Application Note
Smart Safety Link - PAVIRO and FPA configuration   v1.0

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Integrated Fire detection and PAVIRO

This application note describes how to configure a Bosch FPA 5000 fire panel in combination with a PAVIRO Voice Evacuation System.

1. Introduction

Smart Safety Link is the most reliable and secure way to combine Fire Detection and Voice Alarm. Each system meets the highest standards for quality, safety and functionality and offers exceptional flexibility and options for expandability.

The result is a future-proof installation supported by a world leader in fire detection and voice alarm. The activation of each evacuation zone is completely monitored by the fire panel and is clearly displayed on the user interface as well. Smart Safety Link easily supports multi stage evacuation which ensures a highly effective approach to emergency situations.
Bosch's interfaced fire detection and voice evacuation solutions can be tailored to any size of business or institution from retail shops, department stores or supermarkets to hotels and offices as well as airports, universities or shopping malls can be secured by Bosch. The system is designed for expandability, and all the devices and peripherals work seamlessly together. PAVIRO is using the Smart Safety Link over IP Ethernet to interface with the Modular Fire Panel 1200 or 5000 Series

All-in-one
protection

Detector signals to Fire Panel

Smart Safety Link

Voice Alarm messages
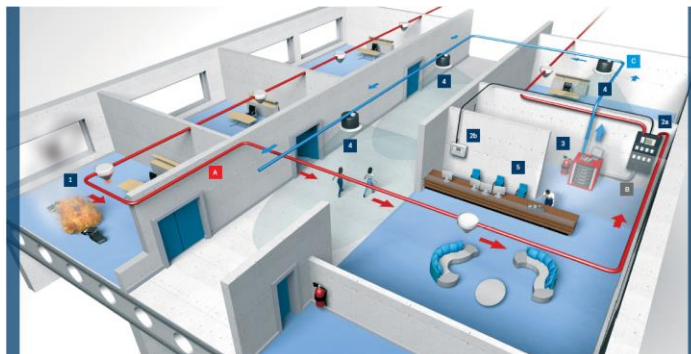
2. Hardware and Software

The Smart Safety Link can be implemented by various topologies. This application note describes a direct connection by one cat.5 Ethernet cable. Other topologies are explained at the FPA-5000 Networking Guide.

Hardware

Voice Alarm (minimum requirement)
1) 1x controller PVA-4CR12
2) 1x amplifier PVA-2P500

Fire Detection
1) 1x MCP-xxxx-B/C or FPA-1200-(C)
2) 1x ADC-5000-VA or ADC-5000-OPC-VA

Software
IRIS-Net (from V3.0.0 onwards)
FSP-5000-RPS remote Programming software FPA: V4.5.6 (from V4.3 onwards)
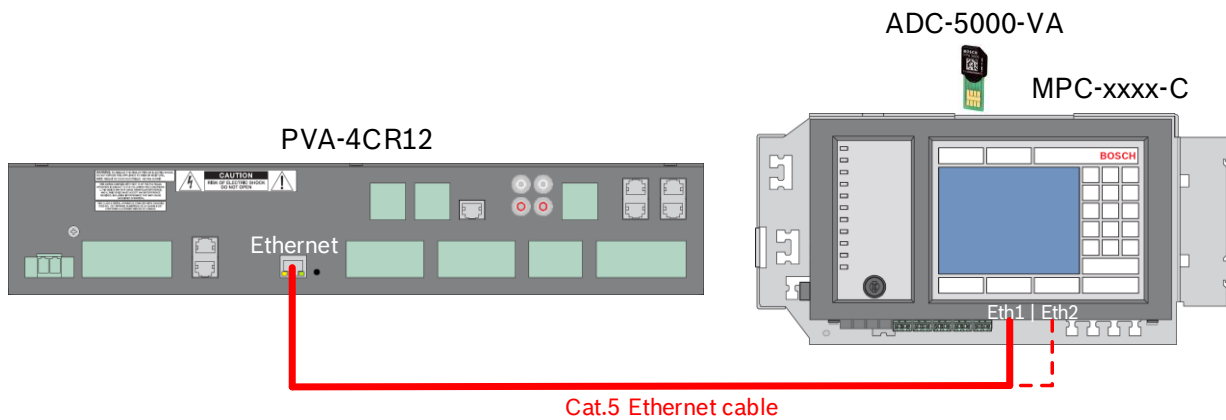Panel controller firmware: V2.16 (from V2.11 onwards)
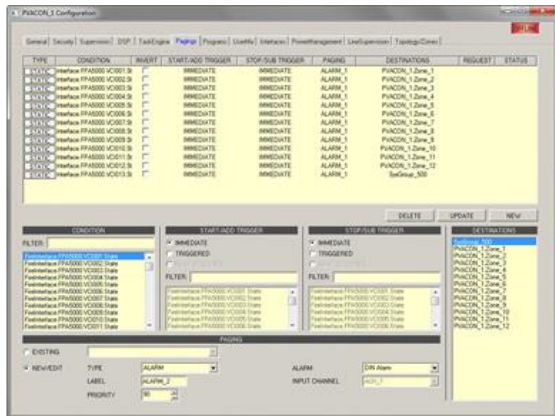

Figure 1: connection diagram

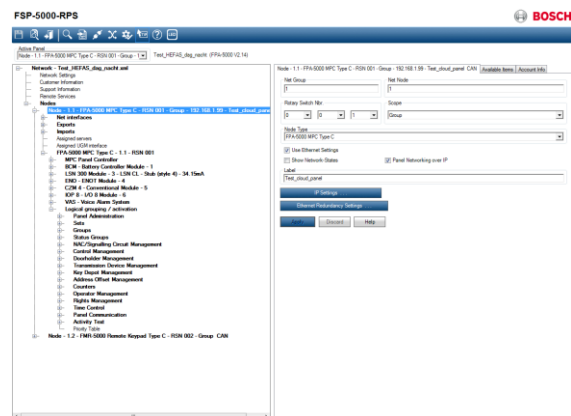*Figure 2: IRIS-Net Configuration software*

*Figure 3: FSP-5000-RPS Configuration software*

# 3. Configuration

3.1 PAVIRO configuration software - IRIS-Net

The software configuration focuses on connection with the FPA panels.
(For detailed PAVIRO system configuration, a PAVIRO training is required.)

