Raytec MOBOTIX HUB Plug-in User Guide
Document Revision 3.3

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1   Introduction

This guide will help you install, configure and operate your Raytec network illuminators within your MOBOTIX HUB Software. Once configured you will be able to control and activate your illuminators in response to pre-configured system events, and in accordance with specific illumination settings. These events can be triggered via MOBOTIX HUB alarms (e.g. camera, detector, illuminator photocell etc), which in turn can activate/deactivate your illuminator. System events, and alarms from the illuminator (e.g. photocell), are also able to control other network devices available in the MOBOTIX HUB system.

The Raytec MOBOTIX HUB Plug-in provides many features that can provide you with multiple possibilities for controlling your illuminators, these range from simple illuminator on/off commands to timed commands that allow you to increase the power of the illuminator for a period of time before reverting to the previous power level.

1.1   On/Off Triggers

You can set a trigger to simply switch an illuminator off or on at a certain power level when an event occurs in the MOBOTIX HUB system. When this is done the illuminator will remain in that state until another event changes the state of your illuminator.

1.2   Deterrent Triggers

Your illuminator comes with built-in deterrent patterns that can be triggered when an event occurs in your MOBOTIX HUB system. You can choose from three patterns:

Wave – Cycles from minimum power increasing to maximum power and back again
Hi-Lo – Switches from minimum power to maximum power and back again
SOS – The illuminator flashes to the SOS pattern

On Hybrid illuminators, deterrent mode switches on the White Light (WL) on the illuminator.

1.3   Timed Triggers

With a timed trigger you can switch your illuminator on, alter the power level or activate the deterrent mode for a fixed period of time, when this time elapses you can also choose whether to switch the illuminator off or to revert to the power level the illuminator was at before the trigger occurred. This is especially useful for a short-term higher power level or for a burst of deterrent mode to notify people that a camera is monitoring them.

1.4   Boost Trigger

The Boost function provides the ability to overdrive the illuminator and boost to 110% power for a short period of time. The boost trigger can be used to provide additional illumination on scene e.g. to help focus a camera or to view a subject/detail on scene more clearly. This has a default period of ten seconds that is not configurable and has a two-minute cool down period before it can be activated again.

Boost is not available on Hybrid illuminators.

1.5   Alarms

Alarms (e.g. camera, detector, illuminator photocell etc), can trigger pre-configured system events, which in turn can activate/deactivate your illuminator in accordance with your specific illuminator settings.

Alarms from the illuminator (e.g. photocell), are also able to control other network devices available in the MOBOTIX HUB system. Each illuminator can report the status of its photocell and external input to the MOBOTIX HUB system. These can be accessed in the alarm section of the management application where you can trigger events that can be used with other devices on your system.

1.6   Manual Control

When running the MOBOTIX HUB Client application the users have access to individual illuminators and groups of illuminators that you have configured in the management application. This allows them to override the illuminators' status on the system temporarily. For instance, they can choose to put a group of illuminators to full power in a selected area or activate deterrent mode on an individual illuminator. These actions are timed by the system and will revert to the illuminators previous state once this time elapses.

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2   System Requirements

2.1   Pre- Requisites

- MOBOTIX HUB Software
- .NET framework 4.7.2
- Illuminator support:

Illuminator	Minimum supported firmware version
Vario IP POE	v1.1.0
Vario2 IP POE	v2.0.1
Vario2 Hybrid IP POE	v3.1.0

Note: Illuminators must be set to **VMS** or **VMS + local** mode.

The Raytec MOBOTIX HUB plug-in is compatible with MIP supported MOBOTIX HUB products. These are:

- MOBOTIX HUB Level 5
- MOBOTIX HUB Level 4
- MOBOTIX HUB Level 3
- MOBOTIX HUB Level 2

2.2   Hardware Requirements

- Windows 10 or Windows Server (Versions 2008 R2 and 2016 tested)
- 10 MB free HDD space
- 512MB RAM

Note: The requirements for the MOBOTIX HUB software should have also been met before this installation is performed.

3 Raytec MOBOTIX HUB Plug-in Installation Instructions

Note: You must be logged on as an administrator to install this program.

Close any open MOBOTIX HUB applications such as the Management Client or the Video Client and run the Raytec MOBOTIX HUB Plug-in Installer by double clicking on it.

Click the next button.
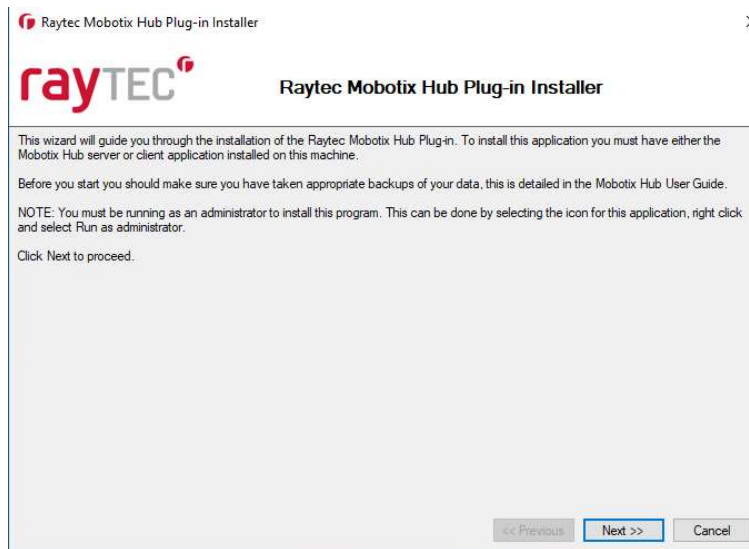
Click "I agree to the terms and conditions" and click next.
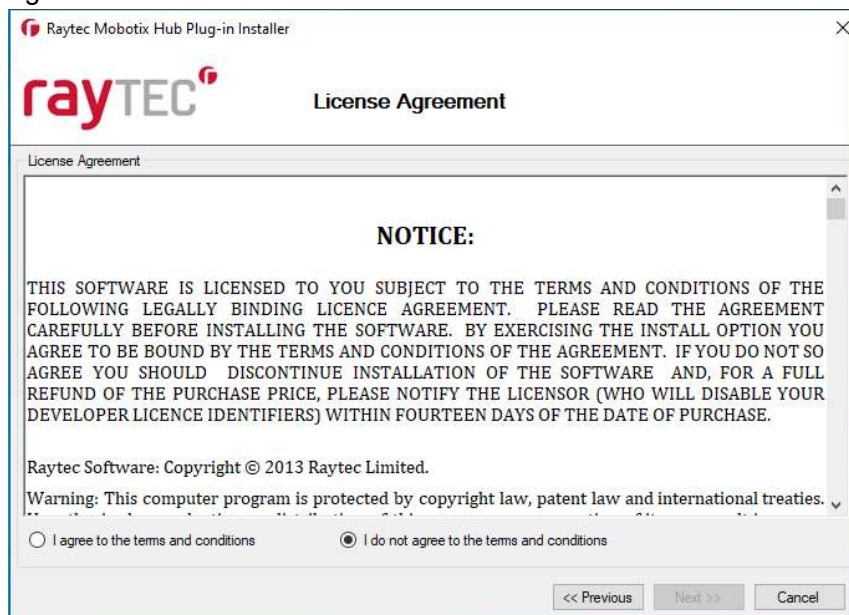
The installation should detect your MOBOTIX HUB installation folder, if it does not ensure that MOBOTIX HUB software is installed on the machine.

Click finish and the installation of the Raytec MOBOTIX HUB Plug-in will proceed, once the installation is complete you will be ready to configure your system.
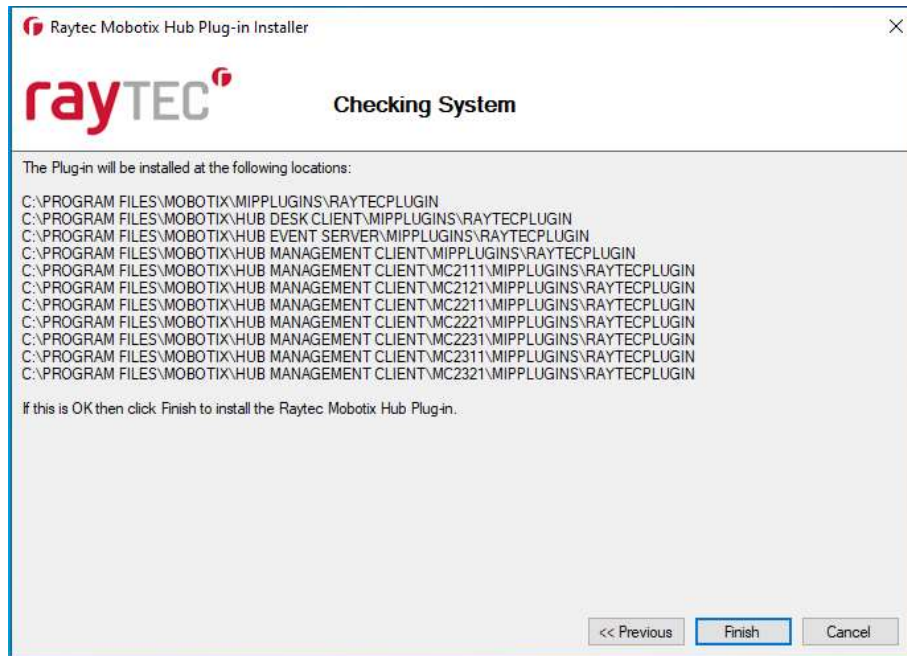
Please note that it will be necessary to restart the MOBOTIX HUB server once installation is complete, the event server must be restarted in order for it to recognise that the Raytec MOBOTIX HUB Plug-in is available.

