

User Manual

Sixteen

Sixteen Group
9th, November, 2018

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1. Introduction

The Sixteen application is a IP Multimedia Subsystem (IMS) Communication client application developed for the project in Internship Season 16 at DEK Technologies.

Communication has been started since the first person step on earth, voice, body languages, etc are invented for transferring information in our community. When people started explore the world, we also made a distance inside. With the development of the Internet, people are connected again, erasing the distance had made before. Sixteen group which are founded by DEK Technologies, took the responsibility to transferring information over Internet.

The Sixteen application has been developed is a telecommunication client application based on IMS architecture, enhances communication development between distance with voice and video call. The Sixteen application made the world smaller than you thought.

2. General information

The Sixteen application is a desktop application to enable transferring voice and video over the Internet and IMS. The Sixteen Application only run on Windows 10 or above.

2.1. System overview

The Sixteen application has the following functionalities:

1. Login
2. Add new contact
3. Modify contact
4. Delete contact
5. Create call
6. Decline call
7. Hang-up call
8. Transfer Voice
9. Transfer Video

2.2. Pending Sixteen features

Following features are going to release on future version:

1. Transfer Files
2. Register

2.3. Contact

If you want to comments, chatting, inform Sixteen Group about The Sixteen application, please contact via e-mail: **tnluan97.it@gmail.com**

3. Getting started

3.1. User Account

The Sixteen application only allows accounts that registered before on Home Subscriber Server.

If you want to register, please feel free to contact us.

3.2. Application Installation

Following instructions will guide you to install The Sixteen Application on your desktop running Windows 10 or above

1. Open *cmd*
2. Clone The Sixteen application from Github

```
git clone https://github.com/tienhung2812/IMS-dek.git
```

3. Open *eclipse*

File > Open Projects from File System

Directory

The Sixteen cloned repository > IMS-dek > gui_client > OK > Finish

4. Press *Ctrl+F11* or *Run New Controller*

3.3. Register new user on database

Because we have not developed *Register* function, *Register* must be done manually follow below instructions:

1. Using *Web Browser*

Go to <http://192.168.122.39>

2. Select Tab *User Identities*
3. Create *IMS Subscription*

IMS Subscription > Create

IMS Subscription -IMSU-

ID	-1
Name*	*yourusername*
Capabilities Set	cap_set1
Preferred S-CSCF	scscf1
S-CSCF Name	
Diameter Name	

Mandatory fields were marked with "*"

Save Refresh Reset

Save

4. Create appropriate Private Identities

Private Identities > Create

Private User Identity -IMPI-

ID	-1
Identity*	*yourusername*@open-ims.
Secret Key*	*yourpassword*

Identity: *yourusername*@open-ims.test

Secret Key: *password*

All	<input checked="" type="checkbox"/>
Default	Digest-AKAv1-MD5 ▼
AMF*	0000
OP*	00000000000000000000000000000000
SQN*	000000000000
Early IMS IP	
DSL Line Identifier	
GUSS	

Mandatory fields were marked with "*".
m is considered in hex representation if its value is 16 bytes long or el

Save Refresh Reset

Save

5. Create Public Identity

Public Identities > Create

ID	-1
Identity*	sip:*yourusername*@open-ims.test
Barring	<input type="checkbox"/>
Service Profile*	default_sp ▼
Implicit Set	-1
Charging-Info Set	Select Charging-Info... ▼
Can Register	<input checked="" type="checkbox"/>
IMPU Type*	Public_User_Identity ▼
Wildcard PSI	
PSI Activation	<input type="checkbox"/>
Display Name	
User-Status	NOT-REGISTERED

Mandatory fields were marked with "*"

Save Refresh Reset

Then

Add Visited-Networks

open-ims.test ▼	Add
-----------------	-----

List of Visited Networks

ID	Identity	Delete
1	open-ims.test	<input type="checkbox"/>

Associate IMPI(s) to IMPU

IMPI Identity	*yourusername*@open-im	Add
---------------	------------------------	-----

Warning: This IMPI will be associated with all the corresponding IMPUs (within the same implicit-set)!