Activate Smart Safety Link

1) In the Interfaces tab of the controller in IRIS-Net enable the FPA 5000 interface by selecting the "ENABLE" checkbox. Below this checkbox there is an option to add a username and password as defined in the FPA.
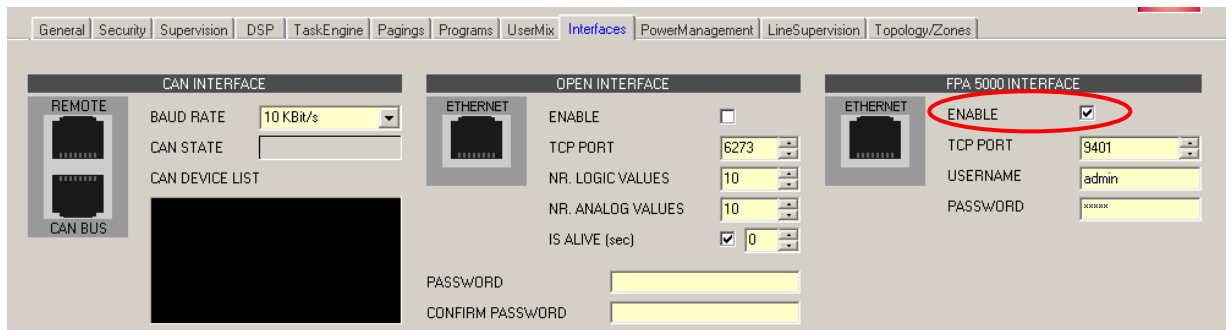

2) Make sure that your PC and/or network allows communication via the specified TCP port.

3) By enabling the FPA 5000 interface you will automatically have 244 FPA virtual trigger available in the system.
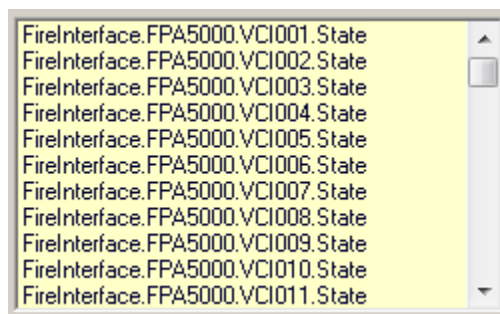
4) In the "Pagings" tab of the controller in IRIS-Net you can assign each virtual trigger to a specific type of paging e.g. an evacuation message, and to destinations i.e. a specific zone or a group of zones.
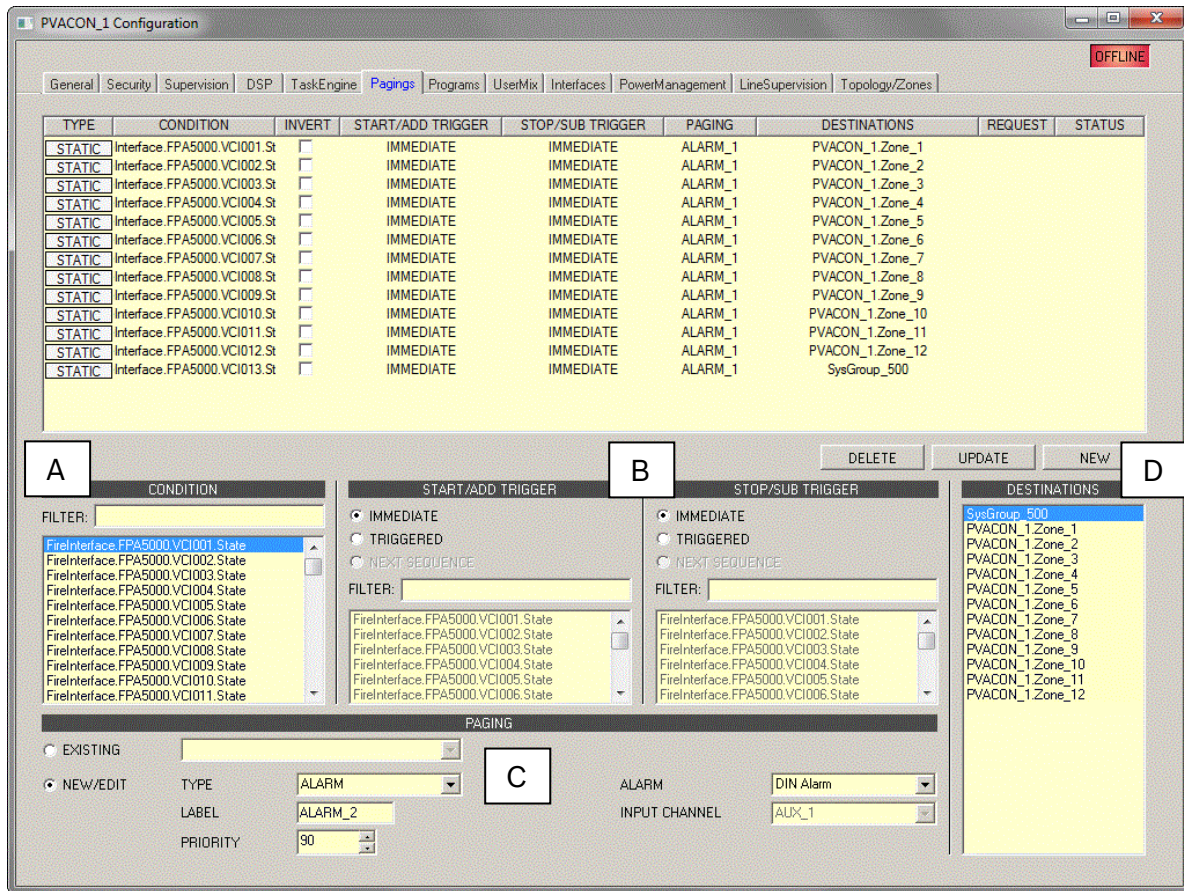
A	Select the required virtual trigger (click left mouse button)
B	By default the trigger starts and stops immediate. It is also possible to start and stop the active paging by another trigger. This also allows to add or subtract zones to an active paging.
C	Select the required paging type via the drop down next to "TYPE", see list below:
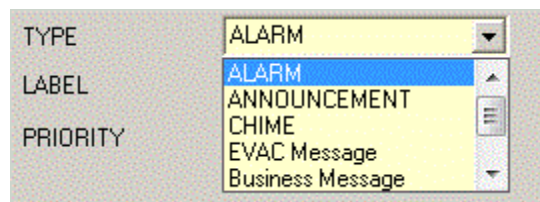
By adding a label the paging type can be used again for another trigger. Check the radio button in front of "EXISTING" in order to select it again via the drop down menu next to it. Priority can be set from 0 – 100 where 100 is the highest priority.

