



## **Twilio Notification Module User Guide**

## Table of Contents

<b>Table of Contents</b>	<b>2</b>
<b>Introduction</b>	<b>3</b>
<b>Setup</b>	<b>4</b>
Twilio Profile	4
Twilio Message Notification Profile	6
Twilio Voice Notification Profile	6
Twilio Port Settings	8
Twilio SSL Settings	9
<b>Scripting : Twilio Notifications</b>	<b>10</b>
system.twilio.sendMessage()	10
system.twilio.getUser()	11
system.twilio.deleteAlarm()	12
system.twilio.getAlarmEvent()	13
<b>Scripting : TwilioUser</b>	<b>14</b>
getUsername()	14
getPhoneNumber()	15
getMessagesReceived()	16
getMessagesSent()	17
getCallsReceived()	18
getCallsSent()	19
getCallMinutesReceived()	20
getCallMinutesSent()	21
<b>Scripting : Call Scripting</b>	<b>22</b>
<b>Scripting : SMS Scripting</b>	<b>23</b>
<b>Tags : Twilio Notifications</b>	<b>24</b>
<b>Patch Notes</b>	<b>24</b>
<b>Support</b>	<b>24</b>

## Introduction

The Kymera Twilio Notification module allows for integration with the Twilio API for the sending of SMS and voice notifications when alarms are triggered. In addition, the module exposes the ability to manually send SMS messages via scripting, and exposes the ability to script custom handling for calls.

# Setup

## Twilio Profile

Go to the **Twilio > Profiles** menu in the Configuration section of your gateway.

Click on "Create a new Twilio Profile".

Fill out the appropriate fields.

### Main

Name	The name of the profile.
Account Sid	The Twilio account Sid.
Auth Token	The authentication token from Twilio.
External Hostname	The publicly available hostname of this server. If left blank, alarm acknowledgements will not be enabled.
Fallback Hostname	The Fallback hostname that the server connects to if it fails to connect to the External Host.
Phone Number	The phone number to use to send and receive messages. This must be already active in Twilio and be e.164 formatted (starting with a +).

### Proxy Settings

Proxy Host	The host address for HTTP proxying. If left empty, no attempt to proxy will be made.
Proxy Port	The port to connect to the proxy. Can be between 0-65535. If left empty, no attempt to proxy will be made.

### Other

Edge Location	A comma separate list of Twilio edge locations. Will cycle through the list as retries occur.
Connect Timeout	A comma separate list of Twilio edge locations. Will cycle through the list as retries occur.
Read Timeout	Timeout in ms, min 100, max 10000.

Total Time	Time in ms Twilio will wait for HTTP request, min 100, max 15000.
Retry Count	Number of retry attempts Twilio will make, min 0, max 5.
Retry Policy	A comma separated list of retries to fail on.
SNI	SNI settings that only apply to HTTPS. Valid settings are y, n or empty.

Press "Save Changes" to create the profile.

## Twilio Message Notification Profile

In order to create a TwilioMessageNotificationProfile, in the Gateway, navigate to **Configure>Alarming > Notification** menu.

Click on "Create a new Alarm Notification Profile".

Fill out the fields on the page accordingly.

### Main

Name	The name of the profile.
Description	The description of the notification profile
Enabled	Checkbox determining if the notification profile is active or not.

### Settings

Twilio Account Settings	Your Twilio account settings, as defined in the Twilio > Profiles menu on the left.
Linked Project	The project to get the Twilio script to run during a call, if any.
Enable PIN per Alarm Mode	Enable whether this profile sends the same, unique PIN for every alarm generated to everyone on the roster.
Enable Alarm Shelving	Enable whether this profile shelves alarms instead of acknowledging them.
Amount of Time to Shelve Alarm	How long to shelve alarm, minutes.

### Audit

Audit Profile	The optional audit profile to log notification activity to.
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## Twilio Voice Notification Profile

In order to create a TwilioVoiceNotificationProfile, navigate to the **Alarming > Notification** menu.

Click on "Create a new Alarm Notification Profile".

Fill out the fields on the page accordingly.

### Main

Name	The name of the profile.
Description	The description of the notification profile
Enabled	Checkbox determining if the notification profile is active or not.

### Settings

Twilio Account Settings	Your Twilio account settings, as defined in the Twilio > Profiles menu on the left.
Language	Configure a voice and language to be used to say your Twilio messages.
Linked Project	The project to get the Twilio script to run during a call, if any.
Enable PIN per Alarm Mode	Enable whether this profile sends the same, unique PIN for every alarm generated to everyone on the roster.
Enable Alarm Shelving	Enable whether this profile shelves alarms instead of acknowledging them.
Amount of Time to Shelve Alarm	How long to shelve alarm, minutes.

### Audit

Audit Profile	The optional audit profile to log notification activity to.
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## Twilio Port Settings

Twilio makes use of a separate web server from Ignition, so that Twilio responses can be port forwarded separately from Ignition.

