SMARTAIR™

TS1000: UOL Functional Specification

TESA ACCESS CONTROL

0.-SCOPE

The scope of this document is to explain the Update Online (UOL) system. This means to explain how the UOL SmartAir locks work, how they must be configured, which are the additional devices needed and how they can be connected.

1 SYSTEM ARCHITECTURE

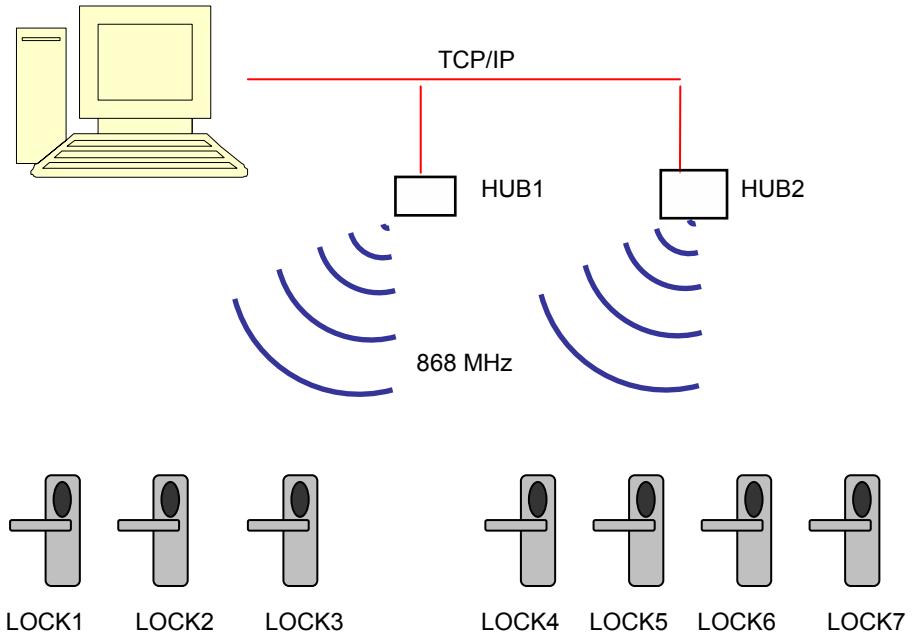
The UOL locks are Mifare locks that can be connected through RF to the PC.

The hub is connected to the PC through an Ethernet connection using the UDP protocol and with the UOL locks through RF.

The RF communication is 868 MHz and proprietary protocol. Information sent between devices is encrypted with a proprietary protocol.

A PC can manage as many hubs as needed

A hub can manage up to 30 UOL locks in a range of around 30 meters in a close environment or up to 100 meters in an open space.



The RF lock's module can be in one of three states:

Always Sleep	Manufacturing mode	Switched off. No communication.
Always Awake	Initialization mode	Switched on. High power consumption. Automatically switches back to Always Sleep if more than 1 hour in this state..
Sleep/Awake	Standard mode	Switched on every 5 seconds. Normal power consumption Communication will have a delay of approximately 8 seconds.

Table 1 RF functional Modes

2 TS1000 UOL

2.1 Activate UOL licence

The Update Online functions are activated through TESA licence system.

This option must be activated during Data folder creation. It will only be available if the Proximity Mifare technology is available in the installation.

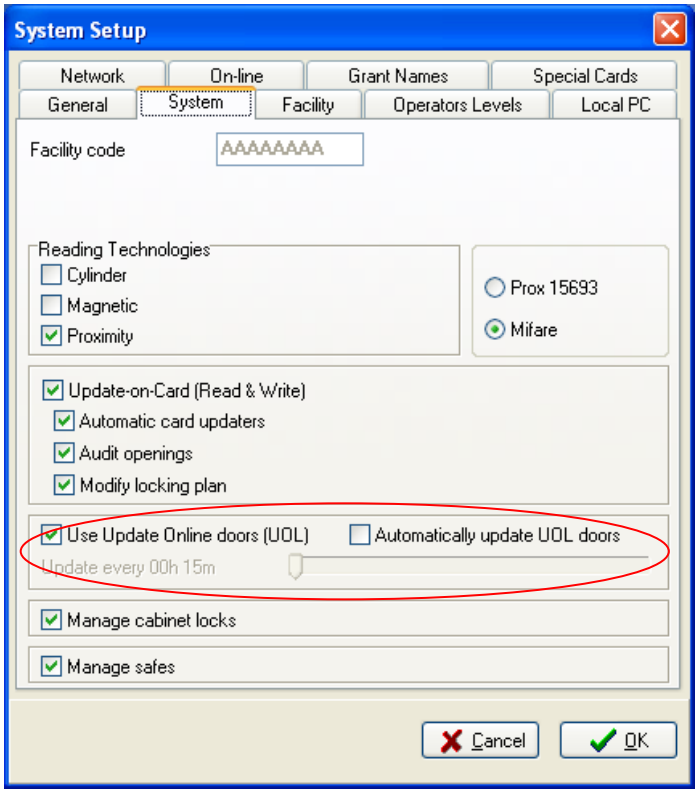


Figure 2-1 Activate Update Online system

If the “Automatically update UOL doors” option is checked, the system will check every defined period of time (from 15 minutes to once a day) if any change in the UOL information is still pending to be sent.

This feature only works if the software is in the main screen or in the login/password screen.

The new button “Wireless” is available when the Data has the “Use Update Online doors (UOL)” activated.

