

Movicon NExT

6.0 Alarm Dispatcher

Ver.3.4.268

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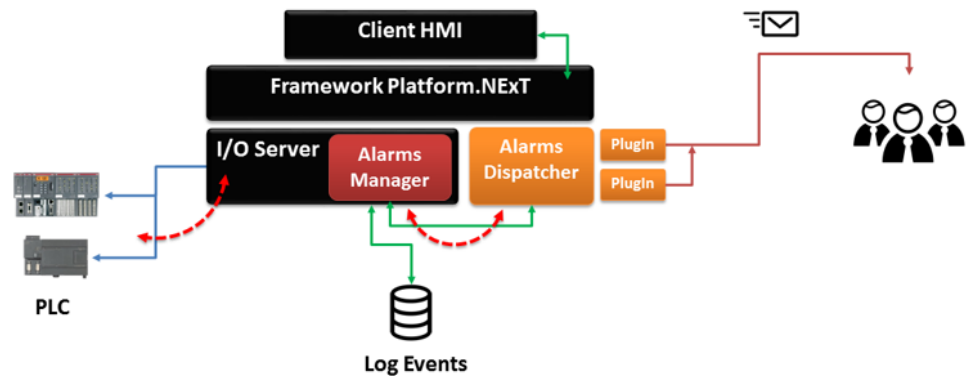
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1.1. Alarm Dispatcher

The Automation Platform.NexT platform offers a function module for alarm and event notifications that can be set and sent to recipients such as on-call duty staff. By means of using the integrated server module, the system allows you to define which events and alarms are to be notified (sent) and to which recipients by using the communication modes which are available as plugins. The following plugins are currently available for notifying events:

- **SMS**
- **E-mails**
- **Voip**
- **Telegram**

A plugin for using vocal syntax is currently at work for future integration.



The Platform.NExT Alarm Dispatcher is a module that operates as a data notification server by connecting to a Platform.NExT project's I/O Data Server in order to access Tags in the most transparent way possible. The Alarm Dispatcher module server is started up simultaneously with the platform's project runtime. It can also be started up manually by using the "Start Server" command from the ribbon. The Alarm Dispatcher module technology is based on the OPC UA technology to ensure maximum interoperability and openness.