Paging types

Each paging type has specific options related to e.g. selection of system alarms/chimes, messages etc. Below an overview of each paging type and the available options.

ALARM

Available alarms:

DIN Alarm	Two-Tone Alarm
Slow Whoop	Telephone Alarm
Siren	Ship Alarm 1 up to 17

It is also possible to select an external alarm available on one of the audio inputs of the controller.

Available input channels:

AUX_1	CST_1
AUX_2	CST_2
MIC/LINE_1	CST_3
MIC/LINE_2	CST_4

D Select the required destinations (click left mouse button). More zones can be selected by keeping the left mouse button pressed and move the mouse or by keeping the <ctrl> key on the keyboard pressed and click on each zone individually.

When all parameters are set press the "NEW" button. The paging will be listed in the paging overview.

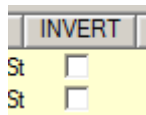In this overview there are two additional options:
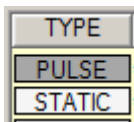
TYPE
PULSE
STATIC

STATIC or PULSE in the "TYPE" column on the left.
    STATIC: the paging is active as long as the trigger is active
    PULSE: the paging is triggered once and remains active until a
            dedicated stop signal for the type PULSE occurs

*Note: this option is available from IRIS-Net version 3.1.x.*

INVERT
St ☐
St ☐

INVERT column.
    The action of the trigger will be inverted when this checkbox is selected.

Advanced Paging

For more advanced users of IRIS-Net there is also the option to use the Task Engine and create custom made configurations. The advantage of using the Task Engine is that you are more flexible in triggering anything within the PAVIRO system. Where the "Pagings" tab allows you to select one alarm message or external input the Task Engine will give you the option to trigger e.g. alternated messages or a phased evacuation.

Below an example of an *alternating message solution* and a short explanation how it works.
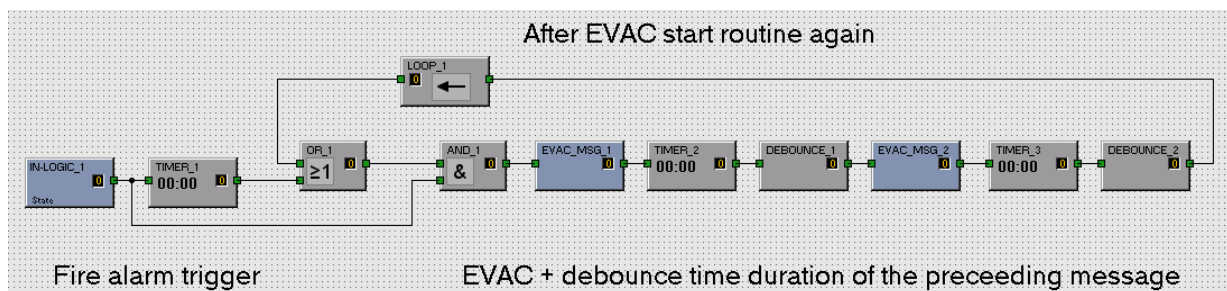
The IN_LOGIC_1 block is assigned to a virtual trigger of the FPA 5000.
All FPA 5000 objects are available in the Task Engine, see picture on the right.

Once the trigger is active it will set the IN_LOGIC_1 block to 1 and activate TIMER_1 to create a pulse for 1 second. This will initiate EVAC_MSG_1 via the OR_1 and AND_1 block because they will both be set to 1 for the period of 1 second.
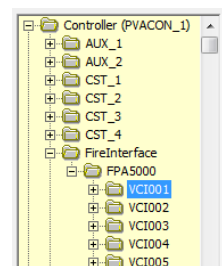
At the moment EVAC_MSG_1 starts it will trigger TIMER_2. This timer is set for the exact duration of the message plus 1 second. Once the timer is active it will trigger DEBOUNCE_1 which is set to the exact duration of the message. The result is a pulse of 1 second at the output of the debounce block after the message is finished triggering EVAC_MSG_2.

TIMER_3 and DEBOUNCE_2 will be triggered as soon as EVAC_MSG_2 starts. When the message is finished a puls of 1 second on the output of DEBOUNCE_2 will be looped back via LOOP_1 to the OR_1 block. The OR_1 block is linked to the AND_1 block and as long as IN_LOGIC_1 is active i.e. the FPA 5000 trigger is active, the process will start again by triggering the first message. As soon as the FPA 5000 trigger is not active anymore the output of AND_1 will remain zero and the process stops.

Note: this Task Engine solution can also be used in combination with e.g. the physical control inputs of the system by assigning the IN_LOGIC_1 block to that specific input.