4   Using the Raytec Discovery Application

When purchasing your Raytec network illuminators you will have been supplied with a software package called the Discovery Application. This application allows you to configure and check the illuminators on your network. A full instruction manual comes with the Discovery Application and you should refer to this for detailed information on configuring illuminators using it. This section will detail the steps that allow you to add lamps to the MOBOTIX HUB system.

Open the Raytec Discovery Application and you will be presented with the following window.
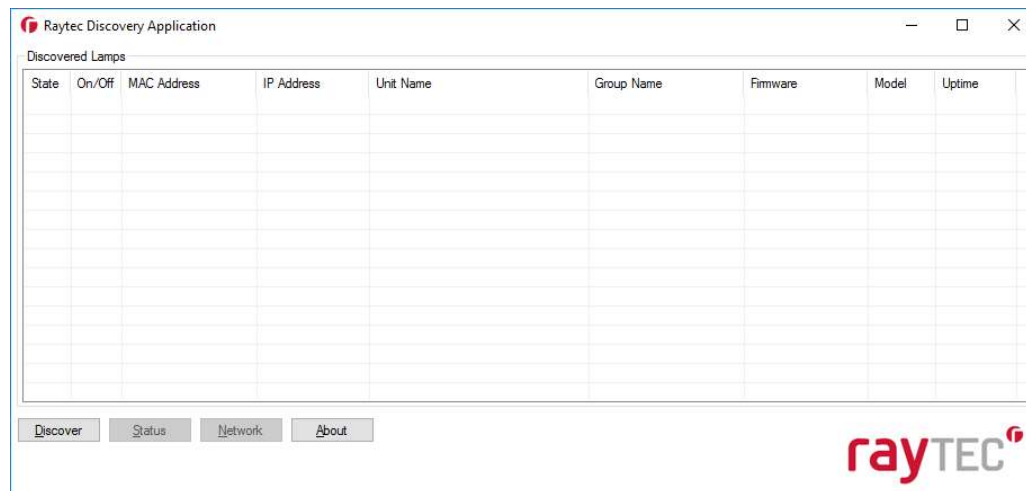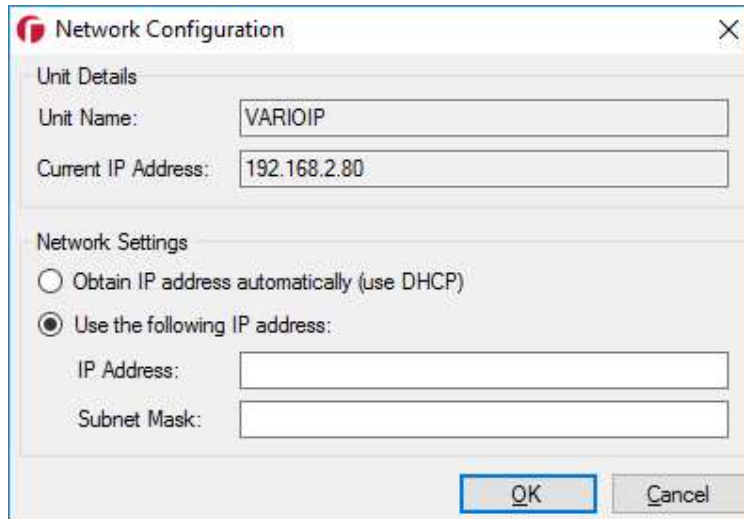
Click the *Discover* button and any Raytec network illuminators that are on the network should appear in the list.

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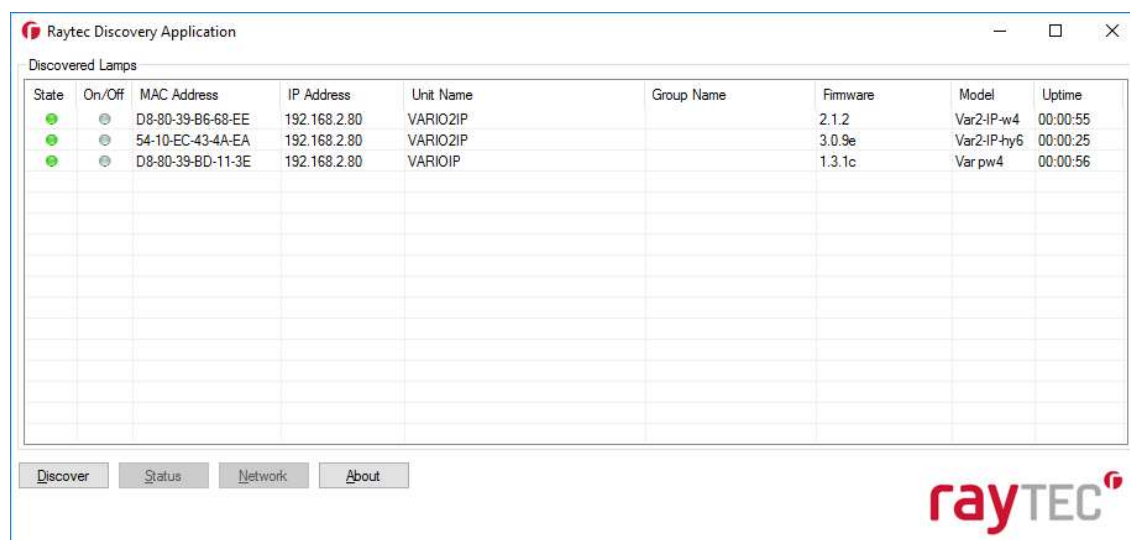
By default, new illuminators have a name of VARIOIP if they are Vario IP PoE units and VARIO2IP if you have Vario2 IP PoE or Vario2 Hybrid IP PoE units. The default IP address is 192.168.2.80 and illuminators have no group name by default. Before being able to use them in your MOBOTIX HUB system they should be updated to have a valid IP address and meaningful names.
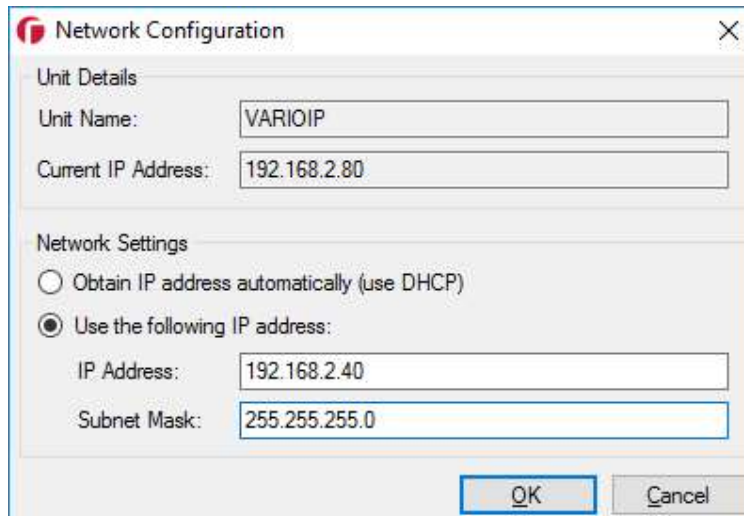
Select an illuminator you wish to configure from the list; this will highlight it. Click the *Network* button and the following window will be displayed.

You can choose to enable DHCP here should you wish. This will make the illuminator request an IP address from the DHCP server on your network, however this method does not guarantee that the IP address of the device will remain the same throughout its lifetime on the network.

The recommended approach is to enter your IP address and subnet mask manually. This information will vary from network to network so you will need to consult the network administrator for the range of IP addresses that are available to you and the subnet mask that is appropriate for them. The example below shows such settings; these are indicative only and may not be appropriate for your network.

After inputting your changes click save and you will be notified that this action will cause the illuminator to temporarily lose communications while it reconfigures itself. You will then be back at the main window of the Discovery Application. After around 30 seconds you should be able to click the *Discover* button again and the illuminator will reappear in the list with the settings that you changed.

Once you have configured the IP addresses of illuminators you can also change the names of them. Select an illuminator from the list and click the *Status* button; the following window will appear.

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Unit Details

Unit Information

IP Address:	192.168.2.40
Unit Name:	VARIOIP
Group Name:	
Firmware Version:	1.3.1c
Up Time:	00:00:29

Unit Parameters

Name	Value

Parameters   OK   Cancel

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Change the name and click OK to return to the Discovery Application window.

Click the *Discover* button and the changes to the illuminator name should appear.
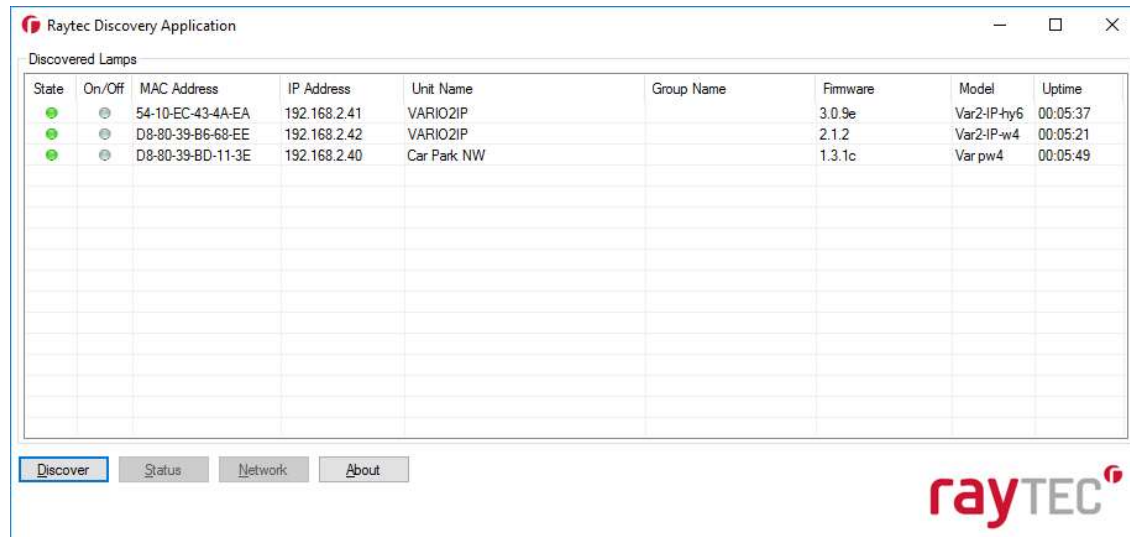
Note that any illuminators you wish to control through your VMS system should be configured for VMS control. This can be done through the illuminator's web interface on the *Settings/Groups* page, selecting **VMS** or **VMS + local** mode. Double click on the individual illuminators within the Discovery Application to access the illuminator's web interface.

