higher node when no location information is available on the node where the map is used.

Marker

- Marker type: Datapoint, Marker, Icon.
 - Marker : The standard marker is shown at the location.

- Datapoint : Info window is opened automatically (no need to click)
- Icon : Shows the selected icon or the node icon on the given location.
- Marker width: Width in pixels
- Marker height: Height in pixels
- Marker location: This option selects the anchor point of the marker. (Default value is 'Top center').

Settings available for Marker type: Datapoint

• Marker screen: Select the monitor screen used on the map at the location of the node.

Settings for Marker type: Marker

- Color: The color of the marker.
- Different color limits: Check this to select the datapoint to be used for marker limit colors and or select custom colors for the limits of the marker. This will present following fields:
 - 'Marker limits property definition' and 'Marker limits property definition item': Select the datapoint to use for the limits.
 - Color of property definition: Check this to use the colors of the property definition or uncheck this field to select custom colors.
 - Marker hh/h/normal/l/ll... limit color: Color for the limit zone.
- Different color alarm: When checked, the marker will have a different, custom color when there's an alarm active at the node or an alarm can be selected from a datapoint.
 - Marker alarm color: Color of the marker with an active alarm.

Settings for Marker type: Icon

- Use node icon: Use the icon of the node.
- Select icon: The icon to be shown instead of the default marker icon.
- Different icon limits: When checked different icons can be used if value is in limit zones
 - Icon limits property definition and Icon limits property definition item: Select the datapoint whose limits will be used.
 - Icon figure list: Select the list images/icons wanted. (A list as can be used to indicate a status based on a picture list, status object limits)
- Different alarm icon: When checked it is possible to select a different icon to show when an alarm occurs.
 - Select alarm icon

Alarm

- Alarm on node: When checked all alarms on the node are used.
- 'Alarm property definition' and 'Alarm property definition item': Select the datapoint to be used for alarms.

Cluster

- Cluster markers: Check this if you want to cluster markers on the map.
 - Select cluster icon: The icon to show for a cluster.
 - Select style: The style used for showing the number of markers in a cluster.



Summary

- Show summary: Check this if a summary should be presented when a marker is clicked.
 - Summary screen: Select the monitor screen to be shown in the summary popup when the marker is clicked.

8.6.6 Creating an Image Layer

An image layer can be used to show a picture on the map, e.g. a ground plan of a building. It is not node bound.

To create an image layer on a map, we first select the map under the maps module. After that, we select the Layers tab and click on the ' + ' button in the top right corner of the grid. Enter the name of the layer to create (e.g., 'Map Ground Level') in layer type for image, choose Layer and click ' Save '

8.6.7 Image layer

In the Image Layer following settings can be edited:

General

- Layer label: Name of the layer.
- Layer enabled: Layer is used or not.

Figure

- Select figure: Choose figure to show from the list of available figures.
- Transparency: The opacity of the image.

Мар

- South west latitude: Latitude of the south west corner of the figure.
- South west longitude: Longitude of the south west corner of the figure.
- Set south west corner: After clicking this button the south west corner of the picture can be selected.
- North east latitude: Latitude of the north east corner of the figure.
- Noord west longitude: Longitude north east corner of the figure.
- Set north east corner: After clicking this button the north east corner of the picture can be selected.

Do-it-yourself block where a map is created which shows all sewer wells of one customer.

8.6.8 Create Layer for Sewer Wells

We assume that the location is already populated for the node RP market. See <u>chapter 18</u>.



• Create a map. In this example we use following settings:



- Go to the Layers tab of this map
- Click the '+'-button
- Enter at 'Layer name': 'Sewer wells', select Layer type 'Node layer', click 'Save'
- Set 'Input source' to 'Current node down'
- Click the 'Save' button
- 8.6.9 Coupling the Map to the Structure Node 'Client'
 - Create a new version of the Client node
 - At the tab 'Elements' add the Map 'Locations'
 - At the tab 'Menu buttons' set 'Start module' to the module 'Maps', click 'Save'
 - In the module tree drag the module Maps to the right hand column (if not already present)

Deploy the new Client node and, in Live, synchronize.

When in Live we click on the Client node of the municipality of Zaltbommel we will see the map with a marker indicating the sewer well at the market place:



Remark: All customers/clients (municipalities) in this example use the same map. But the location data of the Assets is different for each Asset node. In practice, with multiple Assets being used, checking the option 'Fit' of the 'Map center' block of the map is probably a better option. Then the best focal point is automatically chosen by municipality. However, since there is only one asset (with location data) in our example, if 'Fit' is checked the map module would zoom in very deep, unsuitable for this example.

Now to rub things off we need to give proper access rights to the employees of the municipality that should be able to see the map with sewer wells. If you created in chapter x a user with, among other roles, the role 'Sewer monitoring', then at this moment this user will be presented the message 'Sorry, you have no rights' when clicking the node 'Gemeente Zaltbommel'. Anybody with the role 'Sewer monitoring' should be able to see the map. We realize this using a role:

- In Design, in the menu, go to 'User elements' 'Roles'.
- Click the 'pencil icon' of 'Sewer monitor'.
- Set the checkmark at the show option at Maps:
 Maps
- Click 'Save'

8.7 Sections

8.7.1 Special Controls

8.7.1.1 Switch button

The switch button is a presentation of a digital value.



To quickly see the state of the switch, the background color will change according to the state the switch is in. The colors are taken from the settings of the property definition item, tab 'Limit colors':

Presentation	Notification	Limit colors	Source	Identifier
State not norma State normal	l	 ▼ ▼ 		
Cancel Save				

In Live this is the result:

SCREENS >> ITEM: SEWER WELL MONITOR			SCREENS >> ITEM: SEWER WELL MONITOR				
Temperature	25.3	°C	Water Level	Temperature	25.3	°C	Water Level
Button	Fa		$\begin{array}{c} 10 & 11 & 12 & 13 & 14 \\ 9 & 10 & 11 & 12 & 13 & 14 \\ 8 & & & & & & & \\ 8 & & & & & & & & \\ 7 & & & & & & & & \\ 6 & & & & & & & & \\ 6 & & & &$	Button	True		$\begin{array}{c} 10 & 11 & 12 & 13 & 14 \\ 9 & 10 & 11 & 12 & 13 & 14 \\ 9 & 10 & 11 & 11 & 15 \\ 8 & & & & & 16 \\ 7 & & & & & 16 \\ 7 & & & & & & 16 \\ 7 & & & & & & 16 \\ 7 & & & & & & 16 \\ 7 & & & & & & 16 \\ 7 & & & & & & & 16 \\ 7 & & & & & & & 16 \\ 7 & & & & & & & 16 \\ 7 & & & & & & & & 16 \\ 7 & & & & & & & & 16 \\ 7 & & & & & & & & 16 \\ 7 & & & & & & & & & 16 \\ 7 & & & & & & & & & 16 \\ 7 & & & & & & & & & & 16 \\ 7 & & & & & & & & & & & 16 \\ 7 & & & & & & & & & & & & & & & 16 \\ 7 & & & & & & & & & & & & & & & & & &$

8.8 Screens

8.9 Forms

Forms are used to store information entered by a user in Avision. The user can be supported on his input by measuring values, graphs or tables that are shown in the form.

The input of a form is processed in Avision as measured values and that information can be used again in a graph or report.

Filling out a form is usually not a standalone action, but part of a Workflow in the form of a task.

A form consists of one or more sections, possibly placed across multiple tabs.

When creating a form, the following steps must be followed:

- Create Property definitions
- Create Sections
- Create a Form
- Add the Sections to the Form and arrange them

When it concerns a stand-alone Form:

• Add the Form to a node where it will be used

When the form is part of a Workflow:

- Add the Form to a Task
- Add the Task to a Workflow
- Add the Workflow to a node where it will be used

8.9.1 Creating a Form in Design

In Design, at the Root-node, go in the Menu to 'Visual elements' – 'Forms'. A grid is presented with the present Forms.

- Click the '+'-button, top right of the grid
- Name the Form 'Master data'
- Click 'Add'

The form is created.

```
8.9.2 General tab

OVERVIEW FORMS >> NEW FORM >> EDIT FORM
```

General	Categories	Sections	Calculated fields	History	Connections	Deployment
Label		Mast	er data			
Design sta	ite	Sandb	ox			
Version		1				
Form mar	gins					
Section m	argin vertical		¢ px			

If a margin is desired, it can be filled in here.

8.9.3 Categories tab

Left-right screen to indicate which categories this form can be used for. If there is no category in the right column, this form applies to all categories.

8.9.4 Sections tab

In This tab, we can add the sections necessary for the form and indicate their position.

In the left list, ' available ', are the sections from which we can choose. This column contains only sections of the 'form & report' type.

The right list, 'added ', has a tree structure. Above this tree there are three buttons: ' Edit ', ' Add ' and ' Form preview '. The Add button can be used to create tabs that may include sections. The edit button can be used to customize the name of a tab. ' Form preview ' shows how the form will look in Live.

Do-it-yourself block in which a form is made for entering master data

8.9.4.1 Make a List with Water Pump Types

We first make a list of possible pump types. We need these in the property definition.

- In the Menu go to 'Basic elements' -'Lists'
- Click the '+'-button top right on the grid
- Name the list 'Water pumps'
- Type: 'Multiple: 1 of all types'
- Design/Live : Design
- List store type: 'By value'
- List identifier: 'Integer field 1' (use the integer field of the type as value of the selected item of the list)
- Lijst show text: 'Text field 1' (use the text field of the type to show as item in the list)
- Click 'Add'

OVERVIEW LISTS >> EDIT LIST: WATER PUMPS



At the items tab, at 'Integer field 1' enter 'Nr.' and at the field 'Text field 1' enter 'Type'. At 'Advanced' set Unique value to 'True'. This makes sure that there are no duplicate names in the list. (At Integer field this is automatically set to 'True' because this is the ID field).


General Items C	ategories Content	History Connecti	ons Deployment		
spects					
abels	Label/value	Required?	Item configuration		Actions
nteger field 1 (Numeric extbox)	Nr.	True	Advanced		•
Text field 1 (Textbox)	Туре	True	Advanced		•
			Min length	0 🜲	
			Max length	50 🗘	
			Value	select	*
			Translatable?	False	
			Unique value	True	
			Use other list for content	False	

After creating the list we have to fill the list with items that can be chosen. We do this in the ' Content tab ':

OVERVIEW LISTS	>> EDIT LIST: WATER PUMPS	>> NEW LIST

Nr.	1	†
Type	submersible pump	×

In this way, create four list items: submersible pump (Nr. 1), centrifugal pump (Nr. 2), well pump (Nr.3) and peripheral pump (Nr. 4). The Content tab should look similar to this:

OVERVIEW LISTS >> EDIT LIST: WATER PUMPS

General	Iter	ms Categ	orie	s Content	His	tory	Connections	Deploymen
								+
Name	:	Sequence	:	Last changed	:	Acti	ons	
submersible	pump	1		17/09/2019 09:2	26:22		V 🖹 🧷 🖻	×
centrifugal p	ump	2		17/09/2019 09:2	26:58		• É / Q	×
well pump		3		17/09/2019 09:2	28:03		V 🖹 🧷 🖻	×
peripheral pu	ump	4		17/09/2019 09:2	28:26		V 🖻 🧷 🛱	X

8.9.4.2 Creating a Property Definition for Master Data

- In the Menu, go to 'Basic elements', 'Property definitions'
- Click the '+'-button top right on the grid
- Name the property definition 'Master data pump'
- Set Type to : 'Multiple'
- Leave 'Managed by parent application' unchecked
- Click 'Add'

Add property definition		
Property label	Master data pump	
Type Managed by parent application	Multiple	
Cancel Add		



• In compact form the items of the property definition:

Туре	Label		Conte	nt	Unit	
String	-	Enable label	-	Enable input field		
(Text datapoint	-	Name : Brand				
samples)	-	Translate				
String	-	Enable label	-	Enable input field		
(Text datapoint	-	Name : Model				
samples)	-	Translate				
Integer	-	Enable label	-	Enable input field		
(Word/state	-	Name : Type	-	Content from list		
datapoint	-	Translate	-	Presentation object		
samples)				type: select		
				Kendo_ComboBox		
			-	List definition id :		
				select Water pumps		
Float	-	Enable label	-	Enable input field	-	Enable unit
(Analog	-	Name : Power	-	Digits : 1		field
datapoint	-	Translate			-	Unit : kW
samples)						
Float	-	Enable label	-	Enable input field	-	Enable unit
(Analog	-	Name: Length	-	Digits : 1		field
datapoint	-	Translate			-	Unit: cm
samples)						
Float	-	Enable label	-	Enable input field	-	Enable unit
(Analog	-	Name: Width	-	Digits : 1		field
datapoint	-	Translate			-	Unit: cm
samples)						
Float	-	Enable label	-	Enable input field	-	Enable unit
(Analog	-	Name: Height	-	Digits : 1		field
datapoint	-	Translate			-	Unit: cm
samples)						
Float	-	Enable label	-	Enable input field	-	Enable unit
(Analog	-	Name: Capacity	-	Digits : 2		field
datapoint		Max.			-	Unit: m³/h
samples)	-	Translate				
Float	-	Enable label	-	Enable input field	-	Enable unit
(Analog	-	Name: Capacity	-	Digits : 2		field
datapoint		Min.			-	Unit: m³/h
samples)	-	Translate				
Float	-	Enable label	-	Enable input field	-	Enable unit
(Analog	-	Name: Weight	-	Digits : 1		field
datapoint	-	Translate			-	Unit: kg
samples)						-

8.9.4.3 Create Section

A form can consist of multiple sections. In this example, we use one section.

- In Design, in the Menu item 'Visual elements' go to 'Sections'.
- Create a new Section 'Pump data', type 'Form & Report'.

- In the General tab select a Style, 'Avic BV Avision Default style (12pt)'.
- Click 'Save'

Content selection tab

In this tab select the elements that can be used in the Section.

- Select element type 'Property definitions' and click 'Edit'
- In the left-right screen choose 'Master data pump' and move this to the right hand column using the '>>' button and click on 'Save'.

Digital layout tab

In this tab we'll create the layout of one section. When we click on this tab a canvas is shown with a tree structure on the left. Note that in this tree structure, under 'properties', the attribute definition 'master data pump' (chosen in the 'Content selector' tab) can be found:



Clicking on the underlying carets will open all items of the attribute definition. We can drag these on the canvas to the place where we want them in the section.

- Open the tree branches of the property 'Master data pump' to the point where the label and value of 'Brand' become visible.
- Drag 'Property Label' (below 'Brand') to the canvas and drop it there.
- Click this item on the canvas. On to right side of the screen there should be an extra column with three tabs where we can model this field to our desires.
- The space for the label is too big. We can change this at the Position tab. Change the width to 100 and click 'Save'.
- Now we drag and drop the 'Property value' field on the canvas. This is the entry field.
- Do this for all entry fields and place them on the canvas as you see fit.



	General	Categories	Content	selection	Digital I	ayout	History	у	Conr	ections	Dep	oloyment		
1 🗋	Drawing co Label	ontrol	0	50 Brand	100 	150	200	L L L	250	300	350 	400	450 1.1.1.1.1.1	500
	Visual coDrawing	ontrol node line	50	Model										
4 🗋	Properties	lata pump (Sandbo	(x)	Туре		0				•	•			
	Location fie	elds	50	Power		0.00		\$	kW					
	Task		1.1.1.1	Capacity I	Max.	0.00		\$	m³/h					
			200	Capacity I	Min.	0.00		\$	m³/h					
			250	Afmetinge	n	0.00	\$ ×	0	.00	\$ ×	0.00	¢ cm	(l.w.h)	
			300	Weight		0.00		\$	kg					

Example of what the section's digital layout canvas might look like. The highlighted items are created with a drawing element Label that allows free text to be created.

We are now also creating a separate section ' Pump data header ' (500x50 pixels) to serve as the header of the form. It contains only one drawing element – Label, which is placed with the text "Pump Data".

Give this label the full space: 500x50 pixels. Next, we give this label a manual style:

Gener	al Categories	Content selection	Digital layout	listory Connections	Deployment			
Gener Drawiny Cable Date Visu Drav Cable Drav Task	e control time il control node ing line fields	Content selection 50 - data data data data 	Digital layout F 100 150 20	Distory Connections 10 250 300 Pump Data	Deployment 350 400 1 1 1	450 500	Element Po Use style from s Style Styles Back ground co Color Font style Font style Font Font size Font text indent Font size	bsition Style section Nor Arial 20 3.0 Bold ▼
							Font weight Font style Font ext decorr Font alignment Bordered Cancel Save	ation Normal Center

8.9.4.4 Complete Creating the Form

Since the sections we need are ready now, we can add them to the Form.

- Open the Form 'Master data'.
- At the sections tab drag and drop the sections we just made to the column on the right.
- Make sure that the Position column contains 'Below left' for both sections.

General	Ca	tegories	S	ections	Calcula	ted fields	H	istory	C	onnections	Deployment	
Organize	sectio	ons										
Available							Q		Ass	signed		Edit Add Form previe
ItemDe ListDe	epDer pende	mo (versio encyDemo	n 1) (Sar	ndbox)						E Pump dat	a header (Sandl a (Sandbox)	box)
Organize	sectio	ons										
✓ Save	0	Cancel										
Name	÷	Version	÷	Position	:	Actions						
Pump data h	eader	1		Below left		A V	Ø	fx :	+]			
Pump data		1		Below left		A V		fx :	→ 1			
M 4	1	Page	1	of 1	F F				C			

To be able to use the Form in Live we need to take following steps:

- Change state of List 'Water pumps' from Sandbox to Active
- Change state of Property Definition 'Master data pump' to Active
- Change state of Sections 'Pump data' and 'Pump data header' to Active
- Change state of Form 'Master data' to Active
- Couple the Form to the Asset 'SewerWell'
- Couple the List 'Water pumps' to the Asset
- In Live: run Synchronize

8.9.4.5 Form in Live

In Live, all sewer wells will have their own master data form.

• • • *	Form menu Master data	FORMS DATA >> ITE	EM: MASTER DATA	
Manual	Reject form Save form		Pump Data	
Stock	Finish form	Brand	Ebara	
SewerManagement	Exit form	Model	Optima MA	
Vetherlands		Туре	submersible pump	
Gemeente Maasdriel		Power	0.3	
Gemeente Zaltbommei Servente Gemeente Zaltbommei		Capacity Max.	9.00	
Gameren		Capacity Min.	\$	
SW Markt		Afmetingen	‡ x ‡ x	💠 (l.w.h)
SW Markt		Weight	\$	

- Saving data in between times is possible, even when not all required fields have been filled.
- To finish a form all required fields must have been filled correctly.

Because only one type of Form is attached, this form is always automatically started when we click in the menu on the 'Forms data' menu. To see an overview of entered data we have to change the behavior of this menu button on this asset. In Design go to the Asset, open the 'Menu buttons' tab and select the 'Forms data' module in the right hand column.



🥁 Root: Manual (56337)	General Categories	Elements Menu butto	ns History	Connections	Deployment	
Application nodes	Module presentation defau	ult settings				
Assat nodes	Start module	Screens				
FoundMall (unreign 4)	Screen def desktop	select			-	
SewerWell (version 1)	Screen def mobile	select			-	
Object nodes Hardware nodes	Partial module tree		٩	Assigned	Edit Remo	we selected menu button
	Access keys Alarm configurations Alarm screens Charts Contract price agreemen Contract price calculatio Counters live Export Dataoniots	nts live ns live		Adminis Form Analyse Analyse	tration is data (Forms data) n screens (Alarm scre is (Charts) tion n configurations (Alarr	ens) n configurations)

Then click on the Edit button and set everything as follows:

Edit					
Edit module presentation	on name				
Module name	Forms data				
Button name	Forms data				
Button type	Module				
Single coupled items	✓				
Selected item	Master data				
Action	Overview 🔻				
Translations Cancel	Save				

Now, when clicking the menu item 'Forms data' (of the instance of the Asset Sewer Well) in Live the form is not started automatically but an overview of Forms on the node is presented.

t	Name	×					
	Name	÷	Seq		State :	Last changed	Actions
6	Name: N	Aast	er data				
	Master	data	2	0	Open	11/10/2019 12:54:46	ÊMA

Clicking the clock icon will show a history of entered forms in a popup.

Form history pop	oup grid			×
Node	Version	State	Last changed Actions	
SW Markt	2	Open	11/10/2019 12:54:46 🖹 🥒 🏛	^
SW Markt	1	Finished	11/10/2019 12:54:33	

Here we can view what was entered in earlier finished forms, or we can go to an open (=not finished) form and continue working in that form.

When there's no open form available (all forms have been finished) the overview will show a '+' button. Clicking this will start a new form.

AVIC

Name	÷	Seq	÷	State	:	Last changed	:	Actions
Name: N	laste	er data						
Master	data	2		Finished		11/10/2019 12:54:4	6	Ê 🕈 🖸

In summary: Forms can have following states:

- Open : An instance of the form has been started.
- Finished : The instance of this form has been filled in and saved.
- Trash bin : The instance of this form can no longer be viewed.

8.9.5 Calculated fields tab

This tab is used to have a form make (simple) calculations using entered values and present the result in another field of the form.

8.9.5.1 Creating a Calculation

• At forms, tab Calculated fields, click on the 'New'-button.

General	Categories	Sections	Calculated fields	History	Connections	Deployment
Title calc	result propertie	s				
Calculated	d field name		Ac	tions		

 At 'Add calculated field' select all property definition items that are used in de calculation and click the 'Add'-button.

Add calculated field	Master data pump - Length 🗙	×	
	Master data pump - Width 🗙		Add
	Master data pump - Height 🗙		

- Select a calculation for each property definition item.
- At Result type select 'Result calculation' or 'Text depending on calculation result'.



• Select at 'Result property' the property definition item in which the result will be stored.

Edit calculated fields					
Calculated fields					
Add calculated field	Select items to add		Add		
Property name	Calculation signs	Action			
Master data pump - Length	+ - × ÷	Delete			
		Down			
Master data pump - Width	$+ - \times \div$	Delete			
		Down Up			
Master data pump - Height	$+ - \times \div$	Delete			
		Up			
Calculated values					
Culculated values					
Result type	Calculation result	Calculation result			
Result property	Master data pump - Volume	Master data pump - Volume			
Cancel Save					

• Click 'Save'

When 'Text depending on calculation result' was selected, a text can be shown.

8.10 Reports

In Avision a report can be created. Often, reports are part of a Workflow, but it is also possible to generate ad-hoc reports or to have reports created on a periodic basis.

Usually, a report will use data entered through a form, but it is also possible to generate a report based on last readings.

The layout of a report, like forms, is arranged by sections. A section that is already in use for a form can be used very easily for a report. Also, the same section that is used for forms can have a different layout for reports.

Reports can display other items such as figures, graphs, tables, etc. In addition to measurement values. They are not linked directly to the report, but through one or more sections.

8.10.1 Create a Report

- In Design, in the Menu, go to 'Visual elements' and click 'Reports'.
- Click the '+'-button on the top right of the grid.



dd report		
Report		
Report data origin	select	· · · · · · · · · · · · · · · · · · ·

At 'Rapport data origin', indicate whether the report uses data from a form or is based on data of a certain period.

Do-it-yourself block where a report is created based on data entered using the form created in chapter *x*.

- Enter 'Sewer pit' as the name of the form
- At 'Report data origin' select 'Forms data'
- Click 'Add'

8.10.2 General tab

OVERVIEW REPORTS >> NEW REPORT >> EDIT REPORT

General Categories	Sections History Connections Deployment
Report default settings	
Label	Sewer pit
Report data origin	Forms data
Form	not used 🔻
Design state	Sandbox
Version	1
Custom settings	
Allow generate from task	True
Allow generate	True
Allow generate from form	True
Keep ID when form changes	a True
Paper settings	
Paper size	A4 👻
Margin top	🔶 mm
Margin bottom	🔶 mm
Margin left	mm
margin right	ter in te
Section settings	
Section margin horizontal	nm 🗧
Section margin vertical	the second secon
Title type	No report section title
Settings reportcounter	
Report number	select 🔻
Counter value digits	•
Translations Cancel	Saus

Label

The name of the report.

Data source Indicates the origin of the data.

Form

Since the source of the data is a form, the form must be selected here.

Period selector

If the source is 'Period data', a period selector should be chosen here.

Allow generate from Task

Set to 'True' if the report (in Live) can be generated as a workflow task.

Allow generate

Set to 'True' if the report (in Live) can be generated ad-hoc/standalone (i.e. not based on a task from a workflow).

Allow Generate from form

Set to 'True' if the report can be generated (in Live) based on a form.

Keep ID when the form changes

Set to 'True' if the report is to remain the same if it is regenerated because the form is changed. (The form will have a new revision number).

Paper Settings

Choose the format on which the report should be printed and specify the size of the margins.

Section settings

Here the space between the sections of the report can be entered and whether and how to display the title (as a header or a tab).

Settings report counter

A report number can be configured here. This report number can be given a fixed pre-and postfix. In between, a sequential number that is automatically raised every time a report is generated can be generated. To do this, an attribute definition item must be created and used.

The 'Counter value digits' field indicates the number of digits the sequence number should have.

8.10.3 Sections tab

This tab is used to choose the sections that make up the report. This also determines the order and the mutual positions. You can also specify which section to use as header or footer. (Header and footer will be repeated on all pages).

AVIC

General	Categories	Sections	History	Connections	Deployment			
Header/fo	Header/footer selection							
Header section	on None			-				
Footer sectio	n None							
Section se	Section selection							
Available				٩	Assigned Add			
Avision	1 - Default hardv	vare - Wise (ve	ersion 1) elector (versi	ion 1)	Pump data (version 1)			
Assigned	section(s)							
✓ Save	S Cancel		at Wetcesy					
Name : \	/ersion P	osition	Actions					
	1 Page	1 of 1	> H	C J× C	2			

On the top right column for the 'assigned' sections there is an 'Add' button. Clicking this button will bring up a popup for adding a page-break or a repeater.

Avision takes into account the space on the page; If a section does not fit next to another section, Avision will place these at the utmost left and below that section. If a section no longer fits on the page, Avision will start a new page.

By clicking the 'Position' column the position of this section relative to its previous section can be indicated. Options are:

- Next to : Section is placed to the right of the previous section.
- Below : Section is placed directly below the previous section.
- Below left : Section is placed below and to the utmost left. This is always the position of the first section of a report.

Assigned section(s)							
✓ Save 🚫 Cancel							
Name Version	Position	Actions					
Pump data 1	Below left 🗙 🔻	🔺 🔻 🥒 fx 🔁					
H 1 Page	Next to Below	н					
	Below left						

In the Actions column following buttons are available:

I Move the section in the order of sections one position up.



: Move the section in the order of sections one position down.

: Edit repeater settings:

- Current node (default setting) : The data used is from the current node.
- Filter : The list of nodes is the result of a filter. When selected, a filter must be selected here.
- Node picker : The list of nodes is the result of a node picker. When selected, a node picker must also be selected.
- Current node down.

All choices, except the current node, must also specify the number of sections per page and whether space should be reserved in the report even when the section can not be found on the node.

Repeater settings						
Input source	Current node down	•				
Sections per page	\$					
Reserve space when no section	False					
Cancel Save						

f : Clicking on this button shows a popup in which a formula can be created which determines whether the section should be shown.

😢 : This button can be used to jump to the section.

Do-it-yourself block where a report is created that uses data from a form.

8.10.4 Create a Header Section

On the report a header section is needed with the logo of the municipality of Zaltbommel.

- At Images we first load the logo into our library.
- Create a new section ReportHeaderZB, type 'Form & Report'.
- Check 'Print enable', this will make the tab 'Print layout' visible.
- Print width 180mm, height 20mm, click 'Save'.
- At the 'Content selection' tab, select Images, drag the logo to the right hand column.
- In tab Print layout, place the logo on the canvas of the section, somewhere in the middle.