Configuration upload

Upload the configuration from the PC to the PAVIRO controller. Connect the PC to the Ethernet connection of the controller. This can be done direct from PC to the controller as shown in figure 4 or via a network.
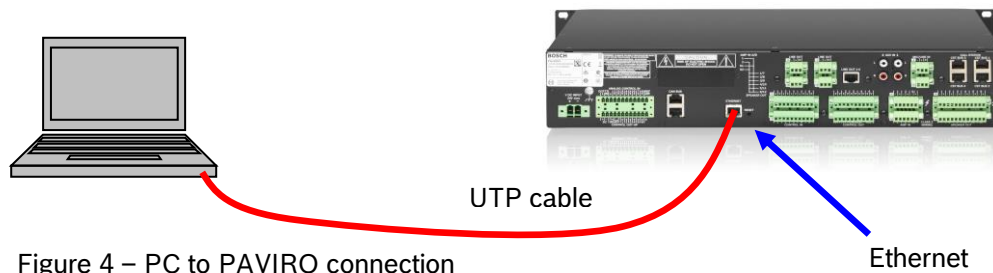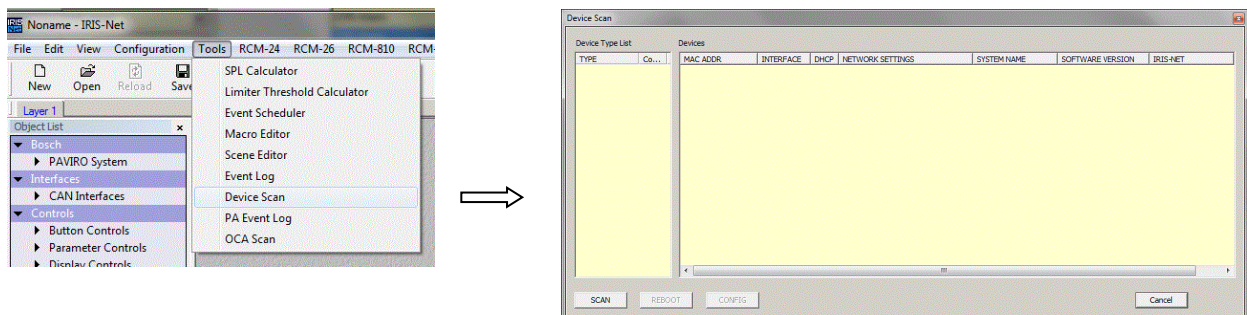

UTP cable

Figure 4 – PC to PAVIRO connection

Ethernet

Make sure that both PC and controller are in the same IP range and subnet and that communication via TCP port 6271 is allowed and not blocked by any firewall or such. The default IP address is 192.168.1.100. This address can be changed via the Device Scan tool in IRIS-Net. Click on Device Scan and a new window will open:


Click on "SCAN" and the connected device(s) will become visible. Select the applicable device and click on "CONFIG". You will be asked to enter a username and password. The username is "admin" and the password is "0000" (four times zero). Now you can change the IP address.

Go Online and upload the configuration.

When new business messages are used don't forget to select the check box in front of "Upload Business Messages (overwrites hot swapped messages)".

Note that in this window also the IP address of the controller is visible. In this example the IP address has been set to 192.168.1.101

The specific settings for communication with the FPA panel are now set.
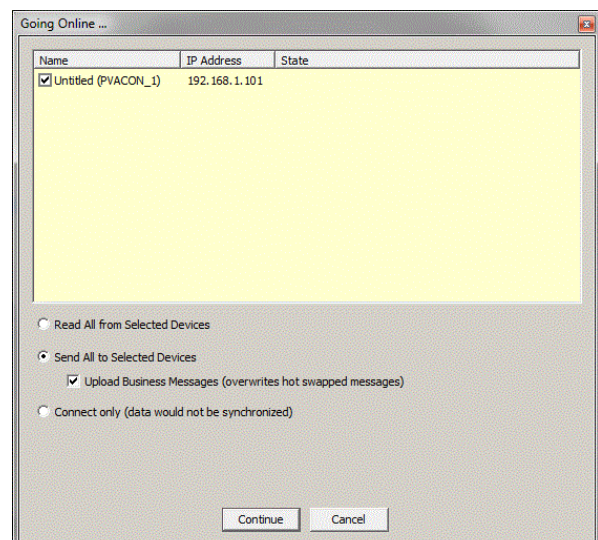
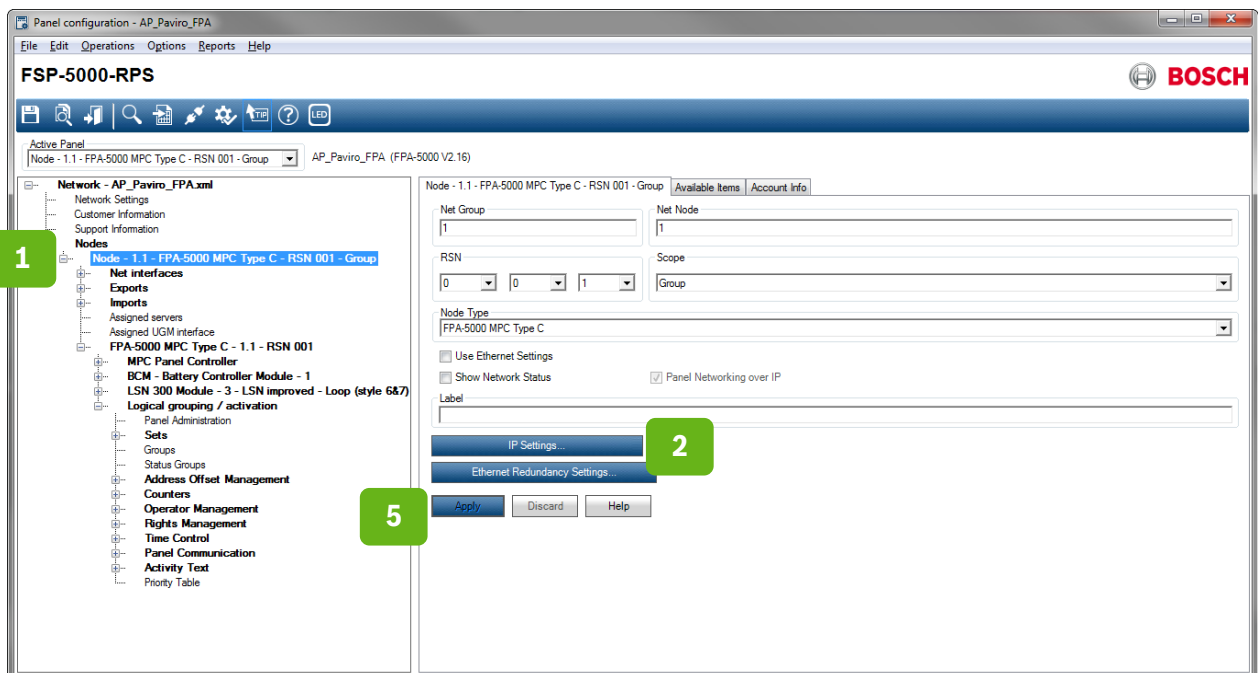### 3.2 Fire Panel configuration software - FSP-5000-RPS
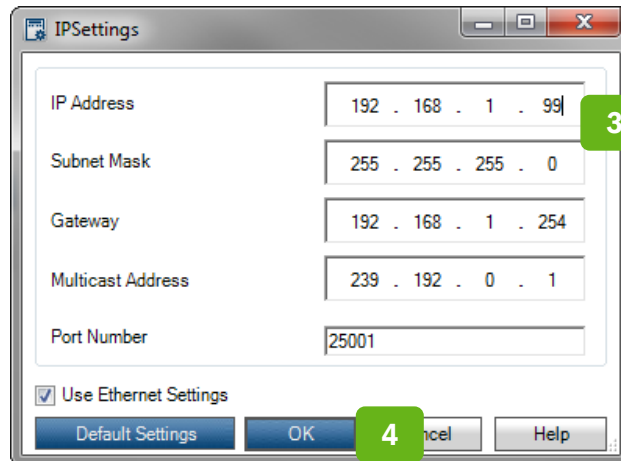