List of associated IMPIs

ID	IMPI Identity	Delete
----	---------------	--------

Push Cx Operation

Apply for	User-Data ▼
Execute	PPR

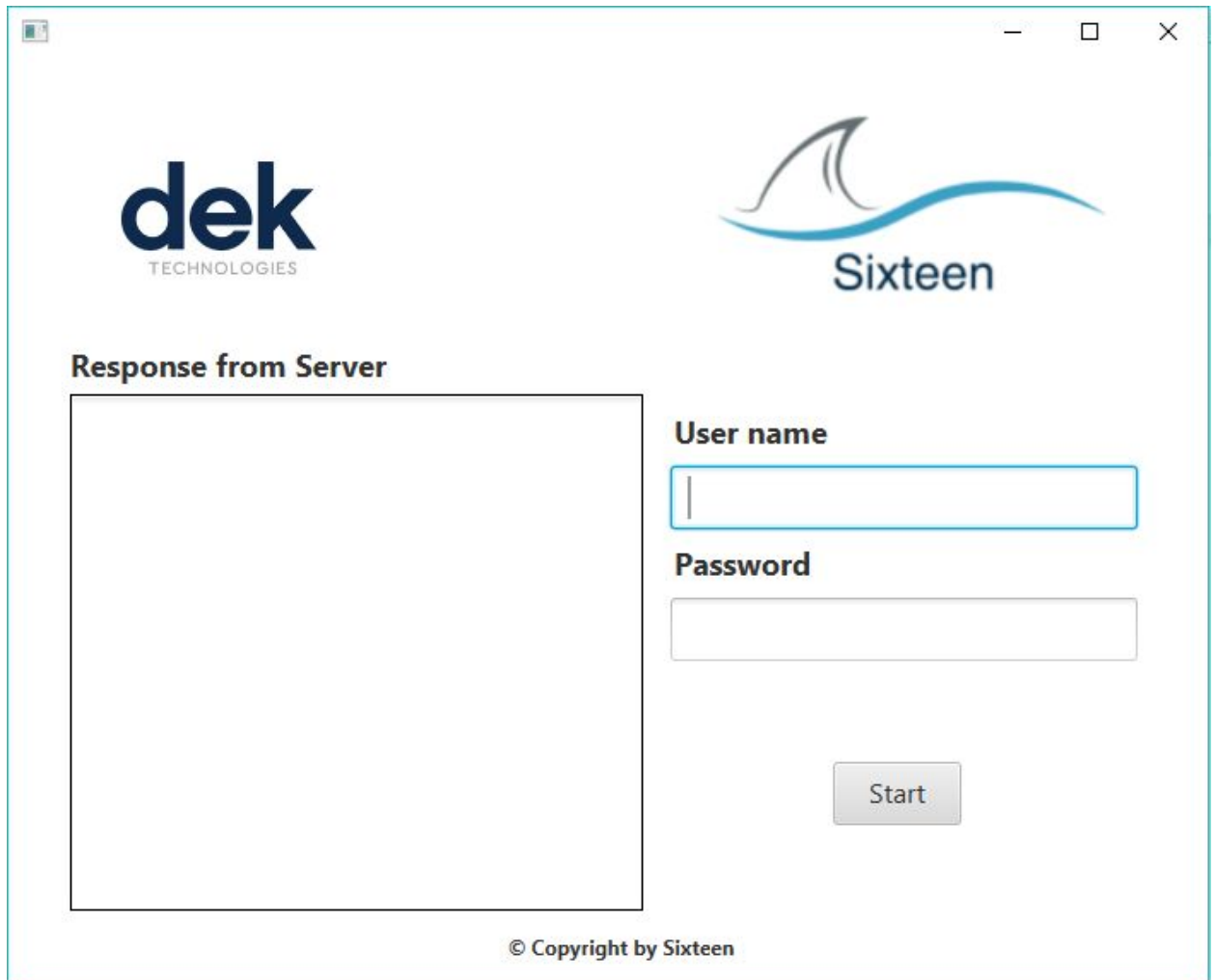
6. Done

Now your account has been registered into HSS database and now Sixteen Application allow you to *Login*

4. Using the application

4.1. Start Screen

When launching the application, the start screen will appear.