Nu we will make the existing sections, already used at the form, ready to be used in a report.

- Create a new sand box version of the section 'Pump data header'
- In the General tab, check mark 'Print enable'.
- Make Print width 125mm, height 13mm (rule of thumb: take the sizes of the digital layout and divide by four).
- Click 'Save'.
- In tab 'Print layout', click the 'Copy from digital layout' button.

Same for section 'Pump data':



- Create a new sand box version of the section 'Pump data'
- Open the General tab of the section 'Pump data'.
- Check mark 'Print enable'.
- Set print width to 125mm, height 75mm, click 'Save'.
- In the tab Print layout, click the 'Copy from digital layout' button.

Continuing with the Report:

- At the Sections tab, select at 'Header section' the section ReportHeaderZB
- In the left-right part drag 'Pump data header' to the right hand column.
- Drag 'Pump data' to the right (below 'Pump data header')

General	Categories	Sections	History	Connections	Deployment			
Header/foote	er selection							
Header section	ReportHe	aderZB (Sand	lbox)	•				
Footer section	None			-				
Section sele	Section selection							
Available Q Assigned Add								
ReportHe Avision - Avision - Avision -	eaderZB (Sanc Default hardw Default hardw Default hardw Default hardw	lbox) are - Gate (ve are - Wise (ve are - Period s	rsion 1) rsion 1) elector (vers	ion 1)	 Pump data header (version 2) Pump data (version 2) 			
. / Savo	O Cancel							
Name	Version	: Position	: /	Actions				
Pump data head	der 1	Below left		A V 🖉 ;	fx 🔁			
Pump data	1	Below left		🔺 🔻 🖉 j	fx 🔁			
K < 1	Page	1 of 1	•		Ø			

The report in Design is now actually finished. We only need to promote the sections and the report from the 'Sandbox' state to the 'Active' state and add it to the Asset. Then in Live, synchronize.

8.10.5 Report in Live

In Live an ad-hoc report can be started by clicking the '+'-button.

REP	ORTS DAT	<u>A</u>								
1	Name 🗙									
	Name :	Node	÷	Sequence	÷	State	:	Generated on	:	Actions
4	Name: Sew	ver pit								
	Sewer pit	SW Markt			(+
14	۹ 1	Page	1	of 1 🕨 🕨	1	250 🔻 Items per page				1 - 1 of 1 Items 🔿

After clicking the '+' we still have to indicate which form delivers the data.



Add report Generate based on Forms data Select form Master data × Master data Finished Sequence 1 Generate Master data Finished Sequence 2

When the report is ready following popup is presented (depending on the PDF reader used by the browser):

Wat wilt u doen met 20191014_115905_adhoc.pdf (71.4 kB)? Van: manual.avision.me	Openen	Opslaan	 Annuleren	×

Click 'Open' to view the report.

REPORTS DATA >> NEW ITEM

When we return to the report menu in Live we see twee different icons:

† Name 🔅	×							
Name	Node	:	Sequence	÷	State	÷	Generated on	Actions
Name: Se	wer pit							
Sewer pit	SW Markt			1	Generated		14/10/2019 11:59:05	Ê A +



it o view the last generated report data.



🕙: to view a history of reports.

: to create a new report.

Result :



The text concept is printed over it because the form has not yet been finished.



8.11 Object Screens

Object Screens give an overview of alarms and tasks (with a certain status) on different nodes.

8.11.1 Design

8.11.1.1 Object Screens Overview

In this screen the user is presented an overview of the present object screens. Each object screen has a design status. Depending on this status, a user can view, change, copy, create sandbox version, move to Trash, and delete all of these settings.

Y Sa	ndbox Activ	e Inactive Trashbin Inheri	ted	+
Name :	Version :	State	Last changed : Actions	
Test	1	Sandbox	14/10/2019 14:08:25 📋 🥒 健 🏛	
M 4	1 Page	€ 1 of 1 ▶ ▶ 250	💌 Items per page	Ċ

The add button is on the top right of the grid. This button allows the user to create a new object screen.

8.11.1.2 Adding/Creating Object Screen

Name			
Visual type	select	•	
Period selector	select		

- Name: The name of the object screen
- Visual type: At this moment only one option available. Selection with min/max counters
- **Period selector:** Select the period selector

After the user clicks Add on this screen, the user moves to the overall edit screen of objects. Here the user can set all other settings.

8.11.1.3 Change Settings Object Screen

General Lines	History	Connections	Deployment					
Objectsscreen								
Label		Test						
Show one level								
Filter nodes by object	Filter nodes by object type		•					
Visual type		Sections with min/max counters						
Period selector		Default period selector						
Design state		Sandbox						
Version		1						
Translations Can	cel Save	e						

Show one level

When checked displays all nodes under the current parent node or, if unchecked, all nodes down in the tree.

Filter nodes by object type

This is an additional filter on top of **Show one level**, only the nodes of the configured object type are shown.

8.11.1.4 Objects Screen Lines Tab

For each object found in Live a block is created. This block contains lines. Lines consist of alarms and/or tasks. Alarms and tasks have states. Each state can be used to set a lines.

General	Lines	History	Connections	Deployment	
					+
Icon Name	e	:	Event type	Category Actions	
4 4	0 f	page 0	of 0 🕨 🕨	250 🔻 Items per page	C

To create a line click the '+' button on the top right of the grid.

Following settings are presented when adding a line:

Add objectsscreen line			
Name label			
Event type	Alarm	•	
Level type	Time	•	
Category	All categories	•	
Preview icon			
Icon	select	•	
Zones left	select	•	
Zones right	select	•	
Alarm startpoint	New	•	
Show alarmscreen	select		
Cancel Save			

- Name label: Name of the line
- **Event type:** Type of the line (at this moment either Alarm or Task, perhaps more options in future).
- Level type: Indicates filter type, either Time or Severity.
- Category: Optionally filter nodes for category.
- Icon: Icon to indicate what is presented on the line.
- **Zones left:** The limit shown on the left. In live all items that comply per nod or object are added up.
- **Zones right:** The limit shown on the right. In live all items that comply per nod or object are added up.

- Alarm startpoint/Task startpoint: Start moment of counting alarms or tasks in Live per node/object.
- Show alarmscreen: The alarm screen to show when the line is clicked.

Remarks on collecting data:

The result, the number of alarms or tasks, presented on one line always concerns the total number of alarms or tasks present on this node PLUS all nodes below.

Setting the check mark at the option 'Show one level' (at the General tab) might in practice be faster.

Using the design limits, it is possible to calculate the time span from the new or the accept moment to the moment the alarm or task was finished. This time span can then be used to determine which zone (above high, pre high, between high and low, pre low and beneath low and unknown/none) the alarm or task is in. This zone is then used in counting the alarms or tasks.

In Live use a filter on tasks/alarms.

Determine numbers for left/right:

Then, the result of all nodes (the result of filters on General tab) can be passed and created as a block on the screen. Per block, all configured lines must be run, and the results/totals are calculated using the set limits.

Alarm:

- No limit/all, shows totals of all filters.

- The high and pre high limits indicate that the time span between occurrence and finish time was to big.

- If the time span between occurrence and finish times is in between high and low limits the alarm is in the Normal zone.

The statement below is only valid when the alarm has been finished and will not work in combination with a filter on the states New and/or Accepted:

- If the time span between occurrence and finish is between the low and pre low limits or below the low limit then it was finished too fast. (What this means in practice is up to the user).

Task:

- No limit/all, shows totals of all filters.

- The high and pre high limits indicate that the time span between state New and state Abort, Reject or Finish is too big; the Task takes too long or has taken too long. The time span is either bigger than the high limit value or bigger than the pre high limit value.

- When the time span between occurrence and finish time of the task is between high and low limit values then the time span is considered to be in the Normal zone.

The statement below is only valid when the alarm has been finished and will not work in combination with a filter on the states None, New, Pending and Pause:

- If the time span between occurrence and finish is between the low and pre low limits or below the low limit then the Task was finished too fast.

Creating a line:

Name label	AA		
Event type	Alarm		
Level type	Time		
Category	All categories	•	
Preview icon	Ą		
Icon	avic-icon-bell-o	*	
Zones left	High		
Zones right	Pre-high		
Alarm startpoint	New		
Show alarmscreen	Avision - Default alarm scree	en (version 1)	

Gen	eral	Lines	History	Connections	Deployn	nent				
			-							+
lcon	Nam	e	:	Event type	:	Category	Acti	ions		
\bigtriangleup	AA			Alarm		All categories		• 0	×	
н	4	1 F	Page 1	of 1 🕨 🕅	250 🔻	Items per	page			Ċ

Editing a line:

Algemeen	LEventTypeFilter	LAlarmStatusFilter					
LEditObject	LEditObjects Screen Line						
LName	Γ	AA					
LEventType		larm					
LLevelType		Tijd					
LCategory		Alle categorieën					
LPreviewIcor	n /	Ĵ					
LSelecticon	4	avic-icon-bell-o					
LZonesLeft	1	Hoog					
LZonesRight	1	Voor-hoge limiet					
LAlarmStartp	point	Nieuw					
LShowAlarm	Screen	Alarm Screen (versie 1)					
	-						
Annuleer	Opslaan						

EventType Filter Tab at selected Event Type Alarm: An available alarm can be selected here which will be used in Live to filter on alarms and then count them. Default is 'All alarms'.



General	Event type filter	Alarm status filter	
Available			Selected
Battery Ala	rm (version 1)		All alarms
			<< >> Save

Alarm Status filter Tab: Filter for showing alarms with (a) certain state(s).

General	Event type filter	Alarm status filter	
Available			Selected
Accepted			All alarms
Ready			
Unblocked			
			<<
			>>
			Save
			Save

Task Event Type Filter Tab:

When the event type is 'Task' then here the available tasks are shown here. Using this tab filtering on tasks is created.





TaakStatus filter: laat alle beschikbare statussen van een taak zien. Hiermee kan de gebruiker bijv. alleen de Nieuwe taken kiezen waarmee geteld wordt in live. Default is all tasks.

General	Event type filter	LTaskStatusFilter	
Available			Selected
Abort Expired Finish NetW NotSet Pause Pending Reject			All tasks </td



8.11.2 Live All nodes with result of filtering and counting

9 Activity elements

9.1 Scenarios

In scenarios, we can indicate what should happen if a particular situation arises. For an Alarm we set up when, at what situation, an alarm should be generated. Using a Scenario we can indicate who will get an alarm and in what way.

9.1.1 Create Scenario

When creating a Scenario, we need to indicate the type, options are 'Notification' or 'Document distribution'.

Notification

Indicates that the scenario will be used to notify users. Usually in the case of an Alarm.

Document distribution

Indicates that the scenario is used to send reports periodically.

Do-it-yourself block in which a Scenario is created with the purpose to send an email (following an alarm).

Creating a Scenario, name 'High Water Level', type 'Notification'.

9.1.2 General tab

General	Message	Schedules	History	Connections	Deployment				
Default so	enario settin	gs							
Scenario I	abel	High	High Water Level						
Design sta	ite	Sandb	Sandbox						
Version		1	1						
Scenario t	уре	Notific	Notification						
Send sett	ings								
Active		~							
Send when	n scheduler ac	tive 🗸							
Conformat	ion of acception	on 🗸							
Send to co	mplete call lis	t 🗸							
T 1.4									
Iranslatio	ns Cancel	Save							

Active

Unchecking this will disable the Scenario. This can be useful if we do want to generate an alarm but do not want to do any action at this time. Later, we can enable the scenario simply by setting the checkmark again.

Send when scheduler active

When the scheduler is not active messages will be saved until the scheduler becomes active again.

Confirmation of acceptance

Send to complete call list

When this is unchecked following fields will be available:

Ask for confirmation	1	not u	
Time to confirm	15	-	
Number off confirmations	1	\$	

Ask for confirmation

Select :

- With acceptation code
- With ready code
- With acceptation and ready code

Time to confirm

Time in minutes before the next person in the call list will get a message (if the current person does not confirm).

Number of confirmations

The number of times a person on the call list will receive a message before the next person on the list is informed (if the current person does not confirm).

9.1.3 Message Tab

General Message	Schedules History Connections Deployment
Send with	SMS E-mail 🗸 Webservice
Sender	info@avision.me
Subject	High Water Level Alert !
Message	✓ Date
	✓ Time
	✓ Location
	Vode name
	Datapoint label
	✓ Value/limit
	Alarm label
	✓ Free text
Text	Please contact Mr. Jones to discuss follow up actions.

Send with

Indicate here how the alarm message is to be send : as a text message (SMS), an email, via Webservice or a combination.

Sender

Subject

The text in the subject field.

Message

Using check marks, indicate which items should be present in the message.

Text

Any text can be added here.

9.1.4 Adding Scenario to a Node

After the Scenario is made it must added/coupled to a node. In this example we add the Scenario in Design to the structure node 'Client'.

In practice it is advised to couple scenarios to a high level node in the application. This way you will only need a few scenarios that can be used for many alarms on different levels (depending on requirements).

9.2 Alarms

Alarms allow you to automatically receive a warning if a metric exceeds a limit.

Do-it-yourself block where you create an alarm. It is advised to first read <u>chapter 9.1 Scenarios</u> and create the Scenario that will be used the Alarm in this exercise.

An alarm is based on a 'Trigger'. An 'Trigger' arises in the hardware and may need to be processed or logged. Roughly, there are two types of 'Triggers': Technical and Asset-related 'Triggers'. Distinction can be made quickly using this rule of thought: "If the hardware changes, are you still interested in the history of alarms and triggers ?" This will be the case for Asset-related events, but probably not for hardware that is replaced by (perhaps) completely different hardware; After all, if the hardware is replaced, you are very probably no longer interested in the history of that old hardware.

In our example, we want to raise an alarm when the floater indicates that the level in the sewage pit has become too high and flooding occurs. We also want to build up a history that indicates when flooding has taken place. That history should not be lost if we (for whatever reason) are going to use other hardware in the pit and therefore we built that at the Asset node level. Therefore, we will first create a new property definition at the Asset.

9.2.1 Create Property Definition 'Floater'

In Design, at the Menu item Property Definitions, we create a new property definition named 'Floater' van het type 'Multiple'. At the 'Items' tab create a property item with label IsOverflow of type 'Boolean (Digital datapoint samples)'. (The floater will raise an alarm when the water level is above a certain level, and not when it is lower. So, typically a Boolean value).

Property Definition Item - Presentation tab

At this tab make sure the 'Enable input field' is checked. To be able to easily use this item's label in a report we also set the check mark 'Enable label'.

Presentation	Notification	Limit colors	Source	ldentifier
Label				
Enable label		~		
Use label prope	erty def			
Name		IsC	verflow	
Translate				
Show help				
Label visibility		Btn	visibility	
Content				
Enable input fie	ld	~		
Required				
Content from lis	.t			

Property Definition Item - Notification tab

At the tab 'Notification' select 'Status 1' at the 'Trigger' field.

Presentation	Notification	Limit colors	Source	Identifier
Configurable in	Design	•		
Delay		🔶 S	econds	
Trigger	Status1	-		

No changes are needed on the other tabs, but we need to add this property definition to (a new version of) the Asset node 'SewerWell'.

9.2.2 Hardware Node Changes

We will use switch Di1 of the test setup to simulate a flooding signal. We have to create this signal on the hardware. We do this by clicking on the ' + ' button of digital 1.

– Hardware node types	HARDWARE IOSELECT
Hardware node type	
Hardware devices	Select hardware
Hardware communication	Hardware LG_1200.03
XBus	Hardware isomart is
Hardware IO	
Formules	Configurable in Design 🗸
	Measure interval 300 🔶 Seconds
	In low power mode otherwise every second
	Settling time 100 🔶 Milliseconds
	Save
	Internal sensors External io Virtual datapoints
	Analog in Digital in Digital out Counter
	Enable : Number : Label : Actions
	1 Digital 1 🛨
	2 Digital 2 📥
	3 Digital 3 🕂
	I Page 1 I

Set everything as shown below:

HARDWARE IO SELECT

Select hardware	
Hardware	LG_1200.03
Hardware iosmart io	
Configurable in	Design
Measure interval	30 A Seconds
indudato intornal	In low power mode otherwise every second
Settling time	30 🔶 Milliseconds
Save	
Internal sensors External io	Virtual datapoints
Analog in Digital in Digita	l out Counter
General	
Configurable in	Design
Sample destination	Stand alone and transferred
Transferred range	Asset
Property definition	Floater (Sandbox)
Property definition item	IsOverflow 🔻
Label	Digital 1
Active	Normally closed
Enable	
HISTORY	\checkmark
Sample	
Configurable in	Design
Filter	1 🔶 Seconds
Notification	
Notification	
Configurable in	Design
On change	Both
Limits from property prese	ntation definition
Trigger	Status1
Delay	♦ Seconds
Default value	
1. N. N. A.	
Close Save	

9.2.3 Create Alarm

By creating the property definition item, a 'Trigger' has also been created which will be used to raise the alarm.

When creating the alarm, we need to fill in the name and choose the 'Trigger' from the dropdown. Enter as name in 'FloodAlarm' and select in the dropdown 'IsOverflow – State not normal'.

General tab

The only change here is to set 'Configurable in' to 'Live' so we can make changes in Live. Other settings can stay as they are.



General	icenarios	Categories Histor	y Connections	Deployment	
Label		FloodAlarm			
Configurable	n	Live			
Version		1			
Trigger settin	igs				
Trigger		IsOverflow - Sta	ate not normal		
Active		~			
Reset trigger		select			
Foto upload	settings				
Property defin	ition	select			-
Property defin	ition item	- select			
Scenario set	tings	·····			
Delay scenari	0	A S	econds		
Urgent after ti	me high		– not used —		
Urgent after ti	me high		- not used		
Urgent after ti	me low	+ -	- not used 🔻	-	
Urgent after ti	me low	+ -	– not used — 🛛 🔻		
Alarm setting	js				
Show alarm io	on on node				
Note required	on ready				
Repeat alarm		Repeat alarm	*		
Node name fr	om	Current node		-	
Message		Msg date			
		 Msg time 			
		Msg locatio	n		
		Node name Detensist			
		Value/limit	anei		
		Msg use te	xt		
Example msg		15-10-2019 15:5	0:08 [Location] [Noden	ame] IsOverflow - State n	ot normal 12,345
Send directly					
Send with		With sms	With email	With web service	
Sondor					

We leave the 'Send with' options at 'Send directly' empty because we will use a scenario. This also means that the settings at 'Alarm settings' will be overruled by the scenario.

Scenarios tab

Make sure the 'High Water Level' scenario is at the right hand column. (When this scenario is not present in either right or left hand column then go to <u>Scenarios</u> and create it).

General	Scenarios	Categories	History	Connections	Deployment	
Available						Selected
						High Water Lev
					~~~~	
					22	
					save	

## 9.2.4 Add Alarm to Node

In Design we are now almost finished. We only need to link the Alarm to an Asset node.

After that, in Live, we need to synchronize to be able to use what we have created in Design.

# 9.3 Scheduler

A scheduler is a piece of software running in the background and which becomes active at certain moments in time.

### 9.3.1 General tab

## 9.3.1.1 In Design and Live

#### Туре

There are three types of scheduler: Hardware, Scenario, and Workflow.

Hardware: The scheduler runs on the AVIC-device (hardware). Scenario: The scheduler is used by a Scenario. Workflow: The scheduler is used by a Workflow.

Recipes are only available for hardware type schedulers. At a workflow type scheduler only from date-times can be entered.

When the scheduler is of type hardware three other settings need to be considered:

#### Datapoint type

Choose the data type. Options are: Analog, Digital, Text and Word.

#### Offline value

Value when inactive. For analog values, a comma number can be entered here, for digital values set check mark on or off, for a text value enter text, and in case of a word value enter an integer.

#### Always on value

Value when active. For analog values, a comma number can be entered here, for digital values set check mark on or off, for a text value enter text, and in case of a word value enter an integer.

#### 9.3.1.2 In Live

For all types There is a Mode option where you can choose from normal, always on and always off.

## 9.3.2 Periods Tab (In Live only)

At the Periods tab, we can indicate at what times a Scheduler is active.

#### Period

The period determines the repeat cycle of a task.

• Daily

Per day of the week, two start and end times can be specified within which the scheduler is active. A recipe can be used per start-end time.



General	Periods	Country holidays	Custom dates	Connections					
Selection	period								
Periode		Daily	-						
temove da	ta	Remove p	periode data						
Edit days o	of week								
		1. From	to re	ecipe		2. From	to	recipe	
<b>Nonday</b>		C	9	None	•	G	G	None	
Tuesday		C	90	None		G	G	None	
Vednesday	r	C	9	None	-	G	G	None	
Thursday		C	9	None	•	G	G	None	
Friday		C	90	None	•	G	<b>O</b>	None	
Saturday		C	9	None	•	G	G	None	
				Nono	-			None	

#### • Weekly

The days of the week on which the Scheduler should be active can be checked. Per day the active times can be indicated. Also, the frequency, every week or every 2 weeks or every n weeks can be specified as well as a start and end date.

General Periods	Country holidays	Custom dates	Connectio	ons				
Selection period								
Periode	Weekly	× •						
Remove data	Remove p	eriode data						
Days								
	Monday	Tuesday \	Wednesday	Thursday	Friday	Saturday	Sunday	
Time								
	1. From	to r	recipe		2. From	to	recipe	
	C	9	None	•		G	🕒 None	1
Repeat settings								
Startdate	16/10/2019		End					
Repeat every week	1	\$						

#### • Monthly

In the case of week days or days of the month, you can choose weekdays where e.g. the Scheduler becomes active every second Tuesday of the month. If chosen for monthly days, each day of the month can be chosen.

For the chosen days, two start and end times can be filled in and the frequency can be filled in (monthly, two-monthly or N-monthly).



General	Periods	Country holidays	Custom dates	Connections					
Selection	n period								
Periode Remove da	lata	Monthly Remove p	× v						
Select wee Selected d Repeat da	ek days or mo lays ays of month	onth days select	•						
		1. From	to r	ecipe None	<b>•</b>	2. From	to	recipe	•
Repeat se	ettings								
Startdate Repeat ev	ery month	16/10/2019 1		Enddate					
Cancel	Save								

#### • Jaarlijks

General Periods	Country holidays	Custom dates	Connections		
Selection period					
Periode	Annually	•			
Remove data	Remove pe	eriode data			
Selection day in year	t				
Select week days or s	pecific date Weekday				
Part of month	select	🔻 Day	select	Vonth select	-
Repeat days of year					
	1. From	to re	cipe	2. From to	recipe
	9		None	• • •	None
Repeat settings					
Repeat settings Startdate	16/10/2019	E	nddate		

Here we can also choose to complete days in the year or a portion of the month or day (and) of the week or a month. We can also specify a frequency on an annual basis, and a start and end date.



# 9.4 Round Off Flooding Alarm in Live

Do-it-yourself block for the Flooding Alarm

## 9.4.1 Scheduler in Live

Check in Live, at application level (in our case at the SewerManagement node, in menu Notification - Schedulers), whether an 'always on' scheduler is available. If not create it:

Edit schedule general       Label       Always On       Scheduler type       Scenario       Mode     Normal
Label Always On Scheduler type Scenario Mode Normal
Scheduler type     Scenario       Mode     Normal
Mode Normal O
0
Always on ()
Always off

#### 9.4.2 Scenario in Live

By synchronizing, a 'High Water Level' scenario was created in Live at the customer level (at ' Gemeente Zaltbommel '). We need to link the 'Always On' Scheduler.

At the General and Message tabs, the settings created in Design can be customized. At the Timetables tab, we add the "Always On" Scheduler to the Scenario. Then we click on the pencil icon of the Scheduler and add the users who need to get an email when the Alarm occurs.

General Message Schedules Connec	ctions
Schedules	
Select schedule	▼ Add
Label	Actions
Always On	Ø ×
H A Page 1 of 1 > H	Ø
Always On	
Available	Selected
User: Manual - Designer	User: Manual - Manual_Student1
	<< >> Save

After synchronization an alarm will be raised when Di1 is pressed for at least 1 second:

• 9 *	+ Analyse	ALARM SCREENS >> ITEM: DEFAULT ALARM SCREEN			
Manual	Notification     Alarm screens     Scenarios     Schedulers     Node	Last hour Last 24 hour Last 7 days Last 4 weeks Filter alarms or triggers Alarms ¥ Alarm state Alarms ¥			
<ul> <li>Belgium</li> <li>Netherlands</li> <li>Gemeente Maasdriel</li> </ul>	+ User + Application	Time stamp : Message text	: State : Node name	Label : Value	Button Button Actions alarm alarm accept ready
	<b>◆</b> Work	16/10/2019 09:37:13 16/10/2019 11:37 SW Markt Floater - IsOverflow	1 New SW Markt	Floater - IsOverflow 1	Accept

Notice that the communication led will blink one second after setting switch Di1 to on, and also when setting it to off.

Also an email message will be send to the email address of Manual_Student1.

Date:	16/10/2019
Time:	09:37
Location:	
Node name:	SW Markt
(Datapoint) label:	Floater - IsOverflow
Free text:	Please contact Mr. Jones to discuss follow up actions.
	<u>Go to Avision</u>



# 9.5 Recipes

A recipe can be used to create a subdivision within a period of a Scheduler. Recipes are only used by Scheduler of the Hardware type.

#### 9.5.1 Create in Design

Recipes are created in Design and after synchronization they become available in Live.

In Design, in the menu, go to 'Activity elements', click on 'Recipes'. A grid is now shown with the recipes present. Clicking the '+' button in the upper right corner of the grid will display a screen for adding a new recipe.

OVERVIEW RECIPES >> NEW RECIPE

Name		
Datapoint type	select	-
Recipe variant	select	-

Name : Enter the name of the recipe.

Datapoint type : Options : Analog, Digital, Word status and Text.

Recipe variant : Options : Fixed timestamps, Offset since start moment, Divided moments.

#### 9.5.2 General Tab

The recipe settings can be edited after clicking the pencil icon.

 OVERVIEW RECIPES
 >> EDIT RECIPE: RECIPE DIVIDE

 General
 History
 Connections

 Deployment
 Deployment

 Recipe
 Image: Connection of the provide

 Datapoint type
 Digital

 Recipe variant
 Divided moments

 Repeat
 Image: Connection of the provide

 Translations
 Cancel
 Save

The name and variant type can be changed here. Also 'Repeat' can be set on or off. The 'Data point type', however, cannot be changed after creating the recipe as this could cause problems in Live.

#### 9.5.3 Recipe in Live

To be able to use a recipe in Live, it must be linked to a node and a synchronization must have been done.

In Live, a recipe can be edited and rules can be defined. These rules can only be created in Live.

#### 9.5.4 Recipe Variants and Repeat

See the chapter about creating a recipe.

#### 9.5.4.1 Offset since start moment

If offset is used, the effect is that the start time of a Scheduler line is taken and that the times of the recipe are added to it.

Manual Avision 2.0



#### Example:

Suppose we have a recipe, data point type Digital, with two lines. Rule 1 says 'ON' after 00:01:00, and rule 2 says 'OFF' after 00:05:00. If this is in combination with a Scheduler where on Thursday at 15:14h a time slot starts and at 17:00h it stops, then the effect is that at 15:15h something is turned on and at 15:20h off and this will be up to 17:00h.

If the repeat checkmark has now been turned on, we will actually create a square wave! From 15:15h to 15:20h 'High', then 1 minute 'Low' and from 15:21h to 15:26h 'High' again, then 1 minute off etc. to 17:00h.