Once you have configured your illuminators you are ready to add them to the MOBOTIX HUB system and configure them.

Note: You cannot run both the Discovery Application and the MOBOTIX HUB integration at the same time as the communications will conflict with each other.

5 Configuring Illuminators in the MOBOTIX HUB Management Client

This section will give you a quick introduction to configuring your network illuminators in the MOBOTIX HUB Management Client. You should refer to the documentation provided with your MOBOTIX HUB system for further information about configuring events, alarms etc. After first discovering your illuminators on the network using the Raytec Discovery Application, you must then discover them in the MOBOTIX HUB system. However, before discovering your illuminators in the MOBOTIX HUB system you should configure any groups ready to associate the illuminators with. Please note that the MOBOTIX HUB Software family has many flavours and plugin setup may look slightly different between these.

5.1 Creating a Group

Network illuminators can be grouped together allowing you to control multiple illuminators at the same time from an event raised from the MOBOTIX HUB server or the MOBOTIX HUB Client.

Open the MOBOTIX HUB Management Client
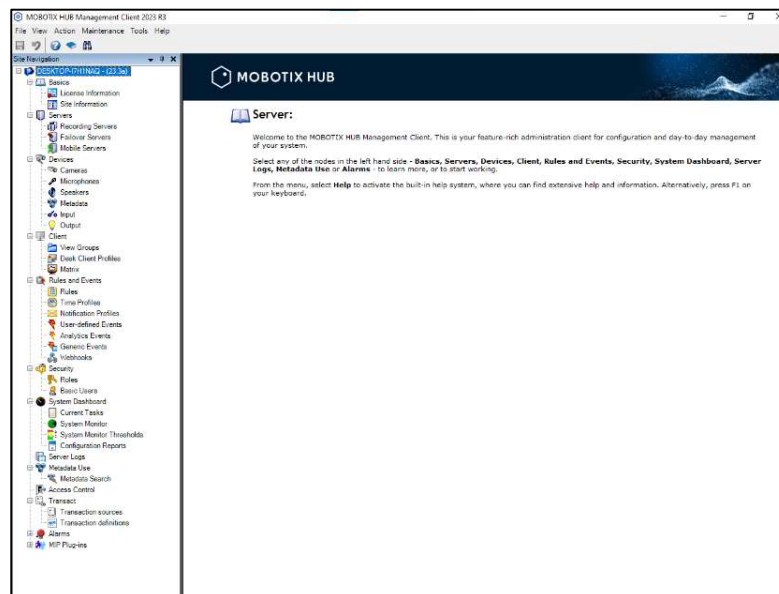
Please note: Even if you wish to configure/operate individual illuminators, they still need to be held in a group. To configure specific illuminator settings, you simply click on your chosen illuminator within its group.

Expand MIP Plug-ins->Raytec Vario IP, here you will find two branches:

- Groups
- Hybrid Groups

You need to setup different groups for standard single wavelength illuminators and hybrid illuminators. This is because you need to tell hybrid illuminators which wavelength to switch on, Infrared (IR) or White Light (WL).

Adding standard single wavelength groups

Right click on the *Groups* node and select *Add New …*, the following screen will be displayed:
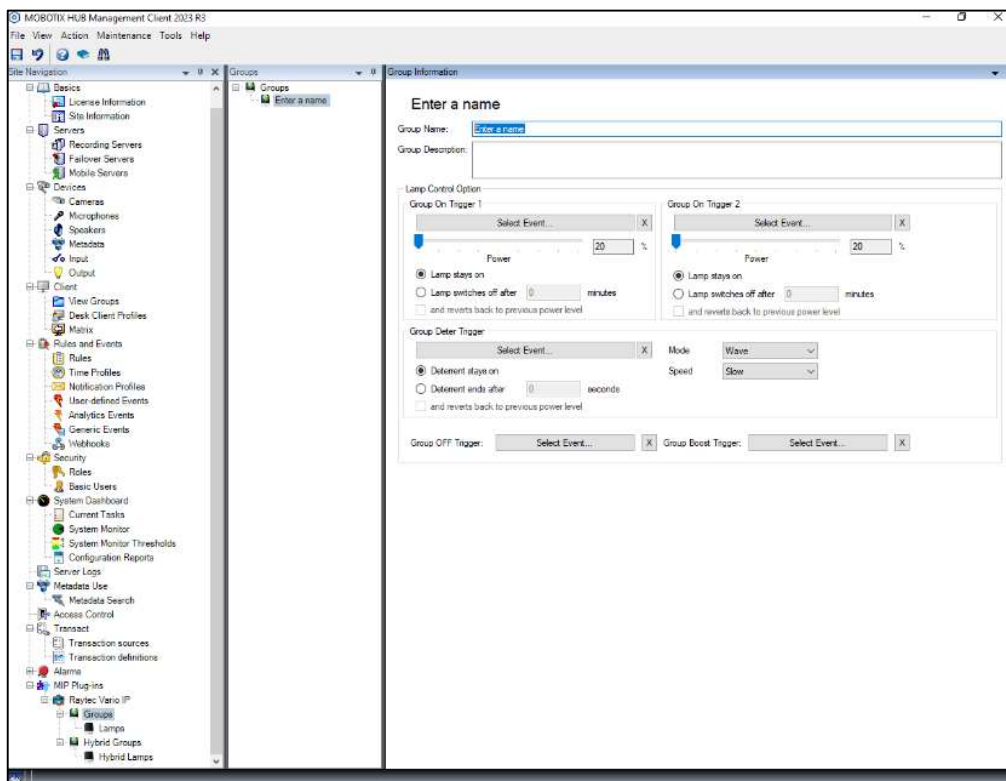
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Adding hybrid groups

Right click on the *Hybrid Groups* and select *Add New …*, the following screen will be displayed:
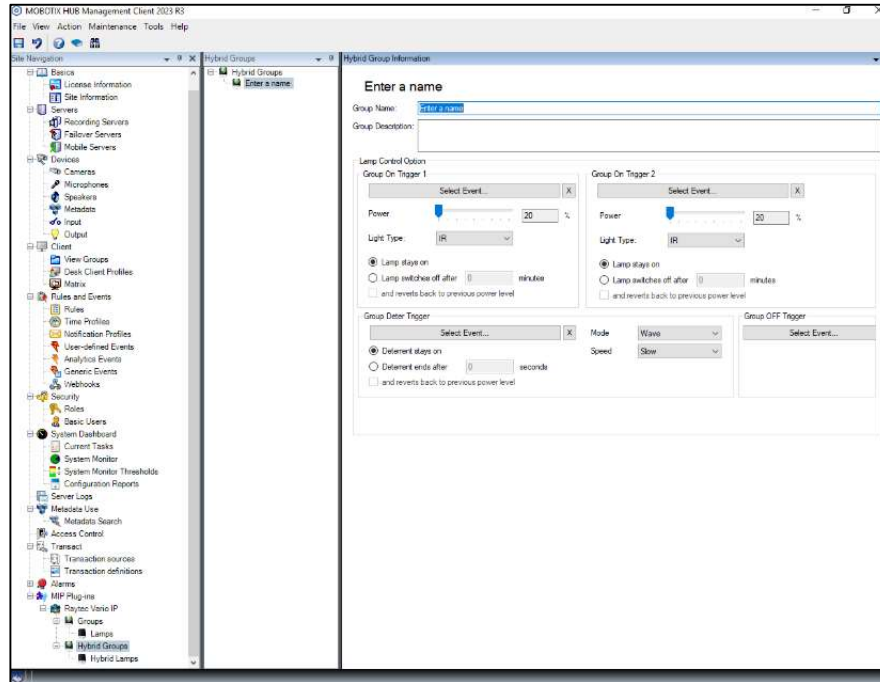
The New Group screen allows you to create a group and configure how it responds to events from the MOBOTIX HUB system.

Group Name - Required
The name of the group, which will be seen in the Management Client and in the Video Client. It should be named in a way that will allow the user to identify quickly the location and/or function of the group.

Group Description – Optional
Provides a description of this group. This is not shown anywhere else in the application and serves only for notes and information about this group.

Lamp Control Option – Covered in section 5.4
This section allows you to configure the actions for the illuminators. Detailed instructions are covered in section 5.4

Once you have set-up your groups you are ready to start adding your network illuminators to them.

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5.2   Adding Illuminators to a Group

5.2.1   Using the Discovery Page within MOBOTIX HUB Management Client

Open the MOBOTIX HUB Management Client
Expand and click the MIP Plug-ins->Raytec Vario IP node.
The network illuminator discovery pane will be in the main window.