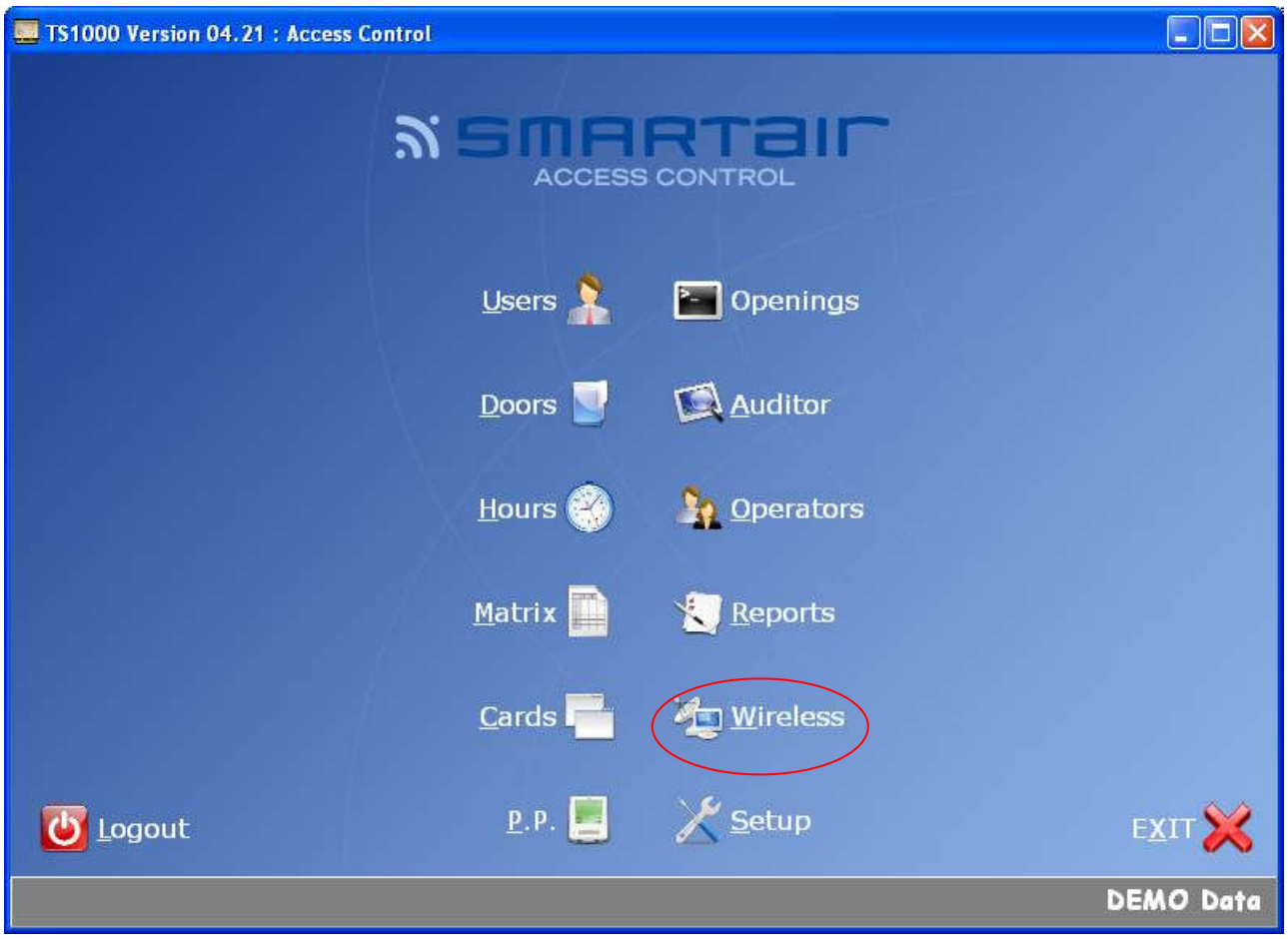


Figure 2-2 Installation with UOL activated

2.2 UOL: New door type

Once this option has been activated, a new type of door “SmartAir UOL Lock” can be created in the Doors screen:

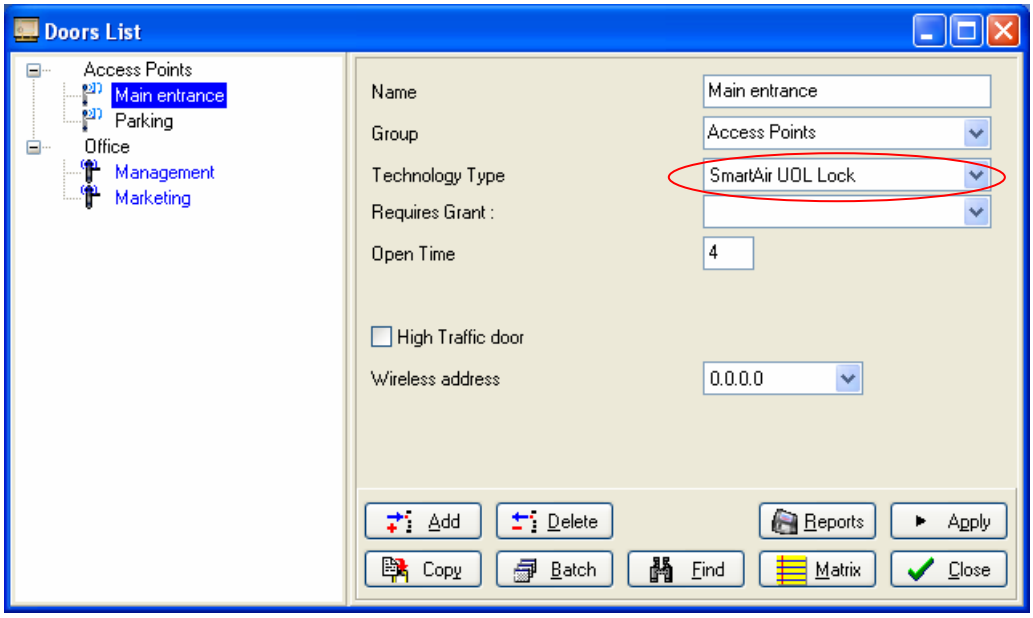


Figure 2-3 New technology type for doors

The only new parameter to be defined for this type of doors is the wireless address.