## 9.5.4.2 Divided moments

Using the 'Divided moments' option, the period of the scheduler's time slot is divided by the number of lines in the recipe. If the recipe contains 2 lines, half the time line1 applies and the other half line 2. If the recipe has 5 lines then each line has 20% of the time of the time slot.

Therefore, the moments of time in the lines are not used.

#### 9.5.4.3 Fixed timestamp

The times from the recipe are used as an absolute moment when an action will take place.
## AVIC .

#### 9.6 Document Generator

Using the document generator, you can easily configure the sending of a report. The document generator is a module where all the elements for generating and sending a report are in one menu.

#### 9.6.1 Create Document Generator in Design

In Design, we first create a document generator. In the menu, at 'Activity elements' click on 'Document generator' to go to the document generator module. Click the ' + ' button at the top right of the grid. The input screen is now shown for creating a document generator.

Add document generat	tor
General	
Name	
Report	
Create empty report	✓
Add period selector	$\checkmark$
Report period	select 🔻
Scenario	
Create scenario	✓
Sender	
Subject	
Store in database	
Scheduler	
Create scheduler	✓
Time zone	No zone, No daylicht saving time, UTC only 🔻

DOCUMENT GENERATOR OVERVIEW >> DOCUMENT GENERATOR ADD

#### General

• Name: The name of the document generator. (This name is used for all underlying elements).

#### Report

- Create empty report: This option is used to send an empty report.
- Add period selector: The period selector for the report to add.
- Report period: The period for the new period selector.
- Select report: Select the report to send.

#### Scenario

- Create scenario: Check this to have a new scenario created, or uncheck this to select an existing scenario.
- Sender: The sender of the message.
- Subject: The subject of the message.
- Select scenario: Select an existing scenario (only available when 'Create scenario' is unchecked).



#### Scheduler

- Create scheduler: Check mark this to have a new scheduler created or unchecked to use an existing scheduler.
- Time zone: The time zone for the scheduler to be created.
- Scheduler: Select an existing scheduler.

Click 'Add' button to create the document generator.

#### 9.6.2 Add Document Generator to a Node

To be able to use the document generator, it must be added to a node. Usually this will be an asset node so that for each asset a separate report will be created.

When adding the document generator to a node, the child elements such as the timetable and the scenario are also added to the node.

#### 9.6.3 Configure Document Generator in Live

To actually send a report, the document generator must be further configured in live.

By navigating to the node and selecting the Document Generator menu option in live, the screen below is shown.

#### DOCUMENT GENERATOR >> ITEM: VERSTRAP2

Document generator				
Naam	VerstRap2			
Stuur trigger				
Volgend startmoment	02-04-2019 08:00 🎦			
Bericht				
Afzender	info@avic.nl Rannort Waterhoogte			
Verslag doen van	Ropport Flatomoogle			
Neem	~~1			
NddIII	RioolputDocGen Z			
Test Annuleer Opslaan				
Verzenden naar				
Beschikbaar Groep: Gemeente Zaltbommel - Eers Gebruiker: Gemeente Zaltbommel - J Gebruiker: Gemeente Zaltbommel - 3 Gebruiker: Gemeente Zaltbormel - 1 Gebruiker: Handleiding - Designer A	Italijns Storingsdienst Iaap Jansen Tenk De Boer Sophie Schaap Fest vision 2.0	< >> Opsiaan	Geselecteerd Gebruiker: Handleiding - Student1	

To send the report, we need to activate the 'Send Trigger' and add the users/groups as recipients.

#### **Document generator**

• Name: The name of the Document generator.

#### Send trigger

• Next Start Moment: The date and time when the report will be send. And a button to navigate to the scheduler to configure moments of sending.

#### Message

- Sender: The sender of the message.
- Subject: The subject of the message.

#### Report

• Name: Name of the report. With the option to navigate to the report screen in live.

#### Test button

Use the test button to send the report immediately to the addressee.

#### Send to

Move the recipients of the report to the right hand column and click 'Save'.

#### 9.7 Tasks

In practice, a task is a frequently occurring activity that is performed as part of a workflow or a timetable.

A task is a unit of work that can be performed by one person, usually within a not too long term from a few hours to a day. Tasks can be picked up by one person or by a group of persons who have a certain right because they fulfil a particular role.

What exactly constitutes a task must be cleverly chosen. Suppose a workflow involves the inspection of all fire extinguishers in a building; Depending on the number of fire extinguishers and floors, it may be useful to define a separate task ' check fire extinguishers ' for each floor.

A task can be to fill out a form or part of a form. For example, in a workflow for revising a pump, person A may inspect the pump and determine what needs to be done and register it in a form, person B performs the actual work on the same pump form and Person C (or again A) then performs a quality check and approves the pump by means of a signature on the same form after which a report is generated as the last task of the workflow.

#### 9.7.1 Create Task

In Design, at the menu item 'Activity elements', click on 'Tasks'. A grid is now shown with the tasks present. Click the '+' button on the top right of the grid to create a new task.

OVERZICHT TAKEN >> N	EWTASK		
Add task			
Name			
Task type	Form	×	•
	Form		
Cancel Add	Report		
	Finish form		
	Delete history workflow		

Enter the name of the task and choose the type of the task.

**Form:** When the task is to fill out a form, choose form as type. After a form task, always a 'finish form' task should follow.

**Report:** Whether the job generates a report.

Finish form: See form.

**Delete Workflow history:** If a workflow is aborted, this task can be done to start the workflow next time 'clean'.

#### 9.7.2 Complete/Edit Task Settings

After a task has been created, it must be completed.

#### 9.7.2.1 General Tab

At this tab the name of the task can be changed and 'Stop task after expired timer' can be check marked.



OVERVIEW TASKS >> NEW TASK >> EDIT TASK

General	Categories	Properties	Content	History	Connections	Deployment
Name		Small	Inspection En	gineer		
Design sta	te	Sandbo	x			
Version		1				
Task type		Form				
Stop task a	after expired time	er 📃				

If 'Stop task after expired timer' is checked it can be indicated that the task must have been performed within a certain time and otherwise will expire.

Stop task after expired timer	~	
Maximum task lead time	<b>+</b>	Minutes
Stop task after the end time		
schedule expires		

#### 9.7.2.2 Properties Tab

This is a tab where many settings can be done for the task.

-	9.7.2.2.1	Task States				
	Task states					
	New	Roles	Status notification	Preferred user	Not applicable	<b>•</b>
	Pending		Status notification			
	Pause		Status notification			
	Error		Status notification			
	Reject		Status notification			
	Finish task		Status notification			
	Expired		Status notification			

**Roles:** Here you can specify which role(s) a user must have (through UserTypes, see chapter x) to be allowed to perform this task.

**Status Notification:** When executing a task, it will step through a number of statuses. Scenarios can be associated with each step. A scenario determines who gets what message (see chapter x).

**Preferred User:** a task may be performed by several people. Here you can specify whether the next time the task is run, the same user will be able to run it again or another user or no preference ("Not applicable").

#### 9.7.2.2.2 Task Properties

Here, special fields must be ticked with information for a form or report if needed by a section. For example, if a form needs to have the date and time of the start of filling in fields, the field 'acceptance date time' must be checked.

AVIC	••		
Task properties			
Accept date time		Ready date time	
Accept user name		Ready user name	
Accept user photo		Ready user photo	
Accept user signature		Ready user signature	

#### 9.7.2.2.3 Leadtime Triggers

Tick the 'Enable lead time' field if the task's lead time needs to be monitored. Notifications can then be sent if a task takes too long or runs too quickly.

Leadtime triggers			
Enable leadtime	$\checkmark$		
Limit names	Limit values		Limit zones
			Notification Above high
High high		÷	Minutes
			Notification Between pre-high and high
High		\$	Minutes
			Notification Between pre low and pre high
Low		ŧ	Minutes
			Notification Between pre-low and low
Low low		\$	Minutes
			Notification Under low

#### 9.7.2.3 Content Tab

The content of the Content Tab depends on the chosen task type.

#### 9.7.2.3.1 Task Type Form

For a form type task, you must choose the form to be filled in with this task and specify which buttons on the taskbar should be visible when the form is filled out.

General	Categories	Properties	Content	History	Connections	Deployment	
Form section	n						
Form name		sele	ct				•
Task bar but	tons						
Show save b	utton		Show sul	o task down	button		
Show finish b	outton	~	Show sul	o task up bu	tton		
Show exit but	tton		Show tas	k back butto	n		
Show delete	button	~	Show tas	k pause but	ton		
Show tasks b	outton		Show tas	k forward bu	utton		
Show workflo	w button		Show full	screen butt	on		

Below it can be indicated which sections of the form are visible and/or change for the person (s) who perform (or perform) the task.



Select sections			
Select items to add			Add
Sections	Show	Edit	Action
SmallInspectionEngineer (Sandbox)	True	False	×
SmallInspectionObserver (Sandbox)	True	True	×

#### 9.7.2.3.2 Report Type

Choose the report to be generated by the task and specify whether the report should be saved and what property.





#### 9.8 Workflow

A workflow is a collection of work that must be done to obtain a certain result. This work is to be translated into tasks (see <u>Tasks</u>). In a workflow, we can specify the order in which the tasks are to be performed.

A workflow can be started manually but also automatically by a scheduler.

#### 9.8.1 Create Workflow

In Design in the menu under 'Activity elements' choose 'Workflows'. In the grid, the existing workflows are shown. To create a new one click on the ' + ' button.

OVERVIEW WORKFLOWS	>> NEW WORKFLOW	
Add workflow		
Name Workflow type	select	•
Cancel Add		

Enter the name and choose the Workflow type, either 'Document' or 'Form', and click Add. 'Document' is for the 'Document generator'.



#### 9.8.2 Edit

#### 9.8.2.1 General Tab

OVERVIEW WORKFLOWS >> NEW WORKFLOW >> EDIT WORKFLOW

General	Categories	Content	History	Connections	Deployment
Name			Workflow	/	
Description					
Design stat	е		Sandbox		
Version2			1		
Workflow ty	pe		Form		
Allow delete	e workflow by u	ser			
Start optio	ns				
Start manu	al by user				
Start by per	riod scheduler				
Start after o	lays				
Start after e	event				
Restart wor	kflow				
Stop optio	ns				
Stop workfl	ow after expired	d timer			
Allow user	to abort workflo	w			
Screen opt	tions				
Show gene	ral data		~		
Show histo	ry data		~		
Show statis	tics data		~		
Translation	s Cancel	Save			

Name: Name of the workflow in design. Can be adapted here and also translated.

**Description:** Write down in plain text what the purpose is of the workflow, what the result should be, who will use this, etc..

Design state: Workflow status in design.

Version: The version number of the workflow.

Workflow type: This option is only editable when adding. Choices are Document and form.

Allow delete workflow by User: Check this so the user can delete instances of this workflow.

#### Workflow start options

**Start manually by user:** The workflow can in live be started by a user (as opposed to 'by scheduler') **Start by scheduler:** When checked a scheduler must be selected:

Start by period scheduler		
Scheduler	select	

Start after days: When checked following extra options are presented:

Start after days	$\sim$	
Restart after days content by id	Design	
Restart after days	🔶 Days	

Start after event: When checked extra options will be presented.

Start after event	~		
Sub title events			
IsOverflow - State not normal		•	Add item
IsOverflow - State not normal		0 🔷 Days	Delete

When the event occurs you can indicate here the number of days after which the workflow will be restarted.

**Restart workflow:** Indicates whether a new workflow instance can be restarted if an instance of this workflow is already active.

#### **Stop options**

Stop workflow after expired timer: When checked, two options more will be presented:

Stop workflow after expired timer	$\checkmark$	
Maximum workflow lead time	-	Minutes
Stop workflow after the end time		
schedule expires		

Maximum workflow leadtime: Indicate the time after which a workflow expires (in minutes). Stop workflow after endtime: Check this to end the workflow when the workflow is expired. Allow user to abort workflow: Tick this when the workflow can be aborted by a user.

#### **Screen options**

The choices below ensure that live workflows do or do not display certain items.

**Show General data:** Whether or not to show general data workflow and the ability to accept and extract tasks.

**Show History:** Shows the history of when workflows are created and stopped, in a grid. **Show Statistical data:** Shows the tasks the workflow has.



#### 9.8.2.2 Content Tab

In this tab, the workflow can be composed from the available tasks and the order and conditions under which a task becomes active are defined.





In a new workflow, there is only a red ball in this screen. This is the end of the workflow.

Using the Add button tasks that should be part of the workflow can be selected. Once on the canvas the tasks can be ordered.

For every task a start conditions must be set, except for the first task to be executed when a workflow is started. There, no start condition is set. Tasks without a start condition are started when the workflow is started. The start condition of a task can be set by clicking it twice. After the first time a dotted line will be drawn around the task to indicate it is selected. It can be dragged over the canvas. Clicking it again will show the popup 'Edit task'.

#### 9.8.2.2.1 'Edit task' popup

When the popup opens, the 'Start Formula ' tab is displayed. Here, we can create formulas that determine whether the job will be started. First, however, you must indicate what other tasks this task depends on. This is done in the 'Dependencies tab'.



Edit tas	κ.				×
General	Dependencies	Start formula	Reset formula		
Available				Selected	
Small Insp SmallInspe	ection Finish Form (Sa ctionReport (Sandbox)	ndbox) )		Small Inspection Engineer (Sandbox)  Save	

Avision understands that the start of task 'Small Inspection Observer' depends on the task 'Small Inspection Engineer' but doesn't know the exact conditions because the formula has not been made yet. Therefore, the arrow is gray.

Workflows		
	Small Inspection Engineer	
	Small Inspection Observer	

We can now fill in the formula in the 'Start Formula' tab (of the task 'Small Inspection Observer').

Edit task		×
Edit task           General         Dependencies         Start formula           A1 - Small Inspection Engineer         AND OR NOT XOR ()         AND OR NOT XOR ()	Reset formula	×
Save		



Transition	Value	Description	Color of the arrow
Condition			
None	0	Default value to indicate that no transition	gray
		condition has been selected	
New	1	Task is started	purple
Pending	2	Task is running	blue
Paused	3	Task has been paused	orange
Error	4	Task has been stopped because of a failure	red
Reject	5	Task has been rejected	black
Finish task	6	Task is finished and is stopped	green
Expired	7	Task was stopped/will no longer run	pink

Eight transition conditions have been defined:

To indicate now that the task 'Small Inspection Observer' should start when the task 'Small Inspection Engineer' is finished, we set the Transition status field to 'Finish task' and click the 'Insert' button. This causes the text "A1. Value = 6 " to be written in the formula generator. Click "Save" to save this formula.

General	Dependencies	Start formula	Re	set formula			
A1 - Small Inspection Engineer				6 - Finish task	< 🔻	Insert	
AND OR N	IOT XOR ( )						
A1.Value	= 6						

The arrow that was first gray has now become green.

#### 9.9 Tasks and Workflows in Live

A Workflow will usually be linked to an Asset node in Design, but it can also be linked to other nodes. It can be added to Structure nodes, Asset nodes, and Object nodes.

In this chapter, we continue with the workflow as created in the previous chapter.

On the asset node, in the menu, click Workflows. Since we only have one workflow this is immediately shown in the screen (if we had multiple workflows a grid would have been shown).

On top of the screen we see two buttons, 'Workflow start new' and 'Open form workflow'. With the first button the workflow is started and nothing more. The second button the workflow can be started and will present the first task with a form.

## AVIC .

WORKFLOWS

<b>6</b>	Workflow V	Vorkflow start ne	w	Open form workflow	1		
Pro 1							
Last workflow	v data						
Started by		Designer					
Start date time		18/10/2019 08:50	)				
Stopped date tim	e	18/10/2019 09:44	4				
Workflow duratio	n	54 Min					
Next start mome	nt	-					
Planned date tim	e		<b></b>	9			
		Save planned	l date time	1			
Tasks view							
Show workflow-di	iagram						
↑ Task status	×						
Task name	User name		Task st	art Actions			
Workflows his	story						
Last 24 hour Last	7 days Last 4 w	eeks Last 3 mon	ths Last 6	months Last 12 months		▼ 17-10-2019 12:	00 - 18-10-2019 12:00
Workflows total p	eriod	2					
Workflow started	manual	0					
Workflow started	scheduled	0					
Workflow started	triggered	0					
Default workflow	duration	59 Min					
Drag a column hea	der and drop it h	ere to group by th	at column				
Start date	Stopped dat	Expired dat	t : Sta	arted by	:	Duration m	Actions
18/10/2019 08:50:31	18/10/2019 09:44	4:58	De	signer		54	Ê
18/10/2019 07:32:00	18/10/2019 08:36	6:55	De	signer		64	Ê
H 4 1	Page 1	of 1 🕨 🕨	12	Items per page		1 - 2 of 2 Ite	ms 🔿
Workflow descr	iption						
Workflow for the ins	spection of a sew	er well. First part	is filled out	by Engineer and Observer then	acknowl	edges this. Then a r	eport is created.
Workflow startin	ng method						

We'll start the workflow with the 'Workflow start new' button: the buttons disappear, and a runner is shown shown top left to indicate the workflow 'runs'.

The 'Task status' part of the screen shows the tasks, who has been working on them and when it was started.

We're logged in as Manual_Student1 and have rights to perform both the role Engineer and of Observer. In practice these would be two separate people who will only be able to run the tasks meant for them.

1	Task status 🗙						
	Task name	÷	User name	:	Task start	:	Actions
Â	Task status: None						
	SmallInspectionReport						Ð
	Small Inspection Obser	rve	ti				Ð
.4	Task status: New						
	Small Inspection Engin	eer					019

We can see a task is ready to be accepted by the Engineer. Only when the engineer is finished can the Observer accept his task. (We deliberately created it this in the workflow).

Ø	Administrator only: Shows a popup in which the task can be assigned to another user (e.g. in case of illness).
~	Accept/Start the task.
Ð	Shows the history of the task.

After accepting/starting the task, the checkmark disappears and two other icons appear:

Run task
Stop the Task

#### When clicking the 'Run task' button a form is opened :

Workflow task menu Workflow	WORKFLOWS >> ITEM: SMALL INSPEC	CTION ENGINEER
Save task	New American St	
Finish task	Manual_Student1	18/10/2019 12:20:15
Pause task	Manhole cover can be opened	1
Exit task		
Reject task	Pump can be started manually	
Workflow overview	Remarks	
Go to all tasks	Overall condition is good. Found some	graffiti.
Small Inspection Engineer	1	

Figuur 9-1: Task started; form is fileld out by the Engineer.

The task only shows that part that is to be seen by the engineer.

On the left, we see a column of options for this task. To save the form click on 'Save'. To end the task, choose 'Finish Task'.

Ta	asks view					
Sho	w workflow-diagra	m				
1	Task status 🗙					
	Task name	:	User name	:	Task start	Actions
2	Task status: None					
	SmallInspectionRe	port				Ð
- 21	Task status: New					
	Small Inspection O	bserver				019
4	Task status: Finish					
	Small Inspection E	ngineer	Manual_Student1		18/10/2019 12:20:15	Ð

Because the Engineer has finished his task, the Observer can now complete the next task. (Caution: After finishing a task it takes a few seconds for the next task to be picked up).

Workflow task menu Workflow	WORKFLOWS >> ITEM: SMALL INSPEC	TION OBSERVER
Save task		
Finish task	Manual_Student1	18/10/2019 12:20:15
Pause task	Manhole cover can be opened	/
Exit task	Dump can be abated menually	
Reject task	Pump can be started manually	
Workflow overview	Remarks	
Go to all tasks	Overall condition is good. Found some g	raffiti.
Small Inspection Observer		
		18/10/2019 12:29:12
	Observed:	

The form as seen by the Observer. The top part has been edited by the Engineer and cannot be altered by the Observer. The lower part of the form is for the Observer and never visible for the Engineer. Here the Observer can check the box to indicate he has seen the remarks of the Engineer. Then the Observer finishes his task.

TASKS >> ITEM: KLEINEINSPECTIEWAARNEMER >> ITEM START

t	Taak naam 🗙					
	Taak naam	Gebruiker	Taak status	Taak gestart	Node naam	Acties
	Taak naam: KleineInspectie	Monteur				
	KleineInspectieMonteur	Designer Avision 2.0	Finish	28-03-2019 10:38:46	RP Markt	Ð
	Taak naam: KleineInspectie	Waarnemer				
	KleineInspectieWaarnemer	Designer Avision 2.0	Finish	28-03-2019 10:44:38	RP Markt	Ð
	Taak naam: RapportKleinIn	spectie				
	RapportKleinInspectie		None		RP Markt	Ð
H	Pagina 1	van 1 🕨 🕨 250	🔻 Rijen per pagina			1 - 3 van 3 Items 🚺

After the Observer's task is finished, the process automatically continues to the next task, 'Finish Form'. This is a task is run in the background and is usually finished within a second. Immediately the next task, generating a report, is started. This task is also finished within a second, after which all tasks are finished.

The grid for the reports (we're still at the assets node, menu item Reports data) now contains the report generated in the workflow:

Manual Avision 2.0



+ Administration	REPORTS DATA								
- Analyse		1							
Charts	† Name 🗙								
Reports data	Name	Node	: 5	equence :	State	:	Generated on	Actions	
+ Notification	A Name: Sewer	r pit							
+ Node	Sewer pit	SW Markt			0			+	
+ User	A Name: Small	Inspection							
+ Hardware	Small Inspec	tion SW Markt		1	1 Generated		18/10/2019 13:09:29	1 € € €	
+ Application	H 4 1	Page 1	of 1	▶ ▶ 25	) 🔻 Items per page			1 - 2 of 2 Items	

By clicking the clipboard icon we can see the last generated report.

### 10 User Elements

By logging in to Avision, a user is given rights to view or modify certain data and perform certain tasks.

#### 10.1 Users

Users are created in Live. A user exists only within the own application, and also has only rights within the own application. If an underlying customer application is created, a user of the parent application does not have access to it. (By ' Impersonation ' it is possible to work as someone in that client application).

Rights are given to a user through User Types, which contain Roles. Furthermore, access can be arranged to certain modules by using Access Keys and Categories.

A user must have a last name.

#### 10.1.1 PIN

The mobile phone number and e-mail address must be unique. This means that if a mobile phone number and an e-mail address are used by multiple users, this can only be possible in Avision if a PIN number is filled in. Avision allows the use of the same e-mail address or mobile phone number only if those users have the same PIN number.

This PIN number is a random number. It is not stored encrypted (which, in contrast, does happen with passwords in Avision).

#### 10.2 Roles

Roles give certain rights to a module. Rights that can be distributed are Show, Edit, Add, Delete, and Copy.

Roles are created in Design and are associated with user types (so they are not directly linked to users).

#### 10.3 User Types

User types contain a collection of one or more roles. A user type is associated with a user, and the user is granted rights to a module. A user type also indicates which fields the user is allowed to see if they see their own user information and which fields are presented when looking at another user's data.

User types are created in Design.

#### 10.3.1 General Tab

In The General tab, the name of the user type can be changed. In the section below that, we indicate the fields that are visible through this user type.



OVERVIEW USERTYPES >> EDIT USERTYPE: OBSERVER

General Roles Hist	ory Connections		
Default settings			
Design state		Active	
Name		Observer	
Translations Cancel	Save		
Fields			
Select items to add		Add	
Property	Private	Public	Required Action
Firstname	○ None ○ Show ● Edit	● None ○ Show ○ Edit	×
Prefix	○ None ○ Show ● Edit	None      Show      Edit	×
Lastname	○ None    Show    Edit	● None ○ Show ○ Edit	✓ X
Mobile	○ None ○ Show ● Edit	None      Show      Edit	×
E-mail	○ None ○ Show ● Edit	● None ○ Show ○ Edit	×
Language	○ None   Show   Edit	None      Show      Edit	×
Loginname	○ None   Show   Edit	None      Show      Edit	✓ X
25			× ×

Here we also indicate what the user, because of this User Type assigned to him (or her), is allowed to do with these fields. These rights can be different for every field depending on whether they are his data (Private) of the data of other users (Public). Also we can indicate here whether the fields are mandatory (required).

#### 10.3.2 Roles Tab

In this tab, we link the desired roles to the user type. Here we can also indicate which categories' rights are received based on the role. When no categories are indicated then 'All categories' applies. For more information on categories see Chapter X.

There is also a column 'Design/Live'. This works as follows: Is the setting 'Design mode 'then the right is automatically handed out. If it is on 'Live mode 'then it is optional to add in Live (the user who distributes the rights in Live must of course have sufficient rights).

General	Roles	History	Connections
Select roles	s		
Select items	to add		
Roles		Cate	gories
Employee N	Aunicipality	Арр	plicable categorie

#### 10.4 Practical Example

Do-it-yourself block in which a user is created

We want to create a simple user who can only work in Live (not a designer). This is an employee of the municipality of Zaltbommel that we want to give the right to monitor drains within that municipality.

We assume a user Type 'observer' that has two roles: 'SewerWellMonitor' and 'SewerWellReporter'

#### 10.4.1 Create Roles

We will first create two roles. One role is to give the user a show right for monitor screens. The second role gives rights to write a report.

- In Design, go to menu item 'User elements', 'Roles'.
- Click the '+'-button to create a new role.
- Enter as name 'SewerWellMonitor' and click klik 'Add'.
- In the edit screen, check mark Show at module Screens and click 'Save'.

Now for the role 'SewerWellReporter':

- In Design, again, go to 'User elements', 'Roles'.
- Click the '+'-button to create a new role.
- Enter as name 'SewerWellReporter' and click 'Add'.
- In the edit screen add check marks at module 'Reports data', rights Show, Edit and Add.
- Click 'Save'.

We also create a role 'Employee Municipality Zaltbommel' to be able to show the user data.

- In Design, go to 'User elements', 'Roles'.
- Click the '+'-button to create a new role.
- Enter as name 'Employee Municipality Zaltbommel' and click 'Add'
- In the edit screen add check marks at module 'Users', at the 'Show' and 'Edit' rights.
- Click 'Save'.

#### 10.4.2 Create User Type

We'll create a user type named 'Observer'.

- In Design, go to menu item 'User elements', 'User types'.
- Click the '+'-button to create a new 'User type'.
- Enter as name 'Observer' and click 'Add'.
- In the edit screen, General tab, at 'Fields', add : Last name, E-mail, Login name, Mobile, Language, First Name, Prefix, Password.

Fields				
Select items to add		Add		
Property	Private	Public	Required	Action
Firstname	◯ None ◯ Show [●] Edit	None O Show O Edit		×
Prefix	◯ None ◯ Show ④ Edit	● None ○ Show ○ Edit		×
Lastname	○ None   Show   Edit	None      Show      Edit	~	×
Nobile	○ None ○ Show ● Edit	None      Show      Edit		×
E-mail	○ None ○ Show ④ Edit	● None ○ Show ○ Edit		×
anguage	◯ None	None      Show      Edit		×
oginname	○ None   Show   Edit	None      Show      Edit	~	×
Password	○ None ○ Show ● Edit	None      Show      Edit	~	×

• Set the radio buttons according to above screen shot and click 'Save'.

 At the Roles tab, select the roles we created earlier: 'SewerWellMonitor', 'SewerWellReporter' and 'Employee Municipality Zaltbommel', and click 'Add'.

OVERVIEW USERTYPES	>> EDIT USERTYPE: OBSER	VER			
Select roles					
Select items to add	A	dd			
Roles	Categories	Design/Live		Action	
Employee Municipality Zaltbommel	Applicable categories	Design mode	<b>•</b>	×	
SewerWellMonitor	Applicable categories	Design mode	-	x	
SewerWellReporter	Applicable categories	Design mode	-	×	

#### 10.4.3 Create New User

Let's leave Design and go to Live. Because we're going to create a new employee for the municipality of Zaltbommel, we go to that node and open the menu, item 'Users'.

Click the '+'-button top right of the users grid. Enter the last name (i.e. Jones), and at the user type field select 'Observer'. (Access key leave it to 'Global AccessKey').