There are two buttons here to use to discover illuminators, just as there were two types of groups to add in the last section. Hit *Discover Standard Units* to find standard single wavelength units and *Discover Hybrid Units* to find Hybrid illuminators.
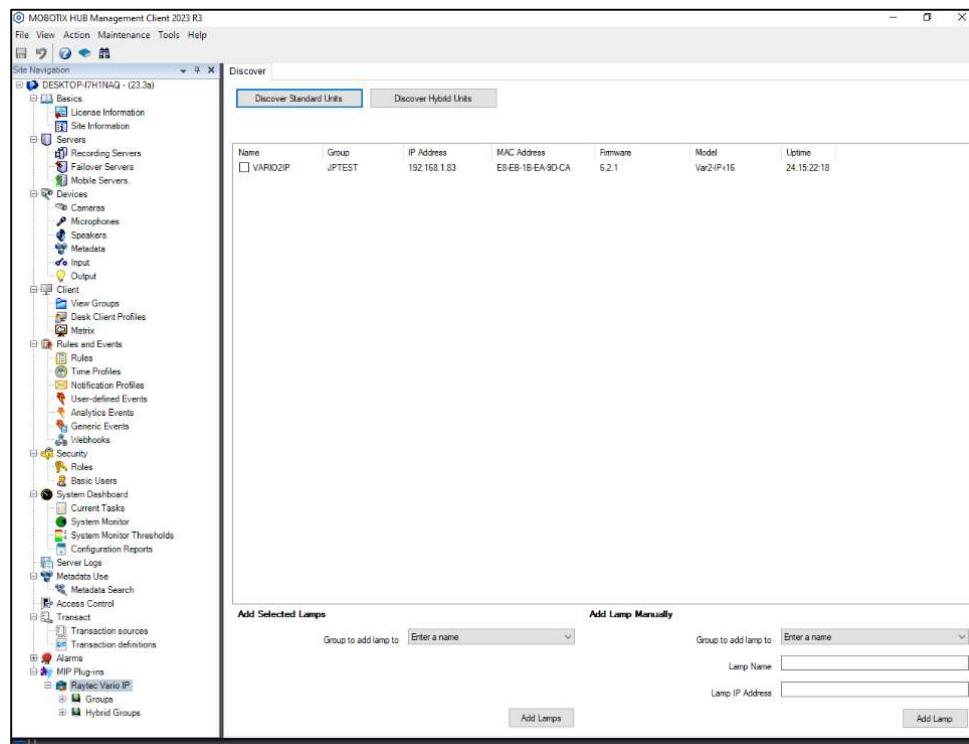
Discovering Standard, single wavelength units

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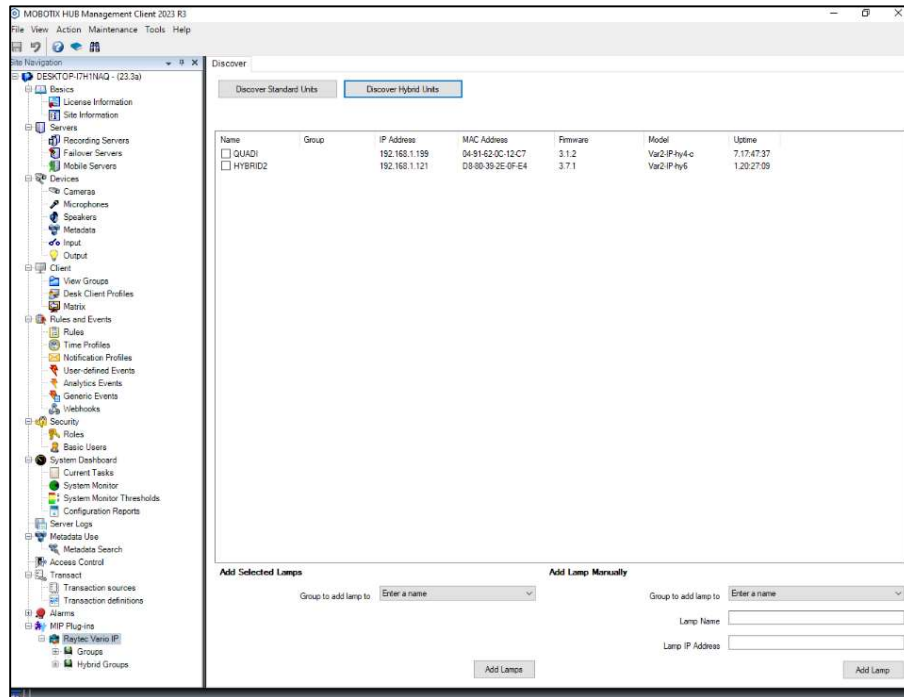
Discovering Hybrid Units

Depending on what illuminator type you have chosen to discover, the available groups change in the *Add Selected Lamps* and *Add Lamp Manual* selection boxes to reflect those created for the illuminator type.

You can select an illuminator by checking the box next to its name. If you wish to add multiple illuminators to a group then check the box of all the illuminators you wish to add. Under the *Add Selected Lamps* section on the bottom left of the screen select the group you wish to add the selected illuminators to and click the *Add Lamps* button.

An illuminator can only be in one group. Should you attempt to add an illuminator that is already in a group into another group the management application will warn you about this and will not add the selected illuminator.

This screen provides information about the network illuminators available on your network, key details such as the IP address, firmware and model information are displayed here to facilitate the configuration of your groups. The Raytec MOBOTIX HUB Plug-In utilizes functionality available in newer versions of illuminator firmware, if there is an illuminator that has an older incompatible version then you will be notified of this in the plug-in. The latest versions of firmware are freely available from Raytec on request and updating your illuminators is a simple process.

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Note:

You can manually add illuminators to your groups using the *Add Lamp Manually* section in the discovery pane by entering the individual lamp name and IP address. However, it is easier to use the discovery option and add your Raytec IP illuminators by selecting them from the discovery list.

If you do use this method of lamp addition, take care not to add a lamp to the wrong group, i.e. adding a hybrid illuminator into a standard single wavelength group or vice versa. To avoid this, click the correct *Discover* button to ensure the group selection box is populated with groups of the desired type.

5.3   Removing Illuminators from a Group

If you wish to remove an illuminator from a group this can be done by selecting the illuminator you wish to remove and clicking the right mouse button. You will be presented with an option that says 'delete', click this, and you will be prompted to confirm that you wish to delete the selected lamp. Selecting 'yes' will remove the illuminator from the group and you are free to add it to another group if you wish to. Note that while the illuminator is not in a group you cannot associate triggers with it and it will not be under the control of the MOBOTIX HUB system.

5.4 **Configuring Events**

You can configure both groups of illuminators and individual illuminators to respond to events raised by the MOBOTIX HUB system (e.g. triggered by a camera, detector or other network device) or activated by the MOBOTIX HUB Client operator. Configuring groups or individual illuminators is done in the same way; just select either the group or individual illuminator you wish to configure.

Creating Events

To create a new named event, select the 'Rules and Events' node on the left-hand side of your MOBOTIX HUB Management Client. This will open 'User-defined Events' pane. To create a new event, right click the 'Events' node and select 'Add User-defined Event'. Enter a meaningful title for the event in the dialog e.g. Group 1 ON.

On some flavours of MOBOTIX HUB software you may need to select the 'Events and Output' node on the left-hand side of your MOBOTIX HUB Management Client. Right click on the Manual Event node and select 'Add New Manual Event'. 'Manual Event Properties' pop-up window will open. Here you can press 'Add' button and enter Event name and click OK.

Events can be connected to triggers as detailed below.

By default, a group or illuminator will have all triggers disabled. To access control options click on the relevant group or lamp. When an event is associated with a trigger the following defaults will apply unless you change them.

Group or Lamp on Trigger 1 or 2
- Lamp power will be 20%
- The lamp will remain on until another trigger changes its state
- Wavelength/Light type triggered will be Infrared (IR) – Hybrid illuminators and Hybrid groups only

Group or Lamp Deter Trigger
- The deterrent will remain on until another trigger changes its state
- The pattern it uses will be Wave
- The speed it uses will be Slow

The following screen shows the defaults described above.

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Standard Single Wavelength Lamp Group Default Configuration

Hybrid Lamp Group Default Configuration

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There are five triggers that can be configured

1) Group or Lamp Trigger 1
2) Group or Lamp Trigger 2
3) Group or Lamp Deter Trigger
4) Group or Lamp Off Trigger
5) Group or Lamp Boost Trigger

5.4.1   Group or Lamp Trigger 1 and 2

Group or Lamp Trigger 1 and Trigger 2 are configured in the same way. You can select an event that will cause the trigger to activate by selecting the *Select Event…* button; this can be cleared by clicking the respective x button.

Power
This is the power that you wish the illuminator to activate at. This is set by using the sliding bar.

Light Type
This is only available on hybrid illuminator and hybrid group configuration screens and allows the user to select the light type/wavelength triggered on the selected hybrid illuminator/hybrid group, the value can be Infrared (IR) or White Light (WL).

Lamp stays on
The selected illuminator will stay on at the selected power until another event turns the illuminator off or to another power level. When this option is selected the time and revert options are disabled as they have no meaning for a permanent action.

Lamp switches off
When selecting this option, you can configure the specified period of minutes that you want the illuminator to be on for. Once this period elapses you can choose to either turn the illuminator off or to have it go back to the previous state it was in. This allows for greater control of the illuminators connected to your MOBOTIX HUB system.

5.4.2   Group/Lamp Deter Trigger

Your illuminator comes with a built-in deterrent feature. It provides a selection of pre-set actions that can be activated that cause the illuminator to change its power output in a known fashion. This is useful when used as a deterrent.

Deterrent stays on
The selected illuminator will stay on in the selected deterrent mode until another event turns the illuminator off or to another power level. When this option is selected, the time and revert options are disabled as they have no meaning for a permanent action.

