LYNXED
LYNX MOBILE APPLICATION

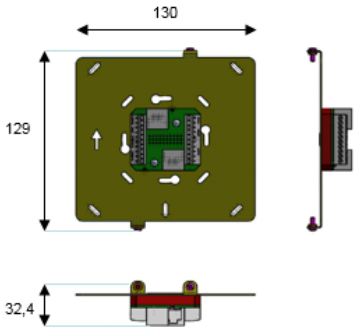
Installer’s Manual

INDEX

1. INTRODUCTION

FERMAX Lynx is a network for communication, based on the Internet Protocol, between door entry panels and video indoor station door phones. The LYNX system is Data, Audio & Video multi-channel based on TCP/IP. LYNX monitors communicate with an IP based video door entry panel (the LYNX A&V module) and a PC based IP Guard Unit (the Property Management Unit).

VIVO LYNX monitors are hands free, half duplex audio and color video with 7" touch screen and additional capacitive push-buttons for usual functions.



FERMAX Lynx Mobile aims to extend such functionality, currently limited to VIVO monitors to personal mobile smartphones, for broadly extended mobile operating system, such as Android and iOS.

Mobility features can also be managed through the Property Management Unit, as described in section 3.

Note.
To install the app "Lynxed Android", the minimum version required of Android is 4.2.
To install the app "Lynxed iOS", the minimum version required of iOS is 5.

2. LYNX MONITOR

This section aims to describe into detail the operation mode of the Lynx mobility component, which is installed as part of the LYNX monitor firmware.

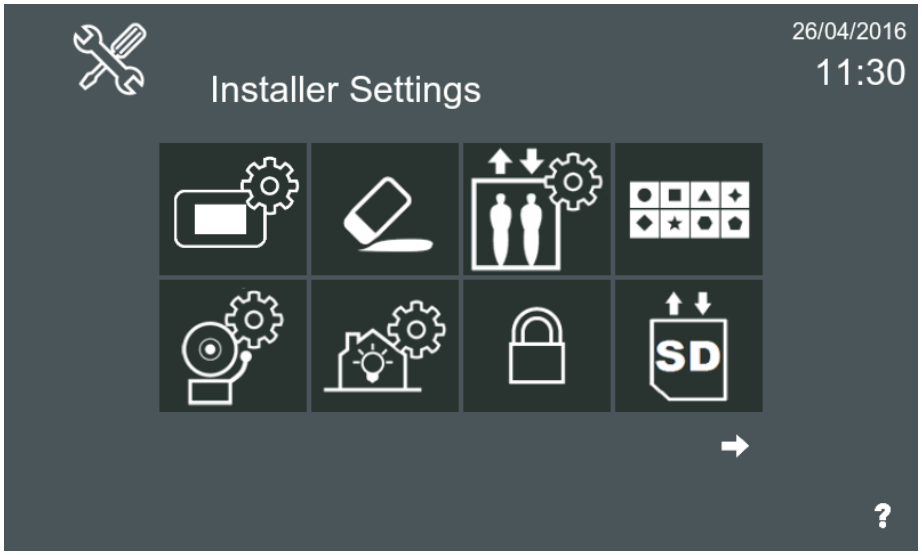
2.1 Mobility menu

By default, the mobility component is disabled in any VIVO LYNX monitor. Hence, as a prior step to access to the mobility menu, the installer should enable it. The system provides two different ways of enabling mobility, either through the Property Management Unit (as explained in section 3.3), or through the installer menu of VIVO monitor, as described here. In order to enable it, the installer should access to the installer settings button.

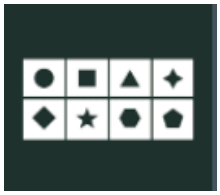
The installer is required to enter a PIN code.

***NOTE**: In all the PIN code insertion screens, including user settings, installer settings and alarms, the operation can be aborted by pressing the HOME button. This brings the user back to the HOME menu.*

Once the PIN code is accepted, a new window is shown:



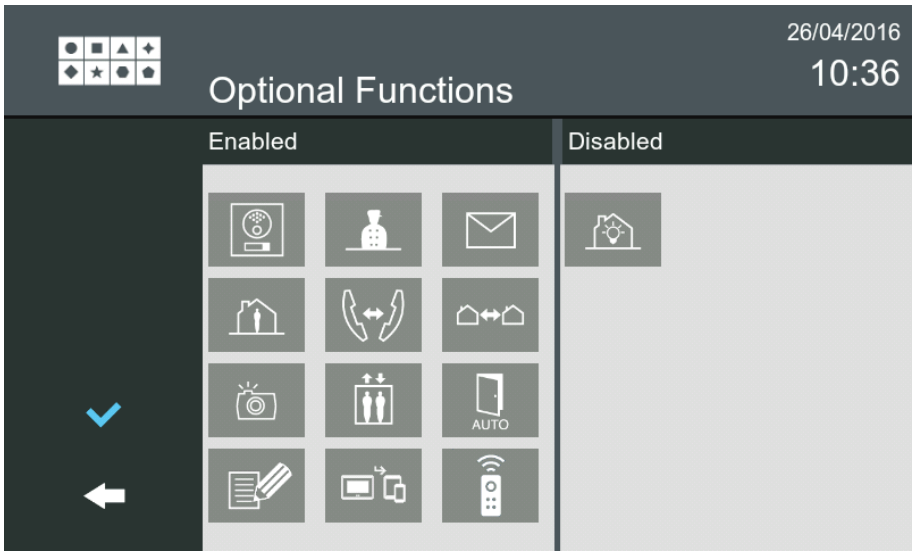
Next, the installer should select the “Optional functions” button:



Optional Functions

In order to enable the mobility function, the installer should select the mobility component, among all optional functions, and move it to the enabled side.

Mobility function



2.2 Lynx Router settings

One of the main elements in charge of the mobility function is a network element called **Lynx Router**. This network element coordinates the communication of panel, VIVO monitors and Lynx Mobile application turning the whole set into a Lynx network. When a Property Management Unit is available in the installation, these Lynx Router settings can also be globally established, as described in section 3.2.

In this section we describe the procedure to establish the settings directly from the monitor, in case there is no PC Property Management Unit in the installation or when the current unit is meant to use an independent Lynx Router. This procedure is oriented to installer users.

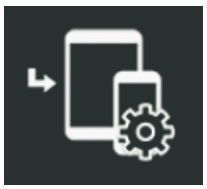
In order to establish the Lynx Router settings, the installer should access to the installer settings button.

The installer is required to enter a PIN code.

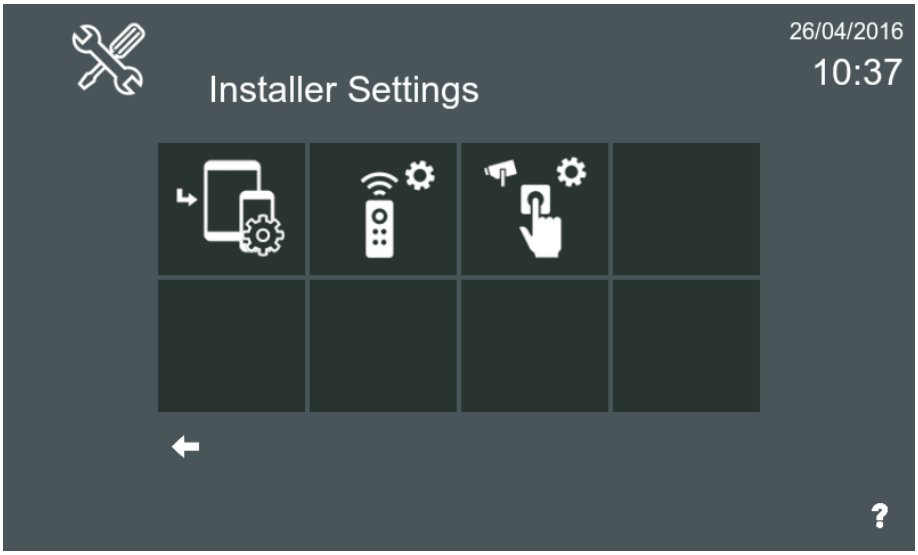
***NOTE**: In all the PIN code insertion screens, including user settings, installer settings and alarms, the operation can be aborted by pressing the HOME button. This brings the user back to the HOME menu.*