Add user		
Last name	Jones	
LUserType	Observer	
Access key	Global AccessKey	

After creation, the edit screen is automatically opened to enter data in other fields:

<b>FEM</b>

Lastname		Jones	
-irstname		John	
refix			
Mobile		+31612255339	
E-mail		jjones@gemzb.nl	
Loginname		jonesj	
assword		•••••	
Password	re enter	•••••	
Language		English	

• Click on 'Save'.

If we now logout and then log in as John Jones we see this :

## AVIC .

		🕒 🛛 🚣 🐟
Analyse -Analyse	SCREENS >> ITEM: SEWER WELL MONITOR	My account
Report data	Temperature 27.04 °C Level	John Jones JorenQornots # Erglich • To mr. account
e 🚯 SW Markt		Sign out

Wat valt op:

- The highest level for user John Jones is the node 'Gemeente Zaltbommel'.
- The menu only shows 2 items; reports and screen. The role SewerWellMonitor gives Show rights for the Screens module, the role SewerWellReporter gives Show, Edit and Add rights for reports.
- If Jones opens his account he gets to see this: <u>SCREENS</u> >> ITEM: SEWER WELL MONITOR >> ITEM: JONES

General	Usertypes	Connections	
Lastname		Jones	
Firstname	r.	John	
Prefix			
Mobile		+31612255339	
E-mail		jjones@gemzb.nl	
Loginnam	е	jonesj	
Password		*****	
Password	re enter	*****	
Language	r.	English	

• From the role 'Employee Municipality Zaltbommel' Jones can change his first name, prefix, mobile (cell) phone number, his email address and his password. He's also able to choose a different access key at user type Observer.

### 11 Application Management

#### 11.1 Styles

Styles determine the font, text color, and color of the background of a text in a monitor screen, form, or report, and the background color of a section.

A style does not determine the layout of the application or the color of the menu buttons. This can be adjusted in the 'GUI Application style ' module in Live.

When creating the application, three Default Avision styles were inherited.

#### 11.1.1 Creating New Style in Design

A new style can be created by clicking on the ' + ' button. (But remember that it might be smarter to take an inherited Avision style and adjust it).

When creating a new style, just enter a name.

#### 11.1.2 General Tab

Here the Style can be edited.

OVERVIEW STYLES >> NEW STYLE >> EDIT STYLE

General Histo	ory Connection	ns Deployment
)efault settings		
Name	Ν	/ly Style
Design state	Sa	ndbox
Version	1	
Style main settin	gs	
Background color		-
Style font setting	js	
Font color		-
Font	A	rial
Font size	1	2 🜲
Font text indent	3.	0 ≑
Font weight	N	ormal
Font style	N	ormal
Font text decoration	on N	ormal
Font alignment	0	eft
Style border sett	ings	
Bordered	~	1
Border color		
Border style	-	- select
Border width		4

#### 11.1.2.1 Style main settings

Background color : Background color.

#### 11.1.2.2 Style font settings

Font color : Text color.

Font : Options are Arial, Calibri, and Courier.

Font size : Size of the font in points.

Font text indent : Indentation of the text inside a text box.

Font weight : Normal or Bold.

Font style : Normal of Italic.

Font text decoration : Normal, Overline, Line through, Underline.

Font alignment : Alignment of text in a textbox. Options are : Left, Centered, Right.

#### 11.1.2.3 Style border settings

Bordered : When checked other options become available for the borders (color, style and width).

Border color : Select a color.

Border style : Dashed, dotted, double, solid.

Border width : Thickness of the border in pixels.

#### 11.2 Application Types

An 'Application Type ' is a package of items that can be inherited to a new application for a (underlying) customer. When creating a new client application, multiple application types can be given.

#### 11.2.1 Creating an Application Type

In Design, at the menu item 'Application Management', click the '+'-button top right in the grid. The 'Add application type' screen is shown where a new application type can be added. Only a name needs to be entered. After clicking the 'Add' button a new application type is created.

#### 11.2.2 General Tab

The name of the Application Type can be edited here.

OVERVIEW APPLICATION NODE TYPES	>> NEW APPLICATION TYPE	>> EDIT APPLICATION TYPE
		_



### AVIC employees have the extra option to indicate the ApplicationType can be used by all Applications.

OVERVIEW APPLICATION NODE TYPES >> EDIT APPLICATION TYPE: IRIS (APPL TYPE)

General	Elements	History	Deployment	Advanced actions
Name app	lication node ty	rpe IR	IS (appl type)	
Activity sta	ite			
Version		0		
Global		~		
Translatio	ns Cancel	Save		

#### 11.2.3 Elements Tab

In this tab the package of distributable items can be composed. First select the type of item you want to add to the package (at 'Select element type') and click 'Edit' after which a left-right screen is presented or click 'Add all elements' to immediately add all items (of all types) of the current application to this new Application Type.

OVERVIEW APPLICATION NODE TYPES >> NEW APPLICATION TYPE >> EDIT APPLICATION TYPE

General	Elements	History	Deployment				
Select elen	nent type				Edit		Add all elements
Туре	:	Name	:		Version	:	Actions
H 4	0 Page	0 of (	) > > 2	25	50 🔻 Items	pe	er page



dingen Vijzig	Versie : Acties
Pagina 0 van 0 🕑 🗵 250 🔻 Rijen	per pagina Geen items
Koppel elementen	
Beschikbaar Avic BV - Akal-Gree (versite 1) Avic BV - BasicGate (versite 1) Avic BV - Book (versite 1) Avic BV - Dovice (versite 1) Avic BV - Colder (versite 1) Avic BV - Colder (versite 1) Avic BV - Lottake (versite 1) Avic BV - MonoCate (versite 1) Avic BV - NanoCate (versite 1) Avic BV - Vinveless (versite 1)	Geselecteerd

Fig. 11.2.3.1 After clicking the 'Edit'-button a left-right screen is presented.

#### 11.3 Module Translations

Using 'Module Translations' texts (i.e. names of fields) can be translated. This is an option that will in principle only be used by AVIC employees. In a single case where a module has been specially developed for a customer, the customer will be able to use this module in his environment to translate texts.

#### 11.3.1 Overview

- Log in as AVIC-employee
- At Avic B.V. go to Design, menu 'Application Management', item 'Module translations'

#### MODULE TRANSLATIONS

Name	:	Actions	:
All_Resources		0	
AccessKeys (View Live)		0	
ActiveStateEnum (Enums)		0	
ActivityStateEnum (Enums)		0	
AddressTypesEnum (Enums)		0	
AdjustmentEnum (Enums)		0	
Alarm (Model)		0	
AlarmConfiguration (View Design)		0	
AlarmConfiguration (View Live)		0	
AlarmConfiguration AlarmConfigurationController (Controller Desi	gn	0	
AlarmConfiguration.AlarmConfigurationVM (Model Design)		0	
AlarmConfigurationBaseDef (Model)		0	
AlarmConfigurationDef (Model)		0	
AlarmiconTypeEnum (Enums)		0	
AlarmScreen (View Design)		0	
AlarmScreen (View Live)		0	
AlarmScreen AlarmHistoryInputVM (Model Live)		0	
AlarmScreen.AlarmScreenController (Controller Design)		0	
AlarmScreenBaseDef (Model)		0	
AlarmScreenDef (Model)		0	
AlarmShowEnum (Enums)		0	
AlarmStartPointEnum (Enums)		0	
AlarmStateEnum (Enums)		0	
AlarmTriggerEnum (Enums)		0	
AnalogVM (Model Live)		0	
Page 1 of 22		-	C
I USC I UICC III			0

The Overview shows in alphabetical order of all Modules the views, enums, and models where texts can be translated. The first option, 'All_Resources', is a link to all the texts in the Resource table.

#### 11.3.2 Translate

By clicking on the globe icon behind an item, the translation module for that view, enum or model is opened.

✓ Save Save						
Grid item key	Name :	English	÷	Spanish	•	3
Areas/Design/Views/Module/AlarmConfiguration/Overview.cshtml	LAIarmConfigurationStatusDeleted	Alarm configuration status {0} (Version {1}) deleted		Estado de configuración de alarma (1)) eliminado	a {0} (Ve	ersion
Areas/Design/Views/Module/AlarmConfiguration/Overview.cshtml	LAlarmConfigurationDelete Delete alarm configuration (0) (Version (1))		Configuración de alarma eliminar ( {1})	0} (Ver	sion	
Areas/Design/Views/Module/AlarmConfiguration/Add.cshtml	LAddAlarmConfiguration	Add alarm configuration		Agregar configuración de alarma		
Areas/Design/Views/Module/AlarmConfiguration/Add.cshtml	LName	Name		Nombre		
Areas/Design/Views/Module/AlarmConfiguration/Add.cshtml	LTrigger	Trigger		Desencadenar		
Areas/Design/Views/Module/AlarmConfiguration/Edit_General.cshtm	LAlarmConfiguration	Alarm configuration		Configuración de alarma		
Areas/Design/Views/Module/AlarmConfiguration/Edit_General.cshtm	LLabel	Label		Etiqueta		
Areas/Design/Views/Module/AlarmConfiguration/Edit_General.cshtm	LTrigger	Trigger		Desencadenar		
Areas/Design/Views/Module/AlarmConfiguration/Edit_General.cshtm	LinScan	Active		Activo		
Areas/Design/Views/Module/AlarmConfiguration/Edit_General.cshtm	LResetTrigger	Reset trigger		Restablecer el gatillo		
Areas/Design/Views/Module/AlarmConfiguration/Edit_General.cshtm	LBlobPresentationDef	Blob presentation def		Presentación de blob def		
Areas/Design/Views/Module/AlarmConfiguration/Edit_General.cshtm	LDelayScenario	Delay scenario		Escenario de retraso		
Areas/Design/Views/Module/AlarmConfiguration/Edit_General.cshtm	LSeconds	Seconds		Segundos		
Areas/Design/Views/Module/AlarmConfiguration/Edit_General.cshtm	LUrgentAfterTimeHighHigh	Urgent after time high		Urgente después de tiempo alto		
Areas/Design/Views/Module/AlarmConfiguration/Edit_General.cshtm	LUrgentAfterTimeHigh	Urgent after time high		Urgente después de tiempo alto		
Areas/Design/Views/Module/AlarmConfiguration/Edit_General.cshtm	LUrgentAfterTimeLow	Urgent after time low		Urgente después de tiempo bajo		
Areas/Design/Views/Module/AlarmConfiguration/Edit_General.cshtm	LUrgentAfterTimeLowLow	Urgent after time low		Urgente después de tiempo bajo		
Areas/Design/Views/Module/AlarmConfiguration/Edit_General.cshtm	LRepeatAlarm	Repeat alarm		Repetir la alarma		
Areas/Design/Views/Module/AlarmConfiguration/Edit_General.cshtm	LMessage	Message		Mensaje		
Areas/Design/Views/Module/AlarmConfiguration/Edit_General.cshtm	LMsgDate	Msg date		Fecha de mensaje		
Areas/Design/Views/Module/AlarmConfiguration/Edit_General.cshtm	LMsgTime	Msg time		Tiempo de mensaje		
Areas/Design/Views/Module/AlarmConfiguration/Edit_General.cshtm	LMsgLocation	Msg location		Ubicación de mensaje		
Areas/Design/Views/Module/AlarmConfiguration/Edit_General.cshtm	LMsgNodeName	Node name		Nombre del nodo		
Areas/Design/Views/Module/AlarmConfiguration/Edit_General.cshtm	LMsgDataLabelPattern	Datapoint label		Etiqueta de punto de datos		
Areas/Design/Views/Module/AlarmConfiguration/Edit_General.cshtm	LMsgLimitValue	Value/limit		Valor / límite		

Fig. 11.3.2.1: Example of Translation of texts in the views of the module AlarmConfiguration in Design

Grid item key : Contains the path to the view.

Name : This name is shown in the language column if there is no translation for the text yet.

The following are two columns where the first column shows the texts in the ' from ' language and the second column in the ' to ' language. A translator selects in the left column A language whose texts are good and selects in the second column the language where the texts are still to be filled in or modified.

By clicking in the right hand column on the field that needs to be translated, the contents of this field can be changed.

✓ Save Sancel							
Grid item key	Name :	English	-	:	Spanish		:
/Areas/Design/Views/Module/AlarmConfiguration/Overview.cshtml	LAlarmConfigurationStatusDeleter	Alarm configuration status {0} (Versideleted	sion {1})		Estado de configuración d {1}) eliminado	le alarma (0) (V	ersion
/Areas/Design/Views/Module/AlarmConfiguration/Overview.cshtml	LAlarmConfigurationDelete	Delete alarm configuration {0} (Ver	sion {1})		Configuración de alarma e {1})	eliminar {0} (Vei	rsion
/Areas/Design/Views/Module/AlarmConfiguration/Add.cshtml	LAddAlarmConfiguration	Add alarm configuration			Agregar configuración de	alarma	
/Areas/Design/Views/Module/AlarmConfiguration/Add.cshtml	LName	Name			Nombre		>
/Areas/Design/Views/Module/AlarmConfiguration/Add cshtml	ITringer	Trigger			Desencadenar		

MODULE TRANSLATIONS >> OVERVIEW TRANSLATIONS: ALARMCONFIGURATION (VIEW DESIGN)

Fig. 11.3.2.2 Translation from English to Spanish

If after change the field is left, there will be a red triangle in the upper left corner of the field. This way, all fields in the right column can be adjusted.

/Areas/Design/Views/Module/AlarmConfiguration/Add.cshtml	LName	Name	Nombre

After clicking on the 'Save 'button above the grid, the changes are saved. Depending on the language of the logged in user, they will be displayed.

#### 11.4 Generic Translations

Generic Translations is a module for Translating texts that occur in many places (many modules) in the program, for example the text on the Save button (at General) or error messages (at Error).

This module is only used by AVIC employees.

GENERIC TRANSLATIONS	>> OVERVIEW TRANSLATIONS: GENERA	<u>AL</u>		
✓ Save 🚫 Cancel				
Grid item key	1	Name	English 🔻 :	Italian 🔻 :
General		LDataSaved	Data saved	Dati salvati
General		LInvalidData	Invalid data	Dati non validi
General		LLanguages	Translations	Traduzioni
General		LSave	Save	Salvare
General		LCancel	Cancel	Annulla

Fig. 11.4.1: The text for the Save button translated to Italian

The operation of the translation grid is the same as for other translation screens (such as Module translations).

11.5 Event Configuration See Event History.

### 12 Live Modules

This chapter describes typical Live modules. These are modules that do not appear in Design.

#### 12.1 Access Keys

Access keys can be used to arrange entry to a Node. Therefore, access keys work only in Live. To access a node, both the user and the node must have a matching access key.

Nodes that are always accessible for users created on a higher node have the 'Global access key'.

#### 12.1.1 Module Access Keys

In Live, a list of access keys can be created at any level. Most likely, the keys will usually be created at the customer level in order to create an area partition.

Example: A company has three working regions, West, North and South and wants mechanics to work region-bound. A mechanic for region South may only access nodes for that region. In the access keys module, three keys are created: West, North, South.

#### Do-it-yourself block where you will create three Access Keys.

- In Live, go to the node on client level.
- In the menu, go to Node, and then to item 'Access keys'.
- A grid is now displayed with the existing access keys. Click the '+'-button in the upper right corner of this grid to open the Add screen.
- Enter the name of the new access key, i.e. 'North'.
- Do the same for 'West' and 'South'.

Name	÷	Changed	:	Action	
North		22/10/2019 08:27	:42	ÊØX	
West		22/10/2019 08:27	52	ÊØX	
South		22/10/2019 08:27	:58	ÊMX	

#### 12.1.2 Adding Access Key to a Node

At any level access keys can be added to nodes but usually the simplest way is to add them from the level they were created.

- At client level, in the menu go to menu item Nodes.
- In the nodes grid, click the pencil icon of the node we want to assign an access key to.



#### • Go to the tab 'Access keys'.

NODES	>> ITEM: ZALTBOMMEL	(CITY)

General Accesskeys		
Copy to children		
Available		Selected
North		Global access key
South		
	_	
	<<	
	>>	
	Save	

- In the left hand column you'll find the available access keys, on the right hand side the already selected/coupled access keys. When no access key was coupled to the node it will show 'Global access key'.
- Check mark 'Copy to children' to assign the access key also to nodes below the selected node.
- Select the appropriate access key(s), click the double arrow and then 'Save'.

#### 12.1.3 Adding Access Key to User

Adding the access key to a user happens at the same place as the where the user type is coupled.

- In Live, go to the node where the user was created.
- In the menu go to users. The grid showing the users on that level is opened.
- Click on the pencil icon of the user you want the access key coupled to, and then click the tab 'User types'. The grid showing coupled user types is presented.
- Click the pencil icon behind a user type.
   <u>USERS</u> >> EDIT ITEM >> ITEM: OBSERVER

Edit usertype coupling	
Usertype	Observer
Accesskey	Global AccessKey 🗙 🔻
	Global AccessKey
Cancol Savo	Chobal Accessing
Calicel Save	North
	South
Role settings	West
Employee Municipality Zaltbomm	el True
SewerWellMonitor	Tay
oewer wennion to	10
SewerWellReporter	True

• At the field access key we can now select the access key and via the user type we have added it to the user.

So, per user type one access key can be coupled to a user. We could set up a system where the Engineer can access the nodes of multiple regions using access keys but is only allowed to make changes to one region using roles.

#### 12.2 DataExport

The Data Export module is a powerful tool that allows you to quickly put together a report with an overview of measurement values. This overview can be written to an Excel file.

EXPORT				
Export generate				
Node type	All			
Date choice	Last value 🔻			
Available			Selected	
Client - Language - Languaget - Client - Language - Tanguaget - Client - Language - Tanguaget - LightCate - in pressure - ar pres LightCate - Inpediator - Languaget - LightCate - LightCate - Temperature LightCate - LightCate - Temperature ServerWei - Inspection Sevage F ServerWei - Inspection Sevage F ServerWei - Master data pump - SeverWei - Master da	Content ageFamilyId - Content sure value - Content sure value - Content sor Processor temperature - Processor temperature - Content sor Processor temperature - Processor temperature - Content - Temperature - Content e - Temperature - Content e - Content - Content e - Content - Content - Temperature - Unit e - Content - Content - Temperature - Content - Content - Content - Content - Content - Temperature - Content - Content Capacity Max Unit Capacity Max Content Capacity Max Content - Content Capacity Max Content - Cont	× ×		
Generate				

**Node type :** This field allows the number of lines in the left column to be limited to data of a certain type of node. Default is all types.

**Date choice :** Options are : 'Last value' or 'Interval'. Using 'Last value' only the last values are used in the overview. Using 'Interval' a time period can selected and more options become available:

- Interval : Select 'Last dag', 'Last week', 'Last month' or 'Period'. When period is chosen a start date and time and end date and time can be entered.
- Show transferred and distributed data : Checkmark this when the data of the selected datapoint is not stored at the node of this datapoint but is sent to a different datapoint on another node.
- Line up values : Data of multiple datapoints having the same timestamp are presented on one line, whose first column contains the datapoints' date and time.

Export generate		
Node type	All	*
Date choice	Interval	<b>*</b>
Interval	Period ×	<b>*</b>
Period	<b>H</b> C	<b></b>
Show transferred and distributed		
data		
LineUpValues		

Export grid to excel			
Drag a column header and drop it he	re to group by that column		
[SW Markt] SewerWell - air pressure - air pressure value - Content	Ŧ	[SW Markt] SewerWell - LightGate Temperature - Temperature - Content	Ŧ
19/10/2019 21:45:00	1009.12	19/10/2019 21:45:00	21.96
19/10/2019 21:30:00	1009.01	19/10/2019 21:30:00	21.99
19/10/2019 21:15:00	1009.01	19/10/2019 21:15:00	22.07
19/10/2019 21:00:00	1008.84	19/10/2019 21:00:00	22.11
19/10/2019 20:45:00	1008.77	19/10/2019 20:45:00	22.16
19/10/2019 20:30:00	1008.8	19/10/2019 20:30:00	22.21
19/10/2019 20:15:00	1008.58	19/10/2019 20:15:00	22.25
19/10/2019 20:00:00	1008.5	19/10/2019 20:00:00	22.34

Fig. 12.2.1 : Line up values is unchecked

X Export grid to excel		
Drag a column header and drop it l	nere to group by that column	
	[SW Markt] SewerWell - air pressure - air pressure value - Content	[SW Markt] SewerWell - LightGate Temperature - Temperature - Content
19/10/2019 21:45:00	1009.12	21.96
19/10/2019 21:30:00	1009.01	21.99
19/10/2019 21:15:00	1009.01	22.07
19/10/2019 21:00:00	1008.84	22.11
19/10/2019 20:45:00	1008.77	22.16
19/10/2019 20:30:00	1008.8	22.21
19/10/2019 20:15:00	1008.58	22.25
19/10/2019 20:00:00	1008.5	22.34

Fig. 12.2.2 : Line up values is checked

When there's a lot of data (when the number of data rows multiplied by the number of datapoints is bigger than 65536) then the user is asked to limit the data (make the period smaller, use less datapoints in the report).

If the command generates more than 500 data rules, the data will be sent to the e-mail address of the logged-in user as soon as it is available.

#### 12.3 Groups

With groups, we create groups of users. This allows us to determine who will be notified when an alarm occurs.

#### 12.3.1 Create Group

The level at which we create a group is logically the same as to which we create users; in practice, this will usually be at the level where the client's application starts.

- In Live, in the menu click on 'Groups'.
- In the grid, top right, click the '+'-button.
   GROUPS >> NEW ITEM

Name	first-line troubleshooters	
Circulate		
Schedule	Always On	•

Name: Enter the name of the new groep.

**Circulate:** This allows a mechanism to enable the person who handled a failure to be at the bottom of the list (in the group) and thus will be called last when the next issue is reported.

**Schedule:** The timetable determines when the group is active. We can set up a (multi) shift service with e.g. day, evening and night shifts with employees to troubleshoot failures. Usually the 'Always on' timetable will be used.

#### 12.3.2 Users Tab

After creating the group, we can add users to the Users tab with a left-right screen. Here, with the arrow keys above the right hand column, we can indicate who is the first to receive an alarm and who will be the next.

#### 12.3.3 Connections Tab

In this tab we can see where the group is used.

#### 12.3.4 Delete a Group

Groups can always be deleted, even if they are used somewhere. The users in the group persist.



#### 12.4 User History

This menu option shows which user made what changes and when.

#### USER HISTORY

09/10/2019 00:00	23	/10/2019 00:00	
Y Own			
Date :	Name :	Description	1
22/10/2019 15:59:08	John Jones	Go to Node: Gemeente Zaltbommel, Module: Empty screen	
22/10/2019 15:58:53	John Jones	Update user John	
22/10/2019 15:58:08	John Jones	Go to Node: Gemeente Zaltbommel, Module: Maps	
22/10/2019 15:58:02	John Jones	Go to Node: Gemeente Zaltbommel, Module: Maps	

A grid is shown with the information found. It can be filtered using a period selector and the 'Own' button. The default for period selector is the last two weeks, the maximum allowed period is 33 days. The 'Own' button only shows activity of the current logged in user.


# 12.5 Node Move

This option allows nodes to be moved, i.e. placed under another node. This option is for asset and tree nodes (not for hardware nodes; those can be moved with the Move tab in the module Nodes, in and out of the Maintenance and Stock nodes).

## 12.5.1 Example

The operation is explained by an example.

Do-it-yourself block In which an asset node is moved to another node structure and moved back again.

- In Live go to the Asset node 'SW Markt'.
- Open the Menu and click on the menu item 'Move'. (If this menu option is present it must be added in Design).



This option opens the tree to the node that we want to move (the current node). The grayed node names are nodes where the node cannot be moved, the bold names are from nodes where the node can go.

• Select in the 'move tree' the node 'Gameren'. A question will pop up to verify you really want to do this. Click 'Yes'.

The asset node is now placed under the node 'Gameren'.

• Synchronize (is needed because many relations that need to be recreated).

Moving the node back is possible (after which synchronization is needed again).

# AVIC .

# 12.6 Node Configuration

The node configuration module in the live environment is a module to properly set specific settings of the selected node. It also provides insight into the current revision status of the node. For example, which elements in the live environment are linked to which design. Not all tabs are always visible, this depends on permissions and whether it concerns a hardware node.

## 12.6.1 Identifier

This tab is always visible. A unique property label (maximum 50 characters) of the node can be entered here. This label can be used in export processes. When data of this node is exported, this label can be used in a .csv file. For example a serial number of a machine or the ID of an external system, to create a 1-on-1 connection. There's no same-input monitoring on multiple nodes.

Identifier	Object nodes	Revision	Derivative	Source last refresh moment
Identifier				

## 12.6.2 Object nodes Tab

This tab is only available for Avision administrators. When creating a node, this is done according to a certain design revision. When migrating from Avision 1.0 to 2.0, a default type is given here. By walking the tree from top to bottom, the correct design overhaul can be chosen for each node. It is important to walk through the revisions completely. And optionally start an additional revision upgrade. In principle, do not use this option if it is already an Avision 2.0 node.

## NODE CONFIG

Identifier	Object nodes	Revision	Derivative	Source last refresh moment
Edit object	type			
Node type		SewerWe	ell (version 3)	<b>•</b>
Cancel	Save			

## 12.6.3 Revision Tab

This tab shows all design elements (labels left column) on this node (node type). When synchronizing design items to live nodes, live instances are created for certain elements. The relationship between design element and the live instance is stored. In this tab the result of the synchronization can be viewed. And possibly changed. This is particularly useful if an Avision 1.0 node is converted to an Avision 2.0 node. An existing live instance can then be connected to a design item.

# AVIC ....

### NODE CONFIG

Identifier	Object nodes	Revision	Derivative	Source last refresh moment
Tag type se	lection		Analog	•
Design and	d live elements			
Design elen	nent		Live eleme	ent
air pressure	e - air pressure valu	ue (content)	air pressu	ure - air pressure value
LightGate Temperature - Temperature (content)			nt) LightGate	e Temperature - Temperature 🗸 🔻
Master data pump - Capacity Max. (content)			Master da	ata pump - Capacity Max. 🔻
Master data pump - Capacity Min. (content)			Master da	ata pump - Capacity Min. 💌
Master data	a pump - Height (co	ontent)	Master da	ata pump - Height 🔍 🔻
Master data	a pump - Length (co	ontent)	Master da	ata pump - Length 🔹 🔻
Master data	a pump - Power (co	ontent)	Master da	ata pump - Power 🔹
Master data	a pump - Volume (c	content)	Master da	ata pump - Volume 🔹
Master data	a pump - Weight (co	ontent)	Master da	ata pump - Weight 🔹 🔻
Master data	a pump - Width (co	ntent)	Master da	ata pump - Width 🔹
water level	- water level (conte	ent)	water lev	el - water level 🔹
Cancol	Savo			

## 12.6.4 Derivative

This tab indicates the source of measurement values (the hardware node and datapoint). It is not available on a hardware node.

On asset and/or object node(s), data points from property definition items (right hand column labels) can be connected to hardware data points that are set to 'transferred' or 'distributed' in design. When datapoints of hardware IO match the property definitions on the asset or an object, the connections will automatically be properly established during the initial synchronization, provided that in design they were set to 'transferred'. For 'distributed' data points, the connection must always be established by hand.