Deterrent ends after

When selecting this option the illuminator can be configured to remain in deterrent mode for a specified period of seconds. Once this period elapses you can choose to either turn the illuminator off or to have it go back to the previous state it was in. This allows for greater control of the illuminators connected to your MOBOTIX HUB system.

It should be noted that deterrent mode switches on the White Light (WL) on hybrid illuminators.

Mode
The mode option allows you specify the visible light pattern of the illuminator.

> Wave: The intensity of the illuminator will increase to maximum power then decrease to minimum power and repeats.

> Hi-Lo: The illuminator switches from maximum power to minimum power and repeats.

> SOS: The illuminator performs the SOS Morse code pattern at full power.

Speed
This determines the speed at which the deterrent mode will run at, selectable speeds are slow, medium or fast.

5.4.3   Group/Lamp Off Trigger

When associated with an event this switches the illuminators off.

5.4.4   Group/Lamp Boost Trigger

When associated with an event this puts the illuminators into boost mode. Boost mode is a special mode where the power is increased to 110% for 10 seconds. Note that once boost mode has been activated on an illuminator there is a 2-minute cool down period before it can be activated again.

Boost mode is not available on hybrid illuminators.

5.5   Using and Configuring Alarms

5.5.1   Using alarms to trigger events and thus illuminators

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Pre-configured alarms in the MOBOTIX HUB system, e.g. on motion detection from 3rd party devices like a PIR, can be set to trigger system events, which in turn can activate/deactivate your illuminators.

Open the MOBOTIX HUB Management Client, on the left-hand side select the *Alarms Definitions* section. The Alarm Definitions pane should open. On this pane select the specific alarm that you want to use e.g. PIR motion detect. This is just an example of a pre-configured alarm that you may have already named and set within your MOBOTIX HUB system.

In the alarm window, you can relate your chosen alarm to an event created for your illuminators in the 'Other' section by using the 'Events triggered by alarm' dialog. In 'Select Events Triggered' expand the Server tree and find the event you want the alarm to trigger. This in turn can activate/deactivate your network illuminator/group of illuminators in accordance with specific illuminator settings.

5.5.2   Configuring alarms from your illuminator
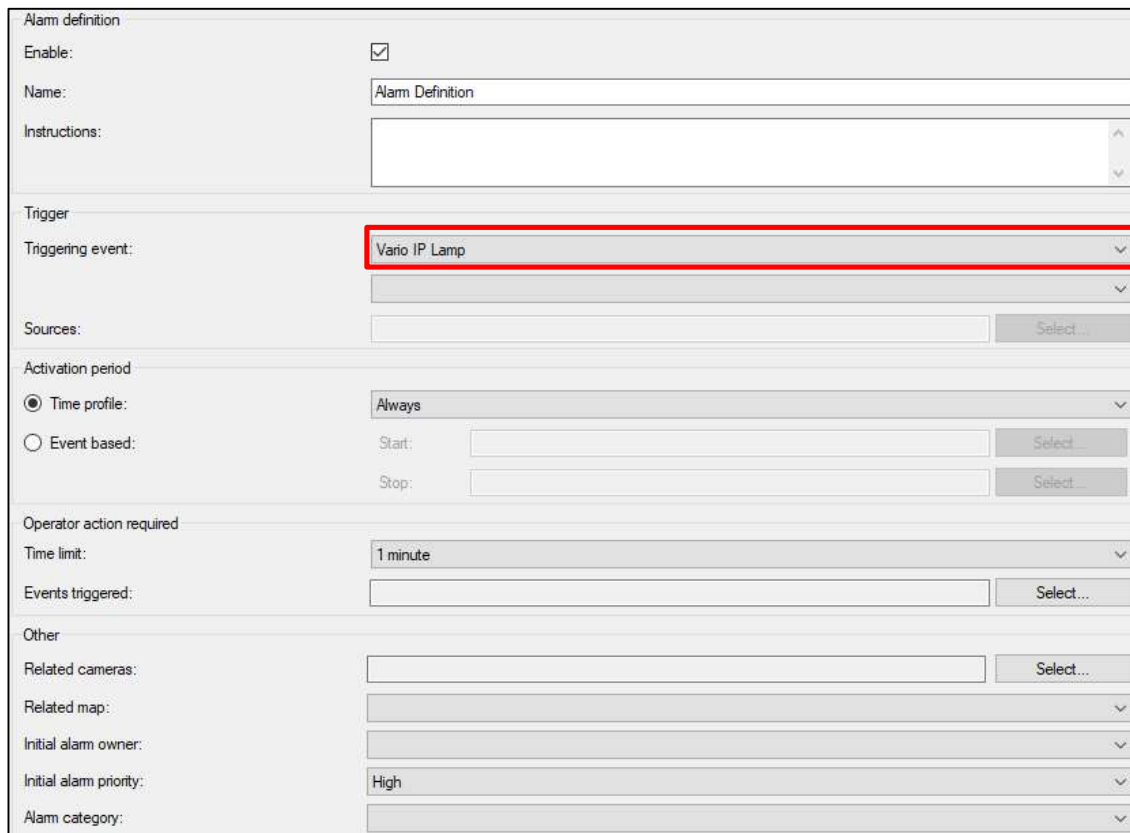
It is possible to configure your MOBOTIX HUB system to respond to events from your illuminators, these alarms are standard MOBOTIX HUB alarms and are covered in the MOBOTIX HUB configuration guide.

On the left-hand side select the Alarms Definitions node, Alarm definitions pane should open Right click on alarm definitions and select create new

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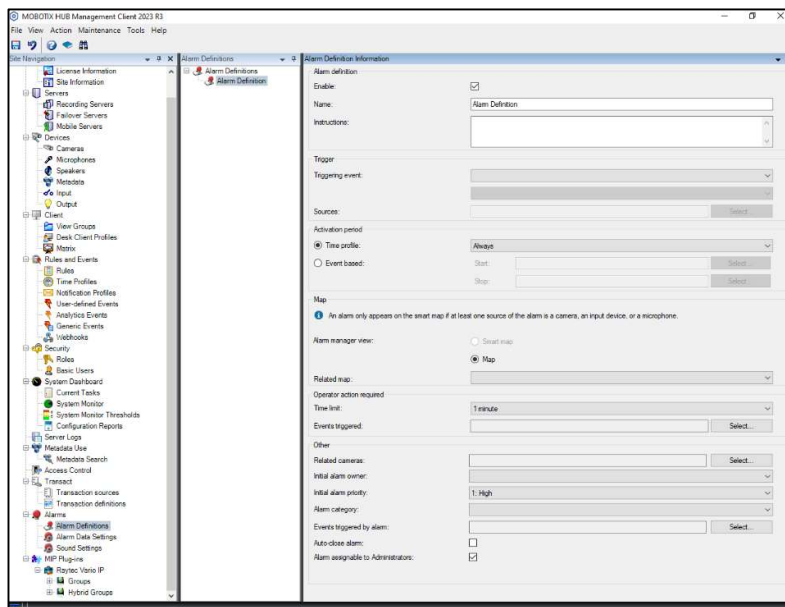
To raise an alarm from your illuminator, select *Vario IP Lamp* from the 'Triggering Event' drop down menu.
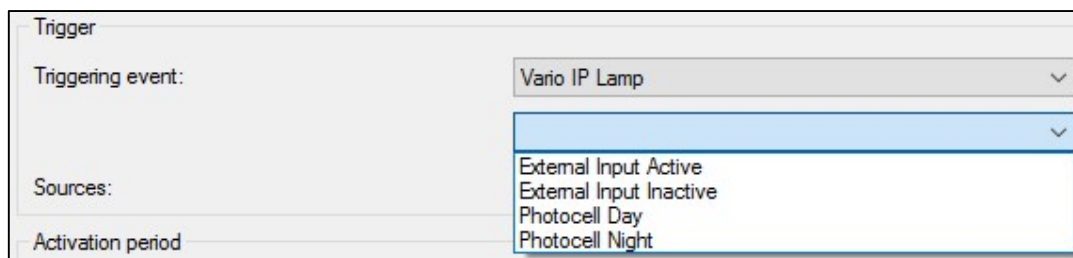
You can now select the specific action to create the alarm from the list just below the *Vario IP Lamp* option shown above. There are currently two different actions from two devices on the illuminator available to you – 1) External Input Active or Inactive and 2) Photocell Day or Night.