Once the PIN code is accepted, a new window is shown:

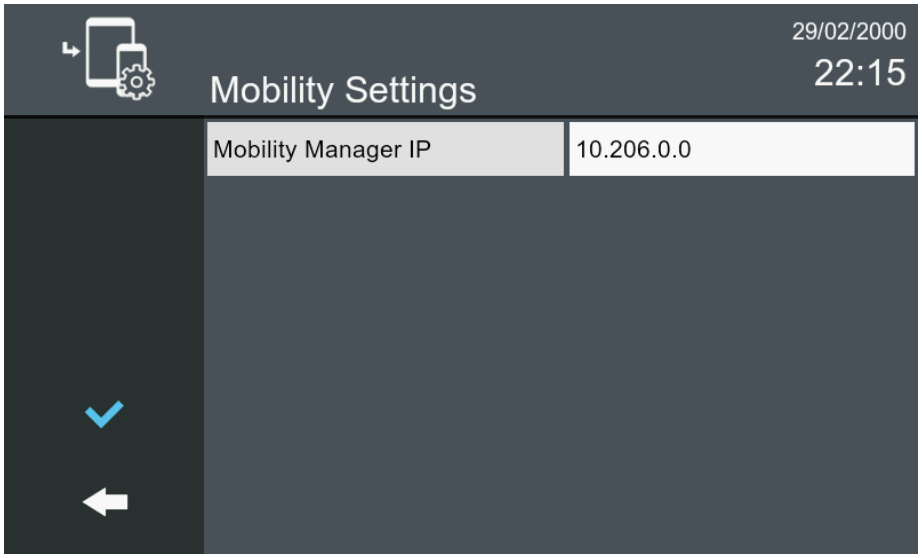
Next, the installer should select the mobility settings button (in order to find it, the user might probably need to scroll among the installer settings pages, with the arrow buttons).



Mobility Settings



Once this button is clicked, the following screen is shown:



If the IP address is not set, this screen provides a way for the VIVO monitor to identify the current Lynx Router associated to the installation.

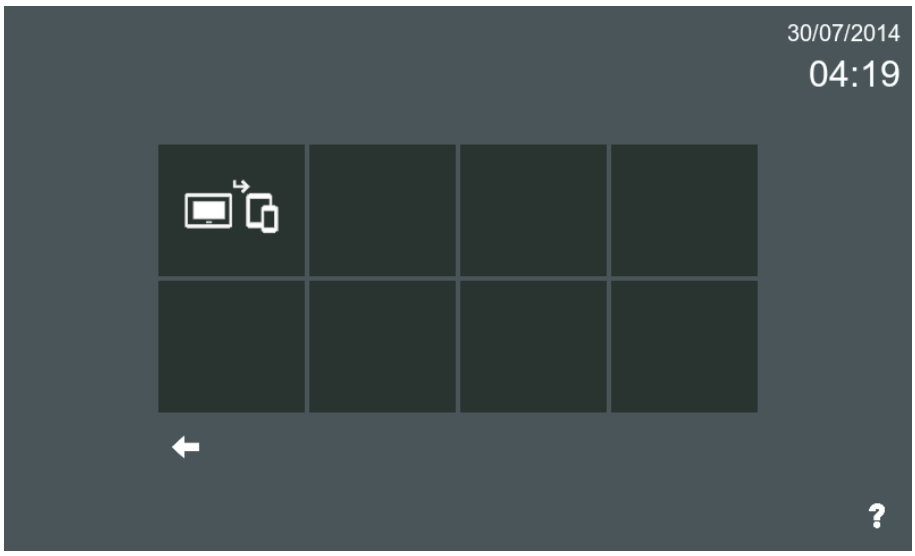
2.3 Enable mobility

In order to allow mobile devices to be used as part of the Lynx network, there is a prior step consisting of the activation of mobility for the current unit where the monitors are installed. This procedure is intended to provide a way to the user to temporary disable any call forwarding to mobile devices.

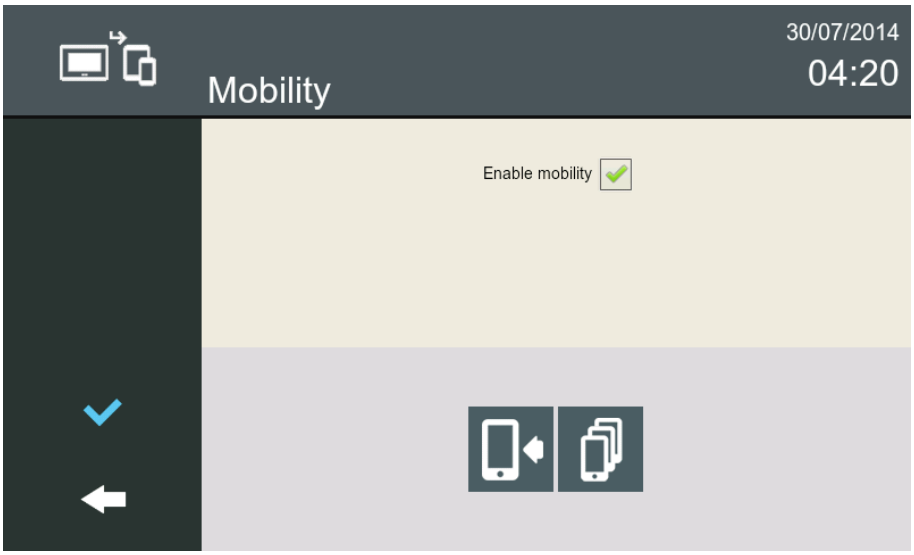
It should not be confused with the action performed by the installer either from the installer settings or from the Property Management Unit described in *section 3.3*, where the mobility button is set as visible. This section describes the procedure to be performed by the **user** through the monitor to temporary enable or disable call forwarding to mobile devices.

Once the mobility function menu is available and the Lynx Router settings are correctly set, we can start mobility configuration from the main menu. The mobility icon represents a VIVO monitor paired to several mobile devices.

Mobility button



This button will be shown if the installer has made visible the mobility application from the installer menu or if it has enabled mobility from the PMU (described in section 3.3). Once we have clicked on the mobility button from the main menu, the following screen will be shown:



This screen shows the function in the title (in this case, mobility) and we can find a checkbox to **enable mobility** in the current unit. When the user checks this option, the call divert is activated and the linked mobile phones will receive call notifications. When the option is unchecked, no call divertion will be done.

***NOTE**: Both actions, enable and disable mobility, take about 5 minutes to be effective since the user requests them.*

Additionally, it contains two buttons, with the following functionality:

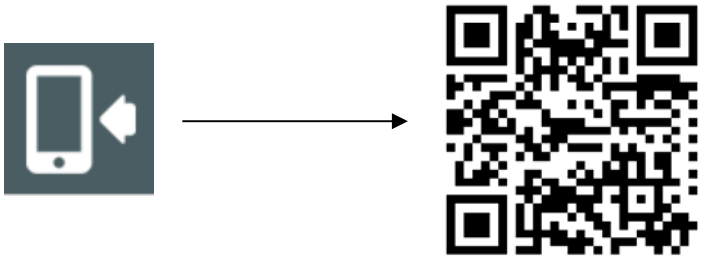
Pair device: It allows to pair a mobile device to the current unit.

List of paired devices: It shows a list with the currently paired devices, associated to the current unit.