This functionality is only used for acknowledgement of SMS messages, and for handling the Twilio phone calls, if you do not use that functionality, you do not need to worry about this part of the implementation.

When Twilio is initialized, the port is initialized to 10443. In order to change it, navigate to **Twilio> Settings** in the sidebar menu.

In the Port Number field, enter a value between 0-65535. The current one is displayed in the field.

Click on the Save Changes button to save the changes. Twilio will now listen on the displayed port for acknowledgements.

**This may affect your configured external hostname if you're forwarding directly to Ignition, if you're not, you'll need to update your forwarding solution to forward to the new port.**



## Twilio SSL Settings

The Twilio module by default expects the Gateway to have SSL enabled to ensure a secure connection. **In the event SSL is not enabled or if the keystore/truststore file(s) is missing, the module will still start, but will raise a warning in the Gateway log and will proceed without a secure connection.**

To change the module's SSL settings, in the Gateway, navigate to **Configure>Twilio>Settings** in the sidebar menu. There, the current settings will be listed, and users will have the opportunity to change any by re-writing what is currently in the fields.

When the module is installed, it expects that the keystore and the truststore files are one and the same. The default location for this in Ignition's installation folder, under the **webserver** folder with the filename **ssl.key**. The expected password for this file is **ignition**. If any of these do not match your settings, you will need to change the filepaths and passwords as necessary.

Click on the Save Changes button to save any changes. The module will now look for the files in the new locations and use the given passwords.

**In the event that the passwords do not match what is expected by the keystore/truststore file, the module will not start.**

If the SSL certificate is self-signed, and the Twilio web account has SSL validation enabled, **Twilio will not deliver messages or calls from users back to the Ignition server.**

Twilio will only accept certificates signed by Certificate Authorities found on the Mozilla Trust Store and Java CA Trust Store.

For help installing an SSL certificate on your Ignition Gateway, please visit Inductive Automation's Knowledge Base.

For more information about how Twilio handles the SSL validation, please visit the following link:  
<https://www.twilio.com/blog/2016/02/security-update-on-ssl-certificate-validation.html>

## Scripting : Twilio Notifications

The following scripting functions are available in the system scope:

### `system.twilio.sendMessage()`

#### Description

Sends a message with the specified body to the specified phone number.

#### Syntax

```
system.twilio.sendMessage(number, message)
```

#### Parameters

`String` number – The number to send the message to.

`String` message – The message to be sent.

#### Returns

`boolean` - Whether or not the message was successfully sent.

#### Scope

Client

#### Examples

The following snippet sends a message to a number.

```
system.twilio.sendMessage("+12223334444", "Hello World!")
```

## system.twilio.getUser()

### Description

Get usage statistics about a specific user.

### Syntax

```
system.twilio.getUser(id)
```

### Parameters

[String](#) id – The user's phone number in E.164 format.

### Returns

[TwilioUser](#) – An object containing the user's Twilio statistics.

### Scope

Client

### Examples

The following snippet prints the number of messages that have been sent to a user.

```
userInfo = system.twilio.getUser("+12345678900")  
print(userInfo.getMessagesSent())
```

## system.twilio.deleteAlarm()

### Description

Deletes the record of the Alarm associated with a phone number, but **does not** delete the record of the alarm itself, nor does it acknowledge the alarm.

### Syntax

```
system.twilio.deleteAlarm(id)
```

### Parameters

[UUID](#) id – The alarm's UUID within Twilio.

### Returns

[boolean](#)– Returns a success if it deletes the record.

### Scope

Client

### Examples

The following snippet deletes a record associated with the phone number.

```
system.twilio.deleteAlarm(uuid)
```

## system.twilio.getAlarmEvent()

### Description

Returns the AlarmEvents associated with a given user.

### Syntax

```
system.twilio.getAlarmEvent(user)
```

### Parameters

[User](#) user – An object that implements Ignition's User interface.

### Returns

[AlarmEvent\[\]](#) – A Jython array of the AlarmEvents associated with that user.

### Scope

Client

### Examples

The following snippet prints the number of messages that have been sent to a user.

```
listOfEvents= system.twilio.getAlarmEvent(user)
events = listOfEvents.toList()    #convert Jython array to Python list
for alarm in events:              #events is now a Python list of AlarmEvents
    print(str(alarm.getId()))      #access AlarmEvent as normal
```

## Scripting : TwilioUser

The following functions are available on the TwilioUser object.

### getUsername()

#### Description

Returns the username of the user represented by the TwilioUser object.

#### Syntax

```
getUsername()
```

#### Parameters

none

#### Returns

[String](#) – The TwilioUser's username.

#### Scope

Client

## getPhoneNumber()

### Description

Returns the phone number of the user represented by the TwilioUser object.

### Syntax

```
getPhoneNumber()
```

### Parameters

none

### Returns

[String](#) – The TwilioUser's phone number.

### Scope

Client

## getMessagesReceived()

### Syntax

```
getMessagesReceived()
```

### Parameters

none

### Returns

[int](#) – The total number of messages that have been received from the user.