The screenshot shows a window titled "Start Screen" with a light blue header bar. The window contains the following elements:

- dek TECHNOLOGIES** logo on the left.
- Sixteen** logo on the right, featuring a stylized blue wave above the word "Sixteen".
- A section titled **Response from Server** with a large empty rectangular box below it.
- Form fields for **User name** and **Password** on the right side.
- A **Start** button below the password field.
- Copyright notice: **© Copyright by Sixteen** at the bottom center.

4.1.1. Login



The logo for 'Sixteen' features a stylized blue wave with a grey sail-like shape above it, and the word 'Sixteen' in a blue sans-serif font below.

User name

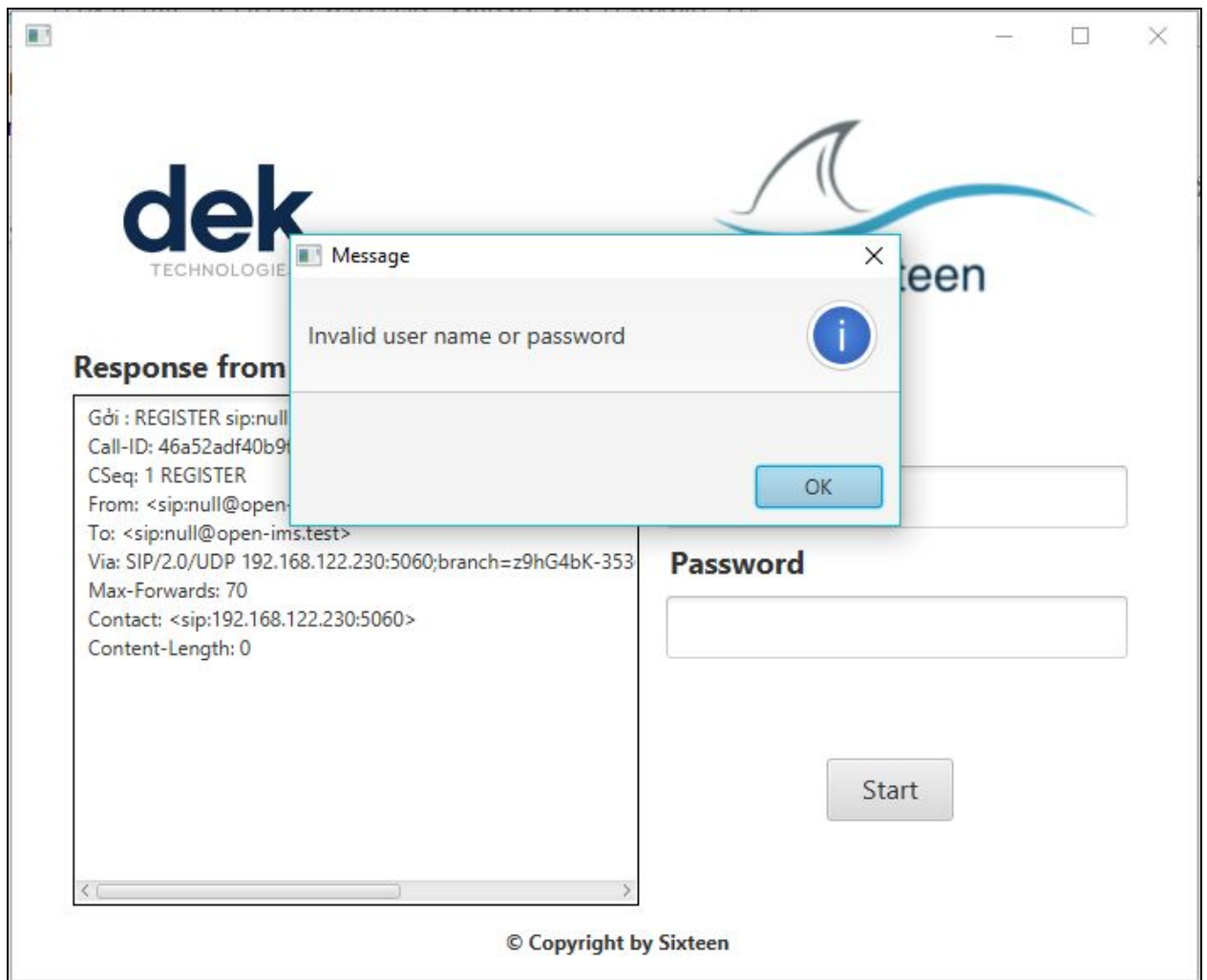
Password

Start

by Sixteen

The user fill the suitable information into the Username field and the Password field, then press the Start button. It will do the registration for the account.

If the registration is success, the Start Screen will close and the Contact Screen will appear. Otherwise, the alert box will show up to notify the user why it cannot register for the account.



4.1.2. Response from server

This is a text box to show message between server and application. It is mainly used to testing purpose.



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4.2.1. Contact List

Contact list	
User Name	URI
luan	luan
Quang	quang
tien	tien
khanh	khanh

4.2.1.1. Contact Container

This container displays a list of the existing contacts. There are two fields:

- Username: contains contact's name .