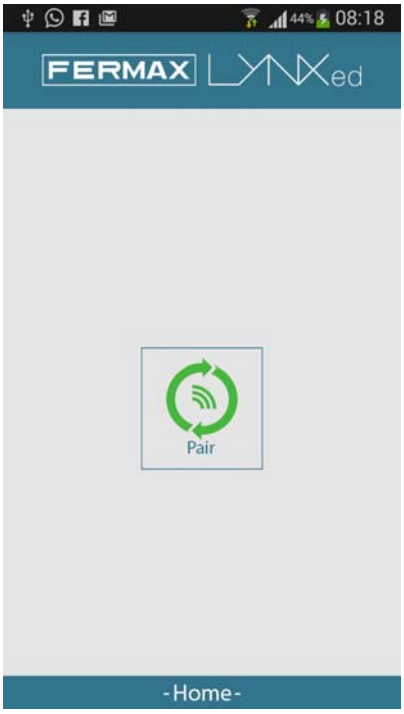
2.4 Pair mobile device

The process of pairing a new mobile device to the current unit requires installing and starting the Lynx Mobile application on the selected device to be paired.

First, once the user has enabled mobility on the unit, the whole process starts with the selection of the "**Pair device**" button:

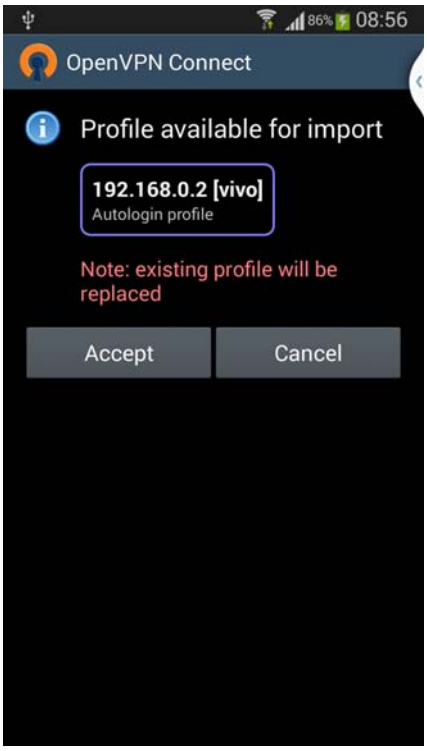


A **QR code** will be shown in the VIVO monitor screen, ready to be detected by the Lynx Mobile application. Hence, we should start the Fermax Lynx application in the mobile device to be paired:

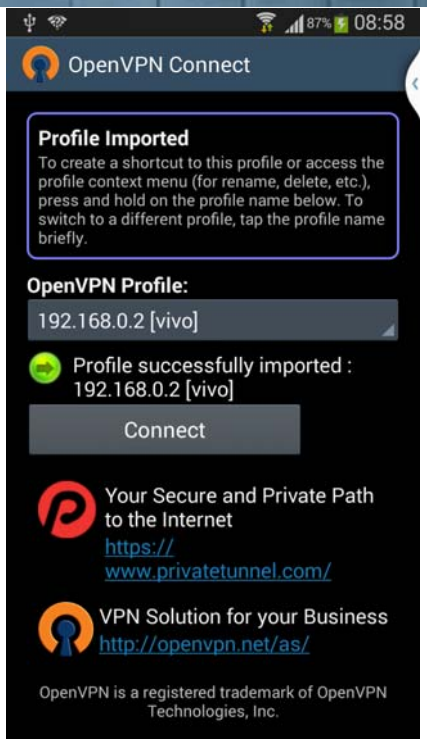


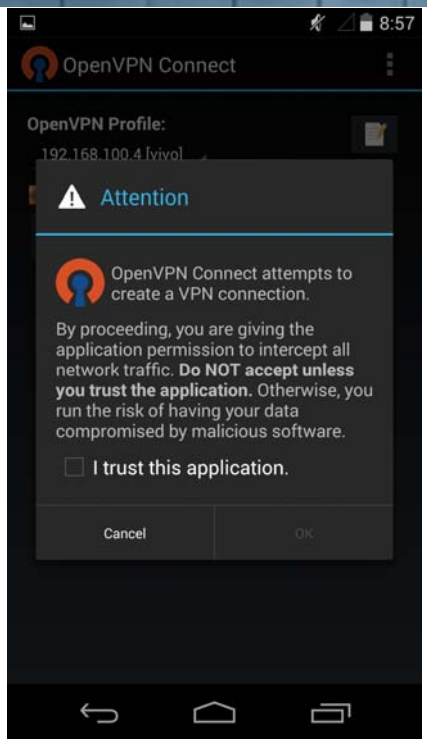
The **QR Scan** will appear in the mobile phone.
Just **scan the QR Code** shown on screen.

Right after this detection, the **OpenVPN application** will automatically perform a connection specified by the parameters represented in the QR code.



If we accept the import, a new VPN profile will be added to our VPN client.





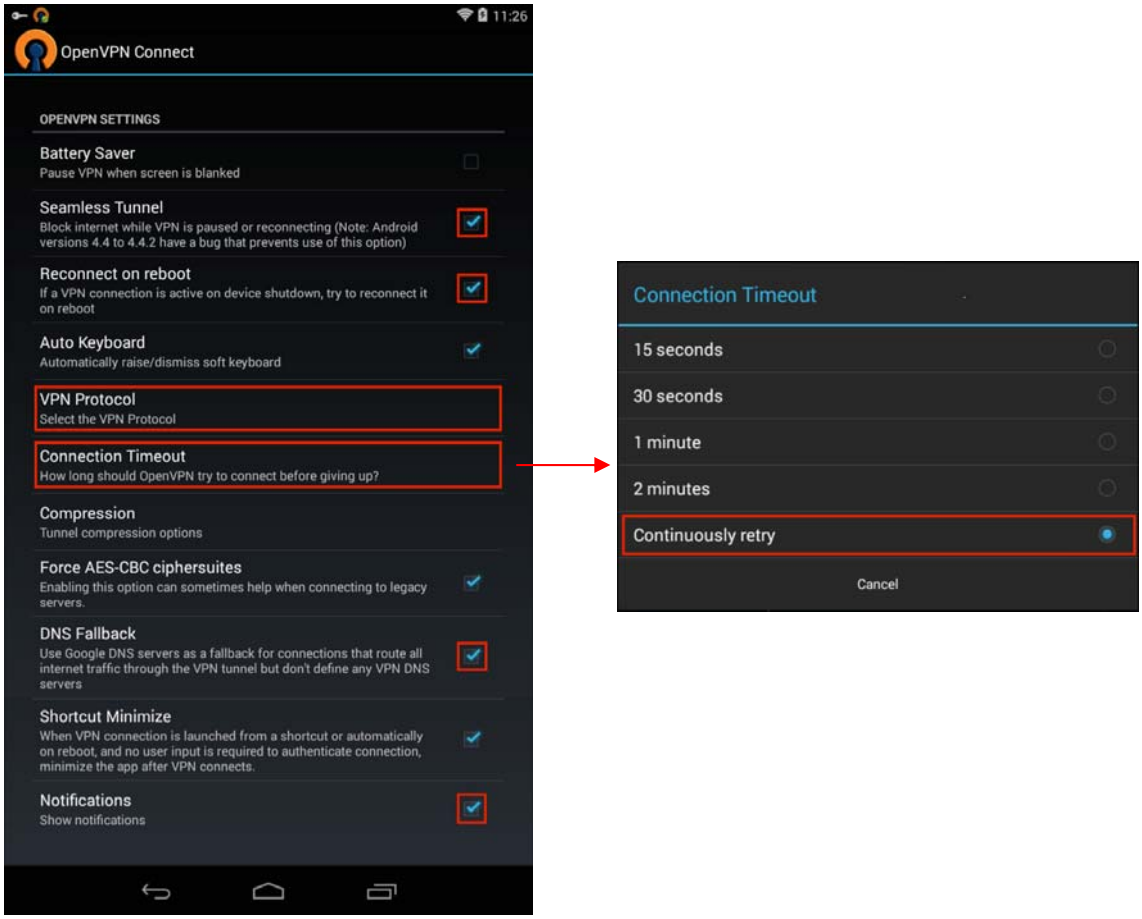
Now we just have to press the "**Connect**" Button and "**I Trust this application**" to establish the connection with the LYNX network.