Doors that have this parameter empty or equal to 0.0.0.0 will not communicate through RF.

Once the locking plan has been defined, the Portable Programmer can be loaded with the list of UOL doors data.

The wireless address can not be typed d, .it will be automatically filled up during locks initialization.

2.3 Encode RF Initialization card

When manufactured, RF modules are in the “Always Sleep” mode. This means that they will not accept any command from the PC.

An RF module must be in an “Always Awake” mode to be detected by a hub.

To change from the “Always Sleep” to the “Always Awake” mode we need a special card.

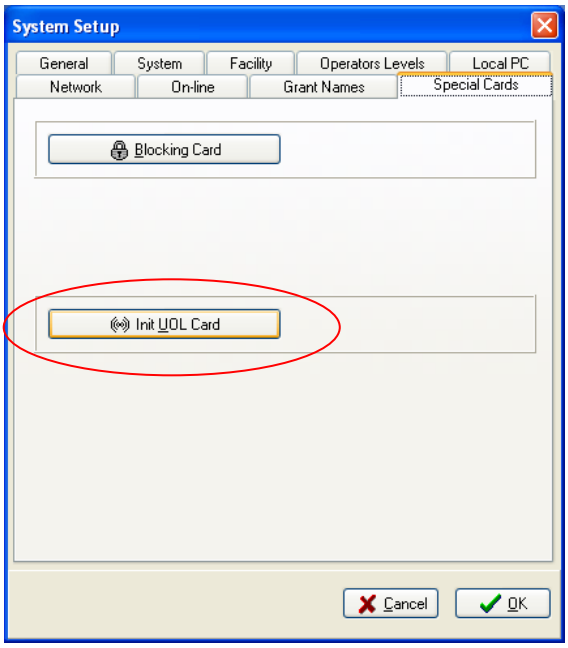


Figure 2-4 Encode Init RF card

Press on the “Init UOL Card” button and the card will be encoded.

Important: If a lock has not been initialized with a system code and is working in the manufacturing mode, the card encoded with a system code will not work.

2.4 Initialize UOL locks

With the Portable Programmer loaded with locks data, they can be initialized.

During this initialization, the wireless address of each UOL door will be collected in the portable programmer.

The wireless address will also be available through the test option of the portable programmer.

Once the doors have been initialized and the wireless address has been assigned, we will be able to send the rest of the information through RF.

2.5 Present “Init UOL card” to the locks

Once a door has been initialized, and without having to move to another door, the “Init UOL” card can be presented to it.

If the card is valid, we will see a green light. The card will never open the lock.

This process will put RF modules in the “Always Awake” mode. This means that power consumption is high, so we should change to the “Sleep/Awake” mode as soon as possible.

If this step is not done before 60 minutes, the RF module will automatically change back to the “Always Sleep” mode.

We can check the state with the small led on the RF module. Now, it should be always on. This information is also available through the “Test” menu in the PP.

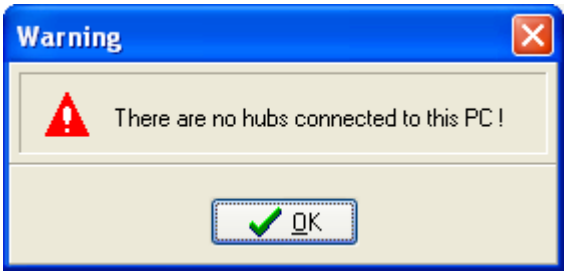
It is recommended to do this process for some locks, for example those connected to a hub, or those located in the same floor,…

3 RF MEDIA CONFIGURATION

To configure the wireless media, we must run the **WirelessTools** program. This program is only needed during installation setup.

3.1 Create the hubs

The first time this program is executed, the following message will be shown:



We must then add the hubs that will be managed through this PC.

