



INSTALLATION GUIDE OF THE ONLINE PAYMENT API FOR MOBILE APPLICATIONS

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I. Introduction

I.1 Company overview

DOHONE (INNOV FOR YOU) is a Cameroonian company that has specialized since 2015 in highly secure e-commerce solutions and supports its customers in the implementation of innovative processes at the heart of their business, as well as in the integration of new generation solutions.

I.2 Document context

Ce document est un manuel d'installation de l'api de paiement en ligne de DOHONE, pour votre application mobile, ou site web sans interface graphique DOHONE. Ce module permettra à vos clients de payer vos articles ou vos services directement sur vos applications mobiles. Cette api n'offre pas d'interface graphique, vu que c'est pour mobile, et que il sera impossible pour DOHONE de notifier votre application mobile sur téléphone, du succès de l'opération. Car votre application mobile sur un téléphone bien précis, n'a pas de nom de domaine pour la joindre.



Si par contre, vous souhaitez avoir une API de paiement avec interface graphique, veuillez demander à DOHONE de vous faire parvenir le tutorial d'installation de l'API WEB (pour site).

II. Prerequisites

II.1 Technical skills

Although simple to install, this module requires technical skills in the development of web or mobile applications.

II.2 The merchant code



Before starting the installation, make sure you have already create a DOHONE account and have already received your merchant code by email. This unique identification code is obtained following your request, and will be used later in this tutorial.

If you don't yet have a merchant code, simply write an email to the address infos@my-dohone.com. In this email, you simply ask for a merchant code linked to your DOHONE account and specify the phone number of your account. You will receive the merchant code within hours or minutes.

Warning, to receive your merchant code you must have completed the administrative formalities:

- Contract signing
- Submission of your company's tax file necessary for operators in the fight against money laundering and cybercrime.

III. How It works

If you wish to make your customers pay by Orange Money, MTN Mobile Money, Express Union Mobile or DOHONE transfert, on your mobile application or website without a DOHONE graphic interface, the principle is simple.

You have to create a page in your application where the payment options (Orange Money, MTN Mobile Money, Express Union mobile,...) will be present.

- If the customer chooses **MTN Mobile Money, Express Union mobile, or DOHONE transfert**, you will just need to send an http request to DOHONE containing :
 - The customer's « mobile money number »,
 - The « amount ».

Once this customer has confirmed on his phone, the payment will be made.

- If the customer chooses **Orange Money**, you will just need to send to DOHONE an http request containing :
 - The customer's « mobile money number »,
 - The « amount ».
 - An « OTP code » from the customer (obtained by the customer by dialing #150*4*4#), If DOHONE confirm you that it's The OTP Mode that is currently used with Orange Money. If OTP mode is not currently used at DOHONE, you will not need to send this parameter.

Then the payment will be made.



If, on the other hand, you would like to have a **API that offers a multitude of other payment methods**, please ask DOHONE to send you the WEB API installation tutorial (for website with a graphical interface).

If you have understood the principle, roughly speaking, the API consists of 4 calls (*http requests*), which you can use as you wish by sending parameters to the DOHONE server via GET requests:

- **The « START » command**: To initiate a bill that your customer must pay via Orange-Money, MTN-Money, or Express mobile union. Thus, in your application, after the

customer has mentioned his phone number (corresponding to the payment operator), he must click on a button that will launch the "START" command. The purpose of this command is to initiate the payment that the customer will confirm on his or her phone (*in the particular case of Orange Money with OTP MODE, the customer no longer needs to confirm on his or her phone, as the OTP code that he or she has provided allows this transaction to be confirmed*).

After confirmation by the customer or via the OTP, DOH ONE will make this money available to you in your DOH ONE account. In an http response, you will be notified that everything is OK.

- **The « CFRMSMS » command** : This command is used in 2 cases :
 1. When the payment method is "DOH ONE Transfer", a code is sent by SMS to the DOH ONE customer. Your system must therefore send/confirm this SMS code to DOH ONE (maximum 3 attempts).
 2. A new security measure (fight against cybercrime), requires DOH ONE to send a code by SMS to the "mobile money phone number" that should be debited. This code is only sent with the first payment of this customer to your merchant account, via the same operator. That is to say, if it is the first time the X1 number pays via MTN Money (for example) to your account, DOH ONE will send him a code by SMS. Your system must therefore send/confirm this SMS code to DOH ONE (maximum 5 attempts).