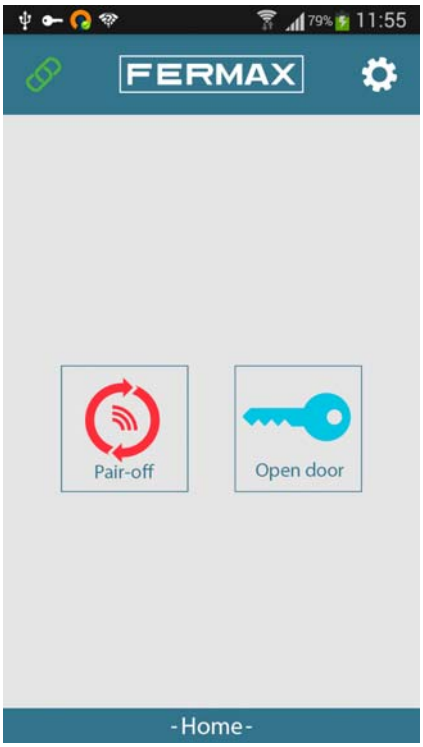
As aforementioned, OpenVPN is used by Lynxed to establish a secured connection between the mobile devices and the LYNX network. This section depicts the recommended configuration of this application to enhance call diversion performance.

Check your connection status by verifying that OpenVPN Connect indicates that you are connected:

To a better operation of Lynxed tap the menu button, then select Preferences. In the Preferences screen, make sure the following are checked:

- Reconnect on Reboot
- Tap Connection Timeout, then select "**continuously retry**".





Once the connection is correctly established, the link icon in the upper left corner of the Lynx Mobile application will turn from red to green, representing that there is a direct connectivity between the mobile device and the current Lynx installation.

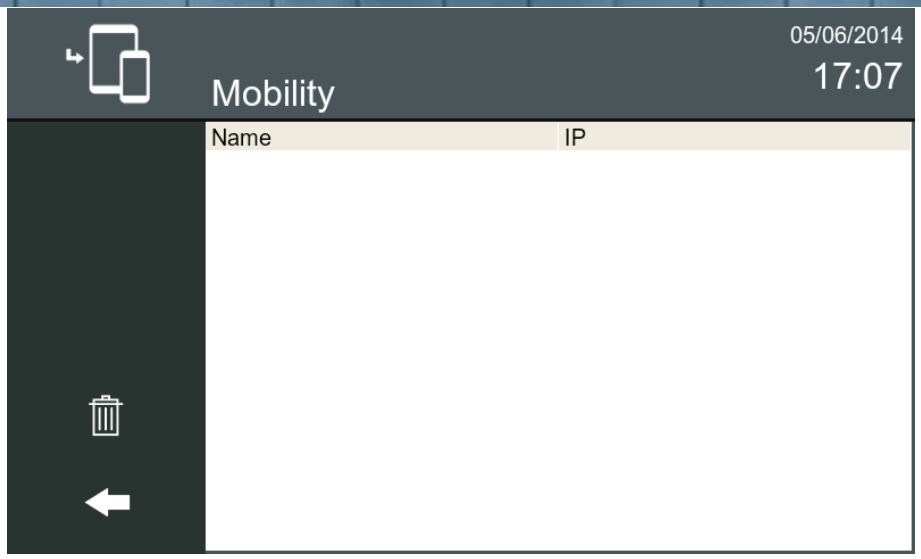
From this point on, the Fermax Lynx Mobile application will be able to receive any call from LYNX panels, and it will be allowed to actively open doors.

***NOTE**: it may take about 5 minutes after the pairing for the mobile to start receiving calls.*

2.5 List of devices

Once several devices are paired to LYNX, users might need to check if their devices are currently paired to the current unit. In order to check the current paired items associated to the unit, the system provides a functionality to check the currently paired devices.

List of paired devices: It shows a list with the currently paired devices, associated to the current unit.



During the process of pairing a device, some of the entries that will be shown in the list of devices will be shown as "***Waiting mobile info***". These entries will be updated with the assigned device names when they are able to connect.

NOTE*: If the devices do not respond, these entries will be automatically removed after 20 minutes.*

3. LYNX MOBILE APPLICATION

We have already introduced the Lynx Mobile application in section 2.4, where the application is required to pair the device. In this section, we will describe other functionalities that are offered as part of the mobile application

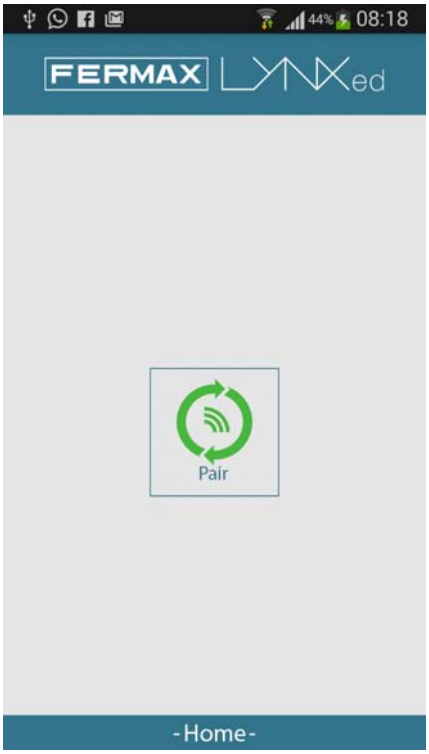
3.1 Pre-requisite

Lynxed app bases its security on a ***VPN connection***. In order to be as standard and open as possible, it uses an external tool for the VPN management: ***OpenVPN***.

For that reason, before using Lynxed, the OpenVPN app should be installed in the mobile device. In any case, if the OpenVPN is not previously installed, Lynxed detects it and shows a message on screen, even links to directly download it from the market.

3.2 Screens layout

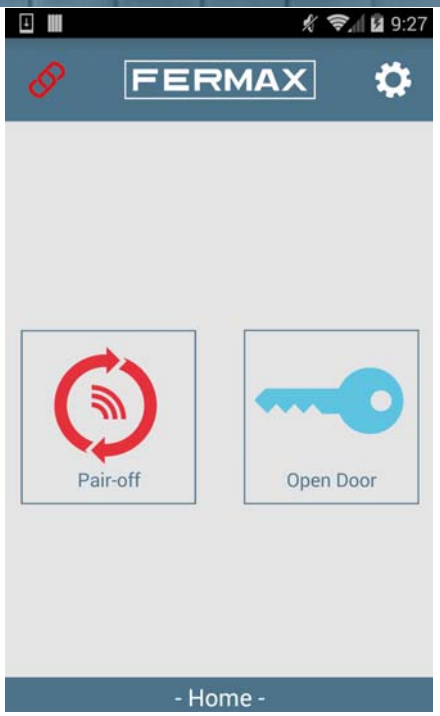
The Lynx Mobile application starts with the following screen layout:

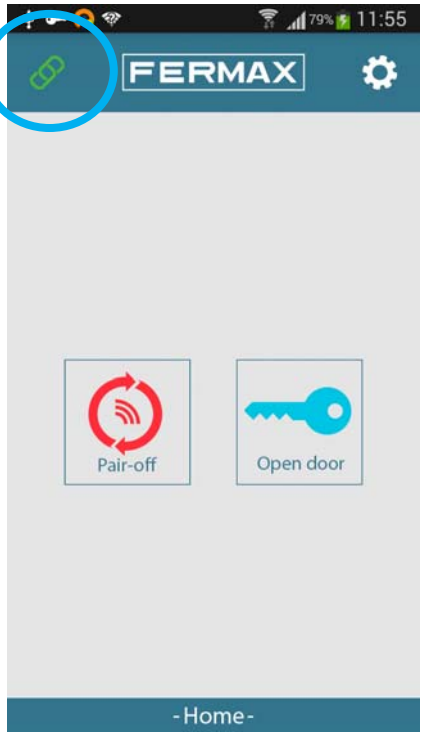


In order to conveniently link the device to the Lynx installation, it is required that the device is paired. This procedure is described in section 2.4.