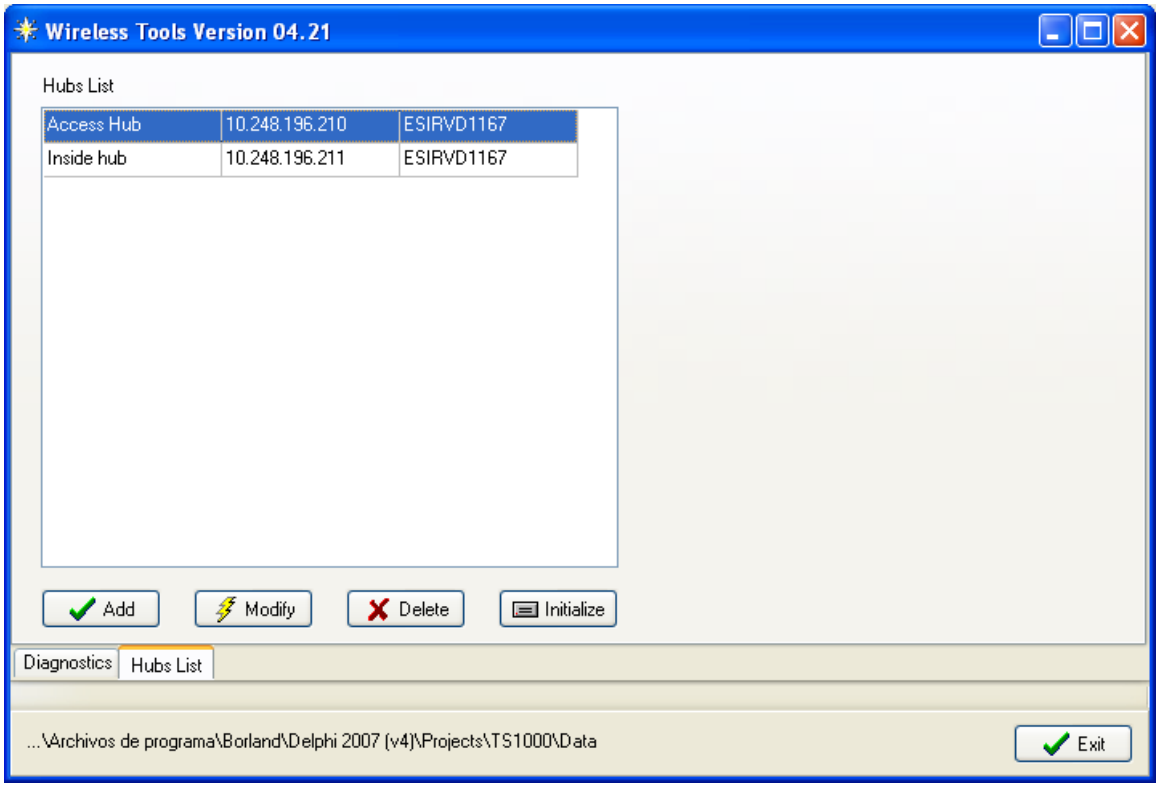


Figure 3-1 Add hubs controlled by this PC

Click on the Add button and define a name for the hub and enter its IP address. All the hubs must have a **static IP address** that must be assigned by the IT department.

Please confirm this information before initializing hubs to be sure that no clashes will happen in the network.

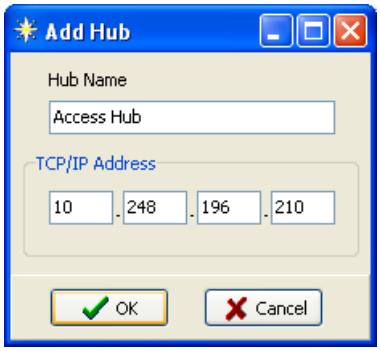


Figure 3-2 Hub: Define static IP

3.2 Initialize the hubs

Hubs are manufactured with default IP information. This Default Information is:

IP Address	192.168.1.10
Subnet Mask	255.255.255.0
Gateway	192.168.1.0

Table 2 Hub: Default IP information

To connect a hub to the network, we must first change the default IP to the one that will be used in the network.

To do this we need an ethernet cross-cable, change the PC to be in the same subnet as the default hub and then send the initialization information to the hub.

3.2.1 Reset hub's configuration

To be sure that the hub is configured by default, the Reset buttons must be pressed while the hub is switched ON and switched Off for 5 seconds. Look at this picture to see the reset buttons:

This way, if the hub has been connected to another network, old parameters will be deleted.

Warning: This will also delete information about RFs that were connected to it, uplinks that are still not sent to the PC, …

Change PC network configuration to default

Go to the LAN Network configuration properties and select the TCP/IP protocol:

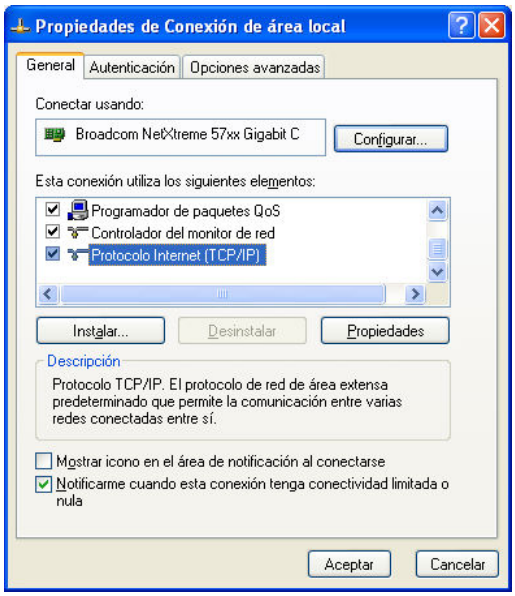


Figure 3-3 Change PC TCP/IP configuration

Click on the properties button and change the PC IP address to the one in the default configuration. For example:

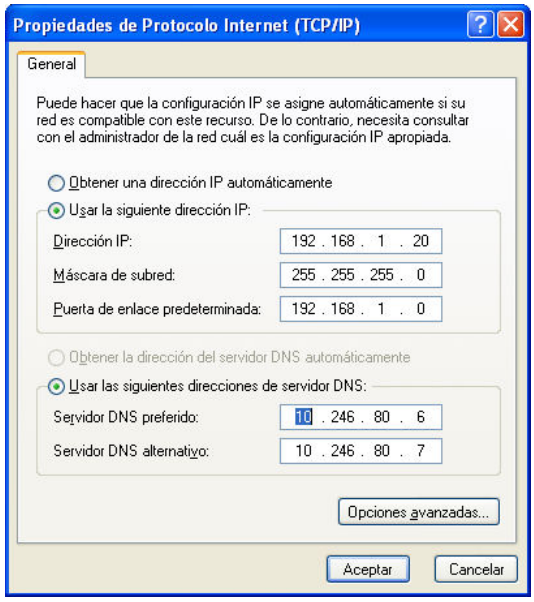


Figure 3-4 PC TCP/IP default configuration

Save this configuration and run the WirelessTools program.

Note: It is important to note current TCP/IP configuration before changing it! This configuration will be reset later.

3.2.2 Send new IP to the hub

Run the WirelessTools software, and select the Hubs List tab.