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The select button will become active at this point and you may select which illuminators will raise this alarm.
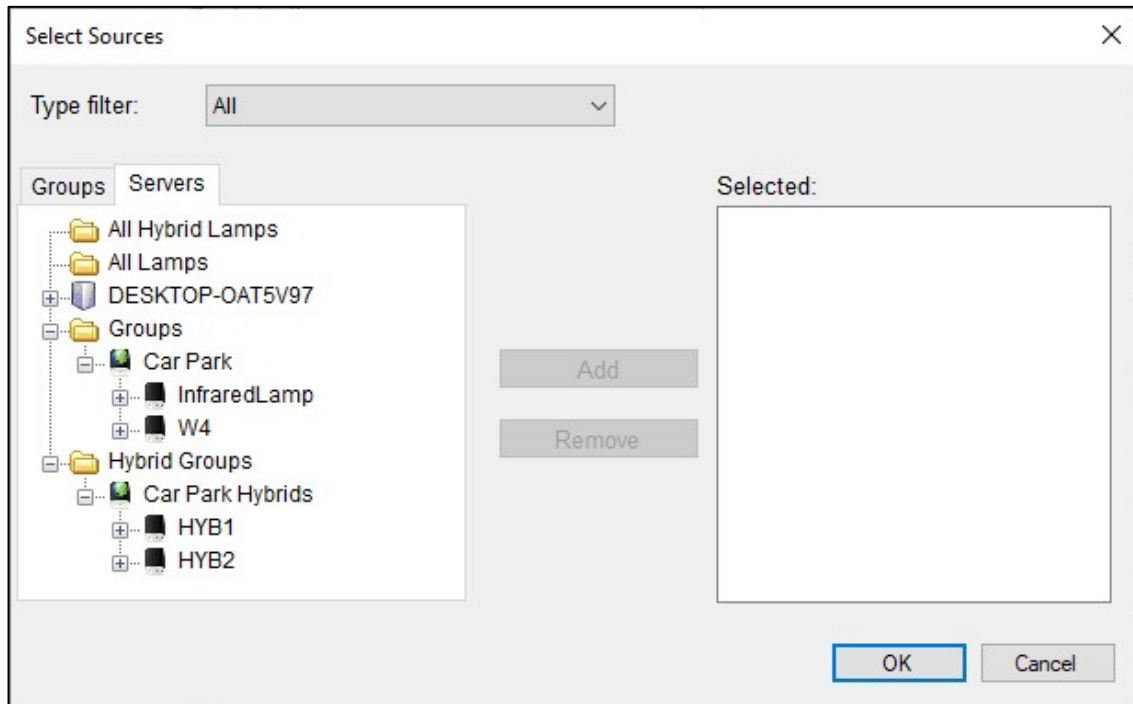
Just as they are in the tree in MOBOTIX HUB, the illuminators are shown under *Group* if they are standard, single wavelength illuminators and *Hybrid Groups* if they are hybrid illuminators. You can have as many lamps as you wish triggering the alarm you are creating.

For further information about configuring alarms please consult your MOBOTIX HUB documentation.

5.5.2.1 *External Input Active or Inactive*

Each illuminator has an external input that can be connected to any compatible device such as a PIR or switch. When the device connected to the lamp changes the state of its output the illuminator will detect this and will send the alarm to the MOBOTIX HUB system, an example of this would be a PIR detecting movement. This alarm raised from the illuminator can raise any event in the MOBOTIX HUB system, and in turn trigger other network devices connected to the system to perform a multitude of user defined actions - e.g. send an email.

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5.5.2.2 *Photocell Day or Night*

Each illuminator has an integrated photocell that detects the ambient light around it. At a lux threshold specified by the illuminator it will determine whether it is day or night. When this changes the illuminator will send the alarm to the MOBOTIX HUB system. Again, this alarm can raise any system event.

6   Lighting Operation in the MOBOTIX HUB Client

Your operators will be using the MOBOTIX HUB Client for their day to day operation of the system. The illuminator integration will allow them to control the configured illuminators from this application. Note that at this stage, no user intervention is required in terms of set up, when the system is correctly configured to use events (see section 5.4); though they can still control the lights by group or individually should they need to.

6.1   Operating Groups Manually

Groups of Illuminators can be operated manually from the MOBOTIX HUB Client.
This temporarily overrides any event configuration, until timed out.

Open the MOBOTIX HUB Client application
On the left-hand side there will be a section called MIP Plug-ins
Locate the Vario IP Side Panel in this list
Select illuminator type using the radio buttons and then select a group from the list.

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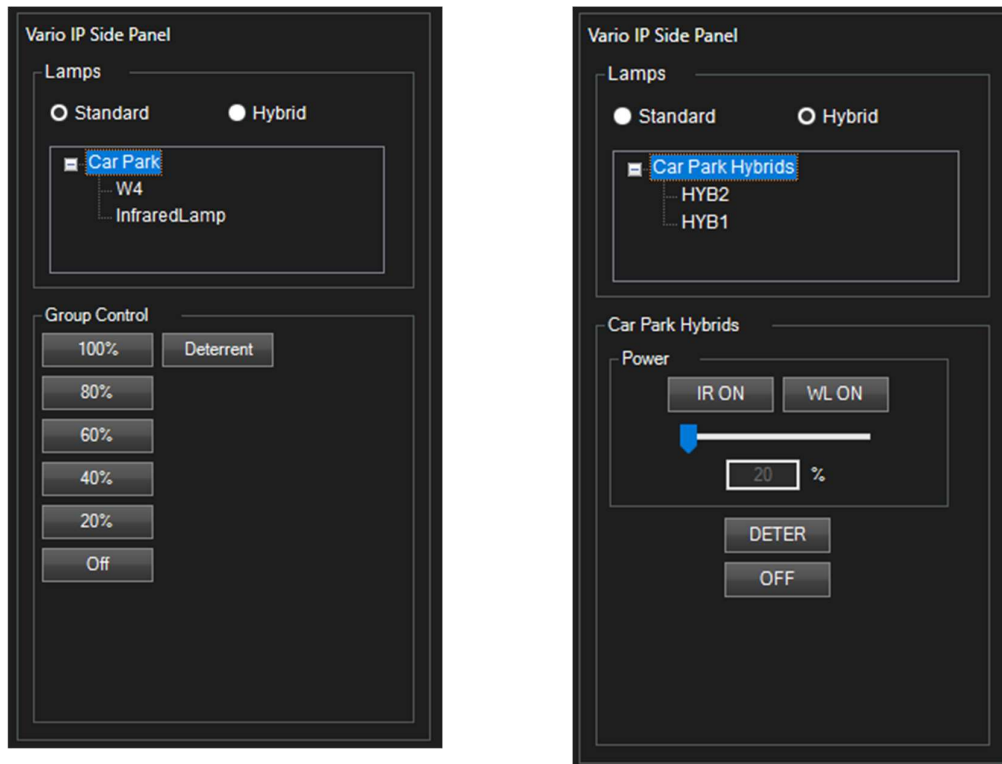
The actions available through the Video Client are timed. Standard illumination will time out after 5 minutes and deterrent will trigger the Hi-Lo pattern at a fast speed for 30 seconds, in both cases, the illuminators will revert to their previous states on time out.

6.2 Operating Individual Illuminators Manually

Individual illuminators can be operated manually from the MOBOTIX HUB Client.
This temporarily overrides any event configuration, until timed out.

Open the MOBOTIX HUB Client application
On the left-hand side there will be a section called MIP Plug-ins
Locate the Vario IP Side Panel in this list
Select illuminator type using the radio buttons and then select a group from the list
Select an illuminator from the list
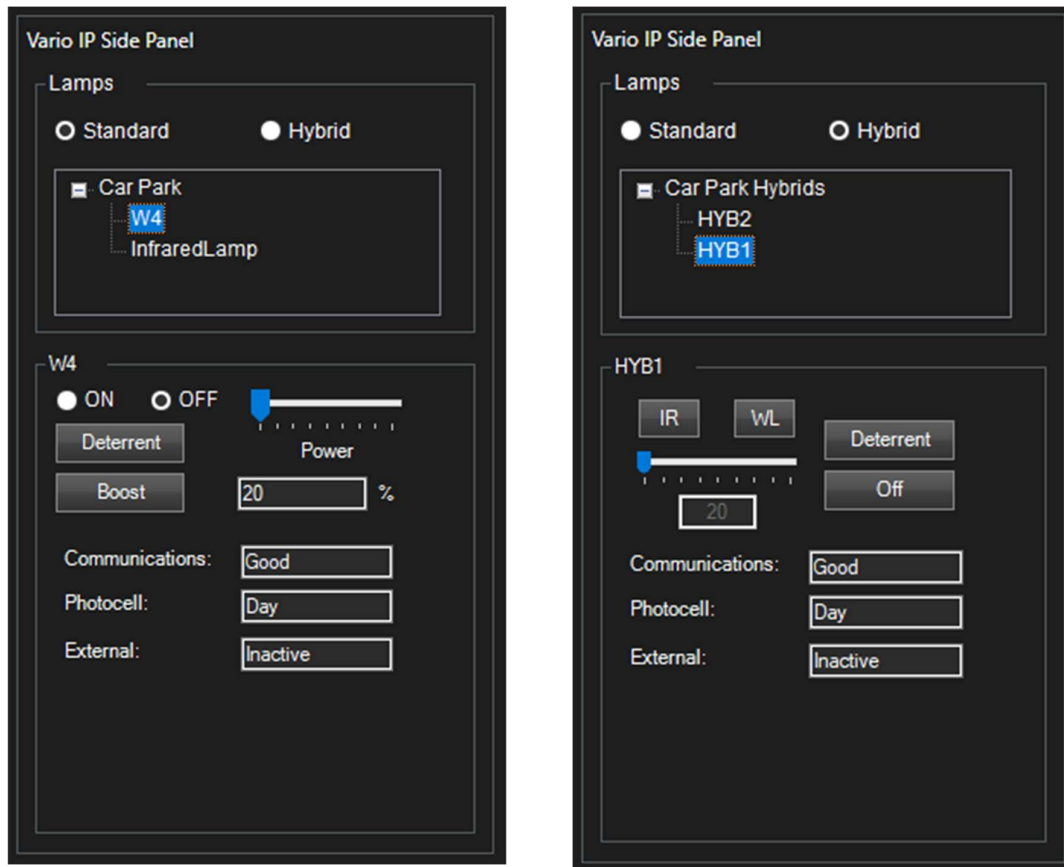
The On and Off (standard single wavelength illuminators) and IR and WL (hybrid illuminators) indicators show the current status of the illuminator. You may select either On or Off or IR or WL to change this status. When the illuminator is on you may move the power bar to change the power intensity of the selected illuminator. Any change to the illuminator on status or power level will remain valid for 5 minutes.

The deterrent button will activate deterrent mode as Hi-Lo at fast speed for 30 seconds and once complete it will revert back to the illuminator's previous state. This will trigger the White Light (WL) on hybrid illuminators.