In case the device is already paired, we will notice that there is a **pair-off** button which disassociates the device from the installation, meaning that after 5 minutes it will not receive calls anymore.

If we want to connect the device, then we will only have to start the **OpenVPN** application, and click on "**Connect**".





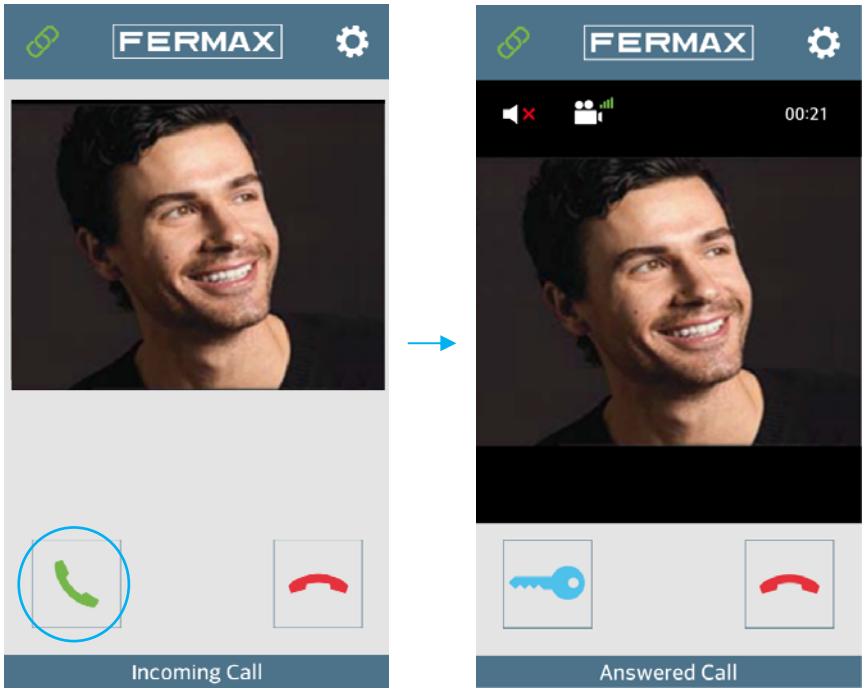
The link icon in the upper left corner represents the current connectivity to the Lynx installation. If it is red, it means that the VPN connection has not been established. Once the link icon is green, it represents that it is part of the Lynx network, which enables the application to receive incoming calls, as well as being able to open doors.

In the following sections, we will describe such operations, managed by the Lynx Mobile application.

3.3 Call reception.

The call could be originated by an outdoor panel, resulting in the following incoming call screen. A **snapshot picture** is shown and the default call ring tone (of the smartphone settings) is played. If the call is not answered in 30", the application returns to standby and the call is registered as a missed call.

If the call is answered clicking on the "**answer**" icon (green phone), then both video and audio communication are established. The screen turns into the In-Call configuration.



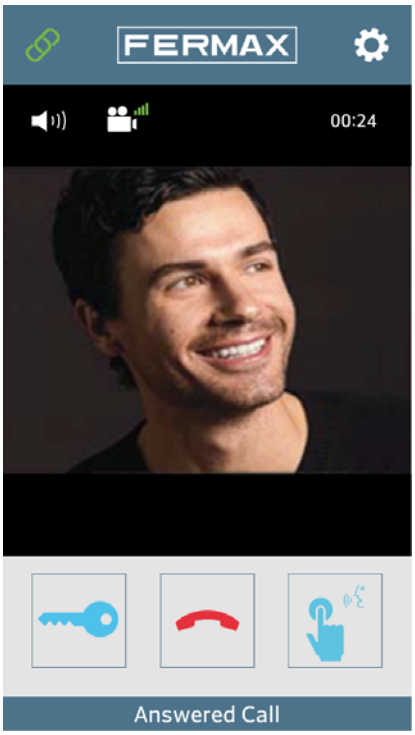
Within this screen, the user is enabled to open the door, or to end the current call. By default, the call is open in normal mode (not hands-free), if the user wants to change to hands-free mode, he can do it by clicking the following icon.

When the call is in handsfree, the icon changes to this image:

By clicking on it again, the call returns to regular mode.

If the "**Push to Talk**" mode is set a new button will appear. This button allows the user to talk in hands-free mode without echo problems. If the user wants to

talk, he must push this button and if he wants to hear the other side, he must stop pushing it.



***NOTE**: Push-To-Talk function is only available in Android OS version.*

3.4 Open door entry.

The key icon is used to open the door. If only one relay is defined for this panel, then the door is opened. If there are two relays defined in the panel, a menu is presented with the two options (i.e. Main door, Car door) for the user to select one.

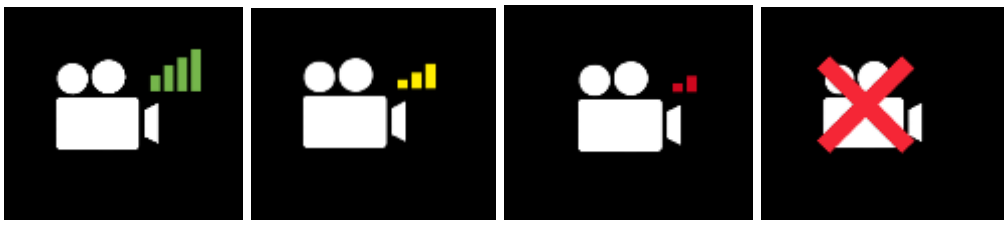
Once the desired door is selected, the door is opened.

3.5 Change the Video Quality/Bandwidth

Close to the hands-free button, there is another button to adjust the video quality and improve the communication performance. Each time the user press this button the quality is reduced.

This happens progressively towards lower video quality, until the video is removed. There are four states:

- High Quality Video
- Enhanced Video
- Video
- No Video



The quality is meant to be changed by the user if there is bad coverage (WIFI or 3G) and the communication is not possible or hard to maintain.

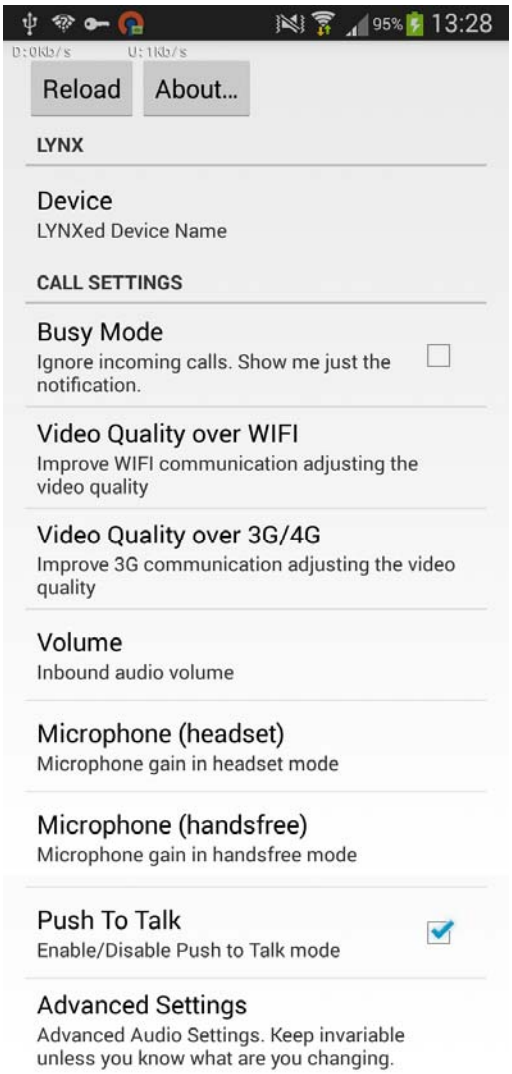
***NOTE**: Every change will stop the video/audio a couple of seconds till the new bit rate negotiation is finished.*

When the communication is established, the video quality used depends on the connection type and the quality selected in Settings.