Click over the desired hub on the left list and then click on the “Initialize button”. The following screen will be shown:

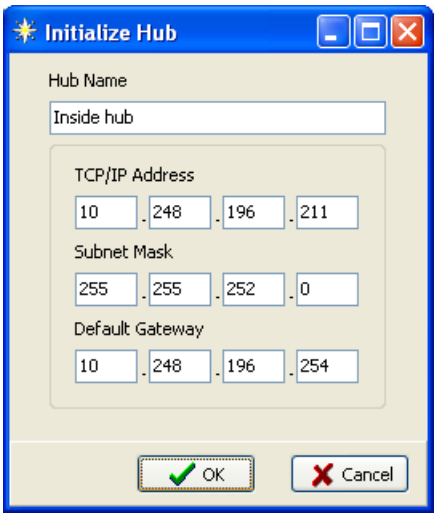


Figure 3-5 Hub TCP/IP initialization screen

Change the subnet mask and default gateway parameters. The hub must be in the same subnet and have the same gateway as the PC that will be connected to. This information is usually provided by the IT department.

Click on the OK button. The ethernet parameters will be sent to the hub. After this, the hub will no longer answer to the default parameters.

This information is not stored, so it may be important to keep it in case of having to change it again.

3.2.3 Change PC network to previous configuration

Go again to the LAN Network configuration properties and select the TCP/IP protocol.

Click on the properties button and change the PC IP address to the one that was previously defined.

Save this information.

To be sure that hub and PC are in the same network, a ping command can be sent in the Windows command screen.

3.3 Search new RFs

In the Wireless Tools program, go to the Diagnostics tab, select the hub we want to configure and click on the “Search New RFs” button.

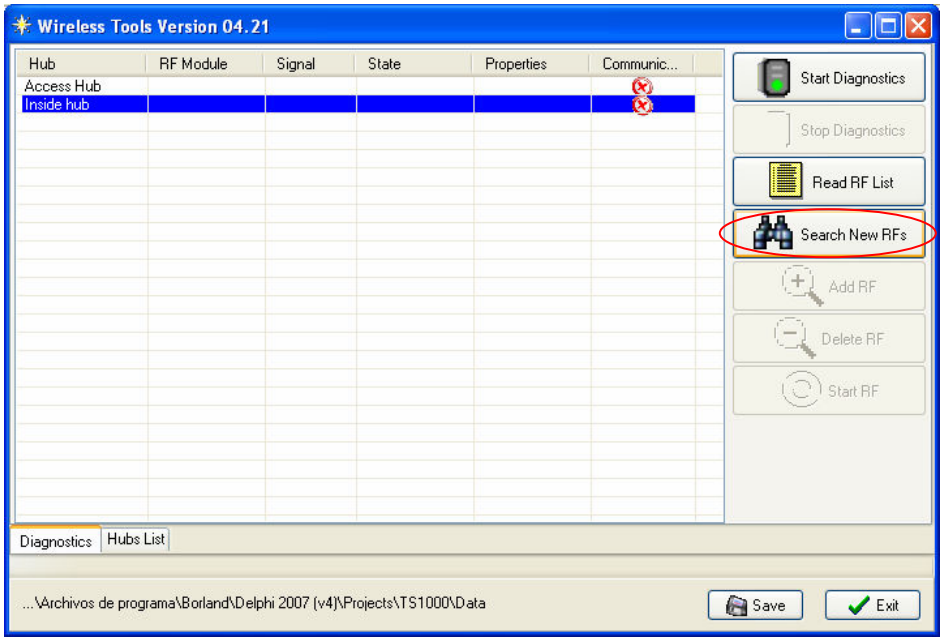


Figure 3-6 Search for new RF modules

The hub will check the RF media for new modules. This process can take up to 20 seconds.

The new RFs will be added to the list below the hub. They will be in a grey line and marked as “Always Awake” and “Not assigned”.

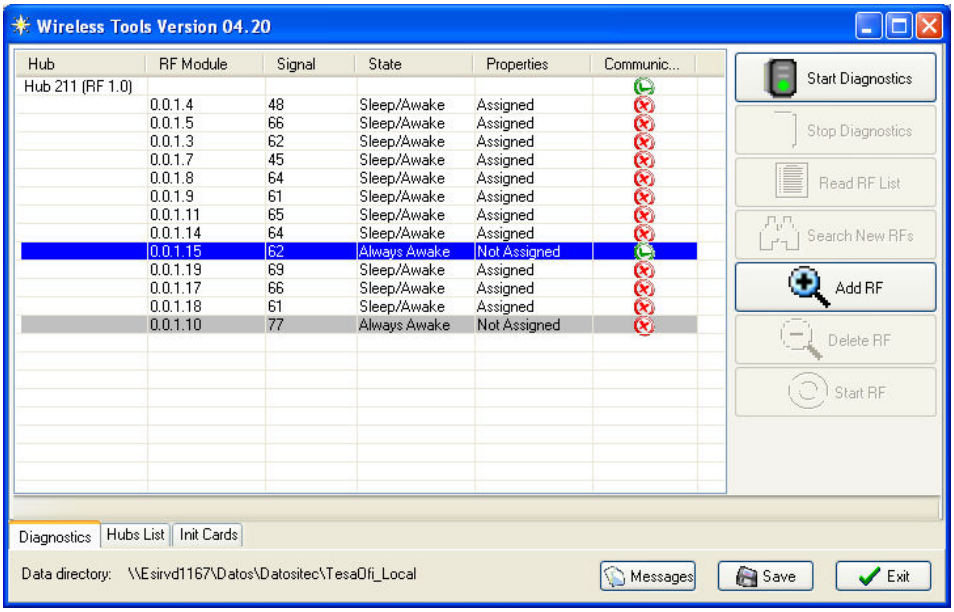


Figure 3-7 List of new detected RF modules

3.4 Add RF module to the hub

Each RF module will be managed by a hub.

To include the RF module in the hub's list, you must select it in the list and click on the "Add RF" button.