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The software configuration focuses on connection with PAVIRO.
(For detailed fire panel configuration, a FPA training is required.)

Activate Smart Safety Link

1) Under "Nodes" select the FPA-5000 (or FPA-1200) fire panel which is connected to PAVIRO.


2) Press the button 'IP Settings' to access the following window

3) Create a unique IP Address for the fire panel.
   Remark: the panel IP address and the subnet must be in the same range of PAVIRO
4) Press 'OK' to confirm the IP settings.
5) Press 'Apply" to continue and safe the settings.

6) Select the MPC (Main Panel Controller) of the panel
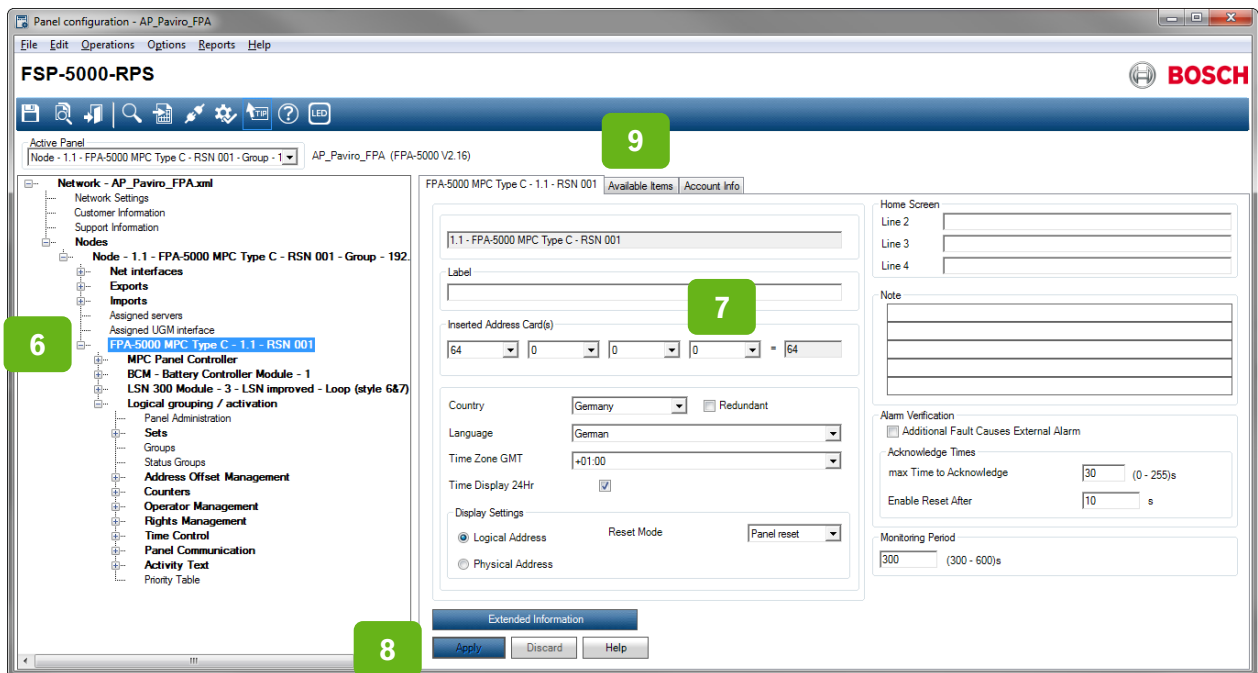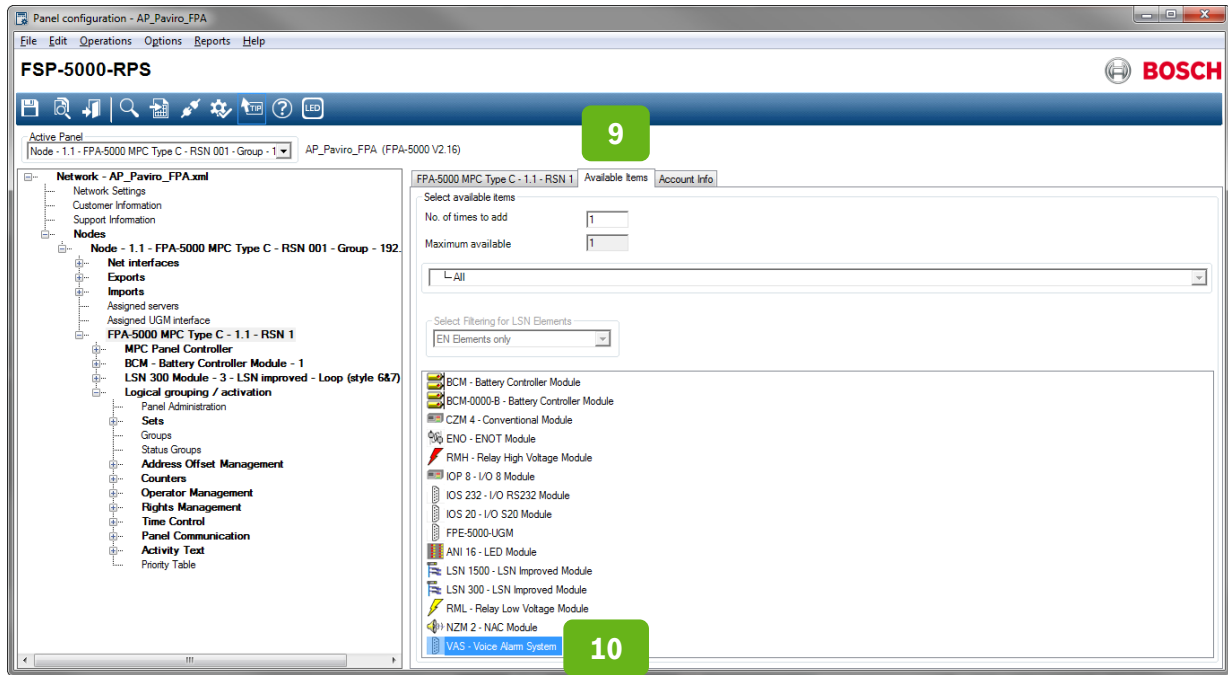
7) Use the dropdown box to select the type of address card which is added to one of slots at the back of the panel controller
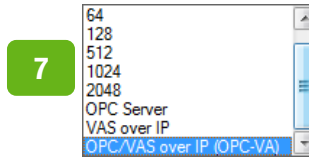
8) Press 'Apply' to continue and safe the settings.