3.6 Settings

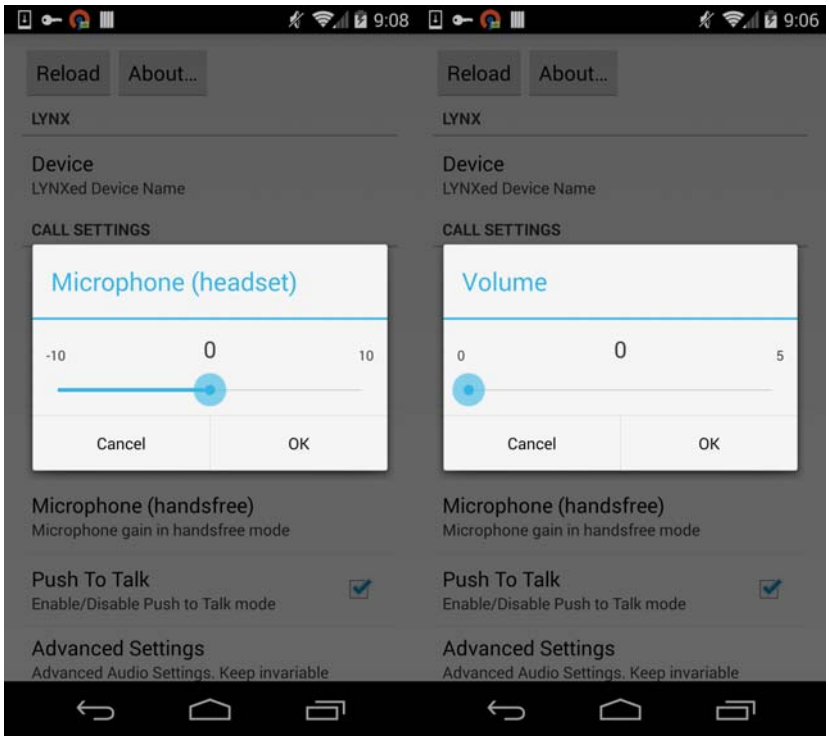
The user access to the settings section it by clicking on the icon on the top of the screen.

The image shows the settings screen:



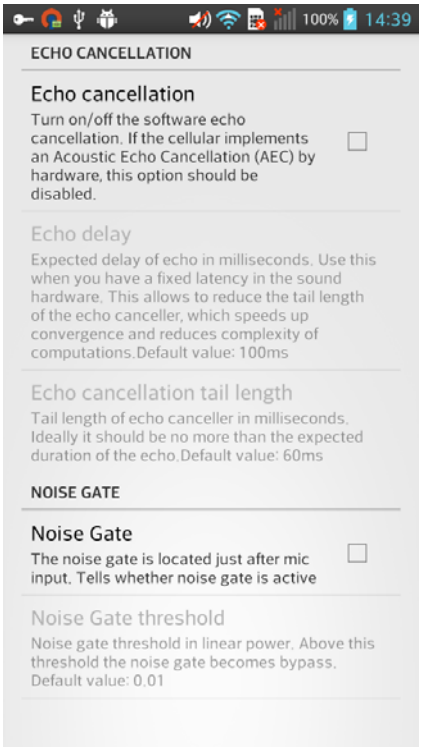
Settings screen allows the following actions:

- Reload. Load advanced settings without rebooting the application.
- About (read the application about and close the application)
- Set to busy mode. Lynx Mobile application includes an additional mode, called “Busy mode” which consists basically in the possibility to avoid from being disturbed with incoming calls and its corresponding ringtone. Instead, when the mode is set, any incoming call will be registered as an operating system notification, as a missed call.
- Change the default video bandwidth for Wi-Fi connections and for 3G/4G connections.
- Change the audio volume
- Change the microphone gain for regular mode and for hands-free.
- Set Push To Talk mode
- Open Advanced Settings



3.7 Advanced Settings

Advanced settings are a set of settings that allow the user to improve the communication in some circumstances. They could help if the cellular doesn't have an **Acoustic Echo Canceller system** (AEC)



3.8 Mobile devices compatibility

There is a big variability in the acoustic features (geometry, microphone gain, speaker power, echo cancellation …) of Android mobile devices. The Lynxed app has a big dependency on these acoustic features, and it is almost impossible to adjust the audio parameters once for all of them.

For that reason, we have included some advanced parameters in the settings section to allow for the **fine tunning** of each device. And even for the devices that cannot be adjusted that way, we have included a Push-To-Talk mode.

This is especially critical in the hands-free mode.

For all of this, we have tested the application with different models.
For example:

Device	Speaker and micro	Handsfree	Push to talk
Samsung Galaxy SIII	✓	✓	✓
Samsung Galaxy Note 3	✓	✗	✓
Nexus 5	✓	✗	✓
LG L9	✓	✓	✓
LG G2 mini	✓	✗	✓

3. Property Management Unit

Procedures described in sections 2.2 and 2.3, regarding "**Lynx Router settings**" and "**enable mobility**" respectively, apply for the current unit belonging to the VIVO monitor where these procedures are performed. In order to globally apply these procedures for complete Lynx installations, the Property Management Unit includes functionality for setting Lynx Router address, as well as for enabling/disabling mobility for single and multiple units (in a range). This section describes such procedures, which would replace the need of individually applying those procedures in section 2. Hence, whenever the installer aims to enable mobility for a large set of units, it can be done with installer profile by following the procedures described in the current section.

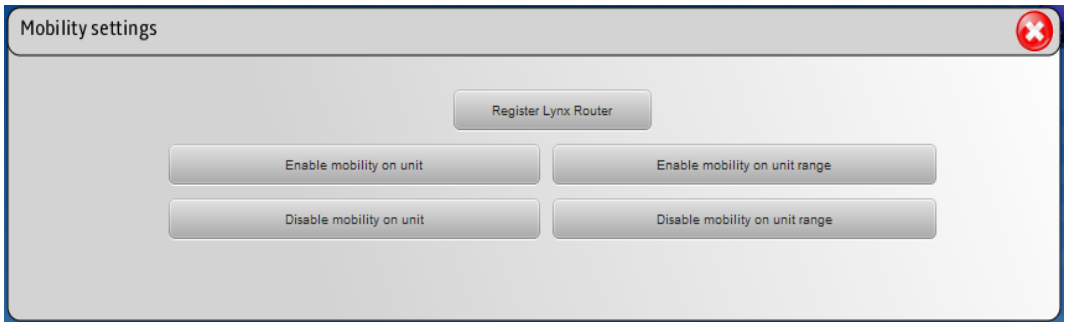
As prior requirement to perform these procedures, the user profile logged in the PMU application should be **admin** or **installer**.

Once user is logged in with the proper profile, the following mobility icon will be available in the PMU icon tray.

Mobility Icon

3.1 Mobility menu

After clicking on the mobility icon, the mobility menu is shown:



This menu redirects to the following set of actions:

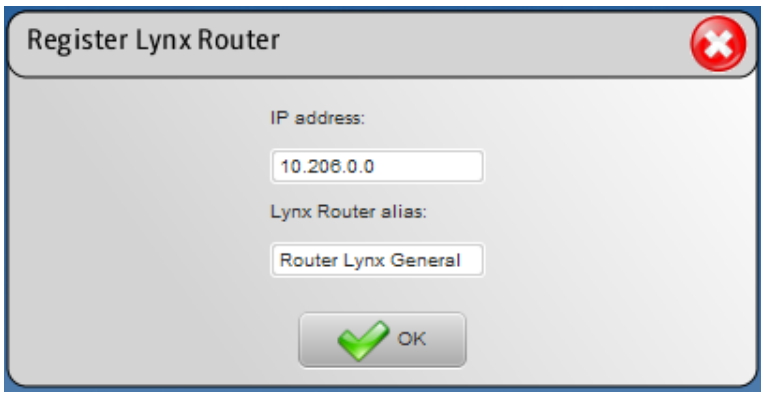
- Register Lynx Router
- Enable mobility on unit
- Enable mobility on unit range
- Disable mobility on unit
- Disable mobility on unit range

It is strongly **recommended that the Lynx Router is registered before** accessing to the enable/disable procedures. Nevertheless, enable/disable procedures also include a button to manage Lynx Router address configuration.