If it is correctly added, the properties column will change from "Not assigned" to "Assigned"

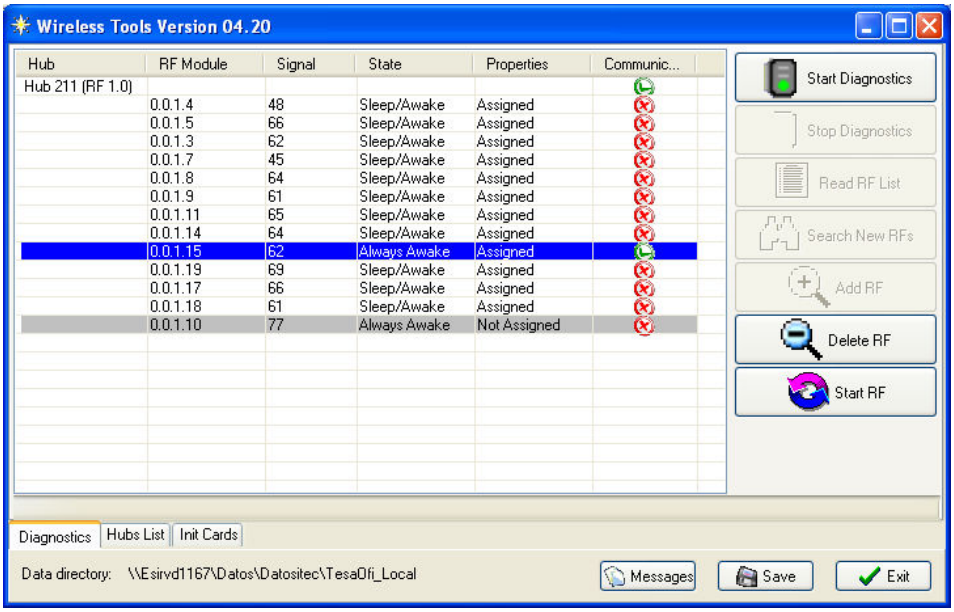
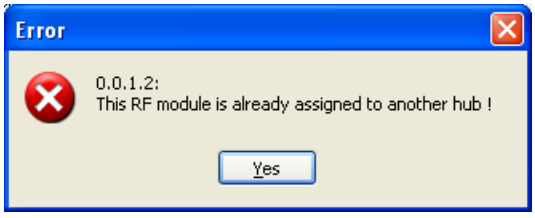


Figure 3-8 Add RF module to the hub

If this RF module was assigned to another hub, the following message will be shown:



The RF module must first be deleted from the previous hub and then added to the new one.

3.5 Start the RF module

The RF module is now assigned to a hub but is still in the “Always Awake” state and therefore, its power consumption is high.

To put the RF module in the standard way, we must select it and click on the “Start RF” button.

If it is correctly started, the State column will change form “Always Awake” to “Sleep/Awake” mode.

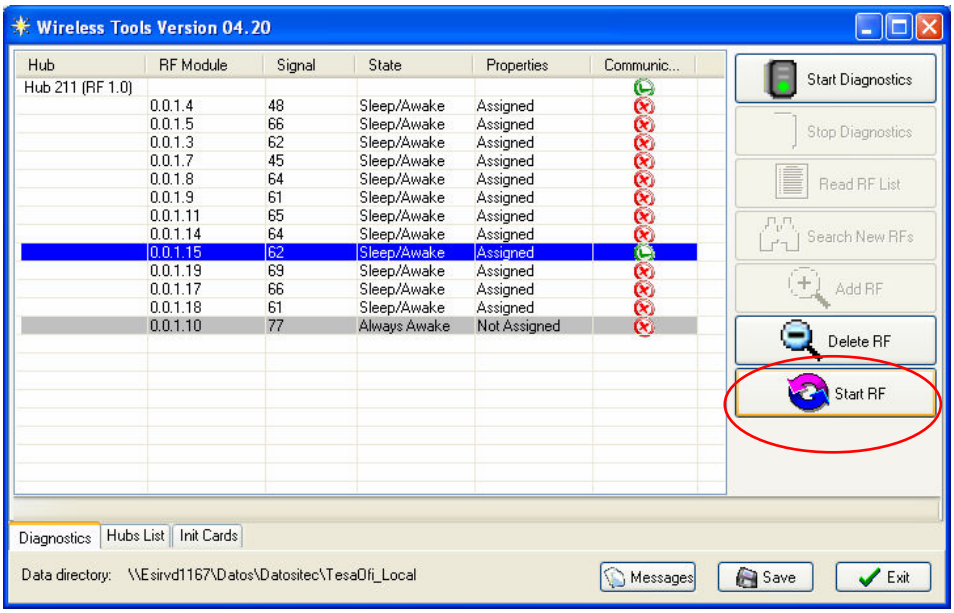
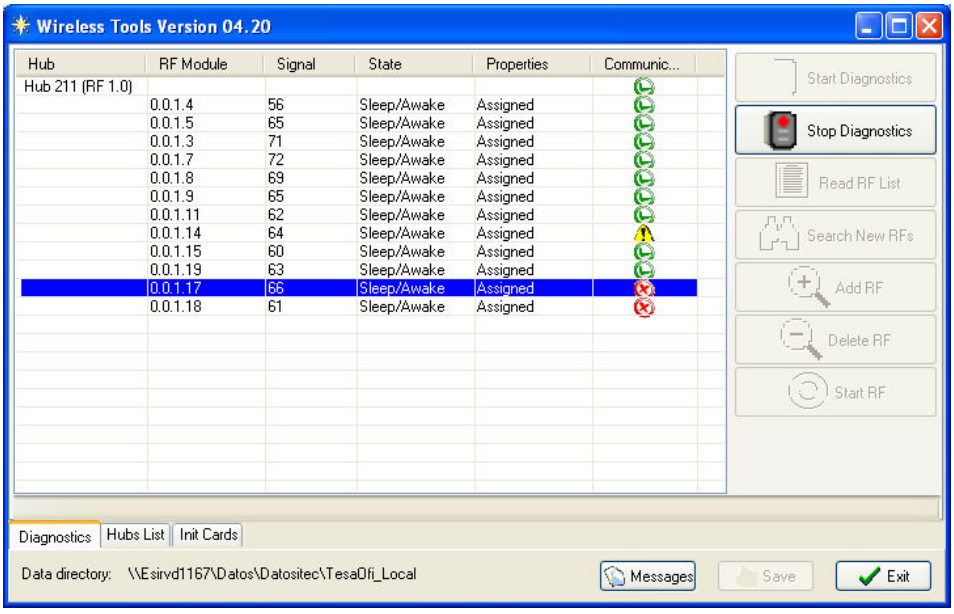