9) Select the tab 'Available Items'

10) Select VAS – Voice Alarm System and double click to add it to the panel configuration
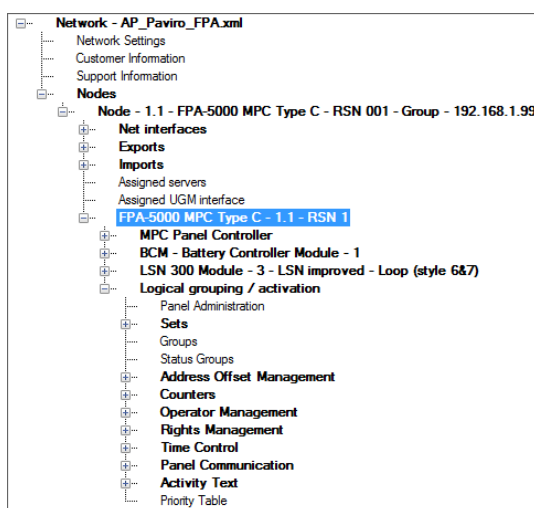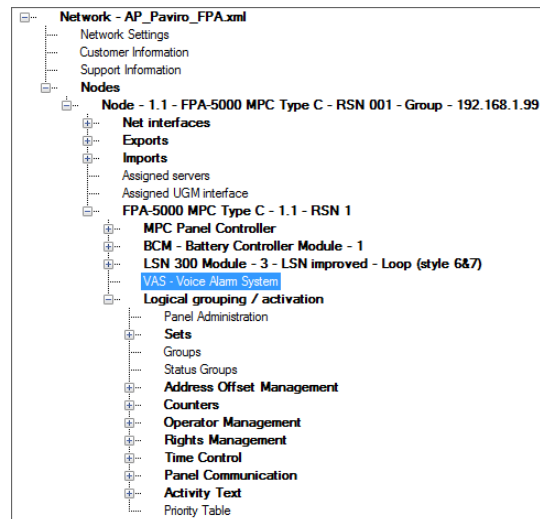
Before   *After adding VAS*
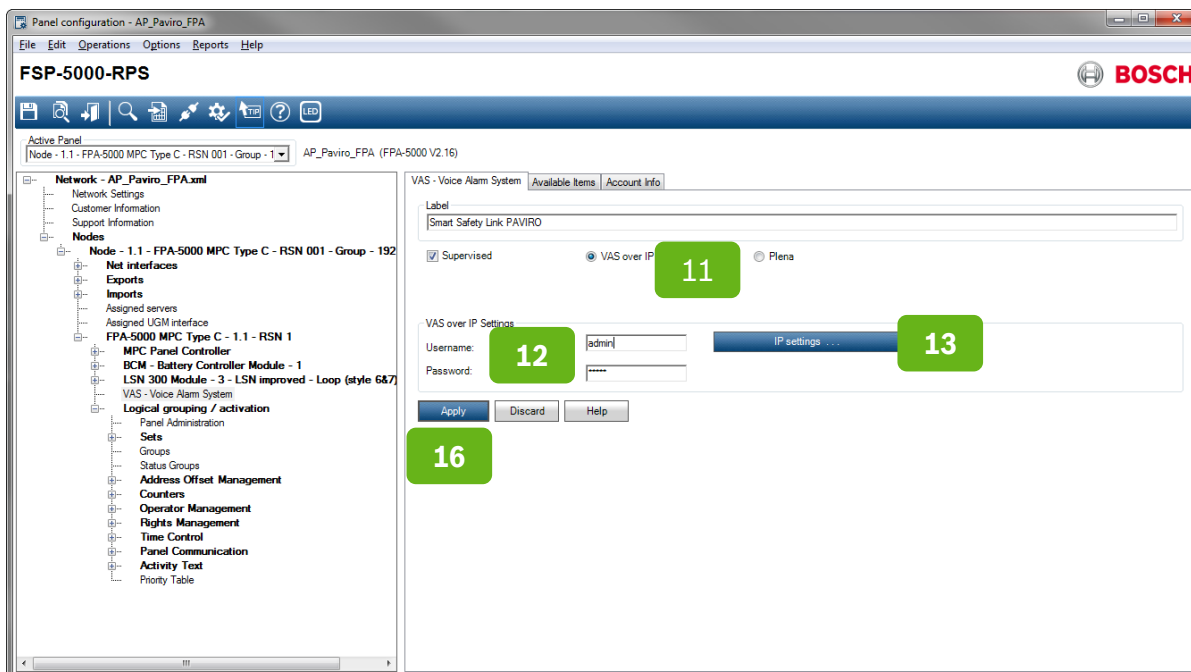
11) Select the radio button 'VAS over IP' for Smart Safety Link with PAVIRO or Praesideo.
12) When PAVIRO is protected with a password, it must be added in the field 'Username:' and 'Password:'. If not these fields must be empty.