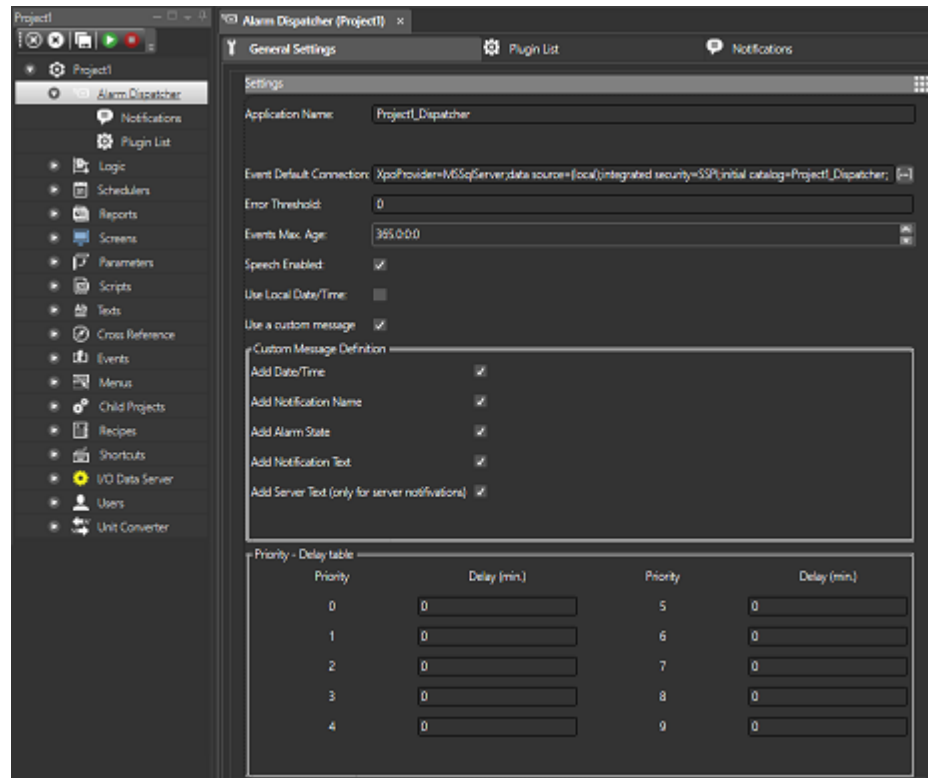


The Platform.NExT Alarm Dispatcher is optional and therefore needs to be enabled on the runtime license.

In order to make sure that the project's Alarm Dispatcher functions correctly, you will need to configure it appropriately by defining the right server settings. Notification configuration means using (plug in) and defining messages to be sent as notifications.

1.2. Alarm Dispatcher Settings

To configure the Alarm Dispatcher, double click on the Alarm Dispatcher resource in the Project Window to open it in edit mode within the workspace. A window will display divided into three sections:



- **Settings** : this window is used for setting the Alarm Dispatcher's general properties and those of each individual Plugin and Notification.
- **Transport** : this window is used for adding or modifying those transports to be used by the Alarm Dispatcher for publishing.
- **Status** : this window reports the Alarm Dispatcher Server's log messages.

General Settings

The following general notification server parameters can be inserted in the Alarm Dispatcher's General Settings:

Use Local DateTime

When enabling this property the data and time in the event message sent by the dispatcher will be the Server's local time (therefore according to timezone). When left unmarked, in other words disabled, the date and time in the event message sent by the dispatcher will be in UTC format as indicated in the same message (i.e: Local Notification Name Active - UTC: 27/04/2017 08:31:52 - Local Alarm Active 01!).

Use a Custom Message

When this item is enabled, another 5 check boxes will open and which can be used to customize the text of the message to be sent by the Alarm Dispatcher. These check boxes also permit certain information to be removed from the standard message type that would otherwise be sent if leaving the "Use a Custom Message" disabled. This

feature is very handy when using the Dispatcher's SMS plug-in in order to limit the characters used in sms to 160.

The message text can therefore be composed to include the following:

- Add Date/Time: adds the date and time of the notification (locale or UTC according to selection)
- Add Notification Name: adds the name of the dispatcher notification
- Add Alarm State: adds the alarm status (Active, Inactive, etc.)
- Add Notification Message: adds the 'message' associated to the notification
- Add Server Text (only for server notifications): adds the text of the alarm present in the ServerLONExT



Attention! In cases where all five check boxes to customize the message are left unchecked, the following warning message will appear::

Beware! At least one option Of the Custom Message Definition should be checked, otherwise the standard message will be sent.

Therefore the standard message format will be sent.

Application Name

The name of the Server application. This name will be used on Client browser lists to represent the OPC UA Alarm Dispatcher Server.

Log Connection String

This is the connection string that will be used by the Alarm Dispatcher for recording historical data. The editor will open with a default connection string if one has not been defined. The default connection will be created in the SQL Server database using the local sql server instance and the Application Name as the database name.

If the connection to the database should for some reason be interrupted, the logged data will be downloaded on xml file in the project's "..\AlarmDispatcher\Historian" folder.

Error Threshold

This indicates the number of error occurrences before being traced on Historical Log.

Event Max. Age

This indicates the maximum duration of time that recorded data is stored on the Database. Data older than the value set here will be deleted.

Speech Enabled

When this option is enabled, the Dispatcher notification events will also be vocally announced locally when executed.

Priority - Delay Table

Each Dispatcher notification can be associated with a priority from 0 to 9. Each priority level can be associated a delay sending time by using the table. In this way notification will only be sent after the delay time set and not immediately upon occurrence. The delay time is expressed in minutes.

1.3. Alarm Dispatcher Properties

In addition to the "General Settings" the Alarm Dispatcher also has other configurable property groups, some of which are common to all the other resources and described below:

General

Application Name

This is used for setting the name to be assigned to the application used for OPC UA server identification.