- URI: contains contact's SIP URI address. This address acts like a phone number or email address, it is used to call another user through SIP.

4.2.1.2. Add Contact

A screenshot of a web form titled "Add Contact". It contains two text input fields. The first field is labeled "User name" and the second field is labeled "URI". Below the fields are two buttons: one with a person icon and a green plus sign, and another with a person icon and a red minus sign.

Next to the contact container is the Add Contact area. To add a contact, the user has to write contact's name in User Name field and the SIP URI in URI field.

The format of SIP URI is <sip:username@domain>. However, the user just needs to write the username part. When a call is made, the application automatically formats it into the right format.

After filling those two fields, press the add contact button to add the contact to the list.

4.2.1.3. Delete Contact

Select a contact in the contact list, then press the delete contact button in the Add Contact area.

4.2.1.4. Edit Contact

In the contact list, double click on the contact (User Name field or URI field) you want to edit. After editing, press Enter to save it.

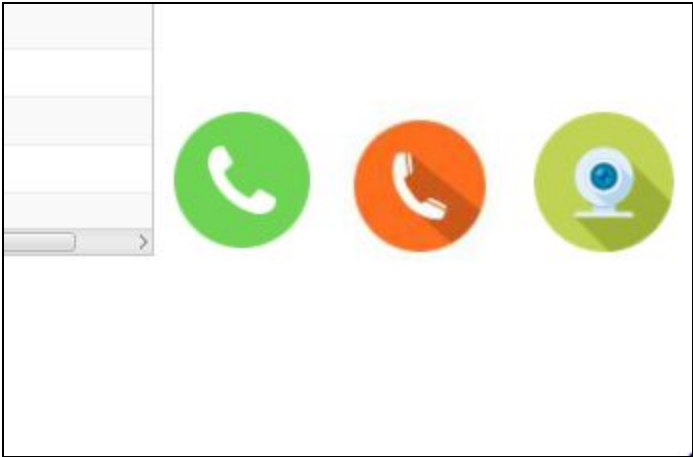
Contact list

User Name	URI
luan	luan -> tien
Quang	quang
tien	tien
khanh	khanh

Contact list

User Name	URI
luan	tien
Quang	quang
tien	tien
khanh	khanh

4.2.2. Call Area



- 4.2.2.1. Component
- The Call Button
 - The Decline Button

- The Video Call Button

4.2.2.2. Make Call/ Pick up Call


When the user want to make a call, first, select a contact in contact list, then press the Call button.