The boost button will activate the boost functionality on the selected illuminator; this will increase the power to 110% for 10 seconds. Note that there is a 2-minute cool down period before the boost action can be activated again. Note, this is not available for hybrid illuminators.

The three remaining sections give you feedback about the current status of the selected illuminator.

Communications

Shows the current communications status of the selected illuminator, this should always be 'Good'. If the status changes you should contact your administrator to investigate the problem.

Photocell

Provides the status that the photocell is reporting, either Day or Night.

External

Provides the status of the external input, either Active or Inactive.

6.3   Operating Illuminators with Manual Events

If you have configured groups of illuminators or individual illuminators to respond to events such as those detailed in section 5.4, it is possible to manually activate these events from the Video Client Application. This allows an operator to activate illuminators in a preconfigured way.

- Open the MOBOTIX HUB Client application
- On the left-hand side there will be a section called Events
- Expand this section
- There will be multiple events here that can be activated manually
- Select an event that is used either by a group or individual illuminator
- Click the Activate button
- The group/individual illuminator configured to respond to that event should perform the configured action

7 Example Configurations

To provide an indication of the capability of the Raytec MOBOTIX HUB Plug-in and to assist in configuration of the system there are some example configurations discussed here. These propose some options you have when configuring your MOBOTIX HUB system and may provide solutions to help you to achieve your goals.

These examples assume you have already configured the other parts of your MOBOTIX HUB system such as events raised from camera motion detects, PIR, audio alarms etc. Configuring this part of your system is covered in the guides provided by Siemens.

In all examples we are using a standard single wavelength illuminator group called Group 1, which is newly created with associated illuminators and is configured with its default settings. This group has 2 lamps, called Lamp 1 and Lamp 2 they are configured with their default settings.

We will also use a hybrid illuminator group called HybridGroup1, which is newly created with associated illuminators and is configured with its default settings. This group has 1 lamp called HybridLamp1 and this is configured with its default settings.

7.1 Configuration 1 (Standard, single wavelength lamps)

- Daytime the lamps in a group are always off
- At dusk the photocells on the lamps detect it is dark, the lamps should come on at 20%
- At dawn the photocells on the lamp detect it is light, the lamps should switch off
- If motion is detected on camera 1 the lamps should go into deterrent mode for 60 seconds, SOS fast

Camera 1 raises a hardware event when motion is detected, this event is called Cam1MotionDetect.

Create the following events:
- Group1OnTrigger1
- Group1DeterTrigger
- Group1OffTrigger

Create an alarm called Group1PhotocellDay, select the triggering event as Vario IP Lamp and Photocell Day. Click the select button and associate Lamp 1 and Lamp 2 with this alarm. Click the select button at the bottom of the screen next to Events triggered by alarm and select the Group1OffTrigger.

Create a second alarm called Group1PhotocellNight, select the triggering event as Vario IP Lamp and Photocell Night. Click the select button and associate Lamp 1 and Lamp 2 with this alarm. Click the select button at the bottom of the screen next to Events triggered by alarm and select the Group1OnTrigger1.

Create a third alarm called Group1CameraMotDet, select the triggering event as System Events and External Event. Click the select button and associate Camera1MotionDetect hardware event with this alarm. Change the activation period to Event based and select the start event as Group1OnTrigger1 and the off event as Group1OffTrigger. Click the select button at the bottom of the screen next to Events triggered by alarm and select the Group1DeterTrigger.

Select Group 1 in the Raytec Vario IP node and set the following information on the page.

Group On Trigger 1
- Event: Group1OnTrigger1
- Power: 20%
- Lamp stays on

Group Deter Trigger
- Event: Group1DeterTrigger
- Deterrent ends after: 60 seconds
- And reverts back to previous power level
- Mode: SOS
- Speed: Fast

Group Off Trigger
- Event: Group1OffTrigger

We achieve the desired results for our requirement by switching the lamps in our group on when the photocells say it is dark, and off when they say it is light.

We ensure the lamp only goes into deterrent mode during the night by only allowing the deterrent trigger event to be raised during the period after the photocell has indicated it is dark but before the photocell has indicated it is light.

By setting the deterrent trigger to be revert back to previous level it means the lamps remain on after the deterrent mode times out.

7.2   Configuration 2 (Standard, single wavelength lamps)

- Daytime the lamps are always off
- When it gets dark the lamps come on at 50% for 4 hours then switch off
- If motion is detected on camera 1 the lamps should go into deterrent mode for 60 seconds, SOS fast

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Camera 1 raises a hardware event when motion is detected, this event is called Cam1MotionDetect.

Create the following events:
- Group1OnTrigger1
- Group1DeterTrigger
- Group1LightTrigger

Create an alarm called Group1PhotocellDay, select the triggering event as Vario IP Lamp and Photocell Day. Click the select button and associate Lamp 1 and Lamp 2 with this alarm. Click the select button at the bottom of the screen next to Events triggered by alarm and select the Group1LightTrigger.

Create a second alarm called Group1PhotocellNight, select the triggering event as Vario IP Lamp and Photocell Night. Click the select button and associate Lamp 1 and Lamp 2 with this alarm. Click the select button at the bottom of the screen next to Events triggered by alarm and select the Group1OnTrigger1.

Create a third alarm called Group1CameraMotDet, select the triggering event as System Events and External Event. Click the select button and associate Camera1MotionDetect hardware event with this alarm. Change the activation period to Event based and select the start event as Group1OnTrigger1 and the off event as Group1LightTrigger. Click the select button at the bottom of the screen next to Events triggered by alarm and select the Group1DeterTrigger.

Select Group 1 in the Raytec Vario IP node and set the following information on the page.

Group On Trigger 1
- Event: Group1OnTrigger1
- Power: 50%
- Lamp switches off after 240 minutes

Group Deter Trigger
- Event: Group1DeterTrigger
- Deterrent ends after: 60 seconds
- And reverts back to previous power level
- Mode: SOS
- Speed: Fast

We achieve the desired results for our requirement by switching the lamps in our group on when the photocells say it is dark after 4 hours they will switch off.

We ensure the lamp only goes into deterrent mode during the night by only allowing the deterrent trigger event to be raised during the period after the photocell has indicated it is dark but before the photocell has indicated it is light.
By setting the deterrent trigger to be revert back to previous level it means the lamps go back to their previous state, so within the first 4 hours they will go back to 50% after that 4 hour period and before it is light again they will switch off.

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7.3 Configuration 3 (Standard, single wavelength lamps)

- Daytime the lamps in a group are always off
- If motion is detected on camera 1 the lamps should go into deterrent mode for 60 seconds, SOS fast

Camera 1 raises a hardware event when motion is detected, this event is called Cam1MotionDetect.

Create the following manual events:
- Group1DarkTrigger
- Group1DeterTrigger
- Group1LightTrigger

Create an alarm called Group1PhotocellDay, select the triggering event as Vario IP Lamp and Photocell Day. Click the select button and associate Lamp 1 and Lamp 2 with this alarm. Click the select button at the bottom of the screen next to Events triggered by alarm and select the Group1LightTrigger.

Create a second alarm called Group1PhotocellNight, select the triggering event as Vario IP Lamp and Photocell Night. Click the select button and associate Lamp 1 and Lamp 2 with this alarm. Click the select button at the bottom of the screen next to Events triggered by alarm and select the Group1DarkTrigger.

Create a third alarm called Group1CameraMotDet, select the triggering event as System Events and External Event. Click the select button and associate Camera1MotionDetect hardware event with this alarm. Change the activation period to Event based and select the start event as Group1DarkTrigger and the off event as Group1LightTrigger. Click the select button at the bottom of the screen next to Events triggered by alarm and select the Group1DeterTrigger.

Select Group 1 in the Raytec Vario IP node and set the following information on the page.

Group Deter Trigger
- Event: Group1DeterTrigger
- Deterrent ends after: 60 seconds
- And reverts back to previous power level
- Mode: SOS
- Speed: Fast

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We ensure the lamp only goes into deterrent mode during the night by only allowing the deterrent trigger event to be raised during the period after the photocell has indicated it is dark but before the photocell has indicated it is light.

7.4 Configuration 4 (Hybrid lamps)

- Daytime the hybrid lamp is off
- At dusk the photocell on the lamp detects it is dark, the Infrared (IR) on the hybrid lamp should come on at 20%
- At dawn the photocell on the lamp detects it is light, the lamp should switch off
- If motion is detected on camera 1 the lamp should go into deterrent mode for 20 seconds, SOS fast

Camera 1 raises a hardware event when motion is detected, this event is called Cam1MotionDetect.

Create the following events:
- HybridGroup1OnTrigger
- HybridGroup1DeterTrigger
- HybridGroup1OffTrigger

Create an alarm called Group1PhotocellDay, select the triggering event as Vario IP Lamp and Photocell Day. Click the select button and associate HybridLamp1 with this alarm. Click the select button at the bottom of the screen next to Events triggered by alarm and select the HybridGroup1OffTrigger.

Create a second alarm called Group1PhotocellNight, select the triggering event as Vario IP Lamp and Photocell Night. Click the select button and associate HybridLamp1 with this alarm. Click the select button at the bottom of the screen next to Events triggered by alarm and select the HybridGroup1OnTrigger.

Create a third alarm called Group1CameraMotDet, select the triggering event as System Events and External Event. Click the select button and associate Camera1MotionDetect hardware event with this alarm. Change the activation period to Event based and select the start event as HybridGroup1OnTrigger1 and the off event as HybridGroup1OffTrigger. Click the select button at the bottom of the screen next to Events triggered by alarm and select the HybridGroup1DeterTrigger.

Select HybridGroup1 in the Raytec Vario IP node and set the following information on the page.