Manufacturer Name

The name of the manufacturer is entered here and will be published by the Server.

Product Name

The name of the product is entered here and will be published by the Server.

Product Uri

The product's URL address or the one referring to the product is entered here and will be published by the Server.

Software Version

The product's software version is entered here and will be published by the Server.

Build Number

The project's Build version is entered here and will be published by the Server.

OPC UA Server Option

For further information on the Connection settings please see the Data Server topic on "Connection Settings" .

Execution

Default Data I/O Sampling Interval

Sets the minimum refresh rate for tag value notifications from the server to the client. The server will use this value (in msecs) if no refresh time has been set in the Client.

Enable Log

Enabling this will create the LOG file.

Diagnostic Enabled

This is used to enable several diagnostic functions regarding the server and/or communication drivers.

Speech Enabled

This is used to enable the speech engine for vocal system notification messages. See paragraph relating to "General Settings".

Speech Voice Name

Sets the name of the speech engine.

For further information on the Execution settings please see the Data Server > "Execution" topic.

Redundancy

As various redundancy options can be configured in this section please see the chapter relating to "Redundancy Settings" for further information.

Advanced Database Settings

For further information on Advanced database settings please see the Data Server chapter relating to "Advanced Settings" .

Database Settings

Historian Default Connection

This is used to set the default historian resource connection.

Event Default Connection

Sets the default connection string to which all the resources based on the Event DB will refer to.

Events Max. Age

Sets the max. age that data can remain on DB.

Historical Wait Retry

Sets the time to wait between one DB connection attempt and another.

Historical Max. Retries

This is used to set the max. number of attempts to access the DB before starting to unload data from the cache file to a local text file.

1.4. Alarm Dispatcher Plugin List

The Alarm Dispatcher notification messages are sent using a specific communication tool called a Plugin. Each Plugin that has been made available for use will send messages according to the transport means provided.



The list of Plugins can be expanded by adding new ones that correspond to new and different means of communication to be used for sending notifications in the near future.

Plug-In List

The already defined plugins are displayed in the "Setting" section's "Plugin List" window. Other plugins can be added by using the commands from the "Add New Plugin" Ribbon.

When a new Plugin is added, a popup window will show through which the plugin's characteristics can be defined. This window can also be opened with a double click on an existing plugin. Each Plugin will obviously have its own settings. The currently available plugins are:

- **Smtp Mail Sender**
- **GsmSMS Sender**
- **VOIP Sender**
- **Telegram Sender**

For further information on Plugin configurations please refer to the dedicated paragraphs: "Smtp Mail Sender", "GsmSMS Sender" and VOIP.

1.5. Alarm Dispatcher Notification

The Notification properties in the Alarm Dispatcher's configuration correspond to the settings used for sending emails to predefined recipients:

Notification

A list of already defined Dispatcher Notifications is displayed in the "Settings" section's "Notifications" window. Other Notifications can be added by using the commands from the "Add New Notification" Ribbon. The Notifications can be organized in folders created with the "Add New Folder" command.

When a new Notification is added, a popup window will open to define its properties. The same window can be opened by double clicking on an already existing Notification.

Notification Properties

Name	Mail_TripAlarm_01
Message	Alarm Active: TripAlarm 01
Recipient	Daniele
Item	Tags/Mail_Notification/Tag_TripAlarm_Mail_01 (AlarmDispatcher)
Plugin	Smtplib mail sender
Attachments	E:\Temp\test.pdf
Priority	1
Type	TripAlarm
Condition	1.00
Activation value	
Severity	100.00
Delay time On	0 days 0:0:0
Delay time Off	0 days 0:0:0

OK Cancel

Window used for setting the Dispatcher Notification properties

The Dispatcher Notification properties are as follows:

Notification Type

- **Local:** A notification will be sent to the user when the alarm activates.
- **Server:** This allows you to select an ServerIO's Alarm Area or Alarm Source to receive notifications of the alarms in that Area or Source from the ServerIO. As a difference to the previous method, the specifics of each Alarm will not need to be redefined each time. In this case, the alarm's text will be passed to the Dispatcher directly from the ServerIO.