Contact list

User Name	URI
luan	luan
Quang	quang
tien	tien
khanh	khanh

User nam

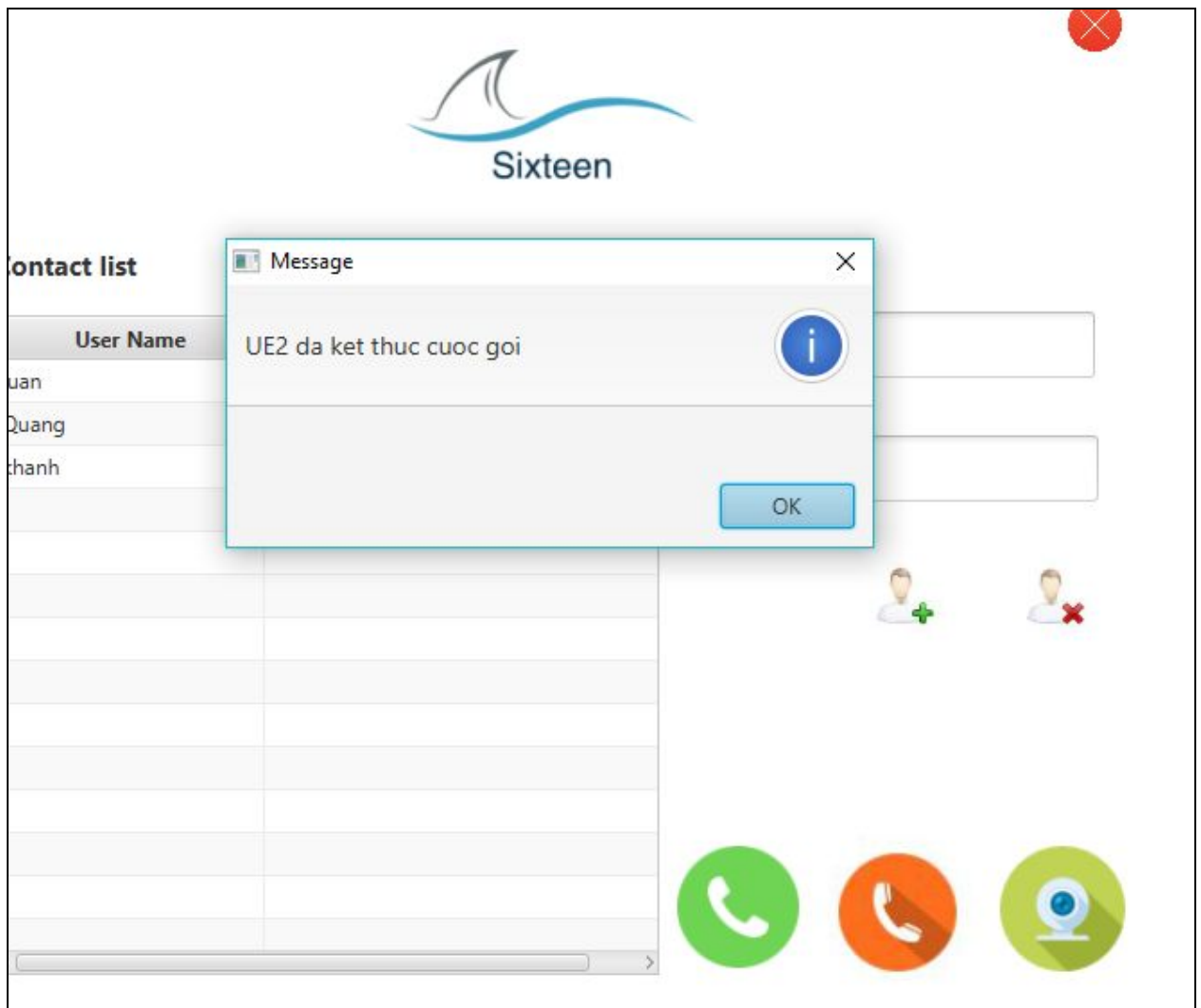
URI



Similarly, when someone is calling and the user want to pick up, press the Call button.