3.2 Register Lynx Router

This procedure allows creating one or multiple Lynx Routers associated to the current installation. These registered routers will be available to be associated to one or multiple units, through the enable/disable procedures, described in the following sections.

Once the user clicks on “Register Lynx Router” in the mobility menu, the following screen is displayed:



The user should include a valid IP address where the Lynx Router has been previously installed (by default: 10.206.0.0).

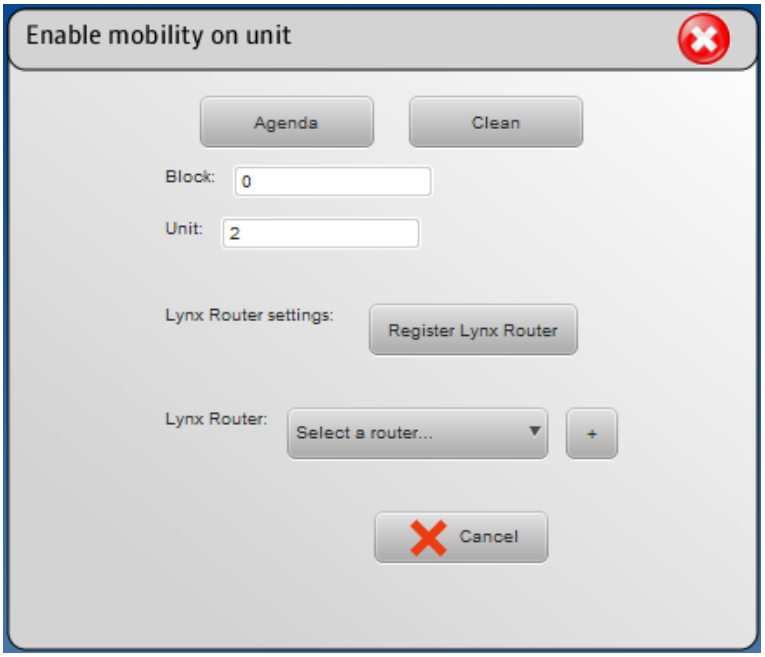
Additionally, the user should assign a concrete alias to each registered Lynx Router, in order to easy the further identification with such alias. This alias will be shown in the Router Lynx pull-down buttons of the enable/disable screens.

3.3 Enable mobility on unit

This procedure provides a way to enable mobility to a concrete unit, associating an existing Lynx Router to manage its mobility features. The effect produced in the associated **VIVO Monitor** will be that the **Mobility application button will be visible** after enabling it or it will not be visible, after disabling it.

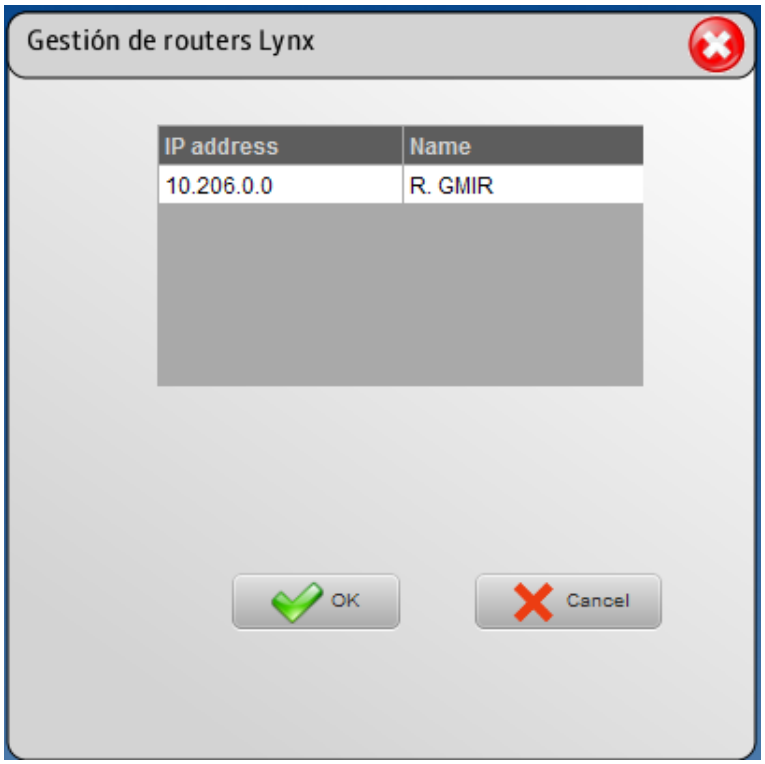
***NOTE**: It should not be confused with the enable mobility checkbox displayed to the user, which enables/disables the call forwarding to mobile devices.*

Once the user clicks on “Enable mobility on unit” in the mobility menu, the following screen is shown:



Within this screen, the user can select one concrete **unit and block** from the “Agenda” button, or manually insert the block and unit numbers. Whenever the user needs to clean block and unit fields, the user can do it by means of the “Clean” button.

After that, the user can select an existing **registered Lynx Router** to be associated with the specified unit. If the required Lynx Router is not registered yet, the user can access to the “Register Lynx Router” screen directly from this screen. If the desired Lynx Router is already registered, the user can either select it from the pull-down button, or by clicking on the “+” button which shows more information about the existing registered Lynx Routers (it also shows the associated IP address):



In order to add one registered Lynx Router, the user should click on the table entry, and then the “Accept” button will be shown. After that, the selected Lynx Router will be loaded into the pull-down button.

Once there is a selected **block**, **unit** and **Lynx Router**, the “Accept” button is shown. By clicking it, the procedure enables mobility for the specified unit, which will be reflected in the VIVO monitor mobility settings.

Before clicking on “Accept”, whenever the user wants to cancel the whole process, this can be done clicking on “Cancel” button.

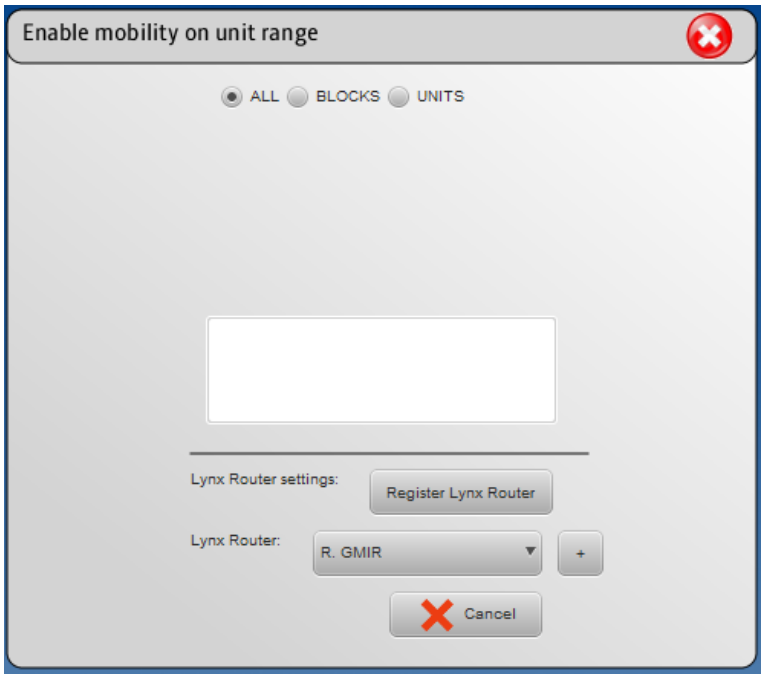
Once we click on “Accept”, the process can be reverted if we access to the “Disable mobility on unit”, as described in section 3.5.