The properties displayed afterwards will vary according to the option chosen in this field.

Name

Represents the name associated to the Dispatcher Notification. The name must be unique within each single folder. When using the SMTP plugin for example, the name of the notification will also appear as the email's "subject". When using the SMS plugin, the name will be shown at the beginning of the message.

Message

The notification text to be sent is entered in this field. When using the SMTP plugin, this text will be the email's body content. When using the SMS, this text will be part of the message.

Recipient

The user name or user group to be sent the email or sms is selected in this field. When selecting a user group, the email or sms will be sent to all the users in that group.

Item

This option is used for selecting the Server Tag based on which value the notification will be sent.

Plugin

This option is used for selecting the plugin to be used for sending the notification.

Attachments

This field is only available when the SMTP plugin has been selected and is used for selecting one or more files to attach to the email.

Priority

This option is used for setting the notification with a priority. A delay time can be established by using this priority for sending the notification according to the Dispatcher's general "Priority - Delay Table" settings.

Alarm Type

This option is used for defining the alarm type to be used for sending the notification. The options are:

- **ExclusiveLevel**
- **NonExclusiveLevel**
- **ExclusiveDeviation**
- **NonExclusiveDeviation**
- **ExclusiveRateOfChange**
- **NonExclusiveRateOfChange**
- **TripAlarm**

Item di notifica

The selection made in this field will change according to what "Notification Type" has been set as follows:

Local Notification Type: A ServerIO tag can be selected in this field and based on its value an alarm notification will be sent according to the predefined settings.

Server Notification Type: An ServerIO Area or Source from which to receive Alarms can be selected in this field. In this case notifications of Alarms triggered by the ServerIO will be sent directly.

Condition

This selection field is only available when the TripAlarm alarm type has been selected. For further information please see section: "Alarm Prototype Settings"

Activation Value

This selection field is only available when the TripAlarm alarm type has been selected. For further information please see section: "Alarm Prototype Settings".

Deviation Type

This selection field is available only when the ExclusiveDeviation, NonExclusiveDeviation, ExclusiveRateOfChange or NonExclusiveRateOfChange alarm type has been selected. For further information please see section: "Alarm Prototype Settings".

High High Level (enable)

This selection is used for enabling the "High High Level" alarm's intervention threshold. Once the threshold has been enabled, it will then be possible to insert the activation value using the "High High Level (Value)" field.

High High Level (value)

This field is only available when the ExclusiveDeviation, NonExclusiveDeviation, ExclusiveRateOfChange or NonExclusiveRateOfChange alarm type has been selected and when the threshold has been enabled using the "High High Level (Enable)" property. For further information please refer to the section on: "Alarm Prototype Settings".

High Level (enable)

This selection is used for enabling the "High Level" alarm's intervention threshold. Once the threshold has been enabled, it will then be possible to insert the activation value using the "High Level (Value)" field.

High Level (value)

This field is only available when the ExclusiveDeviation, NonExclusiveDeviation, ExclusiveRateOfChange or NonExclusiveRateOfChange alarm type has been selected and when the threshold has been enabled using the "High Level (Enable)" property. For further information please refer to the section on: "Alarm Prototype Settings".

Low Level (enable)

This selection is used for enabling the "Low Level" alarm's intervention threshold. Once the threshold has been enabled, it will then be possible to insert the activation value using the "Low Level (Value)" field.

Low Level (value)

This field is only available when the ExclusiveDeviation, NonExclusiveDeviation, ExclusiveRateOfChange or NonExclusiveRateOfChange alarm type has been selected and if the threshold has been enabled using the "Low Level (Enable)" property. For further information please refer to the section on: "Alarm Prototype Settings".

Low Low Level (enable)

This selection is used for enabling the "Low Low Level" alarm's intervention threshold. Once the threshold has been enabled, it will then be possible to insert the activation value using the "Low Low Level (Value)" field.

Low Low Level (value)

This field is only available when the ExclusiveDeviation, NonExclusiveDeviation, ExclusiveRateOfChange or NonExclusiveRateOfChange alarm type has been selected and when the threshold has been enabled using the "Low Low Level (Enable)" property. For further information please refer to the section on: "Alarm Prototype Settings".