Group On Trigger 1
- Event: HybridGroup1OnTrigger
- Power: 20%
- Light Type: IR
- Lamp stays on

Group Deter Trigger
- Event: HybridGroup1DeterTrigger
- Deterrent ends after: 20 seconds
- And reverts back to previous power level
- Mode: SOS
- Speed: Fast

Group Off Trigger
- Event: HybridGroup1OffTrigger

We achieve the desired results for our requirement by switching the Infrared (IR) side of the hybrid lamp in our group on when the photocell indicates it is dark, and off when it indicates it is light.

We ensure the lamp only goes into deterrent mode during the night by only allowing the deterrent trigger event to be raised during the period after the photocell has indicated it is dark but before the photocell has indicated it is light.

By setting the deterrent trigger to be revert back to previous level it means the lamps remain on after the deterrent mode times out.

7.5   Configuration 5 (Hybrid lamps)

- Daytime the hybrid lamp is off
- At dusk the photocell on the lamp detects it is dark, the Infrared (IR) on the hybrid lamp should come on at 20%
- At dawn the photocell on the lamp detects it is light, the lamp should switch off
- If motion is detected on camera 1 the White Light (WL) on the hybrid lamp should switch on for 1 minute at 100% power.

Camera 1 raises a hardware event when motion is detected, this event is called Cam1MotionDetect.

Create the following events:
- HybridGroup1IROnTrigger
- HybridGroup1WLOnTrigger
- HybridGroup1OffTrigger

Create an alarm called Group1PhotocellDay, select the triggering event as Vario IP Lamp and Photocell Day. Click the select button and associate HybridLamp1 with this alarm. Click the select button at the bottom of the screen next to Events triggered by alarm and select the HybridGroup1OffTrigger.

Create a second alarm called Group1PhotocellNight, select the triggering event as Vario IP Lamp and Photocell Night. Click the select button and associate HybridLamp1 with this alarm. Click the select button at the bottom of the screen next to Events triggered by alarm and select the HybridGroup1IROnTrigger.

Create a third alarm called Group1CameraMotDet, select the triggering event as System Events and External Event. Click the select button and associate Camera1MotionDetect hardware event with this alarm. Change the activation period to Event based and select the start event as HybridGroup1IROnTrigger and the off event as HybridGroup1OffTrigger. Click the select button at the bottom of the screen next to Events triggered by alarm and select the HybridGroup1WLOnTrigger.

Select HybridGroup1 in the Raytec Vario IP node and set the following information on the page.

Group On Trigger 1
- Event: HybridGroup1IROnTrigger
- Power: 20%
- Light Type: IR
- Lamp stays on

Group On Trigger 2
- Event: HybridGroupWLOnTrigger
- Power: 100%
- Light Type: WL
- Lamp switches off after 1 minute
- And reverts back to previous power level

Group Off Trigger
- Event: HybridGroup1OffTrigger

We achieve the desired results for our requirement by switching the Infrared (IR) side of the hybrid lamp in our group on when the photocell indicates it is dark, and off when it indicates it is light.

We ensure the lamp only switches on White Light (WL) during the night by only allowing the HybridGroupWLOnTrigger event to be raised during the period after the photocell has indicated it is dark but before the photocell has indicated it is light.

By setting the Group On Trigger 2 to be revert back to previous power level it means the lamps remain on after one minute of White Light (WL).

8   Troubleshooting Guide

Before troubleshooting for more complex issues encountered during installation or use of the Raytec MOBOTIX HUB plugin, the following check list should be used to ensure the target system is in a supported state.

Important, please read the troubleshooting guide for the Raytec IP Illuminator to ensure the illuminator is working and set up correctly.

8.1   Illuminators

- Version as follows or higher:

Illuminator	Minimum supported firmware version
Vario IP POE	v1.1.0
Vario2 IP POE	v2.0.1
Vario2 Hybrid IP POE	v3.1.0

- Illuminator in **VMS** or **VMS + local** mode.

8.2   Operating System

The Raytec MOBOTIX HUB Plug-in is fully supported by the following operating systems.

- Windows Server 2008 R2
- Windows Server 2016
- Windows 10

Other operating systems can be tested for compatibility on request: Contact Raytec.

NOTE: The Raytec MOBOTIX HUB Plug-in does not support Windows XP at all

8.3   System Configuration

The following component must be installed on the target machine
- Microsoft .NET 4.7.2

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8.4 Installation Issues

8.4.1 Installation Fails with 'access is denied' message

Symptoms

The installation stops and indicates that the installation failed with an error message that access was denied to folder "C:\Program Files\MOBOTIX". Note: the name of the program files folder may also contain the phrase "(x86)".

Cause

Any application wanting to make changes in the "Program Files" or "Program Files (x86)" folder must have administrator privileges. This is something that is enforced by the Windows operating system to stop malicious code being placed in an area where applications are run from.

Remedial Action

To resolve this issue you must either log into the machine as an administrator or right click on the Raytec MOBOTIX HUB Plug-in installer application and select "Run as Administrator". Doing this will allow the application to have write access to the necessary folders in "Program Files" or "Program Files (x86)".

Note that if the user has UAC (User Account Control) enabled they may be prompted to enter their administrator password again. If they are logged on as a standard Windows user and have UAC enabled they will be prompted to enter an administrator username and password. Further to this should they be logged on as a standard Windows user and UAC is disabled they may not be able to install the software at all, in this case they must consult their network administrator to get the application installed on their machine.

8.4.2 Installation Upgrade fails with 'access is denied' message

Symptoms

During an **upgrade** the installation stops and indicates that the installation failed with an error message that access was denied to "filename".dll where file name could be:

- "Log4Net.dll"
- "ObjectListView.dll"
- "RaytecAPI.dll"
- "RaytecCommon.dll"
- "RaytecPlugin.dll"
- "VideoOS.Platform.dll"

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Cause

When the plug-in is first installed the MOBOTIX HUB application is unaware of this and does not use it at all, this is why it is necessary to close both the client and server applications before installing. Once the plug-in is installed and configured within the MOBOTIX HUB application, the files we install are in use by the MOBOTIX HUB system. When this happens these files can be locked by the operating system so they cannot be changed during the operation of a running application.

Remedial Action

The only way to allow the upgrade to proceed is to stop the applications and Windows services that use our plug-in files. There are three of these, as follows:

MOBOTIX HUB Management Client

This is the application used to configure the MOBOTIX HUB system, it is a standard Windows application and can be closed in the normal way by using the "X" at the top right of the application window. This would only normally be running when a user is changing the configuration of their site.

MOBOTIX HUB Client

This is the application used to aggregate the information gathered from the MOBOTIX HUB system, such as video feeds, events and alarms. This would normally be open on a machine as it is the entry point for users to the MOBOTIX HUB system, it can be closed in the normal way by using the "X" at the top right of the application window.

MOBOTIX HUB Event Server

This is the server application that processes events that have been configured on the MOBOTIX HUB system, this is not a standard Windows application however. The Event server is a Windows Service and to be able stop or start this service you should open the services application. This can be done by pressing the Windows key and typing "services.msc". When the services application opens, locate the correct service in the name column it will be called "MOBOTIX HUB Event Server", right click on this entry and select stop. When the installation and upgrade is complete you must right click on this service and select start.

IMPORTANT NOTE

When stopping the above service you will essentially disable the MOBOTIX HUB system, it will not be able to respond to events raised and other parts of the system will not respond as normal until the service is restarted.

Before performing this action you should make sure the user is aware of what this action will do, even though this is a temporary action.

When the service is restarted the system should return to normal operation. However it may be prudent to restart the machine that the service was stopped on so that Windows can restart the services for you in the normal manner.

8.5 Compatibility Issues

8.5.1 Discovery application conflicts with MOBOTIX HUB integration

The mechanism we use to perform device discovery with the network illuminators requires we use a specific port on the network card. When the application is started it will create a connection to this port meaning no other process will be able to use this port. Since both the Discovery Application and the MOBOTIX HUB integration use the Raytec API to perform actions with the network illuminators, there is a conflict should you wish to run both at the same time.

8.5.2 MOBOTIX HUB integration/Discovery Tool doesn't work when Oracle Virtual Box is installed

The Raytec API uses a technology called multicast to perform its device discovery and some communications. There is a known issue with Oracle Virtual Box on Windows 7 where a user is using an application that uses multicast.

The information to resolve this issue from the support forums is as follows:

- Open up Network and Sharing Center
- Click 'Change Adapter Settings'
- Right click 'VirtualBox Host-Only Network', go to Properties
- Double click "Internet Protocol Version 4 (TCP/IPv4)' under 'This connection uses the following items'.
- In the Properties page, click "Advanced..."
- In the "Advanced TCP/IP Settings", tab "IP Settings", uncheck the box marked "Automatic Metric" and type in 800 or higher.

OK all dialogs and run whatever software could not receive multicast.
Please see this link for further information on this issue,
https://www.virtualbox.org/ticket/8698

8.5.3 Illuminators not responding to the MOBOTIX HUB system

After an installation of the Raytec MOBOTIX HUB Plug-in, you may find that some or all of the illuminators fail to operate when attempting to switch them on/off via the MOBOTIX HUB Management Client or the Video Client.

Should this be the case, you need to restart the Management Client, the Video client and the event server. This is because the Raytec MOBOTIX HUB Plug-in is placed in a location where the Management Client, Video Client and event server can locate it. After installation it is important that these are restarted in order for them to find the new plugin. The restarting of these is detailed in section 8.4.2.

Should the illuminators still fail to respond, a restart of the MOBOTIX HUB server machine is recommended; this will ensure all MOBOTIX HUB applications are restarted. Please note that a restart of this machine may have other consequences, so consult the network administrator should you wish to do this.