Figure 3-9 Start RF module

Now, the RF module initialization process is finished.

To be sure that all the RF modules are correctly communicating with the PC, we can run the diagnostic. If some of them are not communicating, we will see a yellow triangle.



4 UOL

4.1 UOL Doors management

Diagnostic of wireless locks will only show doors managed by hubs connected to this PC.

Clicking on main screen's wireless button the following screen appears:

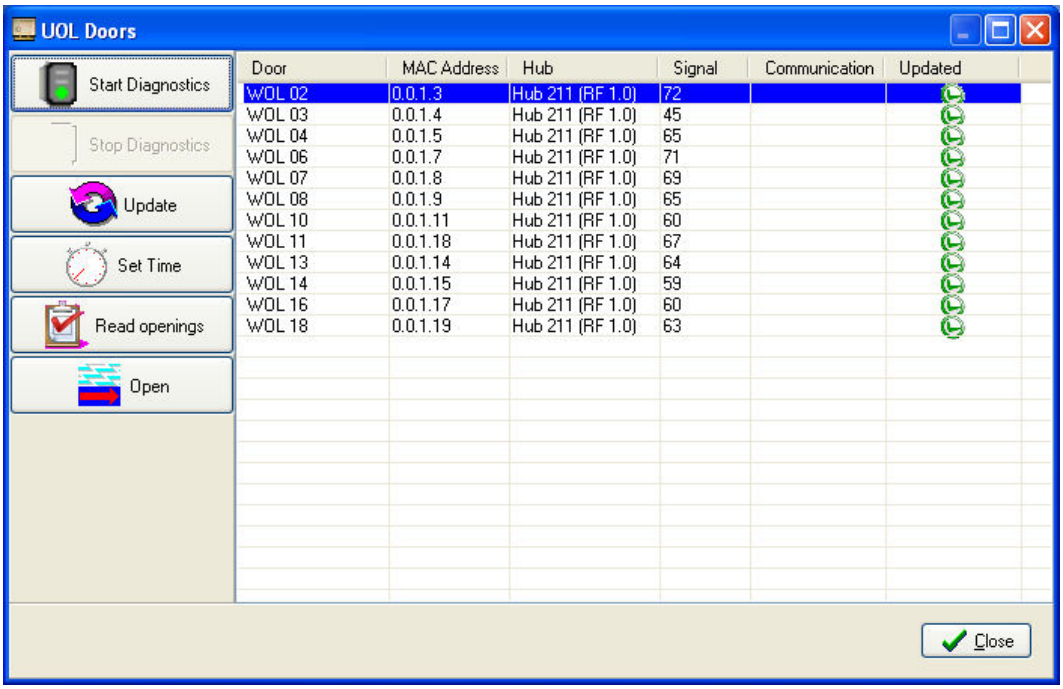


Figure 4-1 Wireless screen before diagnostics

Each line corresponds to an UOL door with a not null address and connected to a hub managed by this PC.

The "Communication" column will be filled after trying to connect to the lock.

The "Updated" column indicates if the lock has all the information or if changes have been made in the software and not still sent to the lock.

If we want to select more than one lock, we can click on the Ctrl key while selecting different rows.

If we want to select all the locks, we can click on the Ctrl + A key and all of them will be selected.

During the initialization process, it is recommended to Set Time all locks and then update all of them.

Those events should automatically refresh the "Openings" screen.

The “Start Diagnostics” button sends a round of diagnostic commands to each module.