#### NODE CONFIG

Identifier Object nodes Revision Derivative	Source last refresh moment			
1	Hardware node	1	Property presentation def	
Analog - Avision - air pressure - air pressure value	442_SW Markt	•	Analog - Internal in - air pressure	•
Analog - Avision - LightGate Temperature - Temperature	442_SW Markt		Analog - Internal in - Ambient temperature	•
Analog - Avision - Master data pump - Capacity Max.	not used		not used	
Analog - Avision - Master data pump - Capacity Min.	not used		not used	
Analog - Avision - Master data pump - Height	not used		not used	
Analog - Avision - Master data pump - Length	not used		not used	
Analog - Avision - Master data pump - Power	not used		not used	•
Analog - Avision - Master data pump - Volume	not used		not used	
Analog - Avision - Master data pump - Weight	not used	•	not used	
Analog - Avision - Master data pump - Width	not used	•	not used	
Analog - Avision - water level - water level	442_SW Markt	•	Analog - Cmin - Water Level	-
Blob - Avision - Small Inspection Reports - Report Document	not used		not used	•
Digital - Avision - Floater - IsOverflow	442_SW Markt	•	Digital - Cmin - Digital 1	•
Digital - Avision - Form seen by Observer	not used	•	not used	•
Digital - Avision - Manhole cover can be opened	not used	•	not used	•
Digital - Avision - Pump can be started manually	not used		not used	
Text - Avision - air pressure - air pressure value (Unit)	not used		not used	
Text - Avision - Inspection Sewage Pumping-station -	not used		not used	
Remarks				
Text - Avision - LightGate Temperature - Temperature (Unit)	not used		not used	
Text - Avision - Master data pump - Brand	not used		not used	
Text - Avision - Master data pump - Capacity Max. (Unit)	not used		not used	-
Text - Avision - Master data pump - Capacity Min. (Unit)	not used		not used	
Text - Avision - Master data pump - Height (Unit)	not used	•	not used	•
Text - Avision - Master data pump - Length (Unit)	not used		not used	•
Text - Avision - Master data pump - Model	not used	•	not used	-
Text - Avision - Master data pump - Power (Unit)	not used	•	not used	•
Text - Avision - Master data pump - Weight (Unit)	not used		not used	•
Text - Avision - Master data pump - Width (Unit)	not used		not used	
Text - Avision - water level - water level (Unit)	not used		not used	•
Word state - Avision - Master data pump - Type	not used		not used	•

Cancel Save

# 12.7 Revision Management

In Design we build an application starting with small building blocks: Modules like lists and property definitions. These we use in larger modules as graphs, forms and reports which are added to, for example, Assets, which in their turn are added to the Application node as the umbrella entity.

All instances of modules have, if they are under construction, the 'Sandbox' status. They cannot be used in Live because only instances with the status 'Active' are admitted. This system is designed to ensure that an instance of a module is going to work in the Live environment. Every time the status of the module is about to change the module's design is checked.

Once active, changes are no longer allowed to the module. A new module with state Sandbox can be created from an Active version of that module, though.

In this way, we only need to build an Asset design once and the Revision Management module will ensure that all Live implementations of that Asset (= all nodes) work with the latest version of our design (with all the latest versions of lists, property definitions, graphs, reports, etc.).

### 12.7.1 Workings

In <u>chapter 5.6 Live</u>, the operation of the Revision Management module has been demonstrated when creating a monitor screen. The Revision Management module, from the node on which one stands, shows all nodes down with their applied versions and possible candidates for updates.

TIP: If you only need an upgrade for a hardware node, it's a good idea to run the Revision Management from the hardware node. Then, during the upgrade process, not all higher nodes need to be monitored which can greatly reduce the time the upgrade process takes.

The Revision Management module shows where which version is used and whether newer versions are available. The user indicates which nodes should be updated.

During the upgrade process all nodes are checked to have all necessary elements of the correct versions. If this is not the case the upgrade process is reversed and the system will continue to operate with the older version(s) as before. Many of these checks were already performed when the elements were deployed, but Revision Management oversees the whole tree from the node where the module was started on.

## 12.7.2 Manage button

When clicking the manage button, following grid is shown:

Node identifier 🍸	Name <b>Y</b>	Version <b>Y</b>	Maximum version <b>Y</b>	Manual update 🍸
56460	SW Markt	3	3	×

By clicking the cross icon in the column manual update, a checkbox appears. Setting the check mark indicates that this node and all underlying nodes will not be included in an update by the Revision Management module.



## 12.8 RF Network

This module gives an overview of all devices (base stations and endpoints) connected to the network. The RF Network module is located at the highest node in every environment.

• ۹ ★	+ Notification
	+ Node
Manual	+ Users
Maintenance	- Application
Stock	Impersonation
iii SewerManagement	GUI application style
	Application configuration
	RF Network
	Revision management

## 12.8.1 RF Network Grid

The grid shown when the RF Network is clicked shows the configured networks. Because there's no RF Network in the application otherwise used in this manual, the pictures in this chapter are from a another application.

**RF NETWORK** 

												+
	Network number	1	lode			:	Labe	el	:	Actions		
•	• 29			Rene			René		Ø			
н	Page		of 1	•	H	250		Iter	ns	per page	1 - 1 of 1 Items	Ċ

Fig. 12.8.1.1 RF Network grid (different system)

A new network can be created by clicking on the ' + ' button at the top right of the grid. When creating a new network, only the network name needs to be entered.

By clicking on the arrow icon, ▶, on a line on the grid, an overview is presented of all the connected gates/base stations on the network. Here we can click per base station on the arrow icon on the connected endpoints.



**RF NETWORK** 

	Net	work number	•	Node		1	Label	:	ACUO	ns	
<b>4</b> 29			Rene			René		Ø			
		Network address		Node			Mode		Ac	tions	
	458		NanoGate 06	501.04		Energy	efficier	1t 🔁			
		Network address	Label		Enabled	RF f	eldstreng	th gate	eway	RF fieldstrength sensor	Action
		462	002810 5700-8	325-000b- c79-014ab640da97	~	-71				-71	Ð

Using the jump-to icon,  $\mathfrak{V}$ , we can jump to the settings of a base station or endpoint.

When clicking the pencil icon,  $\mathscr{P}$ , a screen is presented where the network name can be altered. Also a grid is shown containing all base stations and endpoints, also showing devices not in use (stored in the Stock folder).



# 12.9 Application Configuration

This module is always present on the highest node of the environment. The module contains three tabs with settings that apply to the entire environment under the highest node.

## 12.9.1 Application Types

This tab shows the application types that can be used to create new applications for customers. The application types shown here are inherited.



At the level where the environment is created, the application types are distributed using a left-right screen:





Here you can indicate which fields in an alarm message are used by default.



APPLICATION CONFIGURATION

Application types	Alarm message	Email subject
Location code		
Name	~	
Contact		
Street	~	
House number	~	
Zip		
City	~	
Country		
Postbox number		
Postbox zip		
Postbox city		
Telephone		
Fax		
Website		
E-mail		
Call number		
Cancel Save		

# 12.9.3 E-mail Subject

Here you can see which fields in the Subject field of an e-mail message should be sent when an alarm is issued.

APPLICATION CONFIGURATION

Application types	Alarm message	Email subject
Date		
Time		
Location		
Node name	~	
Datapoint label		
Value		
Alarm label	~	
Free text		
E-mail disclaimer		



# 12.10 GUI Application Style

This module is used to change the layout and to load the logos in the top bar and the login screen.

## 12.10.1 General Tab

The colors of all buttons, menus etc. in Avision 2.0 can be customized. An adjustment applies to all nodes below the current node.

To make working with this menu easier, a theme can be chosen from the dropdown ' list type ' as a start point. This dropdown contains themes created and tested by Avic. When a theme is chosen, the options in this menu are adjusted to the colors of this theme. After that, a color can be changed.

GUI APPLICATION STYLE		GUI APPLICATION STYLE				
General Logo		General Logo				
Theme		Theme				
List type	select 🔻	List type	WebSite Light Greet			
General colors		General colors				
Background color str Border color str Font color str Area background color str		Background color str Border color str Font color str Area background color str	▼ ▼ ▼ ▼			
Splitters		Splitters				
Splitter background color str Splitter border color str	•	Splitter background color str Splitter border color str	<ul> <li>▼</li> <li>▼</li> </ul>			
Splitter hover background color str Splitter hover border color str	•	Splitter hover background color str Splitter hover border color str	▼ ■ ▼			
First button level		First button level				
Button background color str Button border color str Button font color str		Button background color str Button border color str Button font color str	▼ ▼ ▼			
Button active background color str Button active border color str Button active font color str		Button active background color str Button active border color str Button active font color str				
Button hover background color str Button hover border color str Button hover font color str		Button hover background color str Button hover border color str Button hover font color str	▼ ▼ ▼			
Second button level		Second button loval				

### **K1** : Colors General

- 1. BackgroundColorStr (input buttons (i.e. dropdown button), headers, grid grouping row and column, (at Theme Office365 Blue this also the background color of the module)
- 2. BorderColorStr (anything having a border, except input, buttons and menu)
- 3. FontColorStr (all text, except input, buttons and menu)
- 4. AreaBackgroundColorStr (background colors, avic forms, popup, grid pager row)

## K2 : Area spreaders (splitbar in between areas)

- 5. SplitterBackgroundColorStr
- 6. SplitterBorderColorStr
- 7. SplitterHoverBackgroundColorStr
- 8. SplitterHoverBorderColorStr

## K3 : First level buttons (header)

9. ButtonBackgroundColorStr (Header background color)



- 10. ButtonBorderColorStr (Is not in use at the moment)
- 11. ButtonFontColorStr (Header font color)
- 12. ButtonActiveBackgroundColorStr (Header active background color, background trees and menu)
- 13. ButtonActiveBorderColorStr (Not used)
- 14. ButtonActiveFontColorStr (Header active font color)
- 15. ButtonHoverBackgroundColorStr (Header hover background color)
- 16. ButtonHoverBorderColorStr (Not used)
- 17. ButtonHoverFontColorStr (Header hover font color)

## K4 : Second level buttons (Tree buttons, menu buttons, Tabstrip and all buttons, splitbar)

- 18. ButtonBackgroundColor1Str
- 19. ButtonBorderColor1Str
- 20. ButtonFontColor1Str
- 21. ButtonActiveBackgroundColor1Str (Header account active button color, background color account, highlighted line above active tabstrip button)
- 22. ButtonActiveBorderColor1Str
- 23. ButtonActiveFontColor1Str
- 24. ButtonHoverBackgroundColor1Str
- 25. ButtonHoverBorderColor1Str
- 26. ButtonHoverFontColor1Str

## K5 : Input (all input elements, i.e. textboxes, dropdowns, textareas, listviews etc.)

- 27. InputBackgroundColorStr
- 28. InputBorderColorStr
- 29. InputFontColorStr
- 30. InputActiveBackgroundColorStr
- 31. InputActiveBorderColorStr
- 32. InputActiveFontColorStr
- 33. InputHoverBackgroundColorStr
- 34. InputHoverBorderColorStr
- 35. InputHoverFontColorStr

## K6 : Grid

- 36. GridRowEvenBackgroundColorStr
- 37. GridRowEvenBorderColorStr
- 38. GridRowEvenFontColorStr
- 39. GridRowOddBackgroundColorStr
- 40. GridRowOddBorderColorStr
- 41. GridRowOddFontColorStr

# AVIC .....

K K	3 11, 14, 17 19, 12, 15		
Avic Cleant   Avic Cleant   Application ConcOtTack	Application types Aleren berickt Email codereerp K4 Rod Creotiant K1 3 K1 4 K1 4 K1 2 K4	K1 1 Backgroundcolor on for theme Office365 Blue	ly

# 12.10.2 Logo Tab

In this tab two different logos can be selected. The first logo is in the middle of the top of the taskbar.

The second logo is shown in the login screen.

GUI APPLICATION	STYLE
General Logo	
Theme	
Select GUI logo	uploads
Select gui logir	l logo uploads
Empty logo Empty login logo	

# 12.11 Pasword Policy

On the application level a password policy can be configured. The password policy consists of a regular expression for password validation and the option to let a password expire.

# 12.11.1 Configure password policy

To configure the password policy navigate to the application node in live. Open the application configuration menuitem and open the Password policy tab.

Password reg ex list live item: The regular expression for validating the password.

Password expire: Option to enable password expiration.

Password expire days: Days after the password expires.

Ⅲ ≡			ĀVI	
• ٩ ★	+ Notification	APPLICATION CONFIGURATION		
Manual	• Node     • Users	Application types Alarm mes	ssage Email subject	Password policy
	- Application	Password reg ex list live item Password expire	Min 8 chars, 1 letter, 1 nr,1	special char. 🔻
SewerManagement	GUI application style	Password expire days	180	<b>\$</b>
	RF Network	Cancel Save		
	Revision management			

# 12.11.2 Custom password policy (regular expression)

With a regular expression a custom password validation rule can be configured. See regular expression chapter.

Ⅲ ≡			AVIC
Q	Basic elements     Categories	OVERVIEW REGULAR EXPRE	SSIONS >> NEW REGULAR EXPRESSION
Application nodes   Application nodes   Asset nodes   Asset nodes  Hardware nodes	Regular expressions Lists Property definitions List dependencies Sensors Avision Calculations ContractPriceAgreements Names Filter elements Visual elements Activity elements Activity elements	General Reg expr name Reg expr reg expr Reg expr type Reg expr error message Cancel Add	Custom policy ^(?=.*[A-Za-z])(?=.*[0-9])(?=.*[@\$I%*#?&])[A String Minimum 20 characters, at least one letter, or
	User elements     Application Management		

# 12.11.3 Change password next login

To enforce a user to change its password at the next login. Navigate to the user and activate the option 'Change password next login'.



+ Notification	APPLICATION CONFIGURATION >> ITEM DISPLAY >> ITEM: DESIGNER	My account
+ Node		
+ Users	General Usertypes Connections	Designer
- Application	Lastname Designer	English
Impersonation	Firstname	
GUI application style	Prefix	To design area
Application configuration	Initials	Undo impersonate
RF Network	Title select 🔻	To my account
Revision management	Tel	
	Mobile	Sign out
	Fax number	
	E-mail	
	PIN	
	Loginname	
	Password policy Minimum eight characters, at least one letter, one number and one special character	
	Password	
	Password re enter	
	Change password next login	
	Language English 🔻	
	Timezone No zone, No daylicht saving time, UTC only 🔻	
	Newsletter False	
	Maintenance message False	
	Companyname	
	Cancel Save	

# 12.11.4 Change password

When the password is expired or the option 'Change password next login' is active the user is forced to change the password with the screen below.





# 13 Hardware Node (types)

This item can be found in Design, the menu of a hardware node.

## 13.1 Hardware Communication

In this menu, the hardware communication parameters can be set. Depending on the devices available in the application, you can choose the device type whose communication parameters need to be adjusted.

EDIT HARDWARE COM	MUNICATION	
General		
Hardware	LG_1200.03	

L3.1.1 General		
General		
Configurable in	Design	

**Configurable in :** Select 'Live' when parameters in this block should be editable in Live.

**Formula interval low power :** The frequency with which the box calculates formulas when the box is in low power mode. Enter the time between two calculations (in seconds).

### 13.1.2 Communication

Communication		
Configurable in Communication failure trigger	Design	•
No command message	~	
Communication set control	Comm. set 2 low power Actual value msg LED pattern	
Client interface 1	PPP 1	-
Client interface 2	PPP 2	-
Client interface 3	None	
Client interface 4	None	-
Server interface	PPP 1	-

**Configurable in :** Select 'Live' when parameters in this block should be editable in Live.

## 13.1.3 Provider, IP, Communication Set

These blocks' settings are to indicate whether settings are configurable in Live. In Design these settings have no significance. (Example: A device gets an IP address in Live. What is the point of filling in the Design template with an IP address?)

## 13.1.4 Hardware Communication Set 1

Communication method : Options are 'Interval' and 'Periodical'.

**Communication interval :** Only available when communication method is 'Interval'. Enter the time between two communication moments.

**Communication day :** Only available when communication method is 'Periodical'. Check the days when communication is allowed.

**Communication period :** Only available when communication method is 'Periodical'. Enter the 'from' and 'to' times.

Protocol : Select 'Avic protocol' or 'Http'.

**Communication control :** Check the desired moments for communication.

13.1.5 Hardware Communication Set 2

Set 2 is usually used for low power. Same settings are available as in set 1.

# 13.2 XBus

A hardware node (gate) can contain one or more ports for a serial connection. Each port can be configured with different protocol and speed settings.

In Design can be indicated - by the option 'configurable in' - that the settings can also be adjusted in Live.

## 13.2.1 Configuration

Configuring a port is done in the XBus module where a port can be selected. This is usually an RS232 or RS485. One or both will be available in Design.

- Click the applicable hardware node.
- In the Menu, click on the module XBus (when not available, *then, at the hardware node, no hardware containing an XBus port was added*).
- Select Hardware (to configure a port of).
- Select a port

rdware node types	HARDWARE XBUS SELECT		
Hardware node type			
Hardware devices	Select hardware		
Hardware communication	Hardware	LG_1200.03 ×	•
XBus	Rs485	Laure and the second	
Hardware IO			
Formules	Rs485		
	Enable		
	General content by id	Design	•
	Baudrate	9600 💌	
	Databits	8 🔻	
	Parity	None 🔻	
	Hardware flow		_
	Protocol	select	•
	Low power interval	0 🔶 Seconds	

Fig. 13.2.1.1: Configuring a serial (xbus) port

### Configurable in

Indicate that the settings should be editable in Live by selecting 'Live' or not.

### **Baud rate**

Number of changes in the signal per second (pulses per second).

### Data bits

Number of bits per segment (8 or 7 bits).



## Parity

The use of an extra bit for checking reception of the data in good order. Options are Even, Odd and Fixed (static).

### **Hardware Flow**

Enabling or disabling hardware flow control (handshaking).

### Protocol

The used protocol for the connection.

### Low power interval

When the gate is in low power mode then this will be the interval (in seconds) for the gate sending the values.

## 13.3 XBus Device

## 13.3.1 Configuration

After setting up a port (<u>XBus</u>), you can use the port to mount a device. The XBus device itself must also be configured.

lardware node type				
lardware devices	General			
Bus device	Hardwara	XBuc for Gocko	- 1	
lardware IO	Haruware	ABUS IOI GECKO	-	
Formules				
	Xbus device			
	General content by id	Live	•	
	Address type	Decimal		
	Address	1		
	Communication failure trigg	er		
	Port	Rs232	•	
	Protocol	ModBus RTU Master	•	
	Variant	Default modbus	•	
	Measure interval	60		🚖 Seconds

Fig. 13.3.1.1: Het configureren van een xbus device

### Configurable in

Indicate that the settings should be editable in Live by selecting 'Live' or not.

### Address type

The type of address used to communicate.

## Address

The communication address for de XBus hardware.

## **Communication Fail Trigger**

Is used to configure an Alarm specifically for when the device can not communicate.

## Port

The port used by the device.

# Protocol

The protocol used.

Variant Select the variant of the used protocol.

### Measure interval (meet interval)

Number of seconds between each measurement.

## 13.4 Hardware IO

In this module internal and external datapoints can be found. Also, virtual datapoints (which are datapoints that do not have a physical input or output, but exist as variables in the memory of the AVIC device) can be created.

HARDWARE IO SELECT

Hardware	LG 1200.03				
naruware	LG_1200.03				
Hardware low power					
Configurable in	Design				
Measure interval	30 🗘	Seconds			
	In low power mode	otherwise every s	econd		
Settling time	30 🗘	Milliseconds			
Save					
Internal sensors External io	Virtual datapoints				
/_mid V_ups Processor t	emperature Modern t	fieldstrength Air	pressure	Relative humidity	Ambient temperature
nuse : Enable : Nu	umber : Label	Action	s		
	Modem fu	aldetraneth			

## 13.4.1 Internal Sensors

These are data points that display the measurement values of sensors on or in the device. This data is without the need to connect outside equipment to the device. The LightGate:

Sensor	Unit	Description
V_mid	Volt	Power
V_ups	Volt	Battery power
Processor temperature	°C	Temperature of the processor chip
Modem fieldstrength	%	Indicates the quality of the communication signal.
Air pressure	hPa	Air pressure

Relative humidity	%	Relative humidity measured under the red cap of the
		LightGate.
Ambient temperature	°C	The temperature measured under the red cap of the
		LightGate.

## 13.4.2 External IO

The in- and outputs of the device. Sensors can be connected to them or signals are sent out. The inputs and outputs are of a certain type. The LightGate has three analogue inputs (AI-1, AI-2 and AI-3), three digital inputs (DI-1, DI-2 and DI-3), one digital output (DO-1) and three counters (CNT-1, CNT-2 and CNT-3) that are running with the DIs (if a level change occurs on a DI then the corresponding counter value is increased with 1).

# 13.4.2.1 Example of a PT1000 Connected to an AI

A PT1000 is connected to input AI-1. The measured value is to be routed to a property definition on the asset.

## Click the plus sign:

HARDWARE IO SELECT	
Select hardware	
Hardware	G_1200.03
Hardware low power	
Configurable in D Measure interval 3	esign v
Settling time 3	low power mode otherwise every second 0   Milliseconds
Save	
Internal sensors External io Virtua Analog in Digital in Digital out (	al datapoints
In use Enable Numbe	r : Label : Actions
1	Analog ( +
✓ ✓ 2	Water Level
3	Analog 3
H I Page 1 of	1 🕨 🖻 🖸
Internal sensors External io Virtual dat Analog in Digital in Digital out Coun	tapoints ter
Property definition Extern	al temperature (Sandbox)
Property definition item PT-10	00
Sample destination Transf	ierred 🔻
General	<b>\</b>
Configurable in Design	n <b>v</b>
Label AI 1	
In use 🗸	
Enable 🗸	
History 🗸	

Measuring takes place during a quarter of an hour (900 sec.) and from those samples the average is calculated. The sensor type is set, 'Sensor check' and 'Sensor check trigger' can be used to generate an alarm when the sensor measures strange values:



Sample		
Configurable in	Design 🗸	
Sample based on digital point	select 🔻	
Sample time	900 🔶 Seconds	
Filter	0.00 🜲	
Average	~	
Smart sample		
Smart sample band	<b>•</b>	
Sensor type	Avision - PT1000 -200100 (Next only) (version 1)	•
Pga	Resistance 0 - 1650 Ω	
Sensor check	None 🗸	
Sensor check trigger	select 🔻	
High speed sampling		
Configurable in	Design 👻	
High speed sampling digital point		
High speed sampling before	Count	
High speed sampling after	¢ Count	
High speed sampling interval	Seconds	

High-Speed sampling is used to make additional measurements at certain times. Those moments are determined by a digital input or output. Additional samples are taken during a number of seconds to be set.

High speed sampling		
Configurable in	Design	•
High speed sampling digital point	select	<b>•</b>
High speed sampling before	<b>+</b>	Count
High speed sampling after	\$	Count
High speed sampling interval	\$	Seconds

The 'Limits' block is used to allow, based on limit values, communication and/or triggers to occur (e.g. sending an alarm).

Limits			
Configurable in		Design	<b>*</b>
Limit	Limit value	Comm. on change	Limit trigger
High	Not set	From lower value	From lower value From higher value
Pre-high	Not set	From lower value From higher value	From lower value From higher value
Pre-low	Not set	From lower value	From lower value From higher value
Low	Not set	From loweralue	From lower value From higher value
Default value		<b></b>	



# 13.4.3 Virtual Datapoints

These are data points that do not physically exist on the hardware but send data to Avision. They are created in Avision and used in the hardware to send the result of a calculation, a formula, to Avision. Virtual data points can also serve as input for a formula.

When data points are of type 'Internal sensors' or 'External IO' the origin is obvious. For virtual data points, however, there are multiple possibilities and therefore in the block 'Source', the 'Use value from' should indicate how the data point gets its value.

Source			
Configurable in	Design	-	
Use value from	Central input/operation	<b>*</b>	
Scheduler	select		•
Default value	<b>\$</b>		

**Configurable in :** Choose 'Live' to be able to change the 'Source' settings in Live.

### Use value from :

Options are :

•	Local (input, formula)	: Value is the result of a formula.
•	Central input/operation	: Value is entered (in Live) by a user.
•	From Scheduler	:
•	Local manual control	:
•	Function block	: Value is from a 'fupla'.

Scheduler : Select a scheduler.

**Default value :** The value used when no other value is available for this datapoint.

# AVIC .

# 14 Hardware Node in Live

# 14.1 Datapoints

A device has inputs and/or outputs or maybe readings that need to be read. These we call datapoints.

The measured values are of a certain type: 'analog' is used for measured values with a comma number, 'counter' for counters, 'digital' if the value is binary (on or off), 'word' if it is always a whole number, 'text' when it is a text type or 'GPS' when it is position information.

Bij ieder datapunt kan een meetinterval ingesteld worden. Als een AVIC device in low power kan werken kan ook een 'settling tijd' ingesteld worden.

For each datapoint a measurement range can be set. When an AVIC device is supposed to operate in low power mode a 'Settling time' should also be set.

ow power	
leasure interval	300 🔶 Seconds
	In low power mode otherwise every second
ettling time	10   Milliseconds

Data points are basically created and configured in Design, but it can be indicated that they are also configurable in Live. The data entered in Design then works as default values that can be overwritten in Live.

## 14.1.1 Internal Datapoints

Internal data points are data points whose values are generated by the device. The device has measuring equipment on the circuit board. On the internal data points we can find the measured values.

At the LightGate there are the following internal data points: Vmid, V_Ups, Processor temperature, Modem field strength, air pressure, relative humidity, ambient temperature.

## 14.1.2 External Datapoints

External data points are data points where a signal is delivered from the outside or sent to the outside; so these are the physical inputs and outputs of the device.

The LightGate has three analog inputs, four digital inputs and one digital output. A typical example of an external data point is when we connect a PT-100 temperature sensor to an analog input of the LightGate and create an external data point 'outside temperature'.

## 14.1.3 Virtual Datapoints

The value of a virtual data point is the result of a formula, function block, manual control, or timetable.

In a refrigerated furniture as used in a supermarket we are not so much interested in the temperature of the refrigeration unit but especially in the core temperature of the products we want to keep chilled. We then create a virtual data point where the value is the result of a formula, a function of the temperature of the cooling cabinet over time.

Do-it-yourself block in which a virtual data point is created. This data point is called 'Manual operation pump'. If the manual control turns on the pump, the LED DO must be on. The pump can be turned to on or off using a button on the monitor screen.

# 14.1.3.1 Create Property Definition

- In Design, at the menu item 'Basic elements', click on the menu item 'Property definitions'.
- Click on the '+'-button on the top right of the grid to create a new property definition.
- Enter 'Manual Operation Pump' in the name field, at Type choose 'multiple' (just one option), leave the 'Managed by parent operation' unchecked.
- Click 'Add' (property definition is created and opened in Edit mode at the 'General tab').
- Go to the 'Items' tab.
- Create a property definition item by clicking on the '+'-button top right on the grid.
- Enter 'Button' at the label field, select 'Boolean' at the type field, click 'Save'.

# 14.1.3.2 Section

- Create a new section or use an existing one.
- Add at the tab 'Content selection' the property definition 'Manual Operation Pump', created above.
- At the tab 'Digital layout', drag the label of the property definition on the canvas. Set the label to 'Manual Operation Pump', the width to 100 pixels.
- Drag the 'Property desired value' (or NewValue) of the property definition on the canvas, behind the label. Select at 'Presentation method' the 'Switch button toggle digital datapoint', set width to 70 pixels.

## 14.1.3.3 Monitor Screen

• Add the updated section to the monitor screen. (Add it to the sections in the sections tab).

## 14.1.3.4 Asset

• Update the Asset (Sewer well) so it uses the new monitor screen.

## 14.1.3.5 Hardware node

- On the Hardware node, 'LightGate', go to menu item 'Hardware IO'.
- Click on the button 'Virtual datapoints' and then 'Digital'
- Create a new virtual digital point by clicking the '+'-button.
- Select at property definition 'Manual Operation Pump', property definition item 'Button'.
- At 'Sample destination' select 'Transferred'.
- At 'Transferred range' select 'Asset'
- At 'Source' 'Use value from', select 'Central input/operation'.
- Select 'Save'.