In fact, when you launch the START command, and DOH ONE is in one of the 2 cases above, it sends an SMS to the customer's number for security confirmation. The SMS contains a simple code, which you have to send back to DOH ONE via the « **CFRMSMS** » command.

Therefore, after launching the START command, if the DOH ONE response starts with "OK" and contains the word "SMS" (e.g. *OK start: waiting for SMS confirmation*), you must offer the customer an interface where he must enter the confirmation code received by SMS. After this SMS confirmation, your DOH ONE account is automatically credited, you receive a confirmation by email and the customer receives a confirmation by email.

- **The « VERIFY » command**: It allows you to query DOH ONE, so that it can give you a confirmation that your account has indeed received a payment of X FCFA, whose reference is Y. This verification is important to ensure that the OK you received when ordering CFRMSMS or START is not the work of a pirate.
- **The « COTATION » command**: this order allows you to query DOH ONE, to find out how much the customer will spend, so that they can pay your invoice + charges. You certainly know that with each online purchase by the customer, DOH ONE retains his service charges, as well as the operator's charges. So, if your bill is 10.000XAF for example, your customer will have to spend ~10.200XAF, so that the 10.000XAF ends up in your account at the end. The quotation order therefore gives you the total amount of money the customer will spend.

Note: *This amount includes DOH ONE and operator fees.*

IV. Installation

We will proceed in 3 steps: Phase 1 will allow you to assess the total amount you need to inform your client that they are about to spend. Step 2 allows you to receive the actual payment. Step 3 will provide you with security measures.

IV.1 Step 1

IV.1.1 The « COTATION » command

This command allows you to query DOH ONE, to find out what is the total amount you need to inform your customer that he is about to spend, so that he can pay your bill + charges.

This command does not exist on the WEB version of the DOH ONE API, because it is implicit in it; because the amounts are directly displayed to the Internet user on the screen.

Example of request:

<https://www.my-dohone.com/dohone/pay?cmd=cotation&rDvs=XAF&rMt=3500&rMo=1&levelFeeds=0>

- ✔ Literally, this request means: "How much in total will it cost my client to pay me 3500 FCFA via MTN-MONEY on DOH ONE"?

List of parameters :

Cmd	The name of the command. Value : cotation
rDvs	The currency corresponding to the amount. You can choose between 3 currencies only: EUR, XAF, USD
rMt	TOTAL net amount of purchases
rMo	The type of payment the customer will choose to make. The value is numerical. [1] = MTN-Money, [2] = Orange-Money, [3] = Express-Union Mobile, [10] = DOH ONE transfer.
rH	Hashcode of your merchant account. The hashcode that was sent to you by email. This setting is optional. But if you benefit from a custom pricing with DOH ONE, it is necessary to mention this parameter.
levelFeeds	The level of information you wish to receive in return (numerical value): <ul style="list-style-type: none"> ✓ 0 = Purchase amount + Operator fees + customer online DOH ONE fee ✓ 1 = Purchase amount + Operator fees ✓ 2 = Purchase amount + DOH ONE fee for the customer's online purchase ✓ 3 = Purchase amount + DOH ONE merchant online sales fee ✓ 4 = Purchase amount + Merchant's DOH ONE online sales fee + Operator fees

IV.2 Step 2

IV.2.1 The « START » command

Launching the START command is equivalent to launching an http request to the DOHONE server, containing certain parameters, via the GET method.

If you have already had to use the DOHONE Web Site API, the "start" command is exactly the same as the one via the Web Site API. The only difference is that this time you send via the GET method, not POST. The parameters are exactly the same in their entirety; except for the 2 following parameters "cancelPage & logo", which are useless in our case. The order is sent to the same address <https://www.my-dohone.com/dohone/pay>. Basically, nothing changes here.