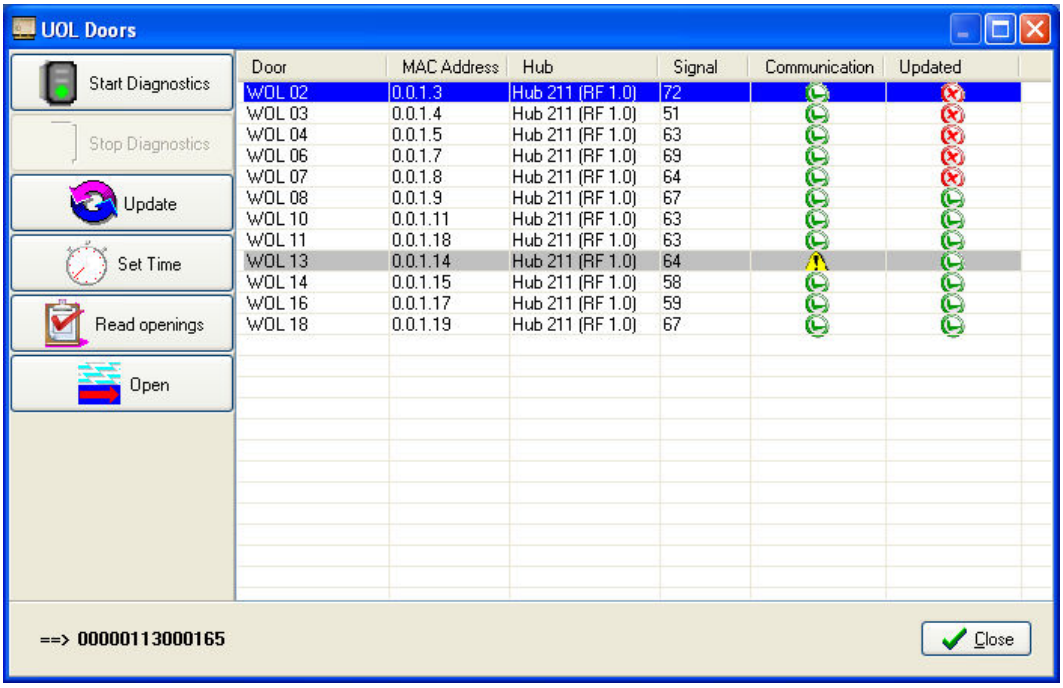


Figure 4-2 Wireless screen after diagnostics

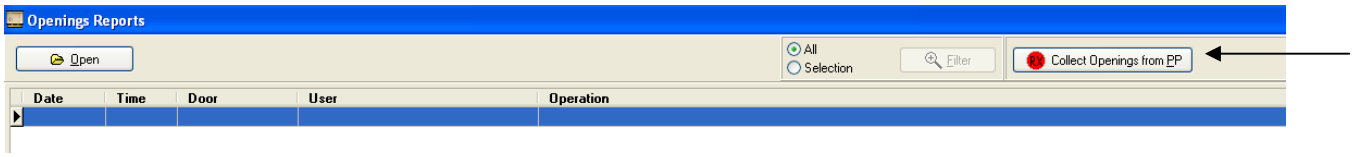
For the rest of the options, we must first select one or more and then:

- Click on the “Update” button to send modified information to the lock. Locks marked with a red-cross in the Update column indicate that their configuration (matrix, parameters, timetables) has been modified and therefore they must be updated.
- Click on the “Set Time” button to adjust the lock’s clock with PC values. It is recommended after battery changes.
- Click on the “Auditor” button to collect all the events form the lock’s memory. Usually this button is not used because events arrive automatically to the PC.
- Click on the “Open” button to remotely open a lock from the PC.

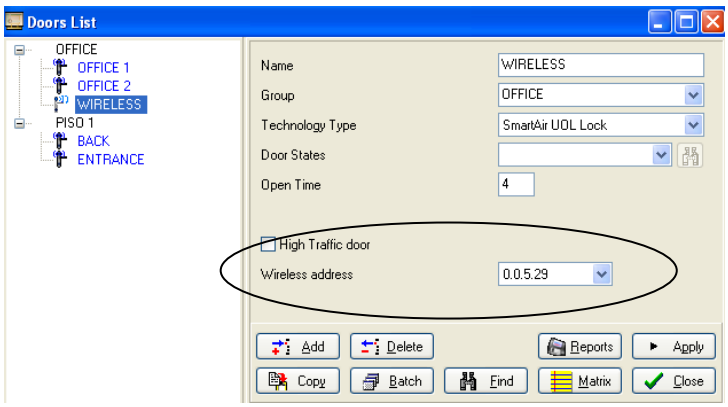
4.2 TS1000 Management

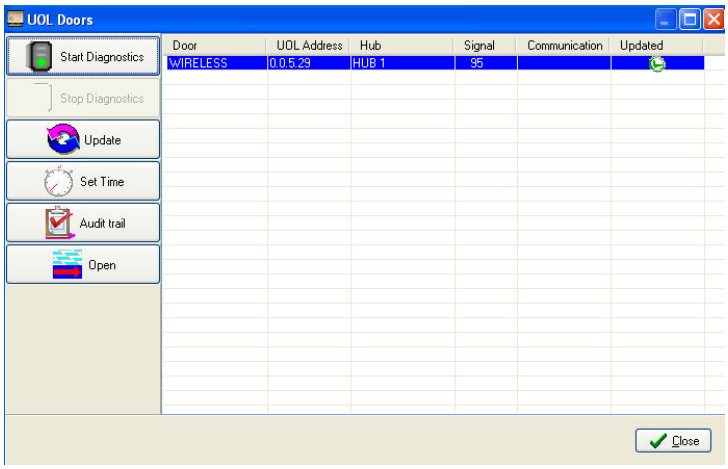
Once the HUBs have been fitted to the locks, close Wireless Tools and run TS1000 application.

Then, please access to the openings menu.and click on collect openings from PP.



With this operation the MAC addresses of the locks are transferred automatically to the PC and then will be marked in the doors menu of each Smartair Wireless door.





Now, to start click on Start Diagnostic and then the communication will start.

Start Diagnostic: button to check the communication process

Stop diagnostic: button to stop the diagnostic process

Update: button to force the update process of the locking plan in the

Set time: button to check the time

Audit Trail: button to force the lock to get the audit trails

Open: button to open remotely the lock

Once, the Wireless lock has been updated from this menu the lock will be able to receive the openings from the Smartair Wireless locks automatically in the openings menu with a delay of 5 seconds.

5 Conclusions

This is the manual of the Start up of the manual of an update on Line Locks. Nevertheless, it is important to take into account these points for the update On Line Functionality:

- These locks are Off Line locks which are able to be updated with Wireless technology. In case of having a drop in the Wireless network the locks will work as Off Line and not as Update On Card. After the drop the loss data will be sent again.
- It is suggestable to initiliase the lock with the locking plan completed in the matrix(like an Off Line lock)
- With Update On Line Wireless Locks the Update On Card functionality disappears. It means that is no necessary to have an updater in the system. Every change in the locking plan of the matrix is transferred to the lock, so when we add, delete, modify an user this information will be transferred to the lock automatically and then the user will have rights or not.