Internal sensors External io	Virtual datapoints	
Analog Digital Counter Wo	ord Text Geo	
Property definition	Manual Operation Pump (Sandbox)	•
Property definition item	Button	•
Sample destination	Transferred 🔻	
Transferred range	Asset	
General		
Configurable in	Design	
Label	Manual Operation Pump	
In use		
Enable		
History		
Number	1 💠	
Sample		
Configurable in	Design 🗸	
Filter	0 🔶 Seconds	
Notification		
Configurable in	Design 👻	
On change	Both 🗸	
Limits from property presenta	ation definition	
Trigger	Never	
Delay	🔶 Seconds	
Source		
Configurable in	Design 🔻	
Use value from	Central input/operation	
Scheduler	select 🔻	
Default value		

## 14.1.3.6 Formula

<u>Chapter 16 Formula</u> describes how by using a formula the DO is set to on when an alarm is raised is (and turned off after about 1 second). When this formula has been created already then we'll need to alter it, if not create a new one. (In below steps it is assumed that the formula has been created).

- Click op het menu item 'Formules'.
- Click the pencil icon of the formula for DO-1 'OutputOn'
- Go to the tab 'Formule datapunten', klik op de '+'-knop



• Create tag definition for the formula:

VERVIEW F	ORMULA	E >> WIJ	ZIG FORN	ULE: DIGITAL
General	Formula	tags def	Formul	editor
				+
ag number	: Data	point type	label :	Property definition item : Label : Actions
	Digita	al		Button Manual Operation Pump 🖹 🧷 🗙
6 4 1	1 Pa	age 1	of 1 🕨	250 V Items per page
			-	
Label			Manual	Operation Pump
lag number	r		2 🔻	
Property de	finition		Manual	Iperation Pump
Property de	finition iter	n	Button	<b>▼</b>
lose S	ave			
1000 1 100				
ah 'Fo	ormi	ıla ed	itor'	
	Jinit	iia eu	1101	
/ERVIEW F	ORMULAE	>> WIJZI	G FORMU	E: DIGITAL
Conoral	Formula	ane dof	Formula c	litor
General	Formula	ays dei	FUIIIuia e	
General				User formula
Start	Change	True	False	D2.Value
Date/time				
WDay	Dav	Month	Voar	
DST	Hour	Minute	Second	
RTC				
Characteris	tics			
Value	NewValue	Delta	AGE	
.Enable	Local	.Raw	.Norm	
Eactor	LUW	.nign	, nigilinigi	
.1 40101				
Logical				Cancel Save
AND	OR	XOR	NOT	Formula check
LEAD	TRAIL	DELAY	BIT	Formula property definitions
AVG	SUM	MIN	MAX	
POW	MOD	LOG		D2 - Manual Operation Pump
SUN	000	TAN		
SIN	003	1750	-	
signs				N-1
(	)	1	1	
{}		4		
<	>	=	4	
12/50 15: 201 0 05				
Constants				
Constants 7	8	9		L
Constants 7 4	8 5	9	*	
7 4 1	8 5 2	9 6 3	- + /	

Now release/make active all created and custom elements and synchronize in Live.

## 14.1.4 Description of Settings

The different datatypes do not differ much with regard to their setting options.

**Property definition :** The property definition for the data.

**Property definition item :** The property definition's item which use the data of this datapoint.

**Sample destination :** Indicates where the data is stored. Options are :

- **Stand alone :** Values stay on the hardware node.
- **Transferred :** Values are sent to another node (different property definition item) and after being sent no longer exist on the hardware node.
- Distributed :

- **Stand alone and transferred :** The values are stored both on the hardware node as on the node of the property definition (item).
- Stand alone and distributed :

## <u>General</u>

- **Configurable in** : Dropdown to indicate that the datapoint's General settings can be changed in Design or Live.
- **Label** : Name of the datapoint. (Used in formulas).
- Active : (This field is only applicable for digital datapoints). Select Normally closed or Normally open.
- **In use :** Checked indicates that the datapoint can be used. (Not checked means it is not available in Live)
- **Enable :** Can be used in Live to not use an available datapoint. In charts this will hide the line using this datapoint.
- **History :** Indicates whether the data will be archived for long term storage. If unchecked only the last value is available.

## Sample

- **Configurable in** : Dropdown to indicate that the datapoint's Sample settings can be changed in Design or Live.
- **Sample based on digital point :** Sampling can be controlled using a digital datapoint (samples will be taken when the digital datapoint is active/on). (Not for digital points).
- **Sample time :** Time between two samples. Determines the number of samples in the database.
- **Filter :** Maximum raise per second.
- **Average :** When checked the average of the measured samples is calculated and this will then become the sample value.
- **Smart sample :** Values are only sent when there's a change in sample values.
- **Smart sample band :** Example: when the temperature raises by one degree make a new sample.
- Sensor type : Select from the list of available sensor types.
- **PGA :** Gain factor, measurement range.
- **Sensor check :** When checked the input will be checking for short circuit and a break in the cable.
- **Sensor control trigger :** Creates trigger events when a problem is detected at Sensor check. Options are : None, from upper, from lower, both.

## High speed sampling

- **Configurable in** : Dropdown to indicate that the datapoint's High speed sampling settings can be changed in Design or Live.
- **High speed sampling digital point :** Select the digital point that determines when high speed sampling is on. It could be the result of a formula.
- High speed sampling before : Number of samples before the normal sampling point.
- High speed sampling after : Number of samples after the normal sampling point.
- High speed sample interval : Time in seconds between two high speed sampling moments.

<u>Limits</u>

- **Configurable in** : Dropdown to indicate that the datapoint's Limits settings can be changed in Design or Live.

The other fields of the Limits chapter are used to indicate whether communication is needed and whether a trigger should be activated.

- **Default value :** Value that will be used when the datapoint has no value.

## 14.2 Hardware

The hardware module in live contains the communication values of the hardware. In the upper part of the screen there's also a 'Wake up'-button. It can be used o communicate with the device to pass changes to it right away.

## 14.2.1 General

**Label** : Any text to indicate the hardware. Using the Names module this text can be used as (part of) the node name identifying the hardware. (Option 'Legiobox label').

The fields GUID, Device, Firmware, Version and V_MIDM can not be edited.

Contact user : Your contact at AVIC.

Timezone : The time zone the hardware is in.

**Offline :** Check this when the hardware is not allowed to come back online.

Log : Check this when

## 14.2.2 Communication

Last refresh moment : Shows when the last successful communication moment has been.

**Communication failure trigger :** Check this when a trigger must be created when a communication error occurs.

**Communication no command :** When no outputs and no virtual datapoints are used then this can be checked to decrease the number of messages.

**Communication seed :** Fixed communication time in seconds. Normally communication is devided over the communication period by Avision. When something is entered here, this mechanism is overruled.

**Formula interval low power :** The frequency of formula calculation by the box when it is in low power. Enter the time between two calculations (in seconds).

Max. message length : Maximum size of a message in bytes.

**Retry reboot :** The number of failed communication retries before the box will restart.

Reinitialize : Have the device restarted.

Options are :

- Initialize (only get the configuration message)
- Reset (restart)
- Cold start (memory is erased and the device restarted, all sample data is cleared)
- SIO Reset



- WAP Reset
- Get telephone number (device sends telephone number of the SIM card)

Medium : Indicates how a device can communicate.

- Lan
- GPRS

When this is check marked following parameters for GPRS/EDGE/UMTS/HSDPA can be set:

- SIM
- Telephone number
- PUK
- ISP 1 (APN settings)
- ISP 2 (APN settings)
- Max try PPP (maximum number of tries before trying another interface type)
- Wake up time

External antenna : Just an entry field; is not used in any setting.

**IP NAT :** Checkmark this to use an external IP address for a wake up call.

**Client Interface 1 (2,3,4) :** The order of GPRS or LAN communication. When device 1 is not operational device 2 will be selected and so on.

Server interface : The interface on which the device expects a wake up call.

**Communication set tag :** Select a digital datapoint. This datapoint indicates whether the second communication set should be used.

### **Communication set control :**

- Comm. set 2 low power : Use set 2 for low power (when power is below the low limit)
- Actual value msg : Send the current value for all inputs with every communication message.
- LED pattern :

## 14.2.3 Communication Set 1 and 2

**Communication method :** Select 'Interval' or 'Periodical'.

Communication interval : Time between twee communication moments.

Protocol : Options are 'Avic protocol' and 'Http'.

Verbose : Number of events that will be send.

**Percentage event buffer :** When all memory is in use it will be emptied according to FIFO. When doing this, the device will try to keep the set percentage of the memory.

**SOAP timeout** : Communication timeout (in seconds).

Hold Socket : Time to keep socket open.

Repeat frequency : (regular) retries

Event retry frequency : (on change) retries

**Communication control :** 

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- Communication on full buffer
- Init after power failure
- Low power
- Stay up (stay connected with the GPRS network)
- Stay open (stay connected with the server)
- IP wakeup (enabled)
- Phone wake up (telephone wake up enabled)

### 14.2.4 Modem

Modem settings.

Modem speed : 9600 to 115200 kbps.

Modem Init : Initialization command

Telephone number : Number in use to send texts (SMS) to. Is not used.

## 14.3 RF Base Station

This module shows an overview in Live of a base station hardware node.

RF BASESTATION				
🜲 Wake up				
Overview base station				
Network address	458			
Network id				
Mode	Energy efficient			
Remove	Edit			
LTitleEndpointList				
Node id Node name		Network address	Last refresh moment	Actions
50424 PicoWiSe 0900.13	3	462	31/10/2019 09:35:48	XY

### Network address : Address of base station

Network ID : Name of the network / number

### Mode :

- Adhoc :
- Energy efficient :
- Full power :

Clicking the Edit button will bring up a menu in which the base station mode can be altered.

The endpoint-list shows an overview of endpoints communicating with this base station.

# 14.4 RF Endpoint

RF ENDPOINT

🜲 Wake up	
Overview endpoint	
Network address	462
Network id	
Guid	
Device	PW_0900.13
Firmware	PW_900.XX
Firmware version	2019-10-28 00:00:00
Timezone	(GMT +01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna
Active	
Endpoint label	
Communication fail trigger	✓
Slot	300
Logic low power interval	0
Endpoint reinit	None
Last refresh mom	2019-10-31 09:55:57
Disconnect Edit	

Title base station list						
Node id	Node name	Network address	Last refresh moment	Actions		
50417	NanoGate 0601.04	458	31/10/2019 09:55:57	<b>1</b>		

Network address : Unique address of the endpoint.

**Network ID** : Name of the network the endpoint belongs to.

**GUID** : serial number, unique identification of the endpoint.

Hardware : Hardware variant.

Firmware : Firmware variant.

Firmware versions : version (expressed in date-time notation).

**Time zone :** Time zone of the endpoint.

Active : Indicate whether the endpoint is active.

Endpoint label : Extra label

**Communication fail trigger :** Checkmark this when a communication failure should create a trigger event.

**Communication interval :** Time between two communication sessions with the base station.

**Formula interval (low power) :** Frequency running formula calculation when in low power mode.

Reinit :

Select from :

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- Cold restart (memory is erased and device is restarted, all sample data will be gone)
- Warm restart (just a restart)
- None

# 14.5 Firmware Upgrade

Using this menu option the firmware can be upgraded.

#### FIRMWARE

opgrade minware node		
Name	442_SW Markt	
Device description	LG_1200.03	
Cpu	LG_1200	
Version	1.1.a	
Firm ware options	XGPS;XMMR;	
Production date	Oct 28 2019 13:25:29	
Select firmware	LG_1200_XX (version: 1.1, build: 2019-10-28 12:26:35)	

In this screen we can see the firmware is from October 28, 2019.

At the field 'Select firmware' a new firmware version can be selected. When clicking 'Save' the new version will be send to the device. This might take a couple minutes.

## 14.6 Wireless Module

### 14.6.1 Configure

Wireless modules can be configured in the 'XBus device'-module in Live. When this module is opened, a menu is shown with the 'Wireless Devices' button.

Wireless devices	$\triangleleft$	
ddress type	String	
ddress	30	
comm fail trigger	~	
ort	12 c	
rotocol	Wireless	
ariant	Default Wireless	
tegration time		Seconds
Vires	select	
leasure interval	0	Seconds
tatus word	select	

Fig 14.6.1.1: Configuring a wireless XBus module

# AVIC .

XBUS DEVICE LIVE

Kbus device		
Wireless devices		
Wireless module tree		
Wireless Access Point		
<ul> <li>Testroom</li> </ul>		
Sensor Temp +110		
<ul> <li>Wireless Fridge Temp</li> </ul>		
Sensor 1     Wireless Room Temp		
Sensor 1		
Sensor 2		
Sensor 3		
Sensor 4		
F Sensor 5		
Create wireless module		

Fig 14.6.1.1: Overview of all configured wireless modules

Here it is possible to create a tree structure of all wireless modules dragging each module to the correct spot.

The settings menu of a wireless module can be opened by clicking on the device.

-				
Sensor 1				
Sensor 2				
Sensor 3				
Sensor 4				
Sensor 5				
Create wireless mod	tule			
Wireless module				
Enabled				
Extra label	Sensor 2			
Comm fail trigger				
Comm fail trigger	New module			
Comm fail trigger Variant	New module	•		Casanda
Comm fail trigger Variant Integration time	New module	•	\$	Seconds
Comm fail trigger Variant Integration time Drift	New module 360 0	•	\$	Seconds
Comm fail trigger Variant Integration time Drift Rf field g	New module 360 0	•	\$	Seconds
Comm fail trigger Variant Integration time Drift Rf field g Rf field s	New module 360 0	•	\$	Seconds
Comm fail trigger Variant Integration time Drift Rf field g Rf field s Last refresh moment	New module 360 0	· ·	\$	Seconds
Comm fail trigger Variant Integration time Drift Rf field g Rf field s Last refresh moment Time interval	New module 360 0	<b>•</b>	¢	Seconds

# 14.7 Hardware Information Screen in Live

The hardware information screen consists of a number of blocks.

- Hardware general
- Communication information
- Network information
- Reconnects history
- Trigger history
- XBus
- Datapoints Analog
- Datapoints Digital
- Datapoints Counters
- Datapoints Word
- Datapoints Text

All blocks use the period selected in the period selector.

## 14.7.1 Hardware Information Screen Pico Wise

Displays the available information of a Pico Wise. The wake up button starts a communication session. A pico wise is connected to a gate, in this case a NanoGate, as can be seen in the most right hand block. If this line is clicked, the node of the NanoGate will be opened and the Hardware Information of the NanoGate will be displayed.

Last hour Last 24 hour	Last 7 days Last 4 weeks Last 3 months Last 6	months Last 12 months			▼ 25-10-2019 00:	00 - 01-11-2019 00:00
Device general info	🌲 Wake up	Communication info		Network info title		
Guid Device enabled Type device Device version Object type renion now Object type version now Object type version can be Last revision update Firmware version Meet interval low power Settling time	Online PW_0900.13 1.0 PicoWISe 1 29/03/2019 14:26:57 PW_900.XX 1.1 (2019-10-28 12:26:35) 300 sec 10 msec	Last communication Last communication port interface Last communication cause Next communication	-	Node id Rînetwork address Rînetwork id N. <u>i</u> N. <u>i</u> Name 50417 458 NanoGale 0601.04	50424 462 H	an vite ~
Event history						

T Default Error	Communication Datapoints Xbus wireless				
Date time	Desctription	: s	E	: Ex	:
29/10/2019 14:04:40	Config accept	462	3	149	^
29/10/2019 14:04:40	Config accept	462	2	149	
29/10/2019 14:04:39	Config accept	462	1	149	
29/10/2019 13:59:36	Config accept	462	3	149	
29/10/2019 13:59:36	An EP has issued an reconnect request	462	1	-36	
29/10/2019 13:59:37	Config accept	462	2	149	
29/10/2019 13:59:36	Config accept	462	1	149	
01/01/1970 01:00:02	An EP has issued an reconnect request	462	-1	0	
01/01/1970 01:00:00	RF Calibration values	462	52	127	
01/01/1970 01:00:00	RF device has generated an event	462	10	2	
01/01/1970 01:00:00	RF device has generated an event	462	-2	0	
01/01/1970 01:00:00	RF device has generated an event	462	-3	0	

# 14.7.2 Hardware Screen Gate

The Hardware Information screen on a gate has, as seen below, more information about communication and network. The different colors in the network information block shows whether the wireless module has communicated in time. Green is good and red means too late.



T Default Error Commu	nication Datapoints Xbus wireless				
Date time	Desctription	: s	Ε	Ex	:
31/10/2019 14:10:17	Start communication with Avision	0	12293	2	1
31/10/2019 14:10:17	Reason for communication	0	1572527417	0	
31/10/2019 14:00:25	Communication result	2	8	1	
31/10/2019 14:00:25	TCP Byte count	0	984	91	
31/10/2019 14:00:17	Start communication with Avision	0	12293	2	_
31/10/2019 14:00:17	Reason for communication	6	1572526817	0	



# 14.7.3 Hardware Screen Nano Gate with XBus

This screen also shows XBus information. Multiple blocks with XBus can be shown here.

Last hour Last 24 hour L	ast 7 days Last 4 weeks Last 3 months Last 6 i	months Last 12 months				
Device general info	🜲 Wake up	Communication info		Network info title		
Guid Device enabled Type device Device version Object type reame Object type reame Diject type version now Last revision update Firmware options Contact user Meet interval low power	Online NBG_0001.00 1.0 1(1) 2401/2019.02248 NG_001_XX.11(1.1.a) X0MR; Bert Spee 300 sec	Last communication Nest communication Last communication port interface Last communication cause Active comm set Medium Attention SM pp Interval communication Comm no cmd	2001/2019 06:49:54 2001/2019 06:04:44 LClensHTTPGPRS1 Event Gause comm (pohanged 1 0FRS_EDGE_UMTS_HSDPA +457101204253889 A39314233004000001839 10:250.09.242 000 Yas	Rhetwork address Rhetwork id Power mode Connected endpoints Unique end points reconne LastRefresh : N.	1190 Energy efficient 0 cts 0 <b>:</b> N. <b>:</b> Name	
Settling time	100 msec	Event retry freq Verbose level	1 5			
Datetime : N	R į NodeName			< Xbus info Port Xbus paudrate Xbus comm interval Xbus comm interval Xbus comm interval Protocol Protocol variant	Ro485 (4) 1 9600 300 sec 1800 sec ModBus RTU Master (1) Default modbus (0)	,
Event history						
T Default Error Com Date time	Datapoints Xbus wireless     Desctription				: s	Ε
25/01/2019 08:49:48 25/01/2019 08:49:46 25/01/2019 08:49:46 25/01/2019 08:49:46 01/01/1970 01:00:17 01/01/1970 01:00:17	Communication state Reason for communication Changed power mode Correct RTC deviation Start communication with Avision GSM Operation				1 43 0 1 0 4	-18 0 105 154840253 80 20404
01/01/1970 01:00:12 01/01/1970 01:00:04	Modem reset/restart RF Calibration values				0 1196	3 57
### 14.7.4 Event History

Explanation grid:

Hardware can raise different types of events or triggers. These events are of different categories:

- Default
- Error
- Communication
- Datapoints
- XBus Wireless

Using the filter buttons on top of the grid these events can be made visible or hidden. Also every column has its own filter button:

Event history			
T Default Error	Communication Da	tapoints Xbus wireless	
Date time	:	Desctription	
25/01/2019 08:49:46 25/01/2019 08:49:46 25/01/2019 08:49:46 25/01/2019 08:49:46	↓ ↓	Sort ascending Sort descending Columns	
01/01/1970 01:00:17 01/01/1970 01:00:15 01/01/1970 01:00:12		Start communication with A GSM Operator Communication state	Search Q Select All
01/01/1970 01:00:10 01/01/1970 01:00:04 01/01/1970 01:00:00		Modem reset/restart RF Calibration values Event from RF co-processo	□25/01/2019 08:49:46 □01/01/1970 01:00:17
01/01/1970 01:00:03 01/01/1970 01:00:03 01/01/1970 01:00:03		Sensor error LowLow Limit Low Limit	01/01/1970 01:00:15
01/01/1970 01:00:03 01/01/1970 01:00:03 01/01/1970 01:00:00		Sensor error ADC state change EZR has rebooted	
01/01/1970 01:00:00 01/01/1970 01:00:00 01/01/1970 01:00:00		Modem reset/restart Firmware version Box has (re)started	01/01/1970 01:00:04
01/01/1970 01:00:00 01/01/1970 01:00:00 25/01/2019 08:49:46 25/01/2019 08:42:15		Soft reset Switch to another communi Initialisation request	□-01/01/1970 01:00:03
25/01/2019 08:43:15 25/01/2019 08:43:15 25/01/2019 08:33:21		Reason for communication with A RCP Byte count	Filter Clear
25/01/2019 08:33:02		Communication state	

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When clicking a line in the Event history grid a popup showing more information about the event is presented:

Event history			
T Default Error Communication Da	tapoints Xbus wireless		
Date time	Desctription	RF_CALIB_VAL	×
01/01/1970 01:00:04	RF Calibration values		
01/01/1970 01:00:00	EZR has rebooted		
01/01/1970 01:00:04	RF Calibration values	Description: RF Calibration values	5
01/01/1970 01:00:00	EZR has rebooted	Date time: 24/01/2019 13.25.10	
01/01/1970 01:00:04	RF Calibration values	Subject id: 1196	
01/01/1970 01:00:00	EZR has rebooted	Event value: 57	
24/01/2019 16:28:26	Communication state	Extra value: 127	
24/01/2019 16:28:26	Communication state		
24/01/2019 16:28:25	Communication state	DE Calibration values	
24/01/2019 16:23:42	Communication state	RF Calibration values	
24/01/2019 16:23:41	Communication state	Verheen Lovel	5
24/01/2019 16:23:41	Communication state	EventID	88
24/01/2019 16:08:29	Communication state		
24/01/2019 16:08:28	Communication state	SubjectID	Defense on the orthogonal
24/01/2019 16:08:28	Communication state	Subjectio	Unique network address
01/01/1970 01:00:04	RF Calibration values	1 M 1 M 1 M 1 M 1 M 1 M 1 M 1 M 1 M 1 M	
01/01/1970 01:00:01	Communication state	EventValue	Xtal calibration
01/01/1970 01:00:01	Communication state	PLANING TO DESCRIPTION	
01/01/1970 01:00:00	Communication state	ExtraValue	Power level
01/01/1970 01:00:00	Communication state		
01/01/1970 01:00:00	EZR has rebooted		
24/01/2019 13:25:42	Communication state	Clos	se
24/01/2019 13:25:42	Communication state		



### 14.7.5 Datapoints Overview

### 14.7.5.1 Introduction

Each type data Point has its own block of information that depends on the chosen period in the period selector. Furthermore, a distinction is made between hardware data point (input or output) and a virtual data point.

There are several ways in which data can be displayed:

- Chart
- Table
- Maps

In addition, the data point can be ' transferred '. Then the samples are stored on another node. This is shown by the color at 'Data from node'; bright green means transferred.



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### 15 Event History

Using the Event History module a diagnosis can be made regarding the functioning of a particular hardware node. The progress of all events can be looked at in detail. In design You can create different events for different product lines. In live, the generated events are shown from a hardware node with the ability to filter on them.

### 15.1 Event History in Design

The design module is only available to persons who have special rights. The module is located in the Module menu under 'Application Management'.

### 15.1.1 Creating an Event for a Specific Product Line

In the event configuration, select the desired product line, then click the '+' button in the upper right corner of the grid. A form opens where the desired values can be filled in.

### 15.1.2 Epoch Time ('event valid until')

An event can no longer be active in the future. This can occur because the event is no longer needed or another similar event has occurred. Normally nothing is entered here but if the event no longer applies to future firmware updates then the epoch time is filled in here (number of seconds from 1 January 1970). This time is the time of the event. This will ensure that the filter options in the Live section are kept clear for all events.

Subject signed	Unsigned	•
Event signed	Unsigned	•
Extra signed	Unsigned	•
Epoch event valid until date tin	ne	
All		
Errors		

Fig 15.1.2.1: Epoch time ('event valid until')

### 15.1.3 Error Indication Based On Negative Values

Setting an error indication can be done at the bottom. It is possible to set one of the three fields as an error indication. If the corresponding field returns a negative value, it will be displayed as an error.

Error indicators	
Negative subject error Negative event error Negative extra event error	
Cancel Save	

Fig 15.1.3.1.: Setting fields for a correct error indication



### 15.1.4 Copying from an Existing Event Configuration

It is possible to copy an existing event configuration to other product lines by clicking on the copy

button, (in het grid . There will be a screen with all available product lines indicating which event configuration is currently specific to it. Select the desired product lines. Note: The existing event configuration for the respective product line will be overwritten! (not recoverable).

Selected event device copy	
EVENT_LS_WDT_ERROR	
Select productlines	
Avision node	
Extension LegioBox I	
XBus	
General third party	
LegioBox I	
Compact	EVENT_LS_WDT_ERROR
Next	EVENT_LS_WDT_ERROR
Gecko	EVENT_LS_WDT_ERROR
Wise	
Cancel Save	

Fig 15.1.4.1: Copying an event configuration to multiple productlines

### 15.2 Event History in Live

The Live module will be available after selecting a hardware node. Navigate to the module by clicking on 'Analyse' in the module menu and then 'Event history'.

### 15.2.1 Filter Specific Events

All events are checked by default. Unchecking an event will filter it out. A filter can be completely reset by clicking on the 'Reset Filter' button. This one will be able to select certain categories by selecting the desired category and then clicking on 'Select All'. 'Select All' selects all visually present checkboxes.