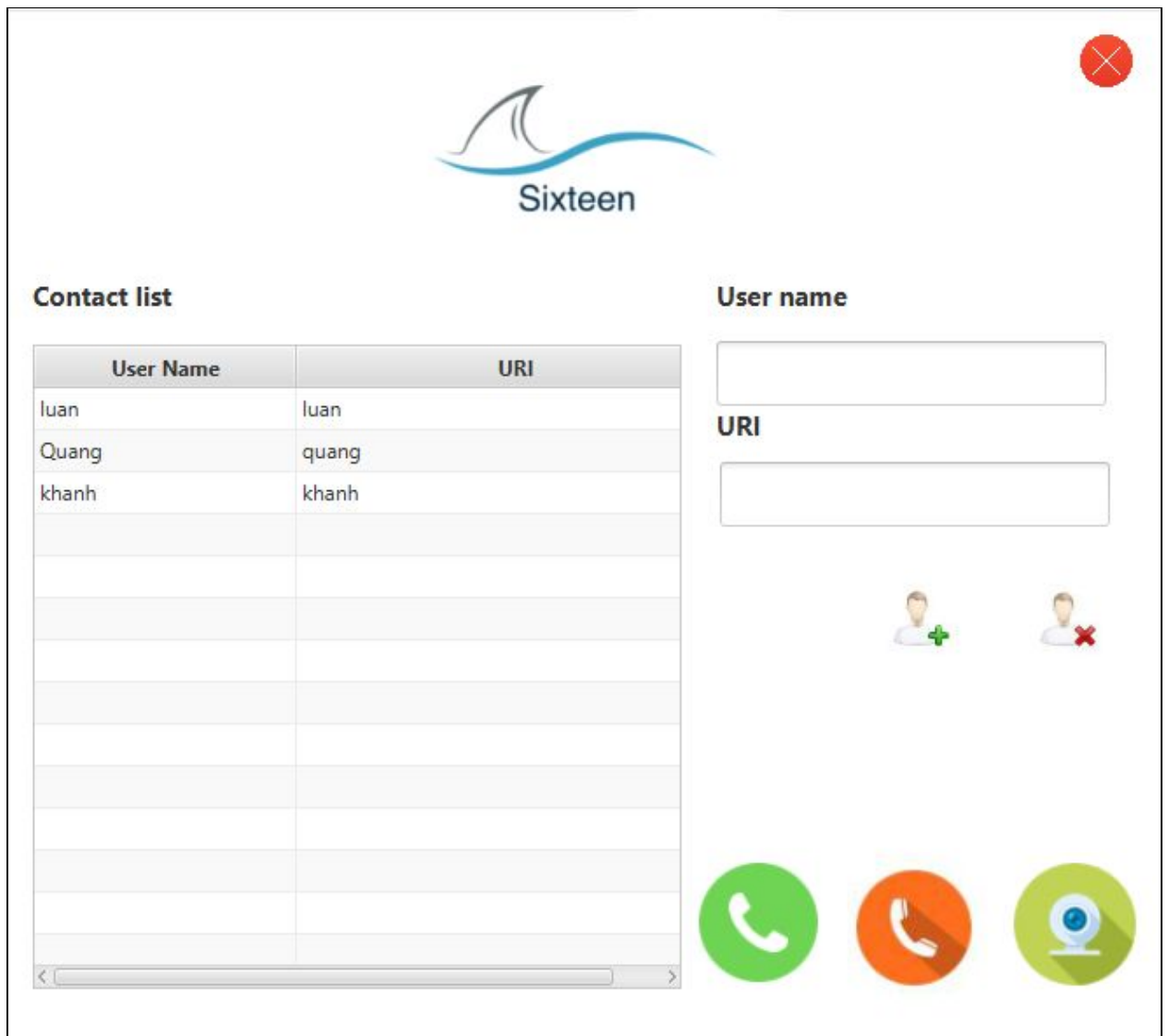
4.2.2.3. Decline Call

When the user want to decline or hang up a call, press the Decline button. An alert box will show up to notify the call is terminated.