Severity

This parameter is used for giving the notification a severity level. This severity field is displayed when event is recorded in the Historical Log.

Delay Time On

This parameter determines the notification's activation delay time. For further information please refer to "Alarm Prototype Settings".

Delay Time Off

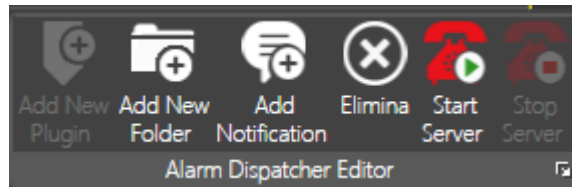
This parameter determines the notification's deactivation delay time. For further information please refer to "Alarm Prototype Settings".

Time Unit

This selection field is only available when a ExclusiveRateOfChange or NonExclusiveRateOfChange has been selected. For further information please refer to "Alarm Prototype Settings".

Commands for inserting a new Dispatcher Notification

Commands for editing the Alarm Dispatcher Notifications are located in the "Alarm Dispatcher Editor - Alarm Dispatcher Editor" Ribbon.



Ribbon contains Dispatcher Notification editing commands.

Add New PlugIn

This command inserts a new PlugIn for sending Alarm Dispatcher Notifications.

Add New Folder

This command creates a new Folder within which the Alarm Dispatcher's Notification can be inserted. These folders are only used for project organization purposes and can be nested at different levels.

Add New Notification

this command is used for inserting a new Alarm Dispatcher Notification that will then need configuring as required.

Start Server

The Alarm Dispatcher is in fact a OPC UA Server, that connects as Client to the Project's Server. The Start command is used for starting up the Server manually.

Stop Server

This command Stops the Alarm Dispatcher Server manually after the Start command has been used for starting it up.

2. Plugin

2.1.1. Smtplib Mail Sender

The "Smtplib Mail Sender" plugin is used for sending messages with email (electronic post) using direct access to a Server with SMTP protocol. In this case the sending of emails will not require an electronic post program (i.e Ms Outlook) to be installed in the system PC. However the notification system does require internet access.

SMTP Settings	
Server Address	smtp.gmail.com
Server Port	25
Username	progea.com@gmail.com
Password	••••••••
From	progea.com@gmail.com
Enable SSL	<input checked="" type="checkbox"/>
Enable RAS	<input type="checkbox"/>
Dialup Entry name	
Phone number	
RAS User	
RAS Password	
Retry timeout (sec.)	25
Disconnect after (sec.)	25
Retries number	3
Custom Phonebook Path	

OK Cancel

The "Smtplib Mail Sender" plugin settings window.

The "Smtplib Mail Sender" plugin's configuration parameters are:

Server Address

This setting is used for defining the post Server name (post service provider) with whom an account has been established.

Server Port

This parameter is used for specifying the port to be used. A default port will be proposed according to the security type selected whose value may need changing according to the Server being used.

Username

This edit box is used for specifying the user name for accessing the post Server. This user name must correspond to an account that the Server can recognize.

Password

This edit box is used for specifying the password of the user who accessed the post Server.

From

This setting is used for defining an address to be specified in the message as the sender's address. This setting is useful when using Servers that only allow mail to be sent if the sender belongs to its dominion.

Enable SSL

This parameter is used for selecting the security type implemented by the Server being used. If the Server, for example, implements the SSL security, it will be necessary to select this option and specify the port number used by the Server in the "Port" property. This will enable web post Servers such as "Gmail" and "Hotmail" to be used as well.

Enable RAS

This option enables the use of a RAS connection for accessing the Server via modem. Contrary to this, Server access (internet) will use a permanent connection (e.g. LAN).

Dialup Entry Name

This parameter is used for specifying the name of an already available connection in the operation system (previously inserted as a network connection) that can be used.

Phone Number

This parameter is used for defining the telephone number for accessing service in cases where the Dialup Entry Name is not used.

RAS User

This parameter is used for defining the name of the user for accessing the service in cases where the Dialup Entry Name is not used.