All			A	ull(105) Errors(34) Comm	unicatio	n(21) Datapoints(28) XBus	/Wirele:	ss(22)			
AI_ERROR_MIN	~	EVENT_LS_ERROR	~	LS_ACTIVE_GUARD_USER	~	LS_ADC_STATE(0)	~	LS_CMD_ABORT(0)	~	LS_COM_DURATION(4)	-
LS_COMSET_SWITCH(4)	~	LS_DELAYED(6)	~	LS_DIAG_1	~	LS_FAULT	~	LS_FIELDSTRENGTH(5,9)	~	LS_FORCED_RESTART(5)	
LS_FOTA(1)	~	LS_GPS_DS_ERROR(6)	~	LS_GPS_DURATION(6)	~	LS_GPS_FIX_OVERFLOW(6)	~	LS_GPS_NAV_DB(6)	~	LS_GPS_POS_INFO(6)	ŀ
LS_GPS_VERSION(6)	~	LS_HALT(1)	~	LS_HIST_CAPACITY(0)	~	LS_HYBERNATE(0)	~	LS_HYBERNATE_OLD(0)	~	LS_INIT(1)	
LS_INSERT_SAMPLE(0)	~	LS_INT_ERROR(0)	~	LS_INTERFACE_SWITCH(4)	~	LS_MEM_CORRUPTION(1)	~	LS_MEM_FULL(0)	~	LS_MODEM_STATE(4)	
LS_MSG_SPLIT(4)	~	LS_NET_SERVICE(4)	~	LS_OPERATOR(4)	~	LS_POWERMODE(0)	~	LS_RTC_CYCLE(6)	~	LS_RTC_DEV(6)	
LS_RTC_SYNC(6)	~	LS_SD_INFO	~	LS_SD_STATE	~	LS_SERVER(6)	~	LS_SERVICE_MODE	~	LS_SOFT_RESET(1)	
LS_START_CAUSE(5)	~	LS_START_COM(4)	~	LS_TCP_CNT(0)	~	LS_TO_AVISION(7)	~	LS_UNEXPECTED_STOP(1)	~	LS_UPS_ERROR(0)	
LS_UPS_ERROR_OLD(0)	~	LS_UPS_STATE(5)	~	LS_UPS_STATE(6)	~	LS_UPS_STATE_OLD(6)	~	LS_UPS_STATE2_OLD(6)	~	LS_VERSION OLD(0)	
LS_VERSION(0)	~	LS_WAKEUP(4)	~	LS_WDT_ERROR(1)	~	RF_CALIB_VAL	~	RF_CCA(6)	~	RF_CO_EVENTS(5)	
RF_COMMISION(0)	~	RF_CONFIG(6)	~	RF_CONNECT	~	RF_ERROR	~	RF_EVENTS(0)	~	RF_FIELD_BS(7)	
RF_FIELD_EP(7)	~	RF_FOTA(0)	~	RF_HYBERNATE(0)	~	RF_HYBERNATE_OLD(0)	~	RF_MCU_REBOOT	~	RF_MCU_UPDATE(0)	
RF_NOTIFY(6)	~	RF_POLL(6,7)	~	RF_RECON(6)	~	RF_STATE(0,6)	~	RF_UPS_ERROR	~	RF_UPS_STATE	
RF_VERSION(0)	~	TAG_AI_COMPRESS(3)	~	TAG_AI_ERROR_MAX	~	TAG_AI_ERROR_MIN	~	TAG_AI_ERROR_NONE	~	TAG_AI_H(0)	
TAG_AI_H_OLD(0)	~	TAG_AI_HH(0)	~	TAG_AI_HH_OLD(0)	~	TAG_AI_L(0)	~	TAG_AI_L_OLD(0)	~	TAG_AI_LL(0)	
TAG_AI_LL_OLD(0)	~	TAG_AI_OK(0)	~	TAG_AI_OK_OLD(0)	~	TAG_AIF_COMPRESS(3)	~	TAG_CNT_COMPRESS(3)	~	TAG_CNT_H(0)	
TAG_CNT_HH(0)	~	TAG_CNT_OK(0)	~	TAG_DI_SWITCH(0)	~	TAG_GEO_COMPRESS(3)	~	TAG_GEO_FAR(3)	~	TAG_GEO_NEAR(3)	
TAC CEO OK(0)	1	TAG WORD VALUE(0)	~	XBUS STATE(4)	~						

Fig 15.2.1.1: Filtering events

An event can occur in multiple categories (configured in design). In most cases, that's a category 'All ' plus a category specifically related to the event.

To apply the filter, click the 'Apply filter' button.

### 15.2.2 Using Filters in the Grid

Optionally, you can filter through the grid on every possible column by tapping the label at the top, possible options appear in the picture. An example:

Event history	
T Default Error Communication Datap	oints Xbus wireless
Date time	Desctription
28/05/2019 14:14:03	Start communication with Avision
28/05/2019 14:14:03	Reason for communication
28/05/2019 14:10:55	Communication result
28/05/2019 14:10:55	TCP Byte count
28/05/2019 14:10:38	Reason for communication
28/05/2019 14:10:38	Communication state
28/05/2019 14:10:32	Communication state
28/05/2019 14:10:32	Start communication with Avision
28/05/2019 14:10:31	Reason for communication

Fig 15.2.2.1 Filter options in the grid

### 15.2.3 Finding Detailed Event Information

Each event contains information about the values and an event specific description. Detailed

information of a specific event can be requested by clicking on the clipboard icon, 🗐 , in the grid. An example of detailed information about an event:



1100 03000	FUCET COLLEG COMMENTATION	TRUE COMMINIATE
LS_COM_DU	RATION(4)	×
Description: Com	munication result	
Event id. 6	2013 14.03.33	
Subject id: 2		
Event value: 31		
Extra value: -1		
Duration of a LegioBox [®]	communication cycle betwee	en Avision [®] and
Event ID	6	
Verbose Level	4	
Subject ID	Description	
0	LAN	
1	Wifi	
2	GPRS 1	
3	NB IoT 1	
5	NB IoT 2	
6	Cat M1 1	
7	Cat M1 2	
Event Value	Duration in seconds	
Extra Value	Description	
0, -1, -2, -3, -4 1	Fault Success	
	Close	

Figuur 15.2.3.1: Description of an event (trigger)

### 15.2.4 Data Export

It is possible to export the entire selection to an Excel file by clicking the 'Export to Excel' button.

It is also possible to specify which columns should be exported and which not. This is done this by clicking on one of the buttons with three dots, then going to option columns and using the option to turn certain columns on or off.





### 16 Formula

### 16.1 Introduction

Formulas create the possibility to conditionally log data, raise alarms or control the digital output of a LegioBox.

One or more values of analog and digital signals as well as some properties (e.g. whether a limit value has been exceeded) of these signals can be used. Together with various calculation Functions, The Legiobox and or Avision will determine the outcome of a formula.

A practically unlimited amount of parameters can be used in one formula.

For example, the outcome of a formula can be used:

- to create and store extra data historically
- to control a digital output
- as an input value for another formula

Given the many possibilities that can be used in a formula, **programming knowledge and experience is desirable** if you want to set up formulas.

### 16.1.1 Avision Formulas vs. Hardware Formulas

In Avision there are two types of formulas: Avision Formulas and Hardware Formulas. Avision formulas are calculated in Avision, whereas Hardware Formulas are calculated inside and by a device. Also, Avision Formulas are coupled to a Property Definition Item and Hardware Formulas to a hardware datapoint.



### 16.2 Avision Formulas

#### 16.2.1 Creating an Avision Formula

- In Design, in the menu, go to 'Basic elements' 'Avision Calculations'
- Click on the '+' button on the top right of the grid

The Add menu is presented:

AVISION CALCULATIONS OVERVIEW >> AVISION CALCULATIONS ADD

Kies avision berekening			
Avision berekening	select	•	
Cancel Add	Node counter Formule Contract price		

• Select 'Formula'

Another menu is presented where the applicable property definition and item need to be selected:

AVISION CALCULATIONS OVERVIEW >> AVISION CALCULATIONS ADD >> FORMULES ADD

LPropertyDef	not used	
LPresentationDef	not used	

#### Another menu appears:

AVISION CALCULATIONS OVERVIEW >> AVISION CALCULATIONS ADD >> FORMULES ADD >> EDIT FORMULA

Description		
Precedence	1 🜲	
Formula type	select	-
Interval	30 🝦 Seconds	
Wake up on change		

**Description:** Enter the name of the formula.

**Precedence:** The order level for this formula (lower number formulas are executed before higher number formulas).

**Formula type:** The trigger for the formula to start running. This can be 'on event' or 'on period'. **Interval:** The time between two calculations of the formula. **Wake up on change:** 

After clicking the save button more tabs become available.

16.2.2 Formula tags def

This tab shows the

Manual Avision 2.0



A new datapoint is added by clicking on the '+'-button:

General Formula tags def	Formula editor
Tag number : Datapoint type	abel : Property definition item : Label : Actions
H 4 0 Page 0	of 0 🕨 🛏 250 💌 Items per page
General	
Label Tag number Property definition Interpoleren	select V
Interpolation id Extrapoleren	Last value
Extrapolation id	Wait 💌
Close Add	

Label : Short name for the datapoint (property definition item) in the formula.

Tag number : Applies a unique number to the datapoint in the formula.

**Property definition :** Select property definition (Having chosen a property selection, a new dropdown appears where the property definition item can be selected, and one for the formula tags data id). **Property definition item :** Select the property definition item.

**Formula tags data id :** Indicated here is whether calculation will be performed with the data, the number or the time the value is below a given limit. Depending on the data type of the property definition, following options are available:

- **Data:** Gives the option 'Interpolation id' at the Interpolation part.
- Low: Gives the options 'period' and 'time interval' at Interpolation.
- Pre-Low: idem -
- Pre-High: idem -
- High: idem -



### 16.2.2.1 Interpolation

To compute (estimate) the value exactly between two known or measured values.

Following options are available:

- Last value: Used to calculate the last value.
- Last before: Uses the value one before last in the calculation.
- Linear: Linear calculation.
- Calculate:
  - o Periodical usage id
  - $\circ \quad \text{Time interval id} \\$
  - Adjustment id
- Same value:

### 16.2.2.2 Extrapolation

To compute (estimate) a value outside a series of known or measured values.

Following options are available:

- Wait:
- Last value:
- Linear:
- Regression
  - **Period:** in seconds
- Average
  - Period: in seconds

Use the clipboard icon 🗐 to see the settings, use the pencil icon 🖉 to edit them:

General		
Label	Test1	
Tag number	1 🔻	
Property definition	Analog	•
Property definition item	Temperature	<b>T</b>
Formula tags data id	Data 🗸	
Interpoleren		
Interpolation id	Last before	
Extrapoleren		
Extrapolation id	Last value	

### 16.3 Formula Editor Screen

### 16.3.1 Introduction

### 16.3.1.1 Syntaxis

A formula can be built in two ways: using digital data points and/or determining a true/not true Boolean expression.

### 16.3.1.2 Logical Condition

Analog datapoints:

One or more of the following lines:

• Logical Condition-WS-":"-WS-Analog Unit

(In this case, the dash "-" and the quotation marks (") in the above formula are only to clarify the syntax slightly, but these characters will not actually be allowed to appear in formulas.)

WS: The so-called whitespace or delimiter. The following delimiters may be applied:

- space
- new line
- Carriage Return
- tab
- {....} (comment)
- An example of a valid formula: "True" {the result is always true}

### 16.3.1.3 More on Logical Conditions

A Logical Condition can be build in following ways:

- Logical equation ("=", "<" or ">")
- Logical property of a datapoint
- Boolean Constant (true or false)
- System condition "START" or "CHANGE, (Start: is only "True" the first time a formula is executed after the LegioBox has been powered off. Change: is only "True" the first time a changed formula is executed). These functions are available from LegioBox firmware version 4.3. The LegioBox version can be found in the hardware configuration screen.
- Logical Unary Op.-WS-Logical condition
- Logical condition-WS-Logical binary op.*-WS-Logical condition (Multiple conditions can be nested).

### 16.3.1.4 Logical Unary Op

- NOT or "!": The result is the negated value.
- LEAD or "^": True when a leading edge has been detected of a signal. The result is usually high during one cycle of the formula.
- TRAIL or "v": Same as "LEAD" but then for the trailing edge of a signal.
- DELAY Following syntax applies: "["-WS-Integer Constante*-WS-", "-WS-Integer Constante**-WS-"]"

* the result has a delayed leading edge in seconds (maximum: 32766 seconds)

** the result has a delayed trailing edge in seconds (maximum: 32766 seconds)

### Example:

[60, 0] Di1.Value: The result only becomes "True" 60 seconds after Di1 has become true, but will drop immediately on Di1 becoming "False". This calculation is independent of the cycle time of the formula.

### 16.3.1.5 Logical Binary Op

- AND or ".": when both conditions are true the result is true.
- OR or "+": when one or both conditions are true the result is true.
- XOR or "X": when the results of both conditions are different "True" is returned, else "False"
- "=" : Result is "True" when both conditions are equal, else false.

### 16.3.1.6 Formulas for Digital Datapoints

Any resultOf the aforementioned logical conditions can be used to set the value of a digital data point.

### 16.3.1.7 Formulas for Analog Datapoints

A formula for an analog unit consists of two parts: The logical (true/false), as explained earlier, and an analog part which we'll elaborate here.

The syntax of an analog datapoint is (as described before):

One or more lines like: Logical Condition-WS-":"-WS-Analog Unit

### 16.3.1.8 Analog Unit

An Analog Unit can be build in the following way:

- Analog property of a datapoint*
- Analog Unary Op.*-WS-Analog Unit
- Analog Unit-WS-Analog function-WS-Analog Unit (Multiple lines can be nested).

### 16.3.1.9 Multiple Conditions in one Formula

A formula for analogue points can consist of multiple lines. Each line individually consists of a logical condition which is true or not. The condition that is behind the last (lower) line with a result of "True" determines the outcome of the formula or the new value of the point. (See also the example "hours of rotation" below).

### 16.3.1.10 Analog Unary Op

Calculation can be executed using analog unary op. The calculation is independent of the cycle time of the formula.

All calculations must be of following syntax:

- "["-WS-Integer Constant*-WS-"]"
- between 2 and 32767 seconds
- AVG Average
- MAX Maximum
- MIN Minimum
- SUM Summation

### Example

True : AVG[180]Ai1.Value The datapoint where the formula belongs to will get the value that is the result of: the average value on analog input 1, calculated over a period of 180 seconds.

### 16.3.1.11 Analog Function (*,/.+,-)

- * multiply
- / divide
- + add up
- subtract

### 16.3.2 Characteristics of Datapoints

### 16.3.2.1 Logical and Analog Characteristics

A characteristic consists of an interpretation of a data point followed by a characteristic. Formulas do not use the name of a data point, but an internal name. The following names may be used:

Digital input (W stands for Wireless, E means ExtensionBox):

- "DiX" (X=1..8, "WDiX" (X=1..32), "EDiX" (X=1..32)
- Example : Di1, which is the first digital input of the LegioBox

Digital modifiable points(W stands for Wireless, E means ExtensionBox. DV means virtual digital inputs):

• "DOx" (x=1..8), "a name="#DV">DVx" (x=1..8), "WDOx" (x=1..32), "EDOx" (x=1.32)

Analog input (W stands for Wireless, E means ExtensionBox:

- "AiX" (X=1..8), "WAiX" (X=1..32), "EAiX" (X=1..32)
- Example : Al1, which is the first analog input of the LegioBox

Analog modifiable points (W stands for Wireless, E means ExtensionBox. AV means virtual analog inputs):

• "AVx" (x=1..8)

Pulse Counter points (W stands for Wireless, E means ExtensionBox. CV means virtual pulse counter):

• "CIx" (x=1..8), "CVx" (x=1..8), "WCIx" (x=1..32), "ECIx" (x=1..32)

### 16.3.2.2 Logical Characteristics

- .VALUE: the digital filtered value of a datapoint (i.e. of a Di)
- .RAW: the digital unfiltered value of a datapoint
- .ENABLE: whether a point is used or not
- .LOCAL: whether the datapoint is controlled by a local formula (in the LegioBox).
- .LOWLOW, .LOW, .NORM, .HIGH and .HIGHHIGH: the state of a limit value of an analog data point.

### 16.3.2.3 Integer (analog) Characteristics

- .VALUE: value of an analog datapoint (Ai, VAi and counter)
- .DELTA: the change of a counter value (independent of the sample time of the counter)
- Date/Time parameters
- WDAY: Day of the week (1=Monday... 7=Sunday)

- SECOND, MINUTE, HOUR, DAY, MONTH, YEAR: the situation of the moment in respect to the real clock date and time.
- DST (in formulas): The difference of local time and UTC during daylight saving time period (summertime) in minutes. In The Netherlands this is 120.

### 16.3.3 Datapoints in Formulas

### 16.3.3.1 Example Principles

As an example consider the sample moments of three datapoints:

1____2___3___4___5___6|.. Formula datapoint F

1_2_3_4_5_6_7_8_ |.. Datapoint X

1_2_3_4_5_6_7_8_ |.. Datapoint Y

| is "Present Time"

### 16.3.3.2 Calculation

Options in het formula screen:

- Periodical: The formula is executed at entered intervals.
- On change: The formula is executed once when one of the datapoints is changed.

### 16.3.3.3 Interpolation and Extrapolation

Interpolation concerns X1 to X7 and Y1 to Y7 (time datapoint <= execution moment). Extrapolation concerns X8 and Y8.

### 16.3.3.4 Interpolation

Using the last value : The last known value of the X or Y data point is used. This can be the last sample value. LegioBoxes can also transmit the last value of data points at each communication stroke.

Value equal to output moment: At F5, that is X7 and/or Y7, or in other words the samples with the exact same sample time. This setting does not make sense in a "change" formula.

Previous value (with regard to execution moment): At F4 that is an older or equally old sample, in other words X5 and Y5.

Linear interpolation: At F4 that means (linear) interpolation between X5 and/or X6, and Y5 and Y6.

Calculated value:

- Average all values: the mean of all samples of the selected period.
- Number of samples: the number of samples of the selected period.
- The maximum value: the maximum sample value of the selected period.
- The minimum value: the minimum sample value of the selected period.

### 16.3.3.5 Extrapolation

Wait with calculation: F5 will be calculated, F6 will not.

Use last value: Last value of the datapoint X or Y is used.

Linear extrapolation: At F6 that is an extrapolation using X7 and X8 resulting in a not yet existing point X9 and also using Y7 and Y8 resulting in Y9.

Linear regression: At F4: A linear regression is calculated using all samples of X and/or Y between moment F3 and F4.

Average pull-through: at F4 the average of all samples between moment F3 and F4.

### 16.3.3.6 Examples

### 16.3.3.6.1 Running Hours

This examples describes how running hours can be measured with Avision and Avic devices.

First, a logical value must be defined indicating whether a particular engine/machine is running. In This example, we use digital input 1 for this. This input is "true" when the machine is running. To be able to count accurately, two virtual analogue data points (AV1 and AV2) are used, namely: turn seconds and running hours. If the machines are on for most of the time and are barely switched off then the 1 virtual analogue input can be used for hours of rotation.

The data of run time seconds are not interesting for most users and therefore do not need to be logged (historically stored).

The formulas for both virtual point now look like this:

#### Formula for AV1 (run time seconds):

Precedence: 1, Interval: 1 second Di1.value : AV1.value+1* AV1.value=3600 : 1

This formula works as follows:

1. When the digital input is "true" then one is added to AV1. Since the formula runs every seconds this means that every second one is added to the value AV1.

2. When AV1 has a value of 3600 reset the counter to 1. Again, because the formula runs every second this means that after one hour the AV1 is reset.

In the case of a formula for an analogue point, the last condition is applied. The second condition "AV1. Value = 3600" is valid only if AV1 has the value 3600. The datapoint does not get this value until it is saved or after the formula has been executed. For this reason, the counter must be set to 1 and not 0.

### Formula of AV2 (run time hours):

Precedence: 1, Interval: 1 second AV1.Value =3600: AV2.Value+1

Or in words: if a machine has rotated 3600 seconds, increase the number of hours by 1.

#### Time-dependent settings in formulas

Data points can be used In formulas. These are set at the bottom left of the formula screen. On the bottom of the screen you have to set which data of a data point is used.

Here are some examples:

### Run formula for data that enters once a day

When a formula has to be calculated every hour on data that arrives once a day then the settings are as follows: Interval (top left of the formula screen): Run periodically every 3600 sec. At the data

points below the form screen: **Interpolate** to "previous value versus execution moment" set and **extrapolate** to "wait with Run".

More examples in the following chapters.

### 16.3.3.6.2 Calculate Average

In this example, we want to know the average of samples taken the first 5 minutes on the input of extensionbox.

The number of times (seconds) a formula is executed is determines the number of samples the average is calculated on.

When the formula settings are: Precedence: (any number will do) , Interval seconds: 10 Formula: True: AVG[300]EAI1.VALUE

In this case the average is calculated over 30 samples (300 : 10).

The outcome of this formula is valid for the entire set period (in this case 300 seconds).

General	Formula tags def	Formula editor	r
General			User formula
Start	Change True	e False	D2.Value
Date/time			
WDay	Day Mon	h Year	
DST	Hour Minu	te Second	
RTC			
Characteri	stics		
.Value	.NewValue .Delt	a .AGE	
.Enable	.Local .Rav	v .Norm	
LowLow	Low .Hig	n .HighHigh	
.Factor			
Logical			Cancel Save
AND	OR XOF	NOT	Formula check
LEAD	TRAIL DELA	Y BIT	Formula property definitions
AVG	SUM MIN	MAX	
POW	MOD LOO		D2 - Manual Operation Pump
SQR	ODD ABS		
SIN			
Signs			
(	) [	1	
{}	, :		
<	> =		
Constants			
7	8 9	-	
4	56	+	
1	2 3	1	
0	. *		
Pi	e Ran	b	

The lower right block shows the datapoints added in the previous tab, 'Formula tags def'. By clicking on a datapoint here the datapoint is entered in the formula block above. Likewise for the function buttons on the left. The formula block is text box and can be written.

When ready the formula can be tested to comply to syntax rules by clicking the 'Formula check' button. This check is also performed when the save button is clicked. Saving an invalid formula is not possible.

### 16.4 Hardware Formulas

### 16.4.1 Introduction

Using formulas in an Avic device and in Avision creates the option of conditionally logging data, generate alarms or set an output. In formulas multiple values of analog and digital values and situations (i.e. the crossing of a limit) can be used. Together with other calculation functions the output of a formula will either be calculated in the Avic device or by Avision.



In one formula a practically unlimited number of parameters can be used.

The outcome of a formula can be:

- Stored historically
- Used to control an output
- Used as input (parameter) for another formula

Given the many possibilities that can be used in a formula, programming knowledge and or experience is desirable if you want to use formulas.

A basic explanation of the various functions and parameters is given In the following text. If more information is required, please contact us. The explanation begins with an equally basic explanation of the syntax (which conditions the (structure) of a formula must meet) of formulas.

In Design, choose the Hardware node. In the menu click 'Formulas', the 'Formula Overview 'screen will open.

OVERVIEW FORMULAE

General								
Hardware	LG_1200.03	<b>•</b>						
Y Analog Dig	gital Word Onbekend	1						
Datapoint type	Use value from	Propertyn def _ name	:	Property definition item	:	Formula def description	:	Actions
Analog	Central input/operation	LegioBox V_Mid 2x Alkaline		V_Mid 2x Alkaline				+
Digital	Central input/operation	Manual Operation Pump		Button				+
Digital	Local (input, formula)	LegioBox external output		DO-1		OutputOn		E / ?
Digital	ge 1 of 1	250 v Items per page		00-1		Outputon	1 - 3	lof

If no formula has been created for a data point, then the 'Actions ' column shows only the plus icon. After clicking on this icon the following screen will be displayed:

Description		
Precedence	1 🜲	
Power mode	Low and full power	•
Interval	30 🔶 Seconds	

**Description:** Enter a description/name for the formula here.

**Precedence:** Enter the order in which formulas are executed versus each other. The order is important if the outcome of one formula is used in another formula.

**Power mode:** Indicate in which power mode the formula is allowed to run in the Avic device. Select from three options:

- Low power
- Full power
- Low and full power

So it is possible to not have a formula running when the device is in low power mode (by selecting 'Full power').

Interval: The time between two executions of the formula.

After clicking 'Save', additional tabs are displayed, for selecting data points and entering the actual formula.

General Formula tags def	Formula editor
Description	OutputOn
Precedence	1 🜲
Power mode	Low and full power
Interval	1 🔶 Seconds

### 16.4.2 Tab 'Formula tags def'

This screen selects the data points that will be used in the formula. The ' + ' button at the top right of the grid allows the user to add an property definition item.

General	Fo	rmula tags def	Formu	la editor					
									+
Tag number	÷	Datapoint type	label 🚦	Property definition	on item 🚦	Label	:	Actions	
2		Digital		Button		Manual Op	eration Pump	Ê	×
H 4	1	Page 1	of 1	× > 250 •	ltems pe	r page			C
Label			Manua	Operation Pump					
+ 77			2 -	1					
lag number			2 7						
Property de	finiti	on	Manual	Operation Pump			-		

Label : Short name for the data point, shown in the ' Formula Change screen '.

Tag number : Assign a number to the datapunt (for later use in the formula).

Property definition : Select a property definition from the list.

**Property definition item :** Select a property definition item (of the earlier selected property definition).

### 16.4.3 Formula Editor Tab

This menu is described in <u>chapter 16.3</u>.



### Do-it-yourself block creating simple formula

### 16.5 Create a Formula to Set Output On when High Water Detected

In the example of an alarm, as made in <u>chapter x</u>, an e-mail is sent when a high water alarm occurs (simulated using a switch on our test kit connected to Di1). It would be nice to have immediate feedback in our test kit. In the following example, we use a formula to turn the DO led on, when a high water alarm is generated.

### 16.5.1 In Design

At the Hardware node 'LightGate', menu item 'Hardware IO', go to 'External IO', tab 'Digital out'.

Adjust following settings:

### General

- **Property definition**: Avision LegioBox external output
- **Property definition item :** DO-1 (There's only one output).
- **Sample destination**: Stand alone We don't need to transfer the state of the DO to another node.

#### Source

• Use value from : Local (input, formula)



Select hardware		
Hardware	LG_1200.03	
Hardware low power		
Configurable in	Design	-
Measure interval	30 🔶 Seconds	
	In low power mode otherwise every se	econd
Settling time	30 🔶 Milliseconds	
Save		
Internal sensors External io	Virtual datapoints LAvisionCalculated	Datapoints
Analog in Digital in Digita	out Counter	
Property definition	Avision - LegioBox external output (v	version 1)
Property definition item	D0-1	•
Sample destination	Stand alone	•
General		
Configurable in	Design	*
Label	Digital 1	
Active	Normally open	•
In use	~	
Enable	~	
History	~	
Sample		
Configurable in	Design	-
Filter	1 \$ Seconds	
Notification		
Configurable in	Design	•
On change	Both	*
Limits from property prese	ntation definition	
Trigger	Never	•
Delay		Seconds
Source		
Configurable in	Design	<b>*</b>
Use value from	Local (input, formula)	
Scheduler	select	•
Default value		
Close Save		

And click 'Save'.

Now when we look at the menu item Formulas (of the 'LightGate') we see that a line has been created in the grid 'Overview Formulae'. This line was created by Avision because we chose 'local (input, formula)' In the 'Use value of' field.

OVERVIEW FORMULAE

General					
Hardware	LG_1200.03	•			
Y Analog Dig	ital Word Onbekend				
Datapoint type	Use value from	Propertyn def _ name	Property definition item	Formula def description	Actions
Analog	Central input/operation	LegioBox V_Mid 2x Alkaline	V_Mid 2x Alkaline		+
Digital	Central input/operation	Manual Operation Pump	Button		+
Digital	Local (input, formula)	LegioBox external output	DO-1	OutputOn	Ē 🖉 🗙
н н	Page 1 of 1 🕨	250 V Items per page	e		1 - 3 of 3 Items 💍

### • Enter description

The interval field represents the frequency at which the formula is calculated, here 1 time per second.

General Formula tags def	Formula editor	
Description	OutputOn	
Precedence	1 🜲	
Power mode	Low and full power	
Interval	1 🝦 Seconds	

### • Create a formula datapoint

We indicate here that we want to use the indication of an overflow situation as a parameter of the formula controlling the DO:

Tag number 1   Property definition Floater	Label	IsOverflow	
Property definition Floater	Tag number	1 🔻	
	Property definition	Floater	
Property definition item IsOverflow	Property definition item	IsOverflow	
	Close Save		

### • Formula edit menu

The formula is very simple. Basically the output of the formula could be the value of the output. If in an earlier chapter you already created a button in a monitor screen to control the output then it's only a matter of using an OR.

General	Formula ta	igs def	Formula editor	
General				User formula
Start	Change	True	False	D1.Value OR D2.Value
Date/time				
WDay	Day	Month	Year	
DST	Hour	Minute	Second	
RTC				
Characteri	stics			
Value	.NewValue	Delta	AGE	
Enable	Local	.Raw	.Norm	
.LowLow	Low	.High	HighHigh	
.Factor				
Logical				Cancel Save
AND	OR	XOR	NOT	Formula check
LEAD	TRAIL	DELAY	BIT	
AVG	SUM	MIN	MAX	Formula property definitions
POW	MOD	LOG		D2 - Manual Operation Pump
SQR	ODD	ABS		D1 - IsOverflow

Click 'Save' button.