### Scope

Client



## getMessagesSent()

### Syntax

```
getMessagesSent()
```

### Parameters

none

### Returns

[int](#) – The total number of messages that have been sent to the user.

### Scope

Client

## getCallsReceived()

### Syntax

```
getCallsReceived()
```

### Parameters

none

### Returns

[int](#) – The total number of calls that have been received from the user.

### Scope

Client

## getCallsSent()

### Syntax

```
getCallsSent()
```

### Parameters

none

### Returns

[int](#) – The total number of calls that have been sent to the user.

### Scope

Client

## getCallMinutesReceived()

### Syntax

```
getCallMinutesReceived()
```

### Parameters

none

### Returns

[int](#) – The total number of minutes on calls received from the user.

### Scope

Client

## getCallMinutesSent()

### Syntax

```
getCallMinutesSent()
```

### Parameters

none

### Returns

[int](#) – The total number of minutes on calls sent to the user.

### Scope

Client

## Scripting : Call Scripting

In the Designer, navigate to **Twilio Events** in the project browser.

Select the voice script.

A script can be used to change the call response. Three parameters are available for call scripting:

**String** callAction – The action being invoked on the Twilio API. It is the second-last part of the URL, highlighted below.

```
http://localhost:10443/twilio/voice/voicenotificationprofile/ack/0
```

There are three different types of callAction:

1. say – Triggered when a Twilio call connects or reaches a voicemail
2. ack – Triggered when a call recipient enters a PIN to acknowledge or shelve an alarm
3. rem – Triggered when the module instructs callers or call recipients to enter a PIN

**StringWrapper** response – A wrapper object that will wrap the XML string to send to Twilio instead of the regular response. The necessary header will be prepended. This wrapper only has a single method, and can be used like so:

```
response.setWrapped('<Response><Say voice="man" language="en">Hello world.</Say></Response>')
```

This passed to the wrapper must use the TwiML language, documented here:

<https://www.twilio.com/docs/voice/twiml>

**HttpServletRequest** req – The request sent to our servlet to handle call inputs. This is a Java class, and so has access to it's methods. Parameters for the request are documented here:

<https://www.twilio.com/docs/voice/twiml#request-parameters>

### Example code:

```
logger = system.util.getLogger('voice')
if callAction == 'ack' or callAction == 'rem':
    response.setWrapped('<Response><Say voice="man" language="en">Hello
world.</Say></Response>')
    logger.info('Response is {}'.format(response.wrapped))
```

## Scripting : SMS Scripting

In the Designer, navigate to **Twilio Events** in the project browser.

Select the SMS script.

A script can be used to change the message response. Two parameters are available for call scripting:

**StringWrapper** response – This wrapper object is identical to the one above in call scripting, but the Twiml string used would be:

```
response.setWrapped('Hello world')
```

This value to be passed must use the TwiML language. Further instructions on TwiML and SMS can be found here: <https://www.twilio.com/docs/messaging/twiml>

**HttpServletRequest** req – The request sent to our servlet to handle call inputs. This is a Java class, and so has access to it's methods. Parameters for the request are documented here:  
<https://www.twilio.com/docs/voice/twiml#request-parameters>

### Example code:

```
response.setWrapped('Hello world')
```

## Tags : Twilio Notifications

The Twilio Notifications module includes tags at the following paths:

**System/Gateway/Twilio/CallMinutesReceived**

**Description:** The total call minutes from incoming calls from users.

**Type:** [Int4](#)

**System/Gateway/Twilio/CallMinutesSent**

**Description:** The total call minutes from outgoing calls to users.

**Type:** [Int4](#)

**System/Gateway/Twilio/CallsReceived**

**Description:** The total calls received from users.

**Type:** [Int4](#)

**System/Gateway/Twilio/CallsSent**

**Description:** The total calls made to users.

**Type:** [Int4](#)

**System/Gateway/Twilio/MessagesReceived**

**Description:** The total messages received from users.

**Type:** [Int4](#)

**System/Gateway/Twilio/MessagesSent**

**Description:** The total messages sent to users.

**Type:** [Int4](#)

**System/Gateway/Twilio/UserStatistics**

**Description:** A dataset containing statistics grouped on a per user basis.

**Type:** [Dataset](#)

## Patch Notes

July 2023, build 1072: Fixed SSL mapping. Updated Spark server to fix X509 issue. Fixed inconsistent casing for webhooks. Fixed alarm consolidation. Added feature to allow custom messages in notification block. Added string field for project scripting. Added stronger password/auth token encryption. Added fallback URL.

## Support

1 year of technical support during regular business hours - Monday - Friday 8AM to 4PM MST.

- Free Upgrades with Ignition updates (I.E. 8.0 to 8.01).
- Support may be contacted via email, at [support@kymerasystems.com](mailto:support@kymerasystems.com), or via phone, at 1-800-470-2302. Please allow up to 24 hours for a response from our support team.