Example of normal request:

<https://www.my-dohone.com/dohone/pay?cmd=start&rN=Bruno&rDvs=XAF&rMt=3500&rMo=1&rT=673000001&rH=PE458Z7521&rI=1001&source=Car+Dispo>

Example of request for Orange Money (*particularly*) :

<https://www.my-dohone.com/dohone/pay?cmd=start&rN=Bruno&rDvs=XAF&rMt=3500&rMo=2&rT=673000001&rH=PE458Z7521&rI=1001&source=Car+Dispo&rOTP=112233>

In the specific case of Orange Money, DOHONE has 2 payment execution modes. It can be in "OTP" mode (*One Time Password*), or in "Cashout" mode (*the customer must confirm on his phone*). Depending on the 2 scenarios, you must or not, ask your customer to provide an OTP code.

But how do you know if DOHONE is currently in OTP mode with Orange-Money or not. Just run the Start command without "rOTP", the http response will tell you whether to restart the command with the OTP parameter included. If the http response is "KO Start" and contains the word "OTP".

Liste complète des paramètres :

Cmd	The name of the command. Value : start
rN	the name of your customer making the payment
rT	Telephone number of the customer making the payment (Required)
rE	Email address of the customer making the payment
rH	Your Merchant Code that you received by

	email (Required)
rI	Your order number. If your system does not manage an order number, you can remove this parameter. This is optional. But if you provide the order number, it must be unique. Duplicates are ejected on the DOHONE side.
rMo	The type of payment that the customer has chosen to make. The value is numerical. [1] = MTN-Money, [2] = Orange-Money, [3] = Express-Mobile Union, [10] = DOHONE transfer, [17] = YUP.
rOTP	The necessary/mandatory OTP code for payments via Orange Money . Before launching the START command, you will need to have asked your customer to dial #150*4*4# to generate an OTP code. You will send us this OTP code in the START command. (if DOHONE is currently on OTP MODE with Orange Money).
rMt	TOTAL net amount of purchases (Required) . This is the amount to be paid by your client. By default the currency of this amount is the Euro, unless you specify another currency under the 'rDvs' parameter below. (This amount does not include any Dohone or MobileMoney charges. This is only the amount of your invoice)
rDvs	The currency corresponding to the amount you gave. This setting is optional. If you do not specify this parameter, the currency is EUR. You can choose between 3 currencies only: EUR, XAF, USD
source	The commercial name of your application (Required)
notifyPage ou endPage	Automatic notification address in case of SUCCESS of payment. If you have a server, and you want DOHONE to notify it automatically by http in case of successful payment. Confer WEB API Tutorial: Step 2.
motif	You can add a reason to your payment. This information will be sent back to "endPage" in case of successful payment.

- ✔ The parameters "customer name", "customer email", "currency", "Order ID" are optional here. Concerning the currency, if you do not specify it (EUR, XAF, USD), by default it is the euro (EUR).

- ✓ The customer's phone is the phone number that performed the Mobile-Money transfer, or the DOH ONE account.
- ✓ The transfer mode "rMo" receives as value [1] = MTN-Money, [2] = Orange-Money, [3] = Express-Mobile Union, [10] = DOH ONE transfer, [17]=YUP.
- ✓ The amount you specify here is not the total amount of the quotation, but just the net amount of your invoice (without charges). The amount you give is interpreted according to the currency you specify.
- ✓ This "start" command returns a clear text beginning with either "OK" or "KO", followed by a message. You can try it on a WEB browser to see. If the answer starts with "OK", it means that DOH ONE has received your payment request. The rest of dohone's reply indicates the next steps.

Example of HTTP response: (clear text)

OK start : versement effectué. REF: 123456789123456 *(payment completed)*
OK cfrsms : versement effectué. REF: 123456789123456 *(payment completed)*
OK start : en attente de confirmation SMS *(Dohone waits for you to send the cfrsms command)*
KO start : compte de paiement introuvable
KO start : solde insuffisant
KO start : problème sur le réseau de l'opérateur
KO start : impossible de procéder à ce paiement Orange-Money. Code OTP non fourni.
(Dohone waits for you to send the OTP Code for Orange Money deposit)
KO start : ...

- ✓ You can launch this command (start) either by AJAX, form submission, JAVA or any other language.

IV.2.2 The « CFRMSMS » command

Launching the CFRMSMS command is like launching an http request to the DOH ONE server, containing certain parameters, via the GET method. This command is used if, for example, it is a payment via DOH ONE TRANSFER, or for security reasons. The payment will take place if the confirmation of the SMS is correct (*5 attempts maximum*).