RAS Password

This parameter is used for defining the password of the user accessing the service in cases where the Dialup Entry Name is not used.

Retry Timeout (sec)

Time to wait before retrying to connect when in error.

Disconnect After (sec)

Time after which disconnection will take place.

Retries Number

Number of connection retries when in error.

Custom Phonebook Path

This parameter is used for specifying the Windows "Phonebook" file path from which to retrieve connection information. In this case the name of the connection to be used must be specified in the "Dialup Entry Name" parameter.

2.1.2. GsmSMS Sender

The "GsmSMS Sender" plugin enables messages to be sent with the Gsm-based SMS technology using any standard GSM modem.

GsmSMS Settings	
Timeout	5000
Pause	2000
Initialization string	ATE0
Service Center number	
Pin	
PUK	
Pin2	
Send as PDU	<input type="checkbox"/>
Port Name	Com4
Baud Rate	9600
Data Bits	8
Parity	None
Stop Bits	One
Handshake	None
Rts Enable	<input type="checkbox"/>
Dtr Enable	<input type="checkbox"/>
Read Timeout (ms)	5000
Write Timeout (ms)	5000

OK Cancel

The "GsmSMS Sender" plugin settings window.

The "GsmSMS Sender" plugin's configuration parameters are:

Timeout

This parameter is used for specifying the Timeout duration to be used by the serial port to which the Modem is connected.

Pause

This parameter is used for specifying the Pause time to be used by the serial port to which the Modem is connected.

Initialization String

ATE0 is normally used as the modem's initialization string but as a precaution, please refer to the documentation of the modem being used.

Service Center Number

This number may be required by the SIM Card used by the modem for accessing telephone operator service centers.

Pin

The Pin of the SIM card inserted in the Modem.

PUK

PUK of the SIM card inserted in the Modem.

Pin2

Pin2 of the SIM card inserted in the Modem.

Send us PDU

When this option is enabled the message will be sent in PDU format.

Port Name

Name of the serial port to which the Modem is connected.

Baud Rate

Baud Rate of the serial port to which the Modem is connected.

Data Bits

Data bit number of the serial port to which the Modem is connected.

Parity

Parity of the serial port to which the Modem is connected.

Stop Bits

Stop Bit

Handshake

Handshake type of the serial port to which the Modem is connected.

Rts Enable

Enables the Rts signal of the serial port to which the Modem is connected.

Dtr Enable

Enables the Dtr signal of the serial port to which the Modem is connected.

Read Timeout (ms)

Timeout for reading messages.

Write Timeout (ms)

Timeout for writing messages.

2.2. Sending Vocal Messages

Vocal messages can be sent to an individual recipients or a group of recipients by using the VOIP system. The message is considered listened to and can no longer be resent when the recipient answers the call and confirms to have listened to the message or messages when pressing the phone buttons (see "Imposta forzatura ACK" property). Several messages may be sent in addition to the original one while answering the call. This is because when the first message is being listened to, the plugin searches for other messages addressed to the recipient who is listening to the message. When other

messages addressed to the recipient who is currently listening to the first message, they will be sent straight away to avoid calling same recipient again.

Calls can be made in two different ways:

- **Direct IP Call:** Here the recipient is a VOIP client and can be reached by specifying their IP address. This does not require any account from a VOIP service provider.
- **Call with provider:** Here the services of a provider are used and communication is setup with the plugin using a pstn telephone and mobile phone network. In this case you will need to open a SIP account with the VOIP service provider and get access to the server. The server access settings are included in the plugin's configuration.



Skype was used as the VOIP service provider when testing Movicon.NExT. Please consult the relevant provider information on subscription fees and restrictions.



To install a different language for the Windows voice syntax please consult the relative pages in Help di Microsoft.

The "Voice over IP message sender" Plug-in configuration parameters are as follows:

Welcome Message

Synthesized welcome text when recipient answers call.

Farewell Message

Synthesized text used before terminating call.

Next Message

Synthesized text when additional alarm messages are sent in addition to the first one sent in the same call. This text is heard between one message and the next.

TimeOut

Timeout in seconds for operations during the call.