### 16.5.2 In Live

Here we only have to synchronize. After a communication session with the LightGate test kit, the settings are loaded. If we now operate the Di1 switch for at least 1 second, DO will be controlled and the LED is on for 1 second to indicate that the alarm has been generated.



In practice, one could use DO to give the signal that a pump should start working or an overflow valve is opened.



### 17 Impersonation

This module is part of the user options in Live. The user options are shown after clicking the person icon in the top right corner. This option allows you to log in as a user of an underlying customer application. There is no need to know the user's password.

	€	۵	-	•
Му ассо	ount			
	Man	ual_St	udent	1
	Englis	sh	-	
To imperse	onate	4	=	
To my acc	ount			
Sign out				
USERS IN	IPER SOI	NATION		
Select	applies	ation or	node	
Select	applica		noue	
Jump to	client			Manual
Search	node			

If the client application is jumped to without specifying a user, logging in will be done as the Designer. The Designer is a special user who is created for each application.

The 'Search node' field can be used to log in as a user of a (client) application. In the example below we searched for 'Gemeente Zaltbommel' to be able to log in as an employee of this customer.

5	Select	appli	cati	on or	node								
J	ump to	client				se	lect					•	
S	earch	node				Geme	eente Z	Zaltb	ommel		•	2	
Dr	ag a co	olumn h	ead	er and	drop it	here to	group	by th	at column				
	Noo	le id						÷	Name				:
-	564	55							Gemeente Zaltbomm	el			
	Drag a column header and drop it here to grou		grou	up by that column									
	U.		÷	F	1	P	- 1	L.,	- E	L	- 1	E	
	158	76		John				Jon	es	jonesj		jjones@gemzb.nl	
	137	45						Des	igner				
	158	64						Mar	nual_Student1	manual_student1			
	14				Page	1	of 1		N 250 -	Itoms nor nado			1
			1		raye	·	011	-	230	neme per page			
B		1	1	Page	1	of 1	•	M	250 Thems r	per page			C
-				. ago	L.				Loo I nomo p	or bugo			

Click on the user of choice and click yes in the next confirmation window.

USERS IMPERSONATION



Are you sure?	×
Would you like to impersonate this user?	
Yes	No

After login we see the same as the chosen user, John Jones, would see if he would be logged in: The active node is that of the municipality of Zaltbommel. Because of the mask icon in the URL of the browser it is immediately clear that we are logged in using impersonation.



The users information in the top right corner shows we are logged in as John Jones:



In this menu 'impersonate' can also be reversed.

The 'impersonate' option is only available if you are already logged in and have the necessary rights, for example via the 'Avision – Default Live Administrator ' role:



### 18 Location

This module exists in Live only. Here the geographical position of an Asset and its address information are stored here. This information is required when using the map module.

### 18.1 Settings

Settings that can be edited are the usual address data. The coordinates are WGS84 coordinates. The following fields need more explanation:

- Location code
- Call number

### 18.2 Create a Location

There are three ways to create a location: by filling in an address, by filling in the GPS coordinates or by clicking on the map on the location (where the GPS coordinates are automatically filled in).

- In Live, go to the Asset
- In the menu click on Location
- Click Edit button
- Find the approximate location on the map
- Click the exact location on the map (notice that the gps coordinates are entered automatically), and next click the 'Save'-button



### 18.3 Remove a location

In order to remove the location, click on the remove button underneath the map (showing the current configured position). When clicked and confirmed, the location and any other related information will be removed.

### 19 Hardware Distribution

Using the hardware distribution module hardware nodes can be exchanged between applications. Hardware nodes can be moved to lower applications or returned to the upper application.

### 19.1.1 Hardware Distribution to Lower Applications

Open the hardware distribution module on the hardware (stock/maintenance) folder.

### 19.1.1.1 Add

There are three options to select hardware nodes to distribute to another application. If the top text box is selected, the sticker on the Avic product can be scanned using a handheld scanner. In addition, it is possible to type in a GUID and click Add using wildcards (*). The GUIDs can also be selected in the list and the arrow buttons are added to the selection.

### 19.1.1.2 Rename

The Rename functionality allows the node name and the hardware label to be modified. By using the template tags it is possible to insert the node name ([N]) for example.

If a counter template ([C]) is added, the 'Start counter 'field can be used to indicate the beginning of the counter and the number of digits with 'digit'. For example, if you fill in 'Startcounter' 5 and in 'digits' 3. Then the counters will start with '005' and then continue with '006'.

### 19.1.1.3 Move To

Here we select the Application and node (of the Hardware folder type) to move the hardware nodes to.

ARDWARE DISTRIBUTE	
Scan or upload hardwar	re nodes
Add	
Select hardware nodes	
598542c4-2444-2302-9a48-0	118b4375b442
Rename	
Rename node name Rename hardware label	
[N] Node name[G] GUID[C] [I] Node ID[D] Device ID[A] Start counter with Digits Move to	Counter RF Address
Destination application Destination parent node	Select destination
Cancel Save	



### 19.1.2 Hardware Distribution Back To Upper Application

By choosing the above-lying application and the folder '_Return hardware ' hardware is placed back.

Move to		
Destination application	Avic BV	•
Destination parent node	_Return hardware	•
Cancel Save		

### 19.2 Working

If a customer has purchased an Avic product, Avic will move the purchased hardware from its Stock node to the customer's Stock node. Chapter 2.5 <u>Nodes in Live</u> describes how a device is coupled to an asset from a customer's Stock through the hardware node.

### 19.2.1 Move Device from Hardware Node to Stock

If a customer's device goes back to Avic, the customer must first place the hardware node in its own Stock. Like this:

- Go to the Asset where the hardware is used.
- Click on the menu-item Nodes.
- In the presented grid, click on the pencil icon of the device that has to go to Stock.

Name	:	Node kind	:	Node type	Actions	
442_SW	Mark	Hardware nodes		LightGate	Ê /	

In the next menu click on the tab 'Move' and select '_Stock (Move to stock)' and click 'Save'.
 NODES >> ITEM: 442_SW MARKT

General	Accesskeys	Move
Destination	parent node	Ch
		CI
Cancel	Save	_s
		_N

### 19.2.2 Move Device to Other Application

In this example the customer sends his device back to Avic.

- Go to the Stock node.
- In the menu, go to 'Application' and click 'Hardware distribute'.
- Select the hardware node (GUID) and click on the single arrow button pointing to the right.
- At 'Destination application' select 'Avic BV'.
- At 'Destination parent node' select '_Return hardware'.
- Click 'Save'.

### 20 Icons

This chapter describes which icons are used in Avision and what their function is.

### 20.1 Icons at the top bar

lcon	Function	Available in	Location
	Shows or hides the left column with the tree	Design +	To the far left of the
	structure of nodes.	Live	top bar of the screen.
=	Shows or hides the Menu column.	Design +	To the far left of the
-		Live	top bar of the screen.
	Opens additional features, shows icons to go to	Design +	At the far right of the
	Design or Live, to switch to mobile screen, to sign	Live	top bar of the screen.
	out, to show user settings.		
re .	Logoff.	Design +	At the far right of the
G		Live	top bar of the screen.
n	Use mobile layout.	Live	At the far right of the
			top bar of the screen.
	Go to Live.	Design	At the far right of the
-			top bar of the screen.
81	Go to Design.	Live	At the far right of the
<b>*</b>			top bar of the screen.
•	User settings.	Design +	At the far right of the
		Live	top bar of the screen.
	Hide additional function icons and show icons for	Design +	At the far right of the
5	tree and menu.	Live	top bar of the screen.

### 20.2 Icons in grids

lcon	Function
Ê	Show details of the item without changing them.
(I)	Show details of the item with the option of changing them.
	Create a new copy of the item. (If it is a version item, the copy's version number is 1).
Ś	Create a copy, a sandbox version with a version number one higher than the original.
<b>f</b>	Put the item in the trash bin. (It is not deleted, but can also not be used anymore, can be
ш	made active again).
×	Delete this item (irreversible).
()	Shows extra information.



### 21 Node Counters

Node counters allow you to store counts of child nodes in an attribute definition.

#### 21.1.1 Create Node Counter in Design

First step is to create a property definition with an item of type 'Integer (Counter datapoint samples)'.

(With the option ' managed by parent application ', it is possible to manage the data points only if you are logged in by means of impersonate.)

In Design, under the menu item ' Basic elements ' click on ' Avision Calculations '. In the screen, a grid is now shown with the calculations present. Press the ' + ' button on the top right of the grid. Choose as type ' Node counter '. Click ' Add '.

AVISION CALCULATIONS	OVERVIEW >> AVISION CALCULATIONS ADD
Choose Avision Calc	ulation
Avision calculation	Node counter × 🔻
Cancel Add	

#### After this the input screen for the node counter is displayed

AVISION CALCULATIONS OVERVIEW >> AVISION CALCULATIONS ADD >> COUNTERS ADD

Add counter	
General	
Name Description Use date from counter Managed by parent application Time interval Search	select V
Store calculation in	
Property def Presentation def Calculation settings	not used       ▼         not used       ▼
Counter category Counter type Counter calculation	select ▼ select ▼ select ▼

#### General

- Name: Name of the counter de teller (maximum 50 characters)
- **Description**: Text describing the counter (no maximum length)
- Use date from counter: Setting this enables the count on the date of a different counter, i.e. a week counter to determine the maximum.
- **Managed by parent application**: Indicates that the counter is managed by the parent application.

- Time interval: Interval used by the counter.
- Search:

#### Store calculation in

- **Property definition**: Select the property definition.
- **Property definition item**: Select the property definition item.

#### **Calculation settings**

- **Counter category**: Select the counter category.
- **Counter type**: Available when category has been set. Select from:
  - Node total: Count all nodes
  - Node active online: Count the nodes that are active and online
  - Node active offline: Count the nodes active and offline
  - Node inactive online: Count the nodes inactive and online
  - Node inactive offline: Count the nodes inactive and offline
- **Counter calculation**: Options are Total, Min, Max, Average, Last sample Interval, First sample interval.

### 21.1.2 Couple Counter to ObjectType (Application, Structure, Asset and Object nodes)

Linking the counters to the different object types is done by coupling the property definition that is used by the counter. Then the synchronization process will create the counter in live. (See chapter property definitions)

#### 21.1.3 Activate Counters Live and Set Back In Time

Counters are activated in Live by default. Activation therefore must be done manually.

If the node is synchronized with the counters, the counter can be activated using the counters live module. Open the 'Counters Live' module and press the pencil icon to open the counter.

COUNTERS LIVE



By turning on the 'enabled' option in the edit screen, the counter becomes active. It is also possible to put a counter back in time by putting the date 'End calculated period' in the past. But note: the historical data is then overwritten.

COUNTERS LIVE >> ITEM:	DAY COUNT
General Lsamples	
General	
LCounterName	Day Count
LPresentationDef	NodeCount
LValue	
Live settings	
Enabled	
End calculated period	06/11/2019
Cancel Save	
Guilder   Save	



### 22 Contract Price Agreement

In the contract price agreement, a price (quantity or bundle) can be configured which is used to make a price calculation.

### 22.1 Create Contract Price Agreement in Design

In Design, under the menu item 'Basic elements' click on 'Contract price agreements'. The screen now displays a grid with the price agreements present. Press the ' + ' button on the top right of the grid. Click ' Add '.

CONTRACT PRICE AGREEMENTS OVERVIEW >> CONTRACT PRICE AGREEMENTS ADD

ontract price agreement type	select	
ame		
escription		
lanaged by parent application		

- Contract price agreement type:
  - **Node**: The price agreements can be created on any node (in the application).
  - Application: The price agreements can only be created on an application node (consequently there can only be one price agreement instance of this design present in the node tree).
- Name: Name of the price agreement (maximum 50 characters)
- **Description**: Description of the price agreement (unlimited length)
- **Managed by parent application**: To indicate that the price agreement is managed by the parent application.

### 22.2 Contract Price Agreement in Live

A price agreement is configured in live. Select the appropriate node and open the price agreement Live overview. Press the ' + ' button on the top right of the grid. Choose the price agreement. Click 'Add'.

CONTRACT PRICE AGREEM	ENTS LIVE >> NEW ITEM		
Configure price agreement			
Select price agreement	Agreement_20190101	×	
Cancel Add			

When the price agreement is present on the node, the periods can be added. Select the price agreement in the overview and press the Edit button. Then navigate to the Periods tab.

General	Periods	Hist	огу			
						+
From		:	То	:	Actions	
H 4	o Pag	ge 0	of 0	 250 🔻	Items per page	Ċ

Press the ' + ' button on the top right of the grid. Select the "Tier method" and the dates for the period. Click ' Add '.

CONTRACT PRICE AGREEMENTS LIVE >> EDIT ITEM >> EDIT ITEM

not used	-
	not used

- Tier method:
  - Fixed: All items in the tier get the tier price.
  - o Fluent: All items get the price of the highest applicable tier

General	Periods	Hist	огу			
From		;	То	:	Actions	
11/11/2019			27/11/2019		Ø	
86: I.A.	1 Pag	je 1	of 1 🕨 🕨	250 💌	Items per page	Ċ

Click on the pencil icon to change the period and add tiers.

Within a period, the prices can be added per item. Navigate to the tier tab within a period. Press the on the '+' button at the top right of the grid.

Genera	al	Tiers				
						+
Max	:	Price	:	Tier t	Actions	
	Γ	0	Page	0 of 0	•	Ċ

Select 'Tier type', enter tier threshold and Price and click 'Save'.

Tier type	Bundle		•
Tier threshold	100	\$	
Price	5.95	<b></b>	

### 23 Contract Price Calculations

Using price calculations, it is possible to calculate a price using counters and the price agreement and store the outcome in a property definition.

### 23.1 Create Price in Design

First of all, we create an property definition with a property definition item of type ' Float (Avision _ History _t T _ Meter hist) '.

(The "Managed by parent Application" option allows you to manage the data points only if you are logged in by using impersonate.)

In Design, under the menu item 'Basic elements' click on 'Avision Calculations'. In the screen, a grid is now shown with the calculations present. Press the '+' button on the top right of the grid. Choose as type 'Contract price'. Click 'Add'.

Categories		
Regular expressions	Choose Avision Calculation	
Lists	Avision calculation Contract price	1-1
Property definitions	Avision calculation	
List dependencies	Cancel Add	
Sensors		
Avision Calculations		
ContractPriceAgreements		

Next the input screen for price calculations is shown:

Add contract price calcula	ation
General	
Name Description Managed by parent application Counter source	
Counter def Contract price agreement	select 🔻
Price agreement def Store calculation in	select 🔻
Property def Presentation def	not used
Cancel Add	

### General

- Name: Name for the price calculation (maximum 50 characters)
- **Description**: Description for the price calculation (no limit on length)
- **Managed by parent application**: If checked, indicates that the price calculation is managed by the parent application.

#### **Counter source**

• **Counter def**: The counter used for the calculation.

### **Contract price agreement**

• Price agreement def: Select the contract price agreement from the dropdown.



Store calculation in

- **Property def**: Select the property definition.
- Property definition item: Select the property definition item.

### 23.2 Coupling Price Calculation to ObjectType (Application, Structure, Asset, Object node)

Coupling the price calculation to any type of object type is via the property definition. (See chapter property definitions)

### 23.3 Price Calculation in Live

If the price calculation node is synchronized, the calculation can be managed using the Contract Price Calculations live module. Open the ' Contract Price Calculations Live ' module and press the pencil icon to open the relevant price calculation.

Nama		D	Ford and added and added	Malua *	A	
Name		Property presentation	End calculated period :	value :	Acuons	
Price of the	Day	Contract Price	08/11/2019		Ê	

The 'enabled 'option allows you to turn the calculation on or off. It is also possible to put a calculation back in time by putting the date "End calculated period" in the past. But note: the historical data is then overwritten. In addition, there should be data from the underlying counter.

General	
LName	Dag prijs
LPresentationDef	Prijs per dag
LValue	
Live settings	
Enabled	
End calculated period	15/07/2019
Cancel Save	
### 24 Hardware Service Mode

Using the Hardware service mode module, certain settings in the hardware can be set for a short period of time. For example, if maintenance is performed on an Asset, it is useful that the hardware communicates more frequently with Avision than normally.

### 24.1 Service Mode Communication

In the Service Mode Communication module, the following settings can be adjusted: CommInterval, Sample time, Measure interval.

Communication service mode	Verbose leve	Service mode block signal input		
Service mode settings				
Duration	0	Hours 30 🔶 Minutes		
Comm interval	600	Seconds		
Sample time	30 🗳	Seconds		
Measure interval	30	Seconds		
Cancel Save				

### 24.2 Service Mode Verbose Level

The service mode verbose level adjusts the verbose level for a certain period of time.

Communication service mode	Verbose	level	Service mo	de block signal input
Service mode settings				
Duration	4	<b>\$</b>	Hours 0	Minutes
Verbose level	All	•		
Cancel Save				

### 24.3 Service Mode Block Signal Input

With the service mode block signal input, the following settings can be adjusted: Settling time and measure interval.

Communication service mode	Verbose level		Service mode block signal input		
Service mode settings					
Duration	0	\$	Hours 30	Minutes	
Settling time	15,000	\$	Milli sec		
Measure interval	30	\$	Seconds		
Cancel Save					

### 24.4 Start/Stop Service Mode

When the service mode settings are saved, automatically communication with the hardware is started and the state is 'Scheduled'. When the device has received the service mode request the state will change to 'Active' and the unit is in service mode for the entered period.

If a service mode is active, the status will be shown in the service mode screen. The course of service mode consists of the following states:

**Scheduled** : Service mode waits for the device, a communication request has been sent. The service mode will become active after the next successful communication session with the device.

Service mode comm	unication active	
Last refresh	2019-11-08 10:48:35	
Status	Active	
	24	
From	2019-11-08 10:42:05	
То	2019-11-08 11:12:05	
Comm interval	60	
Sample time	30	
Measure interval	30	
Stop		

**Active** : Service mode is active. De service mode settings apply. A progress bar shows the amount of time expired, the number at the end shows the expired time in percentage of the total time.

**Expired** : Service mode is expired, wakeup has been sent. Service mode will end after the next successful communication with the box.

### 24.5 Hardware Service Mode Shortcut on Monitor Screen

On a monitor screen a button can be placed which acts as a shortcut to the service screen.

### 24.5.1 Creating shortcut in Design

A special button can be created by dragging the 'Visual button control' on the digital layout canvas of a monitor screen. Then enter the label name, select 'Open hwmodule' at the 'Button function' dropdown and select 'Hardware service module' as the module to open when clicking the button.



### 24.5.2 Usage in Live

In live, the button can be clicked and the service mode module will be presented. When the service mode is in active state the button will have an orange striped border:



16

- 17

18

19

20

Also, a warning icon is shown on the asset node.

SW Markt

🛎 LG-Ebara-598542c4-2444-2302-9a48-019

🕕 SW Markt 🔔



### 25 Advanced Options

### 25.1 Activate Elements

Activate elements shows the tree of all the elements used with the version and activity state.

General	Categories	Elements	Menu buttons	History	Connections	Deployment	Advanced actions	
Activate e	lements ( beta)	Upgrade e	elements ( beta)					
Activate selected elements								
Activate	Selected							
Object	nodes : Streetligh	nt (Sandbox ve	ersion 1) 🔺 🛬	1				
🕑 Obje	ect nodes : Street	lightControl (S	andbox version 1 )	1 🎦				
🕑 Ir	nages : Device (I	nherited version	on 1) 🗸 🔁					
🗹 Imag	ges : Streetlight (	Sandbox versi	on 1 ) 🗸 對					
4								

Activate Selected : All selected object are activated.

Warning found ( $^{(4)}$ ) : A warning is found but the element can still be activated

Activate error (X): An error is found and the element can not be activated.

Sandbox version found ( $^{\triangle}$ ): A sandbox version is found.

#### 25.1.1 Upgrade elements

Upgrade elements shows the tree of all the elements used with the version and activity state with an upgrade icon if a newer version is found.

General	Categories	Elements	Menu buttons	History	Connections	Deployment	Advanced actions
Activate e	elements ( beta)	Upgrade	elements ( beta)				
Upgrade	elements						
Upgrade							
Object no	des : Streetlight (S	Sandbox versi	on 1 ) 为				
Object	nodes : Streetligh	tControl (San	dbox version 1)	•]			
Images	: Streetlight (Acti	ive version 1)	0 🎦				
1							

Upgrade: If newer versions are found the elements are upgraded to the newest version.

### 25.1.2 Create new Sandbox version

When creating a new sandbox version its possible to create sandbox version of all the elements where its used.

ſ	Streetlight	2	Active	20/01/2020 12:18:46	Ê	1 🖻 🎸

If the create sandbox icon is clicked a dialog is shown with elements where its used. The user has the possibility to create sandbox versions for alle the elements or only the current element.

Create new sand box version	×
Create sandbox version	
Images : Streetlight (Active version 2 ) Related items	
Object nodes : Streetlight (Active version 1 )	
Create sand box for related items	Only create sandbox version for selected item

### 26 Troubleshooting

### 26.1 Measured value is not shown at Asset level

A measured value coming from hardware must be used at the Asset level, but does not seem to arrive.

Checklist:

### 26.1.1 In Design

• Has it been indicated that the measured value of a datapoint should go to a property definition (item) ?

Hardware node – Menu item HardwareIO – go to the datapoint and click on the pencil icon. Check following fields:

- 'Sample destination' is set to 'Transferred' or 'Stand alone and transferred' ?
- Property definition field contains the right property definition ?
- Property definition item field is correct ?
- Has the property definition been added (coupled) to the Asset ?

### 26.1.2 In Live, Hardware node

- Has synchronization been run after the last change in Design ?
- Go to the hardware node, menu item Node Configuration, tab Revision. Are the correct Design en Live elements present ? (If not, then something went wrong with synchronization).
- Has there been communication with the device after synchronization ?
   On the hardware node, menu item Datapoints, check whether there's a value and check the timestamp (= last time the value was read in the device).

- Just to be sure, do another wake up: On the hardware node, go to menu item Hardware, on top of this screen there's a wake up button. And give it time.

### 26.1.3 In Live, Asset node

- On the Asset node, Menu item Datapoints, does the datapoint have a value ? When was the last time it was read ?
- At Node Configuration, Derivatives tab : Have the connections been made between hardware datapoint and property definition item ?
   NODE CONFIG

Identifier	Object nodes	Revision	Derivative	Source last refresh moment							
	Hardware node Property presentation def										
Analog - Av	ision - air pressure	- air pressure	value	442_SW Markt	•	Analog - Internal in - air pressure					
Analog - Av	ision - External terr	nperature - PT	-1000	442_SW Markt		Analog - Cmin - Al 1	•				
Analog - Av	ision - LightGate Te	emperature - T	emperature	442_SW Markt	•	Analog - Internal in - Ambient temperature	•				
Analog - Av	ision - Master data	pump - Capa	city Max.	not used	•	not used	•				
Analog - Av	ision - Master data	pump - Capa	city Min.	not used 🔻		not used					
Analog - Av	ision - Master data	pump - Heigh	t	not used	•	not used	•				
Analog - Av	ision - Master data	pump - Lengt	h	not used		not used	•				
Analog - Av	ision - Master data	pump - Powe	r	not used		not used	•				
Analog - Av	ision - Master data	pump - Volum	ne	not used		not used					
Analog - Av	ision - Master data	pump - Weigh	nt	not used	•	not used					
Analog - Avision - Master data pump - Width		not used		not used							
Analog - Av	Analog - Avision - water level - water level			442_SW Markt 🗸		Analog - Cmin - Water Level					
Blob - Avisi	on - Small Inspectio	on Reports - R	eport	not used	•	not used	•				



 At Node configuration, tab Revision, are the correct Design and Live elements present ? <u>NODE CONFIG</u>

Identifier	Object nodes	Revision	Derivative	Source last refresh moment
Tag type se	lection		Analog	<b>•</b>
Design and	l live elements			
Design eler	nent		Live eleme	ent
air pressure	e - air pressure valu	ie (content)	air pressu	ure - air pressure value
External ter	nperature - PT-100	0 (content)	External	temperature - PT-1000
LightGate T	emperature - Temp	erature (conte	nt) LightGate	Temperature - Temperature
Master data	a pump - Capacity I	Max. (content)	Master da	ata pump - Capacity Max.
Master data	Master data pump - Capacity Min. (content)			ata pump - Capacity Min.
Master data	a pump - Height (co	ontent)	Master da	ata pump - Height 💌
Master data	a pump - Length (co	ontent)	Master da	ata pump - Length 🔹
Master data	a pump - Power (co	intent)	Master da	ata pump - Power 🗸 🗸
Master data	a pump - Volume (c	ontent)	Master da	ata pump - Volume 🔻
Master data	Master data pump - Weight (content)			ata pump - Weight 👻
Master data pump - Width (content)			Master da	ata pump - Width 💌
water level	- water level (conte	ent)	water lev	el - water level 🗸

### 26.2 Tasks

#### 26.2.1 User sees no tasks

The moment a workflow is started, the tasks are created for the users who are supposed to execute these tasks.

Has a role been added to the task ? When yes: Did the user have this role (via a user type) the moment the task was created ? If not: Stop the workflow, hand the user the needed role(s) using user types so the user can execute the roles. Then start the workflow again. Now the user should be able to see the task(s).

#### 26.2.2 User can not start the task; no rights ?

Probably the role needs checkmarks for the Task module :

+ Basic elements	OVERVIEW ROLES >> EDIT	ROLE: SEWE	RWELLMONIT	OR			
+ Filter elements	Tables	Show					
+ Visual elements	Task workflow	Show	Edit	Add	Delete		
+ Activity elements	Tasks	Show	Edit	Add	✓ Delete		Admin
- User elements	Test bank units	Show	Edit	Add	Delete		
Roles	User history	Show					
User types	Users	Show	Edit	Add	Delete		Admin
+ Application Management	Workflow plannings live	Show	Edit	Add	Delete	Сору	
	Workflows	Show	Edit	Add	Delete		Admin
	Xbus	Show	Edit				
	Xbus device	Show	Edit	Add	Delete		
	Cancel Save						

### 26.3 Alarms

### 26.3.1 Alarm does not send SMS or Email

- Check in Live that the alarm has been generated. Look at the correct level (usually hardware or asset, but this may differ) in het menu item 'Alarm screens'.
- When the alarm is shown in the Alarm screen, then look which scenario is used by the alarm.
- Check at the Message tab of the Scenario the correct options are check marked. (SMS, E-mail, Webservice)
- Check whether a Scheduler was selected at the Schedules tab of the Scenario.
- At the Scheduler tab the persons that should receive the SMS or Email should be indicated:

• ٩ ★	+ Analyse	SCENARIOS >> ITEM: HIGH WATER LEVEL	
Manual	Notification     Alarm screens     Scenarios	General Message Schedules Connections Schedules	
SewerManagement     SewerManagement     Seglum     Metherlands     Gemeente Maasdriel	Schedulers      Application      Work	Select schedule     Add       Label     : Actions       Always On     Image: Comparison of the second schedule       Image: Comparison of the second schedule     Image: Comparison of the second schedule	
		Always On Available Group: Gemeente Zaltbommel - first-line troubleshooters User: Gemeente Zaltbommel - John Jones User: Manual - Designer	Selected User: Manual - Manual_Student1

• Has the email address or the mobile (cell) phone number been set at the user's account ?

### 26.4 Revision Management

26.4.1 Cannot set upgrade to next version

Upyrauc	region	1	1	1	U	manage
Hardware nodes						
🖌 🗳 LightGate						
Upgrade	SewerWell		 1	1	0	Manage
Title	<u> </u>	1				

The dropdown does not show the next version (here it should have been 2)

Check:

- You have coupled the node to another node ?
- The node version you want to upgrade to has state active ? (AVIC employees can use the 'OverrideSandboxRules' check mark to bypass this for special cases).