3.4 Enable mobility on unit range

This procedure provides a way to enable mobility **for a range of multiple units**, associating an existing Lynx Router to globally manage their mobility features. The effect produced in the associated VIVO Monitor for the whole unit range will be that the Mobility application button will be visible after enabling it or it will not be visible, after disabling it.

***NOTE**: It should not be confused with the enable mobility checkbox displayed to the user, which enables/disables the call forwarding to mobile devices.*

Once the user clicks on “Enable mobility on unit range” in the mobility menu, the following screen is shown:

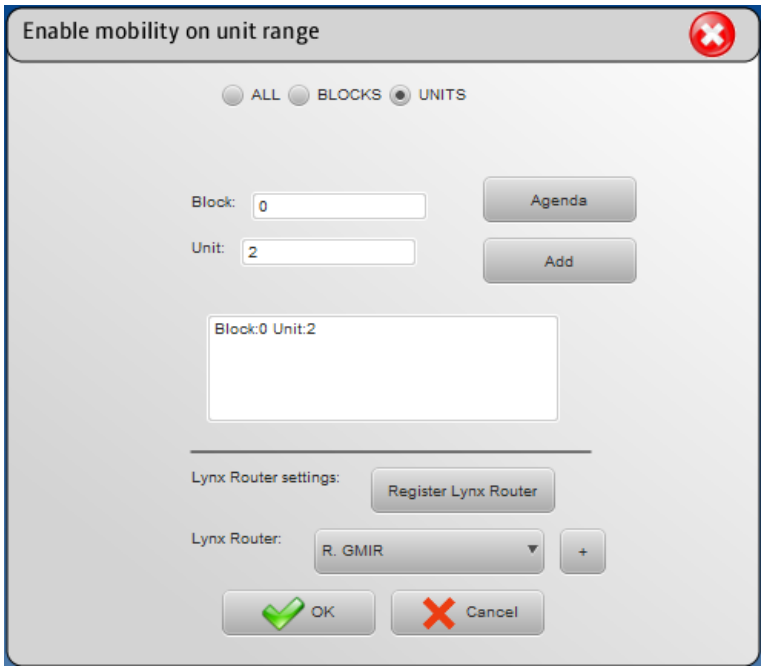


In this case, the user has three different options to specify the list of units to apply the mobility activation, using different buttons:

- **ALL**: This option enables mobility for all units belonging to the whole Lynx installation (see previous figure).

- **BLOCKS**: This option allows specifying one concrete block, applying the mobility activation for all units of the specified block. In order to include each block to the list to apply the mobility enabling, the user is required to click on “Confirm”, which updates the list of block numbers where the action will be applied.

- **UNITS**: This option provides a way to specify a concrete list of units. The list of units is composed by selecting concrete units from the agenda (or manually) and clicking on “Add”.



Once selected the specified units to apply mobility activation, the user should select one of the currently registered Lynx Routers to be associated to the specified units.

Again, if the desired Lynx Router is not available in the pull-down button, the user can register a new Lynx Router, by clicking on the "**Register Lynx Router**" button.

Once there is a selected **element in the unit area** and there is a **selected Lynx Router**, the “Accept” button is shown. By clicking it, the procedure enables mobility for the specified units, which will be reflected to each one of VIVO monitor mobility settings.

Before clicking on “Accept”, whenever the user wants to cancel the whole process, this can be done clicking on “Cancel” button.

Once we click on “Accept”, the process can be reverted if we access to the “Disable mobility on unit range”, as described in section 3.6.

3.5 Disable mobility on unit

This procedure provides a way to disable mobility for a concrete unit. Hence, the mobility application button will not be visible at the VIVO Monitor of this concrete unit.

Once the user clicks on “Disable mobility on unit” in the mobility menu, the following screen is shown:

Within this screen, the user can either select **one concrete unit** and **block** from the Agenda button, or manually insert the block and unit numbers. Whenever the user needs to clean block and unit fields, the user can do it by means of the “Clean” button.

As shown in the previous screen, the Lynx Router settings are disabled, because **the action of disabling will not require the specification of Lynx Router**.

Once there is a selected block and unit, the “Accept” button is shown. By clicking it, the procedure disables mobility for the specified unit, which will be reflected in the VIVO monitor mobility settings.

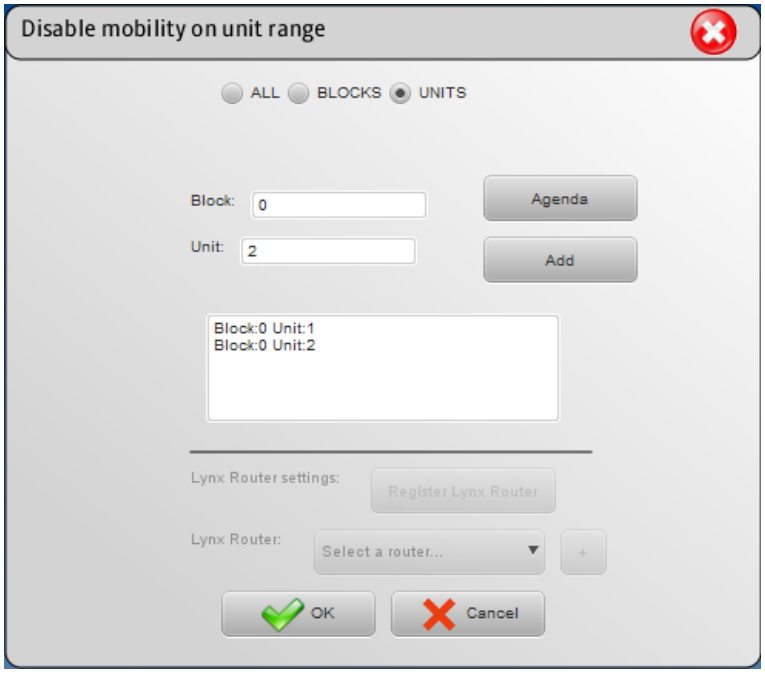
Before clicking on “Accept”, whenever the user wants to cancel the whole process, this can be done clicking on “Cancel” button.

Once we click on “Accept”, the process can be reverted if we access to the “Enable mobility on unit”, as described in section 3.3.

3.6 Disable mobility on unit range

This procedure provides a way to disable mobility for a range of multiple units. Hence, the mobility application button will not be visible at the VIVO Monitor of these units.

Once the user clicks on “Disable mobility on unit range” in the mobility menu, the following screen is shown:



As well as for the enabling procedure, the user has three different options to specify the list of units to apply the mobility de-activation, using different radio-buttons:

- **ALL**: This option disables mobility for all units belonging to the whole Lynx installation.
- **BLOCKS**: This option allows specifying one concrete block, applying the mobility disabling for all units of the specified block. In order to include each block to the list to apply the mobility disabling, the user is required to click on “Confirm”, which updates the list of block numbers where the action will be applied.
- **UNIT**: This option provides a way to specify a concrete list of units. The list of units is composed by selecting concrete units from the agenda (or manually) and clicking on “Add”.

As shown in the previous screen, the Lynx Router settings are disabled, because the action of disabling will not require the specification of Lynx Router.

Once there is a selected element in the unit area, the “Accept” button is shown. By clicking it, the procedure disables mobility for the specified units, which will be reflected to each one of VIVO monitor mobility settings.

Before clicking on “Accept”, whenever the user wants to cancel the whole process, this can be done clicking on “Cancel” button.

Once we click on “Accept”, the process can be reverted if we access to the “Enable mobility on unit range”, as described in section 3.4.

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