Max. Retry

Maximum number of call attempts towards recipient.

Multiplex

This concerns calls to recipient groups. When set to true: if the message is listened to by one of the group members, it is only acknowledged after the message is sent to all the other group members. When set to false (default): if one group member listens to the message, it is acknowledged as being sent and therefore no other calls will be made to the other group members.

Force Sharp ACK

This concerns the mode used by the recipient to confirm to have received and listened to message. When set to false (default), the recipient need only press one of the phone keys (0-9, *, #) to confirm after which the plugin starts synthesizing the message. When set to true, the recipient must press the # key to confirm that they have listened to message. If the recipient presses another key, the plugin will send the text of any other existing messages (addressed to the same recipient), otherwise it will repeat the same message again. When the recipient presses #, all existing messages addressed to that recipient will be acknowledged as listened to even though not yet sent by the plugin.

Enable SIP Server

When set to true, the plugin will try to connect to a VOIP provider using the settings detailed below. When set to false, the plugin will try to connect to the recipient using a direct IP call.

Registration Required

(SIP Server) When set to true, the telephone line is registered once connected to the VOIP server (SIP account may then be required).

Display Name

(SIP Server) SIP account settings.

User Name

(SIP Server) user name for VOIP server authentication.

Register Name

(SIP Server) Name used by server for registration. The account often uses the same string for DisplayName, UserName and RegisterName.

Register Password

(SIP Server) password for VOIP server authentication.

Registration Timeout

Timeout in seconds used for confirming registration to VOIP server.

Host

(SIP Server) Url (or IP address) of VoIP server.

Port

(SIP Server) TCP port to connect with the VoIP server (5060 is used for default for the SIP service).

Selected Voice

Name of the voice to use for the vocal syntax. The combo box shows all the voices that have been installed on the pc and which the TextToSpeech service can use.

Rate

TextToSpeech setting. Range -10,+10. Influences the speed, fast or slow, with which the text is synthesized.

2.3. Telegram Sender

The "Telegram sender" plugin allows you to send instant telegram messages similar to Whatsapp.

Unlike WhatsApp, Telegram (<https://telegram.org>) is an open source messenger service based on cloud with instantaneous synchronization that allows you to access messages from different devices simultaneously, such as smartphone, tablet and computer. The Telegram client is available as:

- app for Android, iOS and Microsoft mobile devices,

- desktop client for Windows, Linux and MacOS
- a web app

In order to send messages with Telegram, you will need to create a Bot to receive messages sent by the Alarm Dispatcher.

The Bot will send messages it receives to chats or groups defined in the project using the Telegram ChatID properties at User or User Group level.

It is the discretion of the developer to create a chat group in which to add all the notification message recipients, or create private chats between the Bot and each individual user.

Communication is unidirectional, therefore the Alarm Dispatcher communicates the activation of an alarm to the Bot which then sends the alarm activation notification to the various chats set in the project. As this type of communication is unidirectional, users will not be able to use the Bot to talk with each other but use private chats to contact each other outside the Telegram Group.