FSP-5000-RPS   *IRIS-Net*
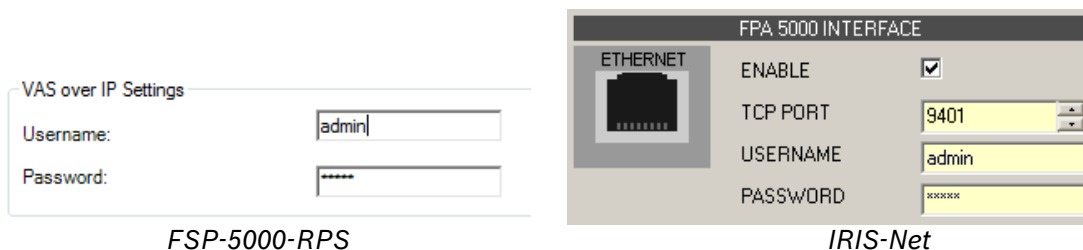
Remark: the username and password must be identical in PAVIRO and FPA

13) Press on the button 'IP settings ...' to access the next window.
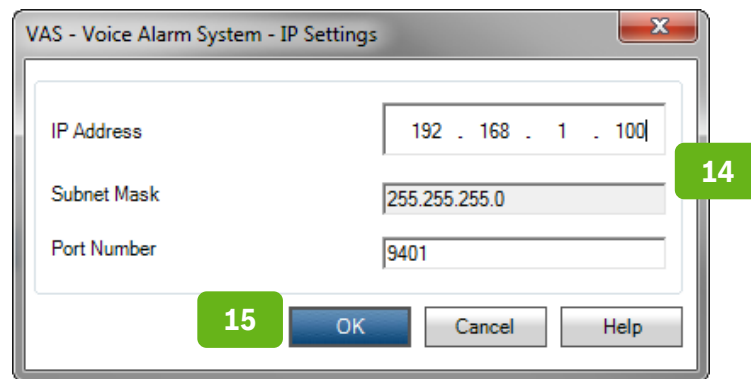
14) Add the IP Address, Subnet Mask and Port Number of the PAVIRO
    Remark: this mus be identical with the configruation in IRIS-Net
15) Press 'OK' to confirm the IP settings.
16) Press 'Apply" to safe the settings.

The fire panel and PAVIRO can now be interconnected through Smart Safety Link. The link is now in operation meaning that the connection between the fire panel and PAVIRO is secured and supervised.

Assign and configure Virtual Triggers

In order to activate zones and messages one or more Virtual Triggers must be configured. Each Virtual Triggers needs to create a realtion between a Signalling Circuit (NAC) of the FPA and the Trigger Number in PAVIRO

a) Click with the right mouse button at 'VAS – Voice Alarm System'
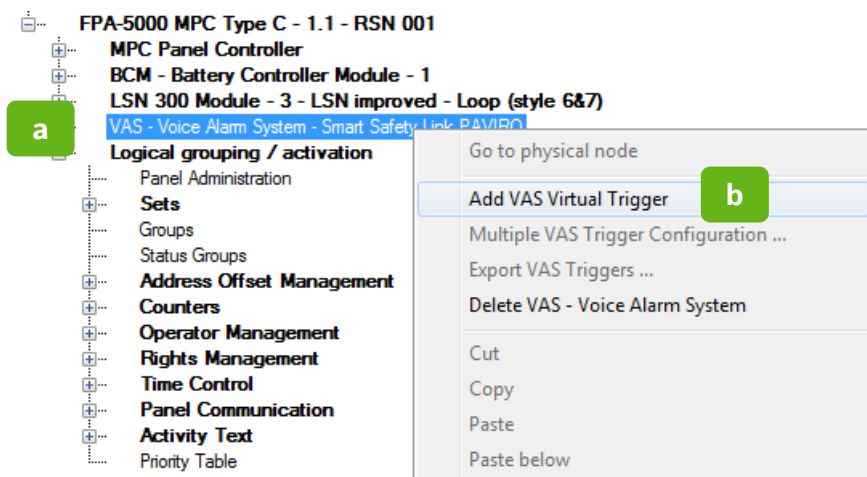
b) Select 'Add VAS Virtual Trigger'