The operation on the Web API is also exactly the same as here. Simply send to the same <https://www.my-dohone.com/dohone/pay> address, the code received by SMS under the "rCS" parameter, together with the phone number that executed the payment

Example of request:

<https://www.my-dohone.com/dohone/pay?cmd=cfrsms&rCS=4325&rT=673000001>

Liste des paramètres :

Cmd	The name of the order. Value: cfrms
rCS	The code that your customer has received by SMS
rT	The telephone number that was used for the mobile payment money

- ✔ You are limited to 5 MAX attempts per user session. Beyond 5 attempts, the system will only return "KO ".
- ✔ This command returns a text beginning with either "OK" or "KO", followed by a message. If "OK", the message will end with the DOHONE transaction number..
Example of resultt : « OK cfrmsms : paiement effectué. REF: 432130004 ».



That's it, the first part of the installation is complete. At this point, you can already receive payments on your mobile application to your DOHONE account..



Furthermore, in the following step 3, we will show you how your application will check the effectiveness of the payment as a precautionary measure, before you can render the service to the customer.

IV.3 Step 3

Your system will certainly need to verify the success of the payment transaction before providing the service to your customer. Literally, this command literally asks DOHONE: « **Do you recognise a transaction with a transaction reference number of XXX, a transaction amount of XXX ?** ».

IV.3.1 Method 1 : By Hashing (encryption) via MD5

The first method to verify the integrity and origin of the notification you just received from DOHONE is to perform an MD5 hash comparison.

In fact, DOHONE sends you a string of encrypted characters, via the "hash" parameter received; you must succeed in reconstituting this chain by doing the same encryption; then you compare your result to the chain transmitted by DOHONE. If the two channels are identical, you can continue processing the payment of the customer, with confidence.

It is therefore an MD5 (base 16) encryption, of the concatenation of some of your parameters with your hashing code linked to your account. This code of hash is obtained by consulting your "profile parameter page" on your DOH ONE account online, or following your request, by mail addressed to infos@my-dohone.com.

Below is the formula for generating the value of the **hash** parameter:
MD5 (idReqDoh + rI + rMt + hashing code)

NB : the sign + here means just concatenation. And there is no space between these parameters.

- **idReqDoh** : Payment ID in your DOH ONE account. Parameter that you receive when notifying DOH ONE to your server.
- **rI** : Reference of the transaction in your system. Parameter that you know in your system and that you also receive when notifying DOH ONE to your server. This is your order reference, which you sent to DOH ONE during the initialization of the payment. If you do not manage the command references in your system, ignore this setting here.
- **rMt** : the amount of the initial transaction that you sent to DOH ONE for payment (in FCFA, XAF). It's parameter you also receive when notifying DOH ONE to your server (in XAF). This amount must be in XAF, and must not contain any spaces, no "points", no "commas" (just numbers).
- **Code de hashage** : this is your signature code, which will allow encryption privately. The hash code is obtained by consulting your "profile setting page" on your DOH ONE account online.

In summary, you concatenate the 4 parameters without space between them, and you encode the result in MD5 BASE 16.

The result obtained must be similar to the value that DOH ONE sends to you in the "hash" parameter, during the notification to your server.

For example :

String to encrypt : 6154698745212458 + 1001 + 3000 + 20E16B94120019CA879

MD5 (61546987452124581001300020E16B94120019CA879)

Result encrypted : b891d6a8aed2038c06a0aefc9e6381a7

IV.3.2 Method 2: By sending the "Verify" command to DOH ONE **(OBSOLET)**

This method is obsolete. It is no longer functional on DOH ONE. We unadvise to use it.

To do this with DOH ONE, simply return the same received parameters to DOH ONE at the address : <https://www.my-dohone.com/dohone/pay>

Before sending this http request, add a new parameter named « **cmd** » with the value « **verify** ».

You can send this request via POST or GET, according to your convenience.

For example :

<https://www.my-dohone.com/dohone/pay?cmd=verify&rI=13&rMt=10400&idReqDoh=98778451>

DOH ONE give you the result, « **OK** » text or « **NO** », depending on whether or not it recognize this transaction



If you have made it this far, you have successfully completed the installation. All that is left is to test and use. Congratulations.

Dohone thanks you.