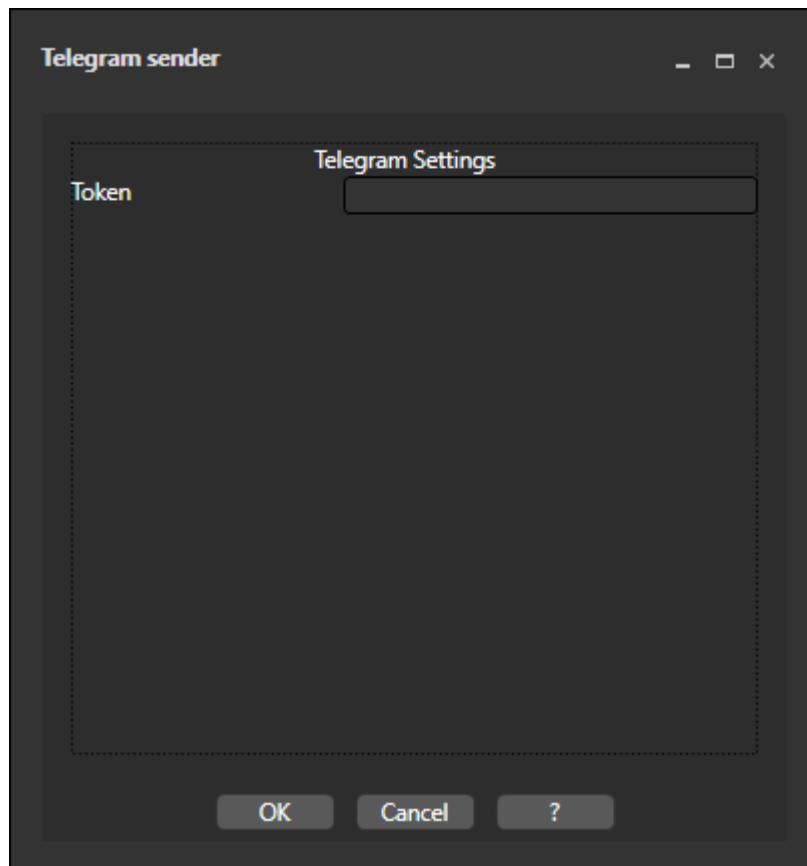


In order to use a Telegram Group to receive notifications from the Alarm Dispatcher, the Group will need to include a Bot.

Bots use Tokens in order to be identified.

In order to create a chat with a certain Bot, simply create a new chat and search for the Bot by its username.

The Plug-in configuration parameters are:



Token

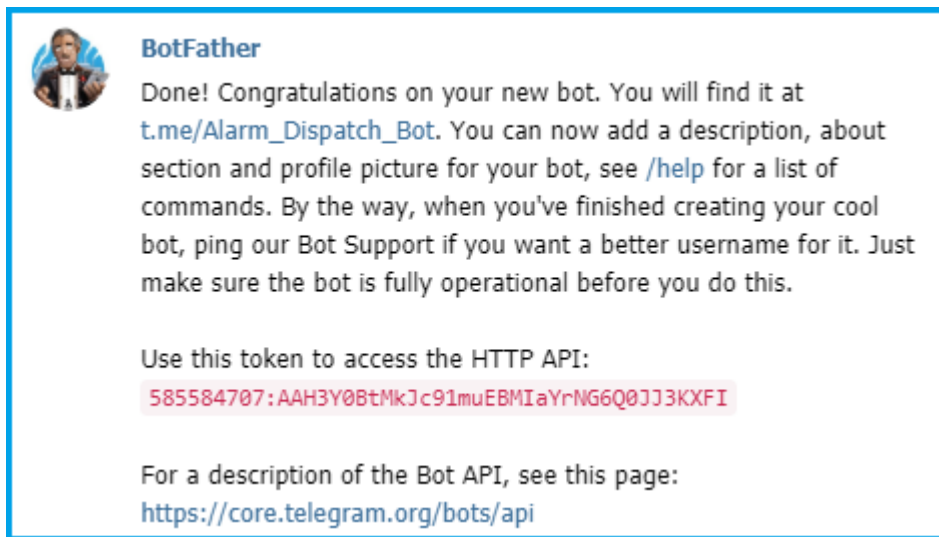
This parameter is used to identify the Bot to which messages will be sent.

In order to obtain this identification you will need to create a Bot using the Telegram app as follows:

- start up the Telegram app
- create a new message and use the magnifying glass icon to search for the 'BotFather' user among the contacts



- select Start to start the chat
- send a message with the "/newbot" text to command the creation of a new Bot
- define the Bot's name
- define the Bot's user name
- upon terminating the procedure, the token string will show to allow you to insert in the plug-in's property



After having configured the Token parameter, it will be necessary to start a chat with the Bot or add it to a group.

If you use a group in Telegram, the group ID should be indicated in the project's User Group property

When using private chats, the Chat ID, should be indicated in the project's User properties



In order to use Group ID defined at Movicon User Group level, you will need to have a user with an empty Telegram ChatID field in the User Group and to select the ADMessageGroup flag at Alarm Dispatcher Notification level.