c) A new 'Virtual Trigger' is created'
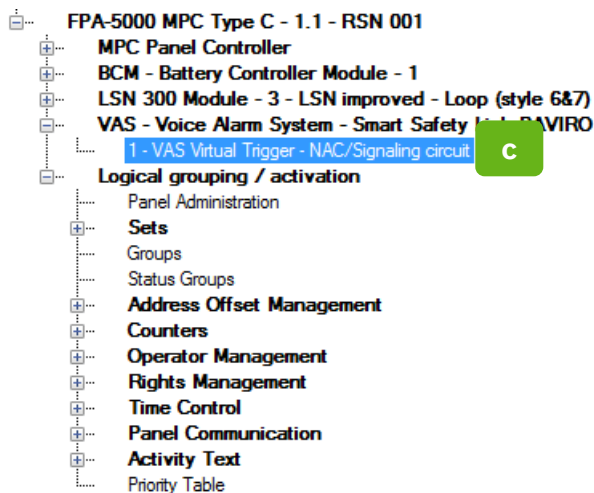
On the right side of the window, the 'Virtual Trigger' needs to be configured.
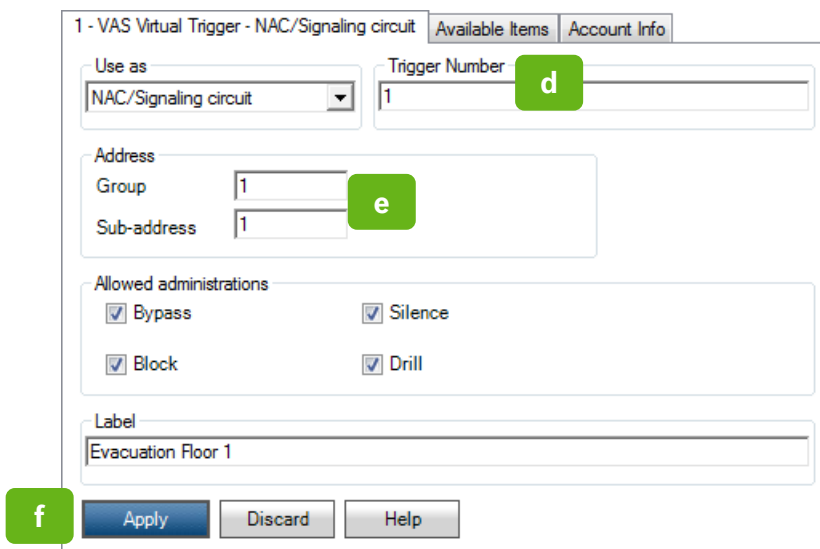
d) The field 'Trigger Number' contains the ID number of the 'Virtual Trigger' configured in IRIS-Net. It's mandatory that this trigger number corresponds to the actual trigger of PAVIRO.
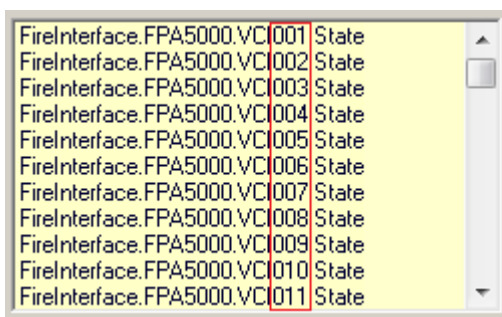
List of triggers in IRIS-Net ('Pagings' tab)

e) Add and unique logical address to the trigger. This address will be used by FPS-5000-RPS for further configuration and activation of the virtual trigger.

f) Press 'Apply' to save and continue.

The virtual trigger is now seen by the panel as a standard signaling device. To activate the virtual trigger a configuration similar to other signaling devices is required.

g) Click with the right mouse button at 'VAS Virtual Trigger' and select 'Go to logical node'

```
FPA-5000 MPC Type C - 1.1 - RSN 001
    MPC Panel Controller
    BCM - Battery Controller Module - 1
    LSN 300 Module - 3 - LSN improved - Loop (style 6&7)
    VAS - Voice Alarm System - Smart Safety Link PAVIRO
        1 - VAS Virtual Trigger - 1/1 - NAC/Signaling circuit - Evacuation Floor 1
    Logical grouping / activation
        Panel Administration              Go to logical node           g
        Sets
        Groups                            Delete VAS Virtual Trigger
        Status Groups
        NAC/Signalling Circuit Management Cut
        Address Offset Management         Copy
        Counters                          Paste
        Operator Management               Paste below
        Rights Management
        Time Control
        Panel Communication
        Activity Text
        Priority Table
```
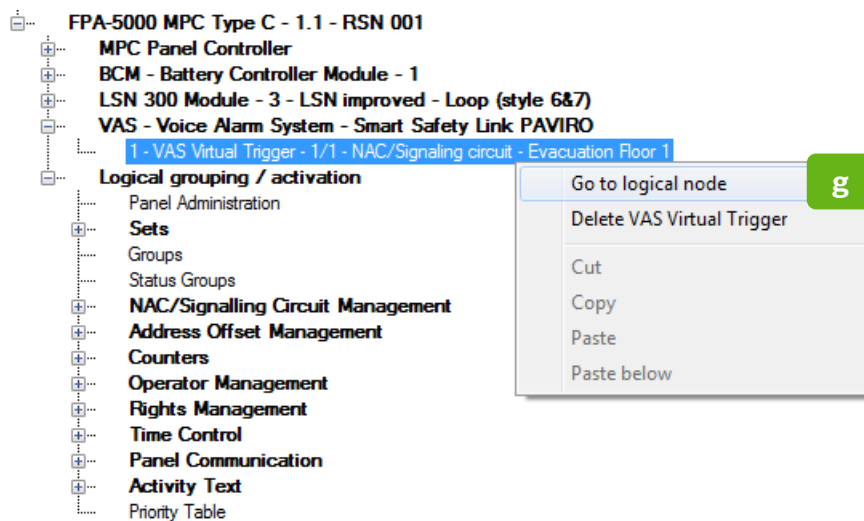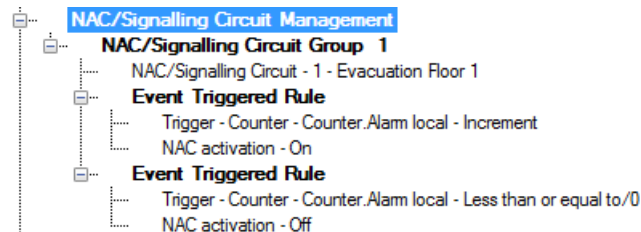
A set of two 'Event Triggered Rules' are automatically created.

```
NAC/Signalling Circuit Management
    NAC/Signalling Circuit Group  1
        NAC/Signalling Circuit - 1 - Evacuation Floor 1
        Event Triggered Rule
            Trigger - Counter - Counter.Alarm local - Increment
            NAC activation - On
        Event Triggered Rule
            Trigger - Counter - Counter.Alarm local - Less than or equal to/0
            NAC activation - Off
```

By default the virtual trigger is activated in case of a general alarm event on the fire panel.
For modifying or adapting this set of 'Event Triggered Rules' a FPA training is required.

Repeat steps 'a' to 'g' for each separate virtual trigger.