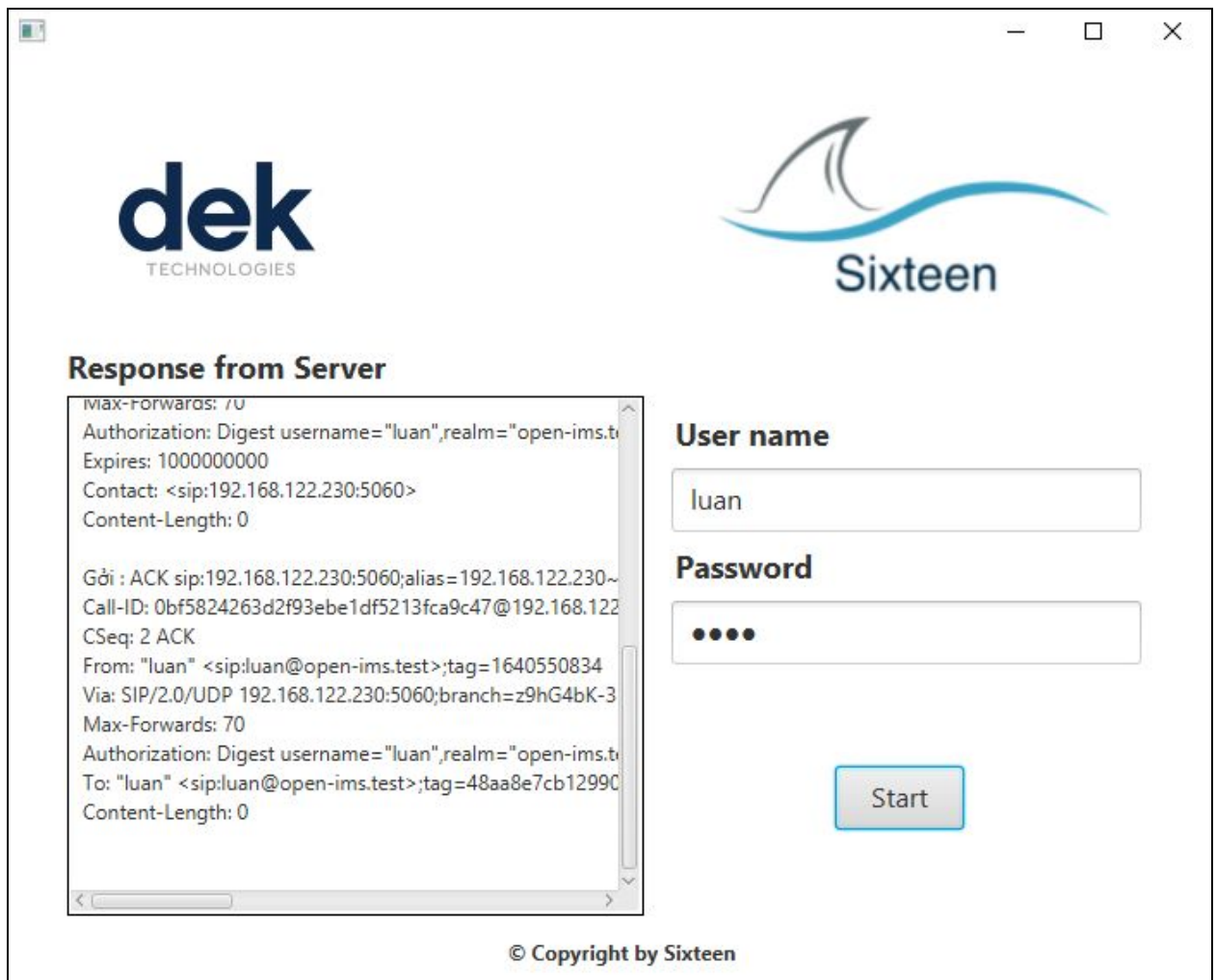


4.2.3. Escape Button

When this button is pressed, the user will be deregistered. After that, the Contact Screen will close and the Start Screen will appear. The User can use another the account to login(register).



Before press Escape Button



After press Escape Button



Glossary of terms and abbreviation

IMS - IP Multimedia Subsystem

HSS - Home Subscriber Server

SIP - Session Initial Protocol

URI - Uniform Resource Identifier